2021 Periodic Review Report for the Reynolds Metals Company, LLC

Massena East
New York
NYSDEC Site Code #645009

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June 2022

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Acronyms

µg/L	micrograms per liter
bgs	below ground surface
BMP	Black Mud Pond
BODR	Basis of Design Report
cm/sec	centimeters per second
COC	contaminant of concern
CSM	Conceptual Site Model
DQA	data quality assurance
FCR	Field Change Request
ft	foot or feet
HTM	heat transfer medium
ILF	Industrial Landfill
LCS	laboratory control sample
MCL	maximum contaminant level
MDL	method detection limit
mg/L	milligrams per liter
msl	above mean sea level
MS/MSD	matrix spike/matrix spike duplicate
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSWQS	New York State Water Quality Standards
O&M	operations and maintenance
OU	operable unit
PAH	polynuclear aromatic hydrocarbons
PCB	polychlorinated biphenyl
ppm	parts per million
PRR	periodic review report
PSP	Potliner Storage Pad
PVC	polyvinyl chloride
ROD	Record of Decision
SPDES	State Pollutant Discharge Elimination System
USEPA	United States Environmental protection Agency
VLDPE	very low-density polyethylene
WAD	weak acid dissociable



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1 Introduction

1.1 Intent of Document

This *2021 Periodic Review Report for the Reynolds Metals Company, LLC* was prepared by EHS Support LLC for Alcoa Corporation ("Alcoa") and Reynolds Metals Company, LLC and presents the results of the post-closure monitoring program conducted in 2021 at the Reynolds Metals Company, LLC facility (Site #645009) ("Site" or "Facility") in Massena, New York.

The following remediated operable units (OUs) are addressed in this report:

- Closed Industrial Landfill (ILF) (OU-1)
- Black Mud Pond (BMP) (OU-2)
- North Yard (OU-3)
- Wetlands (OU-4)
- Former Potliner Storage Pad (PSP) (OU-5)
- Miscellaneous areas including the Rectifier Yard (OU-6)

This report provides an overview of the hydrogeology and groundwater constituent concentrations. This report also documents, by OU, the post-closure monitoring activities and the ongoing implementation of institutional and engineering controls for the Facility.

This annual periodic review report (PRR) provides the following:

- Brief background summary for each remediated OU
- Summary of the activities that occurred at each OU during 2021
- Overall Site plan showing all the monitoring wells associated with the post-closure monitoring efforts
- Groundwater contour map for the spring and fall of 2021
- Summary of the analytical data collected during 2021
- Statistical analysis of the groundwater samples collected
- Review of the institutional and engineering control plan
- Certification of the institutional and engineering controls
- Findings and recommendations for future activities

1.2 General Information

The Site was formally owned and operated by Reynolds Metals Company as the St. Lawrence Reduction Plant. The Reynolds Metals Company St. Lawrence Reduction Plant ("Plant") was built in 1958 and ceased production in 2014. In the mid-1980s, the Reynolds Metals Company entered an Order of Consent with the New York State Department of Environmental Conservation (NYSDEC) to develop a remedial investigation and action plan to address contamination of the Facility. In 1992, NYSDEC issued a Record of Decision (ROD) that summarized the selected remediation activities for each of the hazardous waste sites, which are presently described as OUs. In 2001, Alcoa Inc. purchased the Reynolds Metals Company and took responsibility for post-closure activities. Reynolds Metals Company has remained a wholly owned subsidiary company.

Based on closure documents submitted to NYSDEC, the Site's timeline was as follows:

- Miscellaneous areas were closed in 1994.
- Remedial construction for the former PSP was completed in 1995.
- The BMP was closed in 1996.
- Remedial construction for the North Yard was completed in 1997.
- The ILF cap was completed in 2003.

During the Site closures, a series of monitoring wells were installed throughout the Plant. These wells now serve as the monitoring well network for post-closure activities. The OUs are shown in **Figure 1**. Construction details for the monitoring wells at the facility are shown in **Table 1**. The locations of outfalls regulated by the State Pollutant Discharge Elimination System (SPDES) are shown in **Figure 2** and a facility watershed map is provided in **Figure 3**.

1.3 Organization of Report

The remaining sections of this report provide the following information.

Section 2 summarizes the operation and maintenance activities performed and the monitoring requirements. **Section 3** summarizes the revised hydrogeologic Conceptual Site Model. **Section 4** through **Section 8** discuss the six OUs. **Section 9** provides the findings and recommendations from the post-closure monitoring program, and **Section 10** lists the works cited in this report.

Appendix A lists the required operations and maintenance (O&M) activities scheduled during 2021. **Appendix B** contains field sampling forms. **Appendix C** contains historical analytical data. **Appendix D1 through D3** contains a statistical analysis of analytical results. **Appendix E** contains data quality assessments for the 2021 sampling data. **Appendix F** contains the Institutional and Engineering Controls Certification Form. **Appendix G** contains cross sections developed from a revised hydrogeologic conceptualization for the Site. **Appendix H** provides a summary of historical groundwater gradient data and calculated groundwater flow velocities. **Appendix I** contains results from a sequential filtration study completed in 2021 aimed at understanding the nature and causes of constituent concentrations at the Site. The 2021 study's findings and conclusions are discussed throughout this report; therefore, a summary is provided in **Section 1.3.1** for added context. **Appendix J** contains historical precipitation data. **Appendix J** provides daily precipitation data for 2021.

1.3.1 2021 Sequential Filtration Study Summary

Appendix I describes the results of additional groundwater geochemical characterization completed in 2021. Several unfiltered samples were collected between June 29 and July 1, 2021, for cation and anion analyses to refine the conceptual Site understanding of the groundwater flow pathways. It was recognized that suspended sediment and clay particles were elevated in several samples due to the agitative groundwater sampling practice used at the Site (i.e., use of a Waterra® pump). This result indicated that possible biases on historical analytical results that warranted further attention. Additional groundwater samples were collected between November 29 and December 2, 2021, to address this issue and opportunistically address identified data quality objectives (DQOs). The following conclusions were drawn from the study:

1. Historical and current total aluminum results are not representative of water quality at the Site. Historical detections are due to particulates dissolved by acid used to preserve samples.
2. Dissolved aluminum results are typically low to non-detect; therefore, in most cases it is not possible to determine concentration trends over time.
3. Variable fluoride concentrations were measured at locations where some of the highest results are recorded (e.g., wells MW-18S and MW-42), are likely due to the agitative sampling technique disturbing sediment in wells and affecting water quality, and/or sampling of partially stagnant water. It is recommended that sampling procedures be reassessed.
4. Differences in the ionic ratios (fluoride to sulfate) show that the composition of groundwater (and fluoride concentrations) differ significantly between the fine, diffusion-dominated system and the coarser advection-dominated system.
5. There is a high bias on historical fluoride results from the Ion Chromatography analytical method compared to the Ion Selective Electrode analytical method at several wells, likely due to interference by carbonate ions. This is most apparent in groundwater samples with high pH at values near or above pH 8.
6. Gradients at the ILF perimeter trench piezometers indicate surface water flow toward the perimeter drain. Mass balance data confirm substantial (80 to 86% mixing of a wetland surface water component with a 15 to 20% leachate component in the perimeter trench, indicating containment is effective.

2 Operations, Maintenance, and Monitoring Requirements

Following closure of the six OUs listed in **Section 1.1**, the Reynolds Metals Facility has complied with the post-closure requirements found in Title 6 of the New York Codes, Rules, and Regulations (NYCRR) Part 373-2.14(g) (2), including maintenance and monitoring throughout the post-closure care period. The applicable regulations include the following:

- Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events.
- Maintain and monitor the groundwater monitoring system and comply with all other applicable requirements.
- Prevent run-on and runoff from eroding or otherwise damaging the final cover systems.
- Protect and maintain surveyed benchmarks.

A summary of the O&M schedule is provided in . Details on the post-closure requirements specific to each OU are provided in **Section 4** through **Section 8**.

2.1 Post-Closure Monitoring

Table 1 provides monitoring well construction details. **Table 2** outlines the groundwater monitoring schedule and lists the monitoring wells assigned to each OU included in the post-closure monitoring program. **Figure 4** and **Figure 5** show the Site-wide Spring 2021 and Fall 2021 groundwater elevation contours. **Figure 4** and **Figure 5** show the locations of the wells monitored as part of the post-closure monitoring program. Further details on the monitoring program are provided in **Section 2.1.1** through **Section 2.1.5**.

2.1.1 Water Level Measurements

Groundwater elevations were measured monthly, quarterly, or semiannually in 2021 at designated monitoring wells and piezometers near each of the relevant OUs (ILF, BMP, PSP, North Yard, and Rectifier Yard) during the post-closure monitoring sampling events. Site-wide groundwater elevations for Spring 2021 and Fall 2021 are shown in **Figure 4** and **Figure 5**, respectively. Field sampling forms are provided in **Appendix B**.

2.1.2 Groundwater Sampling and Analysis

The post-closure groundwater monitoring program was performed in 2021 as summarized in **Table 2**. The monitoring locations associated with the ILF are sampled quarterly, while the remaining areas are sampled semiannually. All analyses were performed by Alpha Analytical in Westborough, Massachusetts. Alpha Analytical subcontracted weak acid dissociable (WAD) cyanide analysis and select total cyanide analysis to ALS Environmental in Rochester, New York for all four rounds of sampling in 2021.

CDM Smith completed all well gauging and groundwater sampling, including the collection of field parameters (pH, temperature, specific conductance, turbidity, and redox potential) during purging and groundwater sampling.

2.1.3 Data Evaluation and Assessment

Historical groundwater analytical data is provided in **Appendix C**, and an evaluation of statistical trends is provided in **Appendix D1 through D3**. The groundwater monitoring data provided in the sections for each OU (**Section 4** through **Section 8**) is evaluated relative to post-closure monitoring requirements; remedial action objectives; available standards, criteria, and guidelines; and historical trends. In the sections covering the individual remediated OUs, reference is made to the NYSDEC Class GA Groundwater Standards outlined in **Table 2-1**.

Table 2-1 New York State Class GA Groundwater Standards

Chemical	Concentration
Cyanide	0.2 mg/L
Fluoride	1.5 mg/L
Sulfate	250 mg/L
Total PCBs	0.09 µg/L

µg/L = micrograms per liter
mg/L = milligrams per liter
PCB = polychlorinated biphenyl

Total and dissolved aluminum and WAD cyanide were also monitored. Note that cyanide was analyzed as total cyanide. Free cyanide, the form most likely to exhibit toxicological effects, was not analyzed for. The NYSDEC groundwater standard for cyanide, promulgated in 1998, is based on the U.S. Environmental Protection Agency (USEPA) maximum contaminant level (MCL) goal of 0.2 mg/L as there is no specific MCL for cyanide in New York State (USEPA, 1998). As noted in the USEPA clarification of free and total cyanide analysis for safe drinking water act (USEPA, 2020), the USEPA MCL limit of 0.2 mg/L applies only to free cyanide. There are no Groundwater Class GA standards established for total aluminum, dissolved aluminum, and WAD cyanide. Recommendations for sampling and analysis moving forward are provided in **Section 9.8**.

2.1.4 Data Quality Review

Data quality assessments are conducted by CDM Smith using the analytical results provided by the laboratory (**Appendix E**).

Project-generated quality control samples (i.e., field duplicates and field blanks) were reviewed and included in the data quality assessment.

Additionally, the following quality control methods and/or data were reviewed for each sample event:

- Laboratory method blank results
- Matrix spike/matrix spike duplicate (MS/MSD) samples
- Surrogate spike recoveries
- Laboratory control samples (LCS)
- Sample holding time summaries
- Sample receipt conditions

The complete data quality assessments for the March, June, September, and December 2021 sampling rounds are included in **Appendix E**. Details regarding the data qualifiers are included in the letters provided in **Appendix E**.

2.1.5 Precipitation Data

To support the assessment of groundwater elevations and concentration trends, precipitation and other weather data are collected daily at the Massena International Airport weather station (Menne et al., 2012). The daily and cumulative precipitation data for 2021 is included in **Appendix J**.

2.1.6 Monitoring Data

Historically, PRR reports have evaluated whether there are statistically significant increasing or decreasing concentration trends at monitored locations using the Sen's Slope Estimator method applied to the entire monitoring record. This approach does not account for major remediation actions or operational changes (i.e., plant closure) that have occurred over the course of the monitoring record. To demonstrate how a shortened timeframe for statistical analysis affects results, Mann-Kendall analysis is applied to two scenarios: 1) the entire monitoring record, and 2) for this report, the monitoring record from the following key remediation action dates:

- BMP – leachate transfer line upgrade (May 2004)
- ILF – perimeter trench put into operation (2003)
- PSP – 120 yards of soil excavated (September 1999)
- North Yard – soil excavated (November 2001)

Note, the above remediation dates used in this report are for demonstrating proof of concept, and an appropriate timeframe for statistical analysis to be used in future annual reports will be evaluated during 2022.

Trend analyses have historically been completed for total and dissolved aluminum results. In 2021, additional analyses were completed to assess causes of historical total aluminum detections (**Appendix I**). It was determined that historical total aluminum detections are caused by the acid preservative digesting clay particles from elevated suspended sediment concentrations in the samples. Additionally, dissolved aluminum results are typically low to non-detect and there is no regulatory criteria for aluminum in groundwater. Consequently, trend analyses are not completed for total or dissolved aluminum, and it is recommended that analyses of these components be discontinued.

Conclusions drawn from additional geochemical sampling in 2021 with implications for the groundwater monitoring program are documented in **Appendix I**. The following is a summary of the conclusions from **Appendix I**:

1. Elimination of total aluminum from the analytical program is recommended.
2. Elimination of dissolved aluminum from the analytical program is recommended.
3. A review of sampling practices is recommended.
4. The composition of groundwater (and fluoride concentrations) differ significantly between the deeper, low permeability diffusion-dominated system and the upper, higher permeability advection-dominated system. Higher fluoride concentrations in low permeability deposits do not represent significant flux due to the very limited advective flow.

5. There is a high bias on historical fluoride results from the IC method compared to the ISE method in groundwater samples with high pH at values near or above pH 8. At this time, we do not recommend changing in the fluoride analytical method. However, re-evaluation of the representativeness of the fluoride analytical technique is recommended at a future juncture.
6. Gradients at the ILF perimeter trench piezometers indicate surface water flow toward the perimeter drain. Mass balance data confirm substantial (80 to 86% mixing of a wetland surface water component with a 15 to 20% leachate component in the perimeter trench, hence, containment is effective.

3 Hydrogeologic Conceptual Site Model

This section summarizes the updated hydrogeologic Conceptual Site Model (CSM) for the Site and a summary of 2021 monitoring data in the context of this model.

3.1 Hydrogeologic Conceptual Site Model

3.1.1 Regional Geology

Overburden deposits in the Site vicinity formed from a combination of glacial, lacustrine, and marine processes that primarily occurred during the Pleistocene and extended into the Holocene. Despite notable differences in the genesis and hydraulic properties of the various glacial, glaciofluvial, lacustrine, and marine sediments in St. Lawrence County, the deposits are collectively referred to as till (USDA, 2005). This is in part because subsequent deposits are derived from erosion and redeposition of the glacial till. To avoid confusion from the use of generic terminology, the term 'glacial till' is reserved in this report to distinguish deposits that were deposited directly by ice and have distinctively low permeability.

Glacial till is the stratigraphically lowest and oldest overburden deposit present in the Site vicinity. Glacial till was deposited directly on bedrock during the Wisconsin Glaciation when the Laurentide Ice Sheet extended far south of the Site vicinity (MacClintock and Stewart, 1965; USDA, 2005). The glacial till consists of 1-to 50-meter-thick deposits of poorly sorted (diamict) and typically silty clay till with boulders in the Site vicinity, and frequently forms hills (ribbed moraines) that rise above flat-lying topography. The till is typically very low permeability where compacted by pressure from overlying ice, although permeability may be locally variable (Caldwell and Pair, 1991).

Following retreat of the Laurentide ice sheet between 10,000 and 12,000 years ago, several iterations of glacial lakes formed, the most notable being glacial Lake Iroquois. Glacial Lake Iroquois was in the same approximate location as Lake Ontario but was much larger than Lake Ontario. At the maximum high stand of Lake Iroquois, the Site was within the lake footprint (Bird and Kozlowski, 2016). Wave action from glacial lakes eroded the upper several feet of glacial deposits, forming gravel, cobble, and boulder deposits by the erosive winnowing processes that removed clay, silt, and fine sand particles from the glacial till (Carl, 1978; MacClintock and Stewart, 1965; Denny, 1974).

During lake-level high stands, flat-lying, deep-water lacustrine deposits consisting of laminated (varved) clay and silt were deposited on top of glacial till. During lake level low stands, shallow-water lacustrine deposits consisting of sand present in thin, widespread sheets and pebbly sand were deposited along post-glacial lake/marine shorelines. Both clay and sand lacustrine deposits frequently include ice-rafted boulders, which may lead to misinterpretation of these deposits as primary or winnowed glacial till. Beyond the shoreline, fluvial sand was deposited by flowing water on floodplains (MacClintock and Stewart, 1965; Denny, 1974; Pair and Rodriguez, 1993).

Following drainage of the various glacial lakes, a period of marine transgression occurred (Champlain Sea) that is represented by a transition from laminated clay and silt to massive clay deposits that are frequently associated with marine shell fossils and marine beach deposits (Pair and Rodriguez, 1993; Lewis and Todd, 2018). Marine shell fossils are identified in several Site borings.

Most recently, erosion by the St. Lawrence and Raquette Rivers has modified topography by incising into glacial till, lacustrine clay, and marine deposits. Rivers have provided a veneer of fluvial sediments consisting of sand and silt with gravel, particularly between the Raquette River and Highway 37 (ATL, 1972). Based on review of Site monitoring well logs, similar deposits (previously described as till) are likely also present adjacent to the St. Lawrence River.

3.1.2 Site Geology

Descriptions of Site geology are provided by ATL (1972), Calocineros & Spina (1985), and in the Phase I Remedial Investigation (Woodward Clyde, 1988) with additions and revisions provided in the Final Remedial Investigation Report (Woodward Clyde, 1990). Review of historical Site reports and boring logs identifies the following lithology at the Site:

- Fill (1.4×10^{-1} to 4.6×10^{-2} centimeters per second [cm/sec]) – primarily in the PSP and North Yard.
- Lacustrine Deposits (6.5×10^{-5} to 1.0×10^{-10} cm/sec) – primarily beneath the ILF.
- Marine/Lacustrine Orange-Brown Sand (1.0×10^{-3} cm/sec) – on the northern edge of the BMP.
- Grey Glacial Till (1.1×10^{-4} to 4.86×10^{-9} cm/sec) – Site-wide.

No hydraulic conductivity values are available for the alluvium. The general stratigraphic relationship of these deposits is provided in **Figure 3-1**. Updated descriptions of deposits identified at the Site are provided, and cross sections illustrating geologic relationships are provided in **Appendix G**.

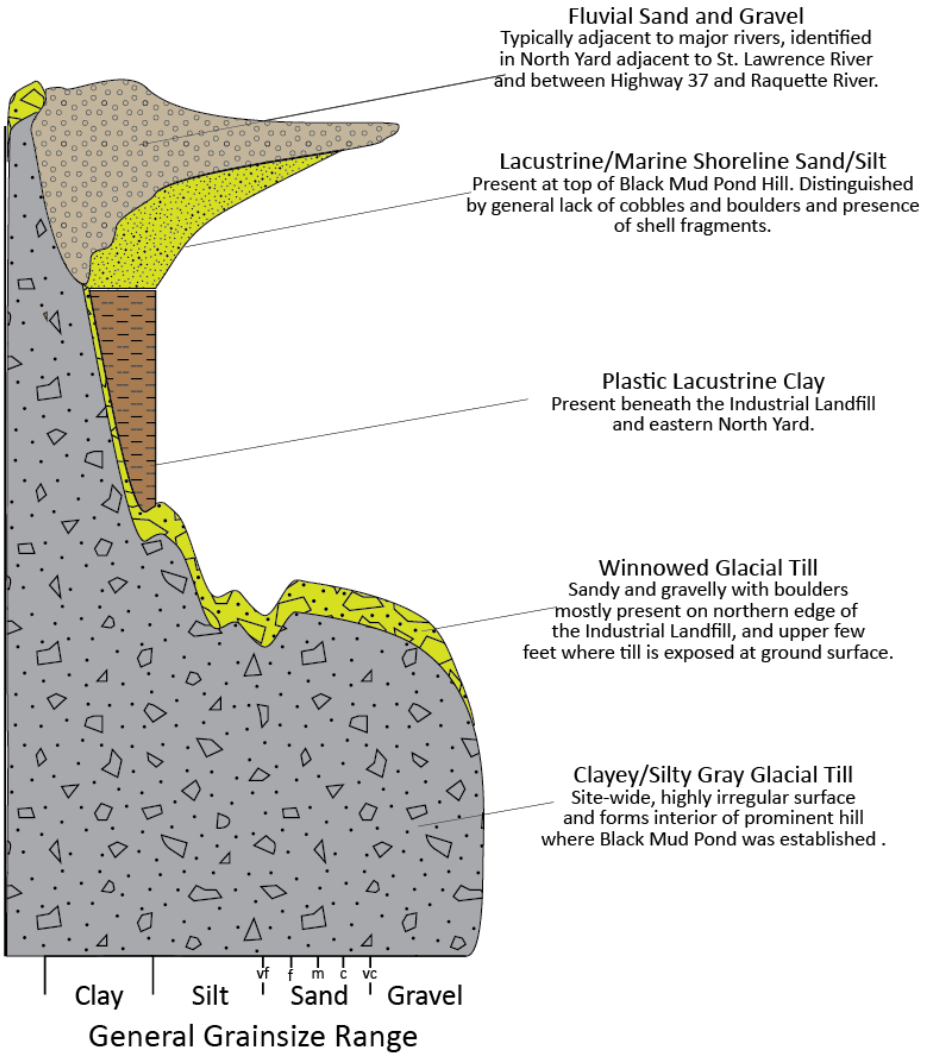


Figure 3-1 Schematic stratigraphic section showing relationships and generalized grainsizes of deposits identified at the Site.

Gray Glacial Till

The prominent topographic feature at the Site is an elongated, northeast-southwest oriented ridge located in the western portion of the Plant. Based on morphology the feature formed as a ribbed moraine. Most borings completed on the BMP ridge encountered gray glacial till at an elevation of about 225 to 235 feet above mean sea level (ft msl). Grey glacial till is encountered at lower elevations beneath the ILF. Gray glacial till is stratigraphically the lowest unit encountered at the Site and has highly variable surface topography due to the glacial origin. At the BMP ridge, the glacial till generally consists of grey silty clay or clayey silt with cobbles and boulders and has an average permeability of 10^{-6} cm/sec (Calocerinos & Spina, 1985).

At the northernmost extent of the facility on the western edge of the North Yard, grey glacial till is encountered at about 10 ft below ground surface (bgs) (at approximately 200 ft msl) beneath MW-43 and MW-44, which is based on the occurrence of boulders, the density of the material, and the color.

The grey glacial till dips eastward below the lacustrine/marine clay. Low quality boring logs from the PSP and North Yard identify the entire section in these areas as "till" (**Appendix G**). However, based on stratigraphic relationships and soil descriptions, coupled with contradictory descriptions from nearby high-quality piezometer logs completed more recently by ATL and CDM Smith, it is assumed that the term "till" on these logs is the colloquial usage of the term. Instead, the descriptions from more recent high-quality well logs support interpretation of the deposits as more permeable sandy lacustrine/marine shoreline deposits.

Winnowed Till

Downslope to the south of the BMP at the upgradient edge of the ILF where glacial till is present beneath topsoil or exposed at ground surface, the gray till unit is described as sandy and there is a higher incidence of cobbles and boulders as reported on the 2010 to 2012 logs for extraction wells EW-01 through EW-06. Whereas glacial till is logged immediately upgradient of the ILF where groundwater extraction wells EW-01 through EW-06 were installed, 250 feet south of the extraction wells and beneath the ILF, the glacial till is no longer encountered and plastic clay is exclusively encountered. It is assumed that the till dips beneath the lacustrine clay beneath the ILF. Based on the coarse grainsize, exposure at or near the ground surface, and proximity to lacustrine/marine deposits at the upgradient edge of the ILF where extraction wells were installed, the glacial till is likely winnowed by lake/marine wave action in this location and deposits are more permeable than undisturbed glacial till.

Lacustrine/Marine Clay

Regionally, lacustrine clay is typically encountered at low points surrounding glacial ridges and drumlins. At the Site, lacustrine clay is identified at the base of the BMP ridge beneath the ILF, beneath the North Yard, and possibly at the PSP.

At the ILF, lacustrine clay is described beneath refuse on the logs for borings LFB-1 through LFB-5, LFBB-1 through LFBB-4, and TB-4 (Woodward Clyde, 1990). Lacustrine clay is also identified at the southern edge of the ILF in the logs for wells MW-39S, MW-40S (shells identified in upper 5 feet of soil), PZ-7, and PZ-11. The lacustrine clay is distinctive from glacial till clay intervals in that they are typically brown rather than gray in color, distinctively plastic, contain organic matter and shells, and intervals of gravel, cobbles, and/or boulders are rare or absent[1]. The permeability is also typically much lower than glacial till (as low as 1.0×10^{-10} cm/sec). The presence of this clay unit beneath the ILF likely prevents downward percolation of landfill-impacted groundwater, but also provides a surface over which groundwater may flow to the lowest point. The lowest point is likely the southwest corner of the ILF, an area that was excavated as part of the Wetland OU-4 remediation before closure and capping of the ILF.

At the BMP, plastic lacustrine clay is also tentatively identified in the logs for borings MPOF1403D and MPOG1603D in a thin interval directly underlying the refuse and overlying gray glacial till. The logs identify the plastic clay immediately beneath the BMP as glacial till; however, the occurrence of the laterally adjacent lacustrine/marine silty sand identified in nearby wells MW-12D and MW-13S and the stratigraphic position above the glacial till, coupled with the high plasticity, suggest a lacustrine or marine origin. The implication is that hydraulic conductivity beneath the BMP may be substantially lower

[1] Note, ice-rafted gravel and boulders are periodically encountered in lacustrine/shallow marine deposits in this area, so the occurrence is not a definitive indicator of glacial till.

than the lateral hydraulic conductivity to the west at MW-13S and north at MW-12S, favoring lateral groundwater flow in these locations and restricting vertical groundwater flow.

In the central North Yard area, MW-17S and MW-19S flank the former Pitch Pump House and intercept 2 to 4 feet of reworked 'till' fill. The fill material is underlain by several feet of silty clay with occasional boulders that are interpreted on the log as brown till. Based on the brown color and ground elevation (between 210 and 220 ft msl), this unit is likely shallow lacustrine or marine deposits identified at a similar elevation (200 to 220 ft msl) underlying the ILF to the south. This interpretation is supported by identification of shell fragments at 7 ft bgs within a silty sand unit in the log for North Yard monitoring well MW-16S located south of the Pitch Pump House.

Depth to groundwater in the North Yard varies from approximately 2 to 15 ft bgs. North of the Pitch Pump House, shallow groundwater flows to the north to discharge to the St. Lawrence River. Shallow groundwater flow conditions south of the Pitch Pump House are much more complex due to the existence of backfilled utility trenches and French drains in this area. Based on measured groundwater levels, groundwater flow conditions in this area are affected by the presence of these structures. However, the extent to which the trenches and drains influence groundwater flow is not known at this time. The average groundwater velocities in the North Yard utility trenches have been estimated at 2,900 feet/year. The average permeability of the fill material in the North Yard has been found to be approximately 1.4×10^{-1} cm/sec. The underlying till average permeability has been found to be approximately 5×10^{-4} cm/sec.

Lacustrine/Marine Silt and Silty Sand

The log for boring MW-12D[2] shows at least the uppermost 8 feet of sediment on the BMP ridge consists of silt and silty sand with varying proportions of sand and gravel that contain shell fragments. The permeability of the unit (1.0×10^{-3} cm/sec at MW-13S; Woodward-Clyde, 1990) is substantially higher than the measured permeability on samples of the underlying till (average of 1.0×10^{-6} cm/sec). Similar deposits without shell fragments on the BMP ridge are described in the logs for PZ-32 through PZ-35, PZ-37, PZ-38, PZ-41 through PZ-43, MW-12S, MW-13S, MW-13D, MW-14S, MW-15D, and MW-15S.

Calocerinos & Spina (1985) describe soils in test pits around the BMP as wave-washed 'winnowed' till with an abundance of marine pelecypod shell fragments that marks a former shoreline of the Champlain Sea. The deposit was not identified in the borings for MW-22-85S/D or MW-23-85S/D, however, these logs are of low quality as deposits are identified as 'till' without providing supporting soil descriptions or drilling methods. The abundance of detrital material (shells) and lack of cobbles and boulders[3] indicates that the upper approximately 8 to 10 feet is unlikely 'winnowed till' (wave-washed till where fines have been removed) and was more likely directly deposited from a lacustrine or marine environment. Consequently, the hydraulic conductivity in this unit is high and is a key control on the Site groundwater flow regime.

At the PSP, the log for PZ-28 identifies an interval from 8 to 10 ft bgs of coarse sand with shells. A similar sand interval without shells is identified at the following:

- 12 to 16 ft bgs in PZ-23

[2] Boring logs available upon request.

[3] Note: winnowing of till by wave action from glacial lakes physically removes fines but does not have the transport capacity to displace coarse grained material, particularly the boulders that are commonly present in glacial till at the Site.

- 5 to 10 ft bgs in PZ-24
- 8 to 12 ft bgs in PZ-25
- 8 to 9 ft bgs in PZ-27
- 8 to 9.5 ft bgs in PZ-29
- 8 to 9.1 ft bgs in PZ-30
- 6 to 8 ft bgs in PZ-31

These logs are identified as high quality due to the continuous sampling technique and inclusion of soil descriptions, and thus are more reliable than the surrounding low-quality monitoring well logs. While it is not certain that this material is fill derived from the BMP borrow pit, the unit is not identified as such on the logs and is conceivably an extension of the high permeability lacustrine/marine deposit identified at the crest of the BMP ridge. Regardless of whether the deposit is *in situ* or emplaced as fill, it is widespread in the PSP area and the coarse-grained composition provides a relatively high-permeability pathway for groundwater flow. If the unit is contiguous between the BMP and PSP, as would be expected for an *in-situ* unit, it would provide a relatively high permeability pathway for groundwater migration between these OUs. At the same time, the shallow permeable units also facilitate substantial concentration reductions (attenuation) through infiltration of precipitation and snowmelt over the intervening space between the OUs.

Fluvial Deposits

North of the Pitch Pump House and adjacent to the St. Lawrence River (borings MW-36S, MW-37S, and MW-38S), the area is underlain by about 4 feet of fill, and an interval of cobbles and boulders to 12 ft bgs that is interpreted here as fluvial in origin due to the stratigraphic position overlying plastic clay that is interpreted as lacustrine or marine in origin. Fluvial deposits have also been identified through drilling investigations between Highway 37 and the Raquette River (ATL, 1972).

Fill

Excavation and fill activities occurred at the Site during construction of the facility and during remediation activities. Exclusive of refuse placed in the BMP and ILF, fill was typically obtained locally from borrow pits at the Site. The largest area of grading occurred at the main facility where pot rooms were operating. Primary areas of excavation for remediation occurred at the PSP and North Yard areas. Fill material in these locations typically has a relatively high permeability of 1.4×10^{-1} to 4.6×10^{-2} cm/sec (Woodward Clyde, 1990). The West Ditch Outfall lies between the PSP and the St. Lawrence River and was remediated with the additional OU-6 areas.

Key elements of the updated geologic model are shown in **Figure 3-2**.

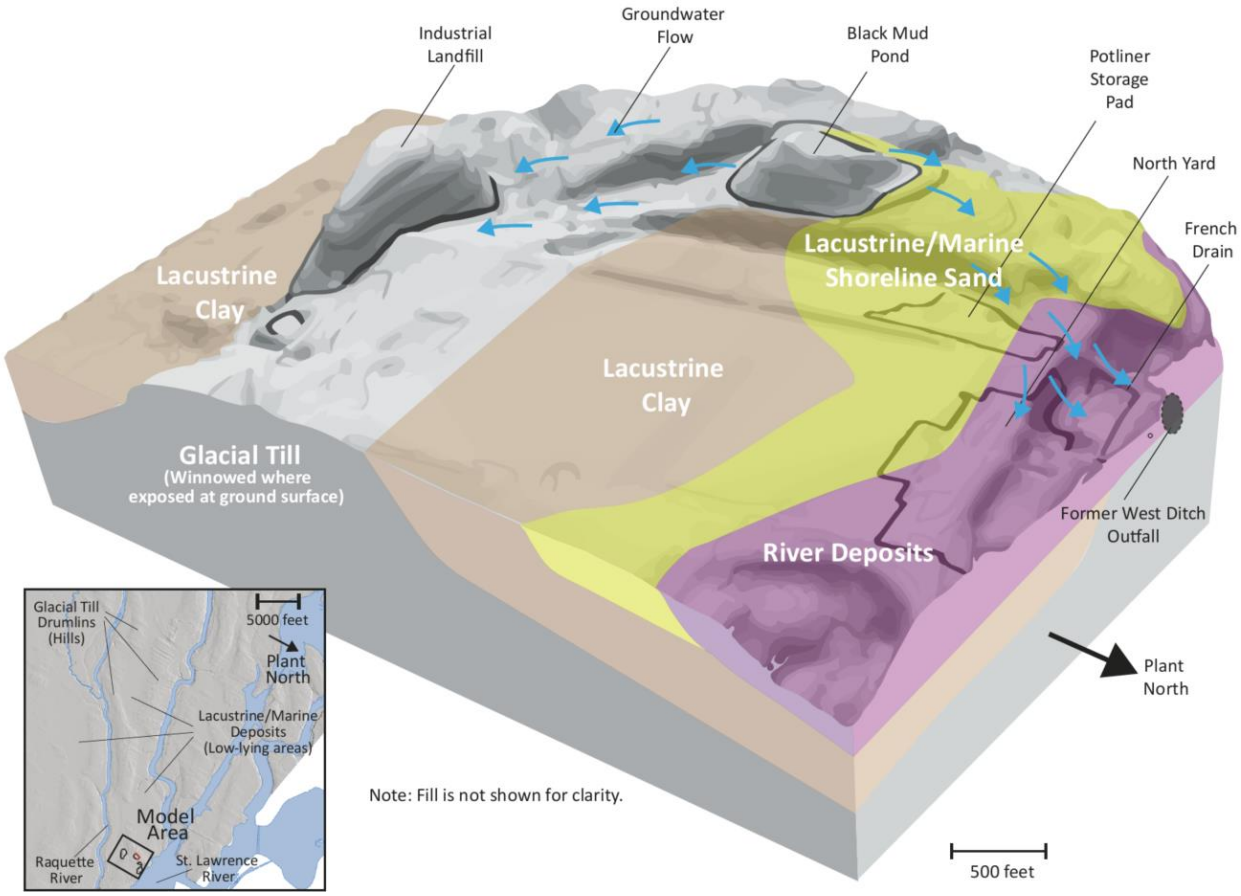


Figure 3-2 Revised conceptualization of Site geology

Note: The areas of construction and remediation fill are not shown to provide clarity for the geologic relationships. Figure is not to scale and is vertically exaggerated. Spatial locations of **units are highly generalized and for illustrative/conceptualization purposes only**.

3.1.3 Hydrogeology

Groundwater at the Site is recharged by precipitation, as is apparent in the seasonal variations of groundwater elevations. Conceptually, precipitation and snowmelt infiltrate into more permeable surficial deposits (winnowed till, lacustrine/marine silt and silty sand, fluvial deposits, and fill). This recharge results in some lateral flow from the areas of residual contamination, but also provides for reductions in concentration from infiltration downgradient of source areas.

Two primary groundwater flow pathways are present at the Site; both originate at the BMP. One flow pathway is south toward the ILF and the other flow pathway is northward toward the St. Lawrence River. Shallow groundwater also flows westward from the BMP toward the wetland located west of the BMP. The revised understanding of the groundwater flow system implies that downward vertical groundwater infiltration into glacial till is limited, and that lateral groundwater flow within the glacial till is minimal. This is critical in terms of the contaminant transport as only vertical migration of groundwater and/or diffusion can account for contaminants detected in the glacial till.

Lateral Groundwater Flow

Surficial deposits that blanket grey glacial till are the primary pathways for lateral groundwater flow based on hydraulic conductivity values. Consistent with surficial deposits controlling lateral groundwater flow, the water table is observed to mimic surface topography (**Figure 4** and **Figure 5**). This is particularly apparent in cross sections A-A' of the BMP and F-F' of the North Yard, which show the water table is located within these surficial units (**Appendix G**). These lines of evidence reinforce that downward vertical groundwater infiltration into glacial till is limited, and that lateral groundwater flow within the glacial till is minimal.

Vertical Groundwater Flow

Vertical groundwater gradients have been historically assessed at eight shallow/deep well pairs in the vicinity of the BMP:

- Well clusters MW-22 (MW-22-85S and MW-22-85D) and MW-12 (MW-12S and MW-12D) located directly north of the BMP.
- Well cluster MW-13 (MW-13S and MW13D) located northwest of the BMP.
- Well cluster MW-23 (MW-23-85S and MW-23-85D) located on the western side of the BMP.
- Well cluster MW-21 (MW-21-85S and MW-21-85D) located east of the BMP.
- Well cluster MW-15 (MW-15S and MW-15D) located south of the BMP.
- Well cluster MW-20 (MW-20-85S and MW-20-85D) located south of MW-15.
- Well clusters MPOF1402S/MPOF1403D and MPOG1601S/MPOG1603D (MPOF and MPOG well clusters) located within the capped area of the BMP.

In addition to these well pairs, data is also available to assess vertical groundwater gradients at well pair MW-45/MW-47 downgradient of the ILF, and well pairs MW-43/MW-44 and MW-42/MW-35SR in the North Yard.

In the interior of the BMP, the shallow and deep MPOF well pair screens are separated by several feet of clay that prevents vertical groundwater flow; therefore, apparent upward vertical gradients that have been historically reported reflect the efficacy of the BMP underdrain system for dewatering the interior of the BMP and the isolation of the interior of the BMP by the clay layer from confined groundwater beneath the BMP.

The average vertical hydraulic gradient over the digitally available water level record was calculated for all locations except the MPOF and MPOG well pairs (**Appendix H**) and shows that on average the vertical hydraulic gradient is flat to downward at all locations.

Generally, the greatest downward vertical groundwater gradients are observed in drier months. It is emphasized that these are vertical gradient potentials and should not be taken to imply that appreciable vertical seepage is occurring without consideration of the geologic framework. The existence of vertical gradients is often an indication of a resistance to flow. Critically, shallow wells are screened within more permeable units or across the interface of these deposits and the underlying lower permeability glacial till and lacustrine/marine clay deposits. An estimate of vertical seepage velocity is provided in **Appendix H.** The results shows that the time for 10 feet of vertical seepage ranges from hundreds of years to tens of thousands of years. This result is consistent with the hydrogeologic conceptualization whereby

impacts in till are diffusion driven, and primary groundwater flow is lateral and within more permeable surficial units.

3.2 Precipitation

Annual precipitation data from 2021 is included as **Appendix J**. The annual precipitation rate from 1990 to 2020 averaged 33.94 inches per year. In 2021 the Massena area received 29.30 inches of precipitation, 4.64 inches less than the average annual amount. Monthly precipitation during 2021 ranged from 0.59 inches (May) to 5.34 inches (July). Variation in the amount and timing of precipitation affects the amount of groundwater recharge and, therefore, produces changes in water level elevations, particularly in the shallowest and most permeable units. The largest monthly precipitation measurements in 2021 were recorded during the months of June, July, and October.

3.3 Groundwater Elevations

During the post-closure sampling events, groundwater elevations were measured at select monitoring wells and piezometers throughout the Facility. Groundwater elevation contours using data from the shallow wells and piezometers collected in Spring 2021 (April) and Fall 2021 (August) are presented in **Figure 4** and **Figure 5**, respectively. These figures were developed from the measured groundwater elevations presented in **Table 3** through **Table 6**

In general, groundwater elevations are highest at the north side of the BMP and decrease outward toward the St. Lawrence River to the north, the wetlands south of the ILF, east to the Plant, and to the west. The hydraulic heads in the BMP are affected by a low permeability barrier that was constructed around the unit which resulted in mounding. Further discussion on the groundwater elevations and hydraulic gradients for each OU are discussed in **Section 4** through **Section 8**.

Groundwater elevation contours, **Figure 4** and **Figure 5**, indicate a groundwater divide near the northwest corner of the BMP. The presence of a groundwater divide in this area is partially associated with the low permeability barrier wall that was constructed on the northern and western sides of the BMP as well as the Site surface topography (Calocineros & Spina, 1985).

4 Industrial Landfill (OU-1)

The 11.5-acre ILF is located south of the former production area of the Plant and immediately north of a wetlands area. The ILF historically received Plant garbage and process waste, construction debris, spent potliner, and sewage sludge. Waste management activities were permanently terminated at the ILF on June 30, 1990.

As documented in the *Area-Specific Completion Report for the Remediation of the Landfill/Former Potliner Storage Area* (Bechtel, 1997a) and *Overall Completion Report for the Alcoa, Inc. Massena East Smelter Plant Site Remediation Project* (Bechtel, 2003b), ILF closure activities were conducted in accordance with the Order on Consent dated September 9, 1987 and associated ROD. These activities included construction of an upgraded groundwater leachate recovery system, keyed into highly impermeable material below the ILF (completed in 1997), and placement of a hazardous waste landfill cap over the ILF (completed in 2003).

The leachate collection system included the construction of a perimeter leachate collection trench with a portion of the ILF perimeter also having a cutoff wall keyed into the low-permeability subsoils. A double-walled leachate transfer line from the ILF to the now former Outfall 01A treatment system was also installed. Currently, groundwater collected by the leachate collection system is monitored weekly for flow at Outfall 01C. Water quality is monitored per the permit requirements, and total Kjeldahl nitrogen and total cyanide are monitored monthly. All water collected through Outfall 01C is currently treated at the on-site SPDES-regulated Outfall 003 treatment system.

The landfill cap constructed over the full extent of the ILF comprises a geosynthetic clay layer, a 40 mil very low-density polyethylene (VLDPE) geomembrane, and drainage geo-composite. In addition, surface water controls were installed to reduce the amount of surface water run-on entering the Site and to control erosional effects of surface water running off the Site.

Before placing the cap, impacted soils and sediment from the Wetlands, PSP, and Miscellaneous Areas were consolidated in the ILF. As documented in the *Overall Completion Report for the Alcoa, Inc. Massena East Smelter Plant Site Remediation Project* (Bechtel, 2003b), a ROD amendment was issued by NYSDEC in 1995 allowing Reynolds Metals Company to increase the polychlorinated biphenyl (PCB) limit from 25 parts per million (ppm) to 50 ppm on low-level contaminated soils that could be placed in the ILF before capping (NYSDEC, 1995). Any soil containing greater than 50 ppm PCBs was disposed of off-site.

Materials consolidated in the ILF included the following:

- Two feet of potliner-impacted soils immediately north of the ILF and within the New York Power Authority easement were placed in the ILF. This action, performed under Field Change Request (FCR)-190, reduced the size of the ILF management area by more than 2 acres. Some potlining material was inaccessible and remained in-place following the remedial effort.
- Impacted soils from the wetlands, the area north of Haverstock Road, the Rectifier Yard and associated ditch, the North Yard, the PSP, the 002 Diversion Area, and other various on-site remedial efforts were placed in the ILF.
- An area identified in 1998 as a former short-term storage area for potliner and other process material and known as the “Former Material Stockpile Area” was managed and remediated under the ILF area of concern. This ¼-acre area was sampled under FCR-199 and remediated

under FCR-200. The work was documented and reported in the *Post-Remedial Report for Second Quarter 1998*[4] and in the *Landfill Cap Installation Addendum to the Area-Specific Completion Report for the Remediation of the Landfill/Former Potliner Storage Area* (Bechtel, 2003a). The available field change request information has been provided as an appendix in previous annual monitoring reports (e.g., CDM Smith, 2020).

- In 2001 and 2002, dredging spoils with less than 50 ppm PCBs from the St. Lawrence River were disposed of in the ILF, and the ILF was closed with a hazardous waste closure cap to reduce stormwater/surface runoff infiltration and resultant leachate generation. Disposal of river dredging spoils in the ILF and installation of the closure cap are documented and reported in the *Landfill Cap Installation Addendum to the Area-Specific Completion Report for the Remediation of the Landfill/Former Potliner Storage Area* (Bechtel, 2003a). Construction quality assurance associated with this work is documented and reported in the *Construction Quality Assurance Certification Report for the Landfill/Former Potliner Storage Area Closure Cap* (Bechtel, 2003c).

The total quantity of remediation spoils disposed of in the ILF is approximately 220,000 cubic yards. Table 1 from the *Landfill Cap Installation Addendum to the Area-Specific Completion Report for the Remediation of the Landfill/Former Potliner Storage Area* (Bechtel, 2003a) summarizes the quantities of material from on-site remedial actions that are disposed of in the ILF. Additional details can be found in the Site-specific remediation completion reports.[5]

Between November 2010 and May 2012, a series of upgradient groundwater extraction wells (EW-01 through EW-06) were installed north of the ILF to lower shallow groundwater elevations beneath the ILF; is referred to as the Outfall 010 groundwater extraction system (**Figure 6**). Extraction well EW-03 was never operational and was abandoned due to poor water production (CDM Smith, 2012). In addition to the extraction wells, piezometers (PZ-71 through PZ-79) were installed to monitor groundwater elevations. Extracted groundwater from this system is ultimately discharged through SPDES-regulated Outfall 001. In October 2018, Alcoa erected a new building for the extraction well lines, performing needed updates and repairs. The extraction wells continue to pump and discharge to the same location.

Key post-remediation activities include maintaining the cap, leachate collection and treatment, inspections, and groundwater monitoring. Inspections, maintenance, and groundwater monitoring are also required (per the Basis of Design Report [BODR] and submitted to NYSDEC on January 27, 2012)[6] for the Outfall 010 groundwater extraction system. The groundwater extraction system became operational in Summer 2012. **Figure 6** shows a plan of the ILF and the associated groundwater wells and piezometers used for monitoring. The following items require periodic inspections:

- ILF cap
- Leachate collection system
- Upgradient extraction wells

[4] Reference information is not available; this is legacy text pulled from an earlier, non-EHS Support report.
[5] These Site-specific remediation completion reports are in the reference list under Bechtel (1992, 1995a-c, 1996, 1997a-c, 1998a and b, 1999, 2003a-c).
[6] Reference information for the BODR is not available; this is legacy text pulled from an earlier, non-EHS Support report.

4.1 Operations

Operations consisted of the collection of 5,553,590 gallons of groundwater by the leachate collection system for 2021. Monthly quantities are tabulated in **Table 7**. The monthly ILF data reported in **Table 7** reflects the ILF (Outfall 01C) flowmeter readings. A plot of the cumulative flow recovered and treated from the ILF, starting with the 32,130,235 gallons on record in January 1999, is presented in **Figure 7**, and monthly flow totals for January 1999 through December 2021 are presented in **Figure 8**. All water collected from the ILF was treated at the on-site Outfall 003 Wastewater Treatment System.

Approximately 2,309,482 gallons of groundwater were collected by the upgradient extraction well system (EW-01, EW-02, EW-04, EW-05, and EW-06) in 2021 compared to 2,246,100 gallons in 2020. As indicated, all water collected from upgradient of the ILF was conveyed to and ultimately discharged at Outfall 001.

Monthly groundwater quantities for each extraction well are provided in **Table 8** and cumulative flow is presented graphically in **Figure 9**. **Table 4-1** presents the months that extraction wells were operational in 2021. The five extraction wells remained operational throughout most of the year except for EW-02, which did not operate in January and June of 2021. Analytical data collected at the extraction wells is presented in **Table 9**.

Biannual inspections were performed on the final cap at the ILF during 2021. This included inspection of the cover system for evidence of vegetative deterioration, erosion, siltation, ponding, uplift, washouts, leachate breakout, and rodent holes. The culverts, swales, check dams, and riprap were included in the biannual inspections. The functionality of these systems was inspected and showed no evidence of scouring, overland flooding, or erosion. The inspection showed that inlets and outlets remained unobstructed and positive drainage has been maintained. No problems were noted.

Table 4-1 Monthly Operational Status of Industrial Landfill Extraction Wells

Well	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
EW-01	O	O	O	O	O	O	O	O	O	O	O	O
EW-02	X	O	O	O	O	X	O	O	O	O	O	O
EW-04	O	O	O	O	O	O	O	O	O	O	O	O
EW-05	O	O	O	O	O	O	O	O	O	O	O	O
EW-06	O	O	O	O	O	O	O	O	O	O	O	O

O= Operational
X= Not Operational

4.2 Maintenance, Repairs, and Modifications

No non-routine maintenance, repairs, or modifications were required at the ILF cap. The following non-routine repairs were performed on the groundwater extraction systems in 2021:

- Starting the week of October 26, 2020, EW-02 was identified to be inoperable. It was put back into service the week of January 13, 2021.
- During the week of February 22, 2021, the EW-01 flowmeter was not changing. This was fixed on February 25, 2021.

- During the week of March 15, 2021, the EW-04 flowmeter was not changing. This issue was fixed on March 22, 2021.
- During the week of June 7, 2021, it was discovered that EW-02 was not in communication with the flow meter. This pump was shut off until it was reprogrammed on July 12, 2021, at which point it worked properly.
- During the week of July 19, 2021, the EW-05 flowmeter was not changing; however, the pump was still operational. The flowmeter was fixed the week of August 2, 2021.
- During the week of December 27, 2021, EW-01 was not recording flow. It was determined that the pump had malfunctioned and was repaired by February 14, 2022.

Given the short periods where flow meters on ILF extraction wells were not operating, total leachate recovered volumes for the ILF are likely a slight underestimate of the actual volumes.

4.3 Operational Monitoring

The following operational monitoring results were obtained during 2021:

- The quantity of groundwater and surface water transferred from the ILF for treatment and discharge is recorded and summarized in **Table 7** and presented graphically in **Figure 7** and **Figure 8**. In 2021, 5,553,590 gallons were transferred.
- The quantity of groundwater recovered from extraction wells upgradient of the ILF is provided in **Table 8** and presented graphically in **Figure 9**.

4.4 Groundwater Monitoring

4.4.1 Groundwater Elevations and Hydraulic Gradients

Groundwater elevation contours based on measurements collected during April and August 2021 (wet and dry weather) are presented in **Figure 4** and **Figure 5**, respectively. Groundwater flows under the ILF in a general southward direction. Shallow groundwater is collected in the perimeter drain leachate collection system. Five transects of piezometers are installed across the perimeter drain:

- Transect 1 consists of PZ-1 through PZ-5.
- Transect 2 consists of PZ-6 through PZ-9.
- Transect 3 consists of PZ-10 through PZ-13.
- Transect 4 consists of PZ-14 through PZ-17.
- Transect 5 consists of PZ-18 through PZ-22.

Tabulated groundwater elevation data for the piezometers, including the invert elevations of the perimeter drains, are presented in **Table 4**. **Figure 10** shows plots of groundwater elevations in downgradient wells MW-39S and MW-40S compared to elevations in the nearby piezometer clusters located at the landfill boundary.

Groundwater elevations at the piezometers were measured monthly in 2021. The groundwater elevation data shows that in 2021 the perimeter drain inverts were consistently lower than the groundwater elevations of all piezometers in Transects 2 and 3; and the outer piezometers in Transect 1 (PZ-4 and PZ-5) indicating the capture in these transects is effective. As indicated in **Figure 4** and **Figure 5**, piezometers in Transect 5 are within the radius of influence of extraction well EW-1, indicating hydraulic containment and remedy effectiveness in this location. The inverts of the perimeter drains

were higher than groundwater elevations in the outer piezometers (PZ-16 and PZ-17) at Transect 4 during the latter part of 2021, indicating that groundwater may not have been completely captured in the southwest corner of the ILF (**Figure 10**). However, there was a consistently inward gradient throughout 2021 from the wetland toward the perimeter trench as recorded in decreasing groundwater elevations from MW-39S to PZ-17 to PZ-16 (**Figure 10**).

Additional sampling was conducted in November and December of 2021, to determine the efficacy of the ILF perimeter trench for capturing leachate in the southwest corner of the ILF using comprehensive geochemical analysis and a mass balance approach (**Appendix I**). The study results indicate water in the perimeter trench consists of 80 to 86 percent wetland water and 14 to 20 percent landfill leachate. This result indicates the perimeter trench is operating as designed, with the majority of flow is from the wetland toward the trench.

In summary, a review of the groundwater elevation data for the five transects indicates that hydraulic control of shallow groundwater was maintained throughout 2021 at most transects. Historical water elevation data from Transect 4 indicates that groundwater in this area may not be completely captured during periods with relatively low water levels. This scenario was documented through a series of field studies performed between 2007 and 2011. A report summarizing the results of the studies and a recommended path forward was submitted to NYSDEC on January 27, 2012. The report proposed a groundwater interception system to limit shallow groundwater flow beneath the landfill and was approved in a letter from NYSDEC dated February 13, 2012.

The hydrogeologic conceptualization presented in **Section 3** indicates that water flowing over lacustrine clay may be entering the landfill and as such the pumping of water upgradient does result in some reduction in flux. However, the geological properties of the water (fouling of pumps) and the hydrogeologic setting (low permeability glacial till) makes pumping with wells challenging.

4.4.2 Groundwater Quality

Groundwater samples were collected and analyzed from monitoring well MW-10S, located upgradient of the ILF, and from monitoring wells MW-39S, MW-40S, and MW-45, located downgradient of the ILF. Surface water samples were also collected to monitor the water quality south of the ILF. Historical concentrations of chemical constituents are shown in **Appendix C.** Concentration trends have previously been evaluated in annual PRRs from the historical concentration data using the Sen's Slope Estimator and Mann-Kendall tests (e.g., CDM Smith, 2020). The method has historically applied the analysis to the entire historical record of concentrations. Based on the summary of all historical results, the following increasing concentration trends are observed (**Appendix D1**):

- Fluoride and sulfate at MW-39S
- Sulfate at MW-45

Consideration of recent trend reversals following implementation of remedial actions and operation and maintenance activities demonstrate improvements in concentration trends not captured by statistical analysis of the entire historical record. Using the most recent significant action (perimeter trench put into operation in 2003) at the ILF, the statistical significance of concentration trends was reevaluated for this time period using the Mann-Kendall analysis (**Appendix D2**), and a summary of the trend results compared to results for 2021 are provided in **Table 10**. Based on this method, the following increasing concentration trend is observed:

- Sulfate at MW-39S and MW-45

Whereas an increasing sulfate trend is observed at MW-39S, concentrations have consistently been below the New York State Water Quality Standard (NYSWQS) of 250 milligrams per liter (mg/L) for the entire monitoring record, except a single result in 3rd quarter 2011.

Details of analytical results from ILF monitoring points are provided in **Section 4.4.2.1** through **Section 4.4.2.5**.

4.4.2.1 Upgradient Well MW-10S

- Total aluminum was detected at concentrations ranging from 0.0302 to 0.0838 milligrams per liter (mg/L), while dissolved aluminum was detected in one of the four sampling events at a concentration of 0.00422 mg/L. These results are consistent with total aluminum detections being caused by the acid preservative digesting clay particles in the total fraction; therefore, trends are not assessed.
- No PCBs were detected in MW-10S in 2021.
- Total cyanide was non-detect during three sampling events in 2021. The total cyanide sample from September 2021 did not meet the data quality assurance (DQA) standards and was thus rejected.
- WAD cyanide was not detected in any of the four sampling events in 2021.
- Fluoride and sulfate were detected in all four sampling events. All detections of fluoride and sulfate were below their NYSWQS of 1.5 mg/L and 250 mg/L, respectively. Both fluoride and sulfate display statistically significant decreasing trends from 2003 onward.

4.4.2.2 Downgradient Well MW-39S

- Total aluminum was detected in all four samples at concentrations ranging from 0.213 to 3.150 mg/L, while dissolved aluminum was detected in one of four samples at a concentration of 0.00416 mg/L. These results are consistent with total aluminum detections being caused by the acid preservative digesting clay particles in the total fraction; therefore, trends are not assessed.
- No PCBs were detected in MW-39S in 2021.
- Total cyanide was detected in all four sampling rounds in 2021, however, one result from September did not meet the DQA standards and was thus rejected. Results that met DQA standards were less than the NYSWQS of 0.2 mg/L.
- WAD cyanide was non-detect in both sampling events in 2021. Total cyanide displayed a statistically significant decreasing trend using the more recent timeframe.
- Fluoride was detected in all four sampling rounds in 2021; the March (1.85 mg/L), June (2.11 mg/L), and December (2.72 mg/L) results were above the NYSWQS of 1.5 mg/L (**Appendix C**). Historical data analysis shows an increasing trend in fluoride concentrations. However, fluoride concentrations since the installation of a perimeter trench in 2003 do not show a statistically significant trend.
- Sulfate was detected below the NYSWQS of 250 mg/L during the four sampling rounds in 2021.

4.4.2.3 Downgradient Well MW-40S

- Total aluminum was detected in all four sampling rounds at concentrations ranging from 0.00308 to 0.00846 mg/l, while dissolved aluminum was non-detect in all four samples. These results are consistent with total aluminum detections being caused by the acid preservative digesting clay particles in the total fraction; therefore, trends are not assessed.
- No PCBs were detected in MW-40S in 2021.
- Total cyanide was detected in all four sampling rounds in 2021, however, one result from September did not meet the DQA standards and was thus rejected. Total cyanide concentrations Results that met DQA standards were below NYSWQS.
- WAD cyanide was non-detect in both sampling events.
- Fluoride and sulfate were each detected during all four sampling events in 2021 below their respective NYSWQS. Fluoride, total and WAD cyanide, and sulfate all displayed statistically significant decreasing trends.

4.4.2.4 Downgradient Well MW-45

- Total aluminum was detected in all four sampling rounds at concentrations ranging from 0.0681 to 0.564 mg/L, while dissolved aluminum was detected in two of four samples at concentrations of 0.00345 and 0.00363 mg/L (**Appendix C**). These results are consistent with total aluminum detections being caused by the acid preservative digesting clay particles in the total fraction; therefore, trends are not assessed.
- No PCBs were detected in MW-45 during 2021.
- Total cyanide was detected in all four sampling rounds in 2021; three of four samples were above the NYSWQS of 0.2 mg/L (**Appendix C**). The total cyanide result from September was below the NYSWQS, however, it did not meet the DQA standards and was thus rejected. There is a statistically significant decreasing trend for total cyanide in MW-45 for all historical samples as well as samples taken since data was first collected in 2006.
- WAD cyanide was detected in both sampling rounds at concentrations ranging from 0.014 mg/L to 0.029 mg/L. WAD cyanide concentrations display a statistically significant decreasing trend and have more recently stabilized at low to non-detect values.
- Fluoride was detected in all four rounds at concentrations below the NYSWQS.
- Sulfate was detected in all four sampling rounds at concentrations above the NYSWQS of 250 mg/L (548 mg/L to 696 mg/L). Sulfate increased from low, stable levels in MW-45 to above the NYSWQS standard in September 2015. The absence of high fluoride in this well indicates that the sulfate concentrations are not associated with ongoing flux from the landfill.

4.4.2.5 Wetlands Water Samples

Samples were collected quarterly from the western ILF perimeter trench (SLPWETW) and ILF perimeter trench (SLPWETE) downgradient of the ILF in 2021.

- Total aluminum was detected at concentrations ranging from 0.0415 mg/L to 0.123 mg/L in SLPWETE and 0.0102 mg/L to 0.303 mg/L in SLPWETW. Dissolved aluminum was detected in three of the four sampling events ranging from 0.005 mg/L to 0.0142 mg/L in SLPWETE and in four of the four sampling events ranging from 0.00732 mg/L to 0.0468 mg/L in SLPWETW. These results are consistent with total aluminum detections being caused by the acid preservative digesting clay particles in the total fraction; therefore, trends are not assessed. This conclusion is

consistent with elevated total suspended sediments of 2.1 to 3.3 mg/L as documented in **Appendix I**.

- PCBs and WAD cyanide were non-detect in SLPWETE and SLPWETW.
- Total cyanide was detected above the method detection limit (MDL) and below the reporting limit at a concentration of 0.003 mg/L in one of three sampling events in SLPWETW. Total cyanide was detected in SLPWETE, however the sample did not meet the DQA standards and was thus rejected.
- Fluoride was detected in SLPWETE above the NYSWQS during three sampling rounds (June 2021: 3.63 mg/L; September 2021: 3.40 mg/L; December 2021: 2.04 mg/L [**Appendix C**]).
- Fluoride was detected in SLPWETW above the NYSWQS during one sampling round (November 2021: 3.05 mg/L).
- Sulfate was detected below the NYSWQS in both locations for all sample rounds. Fluoride, WAD cyanide, and sulfate concentrations do not display a trend in either location. Total cyanide displays a statistically significant decreasing trend in both SLPWETE and SLPWETW and is typically below the water quality standard and detection limit.

4.4.3 Outfall 010 Groundwater Extraction System

In accordance with the monitoring plan proposed in the BODR, monthly groundwater level measurements are to be collected at extraction wells EW-01 through EW-06 and piezometers PZ-76 through PZ-79. In 2021, groundwater levels were recorded monthly at all locations except when frozen conditions or access issues were present. Groundwater levels recorded in 2021 are presented in **Table 4** and shown in **Figure 11**.

In 2021 the five extraction wells remained operational throughout the year except for EW-02, which was not operational in January and June (**Section 4.2** and **Table 4-1**).

Groundwater levels for the extraction wells and piezometers since startup of the system are presented in **Figure 11**. This figure shows that the extraction wells have consistently maintained the groundwater elevation to the north of the ILF. **Figure 4** and **Figure 5** show groundwater elevations are lowered north of the ILF by the extraction well system.

In 2021, the average groundwater level in piezometers PZ-76 through PZ-79 ranged from approximately 203.3 feet to 204.98 feet (**Table 4**). The largest fluctuations were observed in PZ-77 where levels ranged from 200.57 feet to 205.53 feet, and in PZ-78 where levels ranged from 201.72 feet to 205.94 feet. These fluctuations are likely due to the operational status of proximal extraction well EW-2 in 2021. The average groundwater elevation observed while extraction wells were functioning ranged from approximately 188 feet in EW-01 to approximately 194 feet in EW-02. The inner casing of EW-04 has experienced upheaval and was repaired in December 2021 in accordance with the *Monitoring Well Decommissioning Work Plan for the Reynolds Metals Company, LLC.* (CDM Smith, 2021).

In addition to groundwater level measurements, quarterly groundwater samples are collected at each extraction well and analyzed for total cyanide and fluoride. The analytical data for all the testing completed from when the system started to the end of 2021 is reported in **Appendix C**. Analytical results for 2021 are provided in **Table 9**. Fluoride concentrations were below the NYSWQS of 1.5 mg/L in all extraction wells. Total cyanide was detected in all five extraction wells but was above the NYSWQS of

0.2 mg/L in EW-06 only. Total cyanide concentrations in EW-06 have fluctuated around the NYSWQS of 0.2 mg/L since 2013 and ranged from 0.386 mg/L to 0.644 mg/L in 2021.

In 2021 there were sporadic exceedances of the SPDES total cyanide limit of 200 micrograms per liter (µg/L) at Outfall 010. Alcoa is currently working on identifying the source.

4.4.4 Post-Closure Assessment

Within the physical and hydraulic restrictions of the Site setting, the existing monitoring well network is well located to assess post-closure conditions at the ILF.

The groundwater quality results at the farthest downgradient monitoring point (i.e., MW-45) indicate that historical transport of contaminants from the ILF to this location may have occurred. Total cyanide has historically been detected above the NYSWQS of 0.2 mg/L in MW-45, although concentrations have displayed a decreasing trend since 2010 and were below the NYSWQS during 4 of the last 6 monitoring events (**Appendix C**). Sulfate increased from low, stable levels in MW-45 to above the NYSWQS standard in September 2015. Concentrations have largely remained above the NYSWQS since then and have displayed a statistically significant increasing trend (**Appendix D1**). The notable increase in sulfate concentrations and the shift to increasing trends in 2015 follows initiation of the extraction well system in late 2012. Coupled with the continued decrease in total cyanide, this suggests the sulfate source may not be the ILF and may reflect oxidation of naturally occurring sulfide sourced from the wetland surrounding MW-45.

The historical (2010/2011) groundwater quality data from MW-46 and MW-47 does not indicate migration of groundwater impacts from the ILF in deep groundwater, consistent with the updated CSM where the occurrence of low permeability lacustrine clay controls contaminant flux by diffusion instead of groundwater advection.

Downgradient groundwater will continue to be monitored in MW-39S, MW-40S, and MW-45 and will be used to evaluate the effectiveness of the upgradient groundwater extraction system. Surface water will continue to be monitored in the eastern and western wetlands (east-wetland and west-wetland).

5 Black Mud Pond (OU-2)

The BMP was built in 1973 to store residue from the process that recovered cryolite from spent potliner. Slurry from the cryolite recovery process was pumped to the pond, allowed to settle, and the supernatant was then pumped to the cryolite recovery plant. It is approximately 6 acres in area and located on a ridge west of the former production area of the Plant. In 1985, seepage was observed from the northwest corner of the BMP through deposits overlying gray till at approximately 10 ft bgs. An 8-foot-wide trench was excavated along the entire north and west sides of the BMP extending into the underlying lower-permeability till. A containment wall was constructed in the trench from sorted (silt and clay fractions) of glacial till taken from a borrow pit west of the BMP that was compacted to 95 percent (Calocineros & Spina, 1985). Active use of the pond ended in 1990. The primary objective of remediating the BMP was to eliminate migration of the COCs, specifically cyanide and fluoride.

After the NYSDEC approval in May 1995, soil with PCB levels less than 10 ppm from the PSP, the area south of the Digging Building (Facility 85), and the overburden by the southwest corner of the BMP was placed in the BMP to provide initial soil cover for construction equipment. In January 1996, 7,700 cubic yards of wetlands soil with residual fluoride and cyanide were excavated and hauled to the BMP. The area was capped with a hazardous waste closure cap to isolate the waste and prevent surface water infiltration. The cap consists of a geonet composite for gas collection, a geosynthetic clay layer, a geomembrane liner of 40-mil linear low-density polyethylene, a geonet composite for drainage, and 30 inches of topsoil and grass cover. Additional remediation activities are detailed in the *Area Specific Completion Report for the Remediation of the Black Mud Pond* (Bechtel, 1997b).

As discussed in the *Area-Specific Completion Report* (Bechtel, 1997b), a network of over 2,200 linear feet of sand-filled French drains was installed in the BMP to extract groundwater and reduce a principal mechanism of contaminant transport from the area. This French drain system consists of four horizontal drains that were installed in the north-south direction with a gradual slope to the south end. Two lateral drains were installed in the east-west direction to improve the collection capability of the system. A polyvinyl chloride (PVC) riser was installed at the south end of each north-south drain. This work was completed in September 1995. Following construction, a dewatering sump was installed at the low point of the BMP, near the southwest corner. The riser at the westernmost north-south drain line was replaced with a pipe that connected the line to the sump. A sand-filled trench was built along the bottom of the BMP between the sump and the risers to provide a hydraulic connection with the other three north-south drain lines.

The BMP cap was completed in 1997 and the transfer line was operational from 1997 to 2004. Upgrades to the leachate transfer line occurred in 2004. The upgraded pumping system transfers groundwater from the dewatering sump to the Outfall 01B equalization tank. Since the cyanide destruction treatment system at this Site has been decommissioned and removed with NYSDEC approval, the groundwater pumped to the Outfall 01B tank was transferred by tanker truck to the Arconic Massena West Plant Outfall 01F for treatment and discharge since 2003. Beginning in September 2017, BMP groundwater is collected and transferred via railcar to an off-site treatment and disposal facility and is no longer treated at the Arconic Massena West Plant.

Key post-remediation activities include maintaining the cap, collecting and treating groundwater from the French drain system, as well as conducting inspections and groundwater monitoring.

Figure 12 is a Site plan of the BMP and the associated groundwater wells used for monitoring. The following items require periodic inspections:

- Groundwater transfer line from the BMP dewatering sump to the storage tanks
- BMP cap
- Groundwater collection system

5.1 Operations

Operations consisted of the extraction, transfer, storage, and treatment of groundwater. Currently the BMP groundwater collection system is operated automatically; the pumps convey water to Tanks 208, 211, and 216 (located in building 763D, the old water treatment building just west of the North Yard) when flow is present. Tank water levels are monitored routinely and, when close to full capacity, the water from the tanks is pumped into a railcar for transport to an off-site treatment and disposal facility.

Figure 12 shows locations of the groundwater control trenches that collect groundwater beneath the BMP and groundwater monitoring wells located within and proximal to the BMP. The groundwater collection system includes four horizontal drains where four submersible pumps were originally installed. Currently, the four horizontal drains (A-1 through A-4) empty into a sand filled trench. The groundwater then drains by gravity to the southernmost lateral drain, which also drains by gravity to the sump labeled “dewatering sump”. From this point, a submersible pump within the dewatering sump pumps groundwater to the collection point for shipment off-site.

The annual quantities of groundwater pumped in previous years and in 2021 are provided in **Table 11**. In calendar year 2021, 57,093 gallons or an average of approximately 160 gallons per day of groundwater was extracted from the BMP through December 21, 2021. Accumulated water was transported off-site in three railcar shipments recorded in April, September, and December 2021.

5.2 Maintenance, Repairs, and Modifications

No maintenance, repair, or modification activities were completed in 2021.The final cover system was inspected biannually for evidence of vegetative deterioration, erosion, siltation, ponding, uplift, washouts, leachate breakout, and rodent holes. The passive gas vents were checked for obstructions. The culverts, swales, check dams, and riprap were included in the biannual inspections. The functionality of these systems was inspected and showed no evidence of scouring, overland flooding, or erosion. The inspection showed that inlets and outlets remained unobstructed and positive drainage has been maintained. No problems were noted in 2021.

5.3 Operational Monitoring

O&M monitoring was conducted for this reporting period. The quantities of groundwater removed from the BMP are recorded in **Table 11** and are shown graphically in **Figure 13** and **Figure 14**. No other maintenance items were performed in 2021.

5.4 Groundwater Monitoring

5.4.1 Groundwater Elevations and Hydraulic Gradients

Groundwater monitoring well and piezometer clusters at the BMP are used to determine vertical hydraulic groundwater gradients. Vertical hydraulic gradients have historically been calculated for the following eight well clusters:

- Well clusters MW-22 (MW-22-85S and MW-22-85D) and MW-12 (MW-12S and MW-12D) are located directly north of the BMP.
- Well cluster MW-13 (MW-13S and MW13D) is located northwest of the BMP.
- Well cluster MW-23 (MW-23-85S and MW-23-85D) is located on the western side of the BMP.
- Well cluster MW-21 (MW-21-85-S and MW-21-85D) is located east of the BMP.
- Well cluster MW-15 (MW-15S-87, MW-15S-91, and MW-15D) is located south of the BMP.
- Well cluster MW-20 (MW-20-85S and MW-20-85D) is located south of MW-15.

Vertical groundwater gradients (I_v) are calculated using the convention that upward vertical gradients have negative values and downward vertical gradients have positive values.

$$I_{v=}\frac{Groundwater\ elevation\ (shallow\ well-deep)}{Screen\ midpoint\ (deep\ well-shallow)}$$

The midpoint elevation of the open screen interval is used to calculate vertical distance (dl), as the open interval is fully saturated in all wells evaluated except MPOG1601S. The head difference between upper and lower wells is used to calculate the differential water level height. Results are provided in **Table 12**. A summary of the calculated vertical gradients is provided in **Table 5-1**.

The following points are noted regarding historically calculated vertical gradients:

- At MPOG1601S, the groundwater elevation within the BMP is typically below the base of the screen and likely stagnant within the end cap at the base of the screen. Consequently, historically calculated vertical gradients when the groundwater elevation is below the base of the screen are not valid. Water levels at MPOG1601S demonstrate efficacy of the BMP underdrain system for dewatering the BMP.
- The presence of a high plasticity, low permeability clay beneath the BMP and located between the shallow and deep piezometer screens prevents vertical groundwater transport. Calculated vertical gradients do not imply vertical groundwater advection is occurring, as discussed in the updated hydrogeologic CSM (**Section 3**).
- Around the BMP, the strong permeability contrast between shallow high permeability units and underlying low permeability grey glacial till precludes vertical groundwater advection. Calculated vertical gradients reflect short-scale groundwater fluctuations in the shallow permeable units that are recharged by precipitation and snowmelt and rapidly drain horizontally. Potential for impacts to low permeability glacial till is driven by diffusion, and not by vertical groundwater advection.

Table 5-1 Summary of Vertical Groundwater Gradients in the Vicinity of the BMP

Well Cluster	Location	Vertical Gradients	
		May 2021	August 2021
MW-12S/D	North of BMP	Downward	Downward
MW-22-85-S/D	North of BMP	Downward	Downward
MW-21-85-S/D	East of BMP	Upward	Downward
MW-15S-87/15D	South of BMP	(1)	Downward
MW-15S-91/15D	South of BMP	(1)	Upward
MW-20-85-S/D	South of BMP and MW15	Upward	Upward
MW-23-85-S/D	West of BMP	Downward	Upward
MW-13S/D	Northwest of BMP	Downward	Downward

[1] Water levels were not available from MW-15D to calculate vertical gradients.
BMP = Black Mud Pond

The MPOF and MPOG well clusters are located within the capped area of the BMP and have historically been used to assess hydraulic heads and gradients within the BMP. Historical groundwater elevations are provided in **Figure 15**. The MPOF cluster is located on the western side of the waste zone, and the directions of the hydraulic gradients are consistent with the observation that there is often no water collected in the eastern drains under the BMP, whereas the westernmost drain is pumped constantly. The groundwater elevations were recorded monthly in the MPOF clusters. Vertical gradients at the MPOF and MPOG well clusters are not discussed further for the reasons discussed earlier.

Groundwater elevation contours for April and August 2021 (**Figure 4** and **Figure 5**, respectively) indicate that there is a hydraulic divide along the north and west sides of the capped BMP consistent with the presence of the low permeability barrier in this area. Horizontal hydraulic gradients are radial from the high points near MW-12S and MW-14S but due to the presence of the barrier wall, there is no flow out of the BMP to the north and west. As discussed in **Section 3**, groundwater on the periphery of the BMP is recharged by precipitation and snowmelt that infiltrates into an upper, shallow and permeable interval that is the locus of groundwater advection. Groundwater in less permeable underlying till is comparatively stagnant.

The horizontal hydraulic gradient north of the BMP is to the north and groundwater eventually discharges to the North Yard French drain and the St. Lawrence River. Hydraulic gradients to the south of the BMP are generally to the south such that groundwater discharges to groundwater collection systems associated with the ILF and the wetland south of the Reynolds Metals Company facility. Hydraulic gradients west of the BMP are to the southwest and groundwater discharge is to the wetland to the south of the Plant. This wetland eventually discharges to the Raquette River and is monitored as SPDES regulated Outfall 010. The steepest hydraulic gradients are eastward between the BMP and the Plant area.

The groundwater monitoring wells beneath the BMP (MPOF1403D and MPOG1603D) indicate hydraulic gradients beneath the BMP are to the south and east in the glacial till stratum. Groundwater is removed from beneath the BMP cap by a system of underdrains. Based on the BMP completion report, these

drains are located at the base of the black mud and on the top of the underlying high-plasticity and low permeability clay. Groundwater elevations in the two shallow wells screened across the black mud/clay interface (MPOF-1402S and MPOG-1601S) are lower than the deep counterparts throughout most of the year, although MPOG-1601S had a slightly higher elevation than MPOG-1603D in late summer and fall (although within the 0.02-foot resolution typical of survey data) (**Table 12**). The lower elevations in the shallow wells interior to the BMP reflect the efficacy of the underdrain system for dewatering the BMP. The occurrence of a high plasticity clay unit beneath the black mud precludes dewatering below the level of the black mud, but also precludes vertical groundwater advection beneath the BMP. The drainage system is expected to facilitate groundwater flow within the mud toward the drains.

5.4.2 Groundwater Quality

Historical analytical data collected at the wells monitored during the semiannual monitoring program are presented in **Appendix C**. Concentration trends have previously been evaluated in annual PRRs from the historical concentration data using the Sen's Slope Estimator and Mann-Kendall tests (e.g., CDM Smith, 2020). The method has historically applied the analysis to the entire historical record of concentrations. Based on the summary of all historical results, the following increasing concentration trends are observed (**Appendix D1**):

- Fluoride and sulfate at MW-12S
- Fluoride at MW-15S-87
- Sulfate at PZ-44
- Fluoride and sulfate at PZ-45
- Fluoride at PZ-46

Using the most recent significant action (leachate transfer line upgrade in May 2004) at the BMP as an example of more recent concentration trends, the statistical significance of concentration trends was reevaluated using the Mann-Kendall analysis (**Appendix D2**), and a summary of the trend results compared to results for 2021 are provided in **Table 10**. Based on this method, the following increasing concentration trends are observed:

- Sulfate at MW-12S
- Fluoride at MW-15S-87
- Sulfate at PZ-44
- Fluoride and sulfate at PZ-45

At the BMP, the results using both methods produce a similar result except the more recent trend indicates no trend for fluoride at MW-12S (note there is no monitoring data for PZ-46 due to lack of water and repairs in 2021). In the context of the updated CSM, detections around the periphery of the BMP reflect diffusion through the low-permeability perimeter wall and/or seepage to the south. Concentrations are diluted by snowmelt and precipitation infiltration into shallow permeable units as groundwater radiates outward from around the BMP to the south (as documented by low to non-detect COC concentrations at MW-10S, and substantially lower concentrations to the north in the PSP at MW-27S.

In more detail, the following findings are made regarding groundwater around the BMP based on analytical results from MW-11SR, MW-12S, MW-13S, MW-14S, MW-15S-87, MW-20-85-S, MW-22-85-S, MW-23-85-S, MW-30S, MW-31SR, PZ-44, and PZ-45:

- Total cyanide was detected in four monitoring wells (MW-11SR, MW-12S, MW-13S, and MW-31SR); all cyanide concentrations were below the NYSWQS of 0.2 mg/L.
- WAD cyanide was not detected at any BMP monitoring locations in 2021 except in MW-11SR at 0.013 mg/L.
- Fluoride was detected in all 12 monitoring locations sampled in 2021, and 6 monitoring locations (MW-11SR, MW-12S, MW-13S, MW-15S-87, MW-30S, and PZ-44) had concentrations above the NYSWQS of 1.5 mg/L. Evaluation of trends after the transfer line upgrade in 2004 indicates that only MW-15S-87 and PZ-45 have statistically significant increasing trends and MW-12S does not display a statistically significant trend. Decreasing trends were observed at MW-14S, MW-20-85-S, and PZ-44 from the time since the upgrade to the transfer line occurred. The remaining locations showed no trend.
- Sulfate was detected above the NYSWQS of 250 mg/L in 9 of the 12 monitoring locations. Of these, MW-12S, PZ-44, and PZ-45 displayed statistically significant increasing trends for sulfate, while MW-11SR, MW-14S, MW-15S-87, and MW-22-85-S displayed statistically significant decreasing trends. No statistical trends were present in MW-20-85-S, MW-23-85-S, MW-30S, MW-13S, or MW-31SR.
- PCBs were not detected at any monitoring locations at the BMP in 2021 except MW-13S which had detections of Aroclor 1242 and Aroclor 1254 of 0.015 µg/L and 0.019 µg/L in December 2021, respectively. Aroclor 1254 was last detected in 2020 (0.116 µg/L). While there have been sporadic PCB detections at MW-13S, the most recent prior detection that was above the historical reporting limit of 0.065 µg/L occurred in 2012 (Aroclor 1248 at 0.098 µg/L).
- Total aluminum was detected at all monitoring locations in 2021 and dissolved aluminum was detected in 9 of the 12 wells (MW-11SR, MW-12S, MW-13S, MW-15S-87, MW-22-85-S, MW-23-85-S, MW-30S, MW-31SR, and PZ-44). Total aluminum results were consistently higher than dissolved aluminum results. These results are consistent with total aluminum detections being caused by the acid preservative digesting clay particles in the total fraction; therefore, trends are not assessed

5.4.3 Post-Closure Monitoring Assessment

Review of the *Area-Specific Completion Report for the Remediation of the Black Mud Pond* (Bechtel, 1997b) indicated that seepage from the BMP through a winnowed till layer was addressed in 1985 with the construction of an 8-foot-wide clay barrier wall. In addition, post-consolidation samples collected north of the capped portion of the BMP indicated some elevated residual fluoride concentrations. Historic releases may be responsible for the detections of cyanide, fluoride, and sulfate north and west of the closed BMP as these are areas from which BMP materials were consolidated when the BMP was closed.

MW-11SR and MW-15S-87 are directly downgradient of the BMP. Total cyanide, WAD cyanide, fluoride, and PCBs are the COCs in MW-11SR. Total cyanide, WAD cyanide, and PCBs were non-detect or at concentrations below applicable water quality standards during 2021. Fluoride concentrations were above NYSWQS in one sample (**Appendix C**). Sulfate concentrations are above the NYSWQS, however, they display a statistically decreasing trend. PCBs, total cyanide, sulfate, and WAD cyanide are the COCs in MW-15S-87 and are also non-detect or below water quality standards. Fluoride concentrations are above the NYSWQS in MW-15S-87 and display a statistically significant increasing trend. This is consistent with recent monitoring.

Detected total aluminum results from BMP wells ranged from non-detect to 2.34 mg/L in 2021, while dissolved aluminum was not detected above the historical reporting limit of 0.1 mg/L at any location. Total aluminum values are likely influenced by aluminum associated with particulate matter in the sample being liberated by nitric acid digestion; therefore, they do not likely represent groundwater conditions or the mobile fraction of aluminum.

Although groundwater elevations are not below the waste material and the existing underdrain system does not appear capable of lowering groundwater elevations below the waste, capping and ongoing dewatering has resulted in upward gradients into the south part of the closed cell.

While recent sampling of PZ-44 and PZ-45 show the presence of elevated concentrations of fluoride and sulfate, this is likely residual impacts from conditions prior to consolidation of the BMP as these wells are screened in low permeability till where impacts likely arrived through diffusion and advection from a more recent release is not expected. Concentrations at these sampling locations, as well as MW-20-85-S located south of the piezometers, will continue to be monitored.

COC migration from the BMP is likely facilitated by precipitation and snowmelt infiltration in the area between the BMP cap and containment wall and subsequent outward seepage from the northern and western edge of the barrier wall. COCs detected on the western and northern edges of the barrier wall are rapidly diluted in the shallow permeable units by snowmelt and precipitation infiltration. Dilution occurs progressively in the downgradient direction as indicated by concentration trends in wells downgradient of the northerly and southerly BMP groundwater flow paths. COC flux is limited in underlying lower permeability units where groundwater advection is minimal. These lower permeability units are present at shallower elevations along the southern edge of the BMP, where COC migration is primarily driven by diffusion.

6 North Yard (OU-3)

The North Yard is located north of the main Plant buildings. It was the center for receiving, storing, and distributing raw materials for the Plant's operation. The North Yard was the site of the heat transfer medium (HTM) system that maintained the fluidity and temperature of the coal tar pitch for anode and cathode manufacturing. The HTM system equipment was located in the Pitch Pumphouse, in the central portion of the North Yard; the HTM piping extends northward to the Pitch tanks and southward to the Carbon Plant. Before a replacement program was initiated in the 1970s, the HTM fluid contained PCBs. Soil analysis conducted by Bechtel shows that prior to remediation, the highest concentrations of PCBs on the Reynolds Metals Company facility were near the HTM system (Bechtel, 1998a).

To conduct remediation while minimizing disruption of Plant operation, two distinct remedial construction plans were developed and described in the *Declaration for Amendment to the Record of Decision for Reynolds Metals Company St. Lawrence Reduction Plant* (NYSDEC, 1995). These plans divided the North Yard into the following critical and non-critical work areas:

- Area 1 was the south-central portion of the North Yard and was defined as the critical area where essential Plant operations took place. The design required excavating to established limits (i.e., horizontally within the greater than or equal to 100 ppm PCB footprint and vertically to less than 25 ppm PCBs) and installing a low permeability cap over all areas with residual PCB levels greater than or equal to 10 ppm. Area 1 covered nearly 3 acres.
- Area 2 was defined as the contaminated but non-critical portions of the North Yard. The design for this area was similar to that for the other on-site remediation areas, that is excavation of soils exceeding the ROD cleanup goal of less than or equal to 10 ppm PCBs followed by surface restoration. Area 2 covered nearly 7 acres.

Remediation construction met all design objectives. In fact, although the ROD amendment allowed for higher residual concentrations of PCBs in Area 1, remedial excavations in most of that area met the more stringent cleanup goal established for Area 2.

As stated in Volume 1 of the *Area Specific Completion Report for the Remediation of the North Yard* (Bechtel, 1998a), various remedial measures were performed to reduce the possibility of erosion and transport of PCBs. In 1991, a drain, consisting of a 12-inch diameter perforated polyethylene pipe and a trench filled with crushed stone, was installed along the Plant fence located at the western side of the North Yard (North Yard French drain). The underdrain system, intended to control groundwater near the ground surface, also influences the groundwater flow field in this area, which is downgradient of the former PSP. This underdrain system discharges to the West Sump, which was installed in 1988. Water collected in the sump was historically pumped to the Outfall 01A wastewater treatment facility for treatment and discharge through the Plant's SPDES outfall system. In January 2016, Reynolds Metals Company submitted an SPDES modification request to decommission the treatment plant and divert flows from Outfall 01A to Outfall 003 for treatment and discharge. On February 5, 2016, the NYSDEC approved the modification request, and this water is now conveyed to SPDES-regulated Outfall 003.

Since approval of the *Area-Specific Completion Report for the Remediation of the North Yard* (Bechtel, 1998a), several additional remedial efforts have been conducted in this area. The following key activities were performed since 1998:

- In March 2000, an underground water main was repaired in North Yard grid H32 (south of Facility 25A, the Unloading Shed). The excavation spoils (approximately 25 cubic yards of soil at

8 ppm PCB concentration) were disposed of in the ILF in May 2000. Details are presented in the *Post-Remedial Report for Second Quarter 2000.*[7]

- In July 2000, PCBs were identified in the excavation spoils from the repair of concrete pavement covering North Yard grid G41. The area was investigated under FCR-204 and remediated under FCR-206. The broken concrete pavement (approximately 115 cubic yards) and the soil from grids G42 and J44 (69 cubic yards) were disposed of in the ILF. Additional spoils (92 cubic yards) were disposed of off-site. This remedial effort was completed in August 2001 and reported in the *Post-Remedial Report for Third Quarter 2001*.[6]
- In the summer of 2001, sampling was conducted at the proposed Site for the new tank, located immediately east of the existing tank (Facility 65A) near the west end of the North Yard area of concern. Soil samples collected in September 2001 from beneath the concrete over the proposed excavation footprint showed PCB concentrations less than 4 ppm in the upper 6 inches and non-detections in the 24 to 30-inch depth interval. An excavation and disposal plan was approved by NYSDEC on October 30, 2001. The concrete layer and upper 2 feet of soil was excavated by the remediation contractor, after which the area was turned over to the Plant's general contractor for tank construction. The soil (46 cubic yards) was disposed of in the ILF. To formally record the work, FCN-209 was submitted to NYSDEC and approved on November 30, 2001. Details of the work are reported in the *Post-Remedial Report for Fourth Quarter 2001*.[6]
- In 2016 the North Yard underdrain water was diverted from Outfall 01A to Outfall 003 for treatment and discharge.
- In August 2019 the French drain pump was repaired.

The NYSDEC April 1, 2016, letter noted impacts and the continuing source to groundwater of the North Yard. The letter requires that the French drain and downgradient components be maintained indefinitely. Semiannual groundwater monitoring is performed to monitor potential impacts to groundwater.

Figure 16 shows the area of the North Yard and the monitoring wells near that area. Key post-remedial activities include limited groundwater collection and treatment (West Sump), inspections, and groundwater monitoring.

Periodic inspections of West and East Sumps are required in this area. Plant personnel maintain the integrity of the secondary containment around the tanks in this area.

6.1 Operations

Operations consisted of collection, transfer, storage, and treatment of groundwater from French drains and surface water from secondary containments around the pitch tank, fuel oil tanks, and other tanks in the area.

[7] Reference information for the quarterly post-remedial reports is not available; this is legacy text pulled from earlier, non-EHS Support reports.

6.2 Maintenance, Repairs, and Modifications

The French drain pump was fully functional in 2021. Estimates of the volume of water removed from the French drain in 2021 are provided in **Table 13**. In 2021, 1,387,391 gallons were pumped from the French drain sump.

6.3 Groundwater Monitoring

6.3.1 Groundwater Elevations and Hydraulic Gradients

Groundwater flow under the western side of the North Yard is northerly and is influenced by the French underdrain system located around the former pitch tanks. This groundwater collection system also recovers groundwater that moves downgradient from the PSP (**Figure 4** and **Figure 5**).

On the eastern side of the North Yard, there appears to be a groundwater divide near the former ore offloading building and defined by MW-19S and MW-17S. Southwest of the divide, groundwater flows toward the former Plant. This groundwater is monitored with MW-16S and MW-18S. Northeast of the divide, groundwater flows to MW-36, MW-37, MW-38, and to the St. Lawrence River. A portion of the northerly flow appears to trend northeast toward MW-38 and MW-41.

6.3.2 Groundwater Quality

Historical COC concentrations are provided in **Appendix C**. Concentration trends have previously been evaluated in annual PRRs from the historical concentration data using the Sen's Slope Estimator and Mann-Kendall tests (e.g., CDM Smith, 2020). The method has historically applied the analysis to the entire historical record of concentrations. Based on the summary of all historical results, the following increasing concentration trends are observed (**Appendix D1**):

- Sulfate at MW-37
- Sulfate at MW-41

Using the most recent significant action (the last soil excavation in November 2001) at the North Yard, the statistical significance of concentration trends was reevaluated for this time period using the Mann-Kendall analysis (**Appendix D2**), and a summary of the trend results compared to results for 2021 are provided in **Table 10**. Note, the Mann-Kendall method is robust to outliers. A comparison of the historical and revised methods for statistical evaluation is provided in **Appendix D3**. Based on this method, the following increasing concentration trends are observed:

- Sulfate at MW-37
- Sulfate at MW-41

At MW-41, sulfate concentrations have been declining since December 2011, and a revised trend starting point will capture the more recent improvements in concentration trends.

Details of analytical results from North Yard monitoring points are provided in **Section 6.3.2.1** through **Section 6.3.2.3**.

6.3.2.1 Wells On or Near the Groundwater Divide - MW-16S, MW-17S, and MW-19S

- Total aluminum was detected in MW-16S, MW-17S and MW-19S during 2021. These results are consistent with total aluminum detections being caused by the acid preservative digesting clay particles in the total fraction; therefore, trends are not assessed.
- No PCBs were detected in MW-16S, MW-17S or MW-19S in 2021.
- Total cyanide was detected above the MDL but below the reporting limit in MW-16S for the June sampling event. The June 2021 sample was below the NYSWQS. Total cyanide was detected in the June sample from MW-19S above the MDL but below the reporting limit.
- WAD cyanide was not detected.
- Fluoride was detected in all three wells and was above the NYSWQS of 1.5 mg/L at MW-16S and MW-19S in both semiannual samples. A statistically significant decreasing trend for fluoride is present in MW-16S and MW-19S since the remedial action occurred in November 2004. A peak fluoride concentration in MW-19S of 10.40 mg/L was observed in January 2009 (**Appendix C**), and concentrations have been declining since.
- Sulfate was detected in all three wells; however, all concentrations were below the NYSWQS of 250 mg/L.

6.3.2.2 Well Downgradient - Southward Gradient; MW-18S

Monitoring well MW-18S monitors groundwater that flows southward beneath the Plant.

- Total aluminum was detected in both samples collected from MW-18S in 2021 at concentrations of 0.0629 and 0.0571 mg/L, while dissolved aluminum was detected in the June and December samples at concentrations of 0.0447 mg/L and 0.0545 mg/L, respectively. These results are consistent with total aluminum detections being caused by the acid preservative digesting clay particles in the total fraction; therefore, trends are not assessed.
- No PCBs were detected in MW-18S in 2021.
- Total cyanide was detected below the NYSWQS of 0.2 mg/L.
- WAD cyanide was not detected in the two sampling events in 2021. Fluoride was detected above the NYSWQS in 2021.
- Fluoride concentrations have consistently been above NYSWQS in MW-18S since monitoring began in 1999; however, concentrations currently display a statistically significant decreasing trend. Additionally, results of the sequential filtration study (**Appendix I**) indicate historical fluoride results at this location are biased high at this location.
- Sulfate was detected in both sampling events in 2021 above the NYSWQS. Sulfate in MW-18S has been decreasing since monitoring began.

6.3.2.3 Wells Downgradient - Northward Gradient; MW-36, MW-37, MW-38 and MW-41

- Total aluminum was consistently detected in all four monitoring wells in 2021. Dissolved aluminum was detected in at least one event at each location. These results are consistent with total aluminum detections being caused by the acid preservative digesting clay particles in the total fraction; therefore, trends are not assessed.
- No PCBs were detected in MW-36, MW-37, MW-38, and MW-41 in 2021.
- Total cyanide and WAD cyanide concentrations were non-detect or below the reporting limit at these wells in 2021.

- Fluoride was detected in all four monitoring wells in 2021, however only MW-36 had concentrations above the NYSWQS. Both samples from MW-36 had fluoride concentrations above the NYSWQS.
- Sulfate was detected in all four monitoring wells and was above the NYSWQS of 250 mg/L at MW-36, MW-37 and MW-41.

6.3.2.4 North Yard French Drain Collection System – FDRAIN1

As **Figure 4** and **Figure 5** show, groundwater below the former PSP area flows in a northeasterly direction. The western part of the flow field discharges to the St. Lawrence River. The eastern part of the flow field is influenced by the North Yard French drain system, which also recovers some of this groundwater.

The groundwater recovered by the underdrain system is treated at an on-site water treatment system and is discharged through the plant SPDES outfall system at Outfall 003.

Samples were obtained from the groundwater collected in the French drain system and analyzed for total cyanide, WAD cyanide, fluoride, and sulfate.

- Total cyanide was detected in both sampling events above the NYSWQS of 0.2 mg/L. Total cyanide concentrations have displayed a statistically significant decreasing trend since the first data was collected in 2006.
- WAD cyanide was detected in both 2021 sampling events. WAD cyanide in June 2021 was detected greater than the historical range at this location (0.261 mg/L); however, the December 2021 WAD cyanide concentration was 0.026 mg/L. Concentrations do not display a trend whereas a decreasing trend previously existed.
- Fluoride was detected above the NYSWQS of 1.5 mg/L in both sampling events; concentrations display a statistically significant decreasing trend.
- Sulfate was detected in both sampling events below the NYSWQS of 250 mg/L.

6.3.3 Post-Closure Assessment

Based on the groundwater contours, the groundwater monitoring well network is adequately configured to assess post-closure conditions at the North Yard.

Monitoring well MW-18S is well located to assess groundwater flowing toward the plant. Groundwater from MW-18S flows beneath the East Plant potrooms, where the storm sewer lines may serve as points of discharge. Total aluminum concentrations in the most downgradient wells are elevated relative to the other sites, likely due to these wells being screened in clay lithologies and running dry on sampling – consequently, suspended solids are high in these samples.

As discussed in **Appendix I**, total aluminum results reflect suspended sediments from the agitative sampling method, that are subsequently digested by acid preservative between sampling and analysis. Total aluminum is not considered reflective of groundwater conditions at the Site. Dissolved (filtered) aluminum results more accurately depict groundwater aluminum concentrations at the Site. Additionally, aluminum is not a primary constituent of concern in groundwater as it is not typically soluble and there is no established groundwater standard.

7 Former Potliner Storage Pad (OU-5)

The former PSP is a concrete slab immediately north of the former Crusher Building on the northwestern side of the production area. The pad was used in the past to store spent potliner materials. The remediation area encompasses the concrete pad and includes the area of Building 82 (Crusher Building) and Building 85 (Cathode Digging Building) and the former West Ditch outfall that ran through the area toward the St. Lawrence River. The PSP remediation area was increased to include an additional area designated south of the former Digging Building, resulting in a total remediation area of 5 acres.

As discussed in the *Area-Specific Completion Report for Remediation of the Potliner Storage Pad Area* (Bechtel, 1996), PCBs were detected in samples from the PSP area, and fluoride, cyanide, sulfate, and polynuclear aromatic hydrocarbons (PAHs) were also considered a COC. The 10 ppm PCB cleanup goal for the PSP was established in the ROD (NYSDEC, 1992). Residual concentrations of cyanide, sulfate, and fluoride were evaluated and compared with the New York State effluent standards. When the PSP boundaries were expanded to the area south of the Digging Building (which drains towards the Wetlands), Reynolds and the NYSDEC agreed that a lower cleanup target of 1 ppm PCBs was appropriate for the added area. Remedial work included excavating soils containing PCBs and other COCs, backfilling with clean materials, improving drainage, and extensive paving to direct surface water runoff and prevent surface water infiltration. In areas where fluoride and cyanide levels were elevated, but PCBs were not, the action was to remove most of the elevated concentrations and isolate the residual constituents by covering with clean backfill and paving the surface with reinforced concrete. Some soils with PCB concentrations less than 10 ppm were disposed of in the Black Mud Pond. The remaining soils with PCB concentrations less than 10 ppm and soils with PCB concentrations greater than or equal to 10 ppm but less than 50 ppm PCBs were disposed of in the on-site ILF. Soil with greater than or equal to 50 ppm PCBs was disposed of off-site.

Since publication of the *Area-Specific Completion Report* (Bechtel, 1996), only one significant additional remedial effort has been performed in this area. In September 1999, excavation was performed near Building 85 (Cathode Digging Building) as part of the plant modernization effort. The resulting excavation spoils (approximately 120 cubic yards) were disposed of in the ILF. The work was documented in the *Post-Remedial Report for Third Quarter 1999*.[7] More recent activity in the area incudes demolition of the former crusher building.

The location of the former PSP and the groundwater wells in the vicinity are shown in **Figure 16**. Key post-remedial activities include inspections and groundwater monitoring.

7.1 Maintenance, Repairs and Modifications

Paving remained intact and the stormwater collection system functioned normally in 2021. Five piezometers (PZ-24 through PZ-28) were damaged and identified for decommissioning in 2021 in accordance with the *Monitoring Well Decommissioning Plan* (CDM Smith, 2021). These five piezometers were decommissioned on December 13 and 14, 2021. Additionally, piezometer PZ-29, which experienced upheaval, was repaired on December 9, 2021 and re-surveyed on December 14, 2021.

7.2 Groundwater Monitoring

This area is currently monitored by 10 monitoring wells, as well as 4 piezometers that were installed at the PSP in 2006.

Groundwater under the former PSP flows in a north and northeast direction toward the North Yard French drain. MW-27S is upgradient of the area and MW-03S is directly adjacent to the area. The closest downgradient wells are MW-26S and MW-28S. Further downgradient are MW-33S and MW-34S, both of which are also upgradient of the North Yard, and MW-35SR, which is downgradient of the North Yard. MW-42, MW-43, and MW-44, which were installed in the Spring 2006, are located downgradient of both the PSP area and the North Yard.

7.2.1 Groundwater Elevations and Hydraulic Gradients

Groundwater elevation contours based on measurements collected during April and August 2021 are presented in **Figure 4** and **Figure 5**.

Groundwater elevations and hydraulic gradients indicate groundwater under the former PSP flows in a north and northeast direction, toward the North Yard French drain, and then north to the St. Lawrence River.

The North Yard French drain system, located beneath the western side of the North Yard and at an elevation of approximately 201 feet, influences the direction of the groundwater flow from the PSP. The French drain system and the sewer system network located at the north end of the potrooms draw groundwater to the east.

7.2.2 Groundwater Quality

Historical COC concentrations are provided in **Appendix C**. Concentration trends have previously been evaluated in annual PRRs from the historical concentration data using the Sen's Slope Estimator and Mann-Kendall tests (e.g., CDM Smith, 2020). The method has historically applied the analysis to the entire historical record of concentrations. Based on the summary of all historical results, the following increasing concentration trends are observed (**Appendix D1**):

- Fluoride at MW-03S
- Fluoride at MW-26S
- WAD cyanide at MW-28S
- Cyanide at MW-34S
- Fluoride at MW-35SR
- Fluoride and sulfate at MW-42
- Fluoride at MW-44

Using the most recent significant action (120 yards of soil excavated in September 1999) at the PSP, the statistical significance of concentration trends was reevaluated for this time period using the Mann-Kendall analysis (**Appendix D2**), and a summary of the trend results compared to results for 2021 are provided in **Table 10**. Based on this method, the following increasing concentration trends are observed:

- Fluoride at MW-26S

- WAD cyanide at MW-28S
- Cyanide at MW-34S
- Fluoride at MW-35SR
- Fluoride and sulfate at MW-42
- Fluoride at MW-44

Whereas the historical cocnetration trend for MW-3S indicates fluoride is increasing, use of a more recent time data set indicates concentrations have stabilized. As indicated on the trend charts in **Appendix D1,** more recently since June 2016 fluoride has been decreasing at MW-26S, and has consistently been below the NYSWQS of 1.5 mg/L in MW-35SR and MW-44 since monitoring began (except a single measurement of 2.56 mg/L in June 2017 at MW-35SR). As described in **Appendix I** historical fluoride results at MW-42 are biased high and are not likely representative of true aquifer conditions. Also, sulfate has been declining in MW-42 since December 2015. WAD cyanide at MW-28S is within the historical range. A revised trend starting point will capture the more recent improvements in concentration trends

A detailed description of analytical results for PSP sampling locations is provided in **Section 7.2.2.1** through **Section 6.3.2.4**

7.2.2.1 Wells Near the Site

Upgradient Well – MW-27S

- Total aluminum was detected in both sampling rounds at concentrations of 4.56 and 1.95 mg/L, while dissolved aluminum was detected in the December round in MW-27S at a concentration of 0.01 mg/L. These results are consistent with total aluminum detections being caused by the acid preservative digesting clay particles in the total fraction; therefore, trends are not assessed.
- No PCBs were detected in MW-27S in 2021.
- Total cyanide was detected in both sampling rounds at concentrations below the NYSWQS of 0.2 mg/L.
- WAD cyanide was not detected in either sampling event in 2021.
- Fluoride was detected in both sampling rounds, however, was only above the NYSWQS of 1.5 mg/L during the June 2021 sampling round. Fluoride concentrations in MW-27S display a statistically significant decreasing trend since the remedial action occurred in 1999.
- Sulfate was detected in both sampling rounds above the NYSWQS of 250 mg/L; no trend currently exists for sulfate concentrations in MW-27S.

Adjacent to and under the Site – MW-03S

- Total aluminum was detected in both sampling rounds at concentrations of 0.41 and 2.06 mg/L, while dissolved aluminum was detected in both sampling rounds concentrations of 0.00613 and 0.0199 mg/L. These results are consistent with total aluminum detections being caused by the acid preservative digesting clay particles in the total fraction; therefore, trends are not assessed.
- No PCBs were detected in MW-03S in 2021.
- Total cyanide was detected above the NYSWQS of 0.2 mg/L in the June and December 2021 samples (1.32 mg/L and 0.635 mg/L, respectively); concentrations display a statistically significant decreasing trend after the 1999 remedial action as well as historically considering all samples.

- WAD cyanide was detected in the June and December 2021 sampling events at 0.419 mg/L and 0.022 mg/L, respectively; concentrations display a statistically significant decreasing trend since monitoring began in 2000.
- Fluoride was detected above the NYSWQS of 1.5 mg/L in both samples (11.3 mg/L and 15.1 mg/L). Although a historical increasing trend is calculated, fluoride concentrations have been decreasing since reaching a peak of 24.39 mg/L in July 2006. Fluoride concentrations in MW-03S have not displayed a statistically significant trend since 1999, and use of a revised trend starting point will capture the more recent improvements in concentration trends.
- Sulfate was detected above the NYSWQS of 250 mg/L in one sample collected in June 2021 at 258 mg/L; a statistically significant decreasing trend is present.

7.2.2.2 Downgradient Wells - MW-26S and MW-28S

Western Side – MW-26S

- Total aluminum was detected in both rounds at concentrations of 8.83 and 23.1 mg/L, while dissolved aluminum was detected in only one round at a concentration of 0.0187 mg/L. These results are consistent with total aluminum detections being caused by the acid preservative digesting clay particles in the total fraction; therefore, trends are not assessed.
- No PCBs were detected in MW-26S in 2021.
- Total cyanide and WAD cyanide were not detected in 2021.
- Fluoride was detected above the NYSWQS of 1.5 mg/L in both sampling rounds. Fluoride concentrations have stabilized since reaching a maximum value of 6.87 mg/L in June 2016.
- Sulfate was detected in both samples collected in 2021 at concentrations below the NYSWQS of 250 mg/L.

Eastern Side – MW-28S

- Total aluminum was detected in both sampling events at concentrations of 0.0118 and 0.0095 mg/L, while dissolved aluminum was detected at concentrations 0.00441 and 0.0074 mg/L. These results are consistent with total aluminum detections being caused by the acid preservative digesting clay particles in the total fraction; therefore, trends are not assessed.
- No PCBs were detected in MW-28S in 2021.
- Total cyanide was detected above the NYSWQS at a concentration of 1.88 mg/L. A statistically significant decreasing concentration trend is observed.
- WAD cyanide was detected in both sampling rounds at 0.148 mg/L and 0.062 mg/L in June and December, respectively.
- Fluoride was detected in both samples at concentrations above the NYSWQS, and decreased substantially since the peak concentration was observed in January 1999. A statistically significant decreasing trend for fluoride concentrations exists at MW-28S since the remedial action in 1999.
- Sulfate has been decreasing in MW-28S since January 2000 and has been below the NYSWQS of 250 mg/L for the last six monitoring events. A statistically significant decreasing trend for sulfate exists at MW-28S.

7.2.2.3 Wells Further Downgradient – MW-33S and MW-34S

MW-33S and MW-34S are located approximately 80 feet north and downgradient of wells MW-26S and MW-28S and are tested for total cyanide and WAD cyanide only.

- MW-33S, the western most of these wells, was non-detect for WAD cyanide in both sampling rounds and for total cyanide in June 2021. Prior to June 2019, total cyanide had been detected only three times since monitoring began in 1995, the most recent detection occurring in 2004.
- At MW-34S, the easternmost well, total cyanide concentrations increased to a maximum concentration of 0.095 mg/L in 2005 and have since remained below the NYSWQS Class GA standard. Total cyanide was detected in both samples collected in 2021; however, total cyanide concentrations at this well have not been above the NYSWQS Class GA standard of 0.2 mg/L. WAD cyanide was detected at MW-34S in June 2021 at a concentration of 0.012 mg/L; WAD cyanide was not detected in December 2021.

7.2.2.4 Wells Most Downgradient – MW-35SR, MW-42, MW-43, and MW-44

MW-35SR, MW-42, MW-43, and MW-44 are the most downgradient wells of the PSP and the North Yard and are located approximately 200 feet north of MW-33S and MW-34S and extend west of MW-35SR.

Aluminum

- Total aluminum was detected in both sampling events at MW-35SR at concentrations of 10 and 11.6 mg/L, while dissolved aluminum was only detected in one sampling event at a concentration of 0.01 mg/L.
- Total aluminum was detected in both sampling events at MW-42 at concentrations of 69.6 and 70 mg/L, while dissolved aluminum was detected in both sampling events at concentrations of 0.00336 and 0.0216 mg/L.
- Total aluminum was detected in both sampling events at MW-43 at concentrations of 16.6 and 28.8 mg/L, while dissolved aluminum was detected in only one sampling event at a concentration of 0.00417 mg/L.
- Total aluminum was detected in both sampling events at MW-44 at concentrations of 0.0291 and 7.82 mg/L, while dissolved aluminum was detected in one sampling event at 0.0207 mg/L.

These results are consistent with total aluminum detections being caused by the acid preservative digesting clay particles in the total fraction; therefore, trends are not assessed.

PCBs

No PCBs were detected in any of the downgradient locations in 2021. The absence of detection of PCBs indicates that PCBs are immobile in this area. The original purpose for operating the North Yard French drain was to manage PCB impacts in this area, which is no longer a concern in this area. The North Yard French drain now serves a secondary purpose to capture groundwater migrating from PSP and will continue to be operated.

Total Cyanide and WAD Cyanide

- Total cyanide and WAD cyanide were non-detect at MW-35SR during both sampling rounds in 2021.

- Total cyanide was detected in both sampling events at MW-42, and the December 2021 total cyanide concentration of 0.209 mg/L was above the NYSWQS of 0.2 mg/L. WAD cyanide was not detected at MW-42 in 2021.
- The June 2021 total cyanide and WAD cyanide from both sampling events were non-detect at MW-43.
- Total cyanide and WAD cyanide were non-detect at MW-44 in 2021.

Fluoride

- Fluoride was detected during both sampling rounds at MW-35SR below the NYSWQS of 1.5 mg/L.
- Fluoride was detected above the NYWQS in both sampling events at MW-42. Results of the sequential filtration study (**Appendix I**) indicate historical fluoride results at this location are biased high.
- Fluoride was detected in MW-43 during both sampling rounds; however, concentrations have remained below the NYSWQS since monitoring began at this well in 2006.
- Fluoride was detected during both sampling rounds at MW-44 but was below the NYSWQS.

Sulfate

- Sulfate was detected in MW-35SR above the NYSWQS of 250 mg/L during both sampling events at concentrations of 521 mg/L and 878 mg/L. There is no statistically significant trend present for sulfate in MW-35SR.
- Sulfate was detected in MW-42 above the NYSWQS during both sampling events at concentrations of 1260 and 1160 mg/L.
- Sulfate was detected in MW-43 during both sampling rounds; however, concentrations have remained below the NYSWQS since monitoring began at this well in 2006.
- Sulfate was detected during both sampling rounds at MW-44 but was below the NYSWQS.

It is possible that low-permeability lacustrine/marine clay identified between the North Yard/PSP and St Lawrence River, which is proximal to the MW-35SR and MW-42 screened intervals (**Appendix G**), contributes sulfate to these locations. A marine sulfate source is supported by elevated sulfate in other locations where wells are screened in lacustrine/marine clay, including MW-36S, MW-37, and MW-41 (**Appendix G**). Given these downgradient wells typically go dry on sampling and provide very low groundwater yields and high entrained suspended sediment, there is ample opportunity for sediment contributions to groundwater quality to occur.

7.2.3 Post-Closure Assessment

With the addition of the monitoring wells installed in 2006, and the confirmation of contaminant recovery in the North Yard French drain system, the groundwater monitoring well network is well located to assess post-closure conditions in the vicinity and downgradient of the former PSP.

The lateral extent of the elevated COC concentrations is delineated by MW-26S to the west and MW-34S to the east. The downgradient extent of elevated COC concentrations associated with the PSP in shallow groundwater appears to be captured by the French drain in the North Yard. Total cyanide was detected in two of four monitoring wells (MW-42 and MW-43) located at the fence line along Haverstock Road; total cyanide was detected in both samples collected at MW-42 at concentrations of 0.147 mg/L and 0.209 mg/L.

No PCBs were detected in the PSP area in 2021.

Total aluminum results ranged from 0.01 mg/L to 70 mg/L, while dissolved aluminum was detected at concentrations between 0.003 mg/L to 0.022 mg/L. The discrepancy between total and dissolved aluminum results are consistent with total aluminum detections being caused by the acid preservative digesting clay particles in the total fraction, as described in detail in **Appendix I**.

The highest concentrations of total cyanide detected in groundwater in 2021 were at the center of the PSP site at MW-03S (1.32 mg/L) and MW-28S (1.88 mg/L). Total cyanide concentrations in MW-03S have been above NYSWQS since monitoring began in 1998. Total cyanide concentrations in MW-28S, located north and downgradient of MW-03S have also remained above NYSWQS since monitoring began in 1999. A statistically significant decreasing trend exists for total cyanide in MW-03S and MW-28S.

The persistent elevated concentrations of COCs associated with potliner material indicate that some residual source likely remains near the former PSP or the Crusher Building. Review of the final excavation surfaces and post-excavation sampling results indicate that limitations on excavation imposed by the active buildings and roadways and the cleanup goals specific to PCBs may have resulted in some residual PSP impacted material being left in-place.

As mentioned in **Section 6.3.2.4**, the operation of the French drain system influences the direction of the groundwater flow from the PSP area. Concentrations of COCs in samples collected from the French drain are above the NYSWQS and all captured groundwater is treated prior to discharge.

8 Wetlands and Miscellaneous Areas (OU-4 and OU-6)

Remedial measures were historically implemented for the Wetlands (OU-4) and Miscellaneous Areas (OU-6) identified in the 1992 ROD (NYSDEC, 1992). There are no O&M requirements associated with these areas and are therefore not discussed in additional detail.

8.1 Wetlands

A 172-acre area located south and west of the ILF was mapped by NYSDEC as Regulated Wetland RR-6 Class II wetlands area (**Figure 1**). Portions of the wetlands were identified in the 1992 ROD (NYSDEC, 1992) as remediation areas due to the presence of COCs including PCBs, fluoride, and sulfate. The remediation area was approximately 7.8 acres and was designated as Wetlands OU-4. The remedial scope of work included temporary dewatering of impacted areas, excavation of sediment and soils, restoration of excavated areas, and the creation of replacement wetlands. This work is documented in the *Area-Specific Completion Report for Remediation, Restoration, and Mitigation of Wetlands RR-6* (Bechtel, 1998b).

No ongoing operations, maintenance, and/or monitoring is conducted in the wetlands area.

8.2 Rectifier Yard

The Rectifier Yard is on the southern end of the production area of the Plant within the perimeter road. Its principal use is as a high-voltage electrical substation. Surface water is drained from the Rectifier Yard by two networks of catch basins. The northern network collects transformer cooling water and stormwater runoff and discharges to a drainage system beneath the potrooms, which is connected to the Plant's SPDES outfall system. Stormwater runoff from the southern half of the Rectifier Yard collects in the southern network of catch basins and drains to the Rectifier Yard Pond.

Rectifier Yard remediation consisted of soil excavation in a ½-acre area. The excavated area was backfilled, graded, and surfaced with crushed stone. Remediation work also included extending and rerouting storm drains, excavating oil transfer piping, cleaning storm drains, and providing a sampling station/retention pond for surface water runoff immediately upstream of the wetlands. Remediation work is documented in the *Area-Specific Completion Report for the Remediation of the Rectifier Yard* (Bechtel, 1995a).

Figure 17 is the plan of the Rectifier Yard and the drainage network that leads to the Rectifier Yard Pond. O&M activities are limited to inspections and replacement of the Rectifier Yard Pond oil absorbent boom (as needed but no less than annually). Monitoring of the surface water chemistry of the retention pond is no longer required per NYSDEC approval in January 2013.

8.2.1 Operations

No operational activities are associated with the remedial actions conducted for the Rectifier Yard or other miscellaneous areas.

8.2.2 Maintenance, Repairs and Modifications

Oil booms were changed in March and September 2021 at the Rectifier Yard Pond. There were no further issues at the Rectifier Yard Pond in 2021.

8.2.3 Stormwater Monitoring

Sampling at this location has been discontinued as approved in a letter from the NYSDEC dated January 3, 2013.

8.3 Former Soil Stockpile

The Former Soil Stockpile was an area located southwest of the BMP where soil spoils containing less than 10 ppm total PCBs from various remedial efforts performed at the Site were stored. Remedial activities performed in 1994 included excavation and removal of this material to below the cleanup goal of 1 ppm total PCBs. Excavated material was placed in the on-site ILF. Details of the remediation action are provided in the *Area-Specific Completion Report for Remediation of the Soil Stockpile* (Bechtel, 1995b).

No ongoing operations, maintenance, and/or monitoring is conducted in this area.

8.4 West Ditch Outfall

Remediation of the downstream portion of the West Ditch located north of Haverstock Road is detailed in the *Project Completion Report for the Remediation of the 002 Outfall/West Ditch System and Remediation of the 007 Outfall* (Bechtel, 1992). The objectives of the remediation included the removal of PCB-impacted soil and sediment from the Outfall 008 and Outfall 007 drainage systems to meet the cleanup goal of 10 ppm total PCBs. Excavated material was ultimately placed in the on-site ILF.

No ongoing operations, maintenance, and/or monitoring is conducted in this area.

8.5 002 Diversion Area (Outfall 005)

The 002 Diversion Area was located in the northeast corner of the plant. The 002 Diversion project was an interim remedial measure completed in 1989 that consisted of diverting surface water flow to a piped system to capture waters that formerly discharged to Outfall 002 and the majority of surface water runoff from the east side of the facility. As part of the diversion project, confirmatory soil samples collected in excavated areas identified elevated PCB concentrations; therefore, these areas were identified as miscellaneous areas in the 1992 ROD (NYSDEC, 1992). Remedial activities performed are documented in the *Area-Specific Completion Report of the 002 Diversion Area* (Bechtel, 1997c) and included excavation of soils to meet the cleanup goal of 10 ppm total PCBs. Excavated material containing less than 50 ppm total PCBs was disposed of in the on-site ILF while material with a total PCB concentration greater than 50 ppm was disposed of off-site.

The Outfall 005 drainage basin is located in the eastern portion of the 002 Diversion Area. PCB detections in stormwater discharge from Outfall 005 in 1998 prompted additional remedial efforts in

1999. This remediation is documented in the *Completion Report for Remediation of the 005 Drainage Basin 002 Diversion Area* (Bechtel, 1999). Excavated material was disposed of in the on-site ILF.

No ongoing operations, maintenance, and/or monitoring is conducted in this area.

8.6 Area North of Haverstock Road and Outfall 004

The Area North of Haverstock Road was a narrow strip of land approximately 1,200 feet long by 200 to 300 feet wide located between Haverstock Road and the St. Lawrence River. Remediation completed in 1994 is documented in the *Area-Specific Completion Report for Remediation of the Area North of Haverstock Road* (Bechtel, 1995c). The remedial action included excavation of sediment and soils to meet a cleanup goal of 1 ppm total PCBs. Outfall 004 (later designated as Outfall 006) was located within this area and was remediated during installation of a new storm sewer and outfall. This work is also documented in the *Area-Specific Completion Report for Remediation of the Area North of Haverstock Road* (Bechtel, 1995c). Excavated material containing less than 50 ppm total PCBs was disposed of in the ILF while material with a total PCB concentration greater than 50 ppm was disposed of off-site.

No ongoing operations, maintenance, and/or monitoring is conducted in this area.

9 Finding and Recommendations

9.1 General

This section provides the general findings regarding the post-closure conditions and post-closure monitoring programs at the various locations of the Reynolds Metals Company Facility and provides recommendations for modifications to the post-closure monitoring program.

9.2 Black Mud Pond Findings

The existing underdrain system, installed to the bottom of the waste, was estimated from boring logs and cross sections on remediation record drawings to have an approximate elevation of 224 feet. Historic operation of the underdrain system produced water level elevations of approximately 228 feet in monitoring well MPOF-1402S and approximately 232 feet in MPOG-1601S. Dewatering of the BMP has resulted in an apparent primarily upward gradient from deep to shallow overburden groundwater at MPOF-1402S and MPOF-1403D and an apparent primarily slight downward gradient from shallow to deep overburden groundwater at MPOG-1601S and MPOG-1603D. As discussed in **Section 3.1.3** and **Section 5.4.1**, the presence of low permeability and high plasticity clay beneath the BMP precludes vertical groundwater movement and calculated vertical groundwater gradients do not reflect groundwater advection pathways.

The efficacy of the BMP underdrain system is demonstrated by water levels in piezometers installed adjacent to the BMP that are higher than the invert elevations of the underdrain, and higher than water levels in MPOF-1402S and MPOG-1601S that are screened in the interior of the BMP. This observation demonstrates an inward gradient is created by consistently dewatering the BMP. During periods of consistent sump pump operation, an inward hydraulic gradient was observed between MPOG-1402S and the surrounding wells and piezometers.

A summary of 2021 COCs in the groundwater at the BMP follows:

- PCBs were detected only in MW-13S. Aroclor 1254 was previously detected at 0.116 µg/L in December 2020, the highest detection historically at this location. These impacts are localized (not detected in any proximal wells) and are not migrating, there are no detections in downgradient groundwater monitoring wells.
- Total cyanide was detected at MW-11SR, MW-12S, MW-13S, MW-31SR; all concentrations were below NYSWQS.
- WAD cyanide was not detected at any BMP locations in 2021 except MW-11SR (0.013 mg/L).
- Fluoride concentrations at 6 of the 12 sampled BMP locations (MW-11SR, MW-12S, MW-13S, MW-15S-87, MW-30S, and PZ-44) were above NYSWQS; MW-15S-87 and PZ-45 have statistically increasing trends. MW-12S does not display a statistically significant trend since the remedial action occurred in 2004. Decreasing trends were observed at MW-20-85-S and PZ-44 since 2004, and MW-14S since 2006. The remaining wells did not display a statistically significant trend.
- Sulfate was detected above NYSWQS in 9 of the 12 monitoring locations sampled at the BMP. A statistically significant increasing trend is present in MW-12S, PZ-44 and PZ-45, while MW-11SR, MW-14S, MW-15S-87, and MW-22-85-S display decreasing trends since 2004. No statistical trends were present in MW-20-85-S, MW-23-85-S, MW-30S, MW-13S, or MW-31SR.
- Due to the presence of the barrier wall on the northern and western sides of the BMP the increasing trends in fluoride and sulfate at MW-12S are not considered to be associated with

flux from the BMP. Further concentrations and increasing trends in wells to the south of the BMP are localized with more distal downgradient wells showing no trends and/or groundwater is ultimately captured by the upgradient industrial landfill pumping wells.

- Total aluminum was detected in all BMP monitoring locations in 2021. Dissolved aluminum was detected in 9 of the 12 wells (MW-11SR, MW-12S, MW-13S, MW-15S-87, MW-22-85-S, MW-23-85-S, MW-30S, MW-31SR, and PZ-44). Dissolved aluminum was not detected in MW-14S, MW-20-85-S, and PZ-45. As described in **Appendix I**, total aluminum concentrations reflect digestion of suspended sediment particles by acid preservative in the sample bottle and are not representative of the mobile fraction of aluminum in groundwater.

The capping system meets the ROD remediation action objectives for protecting facility workers and surface water. The dewatering system installed by Bechtel and Reynolds Metals Company was not designed to lower water levels below the bottom of the waste. However, consistent operation of the underdrain and sump system has created an inward horizontal gradient that is effective at dewatering the interior of the BMP to the elevation of the underdrain inverts.

Regular post-closure monitoring and recent sampling of PZ-44, PZ-45, and PZ-46 demonstrate the presence of elevated concentrations of fluoride and sulfate outside of the BMP which are most likely related to residual impacts from conditions prior to consolidation of the BMP. As described in the updated CSM (**Section 3**), infiltration of precipitation and snowmelt into shallow soils downgradient of the BMP where groundwater advection occurs effectively dilutes COCs. In deeper and less permeable soils, groundwater advection and contaminant mass flux is limited.

BMP controls are performing as designed and continued monitoring will be performed.

9.3 Industrial Landfill Findings

Based on groundwater contour maps, the existing monitoring well network is effective for assessing post-closure conditions at the former ILF. Consistent operation of the leachate collection system provides significant hydraulic control of shallow groundwater. A summary of results and findings obtained at the ILF in 2021 are as follows:

- PCBs were not detected in the four ILF wells during 2021 or in the surface water samples collected in 2021 at SLPWETE or SLPWETW.
- Total cyanide was detected above NYSWQS at MW-45 in three of four sampling rounds (a fourth sample result was rejected in the DQA analysis; **Appendix E**); however, there is a statistically significant decreasing trend associated with total cyanide in this well. Total cyanide concentrations were detected, but below NYSWQS at the two down-gradient wells (MW-39S and MW-40S), and were non-detect at the upgradient ILF monitoring well (MW-10S).
- WAD cyanide was detected in MW-45 during all both sampling rounds at concentrations of 0.014 mg/L to 0.029 mg/L; concentrations display a decreasing trend since 2003. All other sampling locations were non-detect for WAD cyanide.
- Sulfate was detected at all sampled ILF locations at concentrations below NYSWQS except for MW-45. All four samples collected from MW-45 were above the NYSWQS of 250 mg/L (548 mg/L to 696 mg/L). Sulfate increased from low, stable levels in MW-45 to above the NYSWQS standard in September 2015. Concentrations have largely remained above the NYSWQS. Sulfate in MW-45 displays a statistically significant increasing trend. The absence of high fluoride in this well indicates that the sulfate concentrations are not associated with ongoing flux from the

landfill. The source is likely oxidation of natural sulfide from the surrounding wetland, which likely arrived at MW-45 following a short delay after initiation of the extraction well system in late 2012. As described in **Appendix I**, between 80 and 85 percent of water captured by the landfill perimeter trench comes from the direction of the wetland.

- Total aluminum was detected at all ILF monitoring locations during 2021. Dissolved aluminum was detected in at least one sample from the ILF monitoring locations except at MW-40S. This highest dissolved aluminum concentration was observed in MW-10S (0.004 mg/L). As described in **Appendix I**, total aluminum concentrations reflect digestion of suspended sediment particles by acid preservative in the sample bottle and are not representative of the mobile fraction of aluminum in groundwater.
- Fluoride was detected above the NYSWQS of 1.5 mg/L in three of the four sampling rounds at MW-39S; no trend exists for fluoride concentrations at MW-39S. Fluoride was also detected above the NYSWQS in the surface water samples collected at SLPWETE; no trend exists. Fluoride was detected below the NYSWQS at MW-10S, MW-40S, and MW-45S. Geochemical data for receiving water bodies (**Appendix I**) indicate toxicity modifying factors (chloride, alkalinity, and hardness; Parker et al., 2022) will be favorable for ameliorating low-level fluoride impacts.
- Quarterly samples were collected from the extraction wells for total cyanide and fluoride (**Table 9**). Fluoride was detected below the NYSWQS of 1.5 mg/L in all locations. Total cyanide was detected above the NYSWQS of 0.2 mg/L in EW-06 only.
- A total of 2,309,482 gallons were extracted in 2021. An evaluation of the groundwater extraction system is included in **Section 4.4.3**.

The ILF is operating as designed and continued monitoring will be performed. Mass balance data confirm substantial (80 to 86% mixing of a wetland surface water component with a 15 to 20% leachate component in the perimeter trench, hence, containment is effective. Sporadic exceedances of the SPDES total cyanide limit of 200 micrograms per liter (µg/L) at Outfall 010 are likely attributed to residual contamination.

9.4 Former Potliner Storage Pad Findings

Based on the groundwater contour plans, the groundwater monitoring well network is effective to assess post-closure conditions near the former PSP.

- There are eight wells associated with the PSP that are sampled for PCBs. PCBs were not detected at any PSP location in 2021.
- Total cyanide was detected above NYSWQS in MW-03S, MW-28S, and MW-42. Total cyanide was not detected or detected below the NYSWQS in the remaining PSP monitoring locations during 2021. Statistically significant decreasing trends are present in MW-03S and MW-28S. No trend is calculated for total cyanide concentrations in MW-42 (**Table 10**), however, examination of historical data (**Appendix C**) and concentration trends (**Appendix D2**) show a steady and approximately four-fold decrease from 0.39 mg/L in June 2014 to 0.125 mg/L in December 2021.
- WAD cyanide was detected in MW-03S, MW-28S, and MW-34S. WAD cyanide was not detected in the remaining PSP monitoring locations during 2021.
- Sulfate was detected above NYSWQS in MW-03S, MW-27S, MW-35SR, and MW-42. There is a statistically significant increasing trend associated with sulfate in MW-42; however, examination of historical data (**Appendix C**) and concentration trends (**Appendix D2**) show a steady decrease in sulfate since December 2015. The remaining wells display either statistically significant



decreasing trends or no trend for sulfate. Sulfate levels may be partially attributed to proximity of well screens to marine clay in the MW-35SR and MW-42 area.

- Fluoride was detected above NYSWQS in MW-03S, MW-26S, MW-27S, MW-28S, and MW-42. Fluoride concentrations in MW-03S have been decreasing since reaching a peak of 24.39 mg/L in July 2006. There is a statistically significant increasing trend associated with fluoride in MW-26S; however, examination of historical data (**Appendix C**) and concentration trends (**Appendix D2**) show a steady decrease since June 2016. Fluoride reached a peak concentration in MW-42 in June 2018 and has overall been declining since. The remaining locations display decreasing trends or no trend for fluoride, except for MW-35SR, which displays an increasing trend for fluoride, although no 2021 samples were in exceedance of NYSWQS.
- Total aluminum was detected in at least one sample from all locations. Dissolved aluminum was detected below the historical reporting limit of 0.1 mg/L at all locations in 2021. As described in **Appendix I**, total aluminum concentrations reflect digestion of suspended sediment particles by acid preservative in the sample bottle and are not representative of the mobile fraction of aluminum in groundwater.

The persistent elevated concentrations of constituents associated with potliner material indicate that some residual source likely remains near the former PSP or the Crusher Building. Review of the final excavation surfaces and post-excavation sampling results indicate that limitations on excavation imposed by the active buildings and roadways may have resulted in some residual PSP-impacted material being left in-place. However, the detections of total cyanide, fluoride, and sulfate above their respective NYSWQS Class GA standards in the North Yard French drain and lower concentrations in downgradient shallow monitoring wells indicate that the French drain is recovering contaminants for treatment from the shallow groundwater originating from the vicinity of the former PSP.

9.5 North Yard Findings

Based on the groundwater contour plans, the groundwater monitoring well network is effective to assess post-closure conditions at the North Yard. A summary of the observations related to the North Yard are as follows:

- PCBs were not detected in any North Yard monitoring locations.
- Total cyanide was non-detect or had detections below NYSWQS, except at the French Drain where there is a statistically significant decreasing trend. WAD cyanide was non-detect or detected below the reporting limit in all monitoring wells in the North Yard in 2021 but was detected at the French Drain.
- Total aluminum was detected all North Yard monitoring locations in 2021. Dissolved aluminum was detected in samples collected at MW-18S, MW-36, MW-37, and MW-38. The other samples at the North Yard were non-detect or detected below the reporting limit. As described in **Appendix I**, total aluminum concentrations reflect digestion of suspended sediment particles by acid preservative in the sample bottle and are not representative of the mobile fraction of aluminum in groundwater.
- Fluoride was detected above NYSWQS at MW-16S, MW-18S, MW-19S, MW-36, and the French Drain. Seven wells (MW-16S, MW-18S, MW-19S, MW-36, MW-37, MW-38, and MW-41) display decreasing trends and one well (MW-17S) currently does not display a trend. The remaining wells had fluoride concentrations below NYSWQS in 2021. Fluoride concentrations show a statistically significant decreasing concentration at the French Drain.

- Sulfate was above NYSWQS at four wells (MW-18S, MW-36, MW-37, and MW-41). MW-36 displays a decreasing trend since 2001. Sulfate has been decreasing in MW-36 since reaching a peak concentration in December 2014. Sulfate displayed an increasing trend in MW-41 since 2001; however, examination of historical data (**Appendix C**) and concentration trends (**Appendix D2**) show concentrations have decreased from 538 mg/L in since June 2013 to 309 mg/L in December 2021.

9.6 Rectifier Yard Findings

The Rectifier Yard Pond was not sampled in 2021, per letter from the NYSDEC dated January 3, 2013.

9.7 Institutional Control and Engineering Control Plan Review

The following are the Institutional Control and Engineering Control Plan reviews for the closed remediation sites. The Institutional and Engineering Controls Certification Form is included as **Appendix F**.

9.7.1 Black Mud Pond

The engineering controls associated with the closed BMP include a cap with a vegetated cover along with an underdrain system. The underdrain system is used to extract groundwater beneath the in-place waste pile. The purpose of this system is to limit infiltration and prevent potentially affected groundwater from migrating from the BMP. This underdrain system was actively pumped throughout 2020. As mentioned in **Section 5.2**, an inward horizontal was observed in response to pumping, and vertical flux is minimized by the presence of a high plasticity and low permeability clay at the base of the BMP waste. In addition, the entire BMP is surrounded by a fence to control access. Therefore, the institutional and engineering controls are in place and are adequate and functioning as designed.

9.7.2 Industrial Landfill

The engineering controls associated with the closed ILF include a cap with a vegetated cover along with a downgradient perimeter underdrain system. This underdrain system is used to extract groundwater beneath the in-place waste pile. The purpose of this system is to limit infiltration and prevent potentially affected groundwater from migrating from the ILF. This system has functioned as designed and has remained unchanged since it was approved by NYSDEC.

The upgradient groundwater extraction system was constructed during Summer 2012 and began full operation in October 2012. Five extraction wells located upgradient of the ILF are pumped continuously with the purpose of lowering the shallow groundwater beneath the ILF and reducing the impact on the surrounding groundwater regime; a total of approximately 2,309,482 gallons were extracted throughout 2021. Based on the operational experience to date, it is anticipated that continual maintenance of the system will be required and that weekly inspections will be necessary for the near future.

Sporadic total cyanide exceedances at SPDES Outfall 010 occurred in 2021. The institutional and engineering controls are adequate and functioning as designed.

9.7.3 Former Potliner Storage Pad

Part of the remedial work at former PSP included excavation and extensive paving to prevent surface water infiltration. This was inspected regularly and is in good condition (**Section 7.1**). Furthermore, contaminant concentrations observed in the French drain relative to the surrounding monitoring locations suggest that it is effectively capturing contaminated groundwater originating at the former PSP. **Table 10** presents the fluoride and total cyanide results. **Table 13** presents the estimated monthly volume of water removed from the French Drain Sump and the total for 2021. Concentrations above NYSWQS are currently being conveyed and treated through the Outfall 003 system.

At this time, no other controls are proposed for this area except routine maintenance and repair of the pavement and continued monitoring. The institutional and engineering controls are adequate and functioning as designed.

9.7.4 North Yard

Groundwater in the North Yard is controlled by two underdrain systems. The first system drains into pump station MH-B. Groundwater from this pump station is sampled and the operation and inspection of this pump station is completed by plant maintenance staff. No problems were reported during the reporting period.

The second groundwater collection system, located near the former PSP, conveys groundwater directly to the east into the west sump where it is conveyed to Outfall 003. At the time of the closure, no performance criteria were established for this system.

9.7.5 Wetlands and Facility-Wide

Facility-wide and wetlands institutional and engineering controls include groundwater monitoring, SPDES surface water and process water monitoring, and fencing for access control. These controls remain in-place and are effective at this time.

9.8 Summary and Recommendations

It is recommended that monitoring of aluminum in groundwater be discontinued as historical detections represent digestion of suspended clay by acid preservative in sample bottles. Dissolved aluminum is typically not detected or is present at very low concentrations, and there are no Class II GA groundwater standards for aluminum.

It is recommended that free cyanide be analyzed instead of WAD cyanide and total cyanide going forward as it is the form most likely to exhibit toxicological effects. There are no Class II GA groundwater standards for WAD cyanide. Class II GA groundwater standards for cyanide are based the USEPA MCL goal as there is no MCL for cyanide in New York (USEPA, 1998). In 2020, USEPA clarified that the federal MCL for cyanide is based on free cyanide (USEPA, 2020).

The statistical evaluation methods and timeframes will be revaluated for the 2022 report. Sampling protocols will be reviewed and updated during 2022.

9.8.1 Sampling Schedule

No changes in 2022 are proposed to the post-closure monitoring schedule at the Reynolds Metals Company, LLC. Massena East Plant that was implemented in 2021 (**Table 2**).

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Tables

Table 1
Monitoring Well and Piezometer Construction
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
Massena, New York
Alcoa Corporation

Facility Location and ID														
Monitoring Well ID	Site	Alcoa Coordinates[1]		Ground Elevation (feet)	Date Installed	Company	Material Type and Size	Depth of Well (feet)	Bottom of Hole Elevation (feet)	Top of Inner Casing (feet)	Screen			
											Depth		Elevation	
		Northing	Easting								Top (feet)	Bottom (feet)	Top (feet)	Bottom (feet)
MW-1S	NYD	5453.40	-8700.70	224.30	9/16/87	WCC	2-inch diameter PVC	16.00	208.30	226.56	6.00	16.00	218.30	208.30
MW-03S	PSP	5286.2	-9353.6	224.7	10/17/08	ATL	2-inch diameter PVC	23.00	201.7	227.2	13.00	23.00	211.68	201.68
MW-10S	ILF	3455.20	-9730.10	214.50	9/1/87	WCC	2-inch diameter PVC	20.50	194.00	217.62	10.50	20.50	204.00	194.00
MW-11SR	BMP	4516.60	-9682.60	240.20	9/11/87	WCC	2-inch diameter PVC	27.00	213.20	242.71	17.00	27.00	223.20	213.20
MW-12S	BMP	4830.10	-9907.20	245.10	9/16/87	WCC	2-inch diameter PVC	16.00	229.10	248.18	6.00	16.00	239.10	229.10
MW-13D	BMP	4648.4	-10125.3	243.70	9/9/87	WCC	2-inch diameter PVC	49.00	194.70	245.16	39.00	49.00	204.70	194.70
MW-13S	BMP	4659.5	-10126	243.70	9/14/87	WCC	2-inch diameter PVC	16.50	227.20	245.19	6.50	16.50	237.20	227.20
MW-14S	BMP	4392.9	-10174.5	246.60	9/4/87	WCC	2-inch diameter PVC	18.00	228.60	248.16	8.00	18.00	238.60	228.60
MW-15S-91	BMP	4085.4	-9954.1	239.60	8/12/91	ATL	2-inch diameter PVC	31.00	208.60	242.10	21.00	31.00	218.60	208.60
MW-15D	BMP	4085.9	-9962.7	239.70	9/3/87	WCC	2-inch diameter PVC	57.00	182.70	242.30	47.00	57.00	192.70	182.70
MW-15S-87	BMP	4085.80	-9973.70	239.60	9/10/87	WCC	2-inch diameter PVC	31.00	208.60	242.38	21.00	31.00	218.60	208.60
MW-16S	NYD	5268.20	-8578.60	225.90	8/7/91	WCC	2-inch diameter PVC	23.00	202.90	228.70	13.00	23.00	212.90	202.90
MW-17S	NYD	5327.20	-8684.60	223.40	8/24/89	WCC	2-inch diameter PVC	18.00	205.40	227.12	8.00	18.00	215.40	205.40
MW-18S	NYD	5269.20	-8827.70	224.70	8/30/89	WCC	2-inch diameter PVC	22.00	202.70	226.87	12.00	22.00	212.70	202.70
MW-19S	NYD	5455.00	-8978.00	223.50	8/28/89	WCC	2-inch diameter PVC	16.50	207.00	226.76	6.50	16.50	217.00	207.00
MW-20-85-S	BMP	3928.20	-9860.30	222.70	8/15/85	ATL	2-inch diameter PVC	30.50	192.20	225.95	20.50	30.50	202.20	192.20
MW-20-85-D	BMP	3917.80	-9856.00	223.00	8/20/85	ATL	2-inch diameter PVC	61.20	161.80	226.70	51.20	61.20	171.80	161.80
MW-21-85S	BMP	4411.00	-9516.90	227.20	8/22/85	ATL	2-inch diameter PVC	31.00	196.20	228.88	21.00	31.00	206.20	196.20
MW-21-85D	BMP	4426.30	-9518.40	227.20	8/22/85	ATL	2-inch diameter PVC	58.00	169.20	228.87	48.00	58.00	179.20	169.20
MW-22-85-D	BMP	4891.40	-10040.30	244.20	8/15/85	ATL	2-inch diameter PVC	60.60	183.60	246.48	50.60	60.60	193.60	183.60
MW-22-85-S	BMP	4891.40	-10025.50	244.50	8/7/85	ATL	2-inch diameter PVC	30.30	214.20	246.94	20.30	30.30	224.20	214.20
MW-23-85-D	BMP	4468.90	-10245.10	242.10	8/5/85	ATL	2-inch diameter PVC	58.00	184.10	246.14	48.00	58.00	194.10	184.10
MW-23-85-S	BMP	4487.0	-10241.0	241.9	10/17/08	ATL	2-inch diameter PVC	30.5	211.4	245.01	20.5	30.5	221.40	211.40
MW-24-85-S	BMP	---	---	228.30	8/7/85	ATL	2-inch diameter PVC	30.30	198.00	---[2]	20.30	30.30	208.00	198.00
MW-25-85-S	BMP	4935.00	-10392.60	228.30	8/8/85	ATL	2-inch diameter PVC	30.20	198.10	---[3]	20.20	30.20	208.10	198.10
MW-26S	PSP	5390.70	-9410.30	224.00	8/23/89	WCC	2-inch diameter PVC	27.50	196.50	225.36	17.50	27.50	206.50	196.50
MW-27S	PSP	5014.80	-9371.92	227.49	8/23/89	WCC	2-inch diameter PVC	22.50	204.99	230.50	12.50	22.50	214.99	204.99
MW-28S	PSP	5394.40	-9329.10	224.30	---	WCC	2-inch diameter PVC	26.00	198.30	226.54	16.00	26.00	208.30	198.30
MW-29S	BMP	5185.20	-9898.90	237.60	8/14/89	WCC	2-inch diameter PVC	17.00	220.60	241.62	7.00	17.00	230.60	220.60
MW-30S	BMP	3966.90	-10131.60	231.70	8/14/89	WCC	2-inch diameter PVC	17.00	214.70	234.54	7.00	17.00	224.70	214.70
MW-31SR	BMP	4124.60	-10770.60	233.20	8/9/89	WCC	2-inch diameter PVC	19.50	213.70	234.83	9.50	19.50	223.70	213.70
MW-32S	EAST P-LOT	4089.10	-7406.10	224.20	8/9/89	WCC	2-inch diameter PVC	37.00	187.20	227.28	27.00	37.00	197.20	187.20
MW-33S	PSP	5476.80	-9466.90	223.20	8/16/95	ATL	2-inch diameter PVC	26.00	197.20	225.72	16.00	26.00	207.20	197.20
MW-34S	PSP	5466.90	-9241.60	215.60	8/21/95	ATL	2-inch diameter PVC	24.50	191.10	218.56	14.50	24.50	201.10	191.10
MW-35SR	PSP	5695.50	-9332.20	211.10	10/27/97	ATL	2-inch diameter PVC	26.80	184.30	213.54	16.80	26.80	194.30	184.30
MW-36	NYD	5672.60	-8883.30	207.00	9/3/96	ATL	2-inch diameter PVC	31.50	175.50	209.40	21.50	31.50	185.50	175.50
MW-37	NYD	5650.50	-8708.00	204.90	9/5/96	ATL	2-inch diameter PVC	32.00	172.90	207.68	22.00	32.00	182.90	172.90
MW-38	NYD	5604.50	-8469.60	198.20	9/6/96	ATL	2-inch diameter PVC	32.00	166.20	202.71	22.00	32.00	176.20	166.20
MW-39S	ILF	2575.50	-9630.60	193.30	10/29/97	ATL	2-inch diameter PVC	18.50	174.80	196.16	8.50	18.50	184.80	174.80
MW-40S	ILF	2729.30	-9245.10	192.00	10/30/97	ATL	2-inch diameter PVC	17.50	174.50	194.32	7.50	17.50	184.50	174.50
MW-41	NYD	5501.70	-8370.20	221.50	4/11/06	ATL	2-inch diameter PVC	47.00	174.50	224.25	35.00	45.00	186.50	176.50
MW-42	NYD	5698.30	-9347.80	209.10	4/12/06	ATL	2-inch diameter PVC	47.00	162.10	211.40	34.00	44.00	175.10	165.10
MW-43	NYD	5701.90	-9461.50	206.70	4/14/06	ATL	2-inch diameter PVC	47.00	159.70	209.12	34.50	44.50	172.20	162.20
MW-44	NYD	5702.40	-9459.40	206.60	4/18/06	ATL	2-inch diameter PVC	26.50	180.10	209.04	15.00	25.00	191.60	181.60
MW-45	ILF	2527.60	-9634.90	193.40	4/19/06	ATL	2-inch diameter PVC	15.50	177.90	195.83	5.00	15.00	188.40	178.40
MW-46	ILF	2767.2	-9260.1	198.02	8/13/10	ATL	2-inch diameter PVC	8.00	190.02	200.72	24.00	29.00	174.02	169.02
MW-47	ILF	2578.2	-9633.3	193.00	8/13/10	ATL	2-inch diameter PVC	44.00	149.00	196.49	29.00	34.00	164.00	159.00
MPOF1403D[4]	BMP	4231.90	-9994.90	250.40	7/2/96	ATL	2-inch diameter PVC	32.50	217.90	254.95	30.50	32.50	219.90	217.90
MPOF1402S	BMP	4236.30	-9996.10	248.70	7/3/96	ATL	2-inch diameter PVC	25.00	223.70	254.21	23.00	25.00	225.70	223.70

Table 1
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Massena East
Massena, New York
Alcoa Corporation

Facility Location and ID														
Monitoring Well ID	Site	Alcoa Coordinates[1]		Ground Elevation (feet)	Date Installed	Company	Material Type and Size	Depth of Well (feet)	Bottom of Hole Elevation (feet)	Top of Inner Casing (feet)	Screen			
											Depth		Elevation	
		Northing	Easting								Top (feet)	Bottom (feet)	Top (feet)	Bottom (feet)
MPOG1603D[5]	BMP	4346.30	-9785.50	251.00	7/2/96	ATL	2-inch diameter PVC	31.50	219.50	254.72	29.50	31.50	221.50	219.50
MPOG1601S	BMP	4349.50	-9795.60	252.70	2/11/95	ATL	2-inch diameter PVC	20.50	232.20	254.32	0.00	19.50	252.70	233.20
Piezometers														
PZ-1	ILF	3110.15	-8980.84	215.70	6/5/02	ATL	2-inch diameter PVC	15.20	200.50	218.28	5.20	15.20	210.50	200.50
PZ-2	ILF	3106.96	-8974.50	214.30	6/5/02	ATL	2-inch diameter PVC	14.00	200.30	217.04	4.00	14.00	210.30	200.30
PZ-3	ILF	3103.48	-8966.37	213.00	6/5/02	ATL	2-inch diameter PVC	14.00	199.00	215.10	7.00	14.00	206.00	199.00
PZ-4	ILF	3102.54	-8964.80	212.60	6/5/02	ATL	2-inch diameter PVC	12.00	200.60	215.78	7.00	12.00	205.60	200.60
PZ-5	ILF	3103.23	-8962.11	213.00	6/6/02	ATL	2-inch diameter PVC	12.90	200.10	216.02	7.90	12.90	205.10	200.10
PZ-6	ILF	2862.02	-9158.43	199.60	5/29/02	ATL	2-inch diameter PVC	14.00	185.60	202.24	9.00	14.00	190.60	185.60
PZ-7	ILF	2854.46	-9155.56	198.00	5/29/02	ATL	2-inch diameter PVC	10.40	187.60	201.02	5.40	10.40	192.60	187.60
PZ-8	ILF	2843.34	-9150.24	197.70	5/30/02	ATL	2-inch diameter PVC	10.40	187.30	201.85	6.40	10.40	191.30	187.30
PZ-9	ILF	2841.53	-9149.39	198.20	5/30/02	ATL	2-inch diameter PVC	10.40	187.80	201.53	6.40	10.40	191.80	187.80
PZ-10	ILF	2721.24	-9493.49	199.90	6/3/02	ATL	2-inch diameter PVC	14.00	185.90	202.82	7.00	14.00	192.90	185.90
PZ-11	ILF	2715.00	-9490.99	199.20	6/3/02	ATL	2-inch diameter PVC	13.50	185.70	202.43	8.50	13.50	190.70	185.70
PZ-12	ILF	2702.16	-9485.72	197.80	6/4/02	ATL	2-inch diameter PVC	11.60	186.20	201.10	7.60	11.60	190.20	186.20
PZ-13	ILF	2700.22	-9485.03	197.40	6/4/02	ATL	2-inch diameter PVC	11.70	185.70	201.12	7.70	11.70	189.70	185.70
PZ-14	ILF	2714.94	-9918.27	199.50	5/23/02	ATL	2-inch diameter PVC	10.90	188.60	201.91	5.90	10.90	193.60	188.60
PZ-15	ILF	2709.67	-9923.35	198.30	5/23/02	ATL	2-inch diameter PVC	9.80	188.50	200.58	5.80	9.80	192.50	188.50
PZ-16	ILF	2701.32	-9931.53	198.40	5/23/02	ATL	2-inch diameter PVC	9.90	188.50	200.66	7.90	9.90	190.50	188.50
PZ-17	ILF	2699.53	-9933.31	198.60	5/23/02	ATL	2-inch diameter PVC	10.20	188.40	200.99	8.20	10.20	190.40	188.40
PZ-18	ILF	3100.32	-9930.31	208.60	5/21/02	ATL	2-inch diameter PVC	11.90	196.70	210.96	6.90	11.90	201.70	196.70
PZ-19	ILF	3103.66	-9933.61	207.20	5/21/02	ATL	2-inch diameter PVC	10.50	196.70	209.47	5.50	10.50	201.70	196.70
PZ-20	ILF	3107.65	-9939.05	205.50	5/21/02	ATL	2-inch diameter PVC	8.70	196.80	208.10	3.70	8.70	201.80	196.80
PZ-21	ILF	3109.13	-9941.03	205.00	5/21/02	ATL	2-inch diameter PVC	8.60	196.40	207.75	3.60	8.60	201.40	196.40
PZ-22	ILF	3109.92	-9942.97	205.30	5/21/02	ATL	2-inch diameter PVC	9.40	195.90	207.72	4.40	9.40	200.90	195.90
PZ-23	PSP	5126.80	-9324.30	227.30	4/19/06	ATL	1-inch diameter PVC	16.00	211.30	231.80	1.00	16.00	226.30	211.30
PZ-24	PSP	5208.60	-9327.80	225.40	4/19/06	ATL	1-inch diameter PVC	12.00	213.40	225.20	2.00	12.00	223.40	213.40
PZ-25	PSP	5255.90	-9327.20	224.30	4/19/06	ATL	1-inch diameter PVC	12.00	212.30	224.10	1.50	12.00	222.80	212.30
PZ-26	PSP	5317.60	-9331.50	224.00	4/19/06	ATL	1-inch diameter PVC	12.00	212.00	223.80	1.50	12.00	222.50	212.00
PZ-27	PSP	5335.10	-9265.10	224.10	4/20/06	ATL	1-inch diameter PVC	11.00	213.10	223.90	0.75	11.00	223.35	213.10
PZ-28	PSP	5291.90	-9401.80	224.30	4/20/06	ATL	1-inch diameter PVC	12.00	212.30	224.10	1.50	12.00	222.80	212.30
PZ-29	PSP	5174.00	-9439.90	225.10	4/20/06	ATL	1-inch diameter PVC	9.50	215.60	229.30	1.50	9.00	223.60	216.10
PZ-30	PSP	5121.60	-9388.20	226.50	4/19/06	ATL	1-inch diameter PVC	9.10	217.40	231.50	0.75	9.00	225.75	217.50
PZ-31	PSP	5054.80	-9387.80	227.30	4/20/06	ATL	1-inch diameter PVC	12.00	215.30	231.80	1.50	12.00	225.80	215.30
PZ-32	BMP	4572.60	-10091.50	246.70	4/17/06	ATL	1-inch diameter PVC	11.10	235.60	251.47	0.70	11.00	246.00	235.70
PZ-33	BMP	4584.30	-10132.60	244.20	4/17/06	ATL	1-inch diameter PVC	12.00	232.20	249.03	1.50	12.00	242.70	232.20
PZ-34	BMP	4591.20	-10163.50	241.50	4/17/06	ATL	1-inch diameter PVC	10.20	231.30	246.36	1.50	10.00	240.00	231.50
PZ-35	BMP	4603.20	-10192.00	240.30	4/18/06	ATL	1-inch diameter PVC	6.00	234.30	244.98	0.75	6.00	239.55	234.30
PZ-36	BMP	4615.10	-10222.40	239.30	4/18/06	ATL	1-inch diameter PVC	6.50	232.80	243.85	1.00	6.50	238.30	232.80
PZ-37	BMP	4129.30	-10108.80	240.10	4/18/06	ATL	1-inch diameter PVC	16.00	224.10	244.54	0.75	16.00	239.35	224.10
PZ-38	BMP	4100.70	-10119.60	239.70	4/18/06	ATL	1-inch diameter PVC	12.00	227.70	244.15	1.50	12.00	238.20	227.70
PZ-39	BMP	4061.80	-10127.30	229.30	4/20/06	ATL	1-inch diameter PVC	4.00	225.30	233.63	0.75	4.00	228.55	225.30
PZ-40	BMP	4024.70	-10136.60	228.10	4/20/06	ATL	1-inch diameter PVC	2.00	226.10	232.65	0.50	2.00	227.60	226.10
PZ-41	BMP	3993.80	-10137.30	228.70	4/20/06	ATL	1-inch diameter PVC	2.00	226.70	232.64	0.50	2.00	228.20	226.70
PZ-42	BMP	4106.20	-9846.50	238.20	4/18/06	ATL	1-inch diameter PVC	15.00	223.20	242.72	3.00	13.00	235.20	225.20
PZ-43	BMP	4083.20	-9841.60	238.80	4/18/06	ATL	1-inch diameter PVC	16.00	222.80	243.20	1.00	16.00	237.80	222.80
PZ-44	BMP	4027.80	-9840.10	225.00	4/18/06	ATL	1-inch diameter PVC	12.00	213.00	229.01	1.50	12.00	223.50	213.00
PZ-45	BMP	3997.60	-9837.00	223.20	4/18/06	ATL	1-inch diameter PVC	12.00	211.20	228.24	1.50	12.00	221.70	211.20
PZ-46	BMP	3962.60	-9835.00	223.20	4/18/06	ATL	1-inch diameter PVC	7.50	215.70	227.69	1.50	7.50	221.70	215.70

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Massena East
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Alcoa Corporation

Facility Location and ID														
Monitoring Well ID	Site	Alcoa Coordinates[1]		Ground Elevation (feet)	Date Installed	Company	Material Type and Size	Depth of Well (feet)	Bottom of Hole Elevation (feet)	Top of Inner Casing (feet)	Screen			
											Depth		Elevation	
		Northing	Easting								Top (feet)	Bottom (feet)	Top (feet)	Bottom (feet)
PZ-47	ILF	2666.55	-9948.29	192.55	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-48	ILF	2664.64	-9943.86	192.76	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-49	ILF	2621.17	-9578.61	192.63	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-50	ILF	2618.77	-9582.24	192.76	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-51	ILF	2751.74	-9308.03	198.90	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-52	ILF	2754.22	-9302.20	198.70	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-53	ILF	2338.60	-9459.86	191.60	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-54	ILF	2342.46	-9456.01	191.64	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-55	ILF	2132.46	-9191.93	192.23	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-56	ILF	2136.99	-9191.10	192.55	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-57	ILF	2077.21	-8794.79	192.30	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-58	ILF	2080.97	-8793.47	192.48	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-59	ILF	2824.95	-8538.55	191.82	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-60	ILF	2828.77	-8539.85	191.70	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-61	ILF	2743.96	-8561.26	191.17	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-62	ILF	2741.57	-8563.22	191.10	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-63	ILF	2575.54	-8590.12	190.72	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-64	ILF	2578.08	-8595.12	190.76	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-65	ILF	3120.40	-7794.92	201.86	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-66	ILF	3126.77	-7800.31	202.25	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-67	ILF	2730.85	-8036.21	192.15	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-68	ILF	2734.27	-8034.03	192.29	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-69	ILF	2978.47	-7644.46	200.27	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-70	ILF	2981.21	-7641.61	200.32	9/29/08 - 10/10/08	ATL	2-inch diameter PVC	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]	---[4]
PZ-71S	ILF	3162.5	-9883.5	209.69	7/13/10	ATL	1-inch diameter PVC	35	174.69	212.75	10.00	20.00	199.69	189.69
PZ-71D	ILF	3162.3	-9883.4	209.69	7/13/10	ATL	1-inch diameter PVC	35	174.69	212.61	25.00	35.00	184.69	174.69
PZ-72	ILF	3170.6	-9871.2	209.94	7/14/10	ATL	1-inch diameter PVC	21	188.94	212.67	10.00	20.00	199.94	189.94
PZ-73S	ILF	3303.1	-9630.7	210.67	8/19/10	ATL	1-inch diameter PVC	34	176.67	209.94	15.00	20.00	195.67	190.67
PZ-73D	ILF	3303.3	-9630.9	210.67	819/10	ATL	1-inch diameter PVC	34	176.67	210.17	27.50	32.50	183.17	178.17
PZ-74D	ILF	3303.5	-9615.7	210.93	8/20/10	ATL	1-inch diameter PVC	34	176.93	210.40	27.50	32.50	183.43	178.43
PZ-74S	ILF	3303.4	-9615.8	210.93	8/20/10	ATL	1-inch diameter PVC	34	176.93	210.30	15.00	20.00	195.93	190.93
PZ-75S	ILF	3210.9	-9243.2	224.06	7/22/10	ATL	1-inch diameter PVC	46.5	177.56	226.91	16.75	21.75	207.31	202.31
PZ-75D	ILF	3210.9	-9243.2	224.06	7/22/10	ATL	1-inch diameter PVC	46.5	177.56	226.90	40.50	45.50	183.56	178.56
PZ-76	ILF	3211.7	-9227.9	224.00	7/23/10	ATL	1-inch diameter PVC	46.5	177.50	226.25	40.50	45.50	183.50	178.50
PZ-77	ILF	3227.0	-9785.9	210.77	5/24/12	ATL	1-inch diameter PVC	35	175.77	213.53	30.00	35.00	180.77	175.77
PZ-78	ILF	3302.1	-9640.9	210.14	5/17/12	ATL	1-inch diameter PVC	35	175.14	210.14	30.00	35.00	180.14	175.14
PZ-79	ILF	3241.1	-9378.5	218.90	5/16/12	ATL	1-inch diameter PVC	35	183.90	221.36	30.00	35.00	188.90	183.90

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Facility Location and ID														
Monitoring Well ID	Site	Alcoa Coordinates[1]		Ground Elevation (feet)	Date Installed	Company	Material Type and Size	Depth of Well (feet)	Bottom of Hole Elevation (feet)	Top of Inner Casing (feet)	Screen			
											Depth		Elevation	
		Northing	Easting								Top (feet)	Bottom (feet)	Top (feet)	Bottom (feet)
Extraction Wells														
EW-01	ILF	3157.0	-9891.8	209.32	7/12/10	ATL	4-inch diameter PVC	55	154.32	212.47	26.00	36.00	183.32	173.32
EW-02	ILF	3302.3	-9640.7	210.72	8/18/10	ATL	4-inch diameter PVC	47	163.72	210.13	25.00	35.00	185.72	175.72
EW-03	ILF	3209.9	-9253.3	224.06	7/21/10	ATL	4-inch diameter PVC	57	167.06	226.30	38.00	48.00	186.06	176.06
EW-04	ILF	3314.0	-9455.2	218.73	5/23/12	ATL	4-inch diameter PVC	49	169.73	218.13	37.00	47.00	181.73	171.73
EW-05	ILF	3223.4	-9306.6	223.88	5/16/12	ATL	4-inch diameter PVC	50	173.88	226.55	38.00	48.00	185.88	175.88
EW-06	ILF	3224.8	-9129.9	221.55	5/14/12	ATL	4-inch diameter PVC	54	167.55	224.39	42.00	52.00	179.55	169.55

Notes:
Table prepared by CDM Smith.
[1] The northings and eastings listed are based on Alcoa's coordinate system. This system is based on the benchmark location King's Bench, which is located just west of Alcoa's Building 60.
[2] Destroyed during construction.
[3] Borrow Pit
[4] Information was determined to be inaccurate. Information not available.
[5] Information was determined to be inaccurate. Information not available.
--- = Well data unavailable
ATL = Atlantic Testing Company
BMP = Black Mud Pond
East P-Lot = East Parking Lot
ILF = Industrial Landfill
NYD = North Yard
PSP = Potliner Storage Pad
PVC = polyvinyl chloride
WCC = Woodward Clyde Consultants

Table 2
Groundwater Monitoring Schedule
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
Massena, New York

Site	Monitoring Well	Parameters	Sampling Frequency	Water Level Frequency
Black Mud Pond (OU2)	MPOF1402S[1]	---		M
	MPOF1403D[1]	---		M
	MPOG1601S[1]	---		M
	MPOG1603D[1]	---		M
	MW-11SR	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-12S	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-12D	---		S
	MW-13S	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-14S	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-15S-87	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-15S-91	---		S
	MW-20-85S	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-20-85D	---		S
	MW-21-85S	---		S
	MW-21-85D	---		S
	MW-22-85S [2]	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-22-85D	---		S
	MW-23-85S	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-23-85D	---		S
	MW-25-85S	---		S
	MW-29S	---		S
	MW-30S	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-31SR	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	PZ-32 thru PZ-43[1]	---		---[3]
	PZ-44 thru PZ-46 [2]	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	---[3]

Table 2
Groundwater Monitoring Schedule
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
Massena, New York

Site	Monitoring Well	Parameters	Sampling Frequency	Water Level Frequency
Industrial Landfill (OU1)	PZ-1 thru PZ-22[1]	---	---	M
	MW-10S	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	Q	Q
	MW-39S	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	Q	Q
	MW-40S	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	Q	Q
	MW-45	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	Q	Q
	Wetlands (2 Locations)	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	Q	---
	EW-01	---	---	M
	EW-02	---	---	M
	EW-03	---	---	M
	EW-04	---	---	M
	EW-05	---	---	M
	EW-06	---	---	M
	PZ-76 thru PZ-79	---	---	M
	MW-46	---	---	M
	MW-47	---	---	M
Former Potliner Storage Pad (OU5)	MW-3S	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-26S	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-27S	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-28S	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-33S	CN Total, CN WAD	S	S
	MW-34S	CN Total, CN WAD	S	S
	MW-35SR	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-42	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-43	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-44	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	PZ-23 thru PZ-31[1]	---		M

Table 2
Groundwater Monitoring Schedule
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
Massena, New York

Site	Monitoring Well	Parameters	Sampling Frequency	Water Level Frequency
North Yard (OU3)	MW-1S	---		S
	MW-16S	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-17S	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-18	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-19S	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-36	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-37	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-38	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	MW-41	Total Al, Dissolved Al, CN Total, CN WAD, F, PCBs Total, Sulfate	S	S
	French Drain	CN Total, CN WAD, F, Sulfate	S	---
Rectifier Yard (OU6)	Rypondpipe	PCBs	---[4]	---

Notes:
Table prepared by CDM Smith.
[1] Piezometer
[2] Incorporated into quarterly sampling in October 2008 to determine if fluoride is migrating from the Black Mud Pond.
[3] Groundwater levels no longer collected; inaccurate measurements due to upheaval of piezometers.
[4] Sampling discontinued per letter from NYSDEC dated January 3, 2013.
--- = Not sampled
Al = Aluminum
CN = Cyanide
F = Fluoride
M = Monthly
NYSDEC = New York State Department of Environmental Conservation
PCB = polychlorinated biphenyl
Q = Quarterly
S = Semiannual
WAD = Weak Acid Dissociable

NYSDEC. 2013. Alcoa, Inc. - Massena East Plant (Former Reynolds Metals Co.), Site# 645009 Post Closure Monitoring. January 03.

Table 3
Groundwater Elevation Measurements at BMP
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
Massena, New York
Alcoa Corporation

Monthly Piezometer Water Level Elevations (feet msl)												
Location	**Jan-21**	**Feb-21**	**Mar-21**	**Apr-21**	**May-21**	**Jun-21**	**Jul-21**	**Aug-21**	**Sep-21**	**Oct-21**	**Nov-21**	**Dec-21**
MPOF1402S	227.46	227.43	227.54	---	227.41	227.42	227.43	233.13	227.49	---	---	229.39
MPOF1403D	229.63	229.54	229.8	---	229.86	228.99	228.74	229.11	229.26	---	---	230.24
MPOG1601S	231.33	231.37	231.32	---	231.3	231.36	231.35	230.92	231.6	---	---	231.85
MPOG1603D	231.56	231.56	231.58	---	231.56	231.38	231.34	230.12	231.2	---	---	233.62

Semiannual Water Level Elevations and Comprehensive Groundwater Monitoring Elevations (feet msl)												
Location	**Jan-21**	**Feb-21**	**Mar-21**	**Apr-21**	**May-21**	**Jun-21**	**Jul-21**	**Aug-21**	**Sep-21**	**Oct-21**	**Nov-21**	**Dec-21**
MW-11SR	---	---	---	---	234.61	232.26	---	234.15	---	---	---	236.57
MW-12D	---	---	---	---	238.74	---	---	234.78	---	---	---	235.14
MW-12S	---	---	---	---	242.33	240.23	---	240.78	---	---	---	244.01
MW-13D	---	---	---	---	239.04	---	---	237.14	---	---	---	237.47
MW-13S	---	---	---	---	239.31	237.45	---	237.34	---	---	---	239.82
MW-14S	---	---	---	---	242.89	240.65	---	240.11	---	---	---	243.78
MW-15D	---	---	---	225.95	---	---	---	225.23	---	---	---	---
MW-15S-87	---	---	---	---	233.58	227.95	---	222.12	---	---	---	236.65
MW-15S-91	---	---	---	---	227.08	---	---	226.05	---	---	---	226.3
MW-20-85-D	---	---	---	---	223.88	---	---	222.73	---	---	---	223.2
MW-20-85-S	---	---	---	---	215.55	214.44	---	216.5	---	---	---	216.6
MW-21-85D	---	---	---	---	223.5	---	---	223.62	---	---	---	224.12
MW-21-85S	---	---	---	---	218.48	---	---	223.66	---	---	---	223.78
MW-22-85-D	---	---	---	---	237.7	---	---	233.93	---	---	---	234.38
MW-22-85-S	---	---	---	---	240.29	235.55	---	236.89	---	---	---	240.84
MW-23-85-D	---	---	---	---	238.82	---	---	236.09	---	---	---	236.27
MW-23-85-S	---	---	---	---	239.69	234.43	---	235.51	---	---	---	240.76
MW-25-85-S	---	---	---	---	---[1]	---	---	221.19	---	---	---	221.49
MW-29S	---	---	---	---	---[2]	---	---	231.42	---	---	---	231.99
MW-30S	---	---	---	---	228.75	226.84	---	227.93	---	---	---	228.91
MW-31SR	---	---	---	---	222.31	218.98	---	218.2	---	---	---	224.52
PZ-44 [3]	---	---	---	---	---	---	---	---	---	---	---	---
PZ-45 [3]	---	---	---	---	---	---	---	---	---	---	---	---
PZ-46 [3]	---	---	---	---	---	---	---	---	---	---	---	---

Notes:
Table prepared by CDM Smith.
[1] No sample was collected, could not access groundwater due to blockage from tubing.
[2] No sample was collected, bail was stuck in well.
[3] Groundwater levels no longer collected; inaccurate measurements due to upheaval of piezometers.
--- = Water levels were not measured
feet msl = feet above mean sea level

Table 4
Groundwater Elevations at Industrial Landfill
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
Massena, New York
Alcoa Corporation

Monthly Piezometer Water Level Elevations (feet msl)												
Location	**Jan-21**	**Feb-21**	**Mar-21**	**Apr-21**	**May-21**	**Jun-21**	**Jul-21**	**Aug-21**	**Sep-21**	**Oct-21**	**Nov-21**	**Dec-21**
Transect 1												
PZ-1[a]	200.77	205.05	206.73	---	206.82	205.36	205.4	206.08	205.93	---	---	206.48
PZ-2	200.73	200.57	200.68	---	200.67	201.58	200.59	200.57	200.59	---	---	202.67
Drain Invert	*200.00*	*200.00*	*200.00*	*200.00*	*200.00*	*200.00*	*200.00*	*200.00*	*200.00*	*200.00*	*200.00*	*200.00*
PZ-3	200.45	200.3	200.97	---	200.78	199.83	199.93	200.87	199.8	---	---	200.19
PZ-4	201.04	201.03	201.09	---	200.93	200.91	200.91	200.91	200.88	---	---	201.68
PZ-5[b]	201.45	201.08	201.43	---	201.77	200.96	200.86	201.56	201.07	---	---	201.92
Transect 2												
PZ-6[a]	191.95	191.37	191.23	---	191.23	191.05	191.02	190.95	190.86	---	---	191.54
PZ-7	191.39	190.37	191.63	---	191.94	190.59	189.9	189.82	189.72	---	---	190.42
Drain Invert	*188.20*	*188.20*	*188.20*	*188.20*	*188.20*	*188.20*	*188.20*	*188.20*	*188.20*	*188.20*	*188.20*	*188.20*
PZ-8	191.59	190.3	191.27	---	190.82	189.72	189.45	189.52	189.5	---	---	190.04
PZ-9[b]	192.63	191.24	192.77	---	192.93	190.85	190.89	190.94	190.73	---	---	191.63
Transect 3												
PZ-10[a]	---	189.53	189.54	---	189.41	189.24	189.29	189.26	188.91	---	---	189.72
PZ-11	191.08	189.5	189.48	---	189.37	189.27	189.26	189.21	189.13	---	---	189.43
Drain Invert	*186.10*	*186.10*	*186.10*	*186.10*	*186.10*	*186.10*	*186.10*	*186.10*	*186.10*	*186.10*	*186.10*	*186.10*
PZ-12	191.76	190.56	191.06	---	191.23	190.86	190.28	190.27	190	---	---	190.75
PZ-13[b]	192.02	190.58	191.03	---	191.2	190.34	190.27	190.25	190.22	---	---	190.91
Transect 4												
PZ-14[a]	190.91	189.72	189.87	---	189.89	189.46	189.6	189.38	189.51	---	---	190.11
PZ-15	---	189.67	189.8	---	189.87	189.42	189.56	189.34	189.48	---	---	190.58
Drain Invert	*189.90*	*189.90*	*189.90*	*189.90*	*189.90*	*189.90*	*189.90*	*189.90*	*189.90*	*189.90*	*189.90*	*189.90*
PZ-16	---	189.99	190.17	---	190.4	189.8	189.84	189.62	189.61	---	---	190.36
PZ-17[b]	---	190.11	190.32	---	190.56	189.95	189.98	189.73	189.67	---	---	190.59
Transect 5												
PZ-18[a]	---	201.17	201.22	---	201.21	200.7	200.64	200.67	200.76	---	---	201.26
PZ-19	---	200.85	200.82	---	203.84	200.81	200.82	200.63	200.82	---	---	201.47
Drain Invert	*196.50*	*196.50*	*196.50*	*196.50*	*196.50*	*196.50*	*196.50*	*196.50*	*196.50*	*196.50*	*196.50*	*196.50*
PZ-20	195.98	195.96	196	---	196	195.93	195.92	195.92	195.6	---	---	196.16
PZ-21	201.33	200.81	200.86	---	200.96	199.89	199.77	199.95	200.53	---	---	200.95
PZ-22[b]	201.8	201.26	201.12	---	201.19	199.79	199.46	200.1	200.27	---	---	201.04

Table 4
Groundwater Elevations at Industrial Landfill
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
Massena, New York
Alcoa Corporation

Monthly Water Level Elevations (feet msl)												
Location	**Jan-21**	**Feb-21**	**Mar-21**	**Apr-21**	**May-21**	**Jun-21**	**Jul-21**	**Aug-21**	**Sep-21**	**Oct-21**	**Nov-21**	**Dec-21**
EW-01 [1]	182.59	205.9	181.48	---	180.95	181.75	181.35	181.11	183.19	---	---	182.97
EW-02 [1]	---[3]	---[3]	182.98	---	184.63	204.33	193.63	197.53	193.73	---	---	193.88
EW-03 [1]	203.8	202.3	203.85	---	203.74	201.68	204.52	226.3	202.22	---	---	202.6
EW-04 [1]	189.13	188.98	188.26	---	189.78	197.61	189.61	192.29	190.38	---	---	190.73
EW-05 [1]	191.73	188.44	191.39	---	191.01	191.57	204.93	185.35	189.9	---	---	190.23
EW-06 [1]	185.67	183.04	188.49	---	188.59	189.28	189.79	189.09	188.25	---	---	188.42
PZ-76	204.15	202.59	204.19	---	204.06	202.04	204.25	202.14	202.61	---	---	203.45
PZ-77	205.35	205.53	205.27	---	205.25	204.19	204.52	200.57	204.88	---	---	205.33
PZ-78	205.94	202.44	205.26	---	205.62	201.76	201.72	203.74	203.18	---	---	204.02
PZ-79	206.56	204.34	206.18	---	206.14	203.65	203.98	204.04	204.51	---	---	205.44

Quarterly Water Level Elevations and Comprehensive Groundwater Monitoring Elevations (feet msl)												
Location	**Jan-21**	**Feb-21**	**Mar-21**	**Apr-21**	**May-21**	**Jun-21**	**Jul-21**	**Aug-21**	**Sep-21**	**Oct-21**	**Nov-21**	**Dec-21**
MW-10S	---	---	211.12	---	210.71	208.36	---	209.02	---	---	---	211.31
MW-39S	---	---	192.23	---	192.36	191.51	---	191.22	---	---	---	192.2
MW-40S	---	---	192.42	---	192.44	191.67	---	191.58	---	---	---	192.47
MW-45	---	---	192.37	---	192.31	191.27	---	191.26	---	---	---	192.31

Notes:

Table prepared by CDM Smith.

[1] The groundwater extraction system was completed in summer/fall 2012 and monthly groundwater level measurements were initiated in November 2012.

[2] No Access to Monitoring Location.

[3] Frozen conditions prevented a water level from being taken.

[a] Upslope side of drain

[b] Downslope side of drain

--- = Water levels were not measured

feet msl = feet above mean sea level

Table 5
Groundwater Elevation Data for Former Potliner Storage Pad Area
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
Massena, New York

Monthly Piezometer Water Level Elevations at the Former Potliner Storage Pad Area (feet msl)												
Location	**Jan-21**	**Feb-21**	**Mar-21**	**Apr-21**	**May-21**	**Jun-21**	**Jul-21**	**Aug-21**	**Sep-21**	**Oct-21**	**Nov-21**	**Dec-21**
PZ-23	219.65	218.88	219.5	219.41	219.53	219.29	220.78	219.72	220.8	---	---	221.58
PZ-29	224.49	223.08	221.92	--- [1]	222.12	222.26	223.04	221.82	222.67	---	---	222.95
PZ-30	225.1	222.83	223.45	223.04	223.25	222.7	224.2	223.54	223.94	---	---	224.59
PZ-31	224.7	225.18	225.93	225.17	225.84	224.93	225.44	225.07	225.4	---	---	225.69

Semiannual Water Level Elevations and Comprehensive Groundwater Monitoring Elevations (feet msl)												
Location	**Jan-21**	**Feb-21**	**Mar-21**	**Apr-21**	**May-21**	**Jun-21**	**Jul-21**	**Aug-21**	**Sep-21**	**Oct-21**	**Nov-21**	**Dec-21**
MW-03S	---	---	---	221.12	---	220.54	---	---	---	---	---	224.22
MW-26S	---	---	---	214.72	---	214.49	---	215.16	---	---	---	215.32
MW-27S	---	---	---	221.13	---	221.2	---	221.78	---	---	---	221.01
MW-28S	---	---	---	213.69	---	213.73	---	213.99	---	---	---	214.44
MW-33S	---	---	---	212.86	---	212.31	---	212.93	---	---	---	213.45
MW-34S	---	---	---	205.78	---	205.47	---	206.32	---	---	---	206.29
MW-35SR	---	---	---	198.96	---	199.31	---	195.19	---	---	---	201.99

Notes:
Table prepared by CDM Smith.
--- = Water levels were not measured
feet msl = feet above mean sea level

Table 6
Groundwater Elevation Data for North Yard
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
Massena, New York

Semiannual Water Level Elevations and Comprehensive Groundwater Monitoring Elevations (feet msl)												
Location	**Jan-21**	**Feb-21**	**Mar-21**	**Apr-21**	**May-21**	**Jun-21**	**Jul-21**	**Aug-21**	**Sep-21**	**Oct-21**	**Nov-21**	**Dec-21**
MW-01S	---	---	---	213.31	---	---	---	213.34	---	---	---	213.73
MW-16S	---	---	---	222.62	---	210.1	---	220.45	---	---	---	210
MW-17S	---	---	---	217.55	---	214.36	---	214.56	---	---	---	217.99
MW-18S	---	---	---	208.49	---	208.45	---	208.45	---	---	---	208.44
MW-19S	---	---	---	---	---	213.74	---	214.03	---	---	---	214.44
MW-36	---	---	---	201.26	---	200.94	---	201.24	---	---	---	201.94
MW-37	---	---	---	203.5	---	203.11	---	203.35	---	---	---	204.42
MW-38	---	---	---	196.56	---	195.62	---	196.08	---	---	---	196.88
MW-41	---	---	---	200.24	---	198.91	---	201.59	---	---	---	201.18
MW-42	---	---	---	190.39	---	189.99	---	190.08	---	---	---	189.83
MW-43	---	---	---	200.57	---	200.11	---	199.9	---	---	---	201.12
MW-44	---	---	---	200.82	---	200.46	---	201.12	---	---	---	201.27

Notes:
Table prepared by CDM Smith.
--- = Water levels were not measured
feet msl = feet above mean sea level

Table 7
Summary of Groundwater and Surface Water Recovered from Landfill
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
Massena, New York
Alcoa Corporation

Month	1999		2000		2001		2002		2003		2004		2005	
	Monthly Quantity[1]	Cumulative Total[2]	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total
January	1,050,370	32,130,235	610,802	40,289,510	788,334	53,062,064	1,453,705	64,312,202	485,292	73,655,904	542,455	79,438,633	835,126	86,590,770
February	923,917	33,054,152	896,705	41,186,215	973,735	54,035,799	857,292	65,169,494	270,328	73,926,232	365,950	79,804,583	606,581	87,197,351
March	1,849,073	34,903,225	1,652,232	42,838,447	1,339,237	55,375,036	947,248	66,116,742	680,754	74,606,986	417,067	80,221,650	1,075,735	88,273,086
April	655,542	35,558,767	1,725,352	44,563,799	984,693	56,359,729	1,407,871	67,524,613	659,503	75,266,489	531,531	80,753,181	1,578,756	89,851,842
May	366,192	35,924,959	1,848,988	46,412,787	1,155,585	57,515,314	1,139,489	68,664,102	209,581	75,476,070	757,966	81,511,147	1,004,319	90,856,161
June	398,666	36,323,625	750,211	47,162,998	1,018,585	58,533,899	1,696,212	70,360,314	57,707	75,533,777	573,294	82,084,441	1,087,759	91,943,920
August	324,197	37,010,492	904,441	49,008,966	373,359	59,441,117	404,739	71,802,093	429,135	76,502,114	524,652	83,073,268	464,180	93,195,893
September	384,107	37,394,599	1,114,891	50,123,857	511,950	59,953,067	250,070	72,052,163	266,833	76,768,947	601,062	83,674,330	1,392,139	94,588,032
October	612,392	38,006,991	676,925	50,800,782	810,097	60,763,164	548,279	72,600,442	518,425	77,287,372	458,382	84,132,712	1,224,686	95,812,718
November	864,205	38,871,196	752,861	51,553,643	913,594	61,676,758	99,951	72,700,393	788,915	78,076,287	686,725	84,819,437	1,443,978	97,256,696
December	807,512	39,678,708	720,087	52,273,730	1,181,739	62,858,497	470,219	73,170,612	819,891	78,896,178	936,207	85,755,644	1,073,878	98,330,574
Total for Year	8,598,843		12,595,022		10,584,767		10,312,115		5,725,566		6,859,466		12,574,930	

Table 7
Summary of Groundwater and Surface Water Recovered from Landfill
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
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Month	2006		2007		2008		2009		2010		2011		2012	
	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total
January	1,362,171	99,692,745	1,062,731	111,381,075	1,270,876	122,547,623	866,518	134,961,301	816,164	146,895,958	692,092	157,268,968	239,266	166,513,302
February	1,008,073	100,700,818	796,631	112,177,706	791,750	123,339,373	958,576	135,919,877	352,554	147,248,512	456,807	157,725,775	200,134	166,713,436
March	974,915	101,675,733	868,294	113,046,000	1,363,158	124,702,531	958,324	136,878,201	1,708,541	148,957,053	747,466	158,473,241	652,700	167,366,136
April	1,018,407	102,694,140	1,365,215	114,411,215	1,161,146	125,863,677	1,323,900	138,202,101	858,398	149,815,451	877,571	159,350,812	998,391	168,364,527
May	1,067,701	103,761,841	700,943	115,112,158	1,035,462	126,899,139	879,889	139,081,990	666,947	150,482,398	1,322,988	160,673,800	1,297,721	169,662,248
June	908,499	104,670,340	749,659	115,861,817	916,180	127,815,319	1,083,979	140,165,969	553,689	151,036,087	1,032,015	161,705,815	435,391	170,097,639
August	923,987	106,495,064	932,751	117,578,369	409,618	129,048,802	586,191	142,254,888	688,691	152,498,556	759,707	163,317,981	159,842	170,531,501
September	664,535	107,159,599	414,710	117,993,079	1,539,979	130,588,781	1,071,028	143,325,916	702,620	153,201,176	896,171	164,214,152	131,811	170,663,312
October	1,060,939	108,220,538	1,075,316	119,068,395	734,558	131,323,339	656,505	143,982,421	1,187,114	154,388,290	813,781	165,027,933	367,737	171,031,049
November	987,672	109,208,210	1,207,852	120,276,247	775,246	132,098,585	965,066	144,947,487	1,332,834	155,721,124	795,888	165,823,821	366,636	171,397,685
December	1,110,134	110,318,344	1,000,500	121,276,747	1,996,198	134,094,783	1,132,307	146,079,794	855,752	156,576,876	450,215	166,274,036	347,325	171,745,010
Total for Year	11,987,770		10,958,403		12,818,036		11,985,011		10,497,082		9,697,160		5,470,974	

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	2013		2014		2015		2016		2017		2018		2019		2020		2021	
Month	**Monthly Quantity**	**Cumulative Total**	**Monthly Quantity**	**Cumulative Total**	**Monthly Quantity**	**Cumulative Total**	**Monthly Quantity**	**Cumulative Total**	**Monthly Quantity**	**Cumulative Total**	**Monthly Quantity**	**Cumulative Total**	**Monthly Quantity**	**Cumulative Total**	**Monthly Quantity**	**Cumulative Total**	**Monthly Quantity**	**Cumulative Total**
January	72,080	171,817,090	1,160,922	185,050,785	236,808	191,785,262	956,258	198,731,048	371,407	202,776,083	711,422	205,561,470	368,598	210,696,037	618,532	216,333,539	397,333	220,597,235
February	1,417,987	173,235,077	1,053,588	186,104,373	130,820	191,916,082	682,521	199,413,569	326,000	203,102,083	753,905	206,315,375	311,684	211,007,721	399,439	216,732,978	385,451	220,982,686
March	971,837	174,206,914	1,270,812	187,375,185	371,849	192,287,931	536,722	199,950,291	287,196	203,389,279	758,170	207,073,545	556,955	211,564,677	1,112,532	217,845,510	940,862	221,923,548
April	1,027,140	175,234,053	1,360,116	188,735,301	724,852	193,012,783	734,806	200,685,097	475,254	203,864,533	918,655	207,992,200	738,038	212,302,715	706,726	218,552,236	535,385	222,458,933
May	2,025,696	177,259,749	724,358	189,459,659	193,342	193,206,125	299,789	200,984,886	258,801	204,123,334	553,580	208,545,780	841,547	213,144,262	322,308	218,874,544	470,330	222,929,263
June	223,696	177,483,445	625,109	190,084,768	234,258	193,440,383	250,726	201,235,612	129,593	204,252,927	351,824	208,897,604	399,813	213,544,075	211,298	219,085,842	217,625	223,146,888
August	1,515,543	179,516,598	254,140	190,586,561	960,915	194,620,378	126,052	201,533,093	118,198	204,572,466	162,529	209,211,306	136,435	213,892,252	83,448	219,251,448	229,558	223,623,612
September	1,032,732	180,549,330	343,200	190,929,761	561,980	195,182,358	108,064	201,641,157	45,468	204,617,934	154,088	209,365,394	59,944	213,952,196	59,575	219,311,023	230,518	223,854,130
October	1,218,524	181,767,854	164,565	191,094,326	666,793	195,849,151	158,391	201,799,548	13,097	204,631,031	195,095	209,560,489	359,539	214,311,734	132,408	219,443,431	402,958	224,257,088
November	1,305,517	183,073,371	143,484	191,237,810	883,148	196,732,299	247,515	202,047,063	105,726	204,736,757	405,146	209,965,635	779,330	215,091,065	289,693	219,733,124	853,471	225,110,559
December	816,492	183,889,863	310,644	191,548,454	1,042,491	197,774,790	357,613	202,404,676	113,291	204,850,048	361,804	210,327,439	623,942	215,715,007	466,778	220,199,902	642,933	225,753,492
Total for Year	12,144,853[3.]		7,658,591		6,226,336		4,629,886		2,445,372		5,477,391		5,387,568		4,484,895		5,553,590	

Table 7
Summary of Groundwater and Surface Water Recovered from Landfill
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
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Table prepared by CDM Smith.

1. Groundwater and surface water quantities are given in gallons.
2. Cumulative totals of groundwater and surface water transferred from the Landfill are calculated since October 1995.
3. Value is approximated due to flowmeter malfunction.

Table 8
Extraction Well Flowmeter Readings
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
Massena, New York
Alcoa Corporation

Flowmeter Reading (Gallons)					
Date	**EW-01**	**EW-02**	**EW-04**	**EW-05**	**EW-06**
1/4/2021	3,353,500	2,459,800	6,599,300	1,126,200	2,525,200
1/25/2021	3,384,400	2,499,000	6,656,900	1,128,900	2,543,900
2/1/2021	3,391,000	2,508,000	6,675,600	1,136,900	2,549,900
3/1/2021	3,408,000	2,550,700	6,751,200	1,139,100	2,574,200
4/5/2021	3,463,700	2,670,200	6,786,300	1,149,400	2,604,800
5/3/2021	3,506,500	2,723,500	6,859,500	1,164,900	2,629,100
6/7/2021	3,558,200	2,765,800	6,943,100	1,176,300	2,658,400
7/6/2021	3,596,800	2,765,800	7,006,100	1,189,200	2,680,900
8/2/2021	3,635,000	2,781,200	7,072,600	1,195,700	2,705,000
9/6/2021	3,682,300	2,804,200	7,154,100	1,198,800	2,734,700
10/4/2021	3,722,400	2,827,700	7,221,500	1,214,000	2,759,200
11/1/2021	3,762,600	2,871,000	7,294,200	1,225,400	2,783,900
12/6/2021	3,813,500	2,944,800	7,390,900	1,238,000	2,814,700
1/3/2022	3,824,200	2,989,300	7,464,700	1,253,800	2,838,600
Calc.Total 2021	474,225	524,732	866,193	130,836	313,496

Table prepared by CDM Smith.

Table 9
Extraction Well Analytical Results
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
Massena, New York

Date	EW-01		EW-02		EW-04		EW-05		EW-06	
	Fluoride (mg/L)	Total Cyanide (mg/L)	Fluoride (mg/L)	Total Cyanide (mg/L)	Fluoride (mg/L)	Total Cyanide (mg/L)	Fluoride (mg/L)	Total Cyanide (mg/L)	Fluoride (mg/L)	Total Cyanide (mg/L)
Feb-21	0.25	0.005U	0.31	0.039	0.3	0.0673	0.3	0.0527	0.69	0.644
May-21	0.28	0.0062	1.23	0.0461	0.24	0.0962	0.13	0.0688	0.66	0.456
Aug-21	0.36	0.005U	0.53	0.0246	0.52	0.0707	0.43	0.0419	0.89	0.386
Nov-21	0.28	0.0075	1.26	0.0356	0.23	0.0911	0.13	0.0625	0.63	0.503

Notes:
Table prepared by CDM Smith.
mg/L = milligrams per liter
U = Nondetect

Table 10
Summary of Historical Analytical Results Compared to Results for 2021
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Site Area / Location / Parameter	Unit	NYSWQS	Historical Ranges			2021 Results			2021 Frequency of Detection	Statistical Analysis
			Minimum	Maximum	Average	Minimum	Maximum	Average		
BMP										
MW-11SR										
Total Aluminum	mg/L	NR	0.005	12.7	2.311	0.279	0.338	0.309	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	0.31	0.066	0.00486	0.00586	0.005	2/2	--
Total Cyanide	mg/L	0.2	0.002	0.222	0.009	0.0025	0.056	0.029	1/2	Greater than 50% ND
WAD Cyanide	mg/L	NR	0.0025	0.017	0.005	0.005	0.013	0.009	1/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.1	1.9	0.365	0.336	2.64	1.488	2/2	No Trend
Sulfate	mg/L	250	110	3200	953.067	232	2920	1,576	2/2	Decreasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0095	0.2525	0.035	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0095	0.2525	0.035	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0095	0.2525	0.035	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0095	0.2525	0.035	0.0325	0.0325	0.033	0/2	--
Total PCBs	µg/L	0.09	0.0325	0.0325	0.033	--	--	--	--	--
MW-12S										
Total Aluminum	mg/L	NR	0.0133	70.01	10.028	0.165	0.549	0.357	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	0.524	0.091	0.00389	0.00487	0.004	2/2	--
Total Cyanide	mg/L	0.2	0.005	0.113	0.048	0.031	0.044	0.038	2/2	Decreasing
WAD Cyanide	mg/L	NR	0.0025	0.0465	0.009	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	1.26	16.05	10.923	11.2	13.2	12.200	2/2	No Trend
Sulfate	mg/L	250	220	1040	570.845	865	1010	937.500	2/2	Increasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.01	0.2425	0.035	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.01	0.2425	0.036	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.01	0.2425	0.035	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.01	0.2425	0.035	0.0325	0.0325	0.033	0/2	--
Total PCBs	µg/L	0.09	0.0325	0.0325	0.033	--	--	--	--	--

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Site Area / Location / Parameter	Unit	NYSWQS	Historical Ranges			2021 Results			2021 Frequency of Detection	Statistical Analysis
			Minimum	Maximum	Average	Minimum	Maximum	Average		
MW-13S										
Total Aluminum	mg/L	NR	0.0023	4.799	1.262	0.18	0.266	0.223	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	0.817	0.085	0.005	0.0221	0.014	1/2	--
Total Cyanide	mg/L	0.2	0.01	0.631	0.179	0.002	0.0025	0.002	1/2	Decreasing
WAD Cyanide	mg/L	NR	0	0.367	0.021	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.788	17	7.887	0.625	9.69	5.158	1/2	No Trend
Sulfate	mg/L	250	57	4132.9	1,764.940	228	439	333.500	2/2	No Trend
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0095	0.25	0.035	0.015	0.0325	0.024	1/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0095	0.25	0.041	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0095	0.25	0.037	0.019	0.0325	0.026	1/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0095	0.25	0.035	0.0325	0.0325	0.033	0/2	--
Total PCBs	µg/L	0.09	0.0325	0.23	0.078	--	--	--	--	--
MW-14S										
Total Aluminum	mg/L	NR	0.00306	31.99	6.036	0.0195	0.0383	0.029	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	0.299	0.064	0.005	0.005	0.005	0/2	--
Total Cyanide	mg/L	0.2	0.002	0.228	0.010	0.0025	0.0025	0.003	0/2	Greater than 50% ND
WAD Cyanide	mg/L	NR	0.0025	0.005	0.005	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.25	0.77	0.531	0.434	0.701	0.568	2/2	Decreasing
Sulfate	mg/L	250	251	526	354.797	287	393	340.000	2/2	Decreasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0095	0.2425	0.037	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0095	0.2425	0.037	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0095	0.2425	0.037	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0095	0.2425	0.037	0.0325	0.0325	0.033	0/2	--

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Site Area / Location / Parameter	Unit	NYSWQS	Historical Ranges			2021 Results			2021 Frequency of Detection	Statistical Analysis
			Minimum	Maximum	Average	Minimum	Maximum	Average		
MW-15S-87										
Total Aluminum	mg/L	NR	0.00354	29.6	4.595	0.348	0.348	0.348	1/1	--
Dissolved Aluminum	mg/L	NR	0.00005	0.332	0.067	0.00953	0.0321	0.021	2/2	--
Total Cyanide	mg/L	0.2	0.002	0.031	0.005	0.0025	0.0025	0.003	0/2	Greater than 50% ND
WAD Cyanide	mg/L	NR	0	0.005	0.004	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.901	4.25	1.781	3.56	3.56	3.560	1/1	Increasing
Sulfate	mg/L	250	51.4	1800	414.285	36.7	36.7	36.700	1/1	Decreasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0095	0.098	0.033	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0095	0.151	0.035	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0095	0.139	0.034	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0095	0.139	0.033	0.0325	0.0325	0.033	0/2	--
Total PCBs	µg/L	0.09	0.0325	0.082	0.040	--	--	--	--	--
MW-20-85-S										
Total Aluminum	mg/L	NR	0.00005	5.32	0.509	0.0799	0.0966	0.088	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	0.282	0.069	0.005	0.005	0.005	0/2	--
Total Cyanide	mg/L	0.2	0.0025	0.028	0.005	0.0025	0.0025	0.003	0/2	Greater than 50% ND
WAD Cyanide	mg/L	NR	0.003	0.005	0.005	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.0425	0.797	0.240	0.176	0.25	0.213	2/2	Decreasing
Sulfate	mg/L	250	164.99	321	250.084	249	289	269.000	2/2	No Trend
PCB-1242 (Aroclor 1242)	µg/L	NR	0.01	0.084	0.033	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.01	0.084	0.033	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.01	0.119	0.034	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.01	0.119	0.034	0.0325	0.0325	0.033	0/2	--

Table 10
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Massena East
Massena, New York
Alcoa Corporation

Site Area / Location / Parameter	Unit	NYSWQS	Historical Ranges			2021 Results			2021 Frequency of Detection	Statistical Analysis
			Minimum	Maximum	Average	Minimum	Maximum	Average		
MW-22-85-S										
Total Aluminum	mg/L	NR	0.00828	11.7	3.397	0.383	0.822	0.603	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	0.5	0.076	0.0052	0.0103	0.008	2/2	--
Total Cyanide	mg/L	0.2	0.002	0.005	0.004	0.0025	0.0025	0.003	0/2	Greater than 50% ND
WAD Cyanide	mg/L	NR	0.003	0.005	0.005	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.0425	0.88	0.244	0.286	0.417	0.352	2/2	No Trend
Sulfate	mg/L	250	365	614	446.303	401	416	408.500	2/2	Decreasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0095	0.0865	0.033	0.01	0.0325	0.021	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0095	0.0865	0.033	0.01	0.0325	0.021	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0095	0.1225	0.034	0.01	0.0325	0.021	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0095	0.1225	0.034	0.01	0.0325	0.021	0/2	--
MW-23-85-S										
Total Aluminum	mg/L	NR	0.0106	84.45	6.145	0.504	2.34	1.422	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	0.298	0.056	0.00468	0.005	0.005	2/2	--
Total Cyanide	mg/L	0.2	0.002	0.005	0.004	0.0025	0.0025	0.003	0/2	Greater than 50% ND
WAD Cyanide	mg/L	NR	0.0025	0.005	0.005	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.1	0.81	0.363	0.25	0.387	0.319	2/2	No Trend
Sulfate	mg/L	250	145.09	439	353.437	356	376	366.000	2/2	No Trend
PCB-1242 (Aroclor 1242)	µg/L	NR	0.01	0.25	0.037	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.01	0.25	0.037	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.01	0.25	0.037	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.01	0.25	0.037	0.0325	0.0325	0.033	0/2	--

Table 10
Summary of Historical Analytical Results Compared to Results for 2021
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
Massena, New York
Alcoa Corporation

Site Area / Location / Parameter	Unit	NYSWQS	Historical Ranges			2021 Results			2021 Frequency of Detection	Statistical Analysis
			Minimum	Maximum	Average	Minimum	Maximum	Average		
MW-30S										
Total Aluminum	mg/L	NR	0.0675	308.3	55.859	0.626	0.626	0.626	1/1	--
Dissolved Aluminum	mg/L	NR	0.00005	0.608	0.114	0.0103	0.0103	0.010	1/1	--
Total Cyanide	mg/L	0.2	0.0025	0.115	0.007	0.0025	0.0025	0.003	0/1	Greater than 50% ND
WAD Cyanide	mg/L	NR	0.0025	0.0358	0.006	0.005	0.005	0.005	0/1	Greater than 50% ND
Fluoride	mg/L	1.5	4.26	54.2	7.294	5.72	5.72	5.720	1/1	No Trend
Sulfate	mg/L	250	46	342	110.549	77.1	77.1	77.100	1/1	No Trend
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0095	0.25	0.037	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0095	0.25	0.038	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0095	0.25	0.037	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0095	0.25	0.037	0.0325	0.0325	0.033	0/2	--
MW-31SR										
Total Aluminum	mg/L	NR	0.00478	33.41	5.442	0.62	1.36	0.990	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	0.308	0.059	0.00388	0.005	0.004	2/2	--
Total Cyanide	mg/L	0.2	0.002	2	0.055	0.0025	0.011	0.007	2/2	Greater than 50% ND
WAD Cyanide	mg/L	NR	0.0025	0.0175	0.006	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.51	3.7	1.162	0.585	1.42	1.003	2/2	No Trend
Sulfate	mg/L	250	140	417.47	194.756	180	199	189.500	2/2	No Trend
PCB-1242 (Aroclor 1242)	µg/L	NR	0.01	0.2475	0.035	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.01	0.2475	0.039	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.01	0.2475	0.035	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.01	0.2475	0.035	0.0325	0.0325	0.033	0/2	--
Total PCBs	µg/L	0.09	0.0325	0.0325	0.033	--	--	--	--	--

Table 10
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			Minimum	Maximum	Average	Minimum	Maximum	Average		
PZ-44										
Total Aluminum	mg/L	NR	0.00056	37.3	7.255	1.13	1.13	1.130	1/1	--
Dissolved Aluminum	mg/L	NR	0.00005	0.374	0.059	0.005	0.00556	0.005	1/2	--
Total Cyanide	mg/L	0.2	0.002	0.005	0.004	0.0025	0.0025	0.003	0/2	Greater than 50% ND
WAD Cyanide	mg/L	NR	0.005	0.04	0.006	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	1.18	5.74	3.808	3.92	3.92	3.920	1/1	Decreasing
Sulfate	mg/L	250	22.6	1660	903.653	787	787	787.000	1/1	Increasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.01	0.034	0.031	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.01	0.034	0.031	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.01	0.034	0.031	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.01	0.034	0.031	0.0325	0.0325	0.033	0/2	--
PZ-45										
Total Aluminum	mg/L	NR	0.0345	24.6	7.618	1.38	1.38	1.380	1/1	--
Dissolved Aluminum	mg/L	NR	0.013	0.285	0.070	0.005	0.005	0.005	0/1	--
Total Cyanide	mg/L	0.2	0.002	0.005	0.004	--	--	--	--	Greater than 50% ND
WAD Cyanide	mg/L	NR	0.003	0.066	0.008	0.005	0.005	0.005	0/1	Greater than 50% ND
Fluoride	mg/L	1.5	0.5	3.8	1.390	1.1	1.24	1.170	2/2	Increasing
Sulfate	mg/L	250	66	1960	1,035.958	1140	1170	1,155.000	2/2	Increasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.01	0.0361	0.030	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.01	0.0361	0.030	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.01	0.0361	0.030	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.01	0.0361	0.030	0.0325	0.0325	0.033	0/2	--
PZ-46										
Total Aluminum	mg/L	NR	2.25	11.32	5.533	No monitoring data. PZ-46 was taken out of commission for repairs in 2021 and will re-enter the monitoring program in 2022.				--
Dissolved Aluminum	mg/L	NR	0.01	0.125	0.056					--
Total Cyanide	mg/L	0.2	0.0025	0.005	0.005					Greater than 50% ND
WAD Cyanide	mg/L	NR	0.005	0.005	0.005					Greater than 50% ND
Fluoride	mg/L	1.5	1.187	3.92	2.111					Increasing
Sulfate	mg/L	250	17	1680	966.750					No Trend
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0305	0.065	0.036	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0305	0.065	0.036	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0305	0.065	0.036	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0305	0.065	0.036	0.0325	0.0325	0.033	0/2	--

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Massena East
Massena, New York
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Site Area / Location / Parameter	Unit	NYSWQS	Historical Ranges			2021 Results			2021 Frequency of Detection	Statistical Analysis
			Minimum	Maximum	Average	Minimum	Maximum	Average		
ILF										
MW-10S										
Total Aluminum	mg/L	NR	0.005	68.7	2.732	0.0302	0.0838	0.054	4/4	--
Dissolved Aluminum	mg/L	NR	0.00005	0.263	0.061	0.00422	0.005	0.005	1/4	--
Total Cyanide	mg/L	0.2	0.002	0.03	0.005	0.0025	0.0025	0.003	0/3	Greater than 50% ND
WAD Cyanide	mg/L	NR	0	0.239	0.007	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.01	1.846	0.246	0.14	0.25	0.180	4/4	Decreasing
Sulfate	mg/L	250	86.4	550	175.499	70.3	148	92.800	4/4	Decreasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0095	0.2405	0.033	0.0325	0.0325	0.033	0/4	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0095	0.2405	0.033	0.0325	0.0325	0.033	0/4	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0095	0.2405	0.033	0.0325	0.0325	0.033	0/4	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0095	0.2405	0.033	0.0325	0.0325	0.033	0/4	--
Total PCBs	µg/L	0.09	0.0325	0.0325	0.033	--	--	--	--	--
MW-39S										
Total Aluminum	mg/L	NR	0.005	468	30.869	0.213	3.15	1.137	4/4	--
Dissolved Aluminum	mg/L	NR	0.00005	0.802	0.108	0.00416	0.005	0.005	1/4	--
Total Cyanide	mg/L	0.2	0.005	0.426	0.135	0.012	0.024	0.018	3/3	Decreasing
WAD Cyanide	mg/L	NR	0	0.087	0.020	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.234	3.988	1.499	1.48	2.72	2.040	4/4	No Trend
Sulfate	mg/L	250	52.43	477	127.553	111	238	151.250	4/4	Increasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0095	0.2565	0.034	0.0325	0.0325	0.033	0/4	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0095	0.2565	0.034	0.0325	0.0325	0.033	0/4	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0095	0.2565	0.034	0.0325	0.0325	0.033	0/4	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0095	0.2565	0.034	0.0325	0.0325	0.033	0/4	--
Total PCBs	µg/L	0.09	0.0325	0.0325	0.033	--	--	--	--	--

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Site Area / Location / Parameter	Unit	NYSWQS	Historical Ranges			2021 Results			2021 Frequency of Detection	Statistical Analysis
			Minimum	Maximum	Average	Minimum	Maximum	Average		
MW-40S										
Total Aluminum	mg/L	NR	0.00036	69.2	1.208	0.00409	0.00846	0.006	4/4	--
Dissolved Aluminum	mg/L	NR	0.00005	0.283	0.058	0.005	0.005	0.005	0/4	--
Total Cyanide	mg/L	0.2	0.0295	0.48	0.194	0.077	0.097	0.090	3/3	Decreasing
WAD Cyanide	mg/L	NR	0	0.131	0.027	0.005	0.005	0.005	0/2	Decreasing
Fluoride	mg/L	1.5	0.1	0.991	0.239	0.173	0.205	0.192	4/4	Decreasing
Sulfate	mg/L	250	0.21	180.65	72.611	53.9	61.5	57.850	4/4	Decreasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0095	0.254	0.034	0.0325	0.0325	0.033	0/4	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0095	1.197	0.049	0.0325	0.0325	0.033	0/4	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0095	0.254	0.034	0.0325	0.0325	0.033	0/4	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0095	0.254	0.034	0.0325	0.0325	0.033	0/4	--
Total PCBs	µg/L	0.09	0.0325	0.0325	0.033	--	--	--	--	--
MW-45										
Total Aluminum	mg/L	NR	0.0549	139.5	25.477	0.0681	0.564	0.204	4/4	--
Dissolved Aluminum	mg/L	NR	0.00005	0.723	0.068	0.00345	0.005	0.004	4/4	--
Total Cyanide	mg/L	0.2	0.022	2.49	0.905	0.363	0.451	0.417	3/3	Decreasing
WAD Cyanide	mg/L	NR	0.005	0.579	0.072	0.014	0.029	0.022	2/2	Decreasing
Fluoride	mg/L	1.5	0.259	0.8509	0.540	0.393	1.15	0.590	4/4	Decreasing
Sulfate	mg/L	250	74.13	871	295.719	548	696	604.500	4/4	Increasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.01	0.2605	0.034	0.0325	0.0325	0.033	0/4	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.01	0.2605	0.034	0.0325	0.0325	0.033	0/4	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.01	0.2605	0.034	0.0325	0.0325	0.033	0/4	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.01	0.2605	0.034	0.0325	0.0325	0.033	0/4	--

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			Minimum	Maximum	Average	Minimum	Maximum	Average		
SLPWETE										
Total Aluminum	mg/L	NR	0.00020	4.91	0.804	0.0415	0.123	0.066	4/4	--
Dissolved Aluminum	mg/L	NR	0.00005	0.05	0.040	0.005	0.0142	0.008	3/4	--
Total Cyanide	mg/L	0.2	0.0025	0.074	0.010	0.0025	0.0025	0.003	0/3	Greater than 50% ND
WAD Cyanide	mg/L	NR	0.0025	0.018	0.006	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.05	10.8	3.369	0.087	3.63	2.289	4/4	No Trend
Sulfate	mg/L	250	0.2	199	28.624	1.08	8.33	4.853	4/4	No Trend
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0305	0.03315	0.032	0.0325	0.0325	0.033	0/4	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0305	0.03315	0.032	0.0325	0.0325	0.033	0/4	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0305	0.03315	0.032	0.0325	0.0325	0.033	0/4	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0305	0.03315	0.032	0.0325	0.0325	0.033	0/4	--
SLPWETW										
Total Aluminum	mg/L	NR	0.00162	4.46	0.382	0.0102	0.303	0.141	4/4	--
Dissolved Aluminum	mg/L	NR	0.00005	0.05	0.038	0.00732	0.0468	0.021	4/4	--
Total Cyanide	mg/L	0.2	0.0025	0.12	0.013	0.0025	0.003	0.003	1/3	Greater than 50% ND
WAD Cyanide	mg/L	NR	0.0025	0.005	0.005	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.7083	6.07	2.216	0.212	0.928	0.676	4/4	No Trend
Sulfate	mg/L	250	1	158	30.646	1.39	4.96	2.753	4/4	No Trend
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0305	0.03455	0.032	0.0325	0.0325	0.033	0/4	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0305	0.03455	0.032	0.0325	0.0325	0.033	0/4	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0305	0.072	0.034	0.0325	0.0325	0.033	0/4	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.015	0.03455	0.031	0.0325	0.0325	0.033	0/4	--

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			Minimum	Maximum	Average	Minimum	Maximum	Average		
PSP										
MW-03S										
Total Aluminum	mg/L	NR	0.0165	39.4	6.272	0.411	2.06	1.236	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	0.443	0.100	0.00613	0.0199	0.013	2/2	--
Total Cyanide	mg/L	0.2	0.484	16	7.068	0.635	1.32	0.978	2/2	Decreasing
WAD Cyanide	mg/L	NR	0.024	0.869	0.201	0.022	0.419	0.221	2/2	Decreasing
Fluoride	mg/L	1.5	8.4	32.1	16.549	11.3	15.1	13.200	2/2	No Trend
Sulfate	mg/L	250	218	714.78	486.320	64	258	161.000	2/2	Decreasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0095	0.25	0.036	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0095	0.25	0.035	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0095	0.25	0.037	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0095	2.171	0.076	0.0325	0.0325	0.033	0/2	--
Total PCBs	µg/L	0.09	0.0325	0.0325	0.033	--	--	--	--	--
MW-26S										
Total Aluminum	mg/L	NR	0.0253	82.42	14.236	8.83	23.1	15.965	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	1.419	0.146	0.005	0.0187	0.012	2/2	--
Total Cyanide	mg/L	0.2	0.001	0.11	0.013	0.0025	0.0025	0.003	0/2	Greater than 50% ND
WAD Cyanide	mg/L	NR	0.0025	0.0075	0.005	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	2.7	6.87	4.538	4.05	5.26	4.655	2/2	Increasing
Sulfate	mg/L	250	88	446.68	247.405	182	186	184.000	2/2	Decreasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.01	0.088	0.033	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.01	0.181	0.039	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.01	0.125	0.033	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.01	0.435	0.039	0.0325	0.0325	0.033	0/2	--
Total PCBs	µg/L	0.09	0.0325	0.0325	0.033	--	--	--	--	--

Table 10
Summary of Historical Analytical Results Compared to Results for 2021
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
Massena, New York
Alcoa Corporation

Site Area / Location / Parameter	Unit	NYSWQS	Historical Ranges			2021 Results			2021 Frequency of Detection	Statistical Analysis
			Minimum	Maximum	Average	Minimum	Maximum	Average		
MW-27S										
Total Aluminum	mg/L	NR	0.00709	27.79	4.893	1.95	4.56	3.255	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	0.402	0.073	0.005	0.00955	0.007	1/2	--
Total Cyanide	mg/L	0.2	0.0025	0.17	0.047	0.0156	0.016	0.016	2/2	Decreasing
WAD Cyanide	mg/L	NR	0	0.049	0.007	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	1.89	8.9	4.324	0.132	3.18	1.656	2/2	Decreasing
Sulfate	mg/L	250	140	407	260.724	278	312	295.000	2/2	No Trend
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0095	0.2475	0.035	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0095	0.2475	0.035	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0095	0.2475	0.035	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0095	0.2475	0.035	0.0325	0.0325	0.033	0/2	--
Total PCBs	µg/L	0.09	0.0325	0.0325	0.033	--	--	--	--	--
MW-28S										
Total Aluminum	mg/L	NR	0.00273	21.715	4.935	0.0095	0.0118	0.011	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	0.494	0.066	0.00441	0.0074	0.006	2/2	--
Total Cyanide	mg/L	0.2	0.67	18	4.947	1.88	1.88	1.88	1/1	Decreasing
WAD Cyanide	mg/L	NR	0.005	1.3	0.094	0.062	0.148	0.105	2/2	Increasing
Fluoride	mg/L	1.5	9.5	170	41.313	12.3	13.4	12.850	2/2	Decreasing
Sulfate	mg/L	250	154	690	342.505	169	182	175.500	2/2	Decreasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.01	0.0925	0.033	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.01	0.151	0.036	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.01	0.1315	0.034	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.01	0.1315	0.033	0.0325	0.0325	0.033	0/2	--
Total PCBs	µg/L	0.09	0.0325	0.0325	0.033	--	--	--	--	--

Table 10
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Massena East
Massena, New York
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Site Area / Location / Parameter	Unit	NYSWQS	Historical Ranges			2021 Results			2021 Frequency of Detection	Statistical Analysis
			Minimum	Maximum	Average	Minimum	Maximum	Average		
MW-33S										
Total Cyanide	mg/L	0.2	0.0025	0.329	0.009	0.0025	0.0025	0.0025	1/1	Greater than 50% ND
WAD Cyanide	mg/L	NR	0.0025	0.005	0.005	0.005	0.005	0.005	0/2	Greater than 50% ND
MW-34S										
Total Cyanide	mg/L	0.2	0.005	0.0945	0.043	0.063	0.0907	0.077	2/2	Increasing
WAD Cyanide	mg/L	NR	0.005	0.0325	0.009	0.005	0.012	0.009	1/2	Greater than 50% ND
MW-35SR										
Total Aluminum	mg/L	NR	0.0684	145.1	35.663	10	11.6	10.800	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	1.922	0.153	0.005	0.01	0.008	1/2	--
Total Cyanide	mg/L	0.2	0.001	1.4	0.069	0.0025	0.0025	0.003	0/2	Greater than 50% ND
WAD Cyanide	mg/L	NR	0.0025	0.0175	0.005	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.2	2.56	0.828	0.888	1.17	1.029	2/2	Increasing
Sulfate	mg/L	250	51.7	701	513.763	521	878	699.500	2/2	No Trend
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0245	0.0865	0.033	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0245	0.281	0.062	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.021	0.56	0.058	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0245	0.1225	0.036	0.0325	0.0325	0.033	0/2	--
MW-42										
Total Aluminum	mg/L	NR	0.053	666.1	60.188	69.6	70	69.800	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	2.36	0.285	0.00336	0.0216	0.012	2/2	--
Total Cyanide	mg/L	0.2	0.005	0.41	0.219	0.147	0.209	0.178	2/2	No Trend
WAD Cyanide	mg/L	NR	0.005	0.23	0.017	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	1.307	48.3	22.069	19.7	32.8	26.250	2/2	Increasing
Sulfate	mg/L	250	66.5	1910	1,077.030	1160	1260	1,210.000	2/2	Increasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0265	0.087	0.033	0.0095	0.0325	0.021	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0265	0.087	0.033	0.0095	0.0325	0.021	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0265	0.13	0.036	0.0095	0.0325	0.021	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0265	0.124	0.034	0.0095	0.0325	0.021	0/2	--

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			Minimum	Maximum	Average	Minimum	Maximum	Average		
MW-43										
Total Aluminum	mg/L	NR	0.0176	92	31.988	16.6	28.8	22.700	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	1.61	0.152	0.00417	0.005	0.005	1/2	--
Total Cyanide	mg/L	0.2	0.002	0.059	0.005	0.0025	0.0025	0.0025	1/1	Greater than 50% ND
WAD Cyanide	mg/L	NR	0.0025	0.0084	0.005	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.09	0.901	0.267	0.22	0.271	0.246	2/2	No Trend
Sulfate	mg/L	250	111	222	169.376	109	141	125.000	2/2	Decreasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0305	0.0865	0.033	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0305	0.0865	0.033	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0305	0.123	0.034	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0305	0.123	0.035	0.0325	0.0325	0.033	0/2	--
MW-44										
Total Aluminum	mg/L	NR	0.00028	16.2	0.929	0.0291	7.82	3.925	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	0.2	0.051	0.005	0.0207	0.013	1/2	--
Total Cyanide	mg/L	0.2	0.0025	0.0324	0.005	0.0025	0.0025	0.003	0/2	Greater than 50% ND
WAD Cyanide	mg/L	NR	0.0025	0.005	0.005	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.1	1.09	0.285	0.254	0.421	0.338	2/2	Increasing
Sulfate	mg/L	250	100	275	158.455	85.6	129	107.300	2/2	Decreasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0305	0.088	0.033	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0305	0.088	0.033	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0305	0.125	0.034	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0305	0.125	0.034	0.0325	0.0325	0.033	0/2	--

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			Minimum	Maximum	Average	Minimum	Maximum	Average		
North Yard										
FDRAIN1										
Total Cyanide	mg/L	0.2	0.0025	2.44	0.968	0.779	1.18	0.980	2/2	Decreasing
WAD Cyanide	mg/L	NR	0.005	0.215	0.037	0.026	0.261	0.144	2/2	No Trend
Fluoride	mg/L	1.5	11.5	38.11	24.072	19.4	20	19.700	2/2	Decreasing
Sulfate	mg/L	250	67.9	2180	478.725	163	177	170.000	2/2	Decreasing
MW-16S										
Total Aluminum	mg/L	NR	0.00005	7.8	0.242	0.00422	0.0798	0.042	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	0.2	0.053	0.005	0.005	0.005	0/2	--
Total Cyanide	mg/L	0.2	0.002	0.35	0.024	0.002	0.002	0.002	1/1	Greater than 50% ND
WAD Cyanide	mg/L	NR	0	0.011	0.005	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	1.144	640	22.652	6.92	7.97	7.445	2/2	Decreasing
Sulfate	mg/L	250	136	3600	469.564	187	196	191.500	2/2	Decreasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0095	0.577	0.053	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0095	0.181	0.035	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0095	0.1225	0.033	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0095	0.142	0.037	0.0325	0.0325	0.033	0/2	--
Total PCBs	µg/L	0.09	0.0325	1.6	0.279	--	--	--	--	--
MW-17S										
Total Aluminum	mg/L	NR	0.0044	20.84	2.646	0.0263	0.0469	0.037	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	1.611	0.106	0.005	0.00579	0.005	1/2	--
Total Cyanide	mg/L	0.2	0.001	0.03	0.006	0.0025	0.0025	0.003	0/2	Greater than 50% ND
WAD Cyanide	mg/L	NR	0	0.0068	0.004	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.1	2.5	0.962	0.913	1.03	0.972	2/2	No Trend
Sulfate	mg/L	250	81.6	670	250.881	125	177	151.000	2/2	Decreasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0245	0.09	0.033	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0245	0.471	0.040	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0245	0.131	0.035	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0245	0.1275	0.034	0.0325	0.0325	0.033	0/2	--
Total PCBs	µg/L	0.09	0.0325	0.18	0.054	--	--	--	--	--

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Massena East
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Site Area / Location / Parameter	Unit	NYSWQS	Historical Ranges			2021 Results			2021 Frequency of Detection	Statistical Analysis
			Minimum	Maximum	Average	Minimum	Maximum	Average		
MW-18S										
Total Aluminum	mg/L	NR	0.00039	18	1.367	0.0571	0.0629	0.060	2/2	--
Dissolved Aluminum	mg/L	NR	0.00019	3.25	0.415	0.0447	0.0545	0.050	2/2	--
Total Cyanide	mg/L	0.2	0.005	1.12	0.188	0.018	0.019	0.019	2/2	Decreasing
WAD Cyanide	mg/L	NR	0	0.019	0.005	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	4.868	4800	180.798	25.2	26.1	25.650	2/2	Decreasing
Sulfate	mg/L	250	178	20000	1,471.385	296	330	313.000	2/2	Decreasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0095	0.0845	0.034	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0095	0.217	0.068	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0095	0.134	0.037	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0095	0.12	0.034	0.0325	0.0325	0.033	0/2	--
Total PCBs	µg/L	0.09	0.0325	1.1	0.298	--	--	--	--	--

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Site Area / Location / Parameter	Unit	NYSWQS	Historical Ranges			2021 Results			2021 Frequency of Detection	Statistical Analysis
			Minimum	Maximum	Average	Minimum	Maximum	Average		
MW-19S										
Total Aluminum	mg/L	NR	0.00066	12	0.737	0.0165	0.0274	0.022	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	0.2	0.051	0.00436	0.005	0.005	1/2	--
Total Cyanide	mg/L	0.2	0.001	0.005	0.004	0.002	0.0025	0.002	1/2	Greater than 50% ND
WAD Cyanide	mg/L	NR	0	0.0068	0.004	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.457	10.4	4.989	3.34	3.57	3.455	2/2	Decreasing
Sulfate	mg/L	250	66.95	490	236.066	74.2	79	76.600	2/2	Decreasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.01	0.088	0.032	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.01	0.145	0.034	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.01	0.125	0.034	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.01	0.125	0.033	0.0325	0.0325	0.033	0/2	--
Total PCBs	µg/L	0.09	0.0325	0.0325	0.033	--	--	--	--	--
MW-36										
Total Aluminum	mg/L	NR	0.085	743	55.926	50.2	93.3	71.750	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	2.79	0.358	0.005	0.148	0.077	1/2	--
Total Cyanide	mg/L	0.2	0.002	6.61	0.103	0.0025	0.0025	0.003	0/2	Greater than 50% ND
WAD Cyanide	mg/L	NR	0	0.01	0.005	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.382	41	3.362	2.08	2.27	2.175	2/2	Decreasing
Sulfate	mg/L	250	42.5	1640	545.337	371	372	371.500	2/2	Decreasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.01	0.083	0.033	0.01	0.0325	0.021	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.01	0.083	0.033	0.01	0.0325	0.021	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.01	0.25	0.036	0.01	0.0325	0.021	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.01	0.118	0.033	0.01	0.0325	0.021	0/2	--
Total PCBs	µg/L	0.09	0.0325	0.0325	0.033	--	--	--	--	--

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			Minimum	Maximum	Average	Minimum	Maximum	Average		
MW-37										
Total Aluminum	mg/L	NR	0.005	473	63.637	33.7	34.3	34.000	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	0.952	0.097	0.0155	1.5	0.758	2/2	--
Total Cyanide	mg/L	0.2	0.0025	0.34	0.009	0.0025	0.0025	0.003	0/2	Greater than 50% ND
WAD Cyanide	mg/L	NR	0	0.005	0.004	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.1	2.16	0.466	0.32	0.32	0.320	2/2	Decreasing
Sulfate	mg/L	250	28.5	383	280.777	308	314	311.000	2/2	Increasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0095	0.088	0.032	0.01	0.0325	0.021	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0095	0.157	0.034	0.01	0.0325	0.021	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.01	0.47	0.048	0.01	0.0325	0.021	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.01	0.125	0.036	0.01	0.0325	0.021	0/2	--
Total PCBs	µg/L	0.09	0.0325	0.0325	0.033	--	--	--	--	--
MW-38										
Total Aluminum	mg/L	NR	0.13	822	86.555	34.6	44.8	39.700	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	4.06	0.359	0.0916	0.812	0.452	2/2	--
Total Cyanide	mg/L	0.2	0.0025	0.0105	0.005	0.0025	0.0025	0.003	0/2	Greater than 50% ND
WAD Cyanide	mg/L	NR	0	0.01	0.005	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.35	2.686	0.653	0.48	0.513	0.497	2/2	Decreasing
Sulfate	mg/L	250	40.7	284.14	177.079	189	190	189.500	2/2	No Trend
PCB-1242 (Aroclor 1242)	µg/L	NR	0.01	0.09	0.033	0.0325	0.0325	0.033	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.01	0.122	0.035	0.0325	0.0325	0.033	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0105	0.16	0.035	0.0325	0.0325	0.033	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0105	0.1275	0.033	0.0325	0.0325	0.033	0/2	--
Total PCBs	µg/L	0.09	0.0325	0.0325	0.033	--	--	--	--	--

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			Minimum	Maximum	Average	Minimum	Maximum	Average		
MW-41										
Total Aluminum	mg/L	NR	0.0114	67.5	17.830	2.95	5.82	4.385	2/2	--
Dissolved Aluminum	mg/L	NR	0.00005	0.39	0.085	0.00844	0.05	0.029	1/2	--
Total Cyanide	mg/L	0.2	0.001	0.005	0.004	0.0025	0.0025	0.003	0/2	Greater than 50% ND
WAD Cyanide	mg/L	NR	0.003	0.023	0.005	0.005	0.005	0.005	0/2	Greater than 50% ND
Fluoride	mg/L	1.5	0.16	0.609	0.318	0.201	0.218	0.210	2/2	Decreasing
Sulfate	mg/L	250	130.96	922	380.333	309	333	321.000	2/2	Increasing
PCB-1242 (Aroclor 1242)	µg/L	NR	0.0095	0.088	0.033	0.0105	0.0325	0.022	0/2	--
PCB-1248 (Aroclor 1248)	µg/L	NR	0.0095	0.088	0.033	0.0105	0.0325	0.022	0/2	--
PCB-1254 (Aroclor 1254)	µg/L	NR	0.0095	0.125	0.034	0.0105	0.0325	0.022	0/2	--
PCB-1260 (Aroclor 1260)	µg/L	NR	0.0095	0.125	0.034	0.0105	0.0325	0.022	0/2	--

Notes:

1. Results are compared to NYSWQS for Class GA groundwaters under 6 NYCRR Part 703.5, November 2016. There is no NYSWQS Class GA groundwater standard for aluminum.
2. For calculation of summary statistics (minimum, maximum, and average, 1/2 the report detection limit is used for non-detect values.
3. Summary statistic calculations do not consider rejected samples and rely on historical reported detection limits for calculation of non-detect substitution values.
4. Although there is no NYSWQS established for individual Aroclors, a standard of 0.09 µg/L total PCBs is used.
5. Statistical Analysis displays the results from the recent remedial action or operational management updates.

'--' = No data due to persistent results below detection or lack of results for the current year
µg/L = micrograms per liter
BMP = Black Mud Pond
ILF = Industrial Landfill
mg/L = milligrams per liter
ND = Non-detect
NR = Not Regulated
NYCRR = New York Codes, Rules, and Regulations
NYSWQS = New York State Water Quality Standards
PCB = polychlorinated biphenyl
PSP = Potliner Storage Pad
WAD = weak acid dissociable

Table 11
Summary of Groundwater Quantities Removed for BMP
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
Massena, New York

Month	1997		1998		1999		2000		2001		2002		2003		2004[3]	
	Monthly Quantity[1]	Cumulative Total[2]	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total
January	62,210	766,370	26,439	1,309,112	21,042	1,530,707	9,213	1,691,692	11,324	1,809,675	9,738	1,902,167	472	1,990,028	1,600[4]	2,050,617
February	41,900	808,270	10,411	1,319,523	20,223	1,550,930	10,179	1,701,871	9,334	1,819,009	8,574	1,910,741	0	1,990,028	2,800[4]	2,053,417
March	39,600	847,870	16,430	1,335,953	11,184	1,562,114	0	1,701,871	11,228	1,830,237	8,090	1,918,831	0	1,990,028	3,100[4]	2,056,517
April	41,550	889,420	4,890	1,340,843	14,271	1,576,385	2,807	1,704,678	9,222	1,839,459	10,109	1,928,940	0	1,990,028	8,000[4]	2,064,517
May	49,620	939,040	6,910	1,347,753	13,831	1,590,216	23,697	1,728,375	9,728	1,849,187	9,669	1,938,609	0	1,990,028	7,816[5]	2,072,333
June	54,730	993,770	24,290	1,372,043	13,359	1,603,575	3,286	1,731,661	6,990	1,856,177	4,675	1,943,284	0	1,990,028	8,935[5]	2,081,268
July	69,210	1,062,980	24,800	1,396,843	12,566	1,616,141	13,876	1,745,537	10,240	1,866,417	9,907	1,953,191	44,991	2,035,019	9,074[5]	2,090,342
August	60,625	1,123,605	24,800	1,421,643	11,118	1,627,259	8,245	1,753,782	8,920	1,875,337	11,316	1,964,507	5,598	2,040,617	10,329[5]	2,100,671
September	52,047	1,175,652	20,800	1,442,443	14,010	1,641,269	11,447	1,765,229	9,935	1,885,272	3,975	1,968,482	2,800	2,043,417	10,977[5]	2,111,648
October	45,176	1,220,828	24,800	1,467,243	14,799	1,656,068	2,615	1,767,844	7,157	1,892,429	8,596	1,977,078	2,800	2,046,217	11,664[5]	2,123,312
November	30,345	1,251,173	20,960	1,488,203	13,276	1,669,344	18,235	1,786,079	0	1,892,429	9,804	1,986,882	0	2,046,217	12,285[5]	2,135,597
December	31,500	1,282,673	21,462	1,509,665	13,135	1,682,479	12,272	1,798,351	0	1,892,429	2,674	1,989,556	2,800	2,049,017	15,691[5]	2,151,288
Total for Year	578,513		226,992		172,814		115,872		94,078		97,127		59,461		102,271	

Table 11
Summary of Groundwater Quantities Removed for BMP
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
Massena, New York

Month	2005[4]		2006[4]		2007[4]		2008[4]		2009[4]		2010[4]		2011[4]		2012[4]	
	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total
January	5,600[4]	2,156,888	7,200	2,282,888	10,400	2,399,688	8,400	2,497,488	8,400	2,588,088	8,600	2,678,088	10,400	2,784,888	5,600	2,885,688
February	9,600[4]	2,166,488	11,200	2,294,088	11,200	2,410,888	6,600	2,504,088	5,600	2,593,688	5,600	2,683,688	8,400	2,793,288	8,400	2,894,088
March	11,200[4]	2,177,688	8,400	2,302,488	9,400	2,420,288	8,400	2,512,488	5,600	2,599,288	12,200	2,695,888	11,200	2,804,488	8,400	2,902,488
April	8,600[4]	2,186,288	8,400	2,310,888	9,600	2,429,888	5,600	2,518,088	5,600	2,604,888	5,600	2,701,488	8,400	2,812,888	11,200	2,913,688
May	16,800[4]	2,203,088	8,400	2,319,288	6,600	2,436,488	8,400	2,526,488	10,400	2,615,288	11,200	2,712,688	8,400	2,821,288	5,600	2,919,288
June	11,200[4]	2,214,288	11,200	2,330,488	8,400	2,444,888	5,600	2,532,088	5,600	2,620,888	5,600	2,718,288	5,600	2,826,888	8,400	2,927,688
July	10,400[4]	2,224,688	8,400	2,338,888	4,200	2,449,088	8,400	2,540,488	11,200	2,632,088	8,600	2,726,888	5,600	2,832,488	2,800	2,930,488
August	0	2,224,688	8,400	2,347,288	10,200	2,459,288	8,400	2,548,888	8,400	2,640,488	11,200	2,738,088	5,600	2,838,088	8,400	2,938,888
September	15,800[4]	2,240,488	8,400	2,355,688	10,200	2,469,488	5,600	2,554,488	5,600	2,646,088	5,600	2,743,688	11,200	2,849,288	2,800	2,941,688
October	8,400[4]	2,248,888	14,000	2,369,688	5,600	2,475,088	5,600	2,560,088	8,400	2,654,488	14,000	2,757,688	8,400	2,857,688	2,800	2,944,488
November	11,200[4]	2,260,088	8,400	2,378,088	8,400	2,483,488	8,400	2,568,488	8,400	2,662,888	11,200	2,768,888	8,400	2,866,088	8,400	2,952,888
December	15,600[4]	2,275,688	11,200	2,389,288	5,600	2,489,088	11,200	2,579,688	6,600	2,669,488	5,600	2,774,488	14,000	2,880,088	11,200	2,964,088
Total for Year	124,400		113,600		99,800		90,600		89,800		105,000		105,600		84,000	

Table 11
Summary of Groundwater Quantities Removed for BMP
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
Massena, New York

Month	2013[4]		2014[4]		2015[4]		2016[4]		2017[4,6]		2018[7]		2019[8]		2020		2021	
	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total	Monthly Quantity	Cumulative Total
January	5,600	2,969,688	8,400	3,070,488	8,400	3,185,288	2,800	3,241,688	5,000	3,321,488	6,967	3,396,857	7,209	3,458,272	1,051	3,518,011	6,953	3,588,751
February	5,600	2,975,288	8,400	3,078,888	5,600	3,190,888	0	3,241,688	7,600	3,329,088	5,673	3,402,530	3,126	3,461,398	9,313	3,527,324	4,580	3,593,331
March	8,400	2,983,688	5,600	3,084,488	14,400	3,205,288	11,200	3,252,888	8,400	3,337,488	6,042	3,408,572	7,430	3,468,828	6,294	3,533,618	3,260	3,596,591
April	8,400	2,992,088	8,400	3,092,888	2,800	3,208,088	5,600	3,258,488	2,800	3,340,288	0	3,408,572	3,319	3,472,147	4,792	3,538,410	3,308	3,599,899
May	5,600	2,997,688	8,400	3,101,288	5,600	3,213,688	8,400	3,266,888	8,400	3,348,688	5,117	3,413,689	6,015	3,478,162	4,686	3,543,096	4,285	3,604,184
June	8,400	3,006,088	8,400	3,109,688	8,400	3,222,088	2,800	3,269,688	8,400	3,357,088	6,269	3,419,958	6,242	3,484,404	6,394	3,549,490	3,620	3,607,804
July	8,400	3,014,488	14,000	3,123,688	2,800	3,224,888	5,600	3,275,288	5,600	3,362,688	5,192	3,425,150	4,976	3,489,380	4,582	3,554,072	4,325	3,612,129
August	8,400	3,022,888	14,000	3,137,688	5,600	3,230,488	8,400	3,283,688	7,700	3,370,388	5,133	3,430,283	4,994	3,494,374	6,414	3,560,486	5,589	3,617,718
September	8,400	3,031,288	11,200	3,148,888	2,800	3,233,288	8,400	3,292,088	0	3,370,388	6,930	3,437,213	3,730	3,498,104	5,138	3,565,624	4,725	3,622,443
October	11,200	3,042,488	11,200	3,160,088	0	3,233,288	7,600	3,299,688	0	3,370,388	2,174	3,439,387	7,416	3,505,520	5,423	3,571,047	4,960	3,627,403
November	5,600	3,048,088	8,400	3,168,488	2,800	3,236,088	8,400	3,308,088	0	3,370,388	5,725	3,445,112	5,515	3,511,035	6,730	3,577,777	6,260	3,633,663
December	14,000	3,062,088	8,400	3,176,888	2,800	3,238,888	8,400	3,316,488	19502	3,389,890	5,951	3,451,063	5,925	3,516,960	4,021	3,581,798	5,228	3,638,891
Total for Year	98,000		114,800		62,000		77,600		73,402		61,173		65,897		64,838		57,093	

Table 11
Summary of Groundwater Quantities Removed for BMP
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
Massena, New York
Alcoa Corporation

Notes:

Table prepared by CDM Smith.

1. Groundwater quantities are given in gallons.
2. Totals are calculated since June 26, 1996, the date when the lined pond was removed and surface water transfer began.
3. In 2004, all quantities of groundwater were treated at the Outfall 01F cyanide treatment facility.
4. Quantity based on volume removed by tanker truck.
5. From May to December 2004, quantity based on flowmeter readings.
6. Beginning in September 2017, water is collected and shipped off-site via railcar for treatment and disposal. The total accumulated volume between September and December 2017 is 19,502 gallons.
7. Monthly volumes estimated from flow totalizer readings through December 24,2018. Accumulated water was transported off-site in three railcar shipments recorded in April, August and December 2018 totaling 65,919 gallons.
8. Monthly volumes estimated from flow totalizer readings between December 24, 2018 and December 23, 2019. Accumulated water was transported off-site in three railcar shipments recorded in April, August and December 2019. The BMP flowmeter was repaired/reset in October 2019; shipment volumes

BMP = Black Mud Pond

Table 12
BMP Vertical Hydraulic Gradients
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
Massena, New York
Alcoa Corporation

Reference Well Well No.	MW-12S	MW-12D	MW-13S	MW-13D	MW-15S-91	MW-15D	MW-15S-87	MW-15D	MW-20-85-S	MW-20-85-D	MW-21-85S	MW-21-85D	MW-22-85-S	MW-22-85-D	MW-23-85-S	MW-23-85-D	MPOF1402S	MPOF1403D	MPOG1601S	MPOG1603D
Screen Elevation																				
Top (ft msl)	239.1	206.00	237.2	204.70	218.6	192.7	218.6	192.7	202.2	171.80	206.2	179.20	224.2	193.60	221.4	194.10	225.7	218.40	252.7	221.50
Bottom (ft msl)	229.1	196.00	227.2	194.70	208.6	182.7	208.6	182.7	192.2	161.80	196.2	169.20	214.2	183.60	211.4	184.10	223.7	216.40	233.2	219.50
Vertical Distance, dl (ft)	33.10		32.50		25.90		25.90		30.40		27.00		30.60		27.30		7.30		22.45	
Groundwater Elevation																				
January-21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	227.46	229.63	231.33	231.56
February-21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	227.43	229.54	231.37	231.56
March-21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	227.54	229.8	231.32	231.58
April-21	--	--	--	--	--	225.95	--	225.95	--	--	--	--	--	--	--	--	--	--	--	--
May-21	242.33	238.74	239.31	239.04	227.08	--	233.58	--	215.55	223.88	218.48	223.5	240.29	237.7	239.69	238.82	227.41	229.86	231.30	231.56
June-21	240.23	--	237.45	--	--	--	227.95	--	214.44	--	--	--	235.55	--	234.43	--	227.42	228.99	231.36	231.38
July-21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	227.43	228.74	231.35	231.34
August-21	240.78	234.78	237.34	237.14	226.05	225.23	222.12	225.23	216.5	222.73	223.66	223.62	236.89	233.93	235.51	236.09	233.13	229.11	230.92	230.12
September-21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	227.49	229.26	231.60	231.20
October-21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
November-21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
December-21	244.01	235.14	239.82	237.47	226.3	--	236.65	--	216.6	223.2	223.78	224.12	240.84	234.38	240.76	236.27	229.39	230.24	231.85	233.62
Differential Height, dh (ft)																				
January-21	--		--		--		--		--		--		--		--		-2.17		-0.23	
February-21	--		--		--		--		--		--		--		--		-2.11		-0.19	
March-21	--		--		--		--		--		--		--		--		-2.26		-0.26	
April-21	3.59		0.27		--		--		-8.33		-5.02		2.59		0.87		--		--	
May-21	--		--		--		--		--		--		--		--		-2.45		-0.26	
June-21	--		--		--		--		--		--		--		--		-1.57		-0.02	
July-21	--		--		--		--		--		--		--		--		-1.31		0.01	
August-21	6.00		0.20		0.82		-3.11		-6.23		0.04		2.96		-0.58		4.02		0.8	
September-21	--		--		--		--		--		--		--		--		-1.77		0.4	
October-21	--		--		--		--		--		--		--		--		--		--	
November-21	--		--		--		--		--		--		--		--		--		--	
December-21	--		--		--		--		--		--		--		--		-0.85		-1.77	
Vertical Gradient (dh/dl)	--		--		--		--		--		--		--		--					
January-21	--		--		--		--		--		--		--		--		-0.2973		--[2]	
February-21	--		--		--		--		--		--		--		--		-0.2890		--[2]	
March-21	--		--		--		--		--		--		--		--		-0.3096		--[2]	
April-21	0.1085		0.0083		--[1]		--[1]		-0.2740		-0.1859		0.0846		0.0319		--		--	
May-21	--		--		--		--		--		--		--		--		-0.3356		--[2]	
June-21	--		--		--		--		--		--		--		--		-0.2151		--[2]	
July-21	--		--		--		--		--		--		--		--		-0.1795		--[2]	
August-21	0.1813		0.0062		0.0317		-0.1201		-0.2049		0.0015		0.0967		-0.0212		0.5507		--[2]	
September-21	--		--		--		--		--		--		--		--		-0.2425		--[2]	
October-21	--		--		--		--		--		--		--		--		--		--	
November-21	--		--		--		--		--		--		--		--		--		--	
December-21	--		--		--		--		--		--		--		--		-0.1164		--[2]	

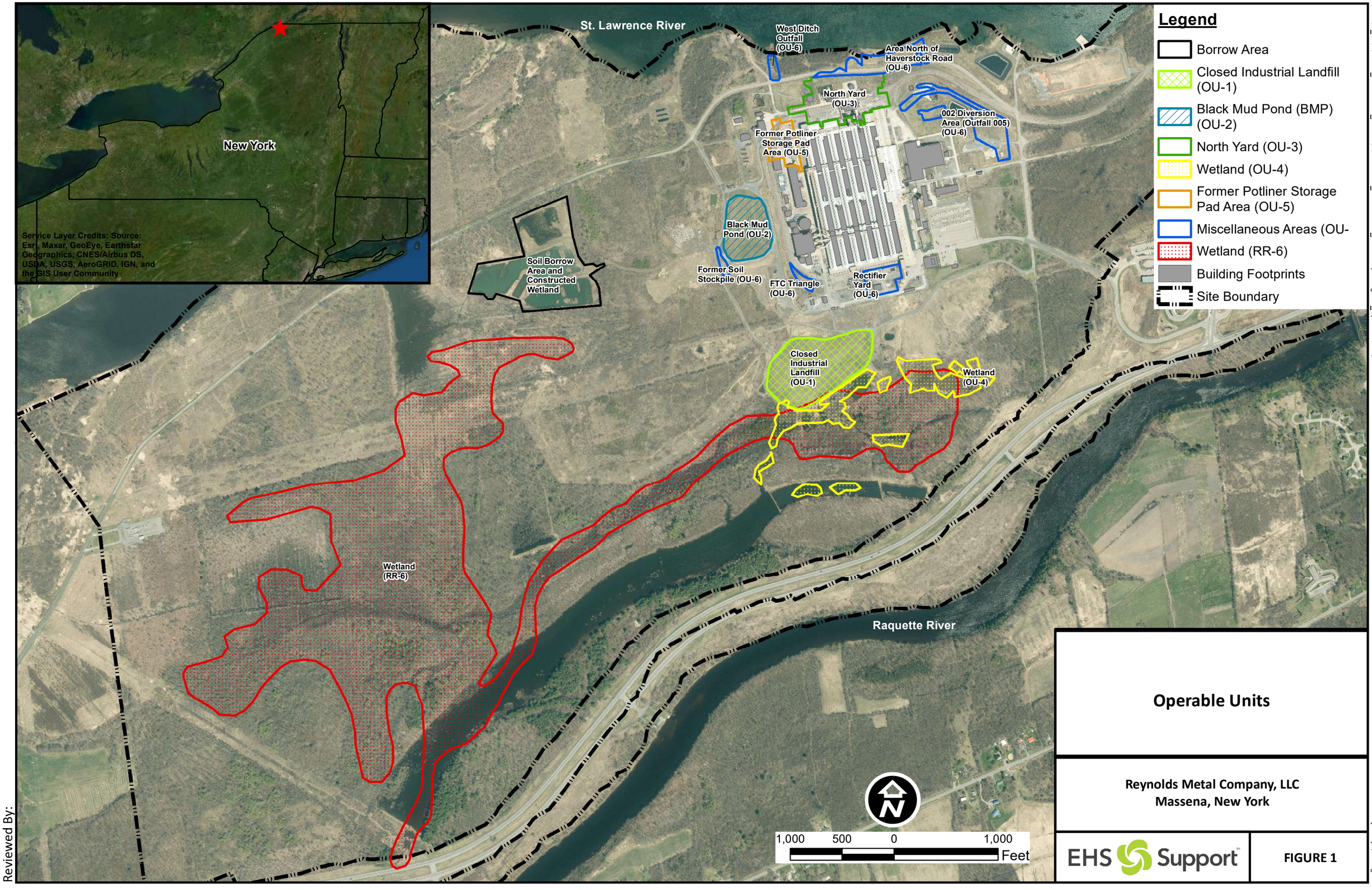
Notes:
[1] - Comparable shallow water levels were unavailable to calculate vertical gradients during spring for MW-15 Shallow and Deep wells.
[2] - The groundwater elevation at MPOG1601S is below base of screen; therefore, vertical gradients cannot be calculated at this location. This calculation should not be performed when the groundwater elevation is below the base of the screen.
Negative gradient value indicates an upward vertical gradient.
-- = Not measured or calculated
BMP = Black Mud Pond
dh = difference in groundwater elevation between upper and lower well screens
dl = vertical distance between screen midpoints
ft = feet
ft msl = feet above mean sea level

Table 13
French Drain Flow Data
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East
Massena, New York
Alcoa Corporation

Month	Volume (gallons)
January	85,868.40
February	51,051.60
March	246,651.60
April	108,558.00
May	106,993.20
June	49,291.20
July	58,288.80
August	66,308.40
September	64,352.40
October	82,543.20
November	250,368.00
December	217,116.00
2021 Total	1,387,391

Table prepared by CDM Smith.

Figures



Reviewed By:

Operable Units

Reynolds Metal Company, LLC
Massena, New York

EHS Support

FIGURE 1

J:\EHS_GIS\C03330_Massena\01_ANALYSIS\20220221_MassenaEast_AnnualReportFigure1_OperableUnits.mxd

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St. Lawrence River

Outfall 008

Outfall 001

Outfall 003

Outfall 002

Outfall 005

Black Mud Pond leachate water is transported offsite for treatment

Outfall 01A

Outfall 01C directed to Outfall 003

Outfall 02E

Outfall 02E (002 Pond overflow) directed to Outfall 005

Outfall 010

Outfall 01C Landfill runoff groundwater/leachate

Outfall 010 Surface Drainage

Outfall 010 to Raquette River via Surface Drainage

Outfall 011 to Raquette River Not regulated under the SPDES permit

Raquette River

Legend

Layer

- Outfall 001
- Outfall 002
- Outfall 003
- Outfall 005
- Outfall 008
- Outfall 010
- Outfall O1A

FACILITY OUTFALLS REGULATED UNDER SPDES PERMIT NO. NY0000132

Outfall No.	Receiving Waterbody Discharge Location, Latitude N/Longitude W (deg,min,sec)	Receiving Stream/Class	Monitoring Location, Latitude N/Longitude W (deg,min,sec)
001	44,59,11/74,44,46	St. Lawrence River/A	Same as Receiving Waterbody
01A	See 001	Outfall 001	44,59,03/74,45,19
01C	See 001	Outfall 01A	44,58,37/74,45,09
02E	See 005	Outfall 005	44,59,05/74,44,52
003	44,59,11/74,44,50	St. Lawrence River/A	44,59,07/74,44,57
005	44,59,11/74,44,45	St. Lawrence River/A	Same as Receiving Waterbody
008	44,59,11/74,45,18	St. Lawrence River/A	Same as Receiving Waterbody
010	44,58,33/74,44,38	Raquette River/B	44,58,38/74,44,40

TABLE RETRIEVED FROM REYNOLDS SPDES PERMIT NO. NY0000132

575 287.5 0 575 Feet

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES

Outfall Location Plan

Reynolds Metal Company, LLC
Massena, New York

EHS Support

FIGURE 2

Reviewed By:

J:\EHS_GIS\C03330_Massena\01_ANALYSIS\20220221_MassenaEast_AnnualReportFigure2_OutfallPlan.mxd

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St. Lawrence River

Outfall 002/003

Outfall 001

Outfall 005

Outfall 008

Outfall Watershed 001
0.7 Acres

Outfall Watershed 001
2 Acres

Outfall 02E
(002 pond overflow
directed to Outfall 005)

Outfall Watershed 003
1.1 Acres

Outfall Watershed 002
1.5 Acres

Outfall 01A
(not used)

Outfall 01C directed to
Outfall 003

Outfall Watershed 008
15.5 Acres

Outfall Watershed 001
49.9 Acres

Outfall Watershed 005
31 Acres

Outfall Watershed 002
15.9 Acres

Black Mud Pond Leachate
(transported off-site for treatment)

Extraction Wells
(Directed to Outfall 001)

Outfall Watershed 001
2.4 Acres

Outfall Watershed 010
114.8 Acres

Outfall Watershed 001C/003
13.3 Acres

Outfall 01C
(landfill runoff/
groundwater/leachate directed to
Outfall 003 for treatment)

Outfall 010
to Raquette River
via Surface Drainage

Outfall 011
to Raquette River (not
regulated under SPDES
permit)

Raquette River

Outfall Watershed 011
99.2 Acres

650 325 0 650
Feet

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES

Legend

Outfalls

- Outfall 001
- Outfall 002
- Outfall 003
- Outfall 005
- Outfall 008
- Outfall 010
- Outfall O1A

Outfall Watersheds

- Outfall 001
- Outfall 001C/003
- Outfall 002
- Outfall 003
- Outfall 005
- Outfall 008
- Outfall 010
- Outfall 011

Outfall Locations

Reynolds Metal Company, LLC
Massena, New York

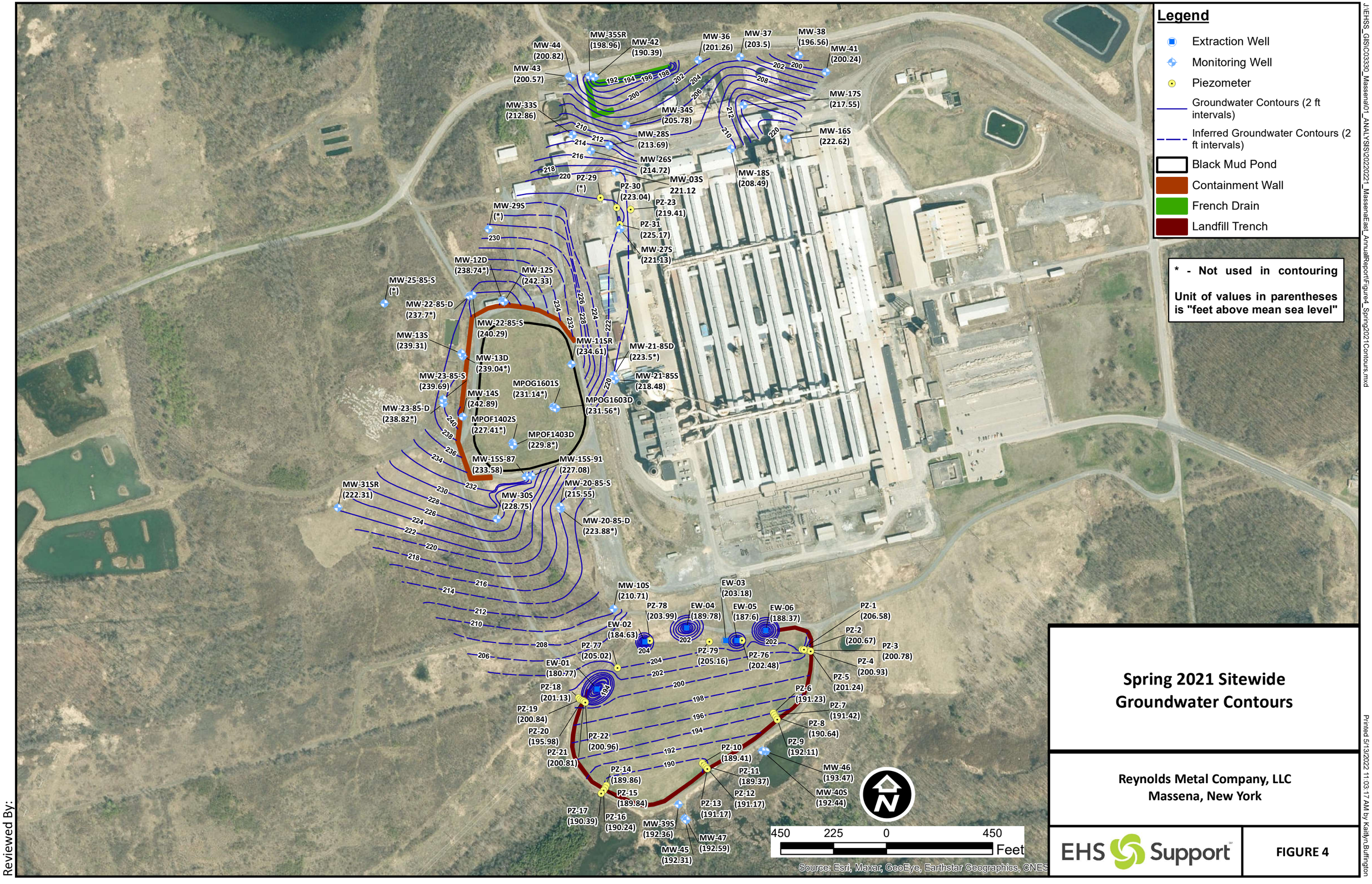
EHS Support℠

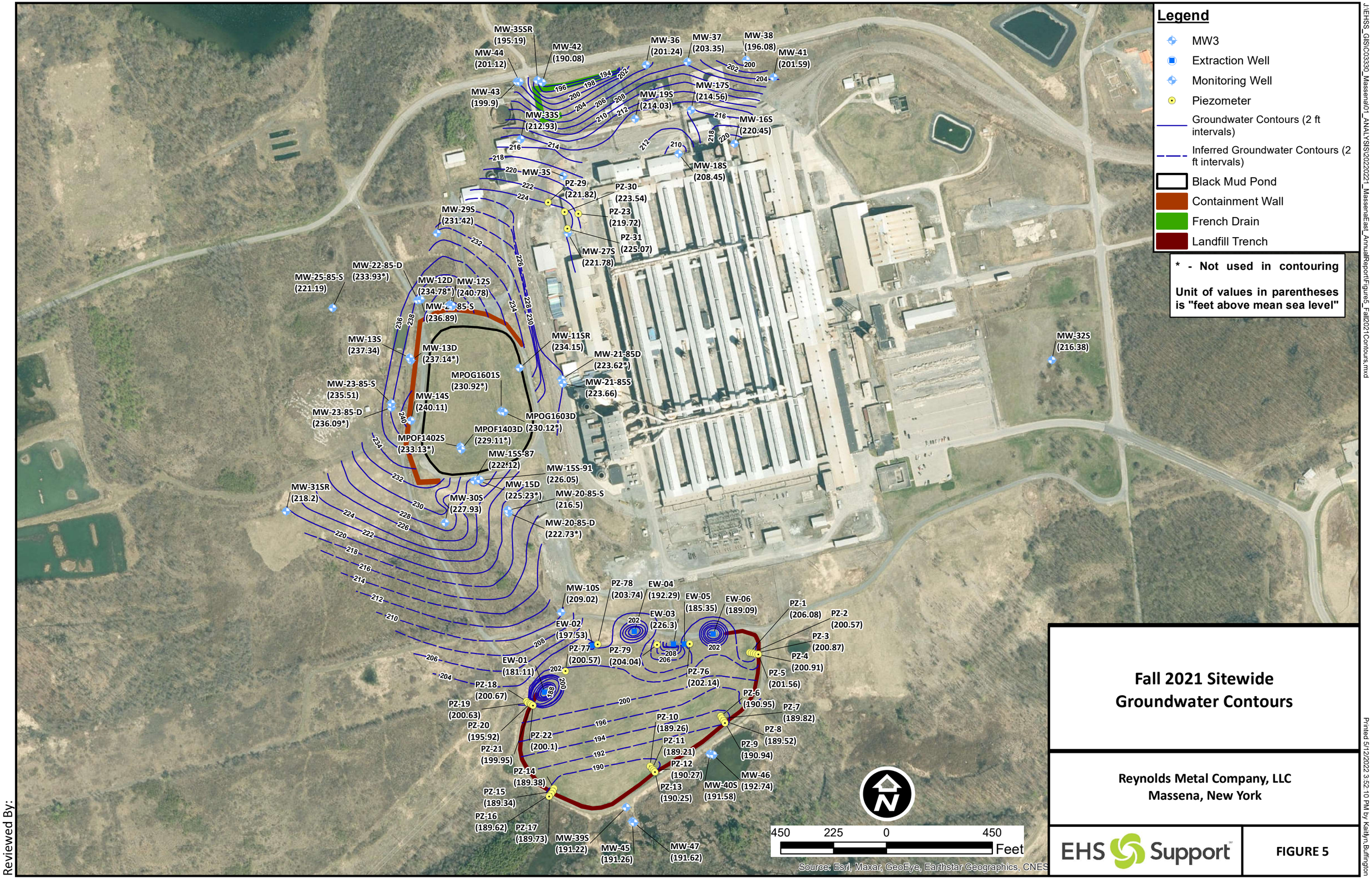
FIGURE 3

Reviewed By:

J:\EHS_GIS\CI0330_Massena\01_ANALYSIS\20220221_MassenaEast_AnnualReportFigure3_OutfallLocations.mxd

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Legend
Extraction Well
Monitoring Well
Piezometer
Groundwater Contours (2 ft intervals)
Inferred Groundwater Contours (2 ft intervals)
Black Mud Pond
Containment Wall
French Drain
Landfill Trench
* - Not used in contouring
Unit of values in parentheses is "feet above mean sea level"
MW-35SR (198.96)
MW-42 (190.39)
MW-44 (200.82)
MW-43 (200.57)
MW-36 (201.26)
MW-37 (203.5)
MW-38 (196.56)
MW-41 (200.24)
MW-17S (217.55)
MW-16S (222.62)
MW-18S (208.49)
MW-33S (212.86)
MW-34S (205.78)
MW-28S (213.69)
MW-26S (214.72)
MW-03S 221.12
PZ-29 (*)
PZ-30 (223.04)
PZ-23 (219.41)
PZ-31 (225.17)
MW-27S (221.13)
MW-29S (*)
MW-12D (238.74*)
MW-12S (242.33)
MW-25-85-S (*)
MW-22-85-D (237.7*)
MW-22-85-S (240.29)
MW-13S (239.31)
MW-11SR (234.61)
MW-21-85D (223.5*)
MW-13D (239.04*)
MW-21-85S (218.48)
MW-23-85-S (239.69)
MW-14S (242.89)
MPOG1601S (231.14*)
MPOG1603D (231.56*)
MW-23-85-D (238.82*)
MPOF1402S (227.41*)
MPOF1403D (229.8*)
MW-15S-87 (233.58)
MW-15S-91 (227.08)
MW-20-85-S (215.55)
MW-31SR (222.31)
MW-30S (228.75)
MW-20-85-D (223.88*)
MW-10S (210.71)
EW-03 (203.18)
PZ-78 (203.99)
EW-04 (189.78)
EW-05 (187.6)
EW-06 (188.37)
PZ-1 (206.58)
EW-02 (184.63)
PZ-2 (200.67)
PZ-3 (200.78)
PZ-77 (205.02)
PZ-79 (205.16)
PZ-76 (202.48)
PZ-4 (200.93)
EW-01 (180.77)
PZ-5 (201.24)
PZ-18 (201.13)
PZ-6 (191.23)
PZ-19 (200.84)
PZ-7 (191.42)
PZ-8 (190.64)
PZ-20 (195.98)
PZ-22 (200.96)
PZ-9 (192.11)
PZ-21 (200.81)
PZ-10 (189.41)
MW-46 (193.47)
PZ-14 (189.86)
PZ-11 (189.37)
PZ-15 (189.84)
PZ-12 (191.17)
MW-40S (192.44)
PZ-17 (190.39)
PZ-16 (190.24)
PZ-13 (191.17)
MW-39S (192.36)
MW-47 (192.59)
MW-45 (192.31)
450 225 0 450
Feet
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES
Spring 2021 Sitewide Groundwater Contours
Reynolds Metal Company, LLC
Massena, New York
EHS Support
FIGURE 4
Reviewed By:
J:\EHS_GIS\C03330_Massena\01_ANALYSIS\20220221_MassenaEast_AnnualReportFigure4_Spring2021Contours.mxd
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Fall 2021 Sitewide Groundwater Contours

Reynolds Metal Company, LLC
Massena, New York

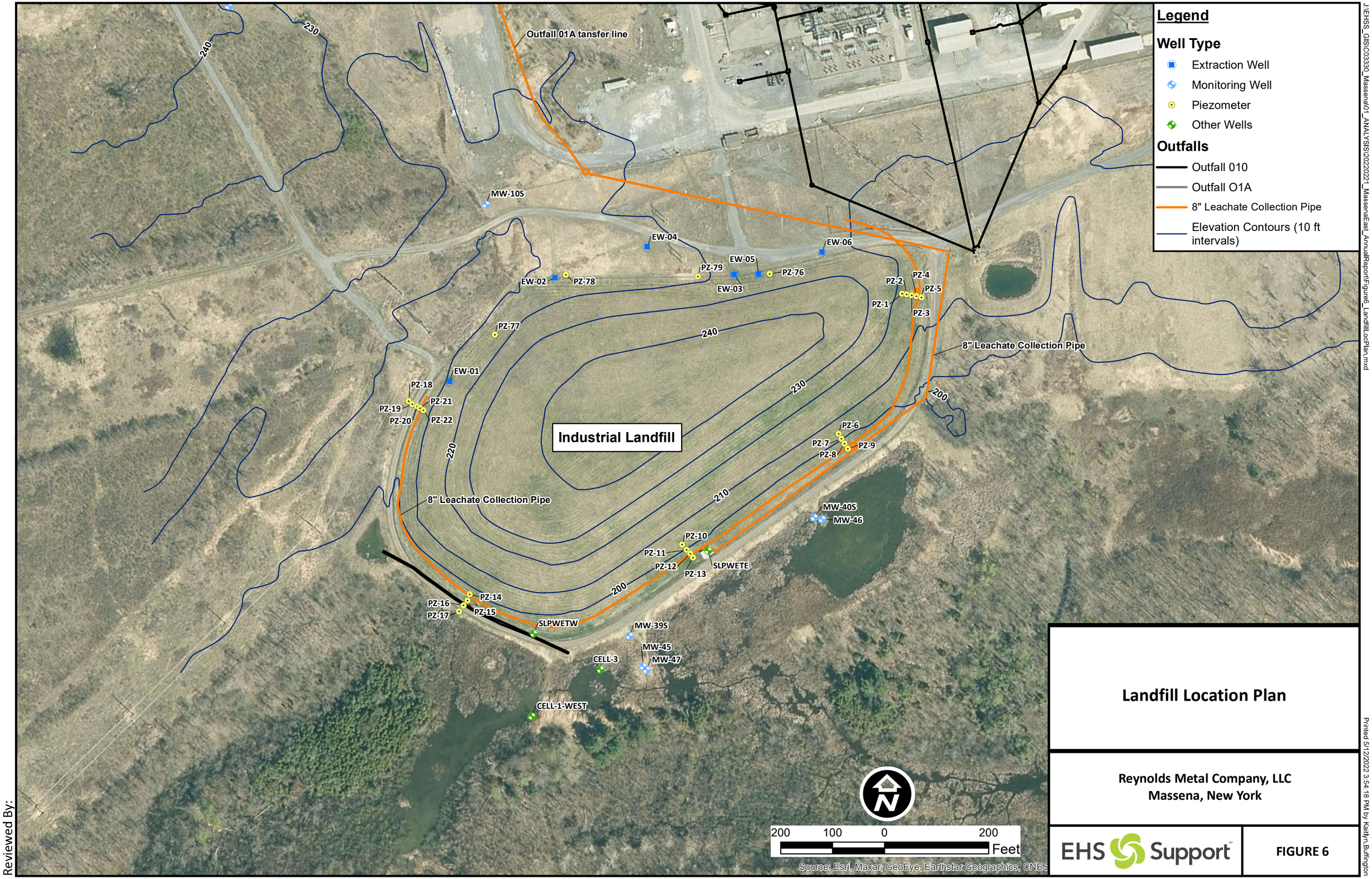
EHS Support

FIGURE 5

Reviewed By:

J:\EHS_GIS\C03330_Massena\01_ANALYSIS\20220221_MassenaEast_AnnualReportFigure5_Fall2021Contours.mxd

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Reviewed By:

Landfill Location Plan

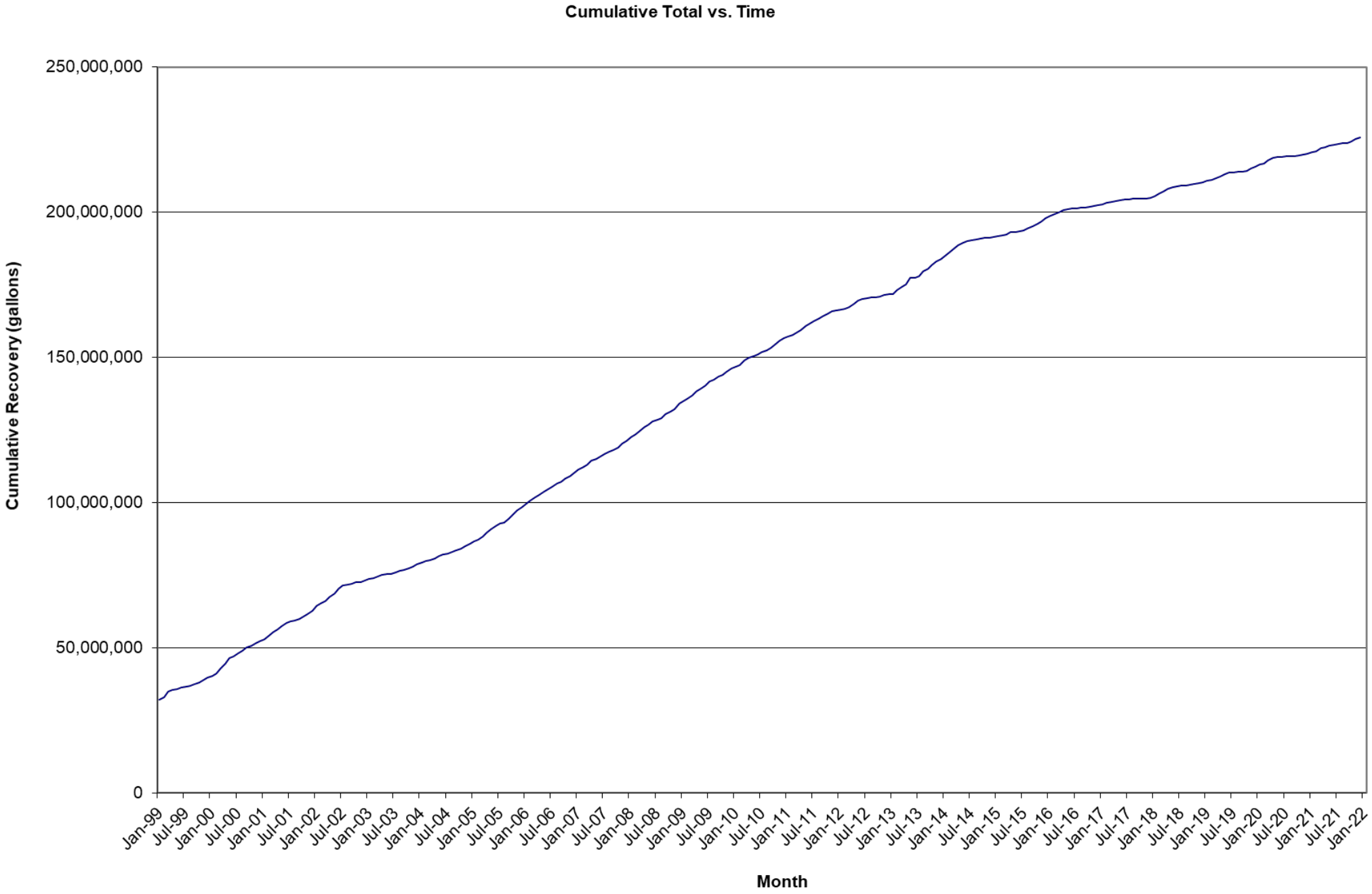
Reynolds Metal Company, LLC
Massena, New York

EHS Support

FIGURE 6

J:\EHS_GIS\C03330_Massena\01_ANALYSIS\20220221_MassenaEast_AnnualReportFigure6_LandfillLocPlan.mxd

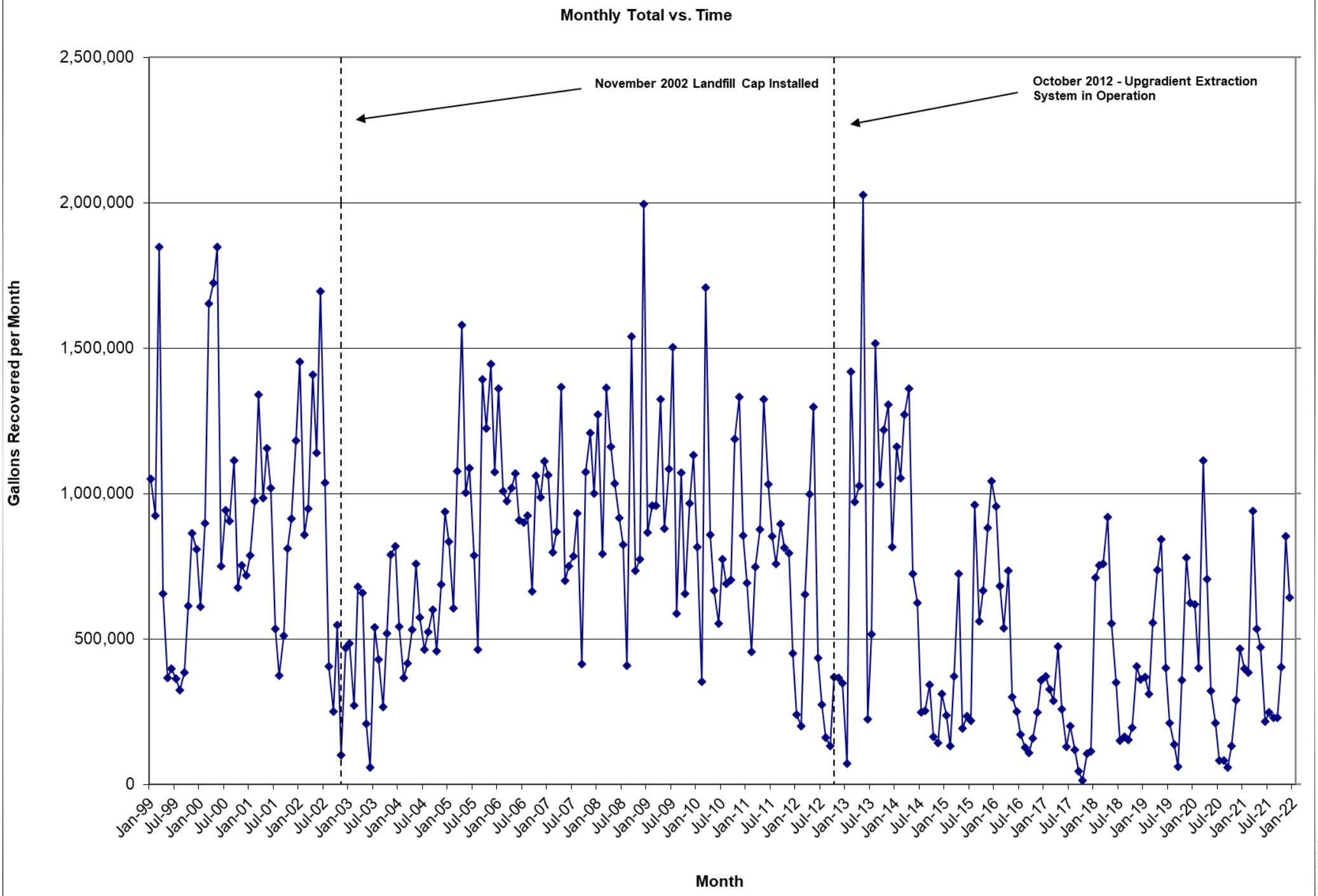
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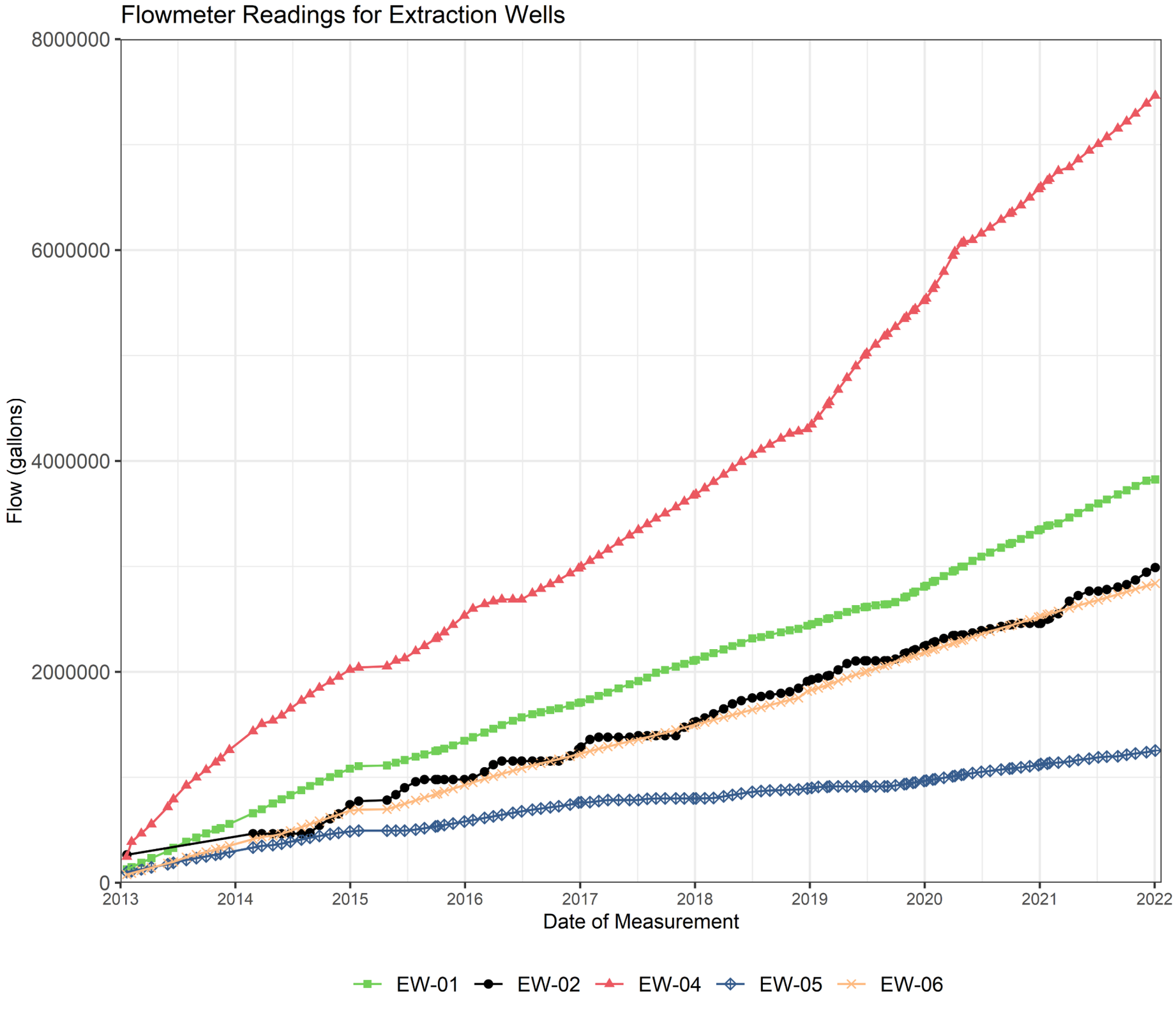
Note:
Cumulative recovery is calculated from time of pumping system startup in October 1995.

Source: CDM Smith

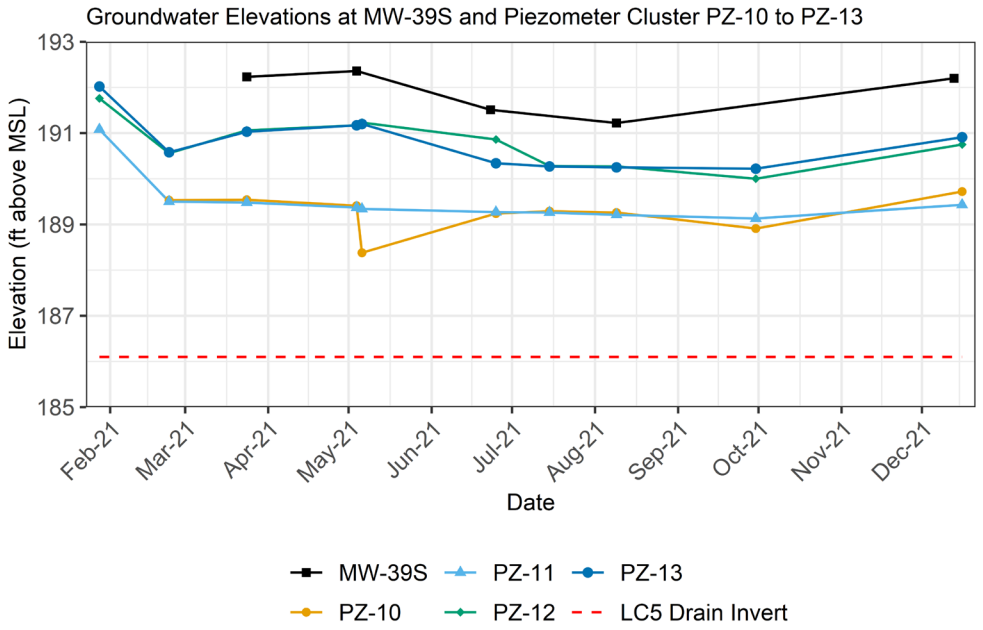
EHS Support	Reynolds Metal Company, LLC Massena, New York	Cumulative Landfill Groundwater Removal	Figure 7

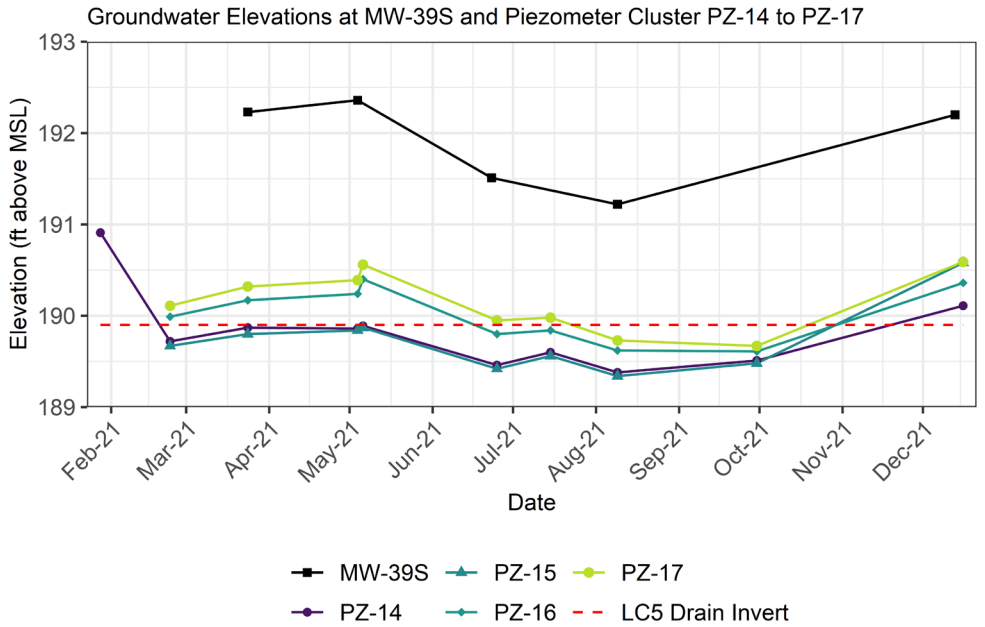


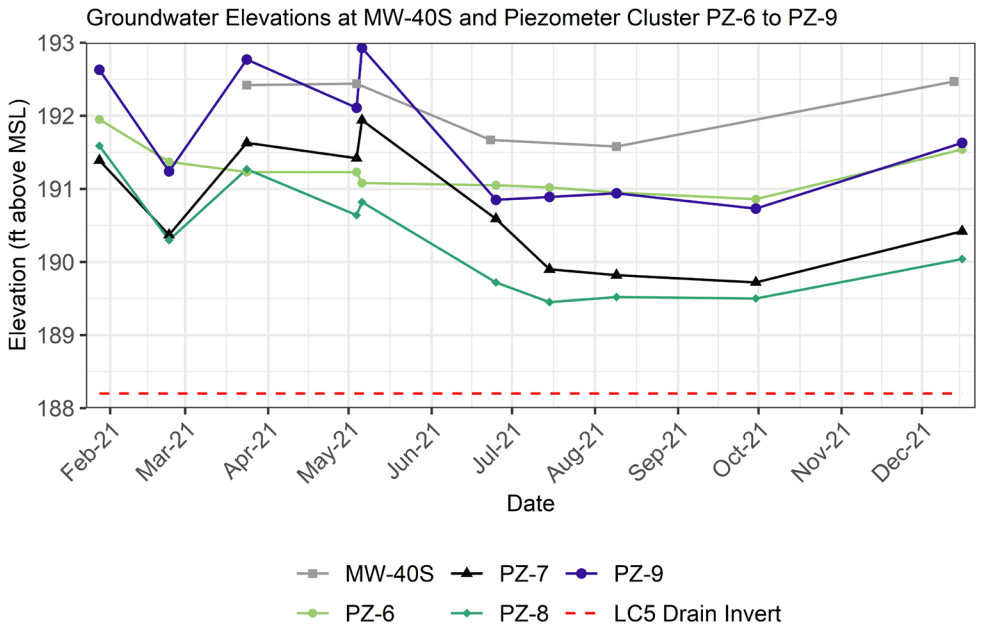
EHS Support	Reynolds Metal Company, LLC Massena, New York	Monthly Landfill Groundwater Removal	Figure 8

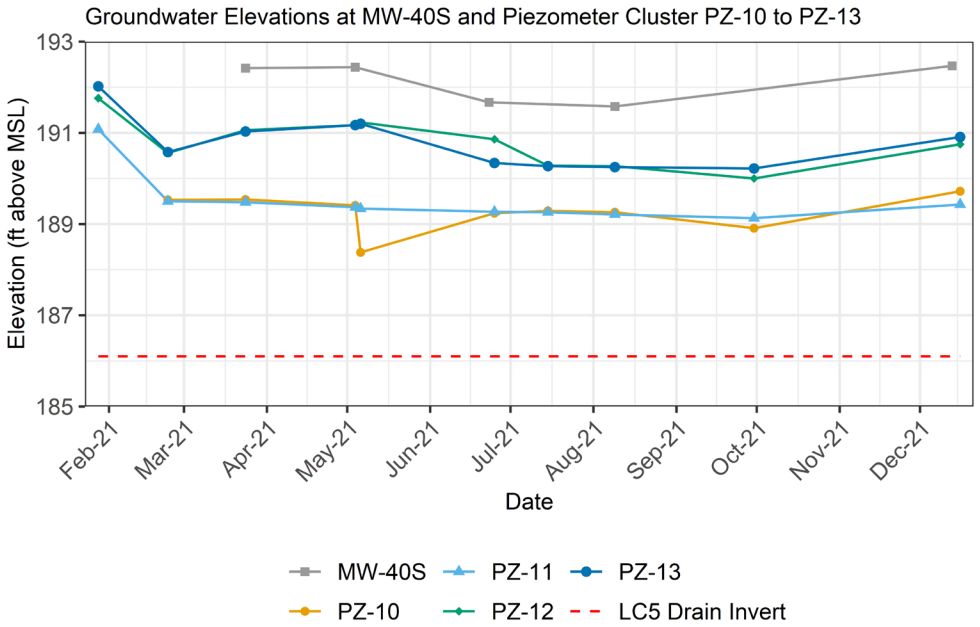


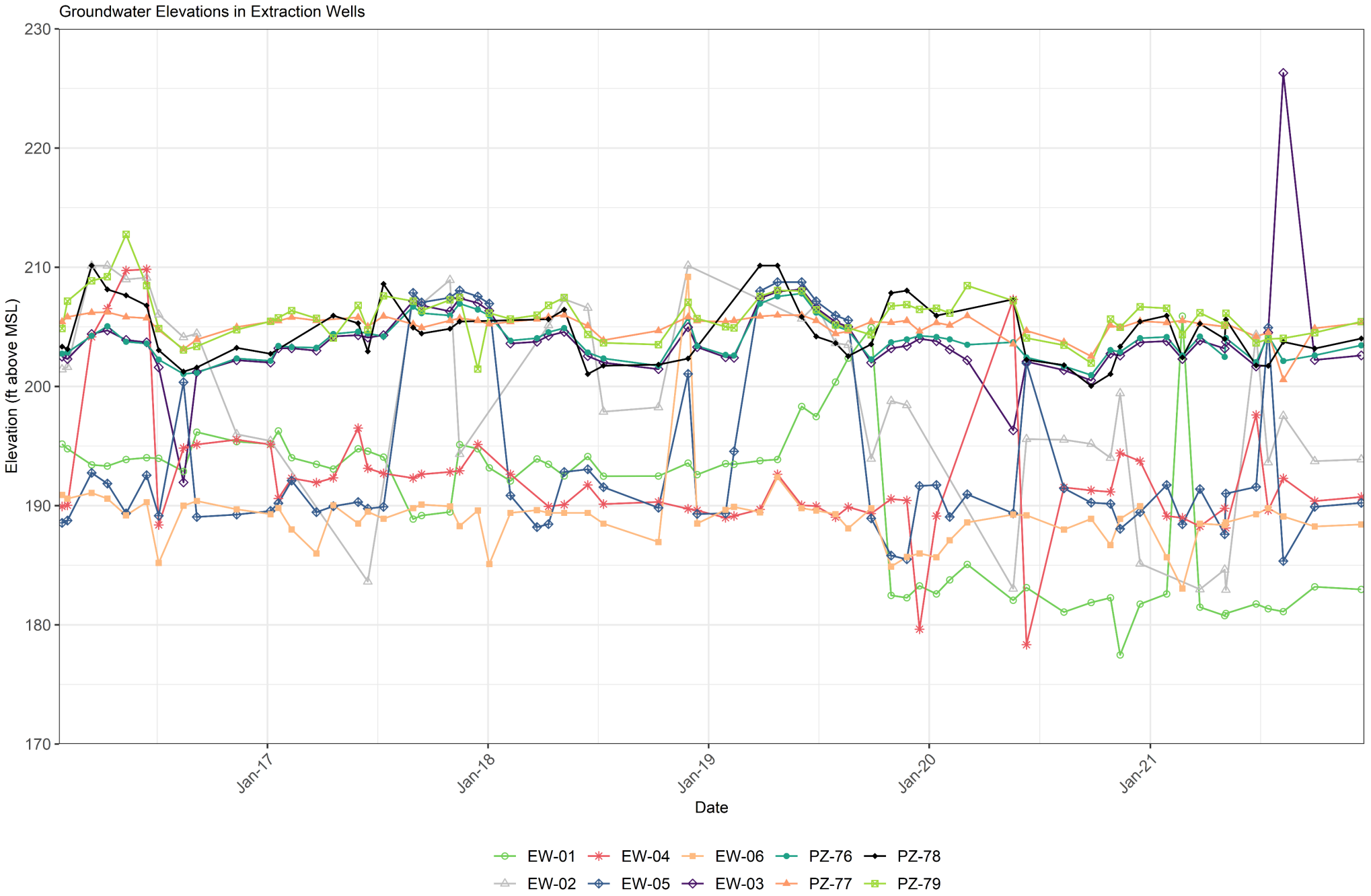
EHS Support℠	Historical Flowmeter Readings for Extraction Wells through 2022	**2021 Annual Groundwater Monitoring Report Massena East Site Massena, New York**	**Figure 9**


Groundwater Elevations at MW-39S and Piezometer Cluster PZ-10 to PZ-13
Elevation (ft above MSL)
193
191
189
187
185
Feb-21
Mar-21
Apr-21
May-21
Jun-21
Jul-21
Aug-21
Sep-21
Oct-21
Nov-21
Dec-21
Date
MW-39S
PZ-11
PZ-13
PZ-10
PZ-12
LC5 Drain Invert

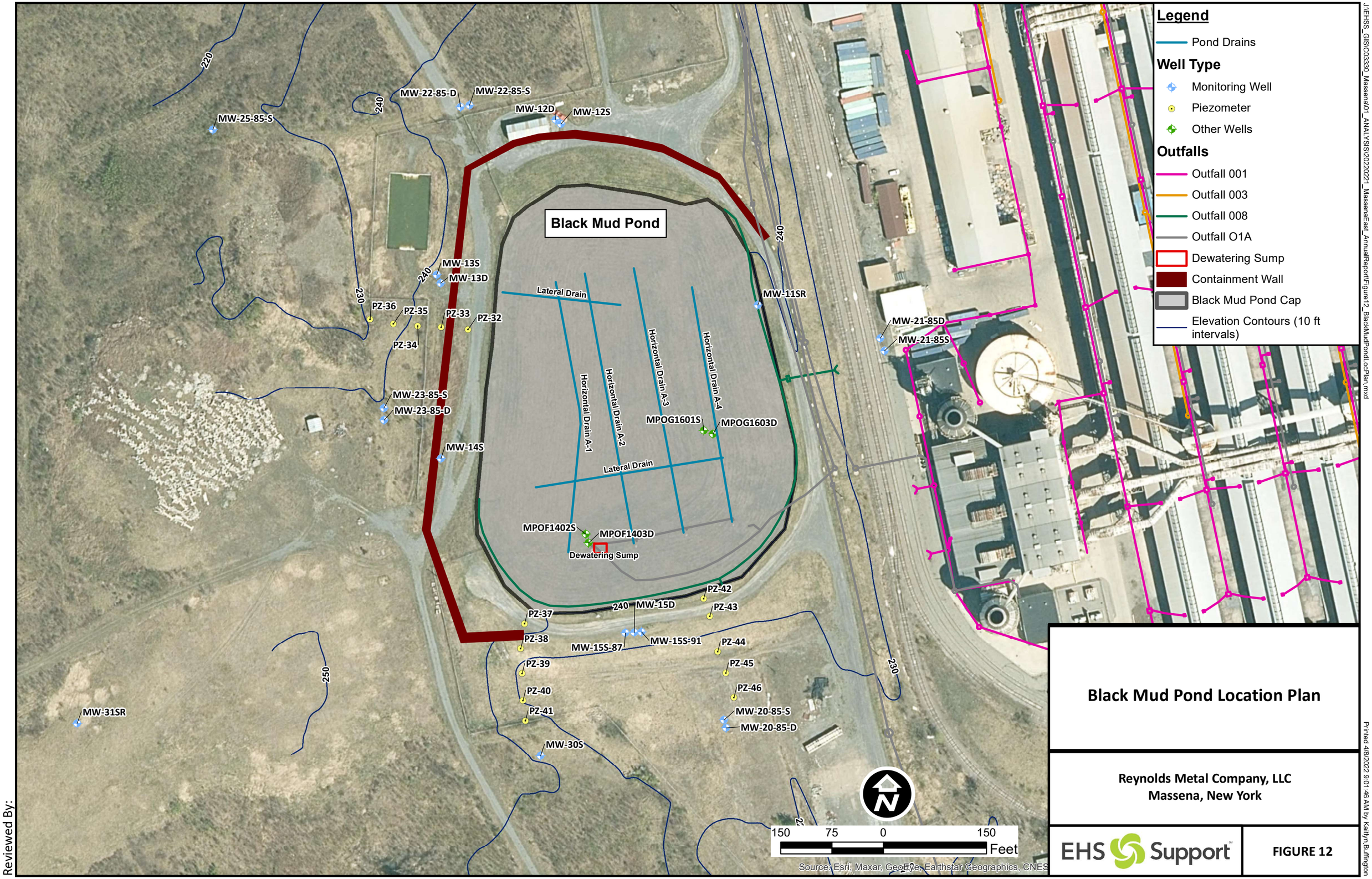

Groundwater Elevations at MW-39S and Piezometer Cluster PZ-14 to PZ-17
Elevation (ft above MSL)
193
192
191
190
189
Feb-21
Mar-21
Apr-21
May-21
Jun-21
Jul-21
Aug-21
Sep-21
Oct-21
Nov-21
Dec-21
Date
MW-39S
PZ-15
PZ-17
PZ-14
PZ-16
LC5 Drain Invert


Groundwater Elevations at MW-40S and Piezometer Cluster PZ-6 to PZ-9
Elevation (ft above MSL)
193
192
191
190
189
188
Feb-21
Mar-21
Apr-21
May-21
Jun-21
Jul-21
Aug-21
Sep-21
Oct-21
Nov-21
Dec-21
Date
MW-40S
PZ-7
PZ-9
PZ-6
PZ-8
LC5 Drain Invert


Groundwater Elevations at MW-40S and Piezometer Cluster PZ-10 to PZ-13
Elevation (ft above MSL)
193
191
189
187
185
Feb-21
Mar-21
Apr-21
May-21
Jun-21
Jul-21
Aug-21
Sep-21
Oct-21
Nov-21
Dec-21
Date
MW-40S
PZ-11
PZ-13
PZ-10
PZ-12
LC5 Drain Invert



EHS Support	Reynolds Metal Company, LLC Massena, New York	Groundwater Elevations in Extraction Wells	Figure 11



Legend

- Pond Drains

Well Type

- Monitoring Well
- Piezometer
- Other Wells

Outfalls

- Outfall 001
- Outfall 003
- Outfall 008
- Outfall O1A
- Dewatering Sump
- Containment Wall
- Black Mud Pond Cap
- Elevation Contours (10 ft intervals)

Black Mud Pond Location Plan

Reynolds Metal Company, LLC
Massena, New York

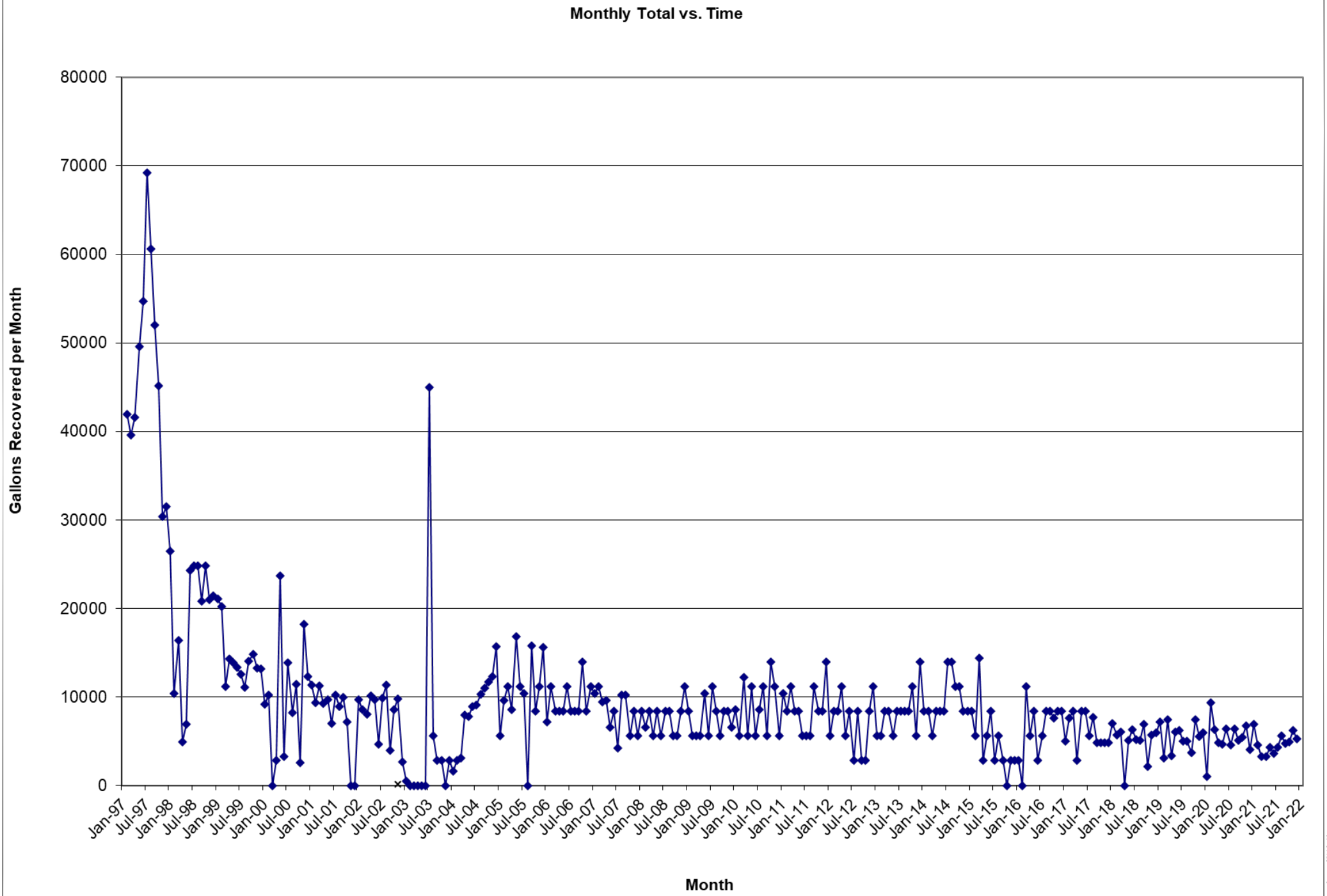
EHS Support

FIGURE 12

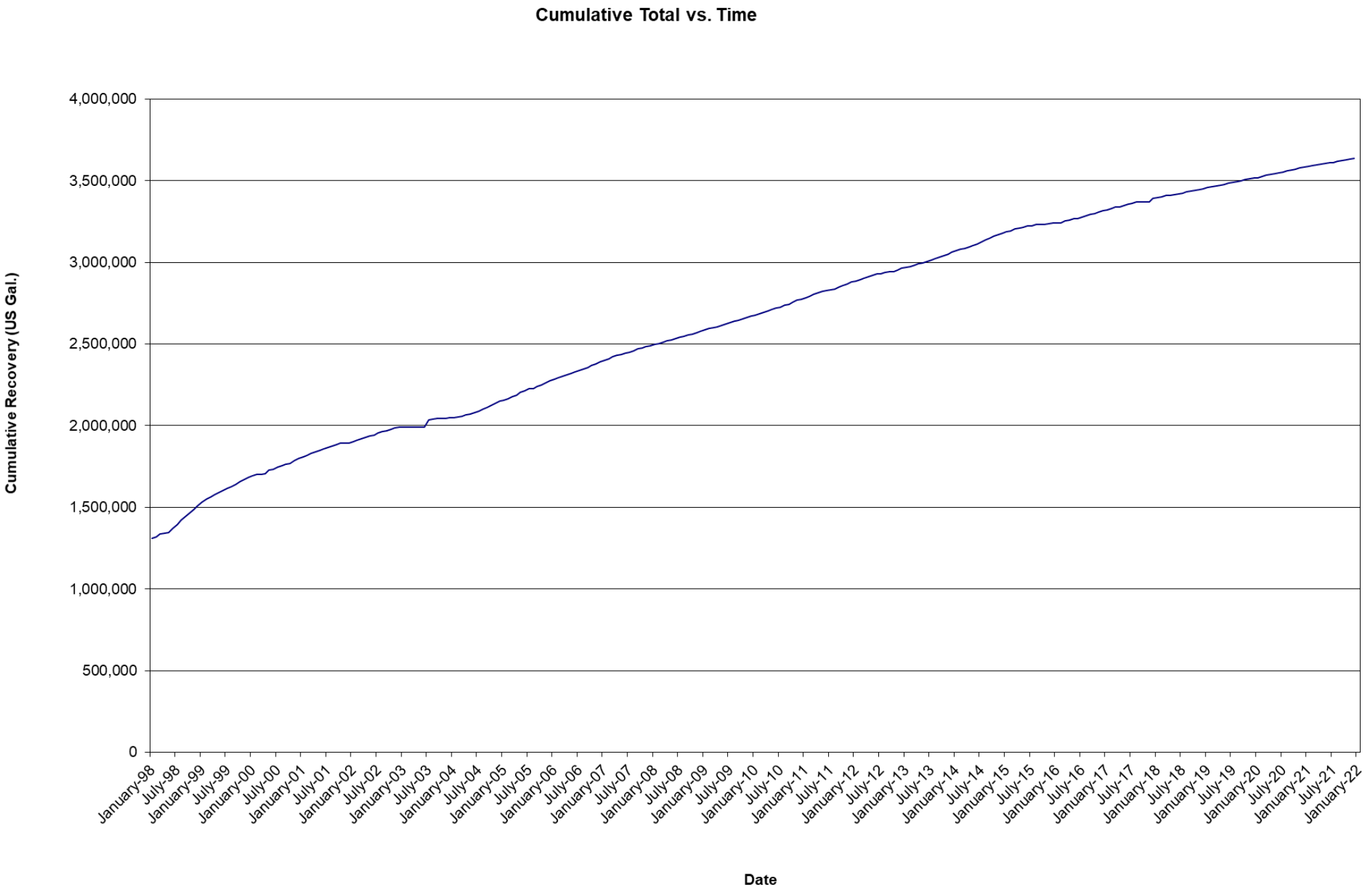
Reviewed By:

J:\EHSS_GIS\C03330_Massena\01_ANALYSIS\20220221_MassenaEast_AnnualReportFigure12_BlackMudPondLocPlan.mxd

Printed 4/8/2022 9:01:46 AM by Kaitlyn.Buffington

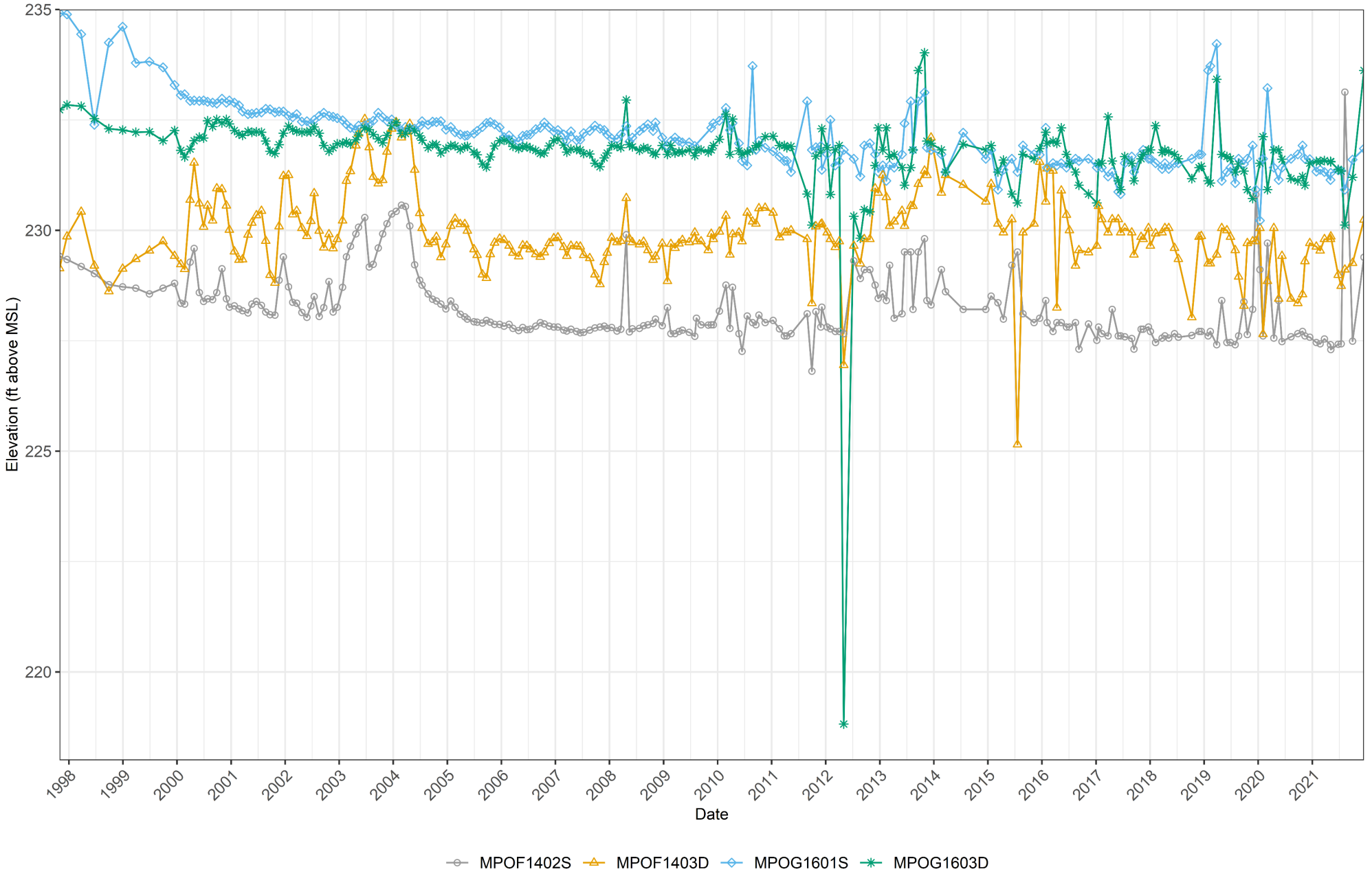


EHS Support	Reynolds Metal Company, LLC Massena, New York	Monthly BMP Groundwater Removal	Figure 13

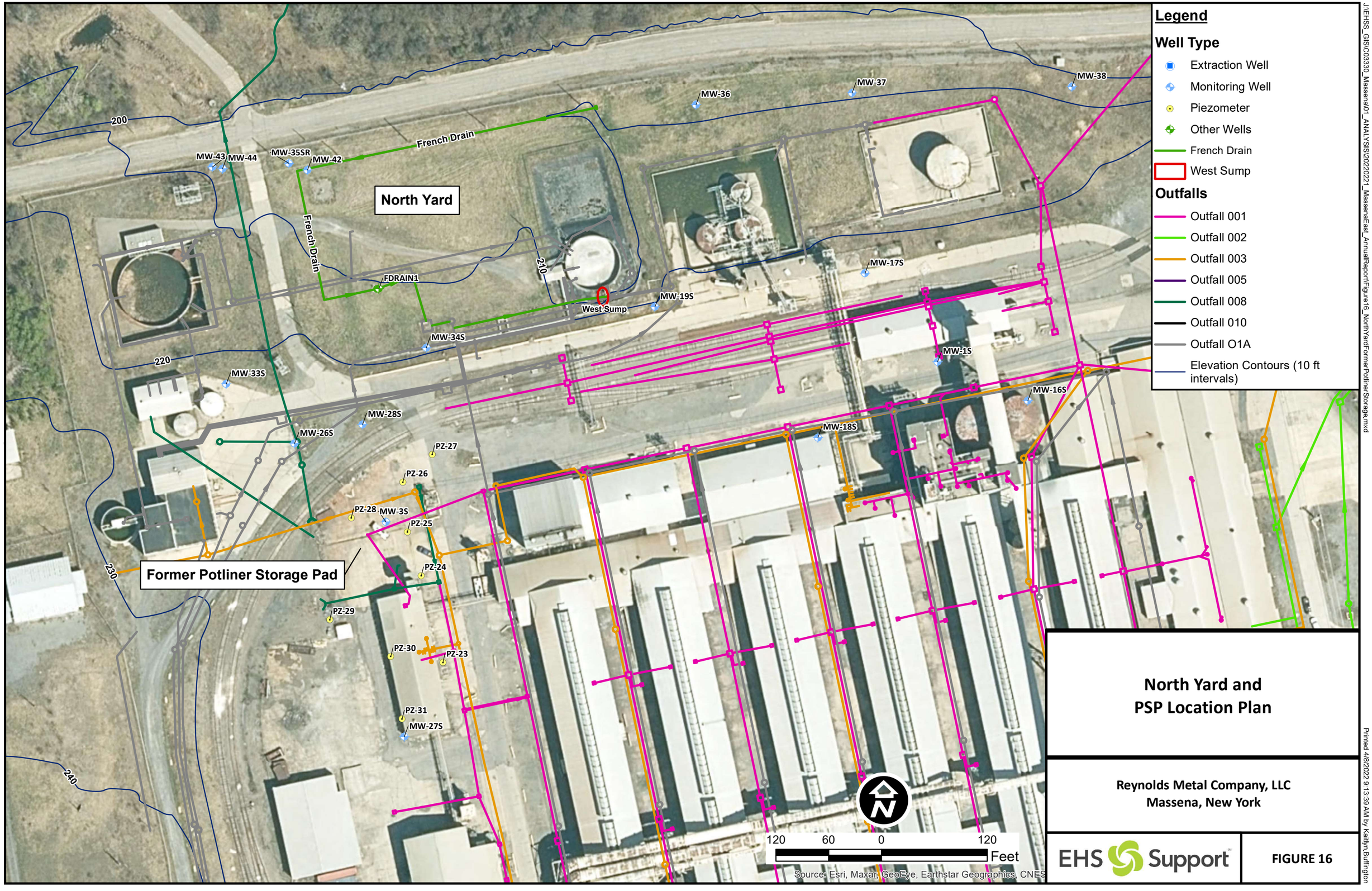


Source: CDM Smith

EHS Support	Reynolds Metal Company, LLC Massena, New York	Cumulative BMP Groundwater Removal	Figure 14



EHS Support	Reynolds Metal Company, LLC Massena, New York	Groundwater Elevations in BMP Piezometers	Figure 15



Legend

Well Type

- Extraction Well
- Monitoring Well
- Piezometer
- Other Wells
- French Drain
- West Sump

Outfalls

- Outfall 001
- Outfall 002
- Outfall 003
- Outfall 005
- Outfall 008
- Outfall 010
- Outfall O1A
- Elevation Contours (10 ft intervals)

North Yard and PSP Location Plan

Reynolds Metal Company, LLC
Massena, New York

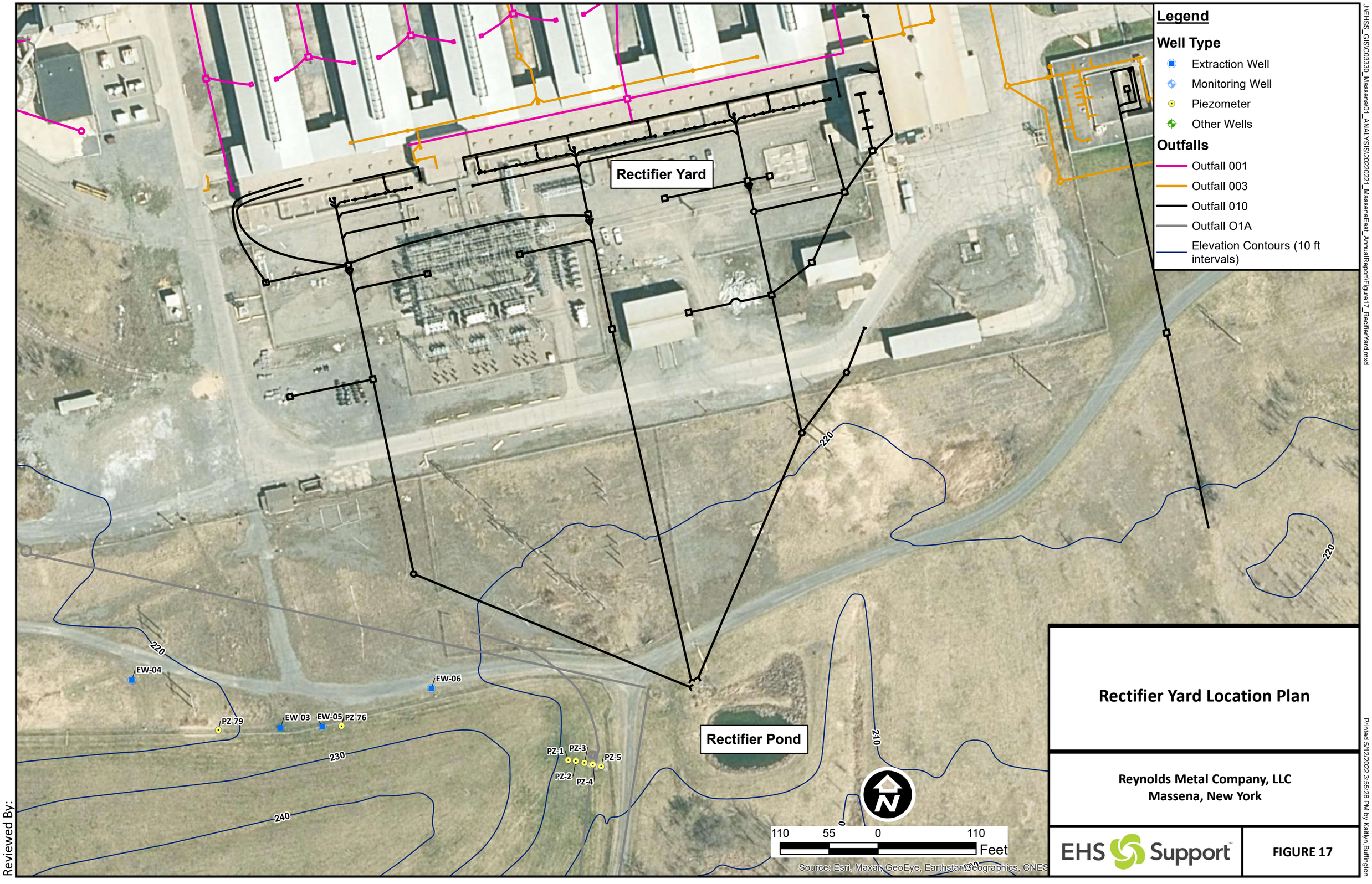
EHS Support

FIGURE 16

Reviewed By:

J:\EHS_GIS\C03330_Massena\01_ANALYSIS\20220221_MassenaEast_AnnualReportFigure16_NorthYardFormerPotlinerStorage.mxd

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Rectifier Yard Location Plan

Reynolds Metal Company, LLC
Massena, New York

EHS Support

FIGURE 17

Reviewed By:

J:\EHS_GIS\CO3330_Massena\01_ANALYSIS\20220221_MassenaEast_AnnualReportFigure17_RectifierYard.mxd

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Appendix A O&M Activities

Description of Activity	Schedule Requirement	Planned Schedule											
		J	F	M	A	M	J	J	A	S	O	N	D
Surface Water [1]													
Inspect surface water monitoring stations	Annually					X							
Monitor surface water chemistry from Rectifier Yard Pond (pond east of Landfill)	Quarterly[3]												
	(Revised July 1999, January 2013)												
Groundwater													
Inspect monitoring wells/piezometers	Annually					X							
Monitor groundwater chemistry	Quarterly[4]			X			X			X			X
Measure water levels in wells/piezometers	Quarterly			X			X			X			X
See also under “BMP” and “Landfill” below													
General Area Inspections													
Inspect BMP cap and area	Spring and Fall				X						X		
Inspect Landfill cap and area	Spring and Fall				X						X		
Inspect North Yard and tank containments	Annually					X							
Inspect North Yard west and east sumps	Quarterly	X			X			X			X		
Inspect PSP and area	Annually					X							
Inspect RY and area	Annually					X							
BMP Groundwater Removal													
Measure groundwater elevations inside BMP	Monthly	X	X	X	X	X	X	X	X	X	X	X	X
Obtain groundwater transfer quantity from BMP	Monthly	X	X	X	X	X	X	X	X	X	X	X	X
Inspect discharge line from BMP sump	Quarterly	X			X			X			X		
Landfill Groundwater & Stormwater Removal													
Measure groundwater elevations around landfill	Monthly	X	X	X	X	X	X	X	X	X	X	X	X
Record quantity of groundwater and stormwater transferred from Landfill [2]	Weekly - Reported Monthly	X	X	X	X	X	X	X	X	X	X	X	X
Inspect LCRS and groundwater transfer line	Quarterly	X			X			X			X		

Notes:

1. SPDES surface water monitoring is performed and reported separately.
2. Transfer will consist only of landfill groundwater (i.e., no stormwater).
3. Quarterly sampling for PCBs discontinued per letter from NYSDEC dated January 3, 2013.
4. Groundwater sampled quarterly at Landfill; all other areas sampled semiannually

Appendix B Field Sampling Forms

Appendix B
Field Parameters
to the 2021 Periodic Review Report for the Reynolds Metals Company LLC
Massena East
Massena, New York
Alcoa Corporation

Surface Water													
Parameter	Units	Location											
		STW-POND	Cell 1 West	Cell 1 East	Micropool	St Lawrence	SLPWETE	Cell 3	Polly Gut	Dondero canal	Grasse UG	Raquette DG	Raquette UG	SLPWETW
Turbidity	NTU	---	58	---	1	3	---	6	0.85	1.87	4.58	1.65	2	---
Conductivity	µS/cm	0.4254	0.881	---	0.42	0.2102	0.3978	0.044	0.2032	0.211	0.1243	0.1035	0.074	0.3749
pH	SU	8.14	7.52	---	7.51	8.34	7.97	7.25	7.79	8.01	7.77	7.51	7.53	7.75
Temperature	°C	1.7	8.5	---	2.6	5.1	4.3	3.2	4.7	4.2	2.8	3.8	3.9	0.9
Eh	mV	43.6	69.7	---	70.5	76.3	35.6	83.3	53.3	33	25.3	26.5	81.3	53.2

Ground Water													
Parameter	Units	Locations											
		MW-03	MW-12S	MW-13S	MW-15S	MW-16S	MW-17S	MW-18S	MW-19S	MW-26S	MW-27S	MW-28S	MW-30S	MW-34S
Turbidity	NTU	22.4	29	27	7	37	8	16	4	11	87	32	76	140
Conductivity	µS/cm	1.028	2.631	4.728	0.803	0.846	1.129	1.364	0.703	0.743	6.84	0.903	0.823	2.307
pH	SU	8.14	7.68	7.22	7.72	8	7.5	-60.7	7.62	7.63	7.52	8.55	7.36	7.97
Temperature	°C	10.1	8.7	9.1	8.3	6.3	7.6	7.2	9.5	5.7	10.4	10.5	9.9	8.5
Eh	mV	2225.5	99.3	104.8	103.2	119.1	137.6	114.5	146.2	105.5	112	65.1	84.9	44.3

Ground Water									
Parameter	Units	Locations							
		MW-35SR	MW-40S	MW-42	MW-43	MW-44	PZ-6	PZ-10	PZ-44	PZ-48
Turbidity	NTU	873	1	>1000	>1000	38	308	250	81	>1000
Conductivity	µS/cm	1.382	1.054	2.9	0.774	0.827	8.7	1.92	2.163	1.772
pH	SU	7.22	7.44	7.9	7.12	7.18	10.06	7.15	7.16	7.4
Temperature	°C	9	9.4	8.8	8.7	9.6	9.7	9.4	6	5.4
Eh	mV	100.9	60.9	128.3	120.1	94.3	-144.9	124.7	-36.2	45.5

Notes:
°C = degrees Celsius
µS/cm = microsiemens per centimeter
DG = downgradient
NTU = nephelometric turbidity units
SU = standard units
mV = millivolts
UG = upgradient
Yellow shading = value is erroneous

Cox, Basil

From: Rielly, Alison
Sent: Wednesday, December 1, 2021 10:49 AM
To: Alpha Service Center; James Conley; Kelly Hale ; Rodrigue, Paul; Glosenger, Joshua C.; Cox, Basil; Kingsley, Ryan; Peets, Craig M.
Subject: Reynolds Plant December 2021 Sampling
Attachments: Reynolds December 2021 Bottle Request.pdf

CDM Smith is scheduled to collect groundwater samples at the Reynolds Plant in December 2021. All samples will be shipped to Alpha Analytical in Westborough, MA for analysis. The billing number is ***99566***. The following samples will be collected:

PCBs, Total Al, Dissolved Al, Fluoride, Sulfate, Total CN, WAD CN:

MW-11SR-1221
MW-12S-1221
MW-13S-1221
MW-14S-1221
MW-15S-87-1221
MW-20-85S-1221
MW-22-85S-1221
MW-23-85S-1221
MW-30S-1221
MW-31SR-1221
PZ-44-1221
PZ-45-1221
PZ-46-1221
MW-10S-1221 (MS/MSD)
MW-39S-1221
MW-40S-1221
MW-45-1221
SLPWETW-1221
SLPWETE-1221
MW-03S-1221
MW-26S-1221
MW-27S-1221
MW-28S-1221
MW-35SR-1221
MW-42-1221
MW-43-1221 (MS/MSD)
MW-44-1221
MW-16S-1221
MW-17S-1221
MW-18-1221
MW-19S-1221
MW-36-1221
MW-37-1221
MW-38-1221
MW-41-1221

Fluoride, Sulfate, Total CN, WAD CN:

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-10S-1221 **SITE:SLP** **DATE** 12-13-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	23.5	FEET
STATIC LEVEL	6.31	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 5.7 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 6.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	0810	4	0.532	7.17	6.3	182.2

STATIC AT SAMPLING 6.54 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

MS/MSD

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # SLPWETW-1221 **SITE:SLP** **DATE** 12-14-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME _____ **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	0845	.3	0.210	6.71	2.8	-116.5

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-39S-1221 | SITE:SLP | DATE 12-13-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X | SAMPLED BY JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	18.50	FEET
STATIC LEVEL	3.96	FEET

AMOUNT PURGED IF < 3 VOLUMES 3.5 GALLONS

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	7.4	GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12.14.	0905	36.	0.554	7.17	6.8	-27.7

STATIC AT SAMPLING 3.83 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

151

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-45-1221 | SITE:SLP | DATE 12-13-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X | SAMPLED BY BL

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	17.85	FEET
STATIC LEVEL	3.52	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	7.3	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 3 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	0920	9	1,247	7.05	7.0	45.3

STATIC AT SAMPLING 3.55 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-40S-1221 **SITE:SLP** **DATE** 12-13-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	17.50	FEET
STATIC LEVEL	1.80	FEET

AMOUNT PURGED IF < 3 VOLUMES 5 GALLONS

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	7.9	**GALLONS**

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12.14	0940	9	0.751	7.26	7.8	77.0

STATIC AT SAMPLING 1.9 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # SLPWETE-1221 **SITE:SLP** **DATE** 12-14-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** RE

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME _____ **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	0955	9	0.2312	7.67	2.7	95.1

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-30S-1221 **SITE:SLP** **DATE** 12-13-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	17.55	FEET
STATIC LEVEL	5.63	FEET

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	4.0	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	1010	10	0.5	7.21	7.9	85.5

STATIC AT SAMPLING 5.63 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-31SR-1221 **SITE:SLP** **DATE** 12-13-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	29.85	FEET
STATIC LEVEL	10.31	FEET

AMOUNT PURGED IF < 3 VOLUMES 4.75 GALLONS

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	9.9	**GALLONS**

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12.14	1020	1.83	0.640	7.66	8.6	67.5

STATIC AT SAMPLING 11.5 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-23-85S-1221 **SITE:SLP** **DATE** 12-13-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	30.50	FEET
STATIC LEVEL	4.25	FEET

AMOUNT PURGED IF < 3 VOLUMES 3 GALLONS

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	13.3	**GALLONS**

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	1033	44	0.845	7.14	7.9	89.1

STATIC AT SAMPLING 9.96 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-14S-1221 **SITE:SLP** **DATE** 12-13-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	19.85	FEET
STATIC LEVEL	4.38	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 7.8 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 5.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	1050	13	0.760	7.54	15.5 9.5	105.9

STATIC AT SAMPLING 5.91 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-13S-1221 | SITE: SLP | DATE 12-13-21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	17.5	FEET
STATIC LEVEL	5.37	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	1e-1	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 5.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	1100	11	1.133	7.29	9.9	102.9

STATIC AT SAMPLING 5.78 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-20-85S-1221 **SITE:SLP** **DATE** 12-15-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC X (5) **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	18.60	FEET
STATIC LEVEL	9.35	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 4.7 GALLONS

AMOUNT PURGED IF < 3 VOLUMES 1.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	1120	43	1.583	12.40	9.8	-88.4

STATIC AT SAMPLING 11.32 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-15S-87-1221 | SITE: SLP | DATE 12-13-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	24.85	FEET
STATIC LEVEL	5.73	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	9.7	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 5.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	1135	26	0.608	8.05	11.1	106.2

STATIC AT SAMPLING 5.83 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-11SR-1221 | SITE:SLP | DATE 12-13-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	24.66	FEET
STATIC LEVEL	6.14	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 9.4 GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	1142	26	0.826	7.51	10.2	114.8

STATIC AT SAMPLING 7.0 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-12S-1221 **SITE:SLP** **DATE** 12-13-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JSC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	16.5	FEET
STATIC LEVEL	4.17	FEET

AMOUNT PURGED IF < 3 VOLUMES 4.25 GALLONS

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 12.2 **GALLONS**

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	1150	18	2.539	7.55	11.6	101.4

STATIC AT SAMPLING 4.83 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-34S-1221 | SITE:SLP | DATE 12-15-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BL

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	32.90	FEET
STATIC LEVEL	12.27	FEET

AMOUNT PURGED IF < 3 VOLUMES 4.25 GALLONS

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 12.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-15	1140	10	2.260	7.38	9.6	196.4

STATIC AT SAMPLING 29.2 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # FDRAIN-1221 | SITE: SLP | DATE 12-15-21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME N/A GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-15	1150	6	0.978	8.31	9.5	243.2

STATIC AT SAMPLING 17.14 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-27S-1221 | SITE:SLP | DATE 12-15-21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY BK

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	23.00	FEET
STATIC LEVEL	9.49	FEET

AMOUNT PURGED IF < 3 VOLUMES ~1.5 GALLONS

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	6.5	GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-16	0820	52	7.24	7.11	62.4	206.8

STATIC AT SAMPLING 9.01 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-03-1221 **SITE:SLP** **DATE** 12-15-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**	**GALLONS**
TOTAL DEPTH	17.9	FEET	**#2 VOLUME**	**GALLONS**
STATIC LEVEL	2.98	FEET	**#3 VOLUME** 7.6	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 5.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12.16	0832	29	0.630	8.48	11.5	227.4

STATIC AT SAMPLING 19.42 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-17S-1221 | SITE: SLP | DATE 12-15-21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY JL

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	19.90	FEET
STATIC LEVEL	9.13	FEET

AMOUNT PURGED IF < 3 VOLUMES 4.5 GALLONS

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	5.4	GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-16	0850	4	0.820	7.60	10.1	228.4

STATIC AT SAMPLING 14.44 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-41-1221 **SITE:SLP** **DATE** 12-15-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BL

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**	**GALLONS**
TOTAL DEPTH	47.25	FEET	**#2 VOLUME**	**GALLONS**
STATIC LEVEL	33.07	FEET	**#3 VOLUME** 12.3	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 3.75 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-15	0905	366	0.958	7.37	9.7	203.4

STATIC AT SAMPLING 34.3 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-19S-1221 **SITE:SLP** **DATE** 12-15-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BK

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	18.00	FEET
STATIC LEVEL	12.32	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 2.8 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-16-21	0930	15	0.756	7.60	11.0	153.8

STATIC AT SAMPLING 13.42 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-42-1221 **SITE:SLP** **DATE** 12-15-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** [illegible]

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	47.15	FEET
STATIC LEVEL	21.57	FEET

AMOUNT PURGED IF < 3 VOLUMES 4.25 GALLONS

#1 VOLUME	**GALLONS**
#2 VOLUME	**GALLONS**
#3 VOLUME 13.0	**GALLONS**

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-16	0940	>1000	2.923	7.98	10.4	183.6

STATIC AT SAMPLING 26.62 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-35SR-1221 | SITE:SLP | DATE 12-15-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC | SAMPLED BY BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	28.55	FEET
STATIC LEVEL	11.55	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 8.16 GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-16	0950	958	1.430	7.29	11.4	187.7

STATIC AT SAMPLING 14.68 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-36-1221 | SITE:SLP | DATE 12-15-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	34.05	FEET
STATIC LEVEL	7.46	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 13.5 GALLONS

AMOUNT PURGED IF < 3 VOLUMES 4.75 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-16	1005	>1000	2.219	8.64	10.5	156.2

STATIC AT SAMPLING 16.8 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-37-1221 **SITE:SLP** **DATE** 12-15-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	36.08	FEET
STATIC LEVEL	3.24	FEET

AMOUNT PURGED IF < 3 VOLUMES 6.5 GALLONS

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	16.7	**GALLONS**

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-16	1015	~~3.7~~ >1000	0.919	7.67	9.9	174.2

STATIC AT SAMPLING 3.73 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-38-1221 **SITE:SLP** **DATE** 12-15-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	37.20	FEET
STATIC LEVEL	5.83	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 15.9 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 7.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-16	1030	>1000	0.474	8.29	10.1	155.1

STATIC AT SAMPLING 11.9 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # PZ-46-1221 **SITE:SLP** **DATE** 12-17-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	1	INCHES
TOTAL DEPTH	11.20	FEET
STATIC LEVEL		FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME _____ **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-17	0745	>1000	1.505	7.42	61.3	119.2
				x		

STATIC AT SAMPLING 5.38 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

BATTERY POWER PUMP

1L PCB only

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # PZ-45-1221 **SITE:SLP** **DATE** 12.17.21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	1	INCHES
TOTAL DEPTH	16.25	FEET
STATIC LEVEL		FEET

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME		**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12.17	0755	155	1,824	7.10	61.5	-82.0

STATIC AT SAMPLING 4.0 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

BATTERY POWER PUMP

12 PCB + all others

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # PZ-44-1221 **SITE:SLP** **DATE** 12-17-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	1	INCHES	**#1 VOLUME**	**GALLONS**
TOTAL DEPTH	15.40	FEET	**#2 VOLUME**	**GALLONS**
STATIC LEVEL		FEET	**#3 VOLUME**	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-17	0810	46	2,066	7.13	6.6	-41.5

STATIC AT SAMPLING 4.84 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP
All

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-33S-1221 | SITE:SLP | DATE 12-17-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	29.60	FEET
STATIC LEVEL	12.27	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 8.8 GALLONS

AMOUNT PURGED IF < 3 VOLUMES 7.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12/17	0935	33	1.760	7.59	9.9	20.4

STATIC AT SAMPLING 27.47 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-44-1221 **SITE:SLP** **DATE** 12-17-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** SC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	28.55	FEET
STATIC LEVEL	7.77	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 10.6 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-17	0935	18	0.731	7.16	10.4	84.9

STATIC AT SAMPLING 17.41 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-43-1221 **SITE:SLP** **DATE** 12-17-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	47.80	FEET
STATIC LEVEL	8.0	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 20.2 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-17	0942	>800	0.790	7.04	9.7	92.0

STATIC AT SAMPLING 28.93 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

MS/MSD

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-28S-1221 **SITE:SLP** **DATE** 12-17-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**	**GALLONS**
TOTAL DEPTH	25.00	FEET	**#2 VOLUME**	**GALLONS**
STATIC LEVEL	12.1	FEET	**#3 VOLUME** 6.5	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-17	1015	13	0.930	8.29	11.2	6.0

STATIC AT SAMPLING 8.72 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-18S-1221 **SITE:SLP** **DATE** 12-17-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	26.50	FEET
STATIC LEVEL	18.43	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 9.1 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-17	1035	<2	1.303	7.71	9.5	57.5

STATIC AT SAMPLING 18.42 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

1211 BD - 1040

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-16S-1221 **SITE:SLP** **DATE** 12-17-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	23.5	FEET
STATIC LEVEL	18.17	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 2.4 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-17	1105	3	2.226	7.81	10.4	79.1

STATIC AT SAMPLING 18.73 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-26S-1221 **SITE:SLP** **DATE** 12-17-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	30.50	FEET
STATIC LEVEL	10.04	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 10.4 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 11.75 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-17	1020	347	2.325	12.35	8.11	-46.11

STATIC AT SAMPLING 24.47 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-22-85S-1221 **SITE:SLP** **DATE** 12-17-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	30.50	FEET
STATIC LEVEL	10.1	FEET

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	12.4	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 37.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-17	1150	63	1.448	8.15	9.8	-0.4

STATIC AT SAMPLING 20.04 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-13S-0621 **SITE:SLP** **DATE** 6-23-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BC/IR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	17.5	FEET
STATIC LEVEL	7.74	FEET

AMOUNT PURGED IF < 3 VOLUMES 3.5 GALLONS

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	4.9	**GALLONS**

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0839	4/8	5.53	7.27	13.7	54.8

STATIC AT SAMPLING 12.35 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # PZ-46-0621 | **SITE:SLP** | **DATE** 6-24-21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | **SAMPLED BY** BAER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	1	INCHES
TOTAL DEPTH	11.20	FEET
STATIC LEVEL	2	FEET

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	N/A	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0905	71000	1.703	7.72	17.7	-99.2
				x		

STATIC AT SAMPLING 8.63 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

BATTERY POWER PUMP

1/3 bottle PCB only

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # PZ-45-0621 | SITE:SLP | DATE 6-24

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY BC/ZR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	1	INCHES
TOTAL DEPTH	15.25	FEET
STATIC LEVEL		FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME _____ GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0910	307	~~1.701~~		~~17.7~~	
			1.190	7.50	17.6	-116.9

STATIC AT SAMPLING 8.33 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

BATTERY POWER PUMP

2 PCB

1/2 bottle Fl, SO4

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-43-0621 **SITE:SLP** **DATE** 6-29-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	47.80	FEET
STATIC LEVEL	9.01	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 18.7 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-29-21	1015	>1000	0.887	7.28	13.9	80.7

STATIC AT SAMPLING 17.18 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

MW-1202-D621BD-1020

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-41-0621 | SITE: SLP | DATE 6-30-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC | SAMPLED BY BL/FR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	47.25	FEET
STATIC LEVEL	25.34	FEET

AMOUNT PURGED IF < 3 VOLUMES 3.25 GALLONS

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	11.1	GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
7-1-21	0755	126	1.067	7.66	13.4	76.0

STATIC AT SAMPLING 35.35 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

All samples collected

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-42-0621 | SITE:SLP | DATE 6/30/21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/IB

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	47.15	FEET
STATIC LEVEL	21.41	FEET

AMOUNT PURGED IF < 3 VOLUMES 4.5 GALLONS

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	13.1	GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
7.1	0833	969	2.938	7.80	15.9	96.2

STATIC AT SAMPLING 25.13 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
Ahh

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-36-0621 | SITE:SLP | DATE 6-30-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/EK

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	34.05	FEET
STATIC LEVEL	8.46	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 13.0 GALLONS

AMOUNT PURGED IF < 3 VOLUMES 5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
7-1-21	0920	>1000	2.277	8.52	13.5	85.8

STATIC AT SAMPLING 16.98 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
All

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-37-0621 **SITE:SLP** **DATE** 6-30-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** JC/IR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	36.08	FEET
STATIC LEVEL	4.57	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 16.0 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 5.75 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
7-1-21	0945	>1000	0.928	7.65	11.9	118.0

STATIC AT SAMPLING 35.54 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
NAI

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-22-85S-0621 **SITE:SLP** **DATE** 6/30/21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BL/LR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**	**GALLONS**
TOTAL DEPTH	30.50	FEET	**#2 VOLUME**	**GALLONS**
STATIC LEVEL	11.39	FEET	**#3 VOLUME** 9.7	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 4.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
7-1-21	1015	210	1.610	7.43	13.0	65.1

STATIC AT SAMPLING 11.13 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
All + Diss. IRON

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # SLPWETW-0621 | SITE:SLP | DATE 6-24-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME NA GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0715	12.5	0.252	7.05	14.0	118.7

STATIC AT SAMPLING _____ Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-39S-0621 | SITE:SLP | DATE 6-23-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY AC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	18.50	FEET
STATIC LEVEL	4.65	FEET

AMOUNT PURGED IF < 3 VOLUMES 4 GALLONS

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	7.0	GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0725	24	0.733	7.33	10.1	129.3

STATIC AT SAMPLING 4.77 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # SLPWETE-0621 **SITE:SLP** **DATE** 6-24-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** SK/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME _____ **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0745	37	0.3741	7.34	15.9	99.6

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-40S-0621 | SITE:SLP | DATE 6-23-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC (4) | SAMPLED BY AC/IR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	#1 VOLUME		GALLONS
TOTAL DEPTH	17.50	FEET	#2 VOLUME		GALLONS
STATIC LEVEL	2.65	FEET	#3 VOLUME	7.5	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0755	10	0.958	7.72	13.8	108.6

STATIC AT SAMPLING 2.74 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-30S-0621 | SITE:SLP | DATE 6-23-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	17.55	FEET
STATIC LEVEL	2.70	FEET

AMOUNT PURGED IF < 3 VOLUMES 4 GALLONS

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	5.0	GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0807	141	0.822	7.70	12.4	126.5

STATIC AT SAMPLING 15.92 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
1.5L PCB only

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-31SR-0621 **SITE:SLP** **DATE** 6.23.21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BC/ZR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	29.85	FEET
STATIC LEVEL	15.85	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 7.1 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 3.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6.24	0820	46	0.638	8.11	11.5	121.8

STATIC AT SAMPLING 17.18 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-23-85S-0621 | SITE:SLP | DATE 6-23-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	30.60	FEET
STATIC LEVEL	10.58	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	10.1	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 3.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0830	41	1.153	7.59	15.4	137.6

STATIC AT SAMPLING 17.26 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-20-85S-0621 | SITE:SLP | DATE 6-23-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC (A) | SAMPLED BY BC/ZR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	18.60	FEET
STATIC LEVEL	11.51	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	3.0	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 1.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0855	686	1.535	12.30	14.1	-66.3

STATIC AT SAMPLING 12.18 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

Needs Label

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-11SR-0621 | SITE:SLP | DATE 6-23-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	#1 VOLUME		GALLONS
TOTAL DEPTH	24.66	FEET	#2 VOLUME		GALLONS
STATIC LEVEL	10.45	FEET	#3 VOLUME	7.02	GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0920	32	1,519	7.63	11.7	-23.6

STATIC AT SAMPLING 11.36 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-12S-0621 **SITE:SLP** **DATE** 6-23-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** SC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	16.5	FEET
STATIC LEVEL	7.95	FEET

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	4.3	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 3.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6.24	0930	38	3.043	7.64	12.4	44.4

STATIC AT SAMPLING 8.70 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-33S-0621 | SITE: SLP | DATE 6-23-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	#1 VOLUME	GALLONS
TOTAL DEPTH	29.60	FEET	#2 VOLUME	GALLONS
STATIC LEVEL	13.41	FEET	#3 VOLUME	8.2 GALLONS

AMOUNT PURGED IF < 3 VOLUMES 6.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0938		1.913	7.24	13.9	141.3

STATIC AT SAMPLING 23.19 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
TCN
WAD CN

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-03S-0621 | SITE:SLP | DATE 6-23-21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY BC/ZR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	#1 VOLUME	GALLONS
TOTAL DEPTH	~~[illegible]~~	FEET 22.58	#2 VOLUME	GALLONS
STATIC LEVEL	16.66	FEET	#3 VOLUME 5.7	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 5.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0944	39	1.603	8.29	14.1	232.1

STATIC AT SAMPLING 20 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

Change Total Depth!

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-18S-0621 | SITE:SLP | DATE 6-23-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	26.50	FEET
STATIC LEVEL	18.43	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	4.1	GALLONS

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	1020	25	1.1621	~~8.5~~ 8.07	15.0	162.3

STATIC AT SAMPLING 18.43 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
MW-18D3-0621BD-1025

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-27S-0621 | SITE: SLP | DATE 6-23-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	23.00	FEET
STATIC LEVEL	9.3	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 6.9 GALLONS

AMOUNT PURGED IF < 3 VOLUMES 4.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	1000	207	9.34	7.47	21.5	325

STATIC AT SAMPLING 9.22 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-16S-0621 **SITE:SLP** **DATE** 6-23-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BC/LR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	23.5	FEET
STATIC LEVEL	18.6	FEET

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	2.49	**GALLONS**

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	1038	29	1,132	8.08	14.4	166.5

STATIC AT SAMPLING 18.61 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-19S-0621 **SITE:SLP** **DATE** 6.23.21

PURGE METHOD: WATERRA N/A BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	18.00	FEET
STATIC LEVEL	13.02	FEET

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	2.5	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6.24	1048	27	0.950	7.78	15.3	170.5

STATIC AT SAMPLING 13.78 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

Peristaltic Pump

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-44-0621 | SITE: SLP | DATE 6-23-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY BC/IR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	28.55	FEET
STATIC LEVEL	8.58	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 10.3 GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	1100	180	0.810	7.29	11.6	162.1

STATIC AT SAMPLING 8.69 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # FDRAIN-0621 **SITE:SLP** **DATE** 6-24-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC/FR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME _____ **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	1110	42	0.914	8.98	12.3	201.2

STATIC AT SAMPLING 17.17 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-34S-0621 **SITE:SLP** **DATE** 6-23-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BL

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	32.90	FEET
STATIC LEVEL	13.09	FEET

AMOUNT PURGED IF < 3 VOLUMES 3.75 GALLONS

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	9.6	**GALLONS**

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	1115	184	2.354	8.68	14.1	206.8

STATIC AT SAMPLING 20.54 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-38-0621 **SITE:SLP** **DATE** 6-28-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	37.20	FEET
STATIC LEVEL	7.09	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 15.3 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 6.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6.24	1120	>1000	0.560	8.51	11.9	191.0

STATIC AT SAMPLING 12.89 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-10S-0621 | SITE: SLP | DATE 6-28-21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	#1 VOLUME	GALLONS
TOTAL DEPTH	23.5	FEET	#2 VOLUME	GALLONS
STATIC LEVEL	9.26	FEET	#3 VOLUME	7.2 GALLONS

AMOUNT PURGED IF < 3 VOLUMES 5.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-29-21	0725	2	0.731	7.50	13.9	155.0

STATIC AT SAMPLING 9.71 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

MS/MSD

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-14S-0621 | SITE:SLP | DATE 6-29-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC (X) | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	19.85	FEET
STATIC LEVEL	2.57	FEET

AMOUNT PURGED IF < 3 VOLUMES 4.5 GALLONS

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	5.2	GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-29-21	0810	9	1,230	7.59	13.0	152.9

STATIC AT SAMPLING 14.23 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL #	MW-45-0621	**SITE:SLP**	**DATE** 6-28-21
PURGE METHOD:	WATERRA BAILER GRUNDFOS PERISTALTIC X		**SAMPLED BY** BC/IK

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**	**GALLONS**
TOTAL DEPTH	17.85	FEET	**#2 VOLUME**	**GALLONS**
STATIC LEVEL	4.56	FEET	**#3 VOLUME** 6.7	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 3 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-29-21	0835	30	1.739	7.06	13.8	159.6

STATIC AT SAMPLING 4.85 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-26S-0621 | SITE:SLP | DATE 6-29-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	30.50	FEET
STATIC LEVEL	10.57	FEET

AMOUNT PURGED IF < 3 VOLUMES 4.5 GALLONS

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	10.0	GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-29	1045	>1000	0.808	7.52	16.8	-31.1

STATIC AT SAMPLING 12.10 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-28S-0621 | SITE:SLP | DATE 6-29-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/ZR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	25.00	FEET
STATIC LEVEL	12.87	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	6.2	GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-29	0932	2	0.986	8.45	12.8	54.2

STATIC AT SAMPLING 14.60 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # PZ-44-0621 | SITE:SLP | DATE 7/1/21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY BC/JR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	1	INCHES
TOTAL DEPTH	15.40	FEET
STATIC LEVEL	6.28	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	NA	GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
7-1	0720	69	2.357	7.18	18.1	-52.0
7-4	0710					

STATIC AT SAMPLING 6.28 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

BATTERY POWER PUMP

7-1 TCN, WAD CN + add ons

7-4 - ½ PCB, ~~E. Sol, Nos Total metals~~

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-15S-87-0621 | SITE:SLP | DATE 6-30-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	~~24.85~~	FEET 25.40
STATIC LEVEL	14.43	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 5.3 GALLONS

AMOUNT PURGED IF < 3 VOLUMES 4.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
7-1	0740	202	0.728	7.46	13.3	628
7-6	0720					

STATIC AT SAMPLING 22.45 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

7-1 - ~~TCN~~ + add 0.5

7-6 - 1L PCB, ~~Ft-504~~, ~~NO3~~, WKD, CN, TCN, ~~10 tot metals~~

Change depth to bottom

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-17S-0621 | SITE:SLP | DATE 6-30-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY JC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	19.90	FEET
STATIC LEVEL	12.76	FEET

AMOUNT PURGED IF < 3 VOLUMES 2.25 GALLONS

#1 VOLUME	GALLONS
#2 VOLUME	GALLONS
#3 VOLUME	3.6 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
7-1-21	0815	27	1.010	7.37	15.8	82.5
7-1-21	0730					

STATIC AT SAMPLING 18.08 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

add ons only

7-1 - PCB, TCN, WAD CN, Total metals, NO3

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-35SR-0621 | SITE:SLP | DATE 6/30/21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/IR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	28.55	FEET
STATIC LEVEL	14.23	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 7.3 GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
7.1	0850	892	1.841	7.19	12.1	112.8
7.1	0940					

STATIC AT SAMPLING 19.55 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

MS/MSD Add ons only

7.1 - PCB, TCN, WAD CN, Fl, SO4, NO3, Total metals

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

COC check ✓ = Jan Ross

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page of

Date Rec'd in Lab

ALPHA Job #

Client Information

Client: COM Smith
Address: 4 Highland Rd
Massena NY
Phone: 315-296-9012
Fax:
Email: Kingsley RL @ comsmith

Project Information

Project Name: Reynolds
Project Location: NY
Project # 99566
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☐ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ **Done**
☐ **Lab to do**
Preservation
☐ **Lab to do**
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Aluminum	Diss Aluminum	Fluoride	Sulfate	TCN	WAD CN	Total Bottle	Sample Specific Comments
	MW-44-0621	6-24-21	1100	water	BC	x	x	x	x	x	x	x		
	FDRAIN-0621	6-24-21	1110	water	BC				x	x	x	x		
	MW-345-0621	6-24-21	1115	water	BC						x	x		
	MW-38-0621	6-24-21	1120	water	BC	x	x	x	x	x	x	x		
	MW-620b-0621	6-24-21	1015	water	BC	x	x	x	x	x	x	x		

Container Type
Preservative

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Brad Cox	6-24-21 1400		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

COC Check √ - Ian = Ross

NEW YORK CHAIN OF CUSTODY

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

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Date Rec'd in Lab

ALPHA Job #

Client Information

Client: CDM Smith
Address: 4 Highland Rd
Massena NY
Phone: 315-296-9012
Fax:
Email: KingsleyRL@cdmsmith

Project Information

Project Name: Reynolds
Project Location: NY
Project # 995664
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☐ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Aluminum	Diss Aluminum	Fluoride	Sulfate	TCN	WAD CN	Sample Specific Comments
	PZ-45-0621	6-24-21	0910	water	BC	X			X	X			1/2 bottle Ft. SO4
	MW-11SR-0621	6-24-21	0920	water	BC	X	X	X	X	X	X	X	
	MW-12S-0621	6-24-21	0930	water	BC	X	X	X	X	X	X	X	
	MW-33S-0621	6-24-21	0938	water	BC						X	X	
	MW-03S-0621	6-24-21	0944	water	BC	X	X	X	X	X	X	X	
	MW-27S-0621	6-24-21	1000	water	BC	X	X	X	X	X	X	X	
	MW-18S-0621	6-24-21	1020	water	BC	X	X	X	X	X	X	X	
	MW-1203-0621 BD	6-24-21	1025	water	BC	X	X	X	X	X	X	X	
	MW-16S-0621	6-24-21	1038	water	BC	X	X	X	X	X	X	X	
	MW-19S-0621	6-24-21	1048	water	BC	X	X	X	X	X	X	X	

Cobalt check w/ - plan 40S

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL LABORATORIES

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page of

Date Rec'd in Lab

ALPHA Job #

Client Information

Client: CDM Smith
Address: 4 Highland Rd
Massena NY 13662
Phone: 315-296-9012
Fax:
Email: Lingston AL@ cdrsmith.

Project Information

Project Name: Reynolds
Project Location: NY
Project # 99566
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☐ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ **Done**
☐ **Lab to do**
Preservation
☐ **Lab to do**
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Aluminum	Diss Aluminum	Fluoride	Sulfate	TDN	WAD CN	Total Bottle	Sample Specific Comments
	SLPWETW-0621	6-24-21	0715	water	BC	X	X	X	X	X	X	X		
	MW-39S-0621	6-24-21	0725	water	BC	X	X	X	X	X	X	X		
	SLPWETE-0621	6-24-21	0745	water	BC	X	X	X	X	X	X	X		
	MW-40S-0621	6-24-21	0755	water	BC	X	X	X	X	X	X	X		
	MW-30S-0621	6-24-21	0807	water	BC	X								1.5L PCB
	MW-31SR-0621	6-24-21	0820	water	BC	X	X	X	X	X	X	X		
	MW-23SS-0621	6-24-21	0830	water	BC	X	X	X	X	X	X	X		
	MW-13S-0621	6-24-21	0839	water	BC	X	X	X	X	X	X	X		
	MW-20-85S-0621	6-24-21	0855	water	BC	X	X	X	X	X	X	X		
	PZ-46-0621	6-24-21	0905	water	BC	X								1/3L PCB
					Container Type	G								
					Preservative	A								

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Raul Cox	6-24-21 1400		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

NEW YORK CHAIN OF CUSTODY

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab

ALPHA Job #

Client Information

Client: CDM Smith
Address: 4 Highland Rd
Massena NY 13662
Phone: 315-296-9012
Fax:
Email: Kingsley RL@cdmsmith

Project Information

Project Name: Reynolds
Project Location: NY
Project # 995616
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☐ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☐ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.

Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TOC	DOC	AIK, Cl, Hard-2320	2320 AIK	TPH-4500	TSS	Cl, NO3	Dissolved Fe	Sample Specific Comments	Total Bottle
	MW-105-0621	6-29-21	0725	Water	BC	X	X	X	X	X	X	X	X		
	MW-103-0621 MS	6-29-21	0725	Water	BC	X	X	X	X	X	X	X	X		
	MW-105-0621 MSD	6-29-21	0725	Water	BC	X	X	X	X	X	X	X	X		
	MW-145-0621	6-29-21	0810	Water	BC	X	X	X	X	X	X	X			
	MW-45-0621	6-29-21	0835	Water	BC	X	X	X	X	X	X	X	X		
	MW-245-0621	6-29-21	1045	Water	BC	X	X	X	X	X	X	X			
	MW-295-0621	6-29-21	0932	Water	BC	X	X	X	X	X	X	X			
	MW-43-0621	6-29-21	1015	Water	BC	X	X	X	X	X	X	X			
	MW-1202-0621 BD	6-29-21	1020	Water	BC	X	X	X	X	X	X	X			
	MW-1204-0621 FBW	6-29-21	0915	Water	BC	X	X	X	X	X	X	X			

Container Type
Preservative

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Basil Cox	6-29-21 1400		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

NEW YORK CHAIN OF CUSTODY

ALPHA

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab

ALPHA Job #

Client Information

Client: CDMSmith
Address: 4 Highland Rd
Massena NY 13662
Phone: 315-296-9012
Fax:
Email: Kingsley.RL@cdmsmith.com

Project Information

Project Name: Reynolds
Project Location: NY
Project # 99566
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☐ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☐ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ **Done**
☐ **Lab to do**
Preservation
☐ **Lab to do**
(Please Specify below)

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Aluminum	Diss Aluminum	Fluoride	Sulfate	TCN	WAD CN	Total Bottle
	MW-105-0621	6-29-21	0725	water	BC	X	X	X	X	X	X	X	
	MW-105-0621 MS	6-29-21	0725	water	BC	X	X	X	X	X	X	X	
	MW-105-0621 MSD	6-29-21	0725	water	BC	X	X	X	X	X	X	X	
	MW-14S-0621	6-29-21	0910	water	BC	X	X	X	X	X	X	X	
	MW-45-0621	6-29-21	0835	water	BC	X	X	X	X	X	X	X	
	MW-26S-0621	6-29-21	1045	water	BC	X	X	X	X	X	X	X	
	MW-28S-0621	6-29-21	0932	water	BC	X	X	X	X	X	X	X	
	MW-4R-0621	6-29-21	1015	water	BC	X	X	X	X	X	X	X	
	MW-120R-0621 FD	6-29-21	1020	water	BC	X	X	X	X	X	X	X	
	MW-120R-0621 FBW	6-29-21	0915	water	BC	X	X	X	X	X	X	X	

Container Type
Preservative

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Basil Cox	6-29-21 1400		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

NEW YORK CHAIN OF CUSTODY

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab

ALPHA Job #

Client Information
Client: Cam Smith
Address: 4 Highland Rd
Massena NY 13662
Phone: 315-296-9012
Fax:
Email: Kingsley.RL@cdmsmith

Project Information
Project Name: Reynolds
Project Location: NY
Project # 99566
(Use Project name as Project #)
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time
Standard [X] Due Date:
Rush (only if pre approved) [ ] # of Days:

Deliverables
[ ] ASP-A [ ] ASP-B
[ ] EQuIS (1 File) [ ] EQuIS (4 File)
[ ] Other

Regulatory Requirement
[ ] NY TOGS [ ] NY Part 375
[ ] AWQ Standards [ ] NY CP-51
[ ] NY Restricted Use [ ] Other
[ ] NY Unrestricted Use
[ ] NYC Sewer Discharge

Billing Information
[ ] Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
[ ] NJ [ ] NY
[ ] Other:

These samples have been previously analyzed by Alpha [ ]

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
[ ] Done
[ ] Lab to do
Preservation
[ ] Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TOC	DOC	Al, Cl, NO3 - 2 Lab	330 MK	TPH - HYDD	TSS	Cl, NO3	Diss. Iron	Total Bottle	Sample Specific Comments
	GZ-44-D621	7-1-21	0720	water	BC	X	X	X	X	X	X	X			
	MW-41-D621	7-1-21	0755	water	BC	X	X	X	X	X	X	X			
	MW-17S-D621	7-1-21	0815	water	BC	X	X	X	X	X	X	X			
	MW-42-D621	7-1-21	0833	water	BC	X	X	X	X	X	X	X	X		
	MW-36-D621	7-1-21	0920	water	BC	X	X	X	X	X	X	X			
	MW-37-D621	7-1-21	0945	water	BC	X	X	X	X	X	X	X			
	MW-22-BS5-D621	7-1-21	1015	water	BC								X		
	MW-15S-87-D621	7-1-21	0740	water	BC	X	X	X	X	X	X	X			
	MW-35SR-D621	7-1-21	0850	water	BC	X	X	X	X	X	X	X			
	MW-35SR-D621 MS	7-1-21	0850	water	BC	X	X	X	X	X	X	X			

Container Type
Preservative

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Basil (BC	7-1-21 1400		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

OHIO CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-9288

Service Centers
Columbus, OH: (614) 357-3321
OHServiceCenter@alphalab.com

Page 1 of

Date Rec'd in Lab

ALPHA Job #

Client Information

Client: CDM Smith
Address: 4 Highland Rd
Massena NY 13662
Phone: 315-296-9012
Fax:
Email: Kingsley RL @ cdmsmith

Project Information

Project Name: Reynolds
Project Location: NY
Project # 995662
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ BUSTR QA/QC Form
☐ VAP Affidavit ☐ Other
☐ EQuIS (1 File) ☐ EQuIS (4 File)

☐ OH VAP
☐ OH BUSTR
☐ Other:
☐ Other:
☐ Other:

Billing Information

☐ Same as Client Info
PO #

Site Information

Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For TPH, selection is REQUIRED:
☐ GRO (C6-C12)
☐ DRO/ORO (C10-C20/C20-C34)
☐ Other:

Other project specific requirements/comments:

Please specify Metals, i.e. RCRA8, PP13, TAL, etc.

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TOC	DOC	AIK, 2131, HCO3-2320	2320 AIK	TPH - 1500	TSS	Cl, NO3	Diss. IRON	Total Bottles
	MW-35SR-01621 MSD	7-1-21	0840	water	BC	X	X	X	X	X	X	X		
	MW-1205-01621 FBW	7-1-21	0935	water	BC	X	X	X	X	X	X	X	X	

Container Type
Preservative

Sample Filtration

☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

Sample Specific Comments

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Brad Cox	7-1-21 1400		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Form No: 39490 (rev. 19-Mar-2021)

NEW YORK CHAIN OF CUSTODY

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page of

Date Rec'd in Lab

ALPHA Job #

Client Information
Client: CDM Smith
Address: 4 Highland Rd
Massena, NY 13662
Phone: 315 296 9012
Fax:
Email: Kingsley.RLE@cdmsmith.com

Project Information
Project Name: Reynolds
Project Location: NY
Project #: 995606
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Al	Dissolved Al	Fluoride	Sulfide	TCN	WAD CN	Total Bottle	Sample Specific Comments
	MW-35SR-0621 MSD	6-1-21	0850	water	BC			X						
	MW-17S-0621	6-1-21	0815	water	BC			X						
	MW-15S-87-0621	7-1-21	0740	water	BC			X						
									1					

Container Type
Preservative

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Candace Fox	7-1-21 1400		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page of

Date Rec'd in Lab

ALPHA Job #

Client Information

Client: CDM Smith
Address: 2 Highland Rd
Massena NY 13662
Phone: 315-296-9012
Fax:
Email: KingslerRL@cdmsmith.com

Project Information

Project Name: Reynolds
Project Location: NY
Project # 995616
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☐ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ **Done**
☐ **Lab to do**
Preservation
☐ **Lab to do**
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Al	Diss. Al	Fluoride	Sulfate	TCN	WAD CN	Total Bottle	Sample Specific Comments
	PZ-44-0621	7-1-21	0720	water	BC			X			X	X		
	MW-41-0621	7-1-21	0755	water	BC	X	X	X	X	X	X	X		
	MW-42-0621	7-1-21	0833	water	BC	X	X	X	X	X	X	X		
	MW-36-0621	7-1-21	0920	water	BC	X	X	X	X	X	X	X		
	MW-37-0621	7-1-21	0945	water	BC	X	X	X	X	X	X	X		
	MW-2285-0621	7-1-21	1015	water	BC	X	X	X	X	X	X	X		
	~~MW-45-PZ-0621~~	~~7-1-21~~	~~0940~~	~~water~~	~~BC~~									
	MW-1205-0621 FBW	7-1-21	0935	water	BC	X	X	X	X	X	X	X		
	MW-35SR-0621	7-1-21	0850	water	BC			X						
	MW-35SR-0621 MS	7-1-21	0850	water	BC			X						

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page of

Date Rec'd in Lab

ALPHA Job #

Client Information

Client: C.M. Smith
Address: 4 Highland Rd
Massena NY
Phone: 315 296 9012
Fax:
Email: kmosley@cmsmith.com

Project Information

Project Name: Reynolds
Project Location: NY
Project # 995166
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Billing Information

☐ Same as Client Info
PO #

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Mn	Fl	SO4	NO3	TCN	WAD CN	Cl	Sample Specific Comments	Total Bottle
	PZ-44-D1021	7-1-21	0710	water	BC	X								TAL only	
	MW-185-D1021	7-1-21	0720	water	BC	X					X	X		CL PCB only	
	MW-175-D1021	7-1-21	0735	water	BC	X	X	X	X	X	X	X	X	0720	
	MW-35SR-D1021	7-1-21	0740	water	BC	X	X	X	X	X	X	X	X		
	MW-35SR-D1021 MS	7-1-21	0740	water	BC	X	X	X	X	X	X	X	X		
	MW-35SR-D1021 MSD	7-1-21	0740	water	BC	X	X	X	X	X	X	X	X		
	MW-1207-D1021 FBW	7-1-21	0735	water	BC	X	X	X	X	X	X	X	X		

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type									
Preservative									

Relinquished By:	Date/Time	Received By:	Date/Time
Kaitlyn Land	7-6-21 1430		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

CDM Smith is scheduled to collect groundwater samples at the Reynolds Plant during the week of March 12th, 2021. All samples will be shipped to Alpha Analytical in Westborough, MA for analysis. *The billing number is 94128.* **Sample bottles and labels have already been received and therefore, not needed.**

The following samples will be collected:

PCBs, Total Aluminum, Dissolved Aluminum, Fluoride, Sulfate, Total Cyanide, and WAD Cyanide:
MW-10S-0321
MW-39S-0321
MW-40S-0321
MW-45-0321
SLPWETW-0321
SLPWETE-0321

0935
3-25-21

QA/QC to include: MW-10S-0321MS, MW-10S-0321MSD, MW-1200-0321BD, MW-1201-0321FBW

Please feel free to contact me with any questions.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-10S-0321 | SITE:SLP | DATE 3-24-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC (+) | SAMPLED BY BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	#1 VOLUME		GALLONS
TOTAL DEPTH	23.5	FEET	#2 VOLUME		GALLONS
STATIC LEVEL	6.7	FEET	#3 VOLUME	8.5	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 6.75 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
3-25	0835	17.1	0.640	7.70	10.1	-464.2

STATIC AT SAMPLING 6.5 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
MS/MSD

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # SLPWETE-0321 **SITE:SLP** **DATE** 3-25-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC/JG

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	N/A	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
3.25	0850	12.4	0.0364	7.14	5.1	-310.6

STATIC AT SAMPLING NA **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
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Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-39S-0321 **SITE:SLP** **DATE** 3-24-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**		**GALLONS**
TOTAL DEPTH	18.50	FEET	**#2 VOLUME**		**GALLONS**
STATIC LEVEL	3.95	FEET	**#3 VOLUME**	7.4	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 3.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
3-25	0910	315	0.727	7.43	10.4	-307.9

STATIC AT SAMPLING 3.93 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

MW-39S-0321D

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-45-0321 **SITE:SLP** **DATE** 3-24-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**		**GALLONS**
TOTAL DEPTH	17.85	FEET	**#2 VOLUME**		**GALLONS**
STATIC LEVEL	3.52	FEET	**#3 VOLUME**	7.3	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 3.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
3-25	0920	38.9	1.568	7.36	10.0	-379.7

STATIC AT SAMPLING 3.46 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
3D - 0924

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # SLPWETW-0321 **SITE:SLP** **DATE** 3-25-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC/JG

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME	**GALLONS**
#2 VOLUME	**GALLONS**
#3 VOLUME	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
3-25	0945	11e	0.0617	7.70	5.3	-531.8

STATIC AT SAMPLING NA **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL #	MW-40S-0321	**SITE:SLP**	**DATE** 3-24-21
PURGE METHOD:	WATERRA X BAILER GRUNDFOS PERISTALTIC		**SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**		**GALLONS**
TOTAL DEPTH	17.50	FEET	**#2 VOLUME**		**GALLONS**
STATIC LEVEL	1.67	FEET	**#3 VOLUME**	8.0	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 4 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
3-25	0955	2.75	1.121	7.30	12.3	-342.7

STATIC AT SAMPLING 1.9 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

NEW YORK CHAIN OF CUSTODY

ALPHA

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab

ALPHA Job #

Client Information

Client: CDM Smith
Address: 4 Highland Knoll
Massena NY 13662
Phone: 315-296-9012
Fax:
Email: Kingsleyka@cdmsmith.com

Project Information

Project Name: Reynolds sampling March
Project Location: Massena
Project # 94128
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☐ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Aluminum	Diss Aluminum	Ft. SO4	TCN	WAD CN	Total Bottle	Sample Specific Comments
	MW-105-0321	3-25-21	0835	water	BC	x	x	x	x	x	x		
	MW-105-0321 MS	3-25-21	0835	water	BC	x	x	x	x	x	x		
	MW-105-0321 MSD	3-25-21	0835	water	BC	x	x	x	x	x	x		
	SLP-WETE-0321	3-25-21	0850	water	BC	x	x	x	x	x	x		
	MW-395-0321	3-25-21	0910	water	BC	x	x	x	x	x	x		
	MW-45-0321	3-25-21	0920	water	BC	x	x	x	x	x	x		
	MW-1200-0321 BD	3-25-21	0924	water	BC	x	x	x	x	x	x		
	SLP-WETW-0321	3-25-21	0945	water	BC	x	x	x	x	x	x		
	MW-405-0321	3-25-21	0955	water	BC	x	x	x	x	x	x		
	MW-1201-0321 FBW	3-25-21	0935	water	BC	x	x	x	x	x	x		

Container Type
Preservative

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
	3-25-21 1400		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

Glosenger, Joshua C.

From: Glosenger, Joshua C.
Sent: Monday, August 30, 2021 6:08 PM
To: Alpha Service Center; Candace Fox; Cox, Basil; Kelly Hale ; Kingsley, Ryan; Pete Taylor ; Rodrigue, Paul; Furnia, Todd J.; Cook, Cody M.; Richards, Garrett R.; Rielly, Alison
Subject: Reynolds Sampling September 2021
Attachments: Reynolds September 2021 Bottle Request.pdf

Hello,

CDM Smith is scheduled to collect groundwater samples at the Reynolds Plant during September 2021. All samples will be shipped to Alpha Analytical in Westborough, MA for analysis. *The billing number is* ***99561***. The following samples will be collected:

PCBs, Tot Al, Diss Al, Fluoride, Sulfate, Tot CN, WAD CN:
MW-10S-0921 (MS/MSD)
MW-39S-0921
MW-40S-0921
MW-45-0921
SLPWETW-0921 ~ MW-1208-0921 BD
SLPWETE-0921

1145 9-28

QA/QC to include: MW-1208-0921BD, MW-1209-0921FBW

Please feel free to contact me with any questions.
Thanks,

Josh Glosenger
Environmental Engineer
CDM Smith
4 Highland Road, Suite 1, Massena, New York 13662
Office: 315.296.9003 Cell: 607.239.3964
cdmsmith.com

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-10S-0921 | SITE:SLP | DATE 9-28-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC X | SAMPLED BY BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	23.5	FEET
STATIC LEVEL	16.50	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 8.16 GALLONS

AMOUNT PURGED IF < 3 VOLUMES 16.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
9-28-15	1125	3	0.718	7.54	14.1	-36.9

STATIC AT SAMPLING 7.82 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

MS/MSD

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # SLPWETW-0921 **SITE:SLP** **DATE** 9-28-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME _____ **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
9-28-21	1300	3	0.2336	7.40	13.7	111.7

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP
MW-1208-0921 BD-1204

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-39S-0921 | SITE:SLP | DATE 9-28-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	18.50	FEET
STATIC LEVEL	5.10	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	6.8	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 4.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
9-28	1212	15	0.946	7.18	11.3	7.4

STATIC AT SAMPLING 5.11 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-45-0921 | **SITE:SLP** | **DATE** 9-28-21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | **SAMPLED BY** BK

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**		GALLONS
TOTAL DEPTH	17.85	FEET	**#2 VOLUME**		GALLONS
STATIC LEVEL	4.56	FEET	**#3 VOLUME**	6.7	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 3 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
9-28	1220	6	1,752	7.14	12,7	39,7

STATIC AT SAMPLING 4.80 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # SLPWETE-0921 | SITE: SLP | DATE 9-28-21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY AL

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME		GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
9-28	1230	6	0.519	7.28	15.1	55.3

STATIC AT SAMPLING — Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP
MW-1205-0921-FD

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL #	MW-40S-0921	**SITE:SLP**		**DATE**	9-28-21
PURGE METHOD:	WATERRA X	BAILER	GRUNDFOS	PERISTALTIC	**SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**		**GALLONS**
TOTAL DEPTH	17.50	FEET	**#2 VOLUME**		**GALLONS**
STATIC LEVEL	2.92	FEET	**#3 VOLUME**	7.4	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 15 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
9-28	1240	3	1.097	7.47	13.7	18.6

STATIC AT SAMPLING 3.10 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab

ALPHA Job #

Client Information

Client: CDM Smith
Address: 4 Highland Road, Suite 1
Massena, NY 13662
Phone: 315-296-9006
Fax: 514-591-3489 cell
Email: KingsleyRL@cdmsmith.com

Project Information

Project Name: Reynolds Plant Groundwater
Project Location: NY
Project # 99561
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☐ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other: NA

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

Total # Bottles

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Aluminum	Dissolved Aluminum	Fluoride, Sulfate	SUB-WAD Cyanide	Total Cyanide			Sample Specific Comments
	MW-105-0921	9-28-21	1125	Water	BC	x	x	x	x	x	x			
	MW-105-0921 MS	9-28-21	1125	Water	BC	x	x	x	x	x	x			
	MW-105-0921 MSD	9-28-21	1125	Water	BC	x	x	x	x	x	x			
	MW-120S-0921 FBW	9-28-21	1145	Water	BC	x	x	x	x	x	x			
	SLPWETW-0921	9-28-21	1200	Water	BC	x	x	x	x	x	x			
	MW-120S-0921 BD	9-28-21	1204	Water	BC	x	x	x	x	x	x			
	MW-39S-0921	9-28-21	1212	Water	BC	x	x	x	x	x	x			
	MW-45-0921	9-28-21	1220	Water	BC	x	x	x	x	x	x			
	SLP-WETE-0921	9-28-21	1230	Water	BC	x	x	x	x	x	x			
	MW-408-0921	9-28-21	1240	Water	BC	x	x	x	x	x	x			
	Container Type					A	P	P	P	P	P			
	Preservative					A	C	C	A	E	E			

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Basil Cox	9-28-21 1440		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Form No: 01-25 (rev. 30-Sept-2013)

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-13S-0621 **SITE:SLP** **DATE** 6-23-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BC/IR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	17.5	FEET
STATIC LEVEL	7.74	FEET

AMOUNT PURGED IF < 3 VOLUMES 3.5 GALLONS

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	4.9	**GALLONS**

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0839	4/8	5.53	7.27	13.7	54.8

STATIC AT SAMPLING 12.35 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # PZ-46-0621 | **SITE:SLP** | **DATE** 6-24-21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | **SAMPLED BY** BAER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	1	INCHES
TOTAL DEPTH	11.20	FEET
STATIC LEVEL	2	FEET

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	N/A	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0905	71000	1.703	7.72	17.7	-99.2
				x		

STATIC AT SAMPLING 8.63 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

BATTERY POWER PUMP

1/3 bottle PCB only

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # PZ-45-0621 | SITE:SLP | DATE 6-24

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY BC/ZR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	1	INCHES
TOTAL DEPTH	15.25	FEET
STATIC LEVEL		FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME _____ GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0910	307	~~1.701~~		~~17.7~~	
			1.190	7.50	17.6	-116.9

STATIC AT SAMPLING 8.33 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

BATTERY POWER PUMP

2 PCB

1/2 bottle Fl, SO4

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-43-0621 **SITE:SLP** **DATE** 6-29-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	47.80	FEET
STATIC LEVEL	9.01	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 18.7 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-29-21	1015	>1000	0.887	7.28	13.9	80.7

STATIC AT SAMPLING 17.18 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

MW-1202-D621BD-1020

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-41-0621 | SITE: SLP | DATE 6-30-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC | SAMPLED BY BL/FR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	47.25	FEET
STATIC LEVEL	25.34	FEET

AMOUNT PURGED IF < 3 VOLUMES 3.25 GALLONS

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	11.1	GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
7-1-21	0755	126	1.067	7.66	13.4	76.0

STATIC AT SAMPLING 35.35 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

All samples collected

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-42-0621 | SITE:SLP | DATE 6/30/21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/IB

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	47.15	FEET
STATIC LEVEL	21.41	FEET

AMOUNT PURGED IF < 3 VOLUMES 4.5 GALLONS

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	13.1	GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
7.1	0833	969	2.938	7.80	15.9	96.2

STATIC AT SAMPLING 25.13 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
Ahh

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-36-0621 | SITE:SLP | DATE 6-30-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/EK

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	34.05	FEET
STATIC LEVEL	8.46	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 13.0 GALLONS

AMOUNT PURGED IF < 3 VOLUMES 5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
7-1-21	0920	>1000	2.277	8.52	13.5	85.8

STATIC AT SAMPLING 16.98 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
All

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-37-0621 **SITE:SLP** **DATE** 6-30-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** JC/IR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	36.08	FEET
STATIC LEVEL	4.57	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 16.0 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 5.75 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
7-1-21	0945	>1000	0.928	7.65	11.9	118.0

STATIC AT SAMPLING 35.54 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
NAI

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-22-85S-0621 **SITE:SLP** **DATE** 6/30/21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BL/LR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**	**GALLONS**
TOTAL DEPTH	30.50	FEET	**#2 VOLUME**	**GALLONS**
STATIC LEVEL	11.39	FEET	**#3 VOLUME** 9.7	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 4.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
7-1-21	1015	210	1.610	7.43	13.0	65.1

STATIC AT SAMPLING 11.13 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
All + Diss. IRON

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # SLPWETW-0621 | SITE:SLP | DATE 6-24-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME NA GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0715	12.5	0.252	7.05	14.0	118.7

STATIC AT SAMPLING _____ Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-39S-0621 | SITE:SLP | DATE 6-23-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY AC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	18.50	FEET
STATIC LEVEL	4.65	FEET

AMOUNT PURGED IF < 3 VOLUMES 4 GALLONS

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	7.0	GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0725	24	0.733	7.33	10.1	129.3

STATIC AT SAMPLING 4.77 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # SLPWETE-0621 **SITE:SLP** **DATE** 6-24-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** SK/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME _____ **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0745	37	0.3741	7.34	15.9	99.6

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-40S-0621 | SITE:SLP | DATE 6-23-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC (4) | SAMPLED BY AC/IR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	#1 VOLUME		GALLONS
TOTAL DEPTH	17.50	FEET	#2 VOLUME		GALLONS
STATIC LEVEL	2.65	FEET	#3 VOLUME	7.5	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0755	10	0.958	7.72	13.8	108.6

STATIC AT SAMPLING 2.74 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-30S-0621 | SITE:SLP | DATE 6-23-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	17.55	FEET
STATIC LEVEL	2.70	FEET

AMOUNT PURGED IF < 3 VOLUMES 4 GALLONS

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	5.0	GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0807	141	0.822	7.70	12.4	126.5

STATIC AT SAMPLING 15.92 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
1.5L PCB only

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-31SR-0621 **SITE:SLP** **DATE** 6.23.21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BC/ZR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	29.85	FEET
STATIC LEVEL	15.85	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 7.1 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 3.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6.24	0820	46	0.638	8.11	11.5	121.8

STATIC AT SAMPLING 17.18 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-23-85S-0621 | SITE:SLP | DATE 6-23-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	30.60	FEET
STATIC LEVEL	10.58	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	10.1	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 3.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0830	41	1.153	7.59	15.4	137.6

STATIC AT SAMPLING 17.26 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-20-85S-0621 | SITE:SLP | DATE 6-23-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC (A) | SAMPLED BY BC/ZR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	18.60	FEET
STATIC LEVEL	11.51	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	3.0	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 1.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0855	686	1.535	12.30	14.1	-66.3

STATIC AT SAMPLING 12.18 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

Needs Label

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-11SR-0621 | SITE:SLP | DATE 6-23-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	#1 VOLUME		GALLONS
TOTAL DEPTH	24.66	FEET	#2 VOLUME		GALLONS
STATIC LEVEL	10.45	FEET	#3 VOLUME	7.02	GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0920	32	1,519	7.63	11.7	-23.6

STATIC AT SAMPLING 11.36 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-12S-0621 **SITE:SLP** **DATE** 6-23-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** SC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	16.5	FEET
STATIC LEVEL	7.95	FEET

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	4.3	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 3.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6.24	0930	38	3.043	7.64	12.4	44.4

STATIC AT SAMPLING 8.70 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-33S-0621 | SITE: SLP | DATE 6-23-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	#1 VOLUME	GALLONS
TOTAL DEPTH	29.60	FEET	#2 VOLUME	GALLONS
STATIC LEVEL	13.41	FEET	#3 VOLUME	8.2 GALLONS

AMOUNT PURGED IF < 3 VOLUMES 6.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0938		1.913	7.24	13.9	141.3

STATIC AT SAMPLING 23.19 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
TCN
WAD CN

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-03S-0621 | SITE:SLP | DATE 6-23-21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY BC/ZR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	#1 VOLUME	GALLONS
TOTAL DEPTH	~~[illegible]~~	FEET 22.58	#2 VOLUME	GALLONS
STATIC LEVEL	16.66	FEET	#3 VOLUME 5.7	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 5.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	0944	39	1.603	8.29	14.1	232.1

STATIC AT SAMPLING 20 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

Change Total Depth!

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-18S-0621 | SITE:SLP | DATE 6-23-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	26.50	FEET
STATIC LEVEL	18.43	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	4.1	GALLONS

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	1020	25	1.1621	~~8.5~~ 8.07	15.0	162.3

STATIC AT SAMPLING 18.43 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
MW-18D3-0621BD-1025

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-27S-0621 | SITE: SLP | DATE 6-23-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	23.00	FEET
STATIC LEVEL	9.3	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 6.9 GALLONS

AMOUNT PURGED IF < 3 VOLUMES 4.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	1000	207	9.34	7.47	21.5	325

STATIC AT SAMPLING 9.22 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-16S-0621 **SITE:SLP** **DATE** 6-23-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BC/LR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	23.5	FEET
STATIC LEVEL	18.6	FEET

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	2.49	**GALLONS**

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	1038	29	1,132	8.08	14.4	166.5

STATIC AT SAMPLING 18.61 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-19S-0621 **SITE:SLP** **DATE** 6.23.21

PURGE METHOD: WATERRA N/A BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	18.00	FEET
STATIC LEVEL	13.02	FEET

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	2.5	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6.24	1048	27	0.950	7.78	15.3	170.5

STATIC AT SAMPLING 13.78 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

Peristaltic Pump

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-44-0621 | SITE: SLP | DATE 6-23-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY BC/IR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	28.55	FEET
STATIC LEVEL	8.58	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 10.3 GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	1100	180	0.810	7.29	11.6	162.1

STATIC AT SAMPLING 8.69 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # FDRAIN-0621 **SITE:SLP** **DATE** 6-24-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC/FR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME _____ **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	1110	42	0.914	8.98	12.3	201.2

STATIC AT SAMPLING 17.17 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-34S-0621 **SITE:SLP** **DATE** 6-23-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BL

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	32.90	FEET
STATIC LEVEL	13.09	FEET

AMOUNT PURGED IF < 3 VOLUMES 3.75 GALLONS

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	9.6	**GALLONS**

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-24	1115	184	2.354	8.68	14.1	206.8

STATIC AT SAMPLING 20.54 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-38-0621 **SITE:SLP** **DATE** 6-28-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	37.20	FEET
STATIC LEVEL	7.09	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 15.3 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 6.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6.24	1120	>1000	0.560	8.51	11.9	191.0

STATIC AT SAMPLING 12.89 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-10S-0621 | SITE: SLP | DATE 6-28-21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	#1 VOLUME	GALLONS
TOTAL DEPTH	23.5	FEET	#2 VOLUME	GALLONS
STATIC LEVEL	9.26	FEET	#3 VOLUME	7.2 GALLONS

AMOUNT PURGED IF < 3 VOLUMES 5.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-29-21	0725	2	0.731	7.50	13.9	155.0

STATIC AT SAMPLING 9.71 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

MS/MSD

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-14S-0621 | SITE:SLP | DATE 6-29-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC (X) | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	19.85	FEET
STATIC LEVEL	2.57	FEET

AMOUNT PURGED IF < 3 VOLUMES 4.5 GALLONS

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	5.2	GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-29-21	0810	9	1,230	7.59	13.0	152.9

STATIC AT SAMPLING 14.23 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL #	MW-45-0621	**SITE:SLP**	**DATE** 6-28-21
PURGE METHOD:	WATERRA BAILER GRUNDFOS PERISTALTIC X		**SAMPLED BY** BC/IK

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**	**GALLONS**
TOTAL DEPTH	17.85	FEET	**#2 VOLUME**	**GALLONS**
STATIC LEVEL	4.56	FEET	**#3 VOLUME** 6.7	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 3 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-29-21	0835	30	1.739	7.06	13.8	159.6

STATIC AT SAMPLING 4.85 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-26S-0621 | SITE:SLP | DATE 6-29-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	30.50	FEET
STATIC LEVEL	10.57	FEET

AMOUNT PURGED IF < 3 VOLUMES 4.5 GALLONS

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	10.0	GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-29	1045	>1000	0.808	7.52	16.8	-31.1

STATIC AT SAMPLING 12.10 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-28S-0621 | SITE:SLP | DATE 6-29-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/ZR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	25.00	FEET
STATIC LEVEL	12.87	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	6.2	GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
6-29	0932	2	0.986	8.45	12.8	54.2

STATIC AT SAMPLING 14.60 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # PZ-44-0621 | SITE:SLP | DATE 7/1/21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY BC/JR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	1	INCHES
TOTAL DEPTH	15.40	FEET
STATIC LEVEL	6.28	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	NA	GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
7-1	0720	69	2.357	7.18	18.1	-52.0
7-4	0710					

STATIC AT SAMPLING 6.28 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

BATTERY POWER PUMP

7-1 TCN, WAD CN + add ons

7-4 - ½ PCB, ~~E. Sol, Nos Total metals~~

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-15S-87-0621 | SITE:SLP | DATE 6-30-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	~~24.85~~	FEET 25.40
STATIC LEVEL	14.43	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 5.3 GALLONS

AMOUNT PURGED IF < 3 VOLUMES 4.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
7-1	0740	202	0.728	7.46	13.3	628
7-6	0720					

STATIC AT SAMPLING 22.45 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

7-1 - ~~TCN~~ + add 0.5

7-6 - 1L PCB, ~~Ft-504~~, ~~NO3~~, WKD, CN, TCN, ~~10 tot metals~~

Change depth to bottom

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-17S-0621 | SITE:SLP | DATE 6-30-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY JC/ER

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	19.90	FEET
STATIC LEVEL	12.76	FEET

AMOUNT PURGED IF < 3 VOLUMES 2.25 GALLONS

#1 VOLUME	GALLONS
#2 VOLUME	GALLONS
#3 VOLUME	3.6 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
7-1-21	0815	27	1.010	7.37	15.8	82.5
7-1-21	0730					

STATIC AT SAMPLING 18.08 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

add ons only

7-1 - PCB, TCN, WAD CN, Total metals, NO3

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-35SR-0621 | SITE:SLP | DATE 6/30/21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC/IR

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	28.55	FEET
STATIC LEVEL	14.23	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 7.3 GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
7.1	0850	892	1.841	7.19	12.1	112.8
7.1	0940					

STATIC AT SAMPLING 19.55 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

MS/MSD Add ons only

7.1 - PCB, TCN, WAD CN, Fl, SO4, NO3, Total metals

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

COC check ✓ = Jan Ross

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

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Date Rec'd in Lab

ALPHA Job #

Client Information

Client: COM Smith
Address: 4 Highland Rd
Massena NY
Phone: 315-296-9012
Fax:
Email: Kingsley RL @ comsmith

Project Information

Project Name: Reynolds
Project Location: NY
Project # 99566
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☐ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ **Done**
☐ **Lab to do**
Preservation
☐ **Lab to do**
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Aluminum	Diss Aluminum	Fluoride	Sulfate	TCN	WAD CN	Total Bottle	Sample Specific Comments
	MW-44-0621	6-24-21	1100	water	BC	x	x	x	x	x	x	x		
	FDRAIN-0621	6-24-21	1110	water	BC				x	x	x	x		
	MW-345-0621	6-24-21	1115	water	BC						x	x		
	MW-38-0621	6-24-21	1120	water	BC	x	x	x	x	x	x	x		
	MW-620b-0621	6-24-21	1015	water	BC	x	x	x	x	x	x	x		

Container Type
Preservative

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Brad Cox	6-24-21 1400		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

COC Check √ - Ian = Ross

NEW YORK CHAIN OF CUSTODY

Westborough, MA 01581
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FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
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Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page of

Date Rec'd in Lab

ALPHA Job #

Client Information

Client: CDM Smith
Address: 4 Highland Rd
Massena NY
Phone: 315-296-9012
Fax:
Email: KingsleyRL@cdmsmith

Project Information

Project Name: Reynolds
Project Location: NY
Project # 995664
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☐ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Aluminum	Diss Aluminum	Fluoride	Sulfate	TCN	WAD CN	Sample Specific Comments
	PZ-45-0621	6-24-21	0910	water	BC	X			X	X			1/2 bottle Ft. SO4
	MW-11SR-0621	6-24-21	0920	water	BC	X	X	X	X	X	X	X	
	MW-12S-0621	6-24-21	0930	water	BC	X	X	X	X	X	X	X	
	MW-33S-0621	6-24-21	0938	water	BC						X	X	
	MW-03S-0621	6-24-21	0944	water	BC	X	X	X	X	X	X	X	
	MW-27S-0621	6-24-21	1000	water	BC	X	X	X	X	X	X	X	
	MW-18S-0621	6-24-21	1020	water	BC	X	X	X	X	X	X	X	
	MW-1203-0621 BD	6-24-21	1025	water	BC	X	X	X	X	X	X	X	
	MW-16S-0621	6-24-21	1038	water	BC	X	X	X	X	X	X	X	
	MW-19S-0621	6-24-21	1048	water	BC	X	X	X	X	X	X	X	

Cobalt check w/ - plan 40S

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL LABORATORIES

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page of

Date Rec'd in Lab

ALPHA Job #

Client Information

Client: CDM Smith
Address: 4 Highland Rd
Massena NY 13662
Phone: 315-296-9012
Fax:
Email: Lingston AL@ cdrsmith.

Project Information

Project Name: Reynolds
Project Location: NY
Project # 99566
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☐ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ **Done**
☐ **Lab to do**
Preservation
☐ **Lab to do**
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Aluminum	Diss Aluminum	Fluoride	Sulfate	TDN	WAD CN	Total Bottle	Sample Specific Comments
	SLPWETW-0621	6-24-21	0715	water	BC	X	X	X	X	X	X	X		
	MW-39S-0621	6-24-21	0725	water	BC	X	X	X	X	X	X	X		
	SLPWETE-0621	6-24-21	0745	water	BC	X	X	X	X	X	X	X		
	MW-40S-0621	6-24-21	0755	water	BC	X	X	X	X	X	X	X		
	MW-30S-0621	6-24-21	0807	water	BC	X								1.5L PCB
	MW-31SR-0621	6-24-21	0820	water	BC	X	X	X	X	X	X	X		
	MW-23SS-0621	6-24-21	0830	water	BC	X	X	X	X	X	X	X		
	MW-13S-0621	6-24-21	0839	water	BC	X	X	X	X	X	X	X		
	MW-20-85S-0621	6-24-21	0855	water	BC	X	X	X	X	X	X	X		
	PZ-46-0621	6-24-21	0905	water	BC	X								1/3L PCB
					Container Type	G								
					Preservative	A								

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Raul Cox	6-24-21 1400		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

NEW YORK CHAIN OF CUSTODY

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

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320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab

ALPHA Job #

Client Information

Client: CDM Smith
Address: 4 Highland Rd
Massena NY 13662
Phone: 315-296-9012
Fax:
Email: Kingsley RL@cdmsmith

Project Information

Project Name: Reynolds
Project Location: NY
Project # 995616
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☐ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☐ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.

Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TOC	DOC	AIK, Cl, Hard-2320	2320 AIK	TPH-4500	TSS	Cl, NO3	Dissolved Fe	Sample Specific Comments	Total Bottle
	MW-105-0621	6-29-21	0725	Water	BC	X	X	X	X	X	X	X	X		
	MW-103-0621 MS	6-29-21	0725	Water	BC	X	X	X	X	X	X	X	X		
	MW-105-0621 MSD	6-29-21	0725	Water	BC	X	X	X	X	X	X	X	X		
	MW-145-0621	6-29-21	0810	Water	BC	X	X	X	X	X	X	X			
	MW-45-0621	6-29-21	0835	Water	BC	X	X	X	X	X	X	X	X		
	MW-245-0621	6-29-21	1045	Water	BC	X	X	X	X	X	X	X			
	MW-295-0621	6-29-21	0932	Water	BC	X	X	X	X	X	X	X			
	MW-43-0621	6-29-21	1015	Water	BC	X	X	X	X	X	X	X			
	MW-1202-0621 BD	6-29-21	1020	Water	BC	X	X	X	X	X	X	X			
	MW-1204-0621 FBW	6-29-21	0915	Water	BC	X	X	X	X	X	X	X			

Container Type
Preservative

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Basil Cox	6-29-21 1400		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

NEW YORK CHAIN OF CUSTODY

ALPHA

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FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab

ALPHA Job #

Client Information

Client: CDMSmith
Address: 4 Highland Rd
Massena NY 13662
Phone: 315-296-9012
Fax:
Email: Kingsley.RL@cdmsmith.com

Project Information

Project Name: Reynolds
Project Location: NY
Project # 99566
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☐ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☐ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ **Done**
☐ **Lab to do**
Preservation
☐ **Lab to do**
(Please Specify below)

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Aluminum	Diss Aluminum	Fluoride	Sulfate	TCN	WAD CN	Total Bottle
	MW-105-0621	6-29-21	0725	water	BC	X	X	X	X	X	X	X	
	MW-105-0621 MS	6-29-21	0725	water	BC	X	X	X	X	X	X	X	
	MW-105-0621 MSD	6-29-21	0725	water	BC	X	X	X	X	X	X	X	
	MW-14S-0621	6-29-21	0910	water	BC	X	X	X	X	X	X	X	
	MW-45-0621	6-29-21	0835	water	BC	X	X	X	X	X	X	X	
	MW-26S-0621	6-29-21	1045	water	BC	X	X	X	X	X	X	X	
	MW-28S-0621	6-29-21	0932	water	BC	X	X	X	X	X	X	X	
	MW-4R-0621	6-29-21	1015	water	BC	X	X	X	X	X	X	X	
	MW-120R-0621 FD	6-29-21	1020	water	BC	X	X	X	X	X	X	X	
	MW-120R-0621 FBW	6-29-21	0915	water	BC	X	X	X	X	X	X	X	

Container Type
Preservative

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Basil Cox	6-29-21 1400		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

NEW YORK CHAIN OF CUSTODY

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320 Forbes Blvd
TEL: 508-822-9300
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Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab

ALPHA Job #

Client Information
Client: Cam Smith
Address: 4 Highland Rd
Massena NY 13662
Phone: 315-296-9012
Fax:
Email: Kingsley.RL@cdmsmith

Project Information
Project Name: Reynolds
Project Location: NY
Project # 99566
(Use Project name as Project #)
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time
Standard [X] Due Date:
Rush (only if pre approved) [ ] # of Days:

Deliverables
[ ] ASP-A [ ] ASP-B
[ ] EQuIS (1 File) [ ] EQuIS (4 File)
[ ] Other

Regulatory Requirement
[ ] NY TOGS [ ] NY Part 375
[ ] AWQ Standards [ ] NY CP-51
[ ] NY Restricted Use [ ] Other
[ ] NY Unrestricted Use
[ ] NYC Sewer Discharge

Billing Information
[ ] Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
[ ] NJ [ ] NY
[ ] Other:

These samples have been previously analyzed by Alpha [ ]

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
[ ] Done
[ ] Lab to do
Preservation
[ ] Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TOC	DOC	Al, Cl, NO3 - 2 Lab	330 MK	TPH - HYDD	TSS	Cl, NO3	Diss. Iron	Total Bottle	Sample Specific Comments
	GZ-44-D621	7-1-21	0720	water	BC	X	X	X	X	X	X	X			
	MW-41-D621	7-1-21	0755	water	BC	X	X	X	X	X	X	X			
	MW-17S-D621	7-1-21	0815	water	BC	X	X	X	X	X	X	X			
	MW-42-D621	7-1-21	0833	water	BC	X	X	X	X	X	X	X	X		
	MW-36-D621	7-1-21	0920	water	BC	X	X	X	X	X	X	X			
	MW-37-D621	7-1-21	0945	water	BC	X	X	X	X	X	X	X			
	MW-22-BS5-D621	7-1-21	1015	water	BC								X		
	MW-15S-87-D621	7-1-21	0740	water	BC	X	X	X	X	X	X	X			
	MW-35SR-D621	7-1-21	0850	water	BC	X	X	X	X	X	X	X			
	MW-35SR-D621 MS	7-1-21	0850	water	BC	X	X	X	X	X	X	X			

Container Type
Preservative

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Basil (BC	7-1-21 1400		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

OHIO CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-9288

Service Centers
Columbus, OH: (614) 357-3321
OHServiceCenter@alphalab.com

Page 1 of

Date Rec'd in Lab

ALPHA Job #

Client Information

Client: CDM Smith
Address: 4 Highland Rd
Massena NY 13662
Phone: 315-296-9012
Fax:
Email: Kingsley RL @ cdmsmith

Project Information

Project Name: Reynolds
Project Location: NY
Project # 995662
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ BUSTR QA/QC Form
☐ VAP Affidavit ☐ Other
☐ EQuIS (1 File) ☐ EQuIS (4 File)

☐ OH VAP
☐ OH BUSTR
☐ Other:
☐ Other:
☐ Other:

Billing Information

☐ Same as Client Info
PO #

Site Information

Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For TPH, selection is REQUIRED:
☐ GRO (C6-C12)
☐ DRO/ORO (C10-C20/C20-C34)
☐ Other:

Other project specific requirements/comments:

Please specify Metals, i.e. RCRA8, PP13, TAL, etc.

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TOC	DOC	AIK, 2131, HCO3-2320	2320 AIK	TPH - 1500	TSS	Cl, NO3	Diss. IRON	Total Bottles
	MW-35SR-01621 MSD	7-1-21	0840	water	BC	X	X	X	X	X	X	X		
	MW-1205-01621 FBW	7-1-21	0935	water	BC	X	X	X	X	X	X	X	X	

Container Type
Preservative

Sample Filtration

☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

Sample Specific Comments

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Brad Cox	7-1-21 1400		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Form No: 39490 (rev. 19-Mar-2021)

NEW YORK CHAIN OF CUSTODY

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

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Date Rec'd in Lab

ALPHA Job #

Client Information
Client: CDM Smith
Address: 4 Highland Rd
Massena, NY 13662
Phone: 315 296 9012
Fax:
Email: Kingsley.RLE@cdmsmith.com

Project Information
Project Name: Reynolds
Project Location: NY
Project #: 995606
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Al	Dissolved Al	Fluoride	Sulfide	TCN	WAD CN	Total Bottle	Sample Specific Comments
	MW-35SR-0621 MSD	6-1-21	0850	water	BC			X						
	MW-17S-0621	6-1-21	0815	water	BC			X						
	MW-15S-87-0621	7-1-21	0740	water	BC			X						
									1					

Container Type
Preservative

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Candace Fox	7-1-21 1400		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

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Date Rec'd in Lab

ALPHA Job #

Client Information

Client: CDM Smith
Address: 2 Highland Rd
Massena NY 13662
Phone: 315-296-9012
Fax:
Email: KingslerRL@cdmsmith.com

Project Information

Project Name: Reynolds
Project Location: NY
Project # 995616
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☐ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ **Done**
☐ **Lab to do**
Preservation
☐ **Lab to do**
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Al	Diss. Al	Fluoride	Sulfate	TCN	WAD CN	Total Bottle	Sample Specific Comments
	PZ-44-0621	7-1-21	0720	water	BC			X			X	X		
	MW-41-0621	7-1-21	0755	water	BC	X	X	X	X	X	X	X		
	MW-42-0621	7-1-21	0833	water	BC	X	X	X	X	X	X	X		
	MW-36-0621	7-1-21	0920	water	BC	X	X	X	X	X	X	X		
	MW-37-0621	7-1-21	0945	water	BC	X	X	X	X	X	X	X		
	MW-2285-0621	7-1-21	1015	water	BC	X	X	X	X	X	X	X		
	~~MW-45-PZ-0621~~	~~7-1-21~~	~~0940~~	~~water~~	~~BC~~									
	MW-1205-0621 FBW	7-1-21	0935	water	BC	X	X	X	X	X	X	X		
	MW-35SR-0621	7-1-21	0850	water	BC			X						
	MW-35SR-0621 MS	7-1-21	0850	water	BC			X						

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

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Date Rec'd in Lab

ALPHA Job #

Client Information

Client: C.M. Smith
Address: 4 Highland Rd
Massena NY
Phone: 315 296 9012
Fax:
Email: kmosley@cmsmith.com

Project Information

Project Name: Reynolds
Project Location: NY
Project # 995166
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Billing Information

☐ Same as Client Info
PO #

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Mn	Fl	SO4	NO3	TCN	WAD CN	Cl	Sample Specific Comments	Total Bottle
	PZ-44-D1021	7-1-21	0710	water	BC	X								TAL only	
	MW-185-D1021	7-1-21	0720	water	BC	X					X	X		CL PCB only	
	MW-175-D1021	7-1-21	0735	water	BC	X	X	X	X	X	X	X	X	0720	
	MW-35SR-D1021	7-1-21	0740	water	BC	X	X	X	X	X	X	X	X		
	MW-35SR-D1021 MS	7-1-21	0740	water	BC	X	X	X	X	X	X	X	X		
	MW-35SR-D1021 MSD	7-1-21	0740	water	BC	X	X	X	X	X	X	X	X		
	MW-1207-D1021 FBW	7-1-21	0735	water	BC	X	X	X	X	X	X	X	X		

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type									
Preservative									

Relinquished By:	Date/Time	Received By:	Date/Time
Kaitlyn Land	7-6-21 1430		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

Cox, Basil

From: Rielly, Alison
Sent: Wednesday, December 1, 2021 10:49 AM
To: Alpha Service Center; James Conley; Kelly Hale ; Rodrigue, Paul; Glosenger, Joshua C.; Cox, Basil; Kingsley, Ryan; Peets, Craig M.
Subject: Reynolds Plant December 2021 Sampling
Attachments: Reynolds December 2021 Bottle Request.pdf

CDM Smith is scheduled to collect groundwater samples at the Reynolds Plant in December 2021. All samples will be shipped to Alpha Analytical in Westborough, MA for analysis. The billing number is ***99566***. The following samples will be collected:

PCBs, Total Al, Dissolved Al, Fluoride, Sulfate, Total CN, WAD CN:

MW-11SR-1221
MW-12S-1221
MW-13S-1221
MW-14S-1221
MW-15S-87-1221
MW-20-85S-1221
MW-22-85S-1221
MW-23-85S-1221
MW-30S-1221
MW-31SR-1221
PZ-44-1221
PZ-45-1221
PZ-46-1221
MW-10S-1221 (MS/MSD)
MW-39S-1221
MW-40S-1221
MW-45-1221
SLPWETW-1221
SLPWETE-1221
MW-03S-1221
MW-26S-1221
MW-27S-1221
MW-28S-1221
MW-35SR-1221
MW-42-1221
MW-43-1221 (MS/MSD)
MW-44-1221
MW-16S-1221
MW-17S-1221
MW-18-1221
MW-19S-1221
MW-36-1221
MW-37-1221
MW-38-1221
MW-41-1221

Fluoride, Sulfate, Total CN, WAD CN:

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-10S-1221 **SITE:SLP** **DATE** 12-13-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	23.5	FEET
STATIC LEVEL	6.31	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 5.7 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 6.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	0810	4	0.532	7.17	6.3	182.2

STATIC AT SAMPLING 6.54 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

MS/MSD

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # SLPWETW-1221 **SITE:SLP** **DATE** 12-14-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME _____ **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	0845	.3	0.210	6.71	2.8	-116.5

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-39S-1221 | SITE:SLP | DATE 12-13-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X | SAMPLED BY JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	18.50	FEET
STATIC LEVEL	3.96	FEET

AMOUNT PURGED IF < 3 VOLUMES 3.5 GALLONS

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	7.4	GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12.14.	0905	36.	0.554	7.17	6.8	-27.7

STATIC AT SAMPLING 3.83 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

151

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-45-1221 | SITE:SLP | DATE 12-13-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X | SAMPLED BY BL

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	17.85	FEET
STATIC LEVEL	3.52	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	7.3	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 3 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	0920	9	1,247	7.05	7.0	45.3

STATIC AT SAMPLING 3.55 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-40S-1221 **SITE:SLP** **DATE** 12-13-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	17.50	FEET
STATIC LEVEL	1.80	FEET

AMOUNT PURGED IF < 3 VOLUMES 5 GALLONS

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	7.9	**GALLONS**

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12.14	0940	9	0.751	7.26	7.8	77.0

STATIC AT SAMPLING 1.9 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # SLPWETE-1221 **SITE:SLP** **DATE** 12-14-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** RE

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME _____ **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	0955	9	0.2312	7.67	2.7	95.1

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-30S-1221 **SITE:SLP** **DATE** 12-13-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	17.55	FEET
STATIC LEVEL	5.63	FEET

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	4.0	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	1010	10	0.5	7.21	7.9	85.5

STATIC AT SAMPLING 5.63 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-31SR-1221 **SITE:SLP** **DATE** 12-13-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	29.85	FEET
STATIC LEVEL	10.31	FEET

AMOUNT PURGED IF < 3 VOLUMES 4.75 GALLONS

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	9.9	**GALLONS**

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12.14	1020	1.83	0.640	7.66	8.6	67.5

STATIC AT SAMPLING 11.5 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-23-85S-1221 **SITE:SLP** **DATE** 12-13-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	30.50	FEET
STATIC LEVEL	4.25	FEET

AMOUNT PURGED IF < 3 VOLUMES 3 GALLONS

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	13.3	**GALLONS**

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	1033	44	0.845	7.14	7.9	89.1

STATIC AT SAMPLING 9.96 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-14S-1221 **SITE:SLP** **DATE** 12-13-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	19.85	FEET
STATIC LEVEL	4.38	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 7.8 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 5.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	1050	13	0.760	7.54	15.5 9.5	105.9

STATIC AT SAMPLING 5.91 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-13S-1221 | SITE: SLP | DATE 12-13-21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	17.5	FEET
STATIC LEVEL	5.37	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	1e-1	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 5.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	1100	11	1.133	7.29	9.9	102.9

STATIC AT SAMPLING 5.78 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-20-85S-1221 **SITE:SLP** **DATE** 12-15-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC X (5) **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	18.60	FEET
STATIC LEVEL	9.35	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 4.7 GALLONS

AMOUNT PURGED IF < 3 VOLUMES 1.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	1120	43	1.583	12.40	9.8	-88.4

STATIC AT SAMPLING 11.32 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-15S-87-1221 | SITE: SLP | DATE 12-13-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	24.85	FEET
STATIC LEVEL	5.73	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	9.7	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 5.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	1135	26	0.608	8.05	11.1	106.2

STATIC AT SAMPLING 5.83 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-11SR-1221 | SITE:SLP | DATE 12-13-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	24.66	FEET
STATIC LEVEL	6.14	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 9.4 GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	1142	26	0.826	7.51	10.2	114.8

STATIC AT SAMPLING 7.0 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-12S-1221 **SITE:SLP** **DATE** 12-13-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JSC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	16.5	FEET
STATIC LEVEL	4.17	FEET

AMOUNT PURGED IF < 3 VOLUMES 4.25 GALLONS

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 12.2 **GALLONS**

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-14	1150	18	2.539	7.55	11.6	101.4

STATIC AT SAMPLING 4.83 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-34S-1221 | SITE:SLP | DATE 12-15-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BL

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	32.90	FEET
STATIC LEVEL	12.27	FEET

AMOUNT PURGED IF < 3 VOLUMES 4.25 GALLONS

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 12.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-15	1140	10	2.260	7.38	9.6	196.4

STATIC AT SAMPLING 29.2 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # FDRAIN-1221 | SITE: SLP | DATE 12-15-21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME N/A GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-15	1150	6	0.978	8.31	9.5	243.2

STATIC AT SAMPLING 17.14 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-27S-1221 | SITE:SLP | DATE 12-15-21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY BK

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	23.00	FEET
STATIC LEVEL	9.49	FEET

AMOUNT PURGED IF < 3 VOLUMES ~1.5 GALLONS

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	6.5	GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-16	0820	52	7.24	7.11	62.4	206.8

STATIC AT SAMPLING 9.01 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-03-1221 **SITE:SLP** **DATE** 12-15-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**	**GALLONS**
TOTAL DEPTH	17.9	FEET	**#2 VOLUME**	**GALLONS**
STATIC LEVEL	2.98	FEET	**#3 VOLUME** 7.6	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 5.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12.16	0832	29	0.630	8.48	11.5	227.4

STATIC AT SAMPLING 19.42 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-17S-1221 | SITE: SLP | DATE 12-15-21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY JL

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	19.90	FEET
STATIC LEVEL	9.13	FEET

AMOUNT PURGED IF < 3 VOLUMES 4.5 GALLONS

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	5.4	GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-16	0850	4	0.820	7.60	10.1	228.4

STATIC AT SAMPLING 14.44 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-41-1221 **SITE:SLP** **DATE** 12-15-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BL

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**	**GALLONS**
TOTAL DEPTH	47.25	FEET	**#2 VOLUME**	**GALLONS**
STATIC LEVEL	33.07	FEET	**#3 VOLUME** 12.3	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 3.75 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-15	0905	366	0.958	7.37	9.7	203.4

STATIC AT SAMPLING 34.3 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-19S-1221 **SITE:SLP** **DATE** 12-15-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BK

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	18.00	FEET
STATIC LEVEL	12.32	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 2.8 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-16-21	0930	15	0.756	7.60	11.0	153.8

STATIC AT SAMPLING 13.42 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-42-1221 **SITE:SLP** **DATE** 12-15-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** [illegible]

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	47.15	FEET
STATIC LEVEL	21.57	FEET

AMOUNT PURGED IF < 3 VOLUMES 4.25 GALLONS

#1 VOLUME	**GALLONS**
#2 VOLUME	**GALLONS**
#3 VOLUME 13.0	**GALLONS**

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-16	0940	>1000	2.923	7.98	10.4	183.6

STATIC AT SAMPLING 26.62 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-35SR-1221 | SITE:SLP | DATE 12-15-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC | SAMPLED BY BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	28.55	FEET
STATIC LEVEL	11.55	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 8.16 GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-16	0950	958	1.430	7.29	11.4	187.7

STATIC AT SAMPLING 14.68 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-36-1221 | SITE:SLP | DATE 12-15-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	34.05	FEET
STATIC LEVEL	7.46	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 13.5 GALLONS

AMOUNT PURGED IF < 3 VOLUMES 4.75 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-16	1005	>1000	2.219	8.64	10.5	156.2

STATIC AT SAMPLING 16.8 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-37-1221 **SITE:SLP** **DATE** 12-15-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	36.08	FEET
STATIC LEVEL	3.24	FEET

AMOUNT PURGED IF < 3 VOLUMES 6.5 GALLONS

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	16.7	**GALLONS**

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-16	1015	~~3.7~~ >1000	0.919	7.67	9.9	174.2

STATIC AT SAMPLING 3.73 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-38-1221 **SITE:SLP** **DATE** 12-15-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	37.20	FEET
STATIC LEVEL	5.83	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 15.9 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 7.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-16	1030	>1000	0.474	8.29	10.1	155.1

STATIC AT SAMPLING 11.9 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # PZ-46-1221 **SITE:SLP** **DATE** 12-17-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	1	INCHES
TOTAL DEPTH	11.20	FEET
STATIC LEVEL		FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME _____ **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-17	0745	>1000	1.505	7.42	61.3	119.2
				x		

STATIC AT SAMPLING 5.38 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

BATTERY POWER PUMP

1L PCB only

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # PZ-45-1221 **SITE:SLP** **DATE** 12.17.21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	1	INCHES
TOTAL DEPTH	16.25	FEET
STATIC LEVEL		FEET

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME		**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12.17	0755	155	1,824	7.10	61.5	-82.0

STATIC AT SAMPLING 4.0 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

BATTERY POWER PUMP

12 PCB + all others

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # PZ-44-1221 **SITE:SLP** **DATE** 12-17-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	1	INCHES	**#1 VOLUME**	**GALLONS**
TOTAL DEPTH	15.40	FEET	**#2 VOLUME**	**GALLONS**
STATIC LEVEL		FEET	**#3 VOLUME**	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-17	0810	46	2,066	7.13	6.6	-41.5

STATIC AT SAMPLING 4.84 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP
All

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-33S-1221 | SITE:SLP | DATE 12-17-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	29.60	FEET
STATIC LEVEL	12.27	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 8.8 GALLONS

AMOUNT PURGED IF < 3 VOLUMES 7.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12/17	0935	33	1.760	7.59	9.9	20.4

STATIC AT SAMPLING 27.47 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-44-1221 **SITE:SLP** **DATE** 12-17-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** SC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	28.55	FEET
STATIC LEVEL	7.77	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 10.6 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-17	0935	18	0.731	7.16	10.4	84.9

STATIC AT SAMPLING 17.41 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-43-1221 **SITE:SLP** **DATE** 12-17-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	47.80	FEET
STATIC LEVEL	8.0	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 20.2 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-17	0942	>800	0.790	7.04	9.7	92.0

STATIC AT SAMPLING 28.93 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

MS/MSD

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-28S-1221 **SITE:SLP** **DATE** 12-17-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**	**GALLONS**
TOTAL DEPTH	25.00	FEET	**#2 VOLUME**	**GALLONS**
STATIC LEVEL	12.1	FEET	**#3 VOLUME** 6.5	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-17	1015	13	0.930	8.29	11.2	6.0

STATIC AT SAMPLING 8.72 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-18S-1221 **SITE:SLP** **DATE** 12-17-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	26.50	FEET
STATIC LEVEL	18.43	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 9.1 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-17	1035	<2	1.303	7.71	9.5	57.5

STATIC AT SAMPLING 18.42 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

1211 BD - 1040

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-16S-1221 **SITE:SLP** **DATE** 12-17-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	23.5	FEET
STATIC LEVEL	18.17	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 2.4 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-17	1105	3	2.226	7.81	10.4	79.1

STATIC AT SAMPLING 18.73 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-26S-1221 **SITE:SLP** **DATE** 12-17-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	30.50	FEET
STATIC LEVEL	10.04	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 10.4 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 11.75 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-17	1020	347	2.325	12.35	8.11	-46.11

STATIC AT SAMPLING 24.47 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-22-85S-1221 **SITE:SLP** **DATE** 12-17-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	30.50	FEET
STATIC LEVEL	10.1	FEET

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	12.4	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 37.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-17	1150	63	1.448	8.15	9.8	-0.4

STATIC AT SAMPLING 20.04 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith is scheduled to collect groundwater samples at the Reynolds Plant during the week of March 12th, 2021. All samples will be shipped to Alpha Analytical in Westborough, MA for analysis. *The billing number is 94128.* **Sample bottles and labels have already been received and therefore, not needed.**

The following samples will be collected:

PCBs, Total Aluminum, Dissolved Aluminum, Fluoride, Sulfate, Total Cyanide, and WAD Cyanide:
MW-10S-0321
MW-39S-0321
MW-40S-0321
MW-45-0321
SLPWETW-0321
SLPWETE-0321

0935
3-25-21

QA/QC to include: MW-10S-0321MS, MW-10S-0321MSD, MW-1200-0321BD, MW-1201-0321FBW

Please feel free to contact me with any questions.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-10S-0321 | SITE:SLP | DATE 3-24-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC (+) | SAMPLED BY BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	#1 VOLUME		GALLONS
TOTAL DEPTH	23.5	FEET	#2 VOLUME		GALLONS
STATIC LEVEL	6.7	FEET	#3 VOLUME	8.5	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 6.75 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
3-25	0835	17.1	0.640	7.70	10.1	-464.2

STATIC AT SAMPLING 6.5 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
MS/MSD

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # SLPWETE-0321 **SITE:SLP** **DATE** 3-25-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC/JG

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	N/A	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
3.25	0850	12.4	0.0364	7.14	5.1	-310.6

STATIC AT SAMPLING NA **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-39S-0321 **SITE:SLP** **DATE** 3-24-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**		**GALLONS**
TOTAL DEPTH	18.50	FEET	**#2 VOLUME**		**GALLONS**
STATIC LEVEL	3.95	FEET	**#3 VOLUME**	7.4	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 3.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
3-25	0910	315	0.727	7.43	10.4	-307.9

STATIC AT SAMPLING 3.93 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

MW-39S-0321D

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-45-0321 **SITE:SLP** **DATE** 3-24-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**		**GALLONS**
TOTAL DEPTH	17.85	FEET	**#2 VOLUME**		**GALLONS**
STATIC LEVEL	3.52	FEET	**#3 VOLUME**	7.3	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 3.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
3-25	0920	38.9	1.568	7.36	10.0	-379.7

STATIC AT SAMPLING 3.46 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
3D - 0924

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # SLPWETW-0321 **SITE:SLP** **DATE** 3-25-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC/JG

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME	**GALLONS**
#2 VOLUME	**GALLONS**
#3 VOLUME	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
3-25	0945	11e	0.0617	7.70	5.3	-531.8

STATIC AT SAMPLING NA **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL #	MW-40S-0321	**SITE:SLP**	**DATE** 3-24-21
PURGE METHOD:	WATERRA X BAILER GRUNDFOS PERISTALTIC		**SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**		**GALLONS**
TOTAL DEPTH	17.50	FEET	**#2 VOLUME**		**GALLONS**
STATIC LEVEL	1.67	FEET	**#3 VOLUME**	8.0	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 4 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
3-25	0955	2.75	1.121	7.30	12.3	-342.7

STATIC AT SAMPLING 1.9 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

NEW YORK CHAIN OF CUSTODY

ALPHA

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab

ALPHA Job #

Client Information

Client: CDM Smith
Address: 4 Highland Knoll
Massena NY 13662
Phone: 315-296-9012
Fax:
Email: Kingsleyka@cdmsmith.com

Project Information

Project Name: Reynolds sampling March
Project Location: Massena
Project # 94128
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☐ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Aluminum	Diss Aluminum	Ft. SO4	TCN	WAD CN	Total Bottle	Sample Specific Comments
	MW-105-0321	3-25-21	0835	water	BC	x	x	x	x	x	x		
	MW-105-0321 MS	3-25-21	0835	water	BC	x	x	x	x	x	x		
	MW-105-0321 MSD	3-25-21	0835	water	BC	x	x	x	x	x	x		
	SLP-WETE-0321	3-25-21	0850	water	BC	x	x	x	x	x	x		
	MW-395-0321	3-25-21	0910	water	BC	x	x	x	x	x	x		
	MW-45-0321	3-25-21	0920	water	BC	x	x	x	x	x	x		
	MW-1200-0321 BD	3-25-21	0924	water	BC	x	x	x	x	x	x		
	SLP-WETW-0321	3-25-21	0945	water	BC	x	x	x	x	x	x		
	MW-405-0321	3-25-21	0955	water	BC	x	x	x	x	x	x		
	MW-1201-0321 FBW	3-25-21	0935	water	BC	x	x	x	x	x	x		

Container Type
Preservative

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
	3-25-21 1400		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

Glosenger, Joshua C.

From: Glosenger, Joshua C.
Sent: Monday, August 30, 2021 6:08 PM
To: Alpha Service Center; Candace Fox; Cox, Basil; Kelly Hale ; Kingsley, Ryan; Pete Taylor ; Rodrigue, Paul; Furnia, Todd J.; Cook, Cody M.; Richards, Garrett R.; Rielly, Alison
Subject: Reynolds Sampling September 2021
Attachments: Reynolds September 2021 Bottle Request.pdf

Hello,

CDM Smith is scheduled to collect groundwater samples at the Reynolds Plant during September 2021. All samples will be shipped to Alpha Analytical in Westborough, MA for analysis. *The billing number is* ***99561***. The following samples will be collected:

PCBs, Tot Al, Diss Al, Fluoride, Sulfate, Tot CN, WAD CN:
MW-10S-0921 (MS/MSD)
MW-39S-0921
MW-40S-0921
MW-45-0921
SLPWETW-0921 ~ MW-1208-0921 BD
SLPWETE-0921

1145 9-28

QA/QC to include: MW-1208-0921BD, MW-1209-0921FBW

Please feel free to contact me with any questions.
Thanks,

Josh Glosenger
Environmental Engineer
CDM Smith
4 Highland Road, Suite 1, Massena, New York 13662
Office: 315.296.9003 Cell: 607.239.3964
cdmsmith.com

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-10S-0921 | SITE:SLP | DATE 9-28-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC X | SAMPLED BY BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	23.5	FEET
STATIC LEVEL	16.50	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME 8.16 GALLONS

AMOUNT PURGED IF < 3 VOLUMES 16.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
9-28-15	1125	3	0.718	7.54	14.1	-36.9

STATIC AT SAMPLING 7.82 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

MS/MSD

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # SLPWETW-0921 **SITE:SLP** **DATE** 9-28-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME _____ **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
9-28-21	1300	3	0.2336	7.40	13.7	111.7

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP
MW-1208-0921 BD-1204

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-39S-0921 | SITE:SLP | DATE 9-28-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	18.50	FEET
STATIC LEVEL	5.10	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	6.8	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 4.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
9-28	1212	15	0.946	7.18	11.3	7.4

STATIC AT SAMPLING 5.11 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-45-0921 | **SITE:SLP** | **DATE** 9-28-21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | **SAMPLED BY** BK

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**		GALLONS
TOTAL DEPTH	17.85	FEET	**#2 VOLUME**		GALLONS
STATIC LEVEL	4.56	FEET	**#3 VOLUME**	6.7	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 3 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
9-28	1220	6	1,752	7.14	12,7	39,7

STATIC AT SAMPLING 4.80 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # SLPWETE-0921 | SITE: SLP | DATE 9-28-21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY AL

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME		GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
9-28	1230	6	0.519	7.28	15.1	55.3

STATIC AT SAMPLING — Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP
MW-1205-0921-FD

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL #	MW-40S-0921	**SITE:SLP**		**DATE**	9-28-21
PURGE METHOD:	WATERRA X	BAILER	GRUNDFOS	PERISTALTIC	**SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**		**GALLONS**
TOTAL DEPTH	17.50	FEET	**#2 VOLUME**		**GALLONS**
STATIC LEVEL	2.92	FEET	**#3 VOLUME**	7.4	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 15 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
9-28	1240	3	1.097	7.47	13.7	18.6

STATIC AT SAMPLING 3.10 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab

ALPHA Job #

Client Information

Client: CDM Smith
Address: 4 Highland Road, Suite 1
Massena, NY 13662
Phone: 315-296-9006
Fax: 514-591-3489 cell
Email: KingsleyRL@cdmsmith.com

Project Information

Project Name: Reynolds Plant Groundwater
Project Location: NY
Project # 99561
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time

Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☐ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other: NA

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

Total # Bottles

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Aluminum	Dissolved Aluminum	Fluoride, Sulfate	SUB-WAD Cyanide	Total Cyanide			Sample Specific Comments
	MW-105-0921	9-28-21	1125	Water	BC	x	x	x	x	x	x			
	MW-105-0921 MS	9-28-21	1125	Water	BC	x	x	x	x	x	x			
	MW-105-0921 MSD	9-28-21	1125	Water	BC	x	x	x	x	x	x			
	MW-120S-0921 FBW	9-28-21	1145	Water	BC	x	x	x	x	x	x			
	SLPWETW-0921	9-28-21	1200	Water	BC	x	x	x	x	x	x			
	MW-120S-0921 BD	9-28-21	1204	Water	BC	x	x	x	x	x	x			
	MW-39S-0921	9-28-21	1212	Water	BC	x	x	x	x	x	x			
	MW-45-0921	9-28-21	1220	Water	BC	x	x	x	x	x	x			
	SLP-WETE-0921	9-28-21	1230	Water	BC	x	x	x	x	x	x			
	MW-408-0921	9-28-21	1240	Water	BC	x	x	x	x	x	x			
	Container Type					A	P	P	P	P	P			
	Preservative					A	C	C	A	E	E			

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Basil Cox	9-28-21 1440		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Form No: 01-25 (rev. 30-Sept-2013)

Appendix C Historical Analytical Results

Monitoring Well MW-11SR

Location	Quarter	NQtr	Aluminum mg/l	Cyanide, Total mg/l	WAD Cyanide mg/l	Fluoride mg/l	PCBs, Total µg/l	Sulfate mg/l
MW-11SR	99Q1	47	0.39	0.01U	---	0.4	0.065U	3200
MW-11SR	99Q2	48	0.42	0.01U	---	0.3	0.065U	2900
MW-11SR	99Q3	49	0.22	0.01U	---	0.3	0.065U	3100
MW-11SR	99Q4	50	0.64	0.01U	---	0.4	0.065U	1900
MW-11SR	00Q1	51	2.3	0.01U	---	0.4	0.065U	2600
MW-11SR	00Q2	52	0.58	0.01U	---	0.3	0.065U	2200
MW-11SR	00Q3	53	0.49	0.01U	---	0.3	0.065U	2200
MW-11SR	00Q4	54	0.1U	0.01U	0.01U	0.294	0.065U	1860
MW-11SR	01Q1	55	0.12	0.01U	0.01U	0.336	0.065U	1710.19
MW-11SR	01Q2	56	0.94	0.222	0.01U	0.02U	0.065U	1859.77
MW-11SR	01Q3	57	2.51	0.01U	0.01U	0.02U	0.065U	201.74
MW-11SR	01Q4	58	0.33	0.01U	0.01U	0.379	0.065U	1570.9
MW-11SR	02Q1	59	0.1	0.01U	0.01U	0.308	0.065U	1665.55
MW-11SR	02Q2	60	0.16	0.01U	0.01U	0.286	0.065U	1518.64
MW-11SR	02Q3	61	0.16	0.01U	0.01U	0.391	0.065U	1622.13
MW-11SR	02Q4	62	0.16	0.01U	0.01U	0.372	0.065U	1179.98
MW-11SR	03Q1	63	1.082	0.01U	0.01U	0.354	0.065U	1487.367
MW-11SR	03Q2	64	0.273	0.01U	0.01U	0.348	0.065U	1562.88
MW-11SR	03Q3	65	4.552	0.01U	0.01U	0.344	0.065U	1322.15
MW-11SR	03Q4	66	0.052	0.01U	0.01U	0.358	0.065U	1314.33
MW-11SR	04Q1	67	3.233	0.01U	0.01U	0.295	0.065U	1322.56
MW-11SR	04Q2	68	0.581J	0.01U	0.01U	0.316	0.065U	1105.91
MW-11SR	04Q3	69	0.672	0.01U	0.01U	0.376	0.065U	1200.76
MW-11SR	04Q4	70	6.464J	0.01U	0.01U	0.41	0.065U	1032.48
MW-11SR	05Q1	71	9.085	0.01U	0.01U	0.4429	0.065U	943.35
MW-11SR	05Q2	72	0.891	0.01U	0.01U	0.3439	0.065U	1059.045
MW-11SR	05Q3	73	2.331	0.01U	0.01U	0.3713	0.065U	995.67
MW-11SR	05Q4	74	0.963	0.01U	0.01U	0.3459	0.065U	572.92
MW-11SR	06Q1	75	0.314	0.01U	0.01U	0.26	0.066	748.1
MW-11SR	06Q2	76	0.641J	0.01U	0.01U	0.3306	0.066	79.62
MW-11SR	06Q3	77	1.507	0.01U	0.01U	0.3402	0.065U	928.55
MW-11SR	06Q4	78	1.333	0.01U	0.01U	0.3401	0.065U	602.79
MW-11SR	07Q1	79	0.391	0.01U	0.01U	0.341	0.065U	913.9
MW-11SR	07Q2	80	0.48	0.01U	0.01U	0.3366	0.065U	892.04
MW-11SR	07Q3	81	4.898	0.01U	0.01U	0.3818	0.065U	827.31
MW-11SR	07Q4	82	1.656	0.005U	0.005U	0.3022	0.065U	700
MW-11SR	08Q1	83	7.57	0.005U	0.01UJ	0.3745	0.065U	592
MW-11SR	08Q2	84	2.1095R	0.01U	0.01U	0.3782	0.065U	788.5
MW-11SR	08Q3	85	2.713	0.01U	0.01U	0.3552	0.065U	694
MW-11SR	08Q4	86	6.22	0.01U	0.01U	0.4102	0.065U	698
MW-11SR	09Q1	87	11.9	0.01UJ	0.01UJ	0.33	0.505U	488
MW-11SR	09Q2	88	7.74	0.01U	0.01U	0.4009	0.065U	561
MW-11SR	09Q3	89	8.11	0.01U	0.01U	0.3126	0.065U	585
MW-11SR	09Q4	90	3.251	0.01U	0.01U	0.3936	0.505U	579
MW-11SR	10Q1	91	2.29	0.01U	0.01U	0.2855	0.065U	556
MW-11SR	10Q2	92	1.39	0.01U	0.01U	0.284	0.065U	564
MW-11SR	10Q3	93	2.618	0.01U	0.01U	1.34	0.065U	537
MW-11SR	10Q4	94	10.42	0.01U	0.01U	0.3474	0.065U	497
MW-11SR	11Q1	95	3.99	0.01U	0.01U	0.4	0.065U	624
MW-11SR	11Q2	96	0.94	0.01U	0.01U	0.41	0.065U	611
MW-11SR	11Q3	97	12.7	0.12	0.017	1.9	0.049U	110
MW-11SR	11Q4	98	7.49	0.01U	0.01UJ	0.38	0.065U	482
MW-11SR	12Q1	99	1.57	0.01U	0.01U	0.38	0.065U	729
MW-11SR	12Q2	100	1.83	0.01U	0.01U	0.56	0.061U	600
MW-11SR	12Q3	101	1.23	0.01U	0.01UJ	0.32	0.061U	469
MW-11SR	12Q4	102	2.77	0.01U	0.01UJ	0.41	0.061U	522
MW-11SR	13Q2	104	5.68	0.01U	0.01U	0.32	0.061U	590
MW-11SR	13Q4	106	5.37	0.01U	0.01U	0.32	0.061U	332
MW-11SR	14Q2	108	1.97	0.01U	0.01U	0.3	0.061U	502
MW-11SR	14Q4	110	2.68	0.01U	0.01U	0.3	0.061U	314
MW-11SR	15Q2	112	0.32	0.01U	0.01U	0.33J	0.061U	453
MW-11SR	15Q4	114	0.24	0.01U	0.01U	0.37	0.061U	349
MW-11SR	16Q2	116	0.4	0.005U	---	0.37	0.065U	486
MW-11SR	16Q4	118	0.386	0.002J	0.01U	0.315	0.065U	433
MW-11SR	17Q2	120	0.174	0.005U	0.01U	0.25	0.065U	479.5
MW-11SR	17Q4	122	1.28	0.005U	0.01U	0.312	0.065U	355
MW-11SR	18Q2	124	0.508	0.01U	0.01U	0.304	0.065U	458
MW-11SR	18Q4	126	0.4815	0.01U	0.01U	0.311	0.02U	307
MW-11SR	19Q2	128	0.81	0.005U	0.01UJ	0.288	0.065U	300J
MW-11SR	19Q4	130	0.456	0.004J	0.01UJ	0.47	0.065U	303
MW-11SR	20Q2	132	0.189	0.005U	0.01U	0.473	0.019U	424
MW-11SR	20Q4	134	0.274	0.005U	0.01U	0.5	0.065U	231
MW-11SR	21Q2	136	0.338	0.056U	0.013	2.64	0.065U	2920
MW-11SR	21Q4	138	0.279	0.005U	0.01U	0.336	0.065U	232

Monitoring Well MW-12S

Location	Quarter	NQtr	Aluminum mg/l	Cyanide, Total mg/l	WAD Cyanide mg/l	Fluoride mg/l	PCBs, Total µg/l	Sulfate mg/l
MW-12S	99Q1	47			Note 1			
MW-12S	99Q2	48	0.46	0.05	---	6.5	0.065U	220
MW-12S	99Q3	49	5.7	0.05	---	7.5	0.065U	340
MW-12S	99Q4	50	1	0.05	---	8.2	0.065U	290
MW-12S	00Q1	51	2.2	0.06	---	8.2	0.065U	290
MW-12S	00Q2	52	0.34	0.05	---	7	0.065U	330
MW-12S	00Q3	53	0.8	0.05	---	7.5	0.065U	420
MW-12S	00Q4	54	0.12	0.01U	0.01U	8.468	0.065U	357
MW-12S	01Q1	55	0.39	0.049	0.01U	8.233	0.065U	319.53
MW-12S	01Q2	56	2.44	0.069	0.01U	6.227	0.065U	406.56
MW-12S	01Q3	57	0.71	0.062	0.01	6.69	0.065U	406.77
MW-12S	01Q4	58	0.23	0.0855	0.013	11.01	0.065U	424.67
MW-12S	02Q1	59	0.28	0.044	0.01U	10.19	0.065U	461.09
MW-12S	02Q2	60	0.29	0.073	0.01U	9.073	0.065U	456.15
MW-12S	02Q3	61	0.3	0.063	0.01U	11.97	0.065U	466.44
MW-12S	02Q4	62	0.286	0.063	0.01U	10.69	0.065U	495.65
MW-12S	03Q1	63	55.65	0.0575	0.013	9.798	0.065U	400.184
MW-12S	03Q2	64	0.103	0.0685	0.0135	8.556	0.065U	353.27
MW-12S	03Q3	65	0.212	0.07	0.0135	10.55	0.065U	382.08
MW-12S	03Q4	66	5.777	0.0615	0.011	11.69	0.065U	285.99
MW-12S	04Q1	67	13.39	0.058	0.0185	9.071	0.065U	370.14
MW-12S	04Q2	68	10.103	0.0705	0.019	10.8	0.065U	346.07
MW-12S	04Q3	69	13.91	0.0605	0.0465	8.83	0.065U	315
MW-12S	04Q4	70	7.731J	0.0175	0.0165	12.88	0.065U	409.32
MW-12S	05Q1	71	17.01	0.0435	0.014	7.345	0.065U	363.82
MW-12S	05Q2	72	8.279	0.0615	0.016	12.52	0.065U	370.07
MW-12S	05Q3	73	5.9455	0.04275	0.0125	11.081	0.065U	369.945
MW-12S	05Q4	74	6.791	0.072	0.0135	16.05	0.065U	376.77
MW-12S	06Q1	75	12.35	0.0425	0.012	8.77	0.065U	446.59
MW-12S	06Q2	76	8.01	0.0445	0.015	14.68	0.065U	457.2
MW-12S	06Q3	77	4.826	0.0458	0.01U	5.233J	0.065U	437.485
MW-12S	06Q4	78	1.317	0.0735	0.0205	13.2	0.065U	362.88
MW-12S	07Q1	79	15.64	0.055	0.016	9.006	0.065U	413.57
MW-12S	07Q2	80	16.03	0.057	0.019	13.66	0.065U	570.22
MW-12S	07Q3	81	10.5295	0.0625	0.019J	29.365	0.065U	526.705
MW-12S	07Q4	82	3.26	0.049	0.005U	10.39	0.143	380
MW-12S	08Q1	83	30.3	0.113	0.01UJ	10.13	0.065U	383
MW-12S	08Q2	84	12.01R	0.035	0.01U	12.29	0.065U	595
MW-12S	08Q3	85	48.405J	0.04R	0.01U	12.255	0.065U	583
MW-12S	08Q4	86	19.995J	0.035J	0.01U	12.89	0.065U	584
MW-12S	09Q1	87	31.1	0.026J	0.01UJ	11.8	0.485U	497
MW-12S	09Q2	88	25.9	0.0346	0.01U	9.997	0.065U	483
MW-12S	09Q3	89	26.9	0.0331R	0.0115J	13.7	0.065U	570
MW-12S	09Q4	90	13.28	0.0686	0.01U	15.44	0.065U	628
MW-12S	10Q1	91	13.52	0.0508	0.01U	13.93	0.065U	395
MW-12S	10Q2	92	1.141	0.01U	0.01U	0.2761J	0.065U	514
MW-12S	10Q3	93	47.89	0.034	0.01U	11.1	0.065U	690
MW-12S	10Q4	94	18.95	0.059	0.01U	13.75	0.065U	686
MW-12S	11Q1	95	1.01	0.06	0.02U	13.3	0.065U	670
MW-12S	11Q2	96	6.01	0.044	0.01U	11.8	0.065U	794
MW-12S	11Q3	97	12.7	0.059	0.01U	12.3	0.05U	832
MW-12S	11Q4	98	13.3	0.046	0.01UJ	11.8	0.063U	625
MW-12S	12Q1	99	16.7	0.04	0.01U	10.8	0.064U	594
MW-12S	12Q2	100	19	0.044	0.01U	11.8	0.061U	787
MW-12S	12Q3	101	16	0.04	0.01U	13.8	0.061U	797
MW-12S	12Q4	102	4.89	0.04	0.01UJ	9.54	0.061U	481
MW-12S	13Q2	104	22	0.037	0.01U	11.3	0.061U	703
MW-12S	13Q4	106	4.2	0.039	0.01U	10.1	0.061U	804
MW-12S	14Q2	108	18.3	0.04	0.01U	10.7	0.068U	887
MW-12S	14Q4	110	13.2	0.041	0.01U	12.3	0.061U	822
MW-12S	15Q2	112	4.91	0.043	0.01U	12.6	0.061U	888
MW-12S	15Q4	114	1.28	0.039	0.01U	14.5	0.061U	775
MW-12S	16Q2	116	3.04	0.027	0.004J	13.8	0.065U	1030
MW-12S	16Q4	118	5.87	0.018	0.012	13.7	0.065U	777
MW-12S	17Q2	120	1.55	0.032	0.0097J	9.38	0.065U	806
MW-12S	17Q4	122	5.44	0.021	0.0083J	11.3	0.065U	946
MW-12S	18Q2	124	3.83	0.029	0.013	11	0.065U	1020
MW-12S	18Q4	126	3.2	0.039	0.0064J	12.5	0.02U	955
MW-12S	19Q2	128	7.09	0.011	0.01UJ	10.6	0.065U	1040J
MW-12S	19Q4	130	0.5	0.011	0.01UJ	11.2	0.065U	958
MW-12S	20Q2	132	0.445	0.028	0.01U	11.5	0.02U	1000
MW-12S	20Q4	134	0.306	0.027	0.01U	11.4	0.065U	943
MW-12S	21Q2	136	0.549	0.044	0.01U	11.2	0.065U	1010
MW-12S	21Q4	138	0.165	0.031	0.01U	13.2	0.065U	865

Monitoring Well MW-13S

Location	Quarter	NQtr	Aluminum mg/l	Cyanide, Total mg/l	WAD Cyanide mg/L	Fluoride mg/l	PCBs, Total µg/l	Sulfate mg/l
MW-13S	99Q1	47	2.1	0.18		10	0.065U	1300
MW-13S	99Q2	48	2.8	0.33		5.3	0.094	2000
MW-13S	99Q3	49	2	0.41		4.1	0.065U	3500
MW-13S	99Q4	50	1.9	0.1		17	0.23	310
MW-13S	00Q1	51	1.6	0.23		9.2	0.065U	1200
MW-13S	00Q2	52	0.48	0.06		13	0.094	270
MW-13S	00Q3	53	1.9	0.09		11	0.065U	880
MW-13S	00Q4	54	0.22	0.289	0.0175	4.507	0.065U	3680
MW-13S	01Q1	55	0.19	0.341	0.013	6.37	0.065U	2531.55
MW-13S	01Q2	56	0.27	0.235	0.013	7.978	0.065U	974.43
MW-13S	01Q3	57	2.48	0.536	0.054	0.788	0.065U	4132.9
MW-13S	01Q4	58	0.24	0.631	0.063	6.666	0.065U	3153.12
MW-13S	02Q1	59	0.12	0.399	0.022	7.777	0.065U	1452.18
MW-13S	02Q2	60	0.23	0.268	0.041	9.637	0.065U	1867.8
MW-13S	02Q3	61	0.15	0.418	0.0425	4.768	0.065U	3812.14
MW-13S	02Q4	62	0.216	0.142	0.013	11.48	0.065U	967.85
MW-13S	03Q1	63	0.1U	0.31	0.0365	7.089	0.065U	1621.104
MW-13S	03Q2	64	0.011U	0.244	0.0225	7.732	0.065U	1649.91
MW-13S	03Q3	65	0.084	0.312	0.0735	8.38	0.065U	1717.19
MW-13S	03Q4	66	0.1	0.161	0.0175	7.738	0.065U	2075.19
MW-13S	04Q1	67	2.762	0.176	0.0325	5.153	0.065U	1130.18
MW-13S	04Q2	68	2.814	0.025	0.01U	11.2	0.065U	347.31
MW-13S	04Q3	69	0.562	0.343	0.054	7.892	0.065U	3192.21
MW-13S	04Q4	70	1.228J	0.0435	0.0655	5.339	0.065U	3110.15
MW-13S	05Q1	71	1.83	0.017	0.0645	11.89	0.065U	2260.85
MW-13S	05Q2	72	1.846	0.053	0.01U	8.765	0.065U	377.6
MW-13S	05Q3	73	1.19	0.484	0.01U	5.903	0.065U	---
MW-13S	05Q4	74	0.6065	0.12225	0.0325	11.9565	0.065U	656.085
MW-13S	06Q1	75	1.163	0.0685	0.0115	8.763	0.065U	1541.67
MW-13S	06Q2	76	2.153	0.0475	0.01U	10.88	0.067	466.56
MW-13S	06Q3	77	1.2	0.231	0.0415	4.629	0.065U	537.94
MW-13S	06Q4	78	0.4575	0.1413J	0.0315J	8.7695J	0.065U	977.075J
MW-13S	07Q1	79	1.085	0.13	0.021	9.811	0.065U	1203.62
MW-13S	07Q2	80	2.797	0.069	0.011	10.97	0.065U	578.77
MW-13S	07Q3	81	0.612	0.4	0.367	3.486	0.065U	267.84
MW-13S	07Q4	82	0.698	0.137	0.016	10.615	0.065U	605
MW-13S	08Q1	83	30.3	0.113	0.01UJ	10.13	0.065U	383
MW-13S	08Q2	84	12.01R	0.035	0.018R	12.29	0.065U	595
MW-13S	08Q3	85	48.405J	0.04R	0.01U	12.255	0.065U	583
MW-13S	08Q4	86	19.995J	0.035J	0.01U	12.89	0.065U	584
MW-13S	09Q1	87	2.125J	0.2025	0.0239J	8.86J	0.5U	1735
MW-13S	09Q2	88	2.8	0.159	0.0207	5.714	0.065U	2170
MW-13S	09Q3	89	2.8	0.132	0.0143	6.771	0.065U	2540J
MW-13S	09Q4	90	2.072	0.124	0.01U	8.087	0.065U	1330
MW-13S	10Q1	91	2.823	0.102J	0.01U	3.271	0.065U	2650
MW-13S	10Q2	92	2.5	0.051	0.018	12.88	0.065U	660
MW-13S	10Q3	93	1.211	0.191	0.01U	4.885	0.065U	2770
MW-13S	10Q4	94	1.922	0.107	0.01U	6.731	0.065U	1540
MW-13S	11Q1	95	1.66	0.067	0.01U	8.63	0.065U	754
MW-13S	11Q2	96	4.79	0.16	0.01U	4.66	0.18	2580
MW-13S	11Q3	97	0.88	0.271	0.029	12	0.049U	1440
MW-13S	11Q4	98	2.3	0.106	0.01UJ	11.2	0.065U	510
MW-13S	12Q1	99	1.4	0.102	0.01U	12.1	0.098	900
MW-13S	12Q2	100	1.16	0.194	0.01U	7.96	0.0305	2250
MW-13S	12Q3	101	0.46	0.198	0.01UJ	15	0.0315	1140
MW-13S	12Q4	102	0.76	0.097	0.01UJ	11.3	0.0305	485
MW-13S	13Q2	104	3.2	0.084	0.01U	4.62	0.061U	3200
MW-13S	13Q4	106	0.66	0.072	0.01U	10	0.061U	852
MW-13S	14Q2	108	0.58	0.088	0.01U	3.84	0.064U	3930
MW-13S	14Q4	110	0.28J	0.142	0.01U	9.71	0.061U	2270
MW-13S	15Q2	112	0.72	0.064	0.01U	2.29	0.061U	3760
MW-13S	15Q4	114	0.56	0.218	0.01U	14.8	0.061U	1640
MW-13S	16Q2	116	0.23	0.099	0.02	9.64	0.065U	2710
MW-13S	16Q4	118	4.13	0.04	0.01U	9.68	0.062	758
MW-13S	17Q2	120	0.363	0.063	0.018	6.99	0.065U	2080
MW-13S	17Q4	122	0.93J	0.043	0.01U	9.64	0.065U	1400
MW-13S	18Q2	124	1.16	0.061	0.0074J	4.75	0.039	3000
MW-13S	18Q4	126	0.422	0.045	0.0076J	12.5	0.065U	738
MW-13S	19Q2	128	0.157	0.036	0.01UJ	2.67	0.065U	3280J
MW-13S	19Q4	130	0.185	0.018	0.01U	8.6	0.065U	687
MW-13S	20Q2	132	0.259	0.069	0.013	6.56	0.019U	2540
MW-13S	20Q4	134	0.218	0.01	0.01U	7.76	0.065U	1704
MW-13S	21Q2	136	0.266	0.005U	0.01U	1.25U	0.065U	439
MW-13S	21Q4	138	0.18	0.02J	0.01U	9.69	0.034JP	228

Monitoring Well MW-15S/MW-15S-87

Location	Quarter	NQtr	Aluminum mg/l	Cyanide, Total mg/l	WAD Cyanide mg/l	Fluoride mg/l	PCBs, Total µg/l	Sulfate mg/l
MW-15S-87	99Q1	47	1	0.01U		1.3	0.065U	560
MW-15S-87	99Q2	48	0.53	0.01U		1	0.065U	640
MW-15S-87	99Q3	49	0.37	0.01U		1.2	0.065U	1800
MW-15S-87	99Q4	50	0.31	0.01U		1.4	0.065U	900
MW-15S-87	00Q1	51	0.44	0.01U		1.5	0.065U	900
MW-15S-87	00Q2	52	0.81	0.01U		1.3	0.065U	1100
MW-15S-87	00Q3	53	0.33	0.01U		1.3	0.082	900
MW-15S-87	00Q4	54	0.18	0.01U	0.01U	1.268	0.065U	732
MW-15S-87	01Q1	55	0.3	0.01U	0.01U	1.232	0.065U	849.75
MW-15S-87	01Q2	56	0.11	0.01U	0.01U	1.123	0.065U	855.3
MW-15S-87	01Q3	57	0.44	0.01U	0.01U	1.106	0.065U	930.81
MW-15S-87	01Q4	58	0.13	0.01U	0.01U	1.021	0.065U	888.43
MW-15S-87	02Q1	59	0.1U	0.01U	0.01U	1.011	0.065U	797.08
MW-15S-87	02Q2	60	0.1	0.01U	0.01U	1.021	0.233	868.27
MW-15S-87	02Q3	61	0.11	0.0265	0.01U	1.241	0.065U	891.51
MW-15S-87	02Q4	62	0.044	0.01U	0.01U	1.089	0.065U	972.17
MW-15S-87	03Q1	63	0.1U	0.01U	0.01U	1.054	0.065U	840.077
MW-15S-87	03Q2	64	0.014	0.01U	0.01U	0.901	0.065U	876.29
MW-15S-87	03Q3	65	0.097	0.01U	0.01U	1.263	0.065U	896.45
MW-15S-87	03Q4	66	0.066	0.01U	0.01U	1.142	0.065U	964.35
MW-15S-87	04Q1	67	4.509	0.01U	0.01U	1.104	0.065U	716.83
MW-15S-87	04Q2	68	6.142	0.01U	0.01U	1.327	0.065U	339.49
MW-15S-87	04Q3	69	10.19	0.01U	0.01U	1.304	0.065U	728.36
MW-15S-87	04Q4	70	3.116J	0.01U	0.01U	1.481	0.065U	819.62
MW-15S-87	05Q1	71	4.407	0.01U	0.01U	1.413	0.065U	373.92
MW-15S-87	05Q2	72	4.587	0.01U	0.01U	1.338	0.065U	177.72
MW-15S-87	05Q3	73	8.314	0.01U	0.01U	1.654	0.065U	340.25
MW-15S-87	05Q4	74	3.39	0.01U	0.01U	1.841	0.065U	148.66
MW-15S-87	06Q1	75	3.968	0.01U	0.01U	1.697	0.065U	89.43
MW-15S-87	06Q2	76	2.404	0.01U	0.01U	1.337	0.065U	107.92
MW-15S-87	06Q3	77	5.163	0.01U	0.01U	1.417	0.065U	201.02
MW-15S-87	06Q4	78	1.26	0.01U	0.01U	2.02	0.065U	220.55
MW-15S-87	07Q1	79	3.45	0.01U	0.01U	1.578	0.065U	86.5
MW-15S-87	07Q2	80	1.698	0.01U	0.01U	2.103	0.065U	76.63
MW-15S-87	07Q3	81	9.59	0.01U	0.01U	1.68	0.065U	284.74
MW-15S-87	07Q4	82	2.97	0.031	0.005U	1.795	0.065U	390
MW-15S-87	08Q1	83	24	0.005U	0.01U	1.786	0.065U	170
MW-15S-87	08Q2	84	13.51R	0.01U	0.01U	1.858	0.065U	156
MW-15S-87	08Q3	85	17.76	0.01U	0.01U	1.898	0.065U	238
MW-15S-87	08Q4	86	28.93	0.01U	0.01U	1.445	0.065U	391
MW-15S-87	09Q1	87	7.85	0.005UR	0.006U	1.25	0.2U	230J
MW-15S-87	09Q2	88	1.84J	0.01U	0.01U	1.507	0.065U	242
MW-15S-87	09Q3	89	19.8	0.01U	0.01U	1.683	0.065U	243
MW-15S-87	09Q4	90	7.313	0.01U	0.01U	1.584	0.065U	230
MW-15S-87	10Q1	91	11.91	0.01U	0.01U	1.793	0.065U	165
MW-15S-87	10Q2	92	3.683	0.01U	0.01U	1.597	0.065U	167
MW-15S-87	10Q3	93	4.6	0.01U	0.01U	1.524	0.065U	214
MW-15S-87	10Q4	94	7.048	0.01U	0.01U	1.504	0.065U	51.4
MW-15S-87	11Q1	95	9.16	0.01U	0.01U	1.55	0.0657U	122
MW-15S-87	11Q2	96	12	0.01U	0.01U	1.6	0.12U	110
MW-15S-87	11Q3	97	29.6	0.01U	0.01U	1.63	0.049U	336
MW-15S-87	11Q4	98	3.54	0.01U	0.01UJ	1.85	0.063U	193
MW-15S-87	12Q1	99	2.25	0.01U	0.01U	1.63	0.064U	139
MW-15S-87	12Q2	100	5.34	0.01U	0.01U	2.14	0.061U	240
MW-15S-87	12Q3	101	NA	NA	NA	NA	0.064	NA
MW-15S-87	12Q4	102	1.1	0.01U	0.01UJ	2.06	0.061U	247
MW-15S-87	13Q2	104	2.08	0.01U	0.01U	2.51	0.061U	146
MW-15S-87	13Q4	106	1.35	0.01U	0.01U	2.43	0.061U	83.9
MW-15S-87	14Q2	108	4.08	0.01U	0.01U	2.61	0.065U	172
MW-15S-87	14Q4	110	7.49	0.01U	0.01U	2.28	0.061U	258
MW-15S-87	15Q2	112	1.65	0.01U	0.01U	2.42	0.061U	248
MW-15S-87	15Q4	114	7.98	0.01U	0.01U	2.54	0.061U	248
MW-15S-87	16Q2	116	0.762	0.005U	---	2.66	0.065U	201
MW-15S-87	16Q4	118	0.226	0.002J	0.01U	4.25	0.065U	55.8
MW-15S-87	17Q2	120	0.466	0.007	0.01U	2.46	0.065U	99.5
MW-15S-87	17Q4	122	1.16	0.005U	0.01U	2.91	0.065U	73.8
MW-15S-87	18Q2	124	3.37	0.005U	0.01U	3.1	0.065U	131
MW-15S-87	18Q4	126	2.48	0.005U	0.01U	3.09	0.02U	122
MW-15S-87	19Q2	128	3.41	0.005U	0.01UJ	2.87	0.065U	131J
MW-15S-87	19Q4	130	3.41	0.005U	0.01UJ	3.26	0.065U	68.7
MW-15S-87	20Q2	132	6.24	0.005U	0.01U	3	0.019U	121
MW-15S-88	20Q4	134	0.713	0.005U	0.01U	3.62	0.065U	106
MW-15S-87	21Q2	136	---	0.005U	0.01U	---	0.065U	---
MW-15S-87	21Q4	138	0.348	0.005U	0.01U	3.56	0.065U	36.7

Monitoring Well MW-31SR

Location	Quarter	NQtr	Aluminum mg/l	Cyanide, Total mg/l	WAD Cyanide mg/L	Fluoride mg/l	PCBs, Total µg/l	Sulfate mg/l
MW-31SR	99Q4	1	0.97	0.01	---	1.3	0.065U	240
MW-31SR	00Q1[2]	2 (1)	5.3	2	---	0.9	0.065U	140
MW-31SR	00Q1	3	4.35	0.03	---	3.7	NA	167
MW-31SR	00Q2	4	2.3	0.04	---	1.1	0.065U	150
MW-31SR	00Q3	5	0.64	0.02	---	0.8	0.065U	170
MW-31SR	00Q4	6	0.01U	0.01U	0.01U	0.622	0.065U	170
MW-31SR	01Q1	7	0.26	0.01U	0.01U	0.77	0.065U	174.06
MW-31SR	01Q2	8	3.01	0.011	0.01U	0.744	0.065U	189.5
MW-31SR	01Q3	9	2.18	0.01U	0.01U	0.579	0.065U	174.27
MW-31SR	01Q4	10	0.78	0.01U	0.01U	0.58	0.065U	168.51
MW-31SR	02Q1	11	0.12	0.048	0.01U	0.863	0.065U	325.29
MW-31SR	02Q2	12	0.1U	0.01U	0.01U	0.836	0.065U	221.8
MW-31SR	02Q3	13	0.15	0.01U	0.01U	0.964	0.065U	176.95
MW-31SR	02Q4	14	0.212	0.01U	0.01U	0.666	0.065U	186.2
MW-31SR	03Q1	15	0.1U	0.012	0.01U	0.706	0.065U	205.75
MW-31SR	03Q2	16	0.045	0.0375	0.011	1.717	0.065U	417.47
MW-31SR	03Q3	17	0.076	0.01U	0.01U	0.687	0.065U	186.41
MW-31SR	03Q4	18	0.076	0.01U	0.01U	0.608	0.065U	187.64
MW-31SR	04Q1	19	12.3	0.0245	0.01U	1.363	0.065U	242.79
MW-31SR	04Q2	20	33.41	0.0415	0.0165	2.332	0.083	277.35
MW-31SR	04Q3	21	4.11	0.01U	0.01U	0.665	0.065U	188.26
MW-31SR	04Q4	22	4.796J	0.01U	0.01U	0.73	0.065U	172.05
MW-31SR	05Q1	71	16.82	0.031	0.011	0.9683	0.065U	206.76
MW-31SR	05Q2	72	6.704	0.036	0.0115	2.462	0.065U	229.22
MW-31SR	05Q3	73	4.775	0.01U	0.01U	0.6742	0.065U	181.8
MW-31SR	05Q4	74	6.264	0.0695	0.0175	3.621	0.065U	257.8
MW-31SR	06Q1	75	6.375	0.0385	0.012	3.15	0.065U	224.08
MW-31SR	06Q2	76	13.43	0.0125	0.01U	1.565	0.065U	180.91
MW-31SR	06Q3	77	10.45	0.01U	0.01U	0.7745	0.078	188.77
MW-31SR	06Q4	78	2.191	0.0155	0.01U	1.03	0.117	167.46
MW-31SR	07Q1	79	5.265	0.044	0.014	2.747	0.065U	172.4
MW-31SR	07Q2	80	6.26	0.0228	0.01	1.5105	0.065U	184.5
MW-31SR	07Q3	81	3.893	0.01U	0.01U	0.6158	0.065U	191.9
MW-31SR	07Q4	82	4.888	0.005U	0.005U	0.5877	0.065U	190
MW-31SR	08Q1	83	6.1	0.023	0.01UJ	1.71	0.065U	201
MW-31SR	08Q2	84	15.68R	0.01U	0.01U	1.1	0.065U	186
MW-31SR	08Q3	85	6.135	0.01U	0.01U	0.6965	0.065U	179J
MW-31SR	08Q4	86	11.74	0.01U	0.01U	0.5851	0.107	180
MW-31SR	09Q1	87	24.6	0.01U	0.0145J	0.79	0.495U	184
MW-31SR	09Q2	88	9.1	0.01U	0.01U	1.422	0.065U	182
MW-31SR	09Q3	89	22	0.01U	0.01U	0.5853	0.065U	168J
MW-31SR	09Q4	90	17.82	0.01U	0.01U	0.6539	0.065U	198
MW-31SR	10Q1	91	15.86	0.01J	0.01UJ	1.142	0.065U	186
MW-31SR	10Q2	92	2.173	0.01U	0.01U	0.6839	0.065U	176
MW-31SR	10Q3	93	10.49	0.01U	0.01U	0.6116	0.065U	177
MW-31SR	10Q4	94	12.51	0.028	0.01U	1.691	0.065U	169
MW-31SR	11Q1	95	2.73	0.01U	0.01U	1.7	0.065U	171
MW-31SR	11Q2	96	4.09	0.01U	0.01U	1.39	0.065U	172
MW-31SR	11Q3	97	6.73	0.01U	0.01U	0.59	0.051U	182
MW-31SR	11Q4	98	4.78	0.01U	0.01UJ	0.92	0.064U	189
MW-31SR	12Q1	99	15.5	0.01U	0.01U	0.55	0.064U	200
MW-31SR	12Q2	100	7.5	0.01U	0.01U	0.73	0.061U	180
MW-31SR	12Q3	101	5.54	0.01U	0.01UJ	0.51	0.061U	185
MW-31SR	12Q4	102	3.34	0.01U	0.01UJ	0.99	0.061U	194
MW-31SR	13Q2	104	6.11	0.01U	0.01U	1.8	0.061U	219
MW-31SR	13Q4	106	1.74	0.01U	0.01U	1.53	0.061U	188
MW-31SR	14Q2	108	2.16	0.01U	0.01U	1.16	0.066U	190
MW-31SR	14Q4	110	1.4J	0.01U	0.01U	0.6	0.061U	183
MW-31SR	15Q2	112	0.84	0.01U	0.01U	0.75	0.061U	192
MW-31SR	15Q4	114	1.62	0.01U	0.01U	0.58	0.061U	206
MW-31SR	16Q2	116	0.662	0.004J	0.003J	0.726	0.065U	201
MW-31SR	16Q4	118	0.516	0.013	0.01U	1.61	0.065U	178
MW-31SR	17Q2	120	0.404	0.015	0.01U	1.15	0.065U	180
MW-31SR	17Q4	122	0.438	0.013	0.0066J	1.68	0.065U	198
MW-31SR	18Q2	124	1.8	0.01U	0.01U	1.08	0.065U	204
MW-31SR	18Q4	126	1.34	0.01U	0.01U	1.49	0.065U	189
MW-31SR	19Q2	128	3.96	0.007	0.01UJ	0.696	0.065U	218J
MW-31SR	19Q4	130	1.08	0.011	0.01U	1.43	0.065U	189
MW-31SR	20Q2	132	1.49	0.002J	0.01U	0.0998	0.02U	193
MW-31SR	20Q4	134	1.65	0.005U	0.01U	0.913	0.065U	178
MW-31SR	21Q2	136	1.36	0.005U	0.01U	0.585	0.065U	199
MW-31SR	21Q4	138	0.62	0.011	0.01U	1.42	0.065U	180

Notes:

1. Missing data indicates that the well was frozen.
2. Results for 00Q1 for Upstate Laboratories are shaded. See discussion in 00Q1 report, Appendix B, Section 5.

Key:

--- = No data available
U = Not detected at value listed
NA = Not available
J = Estimated
R = Rejected value
P = The relative percent difference between the results for the two columns exceeds the method-specified criteria

Monitoring Well MW-10S

Location	Quarter	NQtr	Aluminum mg/l	Cyanide, Total mg/l	WAD Cyanide mg/l	Fluoride mg/l	PCBs, Total µg/l	Sulfate mg/l
MW-10S	97Q1	39	0.47	0.03		0.02U	0.065U	170
MW-10S	97Q2	40	0.43	0.01U		0.02U	0.065U	180
MW-10S	97Q3	41	1.1	0.01U		0.02U	0.065U	160
MW-10S	97Q4	42	1.1	0.01U		0.02U	0.065U	190
MW-10S	98Q1	43	2.3	0.02		0.2	0.065U	170
MW-10S	98Q2	44	1.9	0.01U		0.02U	0.065U	120
MW-10S	98Q3	45	0.75	0.01U		0.02U	0.065U	170
MW-10S	98Q4	46	0.96	0.01U		0.02U	0.065U	150
MW-10S	99Q1	47	0.83	0.01U		0.02U	0.065U	550
MW-10S	99Q2	48	0.36	0.01U		0.02U	0.065U	150
MW-10S	99Q3	49	1.6	0.01		0.02U	0.065U	230
MW-10S	99Q4	50	1.5	0.02		0.02U	0.065U	150
MW-10S	00Q1	51	3.8	0.01U		0.3	0.065U	140
MW-10S	00Q2	52	0.23	0.01U		0.2	0.065U	160
MW-10S	00Q3	53	0.96	0.01U		0.2	0.065U	170
MW-10S	00Q4	54	0.1U	0.01U	0.01U	0.237	0.065U	154
MW-10S	01Q1	55	0.82	0.01U	0.01U	0.2U	0.065U	176.74
MW-10S	01Q2	56	0.67	0.01U	0.01U	0.2U	0.065U	149.17
MW-10S	01Q3	57	3	0.01U	0.01U	0.2U	0.065U	166.25
MW-10S	01Q4	58	0.11	0.01U	0.01U	0.198	0.065U	174.89
MW-10S	02Q1	59	0.1	0.01U	0.01U	0.2U	0.065U	161.93
MW-10S	02Q2	60	0.1U	0.01U	0.01U	0.2U	0.065U	154.31
MW-10S	02Q3	61	0.2	0.01U	0.01U	0.378	0.065U	149.17
MW-10S	02Q4	62	0.19	0.01U	0.01U	0.256	0.065U	180.03
MW-10S	03Q1	63	0.558	0.01U	0.01U	0.254	0.065U	167.069
MW-10S	03Q2	64	0.011	0.01U	0.01U	0.219	0.065U	165.63
MW-10S	03Q3	65	3.079	0.01U	0.01U	0.21	0.065U	167.89
MW-10S	03Q4	66	0.31U	0.01U	0.01U	0.25	0.065U	180.03
MW-10S	04Q1	67	3.878	0.01U	0.01U	0.423	0.065U	154.72
MW-10S	04Q2	68	1.999	0.01U	0.01U	0.68	0.065U	135.59
MW-10S	04Q3	69	1.344	0.01U	0.01U	0.338	0.065U	169.13
MW-10S	04Q4	70	2.564J	0.01U	0.01U	0.494	0.065U	158
MW-10S	05Q1	71	10.41	0.01U	0.01U	1.52	0.065U	142.48
MW-10S	05Q2	72	13.91	0.01U	0.01U	1.073	0.065U	145.06
MW-10S	05Q3	73	2.966	0.01U	0.01U	0.4308	0.065U	185.2
MW-10S	05Q4	74	2.911	0.0175	0.01U	1.604	0.065U	122.57
MW-10S	06Q1	75	2.0755J	0.01U	0.01U	1.7725	0.065U	126.73
MW-10S	06Q2	76	0.112	0.01U	0.01U	0.6968	0.065U	149.01
MW-10S	06Q3	77	1.537	0.01U	0.01U	0.8895	0.065U	142.47
MW-10S	06Q4	78	0.311	0.01U	0.01U	0.3994	0.065U	170.44
MW-10S	07Q1	79	0.666	0.01U	0.01U	0.2885	0.065U	174.62
MW-10S	07Q2	80	2.737	0.01U	0.01U	0.3366	0.065U	179.72
MW-10S	07Q3	81	0.247	0.01U	0.01U	0.2415	0.065U	185.6
MW-10S	07Q4	82	0.892	0.005U	0.005U	0.2934	0.065U	220
MW-10S	08Q1	83	4.23	0.005U	0.01U	0.3492	0.065U	186
MW-10S	08Q2	84	3.272	0.01U	0.01UJ	0.2U	0.065U	178J
MW-10S	08Q3	85	4.768	0.01U	0.01U	0.2596	0.065U	296
MW-10S	08Q4	86	2.522	0.01U	0.01U	0.2707	0.065U	204
MW-10S	09Q1	87	1.57	0.01U	0.01UJ	0.2	0.481U	197
MW-10S	09Q2	88	3.44	0.01U	0.01U	0.266	0.065U	196
MW-10S	09Q3	89	4.125	0.01U	0.01U	0.204	0.065U	190.5
MW-10S	09Q4	90	2	0.01U	0.01U	0.215	0.065U	225.5
MW-10S	10Q1	91	3.551	0.0243	0.239	0.2U	0.065U	174
MW-10S	10Q2	92	2.062	0.01U	0.01U	0.2U	0.065U	201
MW-10S	10Q3	93	1.06	0.01U	0.01U	0.2103	0.065U	190
MW-10S	10Q4	94	2.548	0.01U	0.01U	0.2U	0.065U	192.5
MW-10S	11Q1	95	2.62	0.01U	0.01U	0.22	0.065U	211
MW-10S	11Q2	96	2.21	0.01U	0.01U	0.2	0.065U	200
MW-10S	11Q3	97	68.7	0.01U	0.01U	0.24	0.05U	249
MW-10S	11Q4	98	7.55	0.01U	0.016J	0.2	0.066U	256
MW-10S	12Q1	99	1.22	0.01U	0.01U	0.17	0.064U	245
MW-10S	12Q2	100	1.93	0.01U	0.01U	0.14	0.061U	211
MW-10S	12Q3	101	1.24	0.01U	0.01	0.14	0.063U	327
MW-10S	12Q4	102	9.43	0.01U	0.01UJ	0.18	0.061U	233
MW-10S	13Q1	103	2.45	0.01U	---	0.14	0.061U	198
MW-10S	13Q2	104	1.7	0.01U	---	0.1U	0.061U	199
MW-10S	13Q3	105	1.16	0.01U	0.01U	0.18	0.061U	193
MW-10S	13Q4	106	2.53	0.01U	0.01U	0.16	0.061U	179
MW-10S	14Q1	107	6.35	0.01U	0.01U	0.15	0.061U	208
MW-10S	14Q2	108	1.13	0.01U	0.01U	0.16	0.061U	155
MW-10S	14Q3	109	1.74 J	0.01U	0.01U	0.18	0.061U	173
MW-10S	14Q4	110	1.81J	0.01U	0.01U	0.16	0.061U	158
MW-10S	15Q1	111	2.37	0.01U	0.01U	0.18	0.061U	189
MW-10S	15Q2	112	0.63J	0.01U	0.01U	0.14	0.061U	199
MW-10S	15Q3	113	4.08J	0.01U	0.01U	0.16	0.061U	174
MW-10S	15Q4	114	2.53	0.01U	0.01U	0.17	0.061U	207
MW-10S	16Q1	115	0.72	0.01U	0.005U	0.141	0.05U	124
MW-10S	16Q2	116	0.787	0.002J	0.003J	0.178	0.065U	121
MW-10S	16Q3	117	1.25J	0.002J	0.01U	0.02U	0.02U	168
MW-10S	16Q4	118	1.36	0.005U	0.01U	0.107	0.065U	127
MW-10S	17Q1	119	0.504	0.01U	0.01U	0.101	0.065U	128
MW-10S	17Q2	120	0.189	0.005U	0.01U	0.162	0.065U	111
MW-10S	17Q3	121	0.55	0.005U	0.01U	0.15	0.065U	162
MW-10S	17Q4	122	1.02	0.005U	0.01U	0.134	0.065U	136
MW-10S	18Q1	123	0.79	0.01U	0.01U	0.127	0.065U	122
MW-10S	18Q2	124	3.12	---	---	0.132	0.065U	145
MW-10S	18Q3	125	1.25	0.01U	0.01U	0.134	0.02U	175
MW-10S	18Q4	126	4.53	0.01U	0.01U	0.136	0.065U	144
MW-10S	19Q1	127	7	0.005U	0.01U	0.112	0.065U	142
MW-10S	19Q2	128	---	---	---	---	---	---
MW-10S	19Q3	129	4.38	0.005U	0.01U	0.15	0.065U	146
MW-10S	19Q4	130	0.26	0.005U	0.01U	0.157	0.065U	103
MW-10S	20Q1	131	0.0655	0.004J	0.01U	0.14	0.065U	86.4
MW-10S	20Q2	132	0.135	0.005U	0.01U	0.18	0.019	93.4
MW-10S	20Q3	133	0.437	0.005U	0.01U	0.171	0.021U	158
MW-10S	20Q4	134	0.175	0.005U	0.01U	0.25U	0.065U	110J
MW-10S	21Q1	135	0.0579	0.005U	0.01U	0.142J	0.065U	71.5
MW-10S	21Q2	136	0.0426	0.005U	0.01U	0.14	0.065U	148
MW-10S	21Q3	137	0.0302	0.005UR	0.01U	0.189	0.065U	81.4
MW-10S	21Q4	138	0.0838	0.005U	0.01U	0.25	0.065U	70.3

Monitoring Well MW-39S

Location	Quarter	NQtr	Aluminum mg/l	Cyanide, Total mg/l	WAD Cyanide mg/l	Fluoride mg/l	PCBs, Total µg/l	Sulfate mg/l
MW-39S	99Q1	47	Note 1					
MW-39S	99Q2	48	0.44	0.25	0	0.3	0.065U	120
MW-39S	99Q3	49	0.64	0.2	0	0.3	0.065U	100
MW-39S	99Q4	50	0.17	0.26	0	0.4	0.065U	140
MW-39S	00Q1	51	5.2	0.3	0	0.4	0.065U	97
MW-39S	00Q2	52	0.4	0.29	0	0.4	0.065U	130
MW-39S	00Q3	53	0.4	0.29	0	0.3	0.065U	110
MW-39S	00Q4	54	0.1U	0.228	0.0275	0.467	0.065U	88
MW-39S	01Q1	55	2.44	0.244	0.01U	1.366	0.065U	112.34
MW-39S	01Q2	56	5.12	0.233	0.0155	0.238	0.065U	118.92
MW-39S	01Q3	57	14.4	0.192	0.0395	1.625	0.087	98.55
MW-39S	01Q4	58	0.43	0.266	0.0325	0.714	0.065U	111.11
MW-39S	02Q1	59	0.19	0.375	0.0675	0.629	0.065U	122.83
MW-39S	02Q2	60	0.9	0.382	0.0645	0.886	0.065U	132.91
MW-39S	02Q3	61	1.02	0.426	0.0565	0.668	0.065U	130.24
MW-39S	02Q4	62	0.253	0.297	0.051	0.573	0.065U	124.48
MW-39S	03Q1	63	12.19	0.318	0.087	0.793	0.065U	121.804
MW-39S	03Q2	64	64.28	0.312	0.0735	2.762	0.065U	132.09
MW-39S	03Q3	65	0.098	0.379	0.067	0.436	0.065U	131.47
MW-39S	03Q4	66	12.44	0.294	0.061	0.424	0.065U	122.01
MW-39S	04Q1	67	8.646J	0.26	0.067	0.524	0.065U	117.48
MW-39S	04Q2	68	13.063	0.01U	0.0665	1.06	0.065U	98.76
MW-39S	04Q3	69	11.82	0.169	0.0315	1.546	0.065U	79.42
MW-39S	04Q4	70	24.04J	0.177	0.0655	2.396	0.065U	77.19
MW-39S	05Q1	71	34.73	0.154	0.0595	2.6125	0.065U	86.105
MW-39S	05Q2	72	5.41	0.124	0.0365	2.126	0.065U	52.43
MW-39S	05Q3	73	14.18	0.189	0.066	1.409	0.065U	82.41
MW-39S	05Q4	74	29.79	0.11	0.037	2.51	0.065U	84.04
MW-39S	06Q1	75	19.12	0.0765	0.0265	3.988	0.065U	68.33
MW-39S	06Q2	76	7.91	0.0855	0.031	2.903	0.065U	71.45
MW-39S	06Q3	77	8.5165	0.112	0.043	2.1285	0.065U	76.49
MW-39S	06Q4	78	0.522	0.12	0.035	1.759	0.065U	87.92
MW-39S	07Q1	79	1.93	0.162	0.049	1.691	0.065U	94.77
MW-39S	07Q2	80	4.115	0.159	0.071	1.618	0.065U	110.21
MW-39S	07Q3	81	10.94	0.15	0.066	1.311	0.065U	109.74
MW-39S	07Q4	82	0.934	0.16	0.017	1.346	0.065U	140
MW-39S	08Q1	83	98.7	0.134	0.013	1.786	0.065U	119
MW-39S	08Q2	84	299.5	0.22	0.021J	1.187	0.065U	132J
MW-39S	08Q3	85	63.02	0.17R	0.01U	1.04	0.065U	145
MW-39S	08Q4	86	418.9	0.19	0.01U	0.91	0.065U	175
MW-39S	09Q1	87	101	0.237	0.01UJ	0.96	0.513U	207
MW-39S	09Q2	88	22.4	0.206	0.01U	1.207	0.065U	197R
MW-39S	09Q3	89	43	0.123J	0.0127	2.119	0.065U	112
MW-39S	09Q4	90	28.565	0.168	0.0103	1.017	0.065U	159
MW-39S	10Q1	91	41.84	0.0688	0.01U	2.426	0.065U	131
MW-39S	10Q2	92	9.402	0.068	0.01U	2.606	0.065U	91.4
MW-39S	10Q3	93	4.244	0.055	0.01U	2.774	0.065U	83.2
MW-39S	10Q4	94	10.43	0.057	0.01U	2.693	0.065U	74
MW-39S	11Q1	95	35.2	0.053	0.01U	2.75	0.065U	70
MW-39S	11Q2	96	15.6	0.059	0.01U	2.45	0.065U	77
MW-39S	11Q3	97	0.86	0.005	0.01U	0.45	0.05U	477
MW-39S	11Q4	98	61.1	0.098	0.01UJ	1.9	0.063U	130
MW-39S	12Q1	99	37.7	0.05	0.01U	2.74	0.063U	92.3
MW-39S	12Q2	100	25.9	0.057	0.01U	2.51	0.061U	83.3
MW-39S	12Q3	101	8.08	0.073	0.01UJ	1.27	0.061U	98.3
MW-39S	12Q4	102	48.2	0.072	0.01UJ	2.16	0.061U	123
MW-39S	13Q1	103	35.9	0.085	0.01U	1.96	0.061U	122
MW-39S	13Q2	104	53.4	0.079	0.01U	1.59	0.061U	125
MW-39S	13Q3	105	38.7	0.695	0.01U	2.005	0.061U	166.5
MW-39S	13Q4	106	25.4	0.071	0.01U	1.97	0.061U	174
MW-39S	14Q1	107	24.65	0.149J	0.01U	1.9	0.061U	153
MW-39S	14Q2	108	61.3	0.068	0.01U	1.73	0.061U	133
MW-39S	14Q3	109	27.8 J	0.065	0.01U	1.93	0.061U	120
MW-39S	14Q4	110	22.1J	0.061	0.01U	1.8	0.061U	129
MW-39S	15Q1	111	32.8	0.0655	0.01U	1.635	0.061U	131.5
MW-39S	15Q2	112	468	0.059	0.01U	0.98	0.061U	115
MW-39S	15Q3	113	7.54J	0.087	0.01U	1.66	0.061U	146
MW-39S	15Q4	114	3.51	0.066	0.01U	1.23	0.061U	148
MW-39S	16Q1	115	14	0.082	0.01U	1.6	0.05U	171
MW-39S	16Q2	116	11.9	0.08	0.006	1.36	0.065U	175
MW-39S	16Q3	117	30	0.058	0.008	1.13	0.02U	184.5
MW-39S	16Q4	118	17.6J	0.035	0.01U	1.35	0.065U	166
MW-39S	17Q1	119	13.65J	0.065	0.01U	1.3	0.065U	166
MW-39S	17Q2	120	4.81	0.047	0.01U	1.09	0.065U	158
MW-39S	17Q3	121	12.2	0.063	0.01	1.43	0.065U	149
MW-39S	17Q4	122	14.3	0.03	0.0071J	1.46	0.065U	124
MW-39S	18Q1	123	32.8	0.029	0.01U	1.76	0.065U	102
MW-39S	18Q2	124	18.3	0.05	0.0078J	1.29	0.065U	123
MW-39S	18Q3	125	23.6	0.054	0.0061J	1.46J	0.065U	149
MW-39S	18Q4	126	2.83	0.035	0.012	1.69	0.065U	157
MW-39S	19Q1	127	18.6	0.039J	0.017B	1.73	0.065U	132
MW-39S	19Q2	128	0.094J	0.073	0.01UJ	0.234J	0.065U	65.6
MW-39S	19Q3	129	25.05	0.0359J	0.01U	1.765	0.065U	132
MW-39S	19Q4	130	4.52	0.061	0.01U	1.67	0.065U	176
MW-39S	20Q1	131	0.488	0.027	0.01U	1.57	0.065U	133
MW-39S	20Q2	132	2.04	0.047	0.01U	1.65	0.065U	142
MW-39S	20Q3	133	0.144	0.048	0.01U	1.76	0.02U	191
MW-39S	20Q4	134	5.51J	0.022	0.01U	1.33	0.65U	210J
MW-39S	21Q1	135	3.15	0.012	0.01U	1.85J	0.65U	138
MW-39S	21Q2	136	0.213	0.024	0.01U	2.11	0.65U	111
MW-39S	21Q3	137	0.386	0.03R	0.01U	1.48	0.65U	238
MW-39S	21Q4	138	1.737	0.019J	0.01U	3.72	0.65U	119

Monitoring Well MW-40S

Location	Quarter	NQtr	Aluminum mg/l	Cyanide, Total mg/l	WAD Cyanide mg/l	Fluoride mg/l	PCBs, Total µg/l	Sulfate mg/l
MW-40S	99Q1	47	Note 1					
MW-40S	99Q2	48	0.41	0.43	0	0.3	0.065U	110
MW-40S	99Q3	49	0.21	0.48	0	0.3	0.065U	110
MW-40S	99Q4	50	0.22	0.39	0	0.4	0.065U	97
MW-40S	00Q1	51	Note 1					
MW-40S	00Q2	52	0.57	0.34	0	0.3	0.065U	100
MW-40S	00Q3	53	0.56	0.11	0	0.3	0.065U	74
MW-40S	00Q4	54	0.1U	0.316	0.028	0.248	0.065U	88
MW-40S	01Q1	55	0.1U	0.0715	0.013	0.303	0.065U	88.47
MW-40S	01Q2	56	0.1U	0.383	0.031	0.164	0.065U	96.5
MW-40S	01Q3	57	0.12	0.363	0.08	0.2U	0.065U	84.36
MW-40S	01Q4	58	0.23	0.363	0.0405	0.272	0.065U	86.62
MW-40S	02Q1	59	0.1	0.167	0.038	0.24	0.065U	88.88
MW-40S	02Q2	60	0.15	0.383	0.0635	0.224	0.065U	87.65
MW-40S	02Q3	61	0.1	0.046	0.063	0.286	0.065U	0.21
MW-40S	02Q4	62	0.011U	0.325	0.039	0.294	0.065U	91.97
MW-40S	03Q1	63	0.1U	0.347	0.065	0.29	0.065U	83.123
MW-40S	03Q2	64	0.011U	0.32	0.0585	0.281	0.065U	180.65
MW-40S	03Q3	65	0.053	0.344	0.064	0.274	0.065U	83.12
MW-40S	03Q4	66	0.041	0.358	0.0685	0.286	0.065U	86
MW-40S	04Q1	67	0.17J	0.321	0.108	0.22	0.065U	84.56
MW-40S	04Q2	68	0.847	0.0295	0.0845	0.456	0.065U	82.09
MW-40S	04Q3	69	0.117	0.32	0.01U	0.351	0.065U	83.53
MW-40S	04Q4	70	0.134J	0.359	0.131	0.327	0.065U	76.77
MW-40S	05Q1	71	0.082	0.313	0.075	0.304	0.065U	82.51
MW-40S	05Q2	72	0.134	0.3	0.0975	0.3011	0.065U	89.22
MW-40S	05Q3	73	1.296	0.291	0.01U	0.29125	0.065U	78.98
MW-40S	05Q4	74	0.138	0.239	0.0645	0.2466	0.065U	103.81
MW-40S	06Q1	75	1.1	0.253	0.0765	0.259	0.065U	63.86
MW-40S	06Q2	76	0.788J	0.2605	0.0855	0.2476	0.065U	80.2
MW-40S	06Q3	77	0.323	0.26	0.097	0.2699	0.065U	71.77
MW-40S	06Q4	78	0.138	0.265	0.0875	0.2709	0.065U	56.02
MW-40S	07Q1	79	0.451	0.28	0.0915	0.2296	0.065U	30.93
MW-40S	07Q2	80	0.148	0.251	0.081	0.2178	0.065U	72.57
MW-40S	07Q3	81	1.278	0.25	0.061	0.2445	0.065U	69.6
MW-40S	07Q4	82	0.465	0.24	0.017	0.1	0.065U	63
MW-40S	08Q1	83	1.241	0.17	0.017J	0.2374	0.065U	73
MW-40S	08Q2	84	0.437R	0.2	0.038J	0.2151	0.065U	90.4J
MW-40S	08Q3	85	0.033	0.17R	0.012	0.2272	0.065U	104J
MW-40S	08Q4	86	4.232	0.17	0.01U	0.223	0.108	82.8
MW-40S	09Q1	87	0.72	0.155	0.0123J	0.15	0.508U	82.7
MW-40S	09Q2	88	1.91	0.103	0.01U	0.2545	0.065U	79.1
MW-40S	09Q3	89	0.565	0.179J	0.012	0.2113	0.065U	69.7
MW-40S	09Q4	90	2.048	0.175	0.01U	0.2U	0.065U	86.1
MW-40S	10Q1	91	1.849	0.171	0.01U	0.2U	0.065U	73.2
MW-40S	10Q2	92	0.254	0.162	0.01U	0.2U	0.065U	69.7
MW-40S	10Q3	93	0.377	0.201	0.01U	0.2278	0.065U	67
MW-40S	11Q1	94	0.72	0.182	0.01U	0.26	0.065U	63
MW-40S	11Q2	95	0.72	0.179	0.01U	0.26	0.065U	60.3
MW-40S	11Q3	96	0.28	0.17	0.02	0.27	0.049U	58.5
MW-40S	11Q4	97	0.36	0.127	0.01UJ	0.27	0.066U	73.4
MW-40S	12Q1	98	0.39	0.165	0.01U	0.21	0.061U	58.6
MW-40S	12Q2	99	0.56	0.167	0.01U	0.18	0.061U	58.9
MW-40S	12Q3	100	0.26	0.168	0.01UJ	0.19	0.061U	58.7
MW-40S	12Q4	101	0.38	0.155	0.01UJ	0.17	0.061U	58.2
MW-40S	13Q1	103	0.96	0.159	0.01U	0.18	0.061U	52.2
MW-40S	13Q2	104	0.31	0.143	0.01U	0.19	0.061U	61.1
MW-40S	13Q3	105	0.1U	0.15	0.01U	0.21	0.061U	59.5
MW-40S	13Q4	106	0.76	0.14	0.01U	0.23	0.061U	65.7
MW-40S	14Q1	107	0.11	0.137J	0.01U	0.18	0.061U	58
MW-40S	14Q2	108	0.14	0.142	0.01U	0.2	0.061U	61.7
MW-40S	14Q3	109	0.66 J	0.138	0.013	0.2	0.061U	57.7
MW-40S	14Q4	110	0.13J	0.13	0.01U	0.16	0.061U	58.4
MW-40S	15Q1	111	0.1U	0.141	0.01U	0.21	0.061U	57.7
MW-40S	15Q2	112	0.1U	0.121	0.011	0.215	0.061U	68.4
MW-40S	15Q3	113	0.1UJ	0.1435	0.01U	0.185	0.061U	61
MW-40S	15Q4	114	0.1U	0.109	0.01U	0.29	0.061U	71.1
MW-40S	16Q1	115	0.045J	0.106	0.007	0.237	0.05U	67.25
MW-40S	16Q2	116	0.104	0.13J	0.011J	0.23	0.065U	54.8
MW-40S	16Q3	117	0.208J	0.127	0.01U	0.204	0.02U	59.9
MW-40S	16Q4	118	0.068J	0.113	0.01	0.111	0.065U	57.9
MW-40S	17Q1	119	0.076J	0.133	0.0084J	0.161	0.065U	54.7
MW-40S	17Q2	120	0.01U	0.12	0.018	0.152	0.065U	55.8
MW-40S	17Q3	121	0.087J	0.11	0.008J	0.194	0.065U	58.6
MW-40S	17Q4	122	0.036J	0.12	0.014	0.19	0.065U	56.2
MW-40S	18Q1	123	0.05J	0.071	0.01	0.169	0.065U	56.7
MW-40S	18Q2	124	0.084J	0.083	---	0.179	0.065U	56.3
MW-40S	18Q3	125	0.0485J	0.101	0.0092J	0.1875	0.021U	57
MW-40S	18Q4	126	0.169	0.075	0.0096J	0.212	0.065U	63.7
MW-40S	19Q1	127	0.121	0.116	0.021B	0.175	0.065U	56.5
MW-40S	19Q2	128	69.2	0.044	0.01UJ	0.991J	0.065U	130
MW-40S	19Q3	129	0.113	0.111	0.01U	0.237	0.065U	58.9
MW-40S	19Q4	130	0.054J	0.085	0.01U	0.196	0.065U	58.6
MW-40S	20Q1	131	0.0104	0.066	0.01U	0.201	0.065U	58
MW-40S	20Q2	132	0.1U	0.083	0.01U	0.311	0.019U	56
MW-40S	20Q3	133	0.1U	0.056	0.01U	0.192	0.02U	57.60
MW-40S	20Q4	134	0.1U	0.046	0.01U	0.179	0.065U	57.6J
MW-40S	21Q1	135	0.00454J	0.097	0.01U	0.192J	0.065U	59.80
MW-40S	21Q2	136	0.00409J	0.077	0.01U	0.173	0.065U	56.20
MW-40S	21Q3	137	0.00498J	0.002R	0.01U	0.205	0.065U	61.50
MW-40S	21Q4	138	0.00846J	0.097	0.01U	0.198	0.065U	53.90

Note:

1. Missing data indicates that the well was frozen.

Key:

--- = No data available

B = Analyte found in sample and in associated blank

U = Not detected at value listed

J = Estimated

Monitoring Well MW-03S

Location	Quarter	NQtr	Aluminum mg/l	Cyanide, Total mg/l	WAD Cyanide mg/l	Fluoride mg/l	PCBs, Total µg/l	Sulfate mg/l
MW-3S	98Q1	43	2.1	15	---	8.9	0.065U	520
MW-3S	98Q2	44	2.1	6.9	---	8.4	0.065U	470
MW-3S	98Q3	45	1.6	11	---	9.3	0.065U	540
MW-3S	98Q4	46	2.2	16	---	12	0.065U	480
MW-3S	99Q1	47	2.1	9.8	---	13	0.065U	550
MW-3S	99Q2	48	3.3	14	---	11	0.065U	450
MW-3S	99Q3	49	2.5	14	---	10	0.065U	580
MW-3S	99Q4	50	3	14	---	14	0.065U	490
MW-3S	00Q1	51	3.2	14	---	12	0.065U	450
MW-3S	00Q2	52	2.7	5.3	---	12	0.065U	530
MW-3S	00Q3	53	4.1	14	---	17	0.065U	650
MW-3S	00Q4	54	0.2	12.4	0.104	12.63	0.065U	446
MW-3S	01Q1	55	0.75	5.96	0.0735	13.1	0.065U	637
MW-3S	01Q2	56	0.38	10	0.215	15.74	0.065U	686
MW-3S	01Q3	57	4.1	8.37	0.221	15.54	0.065U	715
MW-3S	01Q4	58	0.37	7.93	0.164	15.01	0.065U	706
MW-3S	02Q1	59	0.19	12.1	0.465	14.5	0.065U	679
MW-3S	02Q2	60	0.78	11.2	0.107	13.68	0.065U	654
MW-3S	02Q3	61	0.5	10	0.21	15.3	2.171	688
MW-3S	02Q4	62	0.427	9.57	0.144	18.71	0.065U	701
MW-3S	03Q1	63	15.65	10.3	0.119	17.98	0.065U	654
MW-3S	03Q2	64	15.8	9.47	0.146	17.51	0.065U	650
MW-3S	03Q3	65	0.658	9.41	0.726	20.25	0.065U	650
MW-3S	03Q4	66	3.778	8.6	0.308	18.3	0.065U	646
MW-3S	04Q1	67	36.61	8.94	0.081	16.67	0.065U	648
MW-3S	04Q2	68	6.67	6.53	0.209	16.96	0.065U	637
MW-3S	04Q3	69	3.097	7.74	0.363	22	0.065U	622
MW-3S	04Q4	70	0.981J	9.02	0.436	21.26	0.065U	476
MW-3S	05Q1	71	13.34	8.06	0.193	23.2	0.065U	596
MW-3S	05Q2	72	2.825	8.1	0.245	23.61	0.065U	598
MW-3S	05Q3	73	5.58	7.52	0.229	20.68	0.065U	614
MW-3S	05Q4	74	8.29	7.15	0.346	19.69	0.065U	587
MW-3S	06Q1	75	3.906	6.98	0.18	20.06	0.065U	591.92
MW-3S	06Q2	76	16.22	6.38	0.202	21.25	0.065U	618.41
MW-3S	06Q3	77	9.16	5.96	0.138	24.39	0.065U	505.51
MW-3S	06Q4	78	1.744	6.71	0.194	20.89	0.065U	422.86
MW-3S	07Q1	79	2.673	6.02	0.628	20.31	0.065U	469.11
MW-3S	07Q2	80	9.786	5.57	0.309	22	0.065U	472.52
MW-3S	07Q3	81	1.932	5.7	0.306	20.16	0.065U	479.11
MW-3S	07Q4	82	15.09	5.4	0.063	22.58	0.065U	470
MW-3S	08Q4	83	5.234	2.5R	0.1	17.06	0.065U	402
MW-3S	09Q1	84	6.08	0.746	0.243J	17.5	0.5U	363
MW-3S	09Q2	85	0.653J	3.54	0.0906	17.13	0.065U	342
MW-3S	09Q3	86	1.29	4.41	0.869	18.39	0.065U	346 J
MW-3S	09Q4	87	3.205	3.69	0.135	17.51	0.065U	387
MW-3S	10Q1	88	4.005	2.92 J	0.0712J	20.3	0.065U	379
MW-3S	10Q2	89	5.671	5.92	0.166	17.22J	0.065U	349
MW-3S	10Q3	90	2.054	3.79	0.029	15.97	0.065U	260
MW-3S	10Q4	91	5.423	3.98	0.078	15.81	0.065U	322
MW-3S	11Q3	92	39.4	2.96	0.037	14.7	0.051U	283
MW-3S	11Q4	93	16.5	4.77	0.066J	15	0.064U	333
MW-3S	12Q1	94	31.6	3.83	0.103	13.6	0.064U	325
MW-3S	12Q2	95	21.8	3.59	0.024	15.1	0.061U	341
MW-3S	13Q4	106	1.45	3.26	0.097	12	0.061U	349
MW-3S	14Q2	108	21.8	1.87	0.129	8.6	0.061U	260
MW-3S	14Q4	110	NS	NS	NS	NS	NS	NS
MW-3S	16Q4	118	3.24	2.75	0.3	14.1	0.065U	345
MW-3S	17Q2	120	---	---	---	---	---	---
MW-3S	17Q4	122	---	---	---	---	0.065U	---
MW-3S	18Q2	124	10.8	0.998	---	32.1	0.017J	218
MW-3S	18Q4	126	16.2	2.31	0.15	19.2	0.104	308
MW-3S	19Q2	128	0.84	0.484	0.05J	16	0.065U	364
MW-3S	19Q4	130	1.28	1.62	0.026	15.8	0.065U	275
MW-3S	20Q2	132	1.3	1.77	0.123	12.9	0.019U	256
MW-3S	20Q4	134	2.92	0.63	0.037	10.1	0.065U	254
MW-3S	21Q2	136	2.06	1.32	0.419	11.3	0.065U	258
MW-3S	21Q4	138	0.411	0.635	0.022	15.1	0.065U	64

Monitoring Well MW-26S

Location	Quarter	NQtr	Aluminum mg/l	Cyanide, Total mg/l	WAD Cyanide mg/l	Fluoride mg/l	PCBs, Total µg/l	Sulfate mg/l
MW-26S	98Q1	43	0.4	0.09	---	4.6	0.065U	340
MW-26S	98Q2	44	0.24	0.1	---	3.6	0.065U	330
MW-26S	98Q3	45	0.58	0.11	---	3	0.065U	88
MW-26S	98Q4	46	1.2	0.09	---	4.8	0.065U	300
MW-26S	99Q1	47	1.4	0.06	---	3.7	0.065U	230
MW-26S	99Q2	48	0.85	0.04	---	2.7	0.065U	260
MW-26S	99Q3	49	0.26	0.05	---	3.1	0.065U	360
MW-26S	99Q4	50	0.37	0.05	---	4.1	0.065U	360
MW-26S	00Q1	51	18	0.05	---	3.9	0.065U	320
MW-26S	00Q1	51	0.909	NA	---	4.7	NA	236
MW-26S	00Q2	52	1.2	0.02	---	3.4	0.065U	400
MW-26S	00Q3	53	0.44	0.02	---	3.3	0.065U	380
MW-26S	00Q4	54	0.14	0.01U	0.01U	3.233	0.075	315
MW-26S	01Q1	55	1.16	0.01U	0.01U	3.455	0.181	336
MW-26S	01Q2	56	0.12	0.01U	0.01U	3.202	0.065U	447
MW-26S	01Q3	57	3.97	0.01U	0.01U	3.471	0.065U	343
MW-26S	01Q4	58	0.16	0.01U	0.01U	3.246	0.065U	347
MW-26S	02Q1	59	0.48	0.01U	0.01U	3.316	0.065U	326
MW-26S	02Q2	60	0.39	0.01U	0.01U	2.859	0.065U	351
MW-26S	02Q3	61	0.7	0.01U	0.01U	3.551	0.435	296
MW-26S	02Q4	62	0.381	0.01U	0.01U	3.576	0.065U	328
MW-26S	03Q1	63	2.24	0.01U	0.01U	3.067	0.103	280
MW-26S	03Q2	64	15.21	0.01U	0.01U	3.341	0.065U	306
MW-26S	03Q3	65	11.1	0.01U	0.01U	3.546	0.065U	294
MW-26S	03Q4	66	12.43	0.01U	0.01U	3.343	0.065U	285
MW-26S	04Q1	67	12.8	0.01U	0.01U	3.659	0.065U	245
MW-26S	04Q2	68	9.177	0.01U	0.01U	3.593	0.065U	283
MW-26S	04Q3	69	5.623	0.01U	0.01U	4.053	0.065U	262
MW-26S	04Q4	70	11.28J	0.01U	0.01U	4.573	0.065U	342
MW-26S	05Q1	71	25.38	0.01U	0.01U	4.028	0.065U	247
MW-26S	05Q2	72	8.025	0.01U	0.01U	4.337	0.065U	284
MW-26S	05Q3	73	9.6	0.01U	0.01U	3.961	0.065U	269
MW-26S	05Q4	74	2.795	0.01U	0.01U	4.409	0.065U	254
MW-26S	06Q1	75	8.454J	0.0145U	0.01U	4.0765	0.065U	240.365
MW-26S	06Q2	76	9.571	0.01U	0.01U	4.637	0.065U	211.37
MW-26S	06Q3	77	6.777	0.01U	0.01U	4.499	0.065U	205.54
MW-26S	06Q4	78	1.573	0.01U	0.01U	4.317	0.065U	207.54
MW-26S	07Q1	79	6.789	0.01U	0.01U	4.825	0.155	198.21
MW-26S	07Q2	80	26.42	0.01U	0.01U	4.285	0.065U	230.34
MW-26S	07Q3	81	6.118	0.01U	0.01U	4.692	0.065U	212
MW-26S	07Q4	82	7.833	0.037	0.005U	4.309	0.065U	220
MW-26S	08Q1	83	23.9	0.005U	0.01UJ	5.0035	0.065U	255
MW-26S	08Q2	84	6.598R	0.01U	0.01U	5.148	0.065U	254
MW-26S	08Q3	85	19.85	0.01U	0.01U	4.778	0.065U	250J
MW-26S	08Q4	86	34.01	0.01U	0.01U	5.333	0.065U	209
MW-26S	09Q1	87	46.25	0.005UJ	0.0075J	5.15	0.2U	218
MW-26S	09Q2	88	22.4	0.01U	---	4.81	0.065U	187
MW-26S	09Q3	89	33.2	0.01U	0.01U	5.176	0.065U	212
MW-26S	09Q4	90	50.88	0.01U	0.01U	4.958	0.065U	216
MW-26S	10Q1	91	48.01	0.01UJ	0.01UJ	4.126	0.065U	242
MW-26S	10Q2	92	82.42	0.01U	0.01U	4.109	0.065U	222
MW-26S	10Q3	93	10.71	0.01U	0.01U	5.635	0.065U	209
MW-26S	10Q4	94	32.53	0.01U	0.01U	5.489	0.065U	179
MW-26S	11Q1	95	52.6	0.01U	0.01U	5.45	0.065U	195
MW-26S	11Q2	96	26.4	0.01U	0.01U	5.97	0.0663U	181
MW-26S	11Q3	97	25.9	0.01U	0.01U	5.15	0.065U	167
MW-26S	11Q4	98	25.3	0.01U	0.01UJ	5.55	0.063U	185
MW-26S	12Q1	99	29.9	0.01U	0.01U	4.62	0.065U	187
MW-26S	12Q2	100	8.6	0.01U	0.01UJ	4.41	0.061U	218
MW-26S	12Q3	101	34.3	0.01U	0.01U	4.37	0.061U	231
MW-26S	12Q4	102	20.4	0.01U	0.01UJ	4.9	0.061U	193
MW-26S	13Q2	104	18.6	0.01U	0.01U	5.48	0.061U	230
MW-26S	13Q4	106	18	0.01U	0.01U	5.74	0.061U	190
MW-26S	14Q2	108	49.3	0.01U	0.01U	4.81	0.061U	208
MW-26S	14Q4	110	20.2	0.01U	0.01U	5.64	0.061U	191
MW-26S	15Q2	112	15.5	0.01U	0.01U	5.68	0.061U	195
MW-26S	15Q4	114	6.32	0.01U	0.01U	6.37	0.061U	257
MW-26S	16Q2	116	1.28	0.003J	0.003J	6.87	0.065U	202
MW-26S	16Q4	118	14.4	0.004J	0.01U	5.45	0.065U	243
MW-26S	17Q2	120	3.59	0.001J	0.01U	6.1	0.065U	170
MW-26S	17Q4	122	23.6	0.01U	0.01U	5.71	0.065U	188
MW-26S	18Q2	124	11.9	0.005U	---	5.76	0.065U	171
MW-26S	18Q4	126	16.2	0.005U	0.01U	5.73	0.065U	216
MW-26S	19Q2	128	16.5	0.005U	0.01UJ	6.1	0.065U	162
MW-26S	19Q4	130	6.73	0.005U	0.01UJ	6.08	0.065U	174
MW-26S	20Q2	132	0.636	0.005U	0.01U	5.74	0.02U	132
MW-26S	20Q4	134	6.78	0.005U	0.01U	4.95	0.065U	190J
MW-26S	21Q2	136	23.1	0.005U	0.01U	5.26	0.065U	186
MW-26S	21Q4	138	8.83	0.005U	0.01U	4.05	0.065U	182

Monitoring Well MW-27S

Location	Quarter	NQtr	Aluminum mg/l	Cyanide, Total mg/l	WAD Cyanide mg/l	Fluoride mg/l	PCBs, Total µg/l	Sulfate mg/l
MW-27S	99Q1	47	1.3	0.17		7.9	0.065U	140
MW-27S	99Q2	48	0.96	0.14		6.7	0.065U	290
MW-27S	99Q3	49	0.89	0.07		6.4	0.065U	260
MW-27S	99Q4	50	0.67	0.07		8.5	0.065U	250
MW-27S	00Q1	51	1.7	0.12		8.9	0.065U	290
MW-27S	00Q2	52	3.3	0.11		7.1	0.065U	280
MW-27S	00Q3	53	0.82	0.08		5.7	0.065U	320
MW-27S	00Q4	54	0.1	0.0295	0.01U	6.294	0.065U	273
MW-27S	01Q1	55	0.66	0.0455	0.01U	6.473	0.065U	261
MW-27S	01Q2	56	1.45	0.0535	0.01U	6.636	0.065U	288
MW-27S	01Q3	57	8.79	0.039	0.01U	5.919	0.065U	278
MW-27S	01Q4	58	0.3	0.0255	0.01U	6.134	0.065U	244
MW-27S	02Q1	59	0.19	0.0445	0.01U	5.26	0.065U	278
MW-27S	02Q2	60	0.39	0.0665	0.01U	5.54	0.065U	269
MW-27S	02Q3	61	0.21	0.0645	0.01U	5.289	0.065U	261
MW-27S	02Q4	62	0.142	0.037	0.01U	6.232	0.065U	293
MW-27S	03Q1	63	4.222	0.0385	0.01U	5.171	0.065U	281
MW-27S	03Q2	64	0.155	0.0495	0.01U	5.009	0.065U	293
MW-27S	03Q3	65	0.22	0.0645	0.0175	5.581	0.065U	282
MW-27S	03Q4	66	12.35	0.0485	0.01U	5.083	0.065U	277
MW-27S	04Q1	67	5.402	0.0535	0.0135	4.521	0.066	287
MW-27S	04Q2	68	7.815	0.067	0.0175	4.927	0.065U	283
MW-27S	04Q3	69	11.64	0.0445	0.049	4.895	0.065U	275
MW-27S	04Q4	70	1.933J	0.0315	0.01U	5.274	0.065U	256
MW-27S	05Q1	71	15.42	0.04	0.01U	5.889	0.065U	255
MW-27S	05Q2	72	6.588	0.043	0.0105	5.298	0.065U	258
MW-27S	05Q3	73	4.442	0.03	0.0115	4.252	0.065U	258
MW-27S	05Q4	74	2.219	0.016	0.01U	4.49	0.065U	261
MW-27S	06Q1	75	27.79	0.032	0.0115	3.834	0.065U	283.51
MW-27S	06Q2	76	15.16	0.0355	0.0125	4.264	0.065U	259.34
MW-27S	06Q3	77	1.817	0.026	0.012	3.827	0.065U	257.47
MW-27S	06Q4	78	0.297	0.021	0.01U	4.24	0.065U	218.27
MW-27S	07Q1	79	6.057	0.027	0.011	3.92	0.065U	236.77
MW-27S	07Q2	80	3.398	0.044	0.015	3.638	0.065U	255.13
MW-27S	07Q3	81	2.968	0.05	0.0115	4.116	0.065U	241.17
MW-27S	07Q4	82	3.622	0.04	0.005U	3.579	0.065U	260
MW-27S	08Q1	83	11.8	0.0475	0.01U	4.2505	0.065U	140.5J
MW-27S	08Q2	84	1.519	0.086	0.01U	3.783	0.065U	200
MW-27S	08Q3	85	8.138	0.023R	0.01U	3.898	0.065U	248J
MW-27S	08Q4	86	4.811	0.01U	0.01UJ	3.445	0.065U	236
MW-27S	09Q1	87	6.17	0.0281	0.01UJ	3.64	0.495U	228
MW-27S	09Q2	88	1.01J	0.0866	0.01U	3.551	0.065U	214
MW-27S	09Q3	89	8.9	0.0899	0.0108	3.738	0.065U	235J
MW-27S	09Q4	90	2.733	0.0419	0.01U	3.344	0.065U	237
MW-27S	10Q1	91	5.686	0.0405J	0.01UJ	3.048	0.065U	250
MW-27S	10Q2	92	3.884	0.099	0.01U	2.929	0.065U	241
MW-27S	10Q3	93	3.476	0.073	0.01U	3.468	0.065U	248
MW-27S	10Q4	94	18.74	0.079	0.01U	3.845	0.065U	239
MW-27S	11Q1	95	15.8	0.048	0.01U	3.49	0.065U	237
MW-27S	11Q2	96	2.93	0.043	0.01U	3.66	0.065U	227
MW-27S	11Q3	97	5.66	0.048	0.01U	3.4	0.064U	235
MW-27S	11Q4	98	7.09	0.036	0.01UJ	3.3	0.061U	248
MW-27S	12Q1	99	10.4	0.035	0.01U	1.98	0.061U	213
MW-27S	12Q2	100	3.47	0.044	0.01U	2.79	0.061U	256
MW-27S	12Q3	101	0.69	0.032	0.01U	4.04	0.061U	242
MW-27S	12Q4	102	7.95	0.031	0.01UJ	2.86	0.061U	247
MW-27S	13Q2	104	3.32	0.04	0.01U	3.38	0.061U	265
MW-27S	13Q4	106	13.5	0.028	0.01U	2.97	0.061U	257
MW-27S	14Q2	108	16.4	0.039	0.01U	2.2	0.067U	260
MW-27S	14Q4	110	15.1	0.02	0.01U	3.17	0.061U	247
MW-27S	15Q2	112	6.685J	0.02745	0.01U	3.24	0.061U	282
MW-27S	15Q4	114	7.63	0.02	0.01U	2.37	0.061U	280
MW-27S	16Q2	116	1	0.025	0.006	3.93	0.065U	276
MW-27S	16Q4	118	0.668	0.017	0.01U	3	0.065U	250
MW-27S	17Q2	120	2.22	0.024	0.0062J	2.54	0.065U	257
MW-27S	17Q4	122	1.82	0.017	0.01U	1.89	0.065U	275
MW-27S	18Q2	124	0.799J	0.016	0.01U	2.78	0.065U	298
MW-27S	18Q4	126	1.5	0.009	0.01U	2.95	0.02U	270
MW-27S	19Q2	128	4.09J	---	0.012J	3.145J	0.065U	392
MW-27S	19Q4	130	0.912	0.007	0.01U	3.05	0.065U	297
MW-27S	20Q2	132	0.539	0.023	0.01U	2.96	0.019U	289
MW-27S	20Q4	134	0.811	0.01	0.01U	2.44	0.065U	285
MW-27S	21Q2	136	4.56	0.016	0.01U	3.18	0.065U	312
MW-27S	21Q4	138	1.95	0.0156	0.01U	0.132	0.065U	278

Monitoring Well MW-28S

Location	Quarter	NQtr	Aluminum mg/l	Cyanide, Total mg/l	WAD Cyanide mg/l	Fluoride mg/l	PCBs, Total µg/l	Sulfate mg/l
MW-28S	99Q1	47	7.4	18	---	170	0.065U	630
MW-28S	99Q2	48	3.6	9.2	---	94	0.065U	290
MW-28S	99Q3	49	3.1	14	---	84	0.065U	440
MW-28S	99Q4	50	3.6	14	---	130	0.065U	560
MW-28S	00Q1	511	41	3.1	---	130	0.065U	530
MW-28S	00Q1	51	2.43	NA	---	88	NA	774
MW-28S	00Q2	52	16	1.4	---	100	0.065U	690
MW-28S	00Q3	53	12	5.9	---	100	0.065U	530
MW-28S	00Q4	54	0.77	8.05	0.049	126.8	0.065U	409
MW-28S	01Q1	55	3.51	8.83	0.042	120.9	0.065U	482
MW-28S	01Q2	56	1.12	12.4	0.0295	90.7	0.065U	436
MW-28S	01Q3	57	2.73	7.95	0.03	81.57	0.065U	523
MW-28S	01Q4	58	0.64	17.2	0.025	84.2	0.065U	575
MW-28S	02Q1	59	0.71	14.6	0.12	81.04	0.065U	595
MW-28S	02Q2	60	0.97	9.72	0.01U	68.86	0.065U	484
MW-28S	02Q3	61	0.3	8.12	0.032	67.74	0.065U	453
MW-28S	02Q4	62	0.624	11.2	0.0195	78.91	0.065U	455
MW-28S	03Q1	63	9.921	9.35	0.064	69.25	0.065U	461
MW-28S	03Q2	64	10.56	6.53	0.042	55.12	0.151	418
MW-28S	03Q3	65	0.888	5.4	0.031	45.15	0.065U	409
MW-28S	03Q4	66	8.216	8.02	0.0515	55.63	0.065U	470
MW-28S	04Q1	67	6.177	7.85	0.035	46.04	0.065U	490
MW-28S	04Q2	68	7.177	5.71	0.035	50.64	0.065U	386
MW-28S	04Q3	69	14.74	4.19	0.025	41.34	0.065U	381
MW-28S	04Q4	70	1.537J	7.63	0.081	55.2	0.065U	483
MW-28S	05Q1	71	13.61	6.76	0.032	61.21	0.065U	456
MW-28S	05Q2	72	5.3185	4.01	0.01U	48.815	0.065U	406
MW-28S	05Q3	73	5.502	4.17	0.019	43.78	0.065U	361
MW-28S	05Q4	74	3.193	5.5	0.0305	41.37	0.065U	406
MW-28S	06Q1	75	6.013	2.16	0.0385	44.21	0.065U	470.32
MW-28S	06Q2	76	1.645	4.9	0.034	36.05	0.065U	317.31
MW-28S	06Q3	77	3.801	3.54	0.121	34.09	0.065U	283.06
MW-28S	06Q4	78	1.439	4.01	0.0305	33.77	0.065U	307.86
MW-28S	07Q1	79	1.411	4.03	0.0325	32.99	0.065U	345.64
MW-28S	07Q2	80	7.876	3.32	0.042	31.46	0.065U	312.71
MW-28S	07Q3	81	2.054	1.5	0.0185	19.23	0.065U	265.82
MW-28S	07Q4	82	5.125	1.9	0.015	19.99	0.065U	340
MW-28S	08Q1	83	4.5	2.68	0.011J	25.87	0.065U	340
MW-28S	08Q2	84	1.983	1.6	0.042	21.54	0.065U	276
MW-28S	08Q3	85	2.282	1.2R	0.02	16.34	0.065U	281J
MW-28S	08Q4	86	1.918	0.67	0.01U	14.93	0.065U	304
MW-28S	09Q1	87	4.61	1.35R	0.0683	16.4	0.2U	310
MW-28S	09Q2	88	14.1	1.5	0.115J	15.35	0.167	271
MW-28S	09Q3	89	9.81	1.68J	0.146	15.38	0.065U	272
MW-28S	09Q4	90	0.647	1.58J	0.257J	16.15	0.065U	293
MW-28S	10Q1	91	7.932	1.05J	0.072	14.56	0.065U	325
MW-28S	10Q2	92	1.746J	4.06	0.035	16.03	0.065U	271
MW-28S	10Q3	93	4.588	4.76	0.015	19.12	0.065U	258
MW-28S	10Q4	94	1.763	3.56	0.039	17.13	0.065U	254
MW-28S	11Q1	95	2.92	3.27	0.038J	16.4	0.065U	256
MW-28S	11Q2	96	1.05	2.525	0.019	15.65	0.0663U	235
MW-28S	11Q3	97	1.54	2.45	0.013J	12.8	0.065U	221
MW-28S	11Q4	98	2.73	3.25	0.056	15.5	0.064U	239
MW-28S	12Q1	99	1.24	3.06	0.054J	12.7	0.065U	231
MW-28S	12Q2	100	2.4	1.95	0.175	11.95	0.061U	203.5
MW-28S	12Q3	101	2.235	1.7	0.098J	12.25	0.061U	214.5
MW-28S	12Q4	102	2.315	2.15	0.097J	12.9	0.061U	246
MW-28S	13Q2	104	16	1.84	0.02	11.35	0.061U	250
MW-28S	13Q4	106	18.9	2.23	0.018	11.4	0.061U	287
MW-28S	14Q2	108	1.69	1.23	0.069	9.5	0.061U	179
MW-28S	14Q4	110	10.1J	2.17	---	9.93	0.061U	197
MW-28S	15Q2	112	10.8	1.98	0.049	10	0.061U	209
MW-28S	15Q4	114	8.53	2.63	0.017	13.4	0.061U	329
MW-28S	16Q2	116	1.88	3.09	0.13	14.8	0.065U	323
MW-28S	16Q4	118	11.3	2.32	0.086	26.7	0.042	154
MW-28S	17Q2	120	2.67	3.47	1.3	13.3	0.065U	207
MW-28S	17Q4	122	0.391	4.05	1.3	15.9	0.065U	248
MW-28S	18Q2	124	0.1U	2.22	0.16	15.8	0.065U	212
MW-28S	18Q4	126	0.1I	3.765	---	15.75	0.065U	194
MW-28S	19Q2	128	0.251	2.46	0.159J	12.4	0.024	178
MW-28S	19Q4	130	0.036J	3.22	0.018J	16.6	0.065U	189
MW-28S	20Q2	132	3.63	2.94	0.087	14.3	0.02U	169
MW-28S	20Q4	134	0.448	2.34	0.029	15.7	0.065U	160
MW-28S	21Q2	136	0.0118	1.88	0.148	12.3	0.065U	182
MW-28S	21Q4	138	0.0095J	2.0R	0.062	13.4	0.065U	169

Key:
--- = No data available
U = Not detected at value listed
NA = Not available
J = Estimated

Collection Date	MW-33S		MW-34S		MW-
	Cyanide, Total	WAD Cyanide	Cyanide, Total	WAD Cyanide	Cyanide, Total
11/29/95	0.01U	---	0.01U	---	0.02
02/07/96	0.01U	---	0.01U	---	0.79
05/30/96	0.01U	---	0.01U	---	0.11
07/16/96	0.01U	---	0.01U	---	0.12
10/02/96	0.02	---	0.01U	---	0.37
01/07/97	0.01U	---	0.01U	---	1.4
04/02/97	0.01U	---	0.01U	---	1.3
07/03/97	0.01U	---	0.01U	---	0.09
10/03/97	0.01U	---	0.01U	---	1
01/15/98	0.01U	---	0.01U	---	Note 3
04/01/98	Note 4		Note 4		Note 4
09/16/98	0.01U	---	0.01U	---	0.01U
12/09/98	0.01U	---	0.01U	---	0.01U
03/04/99	0.01U	---	0.01U	---	0.01U
06/10/99	0.01U	---	0.01U	---	0.01U
08/26/99	0.01U	---	0.01U	---	0.01U
10/28/99	0.01U	---	0.01U	---	0.01U
01/27/00	0.01U	---	0.01U	---	0.01U
04/26/00	0.01U	---	0.01U	---	0.01U
07/10/00	0.01U	---	0.01U	---	0.01U
11/02/00	0.01U	0.01U	Note 5	---	0.01U
01/24/01	0.01U	0.01U	0.01U	0.01U	0.01U
04/25/01	0.01U	0.01U	0.0095	0.01U	0.01U
07/23/01	0.01U	0.01U	0.011	0.01U	0.01U
10/23/01	0.01U	0.01U	0.0115	0.01U	0.01U
01/23/02	0.01U	0.01U	0.012	0.01U	0.01U
05/01/02	0.01U	0.01U	0.013	0.01U	0.01U
07/24/02	0.01U	0.01U	0.0155	0.01U	0.081
10/23/02	0.01U	0.01U	0.016	0.01U	0.01U
01/21/03	0.01U	0.01U	0.019	0.01U	0.01U
04/22/03	0.01U	0.01U	0.019	0.01U	0.01U
07/29/03	0.01U	0.01U	0.0305	0.01U	0.01U
10/21/03	0.01U	0.01U	0.028	0.01U	0.01U
01/20/04	0.01U	0.01U	0.042	0.0125	0.01U
04/21/04	0.329	0.01U	0.01U	0.01U	0.01U
07/21/04	0.017	0.01U	0.0355	0.016	0.01U
10/27/04	0.01U	0.01U	0.055	0.0185	0.01U
01/18/05	0.01U	0.01U	0.043	0.016	0.01U
04/27/05	0.01U	0.01U	0.0945	0.0175	0.01U
07/19/05	0.01U	0.01U	0.0445	0.021	0.01U
10/25/05	0.01U	0.01U	0.04	0.0165	0.01U
01/17/06	0.01U	0.01U	0.0645	0.0155	0.01U
04/26/06	0.01U	0.01U	0.063	0.0265	0.01U
07/13/06	0.01U	0.01U	0.0655	0.0255	0.01U
10/25/06	0.01U	0.01U	0.0815	0.0305	0.01U
01/25/07	0.01U	0.01U	0.0815	0.0325	0.01U
04/25/07	0.01U	0.01U	0.0825	0.0315	0.01U
08/15/07	0.01U	0.01U	0.042	0.0285	0.01U
10/25/07	0.005U	0.005U	0.061	0.01	0.01U
01/31/08	0.005U	0.01UJ	0.07	0.01UJ	0.005U
04/16/08	0.01U	0.01U	0.072	0.01U	0.01U
07/23/08	0.01U	0.01U	0.063R	0.01U	0.01U
10/22/08	0.01UR	0.01U	0.047R	0.01U	0.088R
01/13/09	0.005UJ	0.006U	0.0651	0.01UJ	0.005UR
04/29/09	0.01U	0.01U	0.0526	0.01U	0.01U
07/29/09	0.01U	0.01U	0.0536	0.01U	0.01U
10/29/09	0.01U	0.01U	0.069	0.01U	0.01U
02/11/10	0.01UJ	0.01UJ	0.066J	0.01UJ	0.01U
06/08/10	0.01U	0.01U	0.073	0.01U	0.01U
09/21/10	0.01U	0.01U	0.08	0.01U	0.01U
12/16/10	0.01U	0.01U	0.088	0.01U	0.01U
3/2/11	0.01U	0.01U	0.083	0.01U	0.01U
6/22/11	0.01U	0.01U	0.075	0.01U	0.01U
9/20/11	0.01U	0.01U	0.082	0.01U	0.01U
12/14/11	0.01U	0.01UJ	0.085	0.01UJ	0.01U
2/15/12	0.01U	0.01U	0.08	0.01U	0.01U
7/16/12	0.01U	0.01UJ	0.071	0.01UJ	0.01U
10/16/12	0.01U	0.01U	0.085	0.01U	0.01U
12/19/12	0.01U	0.01UJ	0.08	0.01UJ	0.01U
6/19/13	0.01U	0.01U	0.077	0.01U	0.01U
12/12/13	0.01U	0.01U	0.078	0.01U	0.01U
6/17/14	0.01U	0.01U	0.067	0.012	0.01U
12/17/14	0.01U	0.01U	0.071	0.01U	0.01U
7/21/15	0.01U	0.01U	0.075	0.01U	0.01U
12/15/15	0.01U	0.01U	0.074	0.01U	0.01U
6/22/16	0.005U	---	0.048	---	0.005U
1/6/17	0.005U	0.01U	0.052	0.0062J	0.002J
6/13/17-6/15/17	0.005U	0.01U	0.063	0.0087J	0.005U
12/21/17-1/30/18	0.005U	0.01U	0.046	0.0087J	0.005U
6/20/18	0.05U	---	0.068	---	0.004J
12/19/18	0.05U	0.01U	0.015	0.011	0.05U
6/26/-6/27/19	0.04	0.01UJ	0.044	0.01UJ	0.05U
12/4-12/6/19	0.005U	0.01UJ	0.03	0.01U	0.05U
6/8/20-6/11/20	0.005U	0.01U	0.073	0.01U	0.005U
12/3/20	0.005U	0.01U	0.053	0.01U	0.005U
6/24/21	0.005U	0.01U	0.063	0.012	0.005U
12/17/21	0.001JR	0.01U	0.0907	0.01U	0.005U

Notes:

Units are mg/l.

1. All results are for cyanide per USEPA Method SW846-9010.
2. ID number consists of the monitoring well number followed by the sequence number (e.g. MW-33S-03). Beginning 7/23/01, the sample ID is the laboratory's internal sample ID. The ID presented is for the sample collected at MW-33S. ID for MW-34S is incremented by 1 and ID for MW-35S is incremented by 2.
3. MW-35S was replaced with MW-35SR in later 10/97. Well development precluded CN analysis into 2Q98.
4. Samples were not taken as scheduled during 2Q98.
5. MW-34S was inaccessible due to construction - not sampled.

Key:

--- = No data available

U = Not detected at the value listed

R = Rejected value

UJ = Estimated Nondetect

UR = Nondetect result rejected

Table C-3
East Plant
Total Cyanide [(1)] Concentrations

Monitoring Well MW-16S

Location	Quarter	NQtr	Aluminum mg/l	Cyanide, Total mg/l	WAD Cyanide mg/l	Fluoride mg/l	PCBs, Total µg/l	Sulfate mg/l
MW-16S	99Q1	47	7.8	0.35		640	1.6	3600
MW-16S	99Q2	48	1.3	0.23		190	0.19	220
MW-16S	99Q3	49	0.2	0.04		15	0.065U	480
MW-16S	99Q4	50	0.46	0.03		16	0.065U	350
MW-16S	00Q1	51	0.24	0.03		15	0.065U	280
MW-16S	00Q2	52	0.28	0.04		13	0.065U	2000
MW-16S	00Q3	53	0.2	0.04		22	0.065U	1800
MW-16S	00Q4	54	0.13	0.0495	0.01U	29.37	0.065U	1250
MW-16S	01Q1	55	0.15	0.129	0.01U	36.87	0.483	1155.9
MW-16S	01Q2	56	0.1	0.0805	0.01U	40	0.217	1116.4
MW-16S	01Q3	57	0.11	0.028	0.01U	30.69	0.065U	793.37
MW-16S	01Q4	58	0.32	0.0175	0.01U	28.49	0.719	604.7
MW-16S	02Q1	59	0.13	0.0155	0.01U	27.29	0.277	628.36
MW-16S	02Q2	60	0.11	0.141	0.01U	21.79	0.209	931.43
MW-16S	02Q3	61	0.11	0.0145	0.01U	12.75	0.065U	829.38
MW-16S	02Q4	62	0.011U	0.01U	0.01U	12.36	0.065U	861.48
MW-16S	03Q1	63	0.1U	0.01	0.01U	11.07	0.065U	728.355
MW-16S	03Q2	64	0.011U	0.01U	0.01U	10.44	0.065U	760.25
MW-16S	03Q3	65	0.053	0.01U	0.01U	11.74	0.065U	567.25
MW-16S	03Q4	66	0.031U	0.01U	0.01U	11.67	0.065U	556.14
MW-16S	04Q1	67	0.041	0.01U	0.01U	10.4	0.065U	526.31
MW-16S	04Q2	68	0.003U	0.012	0.01U	1.144	0.065U	475.28
MW-16S	04Q3	69	0.003U	0.01U	0.01U	8.98	0.065U	428.78
MW-16S	04Q4	70	0.003UJ	0.01U	0.01U	12.14	0.065U	419.67
MW-16S	05Q1	71	0.046	0.018	0.01U	9.961	0.065U	360.99
MW-16S	05Q2	72	0.107	0.01U	0.01U	10.15	0.065U	357
MW-16S	05Q3	73	0.124	0.01U	0.01U	8.841	0.065U	346.16
MW-16S	05Q4	74	0.0635	0.0115	0.01U	8.962	0.065U	315.31
MW-16S	06Q1	75	0.115	0.027	0.01U	9.992	0.065U	359.14
MW-16S	06Q2	76	0.05	0.01	0.011	7.302	0.065U	304.28
MW-16S	06Q3	77	0.032	0.01	0.01U	8.485	0.065U	318.79
MW-16S	06Q4	78	0.041	0.01	0.01U	9.503	0.065U	246.73
MW-16S	07Q1	79	0.075	0.01U	0.01U	9.448	0.065U	304.7
MW-16S	07Q2	80	0.122	0.01U	0.01U	8.08	0.065U	299.4
MW-16S	07Q3	81	0.102	0.01U	0.01U	9.903	0.065U	308.79
MW-16S	07Q4	82	0.052	0.01U	0.005U	8.615	0.065U	320
MW-16S	08Q1	83	0.171	0.012	0.01UJ	8.993	0.065U	290
MW-16S	08Q2	84	0.18	0.01U	0.11R	7.597	0.065U	338
MW-16S	08Q3	85	0.069	0.01U	0.01U	8.047	0.065U	272
MW-16S	08Q4	86	0.139	0.011	0.01U	7.828	0.065U	267
MW-16S	09Q1	87	0.2U	0.005UR	0.006U	8.25	0.065U	290J
MW-16S	09Q2	88	0.202	0.01U	0.01U	6.306	0.065U	229
MW-16S	09Q3	89	0.34	0.01U	0.01U	7.098	0.065U	257
MW-16S	09Q4	90	0.048	0.01U	---	7.84	0.065U	278
MW-16S	10Q1	91	0.42	0.01UJ	0.01UJ	6.596	0.065U	312
MW-16S	10Q2	92	0.049R	0.01U	0.01U	6.939J	0.065U	269
MW-16S	10Q3	93	0.083	0.01UJ	0.01UJ	8.235	0.065UJ	289J
MW-16S	10Q4	94	0.04	0.01U	0.01U	8.154	0.065U	257
MW-16S	11Q1	95	0.1U	0.01U	0.01U	7.22	0.065U	292
MW-16S	11Q2	96	0.1U	0.01U	0.01U	9.88	0.065U	190
MW-16S	11Q3	97	0.1U	0.01U	0.01U	7.95	0.08U	136
MW-16S	11Q4	98	0.1U	0.01U	0.01UJ	9.09	0.062U	136
MW-16S	12Q1	99	0.1U	0.01U	0.01U	8.09	0.065U	154
MW-16S	12Q2	100	0.1U	0.01U	0.01UJ	7.96	0.061U	203.5
MW-16S	12Q3	101	0.1U	0.01U	0.01U	7.95	0.061U	198
MW-16S	12Q4	102	0.11	0.038	0.01UJ	10.2	0.064U	223
MW-16S	13Q2	104	0.1U	0.016	0.01U	10.4	0.061U	227
MW-16S	13Q4	106	0.78	0.01U	0.01U	7.21	0.061U	261
MW-16S	14Q2	108	0.1U	0.01U	0.01U	7.74	0.061U	268
MW-16S	14Q4	110	0.6	0.01U	0.01U	7.23	0.061U	255
MW-16S	15Q2	112	0.1U	0.01U	0.01U	7.99	0.061U	280
MW-16S	15Q4	114	0.1U	0.01U	0.01U	8.79	0.061U	281
MW-16S	16Q2	116	0.072J	0.007	---	9.61	0.065U	292
MW-16S	16Q4	118	0.047J	0.076	0.01U	7.66	0.065U	220
MW-16S	17Q2	120	0.055J	0.004J	0.01U	8.5	0.065U	217
MW-16S	17Q4	122	0.16J	0.035J	0.01U	8	0.065U	239
MW-16S	18Q2	124	0.032J	0.005U	0.01U	7.38	0.065U	226
MW-16S	18Q4	126	0.1U	0.003J	0.01U	9.37	0.065U	211
MW-16S	19Q2	128	0.066J	0.002J	0.01U	6.81	0.065U	188
MW-16S	19Q4	130	0.1U	0.002J	0.01UJ	11.2	0.065U	208
MW-16S	20Q2	132	0.1U	0.004J	0.01U	7.42	0.019U	200
MW-16S	20Q4	134	0.052J	0.002J	0.01U	7.92	0.065U	171
MW-16S	21Q2	136	0.0798	0.002J	0.01U	7.97	0.065U	187
MW-16S	21Q4	138	0.00422J	0.068R	0.01U	6.92	0.065U	196

Monitoring Well MW-17S

Location	Quarter	NQtr	Aluminum mg/l	Cyanide, Total mg/l		Fluoride mg/l	PCBs, Total µg/l	Sulfate mg/l
MW-17S	99Q1	47	0.61	0.01U		1.4	0.065U	430
MW-17S	99Q2	48	0.49	0.03		1	0.065U	380
MW-17S	99Q3	49	0.56	0.01U		0.9	0.065U	670
MW-17S	99Q4	50	0.52	0.01U		2.5	0.065U	620
MW-17S	00Q1	51	0.34	0.03		1.8	0.065U	410
MW-17S	00Q2	52	0.86	0.02		1.1	0.065U	560
MW-17S	00Q3	53	0.2	0.01U		1.1	0.18	480
MW-17S	00Q4	54	0.18	0.01U	0.01U	1.162	0.065U	304
MW-17S	01Q1	55	0.82	0.01U	0.01U	1.359	0.065U	406.77
MW-17S	01Q2	56	0.1	0.0095	0.01U	0.933	0.065U	405.33
MW-17S	01Q3	57	0.41	0.01U	0.01U	0.952	0.065U	298.75
MW-17S	01Q4	58	0.14	0.01U	0.01U	2.391	0.065U	246.28
MW-17S	02Q1	59	0.12	0.01U	0.01U	1.267	0.065U	503.06
MW-17S	02Q2	60	0.12	0.01U	0.01U	0.988	0.065U	487.01
MW-17S	02Q3	61	0.1U	0.01U	0.01U	1.496	0.065U	317.68
MW-17S	02Q4	62	0.838	0.01U	0.01U	2.349	0.065U	310.48
MW-17S	03Q1	63	0.74	0.01U	0.01U	1.15	0.065U	601.407
MW-17S	03Q2	64	0.085	0.01U	0.01U	1.054	0.065U	621.78
MW-17S	03Q3	65	0.083	0.01U	0.01U	0.931	0.065U	434.13
MW-17S	03Q4	66	0.453	0.01U	0.01U	1.02	0.065U	314.39
MW-17S	04Q1	67	1.131	0.01U	0.01U	1.114	0.065U	470.14
MW-17S	04Q2	68	2.974	0.01U	0.01U	0.791	0.065U	356.36
MW-17S	04Q3	69	2.589	0.01U	0.01U	0.744	0.065U	338.05
MW-17S	04Q4	70	1.408J	0.01U	0.01U	1.278	0.065U	272.22
MW-17S	05Q1	71	3.927	0.01U	0.01U	1.097	0.065U	279.22
MW-17S	05Q2	72	2.527	0.01U	0.01U	0.7517	0.065U	281.5
MW-17S	05Q3	73	3.142	0.01U	0.01U	1.014	0.065U	277.7
MW-17S	05Q4	74	2.057	0.01U	0.01U	1.837	0.065U	215.05
MW-17S	06Q1	75	20.84	0.01U	0.01U	0.8417	0.065U	216.88
MW-17S	06Q2	76	15.01	0.01U	0.01U	0.7225	0.065U	215.11
MW-17S	06Q3	77	10.85	0.01U	0.01U	0.6616	0.065U	200.16
MW-17S	06Q4	78	7.305	0.01U	0.01U	0.2	0.065U	144.98
MW-17S	07Q1	79	7.112	0.0145	0.01U	0.7146	0.065U	152.75
MW-17S	07Q2	80	6.852	0.01U	0.01U	0.6408	0.065U	167.9
MW-17S	07Q3	81	3.015	0.01U	0.01U	0.8034	0.602	168.67
MW-17S	07Q4	82	4.661	0.005U	0.005U	1.81	0.065U	150
MW-17S	08Q1	83	3.88	0.005U	0.01UJ	0.8118	0.065U	198
MW-17S	08Q2	84	6.569	0.01U	0.01UJ	0.7293	0.065U	167J
MW-17S	08Q3	85	11.89	0.01U	0.01U	0.7726	0.065U	151
MW-17S	08Q4	86	1.901	0.01U	0.01U	0.6294	0.065U	171
MW-17S	09Q1	87	1.88	0.005UJ	0.006U	0.5	0.2U	169J
MW-17S	09Q2	88	0.405J	0.01U	0.01U	0.5536	0.065U	131
MW-17S	09Q3	89	2.76	0.01U	0.01U	0.5872	0.065U	128
MW-17S	09Q4	90	1.424	0.01U	0.01U	0.6341	0.065U	151
MW-17S	10Q1	91	3.745	0.01U	0.01UJ	0.7306	0.065U	133
MW-17S	10Q2	92	7.285	0.01U	0.01U	0.4851J	0.065U	102
MW-17S	10Q3	93	2.558	0.01U	0.01U	0.63	0.065U	112
MW-17S	10Q4	94	11.92	0.01U	0.01U	0.5836	0.065U	105
MW-17S	11Q1	95	1.88	0.01U	0.01U	0.95	0.065U	81.6
MW-17S	11Q2	96	1.75	0.01U	0.01U	0.65	0.065U	98.7
MW-17S	11Q3	97	2.18	0.01U	0.01U	0.45	0.049U	145
MW-17S	11Q4	98	4.4	0.01U	0.01UJ	0.76	0.064U	146
MW-17S	12Q1	99	4.57	0.01U	0.01U	0.78	0.063U	123
MW-17S	12Q2	100	1.69	0.01U	0.01U	0.8	0.061U	651
MW-17S	12Q3	101	2.05	0.01U	0.01U	0.25	0.061U	165
MW-17S	12Q4	102	1.05	0.01U	0.01UJ	1	0.061U	145
MW-17S	13Q2	104	1.33	0.01U	0.01U	0.67	0.063U	157
MW-17S	13Q4	106	2.38	0.01U	0.01U	0.67	0.061U	144
MW-17S	14Q2	108	2.12	0.01U	0.01U	0.59	0.061U	133
MW-17S	14Q4	110	2.21	0.01U	0.01U	0.61	0.061U	145
MW-17S	15Q2	112	0.78	0.01U	0.01U	0.9J	0.061U	117
MW-17S	15Q4	114	0.71	0.01U	0.01U	1.01	0.061U	125
MW-17S	16Q2	116	0.663	0.001J	---	0.708	0.065U	89.7
MW-17S	16Q4	118	0.736	0.005U	0.01U	1.37	0.065U	111
MW-17S	17Q2	120	0.491	0.003J	0.01U	1.04	0.065U	116
MW-17S	17Q4	122	0.387	0.005U	0.01U	1.2	0.065U	88.8
MW-17S	18Q2	124	0.342	0.005U	0.0068J	0.806	0.065U	106
MW-17S	18Q4	126	---	---	---	---	---	---
MW-17S	19Q2	128	1.13	0.002J	0.01UJ	0.806J	0.065U	107
MW-17S	19Q4	130	0.032J	0.002J	0.01U	0.919	0.065U	130
MW-17S	20Q2	132	0.1U	0.005U	0.01U	1.05	0.065U	103
MW-17S	20Q4	134	0.1U	0.005U	0.01U	0.886	0.065U	159
MW-17S	21Q2	136	0.0263	0.005U	0.01U	913	0.065U	177
MW-17S	21Q4	138	0.0469	0.005U	0.01U	1.03	0.065U	125

Monitoring Well MW-18S

Location	Quarter	NQtr	Aluminum mg/l	Cyanide, Total mg/l	WAD Cyanide mg/l	Fluoride mg/l	PCBs, Total µg/l	Sulfate mg/l
MW-18S	99Q1	47	15	0.17		4800	1.1	15000
MW-18S	99Q2	48	18	0.23		2000	0.17	20000
MW-18S	99Q3	49	9.2	0.3		780	0.21	20000
MW-18S	99Q4	50	3.9	0.26		870	0.24	1500
MW-18S	00Q1	51	8.3	0.4		420	0.065U	4800
MW-18S	00Q2	52	1.2	0.22		44	0.24	240
MW-18S	00Q3	53	0.39	0.46		71	0.092	310
MW-18S	00Q4	54	0.38	0.207	0.01U	122.1	0.065U	3440
MW-18S	01Q1	55	1.29	1.12	0.012	NA[1]	0.097	2422.91
MW-18S	01Q2	56	0.56	0.923	0.01U	126.4	0.065U	1258.57
MW-18S	01Q3	57	1.16	0.749	0.01U	135.8	0.065U	1958.33
MW-18S	01Q4	58	0.63	0.552	0.0135	119.7	0.065U	2400.9
MW-18S	02Q1	59	0.62	0.521	0.01U	127.7	0.134	190.52
MW-18S	02Q2	60	0.57	0.465	0.01U	69.21	0.13	982.66
MW-18S	02Q3	61	0.15	0.362	0.01U	89.35	0.065U	1062.29
MW-18S	02Q4	62	0.099	0.246	0.01U	78.52	0.065U	1150.97
MW-18S	03Q1	63	0.244	0.267	0.01U	77.38	0.07	1319.269
MW-18S	03Q2	64	0.055	0.299	0.01U	88.88	0.065U	1281.21
MW-18S	03Q3	65	0.075	0.284	0.01U	71.09	0.065U	1413.09
MW-18S	03Q4	66	0.102	0.241	0.01U	88.18	0.19	1753.81
MW-18S	04Q1	67	0.086	0.316	0.01U	84.25	0.065U	1154.05
MW-18S	04Q2	68	0.129	0.354	0.01U	81.11	0.065U	827.73
MW-18S	04Q3	69	0.081	0.432	0.01U	76.42	0.217	790.49
MW-18S	04Q4	70	0.14J	0.337	0.01U	14.84	0.065U	1162.81
MW-18S	05Q1	71	0.2695	0.31	0.01U	101.1	0.065U	780.65
MW-18S	05Q2	72	0.231	0.286	0.01U	85.58	0.065U	797.41
MW-18S	05Q3	73	0.15	0.337	0.01U	57.37	0.065U	595.18
MW-18S	05Q4	74	0.327	0.288	0.01U	77.52	1.42	711.67
MW-18S	06Q1	75	0.294	0.183	0.01U	76.71	0.108	705.46
MW-18S	06Q2	76	0.101	0.08	0.01U	45.1	0.068	369.47
MW-18S	06Q3	77	0.067	0.088	0.01U	45.81	0.087	584.56
MW-18S	06Q4	78	0.077	0.14	0.01U	64.3	0.24	473.31
MW-18S	07Q1	79	0.118	0.148	0.01U	75.88	0.073	610.75
MW-18S	07Q2	80	0.103	0.022	0.01U	54.06	0.1045	432.275
MW-18S	07Q3	81	0.07	0.094	0.01U	57.16	0.095	499.98
MW-18S	07Q4	82	0.053	0.045	0.005U	52.66	0.149	470
MW-18S	08Q1	83	0.095	0.063	0.01UJ	4.868	0.065U	445
MW-18S	08Q2	84	0.289	0.058	0.037R	39.38	0.101	198
MW-18S	08Q3	85	0.233	0.057R	0.01U	49.31	0.188	420
MW-18S	08Q4	86	0.124	0.058	0.01U	51.48	0.133	433
MW-18S	09Q1	87	0.2U	0.0977R	0.006U	63.2	0.2U	506J
MW-18S	09Q2	88	0.2U	0.0725	0.01U	63.62	0.109	430
MW-18S	09Q3	89	0.226	0.0627	0.01U	61.115	0.115	214
MW-18S	09Q4	90	0.081	0.077	0.01UJ	57.61	0.0965	545
MW-18S	10Q1	91	0.127	0.0286J	0.011	41.23	0.125	418
MW-18S	10Q2	92	0.066R	0.08	0.01U	44.27J	0.107	423
MW-18S	10Q3	93	0.08	0.074	0.01U	56.15	0.0825PD	491
MW-18S	10Q4	94	0.281	0.096	0.01U	60.53	0.117	443
MW-18S	11Q1	95	0.27	0.074	0.01U	63.1	---	371
MW-18S	11Q2	96	0.16	0.061	0.01U	48.6	0.0677	417
MW-18S	11Q3	97	1.27	0.103	0.01UJ	67.2	0.19	618
MW-18S	11Q4	98	0.39	0.08	0.01U	73.2	0.67	466
MW-18S	12Q1	99	0.84	0.051	0.01UJ	70.6	0.17	389
MW-18S	12Q2	100	1.25	0.038	0.01U	48.5	0.061U	403
MW-18S	12Q3	101	0.94	0.04	0.01UJ	71.7	0.061U	327
MW-18S	12Q4	102	1.18	0.045	0.01U	73.1	0.064U	371
MW-18S	13Q2	104	3.33	0.022	0.01U	77.7	0.061U	192
MW-18S	13Q4	106	4.44	0.074	0.01U	65.9	0.061U	508
MW-18S	14Q2	108	1.19	0.022	0.01U	32.95	0.061U	257.5
MW-18S	14Q4	110	2.11	0.032	0.01U	33.8	0.061U	405
MW-18S	15Q2	112	1.82	0.037	0.01U	53.5	0.091	330
MW-18S	15Q4	114	2.73	0.052	0.01U	60	0.095	689
MW-18S	16Q2	116	2.05	0.005	---	57	0.065U	425
MW-18S	16Q4	118	1.61	0.006	0.01U	55.7	0.065U	285
MW-18S	17Q2	120	4.05	0.026	0.015J	59.7	0.065U	182.5
MW-18S	17Q4	122	0.819	0.023	0.0065J	31.1	0.065U	270
MW-18S	18Q2	124	0.371	0.018	0.0061J	24.3	0.065U	318
MW-18S	18Q4	126	0.18	0.02	0.01U	27.4	0.065U	250
MW-18S	19Q2	128	0.1095	0.0365	0.019	20.8	0.065U	250
MW-18S	19Q4	130	0.0725J	0.0495	0.01UJ	27.65	0.065U	286.5
MW-18S	20Q2	132	0.082J	0.023J	0.01U	22.1	0.019U	226
MW-18S	20Q4	134	0.051J	0.007	0.01U	29.1	0.065U	178
MW-18S	21Q2	136	0.0629J	0.018J	0.01U	26.1	0.065U	330
MW-18S	21Q4	138	0.0571	0.019	0.01U	25.2	0.065U	297

Monitoring Well MW-19S

Location	Quarter	NQtr	Aluminum mg/l	Cyanide, Total mg/l	WAD Cyanide mg/l	Fluoride mg/l	PCBs, Total µg/l	Sulfate mg/l
MW-19S	99Q1	47	0.09	0.01U		2.7	0.065U	490
MW-19S	99Q2	48	0.16	0.01U		2	0.065U	340
MW-19S	99Q3	49	0.2	0.01U		2.2	0.065U	390
MW-19S	99Q4	50	0.14	0.01U		3.7	0.065U	350
MW-19S	00Q1	51	0.19	0.01U		2.6	0.065U	290
MW-19S	00Q2	52	0.21	0.01U		4.3	0.065U	470
MW-19S	00Q3	53	0.1	0.01U		4.3	0.065U	360
MW-19S	00Q4	54	0.42	0.01U	0.01U	4.715	0.065U	339
MW-19S	01Q1	55	0.1U	0.01U	0.01U	NA[1]	0.065U	406.56
MW-19S	01Q2	56	0.1U	0.01U	0.01U	3.051	0.065U	459.23
MW-19S	01Q3	57	0.16	0.01U	0.01U	4.359	0.065U	327.97
MW-19S	01Q4	58	0.1U	0.01U	0.01U	4.455	0.065U	275.71
MW-19S	02Q1	59	0.1U	0.01U	0.01U	4.768	0.065U	349.78
MW-19S	02Q2	60	0.1U	0.01U	0.01U	3.771	0.065U	381.46
MW-19S	02Q3	61	0.1U	0.01U	0.01U	4.755	0.065U	310.48
MW-19S	02Q4	62	0.054	0.01U	0.01U	8.876	0.07	246.49
MW-19S	03Q1	63	0.1U	0.01U	0.01U	8.491	0.065U	312.123
MW-19S	03Q2	64	0.011U	0.01U	0.01U	5.187	0.065U	331.46
MW-19S	03Q3	65	0.083	0.01U	0.01U	7.794	0.065U	308.42
MW-19S	03Q4	66	0.289	0.01U	0.01U	6.739	0.065U	225.09
MW-19S	04Q1	67	4.346	0.01U	0.01U	7.551	0.065U	285.17
MW-19S	04Q2	68	0.972	0.01U	0.01U	0.457	0.065U	212.75
MW-19S	04Q3	69	0.694	0.01U	0.01U	4.238	0.065U	181.06
MW-19S	04Q4	70	.497J	0.01U	0.01U	6.609	0.065U	190.32
MW-19S	05Q1	71	1.157	0.01U	0.01U	8.789	0.065U	242.64
MW-19S	05Q2	72	1.201	0.01U	0.01U	5.769	0.065U	197.31
MW-19S	05Q3	73	0.454	0.01U	0.01U	4.667	0.065U	178.24
MW-19S	05Q4	74	1.507	0.01U	0.01U	4.569	1.45	290.16
MW-19S	06Q1	75	0.476	0.01U	0.01U	5.686	0.065U	266.89
MW-19S	06Q2	76	1.555	0.01U	0.01U	3.592	0.065U	112.62
MW-19S	06Q3	77	0.375	0.01U	0.01U	3.329	0.065U	106.94
MW-19S	06Q4	78	0.262J	0.01U	0.01U	4.8325	0.065U	86.695J
MW-19S	07Q1	79	1.119	0.01U	0.01U	8.192	0.065U	203.42
MW-19S	07Q2	80	0.412	0.01U	0.01U	6.407	0.065U	247.41
MW-19S	07Q3	81	0.588	0.01U	0.01U	8.6965	0.065U	176.86
MW-19S	07Q4	82	1.567	0.005U	0.005U	7.331	0.065U	190
MW-19S	08Q1	83	0.341	0.005U	0.01UJ	7.228	0.065U	201
MW-19S	08Q2	84	0.599	0.01U	0.01UJ	4.461	0.065U	154J
MW-19S	08Q3	85	0.404	0.01U	0.01U	5.019	0.065U	140
MW-19S	08Q4	86	0.747	0.01U	0.01U	6.388	0.065U	186
MW-19S	09Q1	87	0.848	0.005UJ	0.006U	10.4	0.2U	222J
MW-19S	09Q2	88	0.369J	0.01U	0.01U	8.525	0.065U	109
MW-19S	09Q3	89	1.06	0.01U	0.01U	7.853	0.065U	169J
MW-19S	09Q4	90	0.105	0.01U	0.01U	5.71	0.065U	423
MW-19S	10Q1	91	5.94	0.01U	0.01UJ	2.51	0.065U	394
MW-19S	10Q2	92	0.115R	0.01U	0.01U	2.722J	0.065U	242
MW-19S	10Q3	93	0.816	0.01U	0.01U	3.605	0.065U	250
MW-19S	10Q4	94	1.635J	0.01U	0.01U	4.216	0.065U	228
MW-19S	11Q1	95	0.3	0.01U	0.01U	4.78	0.065U	191
MW-19S	11Q2	96	0.19	0.01U	0.01U	2.83	0.065U	195
MW-19S	11Q3	97	0.59	0.01U	0.01U	2.77	0.049U	184
MW-19S	11Q4	98	0.66	0.01U	0.01UJ	5.03	0.065U	221
MW-19S	12Q1	99	0.32	0.01U	0.01U	8.16	0.065U	227
MW-19S	12Q2	100	0.44	0.01U	0.01U	6.82	0.064	207
MW-19S	12Q3	101	0.3	0.01U	0.01U	7.65	0.061U	198
MW-19S	12Q4	102	0.61	0.01U	0.01UJ	6.72	0.061U	212
MW-19S	13Q2	104	0.69	0.01U	0.01U	6.01	0.061U	236
MW-19S	13Q4	106	0.84	0.01U	0.01U	6.04	0.061U	168
MW-19S	14Q2	108	0.9	0.01U	0.01U	4.5	0.061U	180
MW-19S	14Q4	110	0.68	0.01U	0.01U	5.44	0.061U	129
MW-19S	15Q2	112	0.2	0.01U	0.01U	4.68	0.061U	170
MW-19S	15Q4	114	0.71	0.01U	0.01U	4.63	0.061U	142
MW-19S	16Q2	116	12	0.001J	---	3.36	0.065U	104
MW-19S	16Q4	118	0.326	0.005U	0.01U	3.18	0.065U	142
MW-19S	17Q2	120	0.168	0.002J	0.01U	5.21	0.065U	215
MW-19S	17Q4	122	0.186	0.005U	0.01U	3.02	0.065U	161
MW-19S	18Q2	124	0.123	0.0068J	0.0068J	3.16	0.065U	117
MW-19S	18Q4	126	0.099J	0.01U	0.01U	3.49	0.02U	158
MW-19S	19Q2	128	0.042J	0.005U	0.01UJ	2.61J	0.065U	272
MW-19S	19Q4	130	0.051J	0.005U	0.01U	3.38	0.065U	130
MW-19S	20Q2	132	0.1U	0.005U	0.01U	3.49	0.02U	97.6
MW-19S	20Q4	134	0.033J	0.005U	0.01U	3.3	0.065U	101
MW-19S	21Q2	136	0.0165	0.002J	0.01U	3.57	0.065U	79
MW-19S	21Q4	138	0.0274	0.005U	0.01U	3.34	0.065U	74.2

Monitoring Well MW-36

Location	Quarter	NQtr	Aluminum mg/l	Cyanide, Total mg/l	WAD Cyanide mg/l	Fluoride mg/l	PCBs, Total µg/l	Sulfate mg/l
MW-36S	99Q1	47	1.1	0.01U		3.6	0.065U	340
MW-36S	99Q2	48	0.47	0.01U		2.9	0.065U	450
MW-36S	99Q3	49	0.46	0.02		2.2	0.065U	630
MW-36S	99Q4	50	0.31	0.01U		2.9	0.065U	610
MW-36S	00Q1	51	0.48	0.06		1.7	0.065U	530
MW-36S	00Q2	52	1	0.01U		3.4	0.065U	500
MW-36S	00Q3	53	0.53	0.01U		3.3	0.065U	510
MW-36S	00Q4	54	0.21	0.01U	0.01U	3.479	0.065U	513
MW-36S	01Q1	55	0.24	0.01U	0.01U	3.484	0.065U	625.27
MW-36S	01Q2	56	3.79	0.01U	0.01U	3.589	0.065U	662.1
MW-36S	01Q3	57	1.7	0.01U	0.01U	3.697	0.065U	667.04
MW-36S	01Q4	58	1.09	0.01U	0.01U	3.291	0.065U	643.59
MW-36S	02Q1	59	0.71	0.01U	0.01U	3.397	0.065U	652.23
MW-36S	02Q2	60	0.14	0.01U	0.01U	3.081	0.065U	683.09
MW-36S	02Q3	61	0.29	0.01U	0.01U	3.519	0.065U	664.98
MW-36S	02Q4	62	0.085	0.01U	0.01U	3.481	0.065U	663.54
MW-36S	03Q1	63	5.672	0.01U	0.01U	3.748	0.065U	697.287
MW-36S	03Q2	64	62.53	0.01U	0.01U	3.629	0.065U	719.1
MW-36S	03Q3	65	37.19	0.01U	0.01U	3.772	0.065U	691.32
MW-36S	03Q4	66	98.57	0.01U	0.01U	3.541	0.065U	692.35
MW-36S	04Q1	67	54.29	0.01U	0.01U	3.519	0.065U	680
MW-36S	04Q2	68	65.49	0.01U	0.01U	3.391	0.065U	690.91
MW-36S	04Q3	69	52.55	0.01U	0.01U	3.754	0.065U	682.47
MW-36S	04Q4	70	44.15J	0.01U	0.01U	3.8	0.065U	637.83
MW-36S	05Q1	71	85.78	6.61	0.01U	3.291	0.065U	675.18
MW-36S	05Q2	72	57.42	0.01U	0.01U	3.501	0.065U	703.41
MW-36S	05Q3	73	48.23	0.01U	0.01U	3.516	0.065U	682.1
MW-36S	05Q4	74	51.75	0.01U	0.01U	2.613	0.065U	656.68
MW-36S	06Q1	75	46.69	0.01U	0.01U	3.259	0.065U	639.53
MW-36S	06Q2	76	41.55	0.01U	0.01U	2.61	0.065U	626.05
MW-36S	06Q3	77	77.12	0.01U	0.01U	2.909	0.065U	665.24
MW-36S	06Q4	78	3.292	0.01U	0.01U	3.152	0.065U	491.78
MW-36S	07Q1	79	41.7	0.01U	0.01U	2.833	0.065U	562.15
MW-36S	07Q2	80	39.65	0.01U	0.01U	2.955	0.065U	575.81
MW-36S	07Q3	81	138	0.01U	0.01U	2.731	0.065U	514.74
MW-36S	07Q4	82	50.13	0.005U	0.005U	2.822	0.065U	520
MW-36S	08Q1	83	153	0.005U	0.01U	2.741	0.065U	498
MW-36S	08Q2	84	4.279	0.01U	0.01UJ	3.014	0.065U	629J
MW-36S	08Q3	85	356.4	0.01U	0.01U	3.608	0.065U	595
MW-36S	08Q4	86	5.046	0.01U	0.01U	3.899	0.065U	588
MW-36S	09Q1	87	65.7	0.005UJ	0.006U	2.45	0.2U	589J
MW-36S	09Q2	88	9.73J	0.01U	0.01U	2.313	0.065U	511
MW-36S	09Q3	89	2.82	0.01U	0.01U	2.333	0.065U	590
MW-36S	09Q4	90	743	0.01U	0.01U	2.349	0.065U	566
MW-36S	10Q1	91	0.319	0.01U	0.01UJ	2.855	0.065U	613
MW-36S	10Q2	92	347.2	0.01U	0.01U	2.369J	0.065U	426
MW-36S	10Q3	93	4.344	0.01U	0.01U	2.431	0.065U	42.5
MW-36S	10Q4	94	4.392	0.01U	0.02U	2.3	0.065U	432
MW-36S	11Q1	95	7	0.01U	0.01U	2.08	0.0915U	421
MW-36S	11Q2	96	81.2	0.01U	0.01U	2.56	0.065U	424
MW-36S	11Q3	97	96.1	0.01U	0.01U	1.99	0.05U	432
MW-36S	11Q4	98	159	0.01U	0.01UJ	2.23	0.063U	443
MW-36S	12Q1	99	50.6	0.01U	0.01U	2.37	0.046U	424
MW-36S	12Q2	100	104	0.01U	0.01U	2.1	0.061U	213
MW-36S	12Q3	101	43.7	0.01U	0.01U	2.03	0.25U	446
MW-36S	12Q4	102	70.6	0.01U	0.01UJ	2.09	0.065U	401
MW-36S	13Q2	104	59	0.01U	0.01U	2.13	0.061U	447
MW-36S	13Q4	106	89.6	0.01U	0.01U	1.995	0.061U	411
MW-36S	14Q2	108	99.3	0.01U	0.01U	1.99	0.061U	426
MW-36S	14Q4	110	102J	0.388	0.01U	41	0.061U	1640
MW-36S	15Q2	112	84.9	0.01U	0.01U	2.06	0.061U	414
MW-36S	15Q4	114	21.9	0.01U	0.01U	2.35	0.061U	535
MW-36S	16Q2	116	35	0.005U	---	0.382	0.065U	413
MW-36S	16Q4	118	78.9	0.005U	0.01U	2.08	0.065U	403
MW-36S	17Q2	120	36.2	0.005U	0.01U	5.69	0.065U	393
MW-36S	17Q4	122	22.1	0.005U	0.01U	2.26	0.065U	367
MW-36S	18Q2	124	24.3	0.01U	0.01U	2.15	0.065U	406
MW-36S	18Q4	126	47.2	0.01U	0.01U	2.3	0.02U	386
MW-36S	19Q2	128	5.05	0.005U	0.01UJ	2.71J	0.065U	486
MW-36S	19Q4	130	29.7	0.005U	0.01U	2.15	0.065U	396J
MW-36S	20Q2	132	6.74	0.005U	0.01U	2.35	0.065U	352
MW-36S	20Q4	134	25.3	0.005U	0.01U	1.99	0.065U	361
MW-36S	21Q2	136	93.3	0.005U	0.01U	2.27	0.02U	372
MW-36S	21Q4	138	51.2	0.005U	0.01U	3.08	0.065U	371

Monitoring Well MW-37

Location	Quarter	NQtr	Aluminum mg/l	Cyanide, Total mg/l	WAD Cyanide mg/l	Fluoride mg/l	PCBs, Total µg/l	Sulfate mg/l
MW-37S	99Q1	47	0.29	0.01U		0.5	0.065U	250
MW-37S	99Q2	48	0.25	0.01U		0.4	0.065U	220
MW-37S	99Q3	49	0.21	0.01U		0.4	0.065U	310
MW-37S	99Q4	50	0.1	0.01U		0.5	0.065U	280
MW-37S	00Q1	51	0.4	0.01U		0.6	0.065U	220
MW-37S	00Q2	52	0.26	0.01U		0.5	0.065U	270
MW-37S	00Q3	53	0.22	0.01U		0.4	0.065U	260
MW-37S	00Q4	54	0.1U	0.01U	0.01U	0.434	0.065U	278
MW-37S	01Q1	55	0.99	0.01U	0.01U	0.597	0.065U	267.06
MW-37S	01Q2	56	0.24	0.01U	0.01U	0.772	0.065U	274.68
MW-37S	01Q3	57	6.2	0.01U	0.01U	0.331	0.065U	260.89
MW-37S	01Q4	58	0.24	0.01U	0.01U	0.43	0.065U	274.06
MW-37S	02Q1	59	0.44	0.01U	0.01U	0.48	0.065U	273.24
MW-37S	02Q2	60	0.8	0.01U	0.01U	0.577	0.065U	275.09
MW-37S	02Q3	61	0.5	0.01U	0.01U	0.647	0.065U	247.93
MW-37S	02Q4	62	0.4	0.01U	0.01U	0.504	0.065U	284.96
MW-37S	03Q1	63	0.428	0.01U	0.01U	0.878	0.065U	285.992
MW-37S	03Q2	64	28.77	0.01U	0.01U	0.54	0.065U	305.54
MW-37S	03Q3	65	30.82	0.01U	0.01U	1.486	0.065U	279.2
MW-37S	03Q4	66	53.38	0.01U	0.01U	0.553	0.065U	284.14
MW-37S	04Q1	67	34.69	0.01U	0.01U	0.665	0.065U	291.14
MW-37S	04Q2	68	71.34	0.01U	0.01U	1.05	0.065U	283.52
MW-37S	04Q3	69	95.7	0.01U	0.01U	0.483	0.065U	290.52
MW-37S	04Q4	70	68.6J	0.01U	0.01U	0.666	0.065U	265.57
MW-37S	05Q1	71	266.77	0.01U	0.01U	0.4677	0.065U	275.92
MW-37S	05Q2	72	66.93	0.01U	0.01U	0.69	0.065U	287.04
MW-37S	05Q3	73	46.11	0.34	0.01U	0.8815	0.065U	284.8
MW-37S	05Q4	74	3.092	0.01U	0.01U	0.427	0.065U	306.65
MW-37S	06Q1	75	89.08	0.01U	0.01U	0.5457	0.407	326.04
MW-37S	06Q2	76	25.75	0.01U	0.01U	0.5101	0.065U	269
MW-37S	06Q3	77	89.2	0.01U	0.01U	0.4557	0.065U	297.92
MW-37S	06Q4	78	44.112	0.01U	0.01U	0.5275	0.065U	256.47
MW-37S	07Q1	79	24.32	0.01U	0.01U	0.4771	0.065U	280.1
MW-37S	07Q2	80	75.61	0.01U	0.01U	0.4423	0.065U	278.52
MW-37S	07Q3	81	227.1	0.01U	0.01U	0.3365	0.065U	293.42
MW-37S	07Q4	82	54.58	0.005U	0.005U	0.4539	0.025	290
MW-37S	08Q1	83	193	0.005U	0.01U	0.3342	0.065U	270
MW-37S	08Q2	84	123.2	0.01U	0.01UJ	0.3076	0.065U	287J
MW-37S	08Q3	85	5.527	0.01U	0.01U	0.3784	0.065U	292
MW-37S	08Q4	86	6.868	0.01U	0.01U	0.3208	0.065U	271
MW-37S	09Q1	87	5.36	0.005UJ	0.006U	0.1J	0.2U	311J
MW-37S	09Q2	88	50.2J	0.01U	0.01U	0.2654	0.065U	271
MW-37S	09Q3	89	7.48	0.01U	0.01U	0.2852	0.065U	270
MW-37S	09Q4	90	2.744	0.01U	0.01U	0.3339	0.065U	283
MW-37S	10Q1	91	9.296	0.01U	0.01UJ	0.2578	0.065U	301
MW-37S	10Q2	92	115.9	0.01U	0.01U	0.2715J	0.065U	276
MW-37S	10Q3	93	5.113R	0.01U	0.01U	0.3509	0.065U	28
MW-37S	10Q4	94	5.427	0.01U	0.01U	0.3146	0.065U	285
MW-37S	11Q1	95	7.72	0.01U	0.01U	0.33	0.13U	293
MW-37S	11Q2	96	67.7	0.01U	0.01U	0.34	0.065U	279
MW-37S	11Q3	97	70.3	0.01U	0.01U	0.25	0.05U	287
MW-37S	11Q4	98	78.3	0.01U	0.01UJ	0.3	0.063U	296
MW-37S	12Q1	99	46.2	0.01U	0.01U	0.38	0.065U	282
MW-37S	12Q2	100	117	0.01U	0.01U	0.37	0.061U	176
MW-37S	12Q3	101	55.6	0.01U	0.01U	0.23	0.59	283
MW-37S	12Q4	102	170	0.01U	0.01UJ	0.4	0.061U	297
MW-37S	13Q2	104	117	0.01U	0.01U	0.28	0.061U	304
MW-37S	13Q4	106	293	0.01U	0.01U	0.28	0.061U	290
MW-37S	14Q2	108	351	0.01U	0.01U	0.27	0.061U	299
MW-37S	14Q4	110	473J	0.01U	0.01U	0.3	0.061U	289
MW-37S	15Q2	112	64.4	0.01U	0.01U	0.3	0.061U	296
MW-37S	15Q4	114	96	0.01U	0.01U	0.33	0.061U	314
MW-37S	16Q2	116	29.4	0.005U	---	0.279	0.065U	308
MW-37S	16Q4	118	29.2	0.005U	0.01U	0.263	0.065U	285
MW-37S	17Q2	120	59.1	0.005U	0.01U	2.16	0.065U	287
MW-37S	17Q4	122	80.6	0.005U	0.01U	0.275	0.065U	319
MW-37S	18Q2	124	19	0.01U	0.01U	0.39	0.065U	272
MW-37S	18Q4	126	300	0.01U	0.01U	0.316	0.02U	300
MW-37S	19Q2	128	26.6	0.01U	0.01UJ	0.324J	0.065U	383
MW-37S	19Q4	130	74.4	0.01U	0.01U	0.321	0.065U	354J
MW-37S	20Q2	132	12.5	0.003J	0.01U	0.59	0.065U	292
MW-37S	20Q4	134	25.2	0.005U	0.01U	0.5U	0.065U	308
MW-37S	21Q2	136	33.7	0.005U	0.01U	0.32	0.02U	314
MW-37S	21Q4	138	34.3	0.005U	0.01U	0.32	0.065U	308

Monitoring Well MW-38

Location	Quarter	NQtr	Aluminum mg/l	Cyanide, Total mg/l	WAD Cyanide mg/l	Fluoride mg/l	PCBs, Total µg/l	Sulfate mg/l
MW-38S	99Q1	47	0.69	0.01U		0.7	0.065U	180
MW-38S	99Q2	48	0.37	0.01U		0.6	0.065U	170
MW-38S	99Q3	49	0.36	0.01U		0.5	0.065U	170
MW-38S	99Q4	50	0.27	0.01U		0.7	0.065U	180
MW-38S	00Q1	51	0.51	0.01U		0.7	0.065U	160
MW-38S	00Q2	52	3.3	0.01U		0.7	0.065U	190
MW-38S	00Q3	53	0.37	0.01U		0.6	0.065U	200
MW-38S	00Q4	54	0.13	0.01U	0.01U	0.554	0.065U	178
MW-38S	01Q1	55	0.78	0.01U	0.01U	0.671	0.065U	193.82
MW-38S	01Q2	56	0.4	0.01U	0.01U	0.764	0.065U	198.34
MW-38S	01Q3	57	13.47	0.01U	0.01U	0.486	0.065U	176.33
MW-38S	01Q4	58	0.48	0.01U	0.01U	0.656	0.065U	177.97
MW-38S	02Q1	59	0.73	0.01U	0.01U	0.69	0.065U	172.83
MW-38S	02Q2	60	0.86	0.01U	0.01U	0.863	0.065U	179
MW-38S	02Q3	61	0.54	0.01U	0.01U	0.764	0.065U	163.37
MW-38S	02Q4	62	1.484	0.01U	0.01U	0.774	0.065U	184.97
MW-38S	03Q1	63	22.28	0.01U	0.01U	1.113	0.065U	183.529
MW-38S	03Q2	64	33.63	0.01U	0.01U	1.071	0.078	284.14
MW-38S	03Q3	65	36.27	0.01U	0.01U	1.361	0.065U	174.89
MW-38S	03Q4	66	116.7	0.01U	0.01U	0.698	0.065U	178.18
MW-38S	04Q1	67	106.4	0.01U	0.01U	0.835	0.065U	182.09
MW-38S	04Q2	68	43.29	0.01U	0.01U	2.686	0.065U	178.39
MW-38S	04Q3	69	106.25	0.01U	0.01U	0.814	0.065U	177.15
MW-38S	04Q4	70	148.34J	0.01U	0.01U	0.911	0.065U	159.68
MW-38S	05Q1	71	109.48	0.01U	0.01U	0.7393	0.065U	177.08
MW-38S	05Q2	72	116.51	0.0105	0.01U	0.807	0.065U	181.91
MW-38S	05Q3	73	82.35	0.01U	0.01U	1.255	0.065U	173.1
MW-38S	05Q4	74	10.798	0.01U	0.01U	0.4902	0.065U	201.12
MW-38S	06Q1	75	98.23	0.01U	0.01U	0.5365	0.065U	179.74
MW-38S	06Q2	76	34.74	0.01U	0.01U	0.7073	0.065U	195.49
MW-38S	06Q3	77	134.6	0.01U	0.01U	0.4929	0.065U	179.96
MW-38S	06Q4	78	4.045	0.01U	0.01U	0.9198	0.065U	162.09
MW-38S	07Q1	79	48.55	0.01U	0.01U	0.7634	0.065U	173.92
MW-38S	07Q2	80	133.3	0.01U	0.01U	0.5055	0.065U	178.19
MW-38S	07Q3	81	75.3	0.01U	0.01U	0.3882	0.065U	184.7
MW-38S	07Q4	82	165.8	0.005U	0.005U	0.6454	0.065U	180
MW-38S	08Q1	83	298	0.005U	0.01U	0.5192	0.065U	181
MW-38S	08Q2	84	242.7	0.01U	0.01UJ	0.5395	0.065U	182J
MW-38S	08Q3	85	469.5	0.01U	0.01U	0.5061	0.065U	177
MW-38S	08Q4	86	6.278	0.01U	0.01U	0.5228	0.065U	166
MW-38S	09Q1	87	161	0.005UJ	0.006U	0.35	0.2U	182J
MW-38S	09Q2	88	202J	0.01U	0.01UJ	0.4412	0.065U	152
MW-38S	09Q3	89	156	0.01U	0.01U	0.4614	0.065U	151 J
MW-38S	09Q4	90	36.06	0.01U	0.01U	0.4708	0.065U	174
MW-38S	10Q1	91	4.413	0.01U	0.01UJ	0.4368	0.065U	180
MW-38S	10Q2	92	100.5	0.01U	0.01U	0.44J	0.065U	163
MW-38S	10Q3	93	2.151	0.01U	0.01U	0.5451	0.065U	40.7
MW-38S	10Q4	94	161.6	0.01U	0.02U	0.4898	0.065UJ	171
MW-38S	11Q1	95	822	0.01U	0.01U	0.49	0.0677U	177
MW-38S	11Q2	96	368	0.01U	0.01U	0.49	0.122	176
MW-38S	11Q3	97	352	0.01U	0.01U	0.41	0.05UJ	179
MW-38S	11Q4	98	251	0.01U	0.01UJ	0.44	0.063U	178
MW-38S	12Q1	99	126	0.01U	0.01U	0.49	0.065U	176
MW-38S	12Q2	100	102	0.01U	0.01U	0.43	0.061U	120
MW-38S	12Q3	101	104	0.01U	0.01U	0.41	0.16U	169
MW-38S	12Q4	102	105	0.01U	0.01UJ	0.47	0.061U	174
MW-38S	13Q2	104	38	0.01U	0.01U	0.465	0.061U	186.5
MW-38S	13Q4	106	83.4	0.01U	0.01U	0.46	0.061U	178
MW-38S	14Q2	108	105	0.01U	0.01U	0.45	0.061U	174
MW-38S	14Q4	110	179J	0.01U	0.01U	0.48	0.061U	174
MW-38S	15Q2	112	41.9	0.01U	0.01U	0.49	0.061U	176
MW-38S	15Q4	114	26.8	0.01U	0.01U	0.53	0.061U	185
MW-38S	16Q2	116	44.9	0.005U	---	0.478	0.065U	202
MW-38S	16Q4	118	29.6	0.005U	0.01U	0.47	0.065U	186
MW-38S	17Q2	120	40.8	0.004J	0.01U	1.77	0.065U	121
MW-38S	17Q4	122	34.7	0.005U	0.01U	0.435	0.065U	174
MW-38S	18Q2	124	15	0.01UJ	0.01UJ	0.579	0.065U	187
MW-38S	18Q4	126	44.2	0.01U	0.01U	0.4	0.021U	182
MW-38S	19Q2	128	11.2	0.005U	0.01UJ	0.475J	0.065U	213
MW-38S	19Q4	130	39.1	0.005U	0.01U	0.484	0.065U	219J
MW-38S	20Q2	132	9.6	0.005U	0.01U	0.756	0.065U	185
MW-38S	20Q4	134	16.2	0.005U	0.01U	0.453J	0.065U	182
MW-38S	21Q2	136	44.8	0.005U	0.01U	0.48	0.065U	189
MW-38S	21Q4	138	34.6	0.005U	0.01U	0.513	0.065U	190

Note:

1. Fluoride samples for MW-18S and MW-19S were lost in processing for 01Q1.

Key:

--- = No data available

U = Not detected at value listed

J = Estimated

UJ = Estimated as nondetect

NA = Not available

Collection Date	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Total PCBs
5/7/97	0.09U	0.2U	0.09U	0.09U	0.09U	0.09U	0.09U	0.2U
7/2/97	0.1U	0.2U	0.1U	0.1U	0.097J	0.1U	0.1U	0.097J
8/11/97	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
8/21/97	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
9/20/97	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
9/29/97	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
10/27/97	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
11/3/97	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
11/7/97	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
December 1997	No samples taken							
January 1998	No samples taken							
February 1998	No samples taken							
March 1998	No samples taken							
April 1998	No samples taken							
May 1998	No samples taken							
6/3/98	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
7/6/98	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
8/3/98	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
9/16/98	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
10/6/98	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
11/11/98	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
12/9/98	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
January 1999	No samples taken							
2/23/99	0.065U	0.065U	0.065U	0.065U	0.068	0.065U	0.065U	0.068
2/23/99	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
2/23/99	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
3/11/99	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
4/22/99	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
5/10/99	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
5/27/99	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
8/26/99	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
10/28/99	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
1/27/00	0.100U	0.200U	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
4/26/00	0.100U	0.200U	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
7/10/00	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
11/10/00	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U

Table C-5
East Plant
Sample Results at Rectifier Pond

Collection Date	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Total PCBs
2/9/01	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
4/26/01	0.048U	0.048U	0.048U	0.048U	0.048U	0.048U	0.048U	0.048U
7/10/01	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
10/2/01	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
1/2/02	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
4/2/02	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
7/2/02	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
10/19/02	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
1/7/03	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
4/1/03	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
7/1/03	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
10/7/03	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
1/6/04	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
4/6/04	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
7/6/04	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
10/18/04	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	
1/4/05	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	
4/5/05	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	
7/6/05	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	
10/18/04	12Q1	99						0.065U
1/4/05	12Q2	100						0.065U
4/5/05	12Q3	101						0.065U
7/6/05	12Q4	102						0.065U
10/4/05	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
1/3/06	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
4/4/06	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
7/5/06	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
10/3/06	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
1/2/07	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
4/3/07	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
7/9/07	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
10/8/07	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
1/4/08	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
4/1/08	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
7/9/08	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
10/7/08	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
1/6/09	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
4/7/09	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
7/7/09	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
10/6/09	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
1/5/10	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
4/6/10	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
7/6/10	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
10/4/10	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
1/4/11	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
4/5/11	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
7/5/11	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
10/4/11	---	---	---	0.065U	0.065U	0.065U	0.065U	0.065U
1/24/12				0.065U	0.065U	0.065U	0.065U	0.065U
4/23/12				0.065U	0.065U	0.065U	0.065U	0.065U
10/2/12				0.065U	0.065U	0.065U	0.065U	0.065U

Key:
U = Not detected at the value listed
J = Estimated
--- = Analysis was not performed
Sampling discontinued per letter from NYSDEC dated January 3, 2013.

Table C-5
East Plant
Sample Results at Rectifier Pond

Black Mud Pond

Sample ID Sample Date Parameter ID	Unit	MW-11SR-0621 6/24/21	MW-11SR-1221 12/14/21	MW-12S-0621 6/24/21	MW-12S-1221 12/14/21	MW-13S-0621 6/24/21	MW-13S-1221 12/14/21	MW-14S-0621 6/29/21
Field Parameters								
pH	SU	7.63	7.81	7.64	7.55	7.27	7.29	7.59
Temperature	deg C	11.7	10.2	12.4	11.6	13.7	9.9	13
Specific Conductance	mS/cm	1.519	0.826	3.043	2.539	5.53	1.133	1.23
Turbidity	NTU	32	26	38	18	48	11	9
Redox Potential	mVolt	-23.6	114.8	44.4	101.4	54.8	102.9	152.9

Sample ID Sample Date Parameter ID	Unit	MW-14S-1221 12/14/21	MW-15S-87-0621 [3] 7/1/21	MW-15S-87-1221 12/14/21	MW-20-85S-0621 6/24/21	MW-20-85S-1221 12/14/21	MW-22-85S-0621 7/1/21	MW-22-85S-1221 12/17/21
Field Parameters								
pH	SU	7.54	7.46	8.05	12.3	12.4	7.43	8.15
Temperature	deg C	9.5	13.3	11.1	14.1	9.8	13	9.8
Specific Conductance	mS/cm	0.76	0.728	0.608	1.535	1.583	1.61	1.448
Turbidity	NTU	13	202	26	686	43	210	63
Redox Potential	mVolt	103.9	62.8	106.2	-66.3	-88.6	65.1	0.4

Sample ID Sample Date Parameter ID	Unit	MW-23-85S-0621 6/24/21	MW-23-85S-1221 12/14/21	MW-30S-0621 6/24/21	MW-30S-1221 12/14/21	MW-31SR-0621 6/24/21	MW-31SR-1221 12/14/21	MW-44-0621 6/24/21
Field Parameters								
pH	SU	7.59	7.44	7.7	7.21	8.11	7.66	7.29
Temperature	deg C	15.4	7.9	12.4	7.9	11.5	8.6	11.6
Specific Conductance	mS/cm	1.153	0.865	0.822	0.511	0.638	0.64	0.81
Turbidity	NTU	41	44	141	16	46	183	180
Redox Potential	mVolt	137.6	89.1	126.5	88.5	121.8	67.5	162.1

Sample ID Sample Date Parameter ID	Unit	MW-44-1221 12/17/21	PZ-45-0621 6/24/21	PZ-45-1221 12/17/21	PZ-46-0621 6/24/21	PZ-46-1221 12/17/21
Field Parameters						
pH	SU	7.16	7.5	7.1	7.72	7.42
Temperature	deg C	10.4	17.6	6.5	17.7	6.3
Specific Conductance	mS/cm	0.731	1.19	1.824	1.703	1.505
Turbidity	NTU	18	307	155	1000	1000
Redox Potential	mVolt	84.9	-116.9	-82	-99.2	119.2

Landfill

Sample ID Sample Date Chemical Name	Unit	MW-10S-0321 3/25/21	MW-10S-0621 6/29/21	MW-10S-0921 9/28/21	MW-10S-1221 12/14/21	MW-39S-0321 3/25/21	MW-39S-0621 6/24/21	MW-39S-0921 9/28/21
Field Parameters								
pH	SU	7.7	7.5	7.54	7.17	7.43	7.33	7.18
Temperature	deg C	10.1	13.9	14.1	6.3	10.4	10.1	11.3
Specific Conductance	mS/cm	0.64	0.731	0.718	0.532	0.727	0.733	0.946
Turbidity	NTU	17.1	2	3	4	315	24	15
Redox Potential	mVolt	---	153	-36.9	182.2	---	129.3	7.9

Sample ID Sample Date Chemical Name	Unit	MW-39S-1221 12/14/21	MW-40S-0321 3/25/21	MW-40S-0621 6/24/21	MW-40S-0921 9/28/21	MW-40S-1221 12/14/21	MW-45-0321 3/25/21	MW-45-0621 6/29/21
Field Parameters								
pH	SU	7.17	7.3	7.72	7.47	7.26	7.36	7.06
Temperature	deg C	6.8	12.3	13.8	13.7	7.8	10	13.8
Specific Conductance	mS/cm	0.584	1.121	0.958	1.097	0.751	1.568	1.739
Turbidity	NTU	36	2.75	10	3	9	38.9	30
Redox Potential	mVolt	-27.7	---	108.6	18.6	77	---	159.6

Sample ID Sample Date Chemical Name	Unit	MW-45-0921 9/28/21	MW-45-1221 12/14/21	SLPWETE-0321 3/25/21	SLPWETE-0621 6/24/21	SLPWETE-0921 9/28/21	SLPWETE-1221 12/14/21
Field Parameters							
pH	SU	7.14	7.05	7.14	7.34	7.98	7.67
Temperature	deg C	12.7	7	5.1	13.9	15.1	2.7
Specific Conductance	mS/cm	1.752	1.247	0.0364	0.374	0.519	0.2312
Turbidity	NTU	6	9	12.4	37	6	9
Redox Potential	mVolt	39.7	65.3	---	99.6	55.3	95.1

Potliner Storage Pad

Sample ID Sample Date Parameter ID	Unit	MW-03S-0621 6/24/21	MW-03S-1221 12/16/21	MW-26S-0621 6/29/21	MW-26S-1221 12/17/21	MW-27S-0621 6/24/21	MW-27S-1221 12/16/21	MW-28S-0621 6/29/21
Field Parameters								
pH	SU	8.29	8.48	7.52	12.35	7.47	7.11	8.45
Temperature	deg C	16.1	11.5	16.9	8.1	21.5	12.4	12.8
Specific Conductance	mS/cm	1.603	0.63	0.908	2.325	9.34	7.24	0.986
Turbidity	NTU	39	29	1000	347	207	52	7
Redox Potential	mVolt	232.1	227.4	-31.1	-46.11	225.4	206.8	54.2

Sample ID Sample Date Parameter ID	Unit	MW-28S-1221 12/17/21	MW-33S-0621 6/24/21	MW-33S-1221 12/17/21	MW-34S-0621 6/24/21	MW-34S-1221 12/15/21	MW-35SR-0621 [3] 7/1/21	MW-35SR-1221 12/16/21
Field Parameters								
pH	SU	8.29	7.74	7.59	8.69	7.38	7.19	7.29
Temperature	deg C	11.2	13.9	9.9	14.1	9.6	12.1	11.4
Specific Conductance	mS/cm	0.93	1.913	1.762	2.354	2.26	1.811	1.42
Turbidity	NTU	13	---	33	184	40	892	958
Redox Potential	mVolt	6	64.3	20.4	206.8	196.4	117.9	187.7

North Yard

Sample ID Sample Date Parameter ID	Unit	MW-16S-0621 6/24/21	MW-16S-1221 12/17/21	MW-17S-0621 [3] 7/1/21	MW-17S-1221 12/16/21	MW-18S-0621 6/24/21	MW-18S-1221 12/17/21	MW-19S-0621 6/24/21
Field Parameters								
pH	SU	8.08	7.81	7.37	7.6	8.07	7.71	7.78
Temperature	deg C	14.4	10.4	13.8	10.1	15	9.5	15.3
Specific Conductance	mS/cm	1.132	2.226	1.01	0.92	1.621	1.323	0.95
Turbidity	NTU	29	3	27	6	25	2	27
Redox Potential	mVolt	166.5	99.1	82.5	228.4	169.3	57.5	170.5

Sample ID Sample Date Parameter ID	Unit	MW-19S-1221 12/16/21	MW-36-0621 7/1/21	MW-36-1221 12/16/21	MW-37-0621 7/1/21	MW-37-1221 12/16/21	MW-38-0621 6/24/21	MW-38-1221 12/16/21
Field Parameters								
pH	SU	7.6	8.52	8.64	7.65	7.67	8.51	8.29
Temperature	deg C	11	13.5	10.5	11.9	9.9	11.9	10.1
Specific Conductance	mS/cm	0.756	2.277	2.219	0.928	0.919	0.56	0.474
Turbidity	NTU	15	1000	1000	1000	1000	1000	1000
Redox Potential	mVolt	153.8	85.8	156.2	118	174.2	191	155.1

Sample ID Sample Date Parameter ID	Unit	MW-41-0621 7/1/21	MW-41-1221 12/16/21	MW-42-0621 7/1/21	MW-42-1221 12/16/21	MW-43-0621 6/29/21	MW-43-1221 12/17/21	MW-44-0621 6/24/21
Field Parameters								
pH	SU	7.66	7.37	7.8	7.93	7.28	7.04	7.29
Temperature	deg C	13.4	9.7	15.9	10.4	13.9	9.7	11.6
Specific Conductance	mS/cm	1.067	0.958	2.938	2.923	0.887	0.79	0.81
Turbidity	NTU	126	366	969	1000	1000	800	180
Redox Potential	mVolt	76	202.4	96.2	183.6	80.7	92	162.1

Sample ID Sample Date Parameter ID	Unit	MW-44-1221 12/17/21	FDRAIN-0621 6/24/21	FDRAIN-1221 12/15/21
Field Parameters				
pH	SU	7.16	8.98	8.31
Temperature	deg C	10.4	12.3	9.5
Specific Conductance	mS/cm	0.731	0.914	0.978
Turbidity	NTU	18	42	6
Redox Potential	mVolt	84.9	201.2	243.2

Key:
--- = Not analyzed

Groundwater Extraction Wells
Parameters Collected at FTC Sampling Ports

Well	Date	Fluoride	Total Cyanide	Sulfate
		mg/l	mg/l	mg/l
EW-01	10/16/2012	0.280	<0.01	---
EW-02	10/16/2012	<0.1	0.047	---
EW-04	10/16/2012	0.320	0.181	---
EW-05	10/16/2012	1.100	0.087	---
EW-06	10/16/2012	0.160	0.498	---
EW-01	10/23/2012	0.170	<0.01	---
EW-02	10/23/2012	<0.2	0.038	---
EW-04	10/23/2012	0.420	0.168	---
EW-05	10/23/2012	0.590	0.040	---
EW-06	10/23/2012	0.200	0.448	---
EW-01	10/30/2012	0.250	<0.01	---
EW-02	10/30/2012	<0.1	0.042	---
EW-04	10/30/2012	0.350	0.177	---
EW-05	10/30/2012	1.410	0.057	---
EW-06	10/30/2012	0.210	0.401	---
EW-01	11/6/2012	0.240	<0.01	---
EW-02	11/6/2012	<0.1	0.038	---
EW-04	11/6/2012	0.150	0.171	---
EW-05	11/6/2012	1.070	0.044	---
EW-06	11/6/2012	0.260	0.417	---
EW-01	11/13/2012	0.210	<0.01	---
EW-02	11/13/2012	<0.1	0.044	---
EW-04	11/13/2012	0.200	0.172	---
EW-05	11/13/2012	1.030	0.051	---
EW-06	11/13/2012	0.220	0.441	---
EW-01	11/20/2012	0.260	<0.01	170
EW-02	11/20/2012	0.110	0.037	209
EW-04	11/20/2012	0.310	0.138	241
EW-05	11/20/2012	1.220	0.050	78
EW-06	11/20/2012	0.280	0.442	111
EW-01	11/27/2012	0.270	<0.01	166
EW-02	11/27/2012	0.120	0.034	213
EW-04	11/27/2012	0.280	0.122	430
EW-05	11/27/2012	1.020	0.040	75
EW-06	11/27/2012	0.380	0.439	111
EW-01	12/4/2012	0.270	<0.01	171
EW-02	12/4/2012	0.160	0.038	218
EW-04	12/4/2012	0.250	0.137	258
EW-05	12/4/2012	0.770	0.031	78
EW-06	12/5/2012	0.410	0.442	117

Groundwater Extraction Wells
Parameters Collected at FTC Sampling Ports

Well	Date	Fluoride	Total Cyanide	Sulfate
		mg/l	mg/l	mg/l
EW-01	1/8/2013	0.250	<0.01	160
EW-02	1/8/2013	0.150	0.036	205
EW-04	1/8/2013	0.310	0.164	246
EW-05	1/8/2013	0.490	0.037	74
EW-06	1/10/2013	0.270	0.426	114
EW-01	2/12/2013	0.310	<0.0100	178
EW-02	---	---	---	---
EW-04	2/12/2013	0.270	0.124	262
EW-05	2/12/2013	0.350	0.041	85
EW-06	2/12/2013	0.240	0.446	124
EW-01	3/12/2013	0.290	<0.0100	173
EW-02	---	---	---	---
EW-04	3/12/2013	0.170	0.102	243
EW-05	3/12/2013	0.250	0.029	82
EW-06	3/12/2013	0.260	0.418	122
EW-01	4/9/2013	0.220	<0.0100	160
EW-02	---	---	---	---
EW-04	4/9/2013	0.140	0.090	234
EW-05	4/9/2013	0.200	0.033	78
EW-06	4/9/2013	0.150	0.420	118
EW-01	5/14/2013	0.230	<0.0100	187
EW-02	---	---	---	---
EW-04	5/14/2013	0.160	0.096	265
EW-05	5/14/2013	0.160	0.023	88
EW-06	5/14/2013	0.180	0.405	132
EW-01	6/12/2013	0.160	0.010	182
EW-02	---	---	---	---
EW-04	6/12/2013	0.260	0.142	262
EW-05	6/12/2013	0.210	0.020	88
EW-06	6/12/2013	0.250	0.418	129
EW-01	7/10/2013	0.280	0.010	186
EW-02	---	---	---	---
EW-04	7/9/2013	0.280	0.092	266
EW-05	7/10/2013	0.210	0.019	86
EW-06	7/10/2013	0.250	0.445	131
EW-01	8/13/2013	0.290	<0.0100	192
EW-02	---	---	---	---
EW-04	8/13/2013	0.250	0.114	275
EW-05[3]	8/15/2013	0.270	0.021	88
EW-06[3]	8/20/2013	0.430	0.449	134

Groundwater Extraction Wells
Parameters Collected at FTC Sampling Ports

Well	Date	Fluoride	Total Cyanide	Sulfate
		mg/l	mg/l	mg/l
EW-01	9/10/2013	0.250	<0.0100	177
EW-02	---	---	---	---
EW-04	9/10/2013	0.190	0.106	250
EW-05	9/10/2013	0.160	0.018	84
EW-06	9/10/2013	0.280	0.475	122
EW-01	10/8/2013	0.270	<0.0100	176
EW-02	---	---	---	---
EW-04	10/8/2013	0.270	0.124	249
EW-05	10/22/2013	0.230	0.028	84
EW-06	10/8/2013	0.250	0.512	121
EW-01	11/13/2013	0.270	<0.0100	182
EW-02	---	---	---	---
EW-04	11/13/2013	0.230	0.120	251
EW-05	11/13/2013	0.180	0.031	85
EW-06	11/13/2013	0.240	0.451	123
EW-01	2/11/2014	0.280	0.01U	181
EW-02	2/11/2014	---	---	---
EW-04	2/11/2014	0.230	0.112	253
EW-05	2/11/2014	0.160	0.025	87
EW-06	2/11/2014	0.250	0.523	121
EW-01	5/19/2014	0.260	0.01U	158
EW-02	5/19/2014	---	---	---
EW-04	5/19/2014	0.210	0.102	242
EW-05	5/19/2014	0.150	0.024	86
EW-06	5/19/2014	0.210	0.472	116
EW-01	8/12/2014	0.240	0.01U	166
EW-02	8/12/2014	---	---	---
EW-04	8/12/2014	0.130	0.098	226
EW-05	8/12/2014	0.140	0.027	84
EW-06	8/12/2014	0.460	0.477	98
EW-01	11/14/2014	0.220	0.01U	169
EW-02	11/14/2014	0.250	0.04	199
EW-04	11/14/2014	0.110	0.150	230
EW-05	11/14/2014	0.100	0.027	83
EW-06	11/14/2014	0.510	0.541	103
EW-01	5/13/2015	0.250	0.035	---
EW-02	5/13/2015	0.280	0.01U	---
EW-04	5/13/2015	---	---	---
EW-05	5/13/2015	---	---	---
EW-06	5/13/2015	0.230	0.098	
EW-01	6/17/2015	---	---	---
EW-02	6/17/2015	---	---	---
EW-04	6/17/2015	0.240	0.098	
EW-05	6/17/2015	---	---	---
EW-06	6/17/2015	---	---	---

Groundwater Extraction Wells
Parameters Collected at FTC Sampling Ports

Well	Date	Fluoride	Total Cyanide	Sulfate
		mg/l	mg/l	mg/l
EW-01	8/12/2015	0.290	0.01U	---
EW-02	8/12/2015	1.630	0.071	---
EW-04	8/12/2015	0.190	0.097	---
EW-05	8/12/2015	---	---	---
EW-06	8/12/2015	0.310	0.475	---
EW-01	11/11/2015	0.310	0.01U	---
EW-02	11/11/2015	---	---	---
EW-04	11/11/2015	0.200	0.084	---
EW-05	11/11/2015	0.140	0.030	---
EW-06	11/11/2015	0.290	0.578	---
EW-01	2/10/2016	0.32	0.01U	---
EW-02	2/10/2016	0.96	0.040	---
EW-04	2/10/2016	0.21	0.106	---
EW-05	2/10/2016	0.15	0.029	---
EW-06	2/10/2016	0.36	0.556	---
EW-01	5/11/2016	0.27	0.01U	---
EW-02	5/11/2016	---	---	---
EW-04	5/11/2016	---	---	---
EW-05	5/11/2016	0.13	0.032	---
EW-06	5/11/2016	0.57	0.54	---
EW-01	8/9/2016	0.24	0.01U	---
EW-02	8/9/2016	---	---	---
EW-04	8/9/2016	0.19	0.104	---
EW-05	8/9/2016	0.12	0.032	---
EW-06	8/9/2016	0.64	0.586	---
EW-01	11/22/2016	0.31	0.01U	---
EW-02	11/22/2016	1.1	0.053	---
EW-04	11/22/2016	0.23	0.113	---
EW-05	11/22/2016	0.15	0.034	---
EW-06	11/22/2016	0.29	0.686	---
EW-01	3/28/2017	0.25	0.01U	---
EW-02	3/28/2017	---	---	---
EW-04	3/28/2017	0.16	0.104	---
EW-05	3/28/2017	0.12	0.033	---
EW-06	3/28/2017	0.57	0.681	---

Groundwater Extraction Wells
Parameters Collected at FTC Sampling Ports

Well	Date	Fluoride	Total Cyanide	Sulfate
		mg/l	mg/l	mg/l
EW-01	5/9/2017	0.26	0.01U	---
EW-02	6/15/2017	0.490	0.024	---
EW-04	5/9/2017	0.170	0.096	---
EW-05	5/16/2017	0.11	0.028	---
EW-06	5/9/2017	0.29	0.574	---
EW-01	8/8/2017	0.26	0.01U	---
EW-02	8/8/2017	---	---	---
EW-04	8/8/2017	0.2	0.101	---
EW-05	8/8/2017	0.12	0.036	---
EW-06	8/8/2017	0.71	0.606	---
EW-01	11/21/2017	0.23	0.01U	---
EW-02	11/21/2017	1.57	0.067	---
EW-04	11/21/2017	0.16	0.103	---
EW-05	11/21/2017	0.11	0.041	---
EW-06	11/21/2017	0.34	0.684	---
EW-01	2/22/2018	0.24	0.01U	---
EW-02	2/22/2018	0.86	0.023	---
EW-04	2/22/2018	0.16	0.103	---
EW-05	2/22/2018	0.1	0.044	---
EW-06	2/22/2018	0.43	0.719	---
EW-01	5/8/2018	0.35	0.01U	---
EW-02	5/8/2018	2.05	0.033	---
EW-04	5/8/2018	0.3	0.1	---
EW-05	5/8/2018	0.1U	0.034	---
EW-06	5/8/2018	0.52	0.643	---
EW-01	8/14/2018	0.26	0.01U	---
EW-02	8/14/2018	0.34	0.021	---
EW-04	8/14/2018	0.17	0.088	---
EW-05	8/14/2018	0.14	0.041	---
EW-06	8/14/2018	0.75	0.637	---
EW-01	11/27/2018	0.36	0.01U	---
EW-02	11/27/2018	1.57	0.039	---
EW-04	11/27/2018	0.33	0.109	---
EW-05	11/27/2018	0.21	0.034	---
EW-06	11/27/2018	0.51	0.723	---
EW-01	Feb-19	0.32	0.01U	---
EW-02	Feb-19	0.32	0.032	---
EW-04	Feb-19	0.2	0.098	---
EW-05	Feb-19	NS	NS	---
EW-06	Feb-19	0.69	0.665	---
EW-01	May-19	0.34	0.01U	---
EW-02	May-19	2	0.026	---
EW-04	May-19	0.33	0.097	---
EW-05	May-19	NS	NS	---
EW-06	May-19	0.6	0.617	---
EW-01	Aug-19	1.5	0.005U	---
EW-02	Aug-19	0.34	0.0304	---
EW-04	Aug-19	0.34	0.0891	---
EW-05	Aug-19	0.23	0.0659	---
EW-06	Aug-19	0.66	0.174	---
EW-01	Nov-19	0.29	0.005U	---
EW-02	Nov-19	0.29	0.0338	---
EW-04	Nov-19	0.2	0.114	---
EW-05	Nov-19	0.16	0.0618	---
EW-06	Nov-19	0.78	0.148	---
EW-01	Feb-20	0.38	0.01U	---
EW-02	Feb-20	0.39	0.0298	---
EW-04	Feb-20	0.35	0.0915	---
EW-05	Feb-20	0.13	0.0439	---
EW-06	Feb-20	0.99	0.723	---
EW-01	May-20	0.27	0.005U	---
EW-02	May-20	0.28	0.0504	---
EW-04	May-20	0.24	0.144	---
EW-05	May-20	0.1U	0.0607	---
EW-06	May-20	0.86	0.513	---
EW-01	Aug-20	0.12	0.0055	---
EW-02	Aug-20	0.1U	0.0325	---
EW-04	Aug-20	0.1U	0.0978	---
EW-05	Aug-20	0.1U	0.0571	---
EW-06	Aug-20	0.4	0.564	---
EW-01	Nov-20	0.42	0.0091	---
EW-02	Nov-20	0.34	0.078	---
EW-04	Nov-20	0.32	0.102	---
EW-05	Nov-20	0.22	0.0637	---
EW-06	Nov-20	0.61	0.636	---

Groundwater Extraction Wells
Parameters Collected at FTC Sampling Ports

Well	Date	Fluoride	Total Cyanide	Sulfate
		mg/l	mg/l	mg/l
EW-01	Feb-21	0.25	0.005U	---
EW-02	Feb-21	0.31	0.039	---
EW-04	Feb-21	0.3	0.0673	---
EW-05	Feb-21	0.3	0.0527	---
EW-06	Feb-21	0.69	0.644	---
EW-01	May-21	0.28	0.0062	---
EW-02	May-21	1.23	0.0461	---
EW-04	May-21	0.24	0.0962	---
EW-05	May-21	0.13	0.0688	---
EW-06	May-21	0.66	0.456	---
EW-01	Aug-21	0.36	0.005U	---
EW-02	Aug-21	0.53	0.0246	---
EW-04	Aug-21	0.52	0.0707	---
EW-05	Aug-21	0.43	0.0419	---
EW-06	Aug-21	0.89	0.386	---
EW-01	Nov-21	0.28	0.0075	---
EW-02	Nov-21	1.26	0.0356	---
EW-04	Nov-21	0.23	0.0911	---
EW-05	Nov-21	0.13	0.0625	---
EW-06	Nov-21	0.63	0.503	---

Notes:
1. Alcoa Lab collects the analytical samples.
2. Sampling frequency reduced to quarterly after the November 2013 round.
3. Samples results for EW-05 and EW-06 appear to be switched in the lab report and have been corrected in this table.

Key:
--- = Indicates that parameters were not measured.
ND = Nondetect values only in the average.

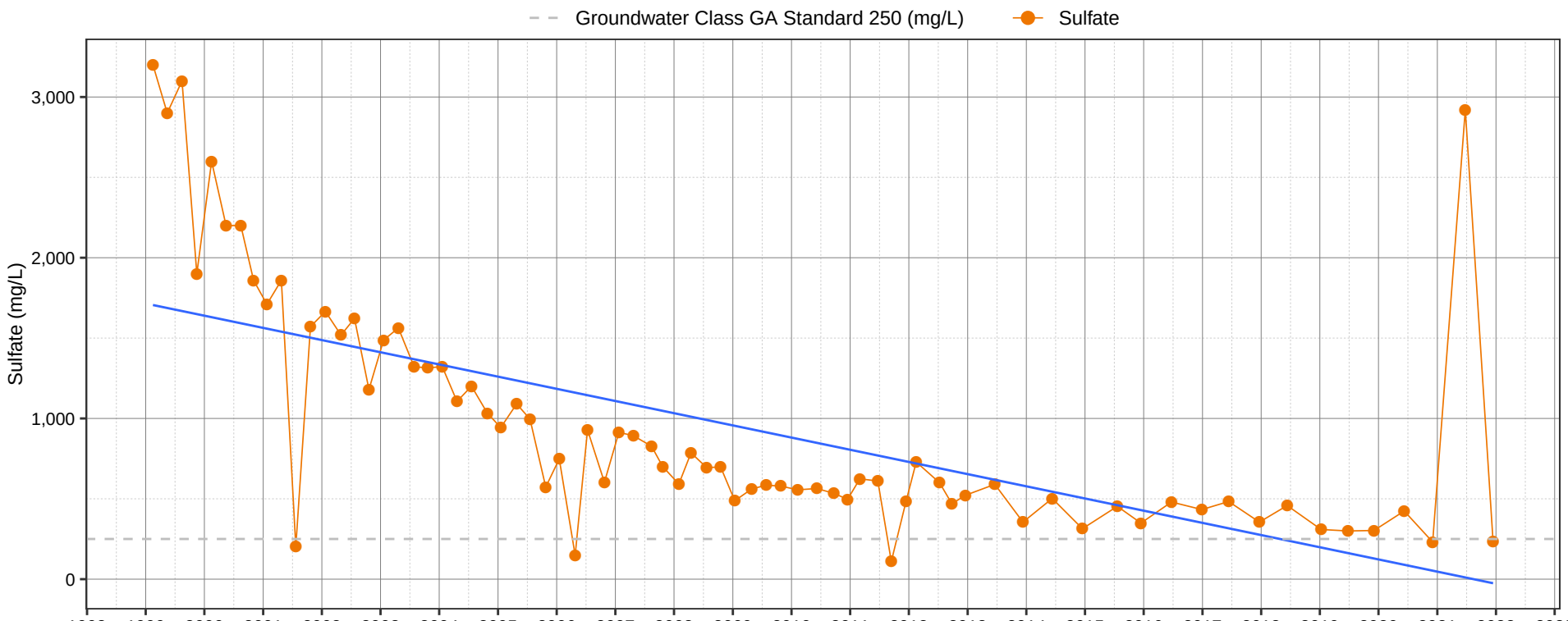
Appendix D Statistical Analysis

Appendix D1 Historical

Well MW−11SR
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)

MW−11SR

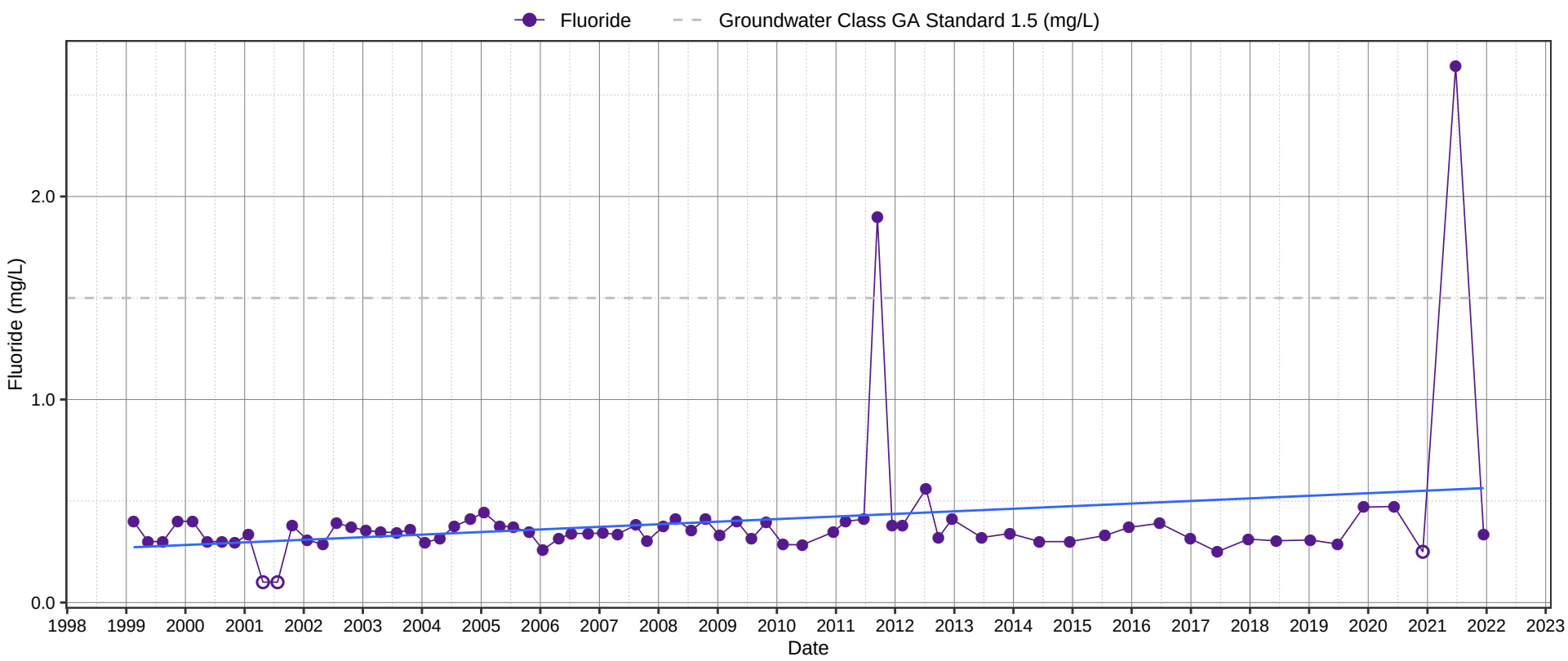
Decreasing



Mann−Kendall p−value < 0.001

MW−11SR

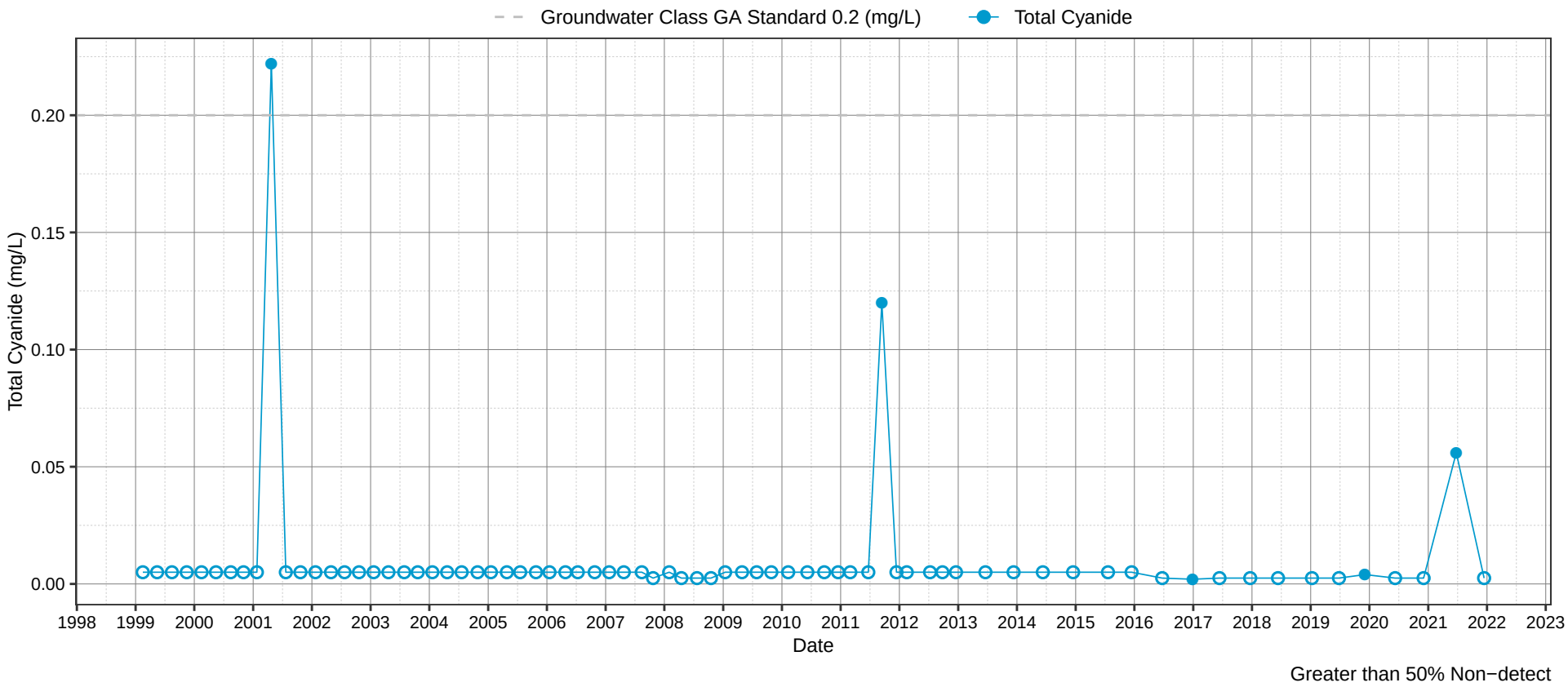
No Trend



Mann−Kendall p−value =0.517

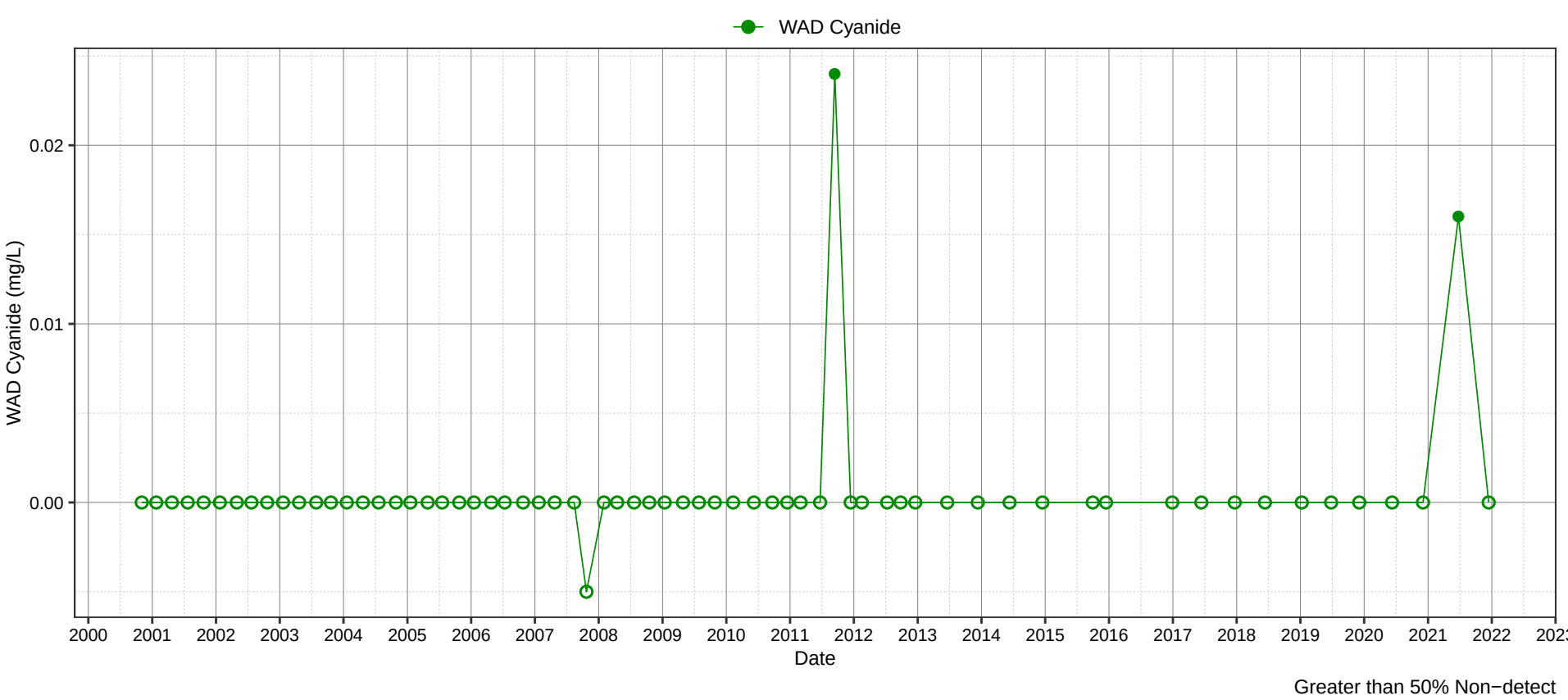
MW−11SR

No Trend



Greater than 50% Non−detect

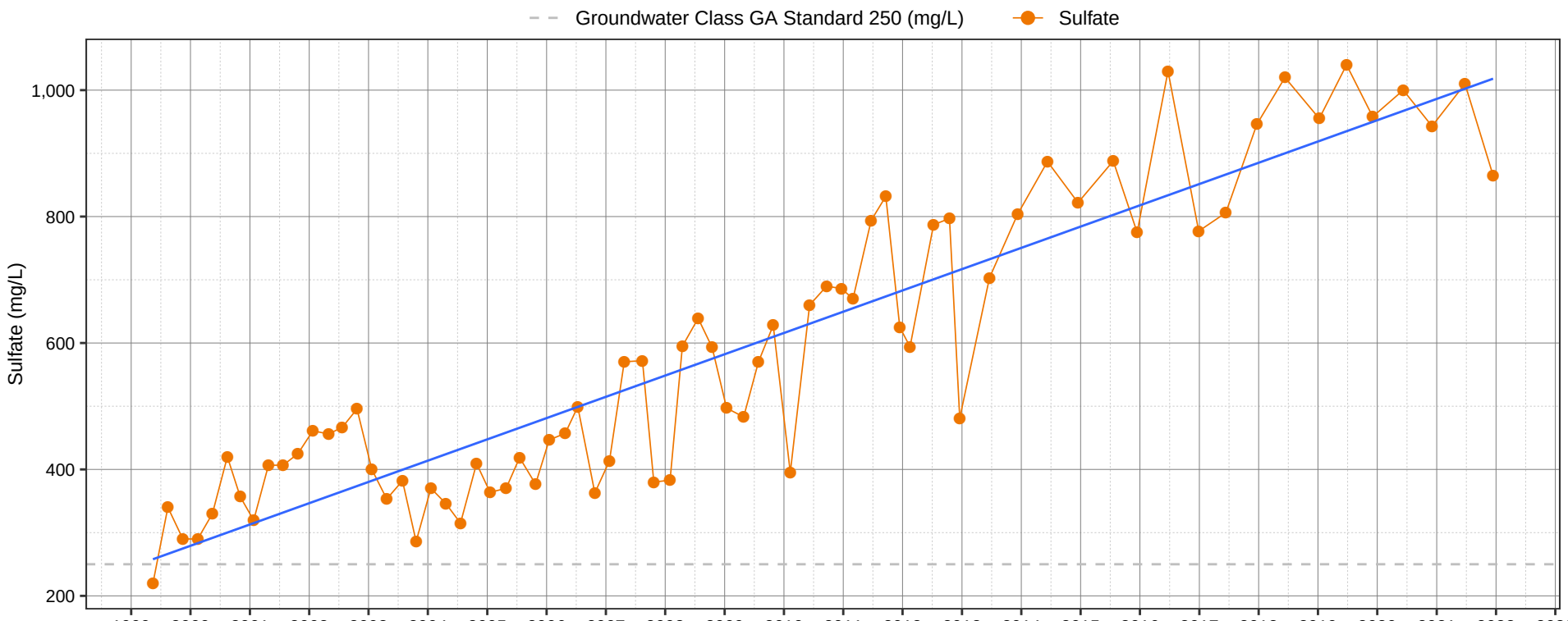
Well MW−11SR
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)



Well MW−12S
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)

MW−12S

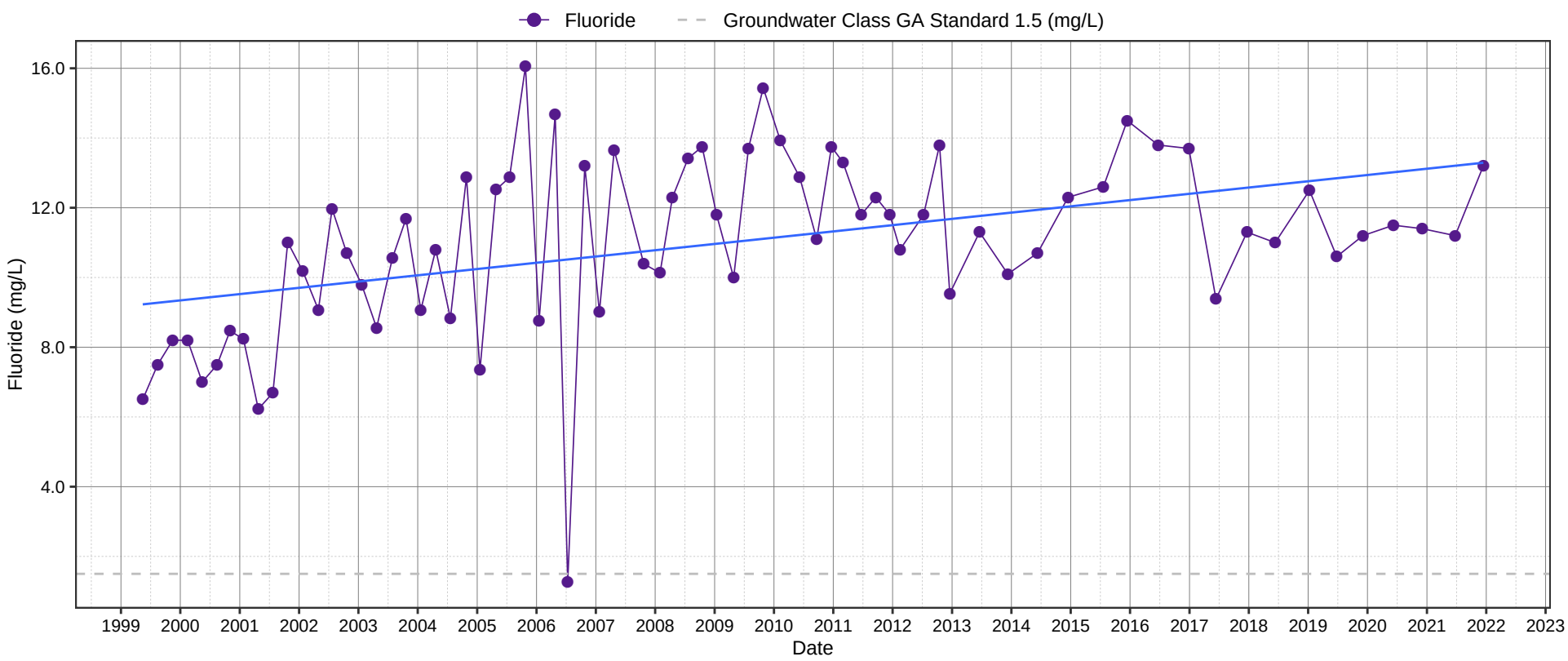
Increasing



Mann−Kendall p−value < 0.001

MW−12S

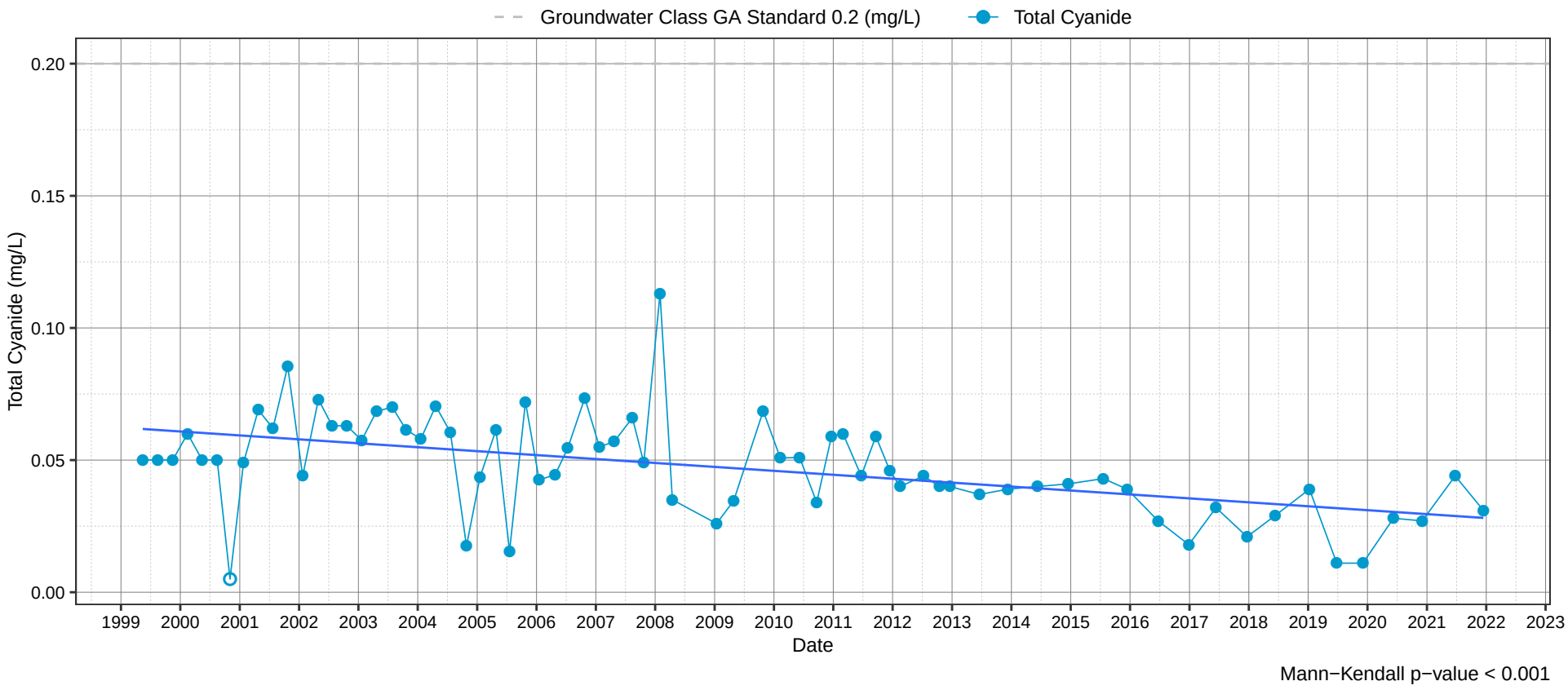
Increasing



Mann−Kendall p−value < 0.001

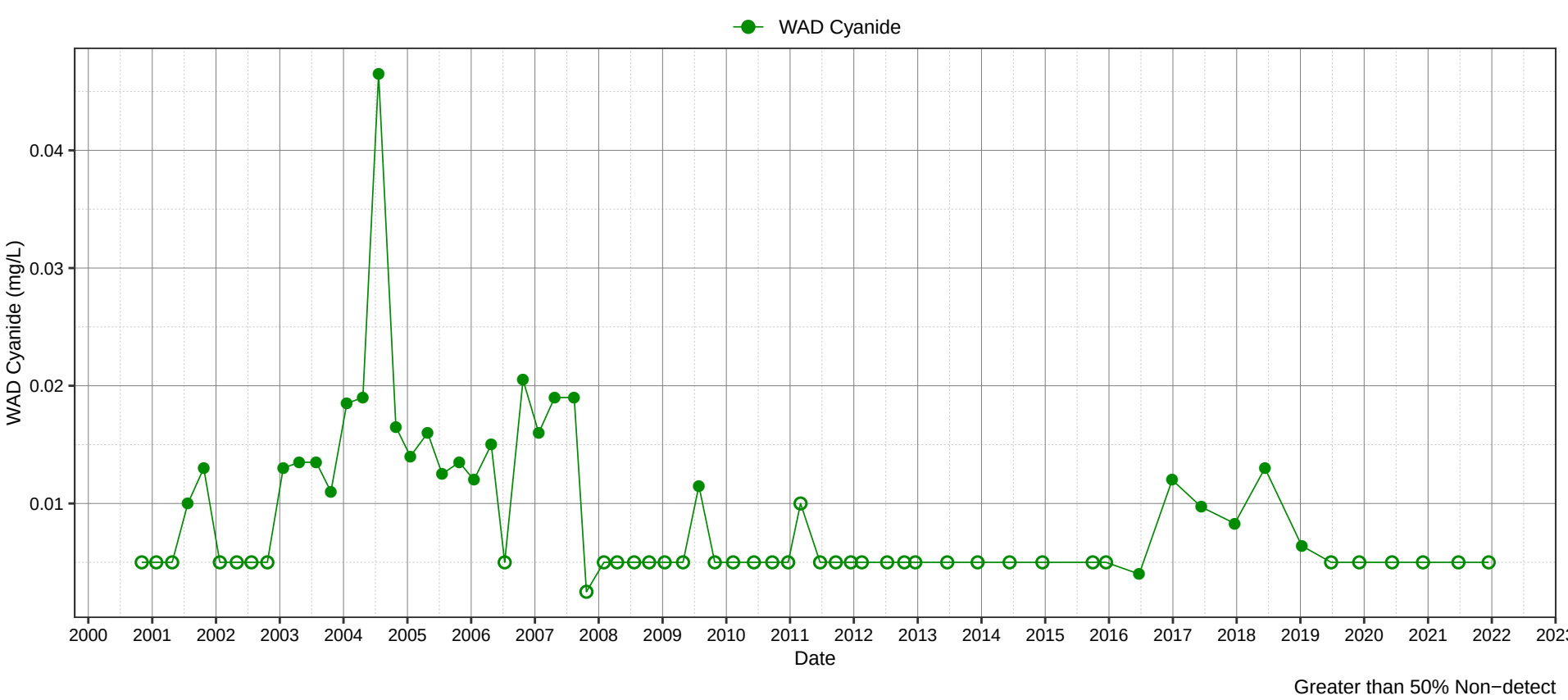
MW−12S

Decreasing



Mann−Kendall p−value < 0.001

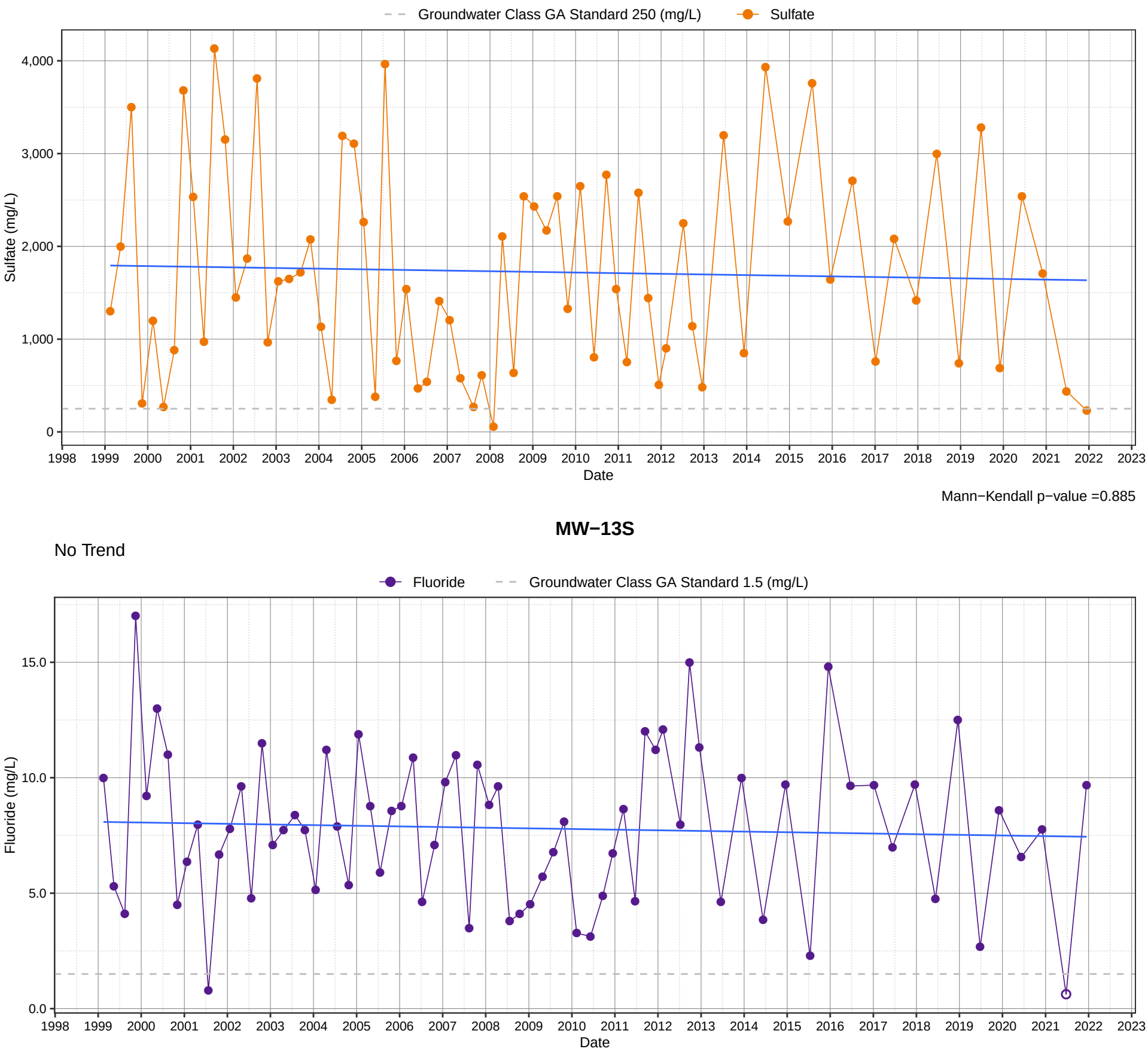
Well MW−12S
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)



Well MW−13S
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)

MW−13S

No Trend



Mann−Kendall p−value =0.885

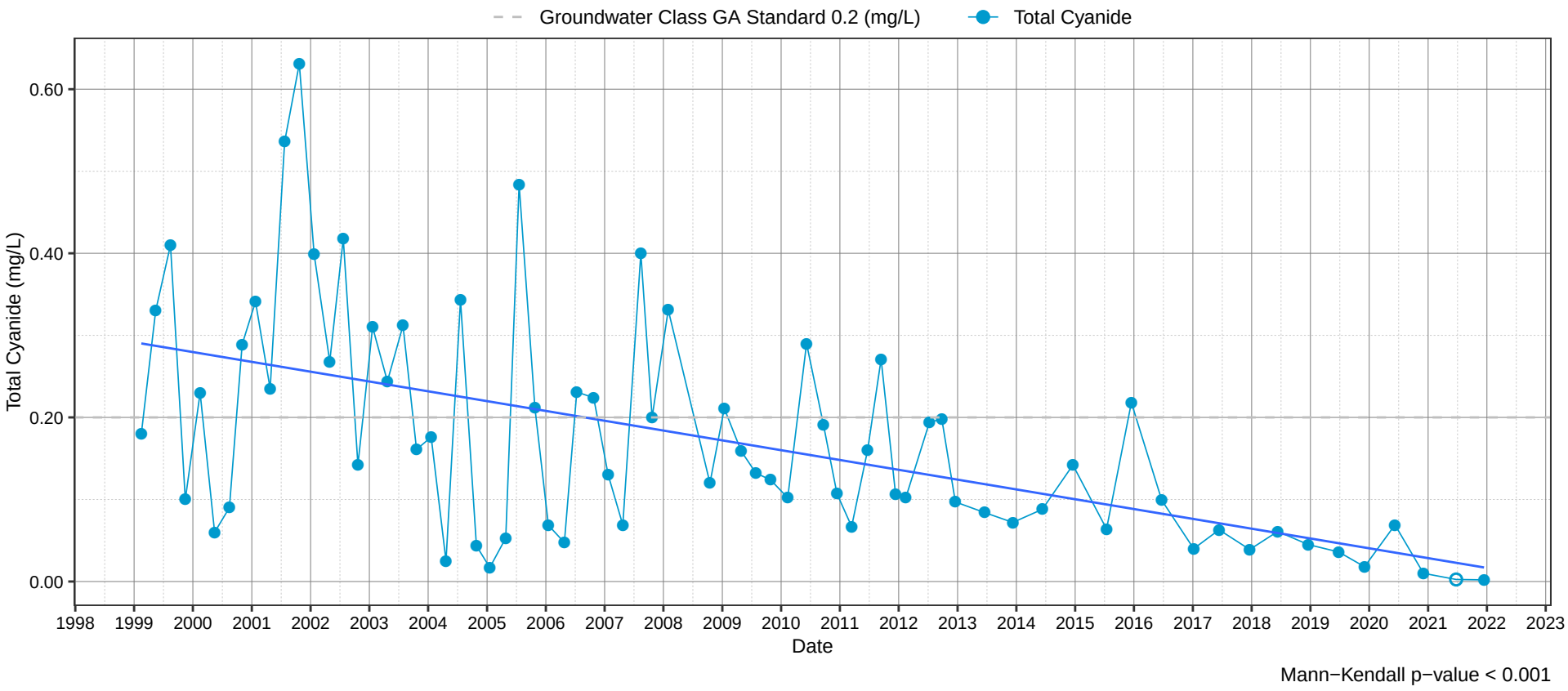
MW−13S

No Trend

Mann−Kendall p−value =0.856

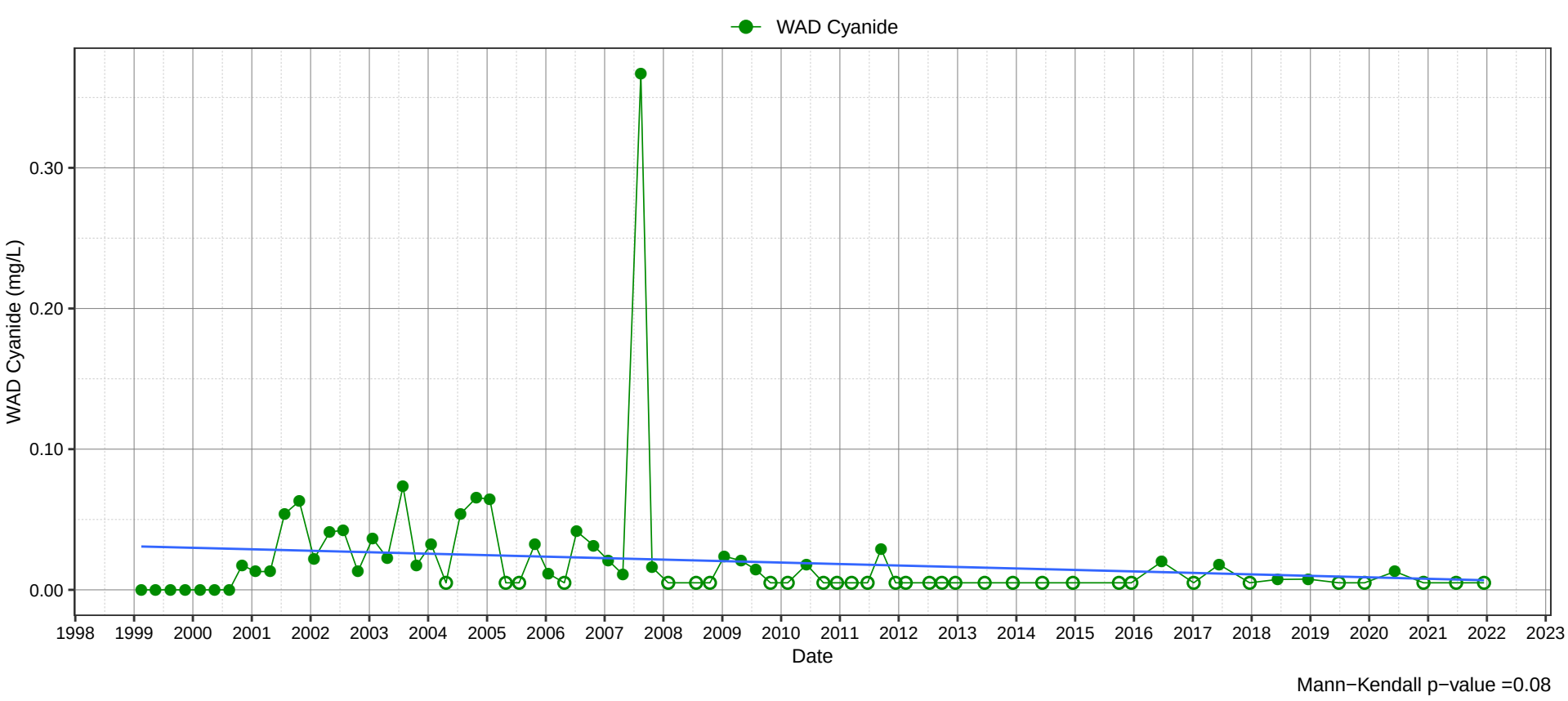
MW−13S

Decreasing



Mann−Kendall p−value < 0.001

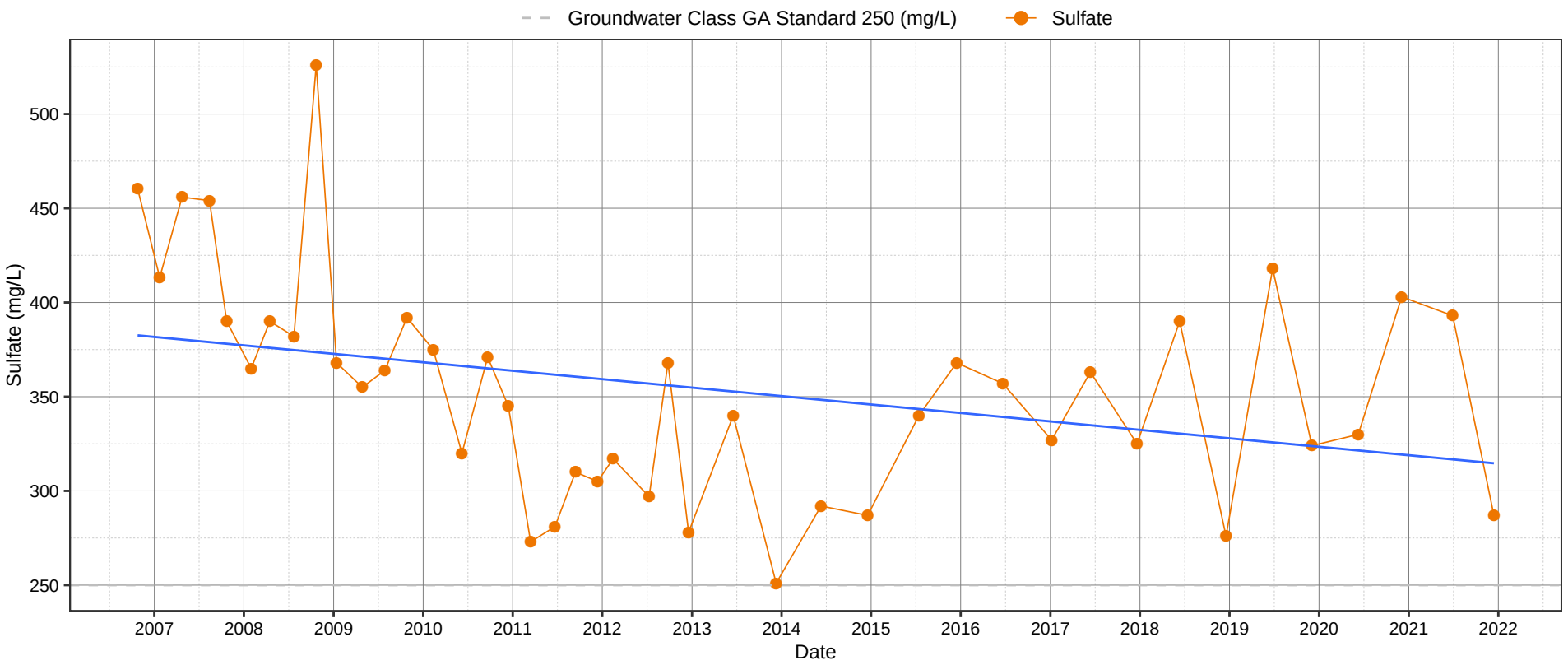
Well MW−13S
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)



Well MW−14S
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)

MW−14S

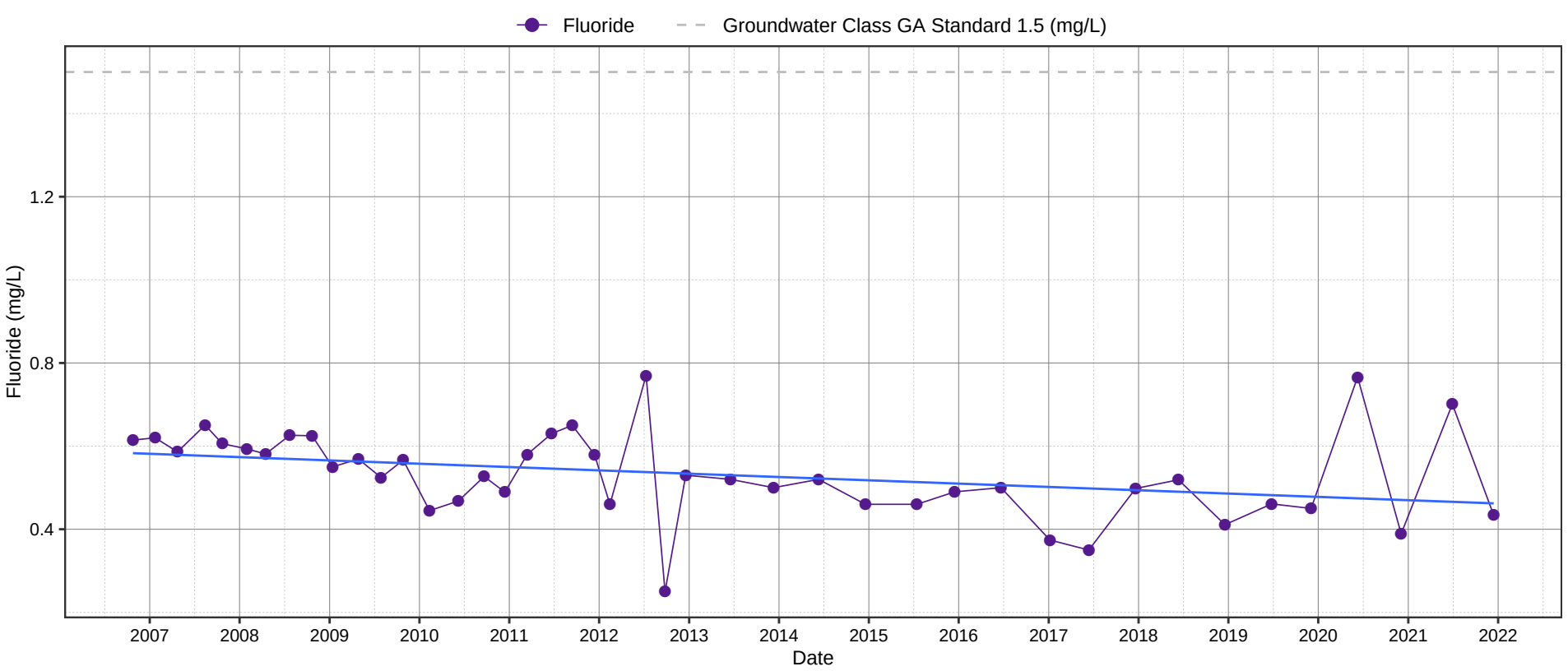
Decreasing



Mann−Kendall p−value =0.005

MW−14S

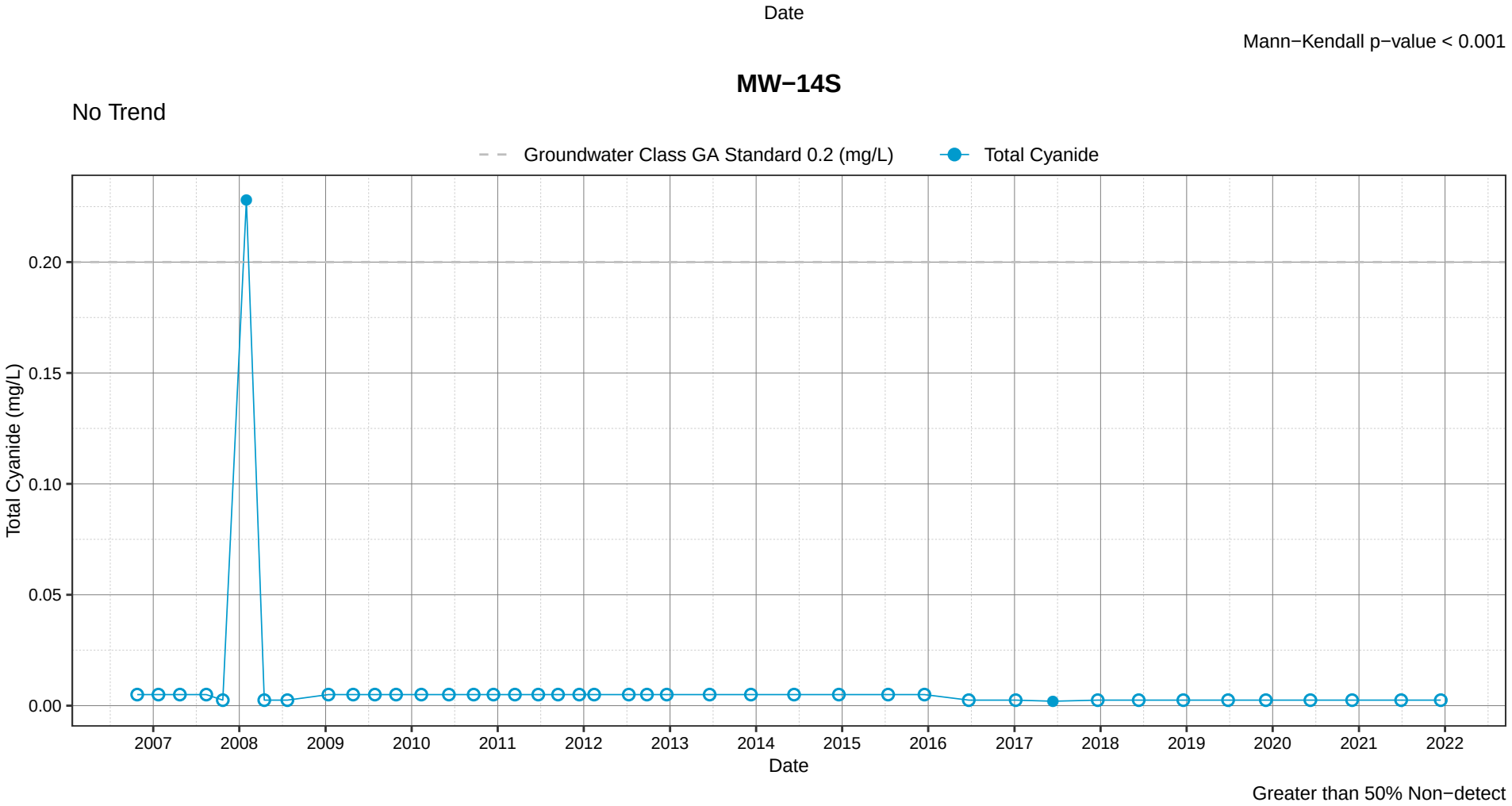
Decreasing



Mann−Kendall p−value < 0.001

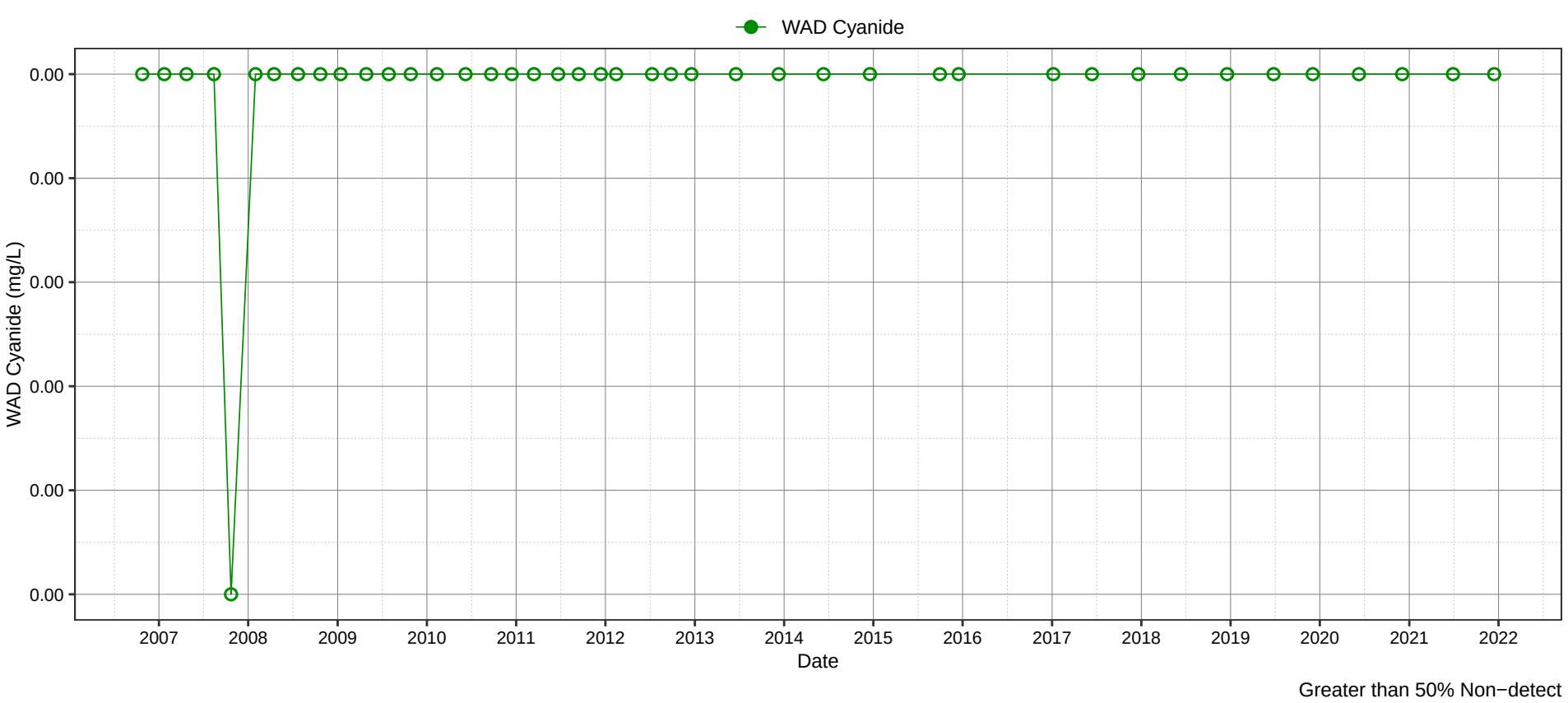
MW−14S

No Trend



Greater than 50% Non−detect

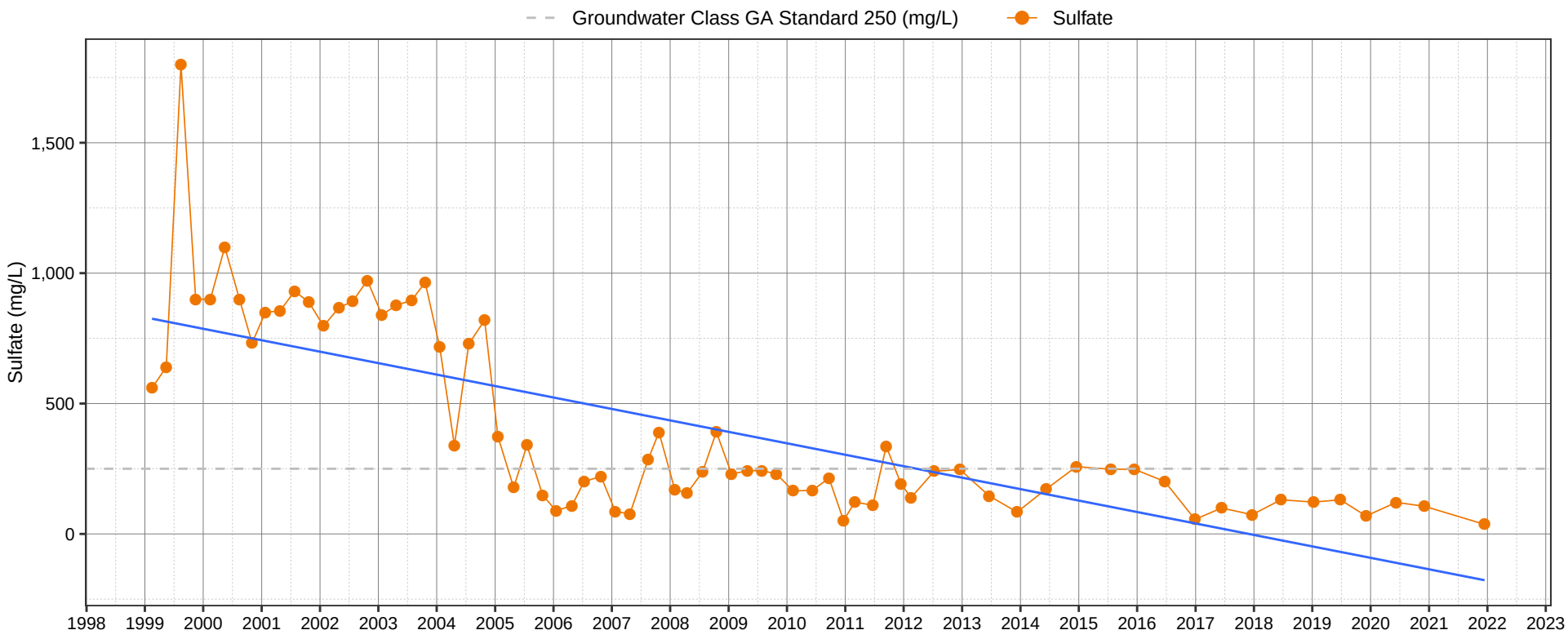
Well MW−14S
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)



Well MW−15S−87
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)

MW−15S−87

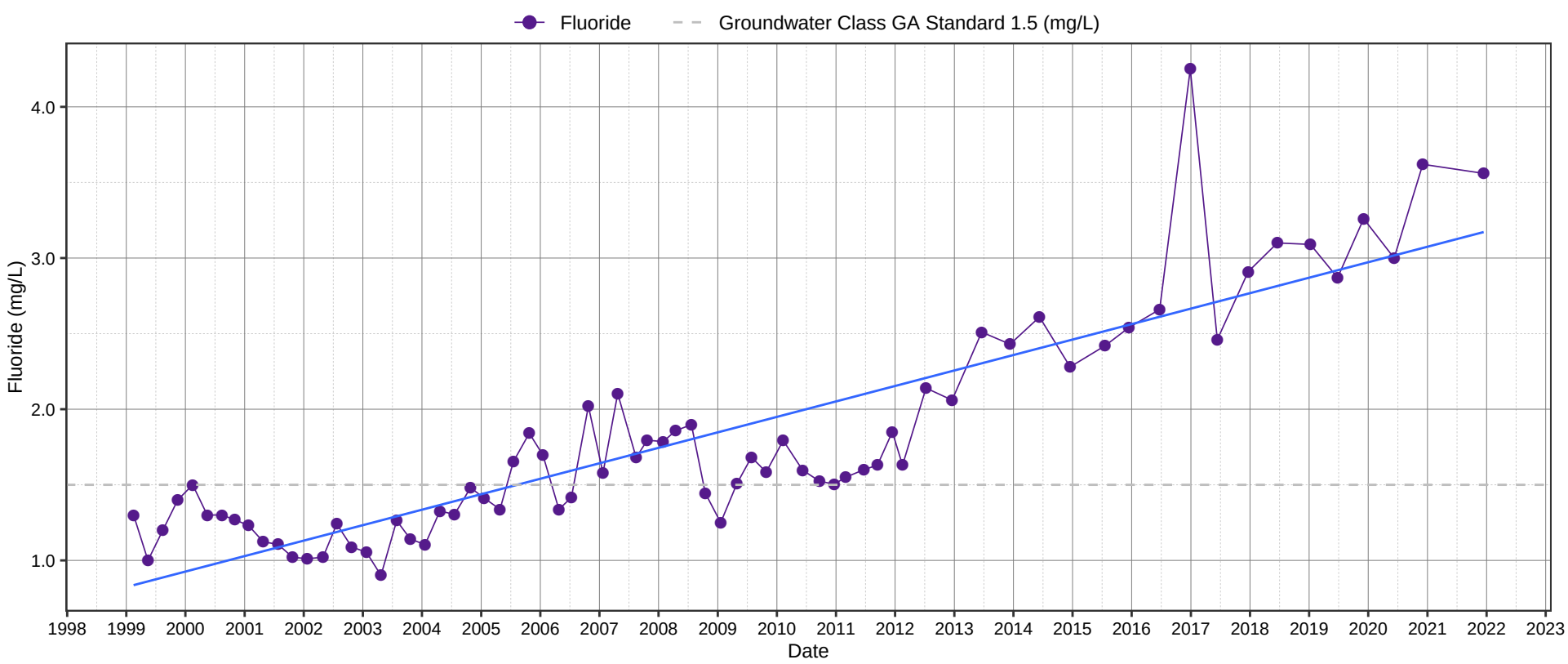
Decreasing



Mann−Kendall p−value < 0.001

MW−15S−87

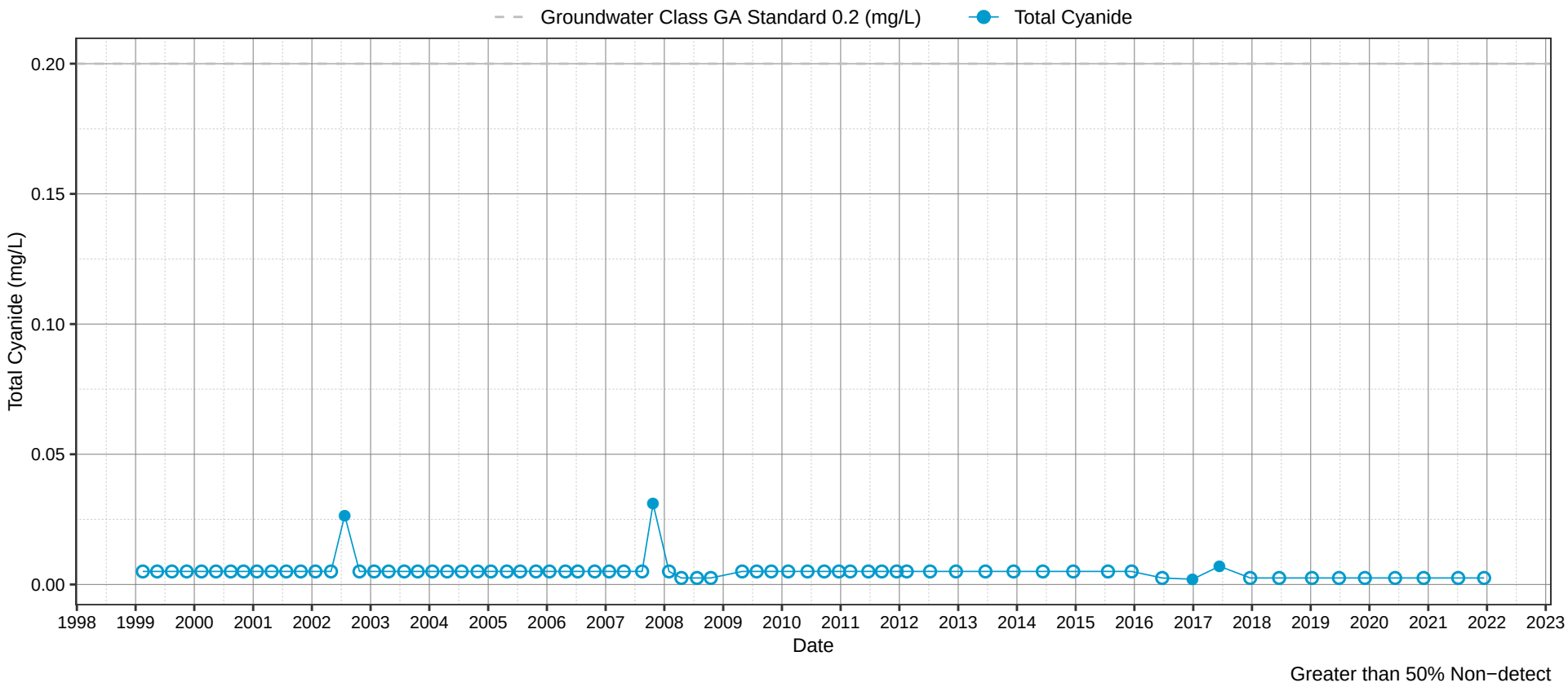
Increasing



Mann−Kendall p−value < 0.001

MW−15S−87

No Trend

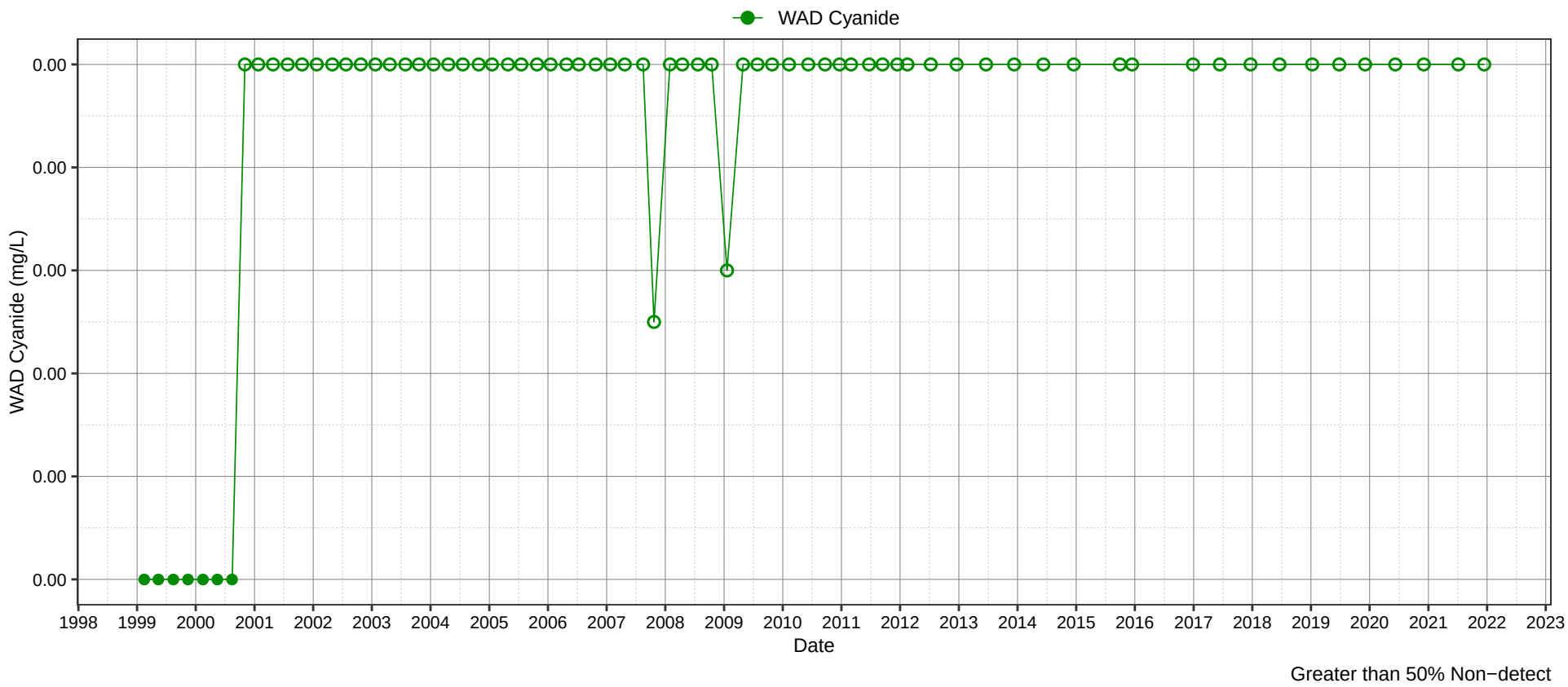


Greater than 50% Non−detect

Well MW−15S−87
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)

MW−15S−87

No Trend

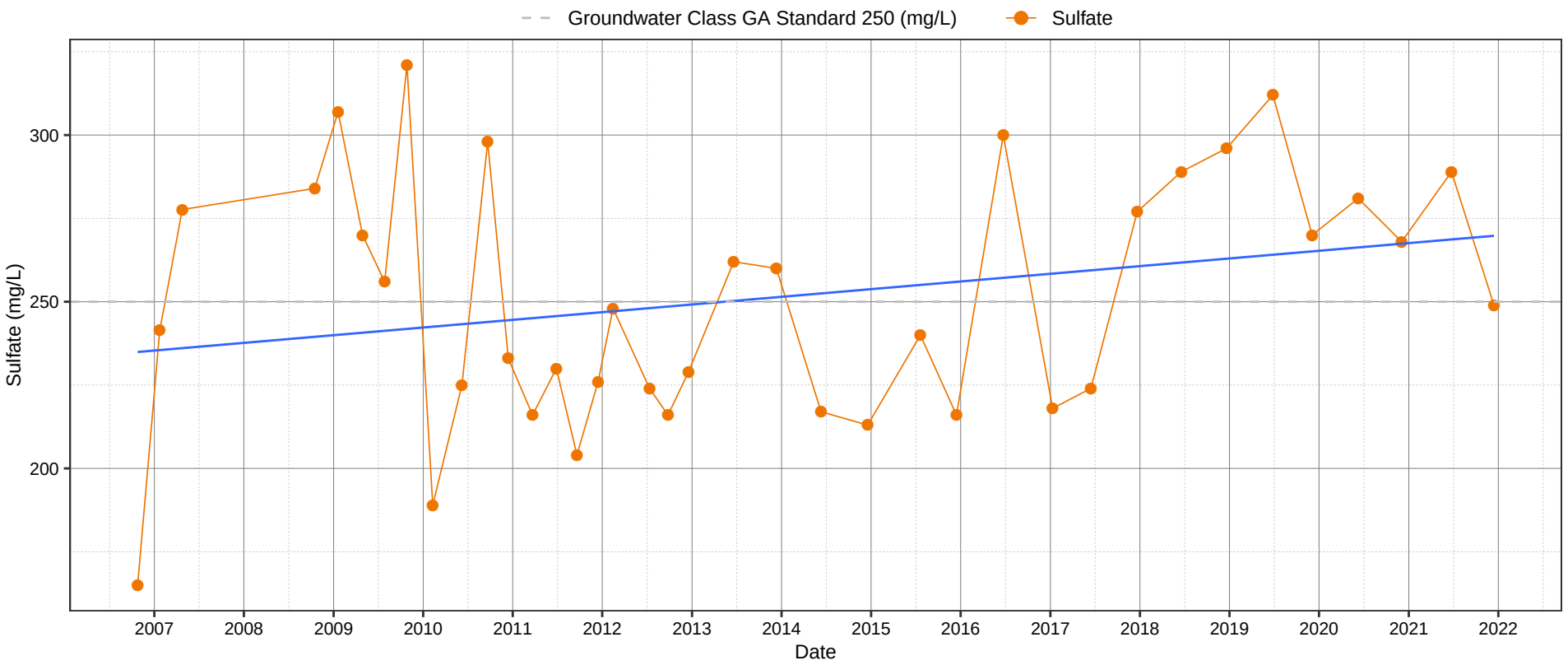


Greater than 50% Non−detect

Well MW−20−85−S
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)

MW−20−85−S

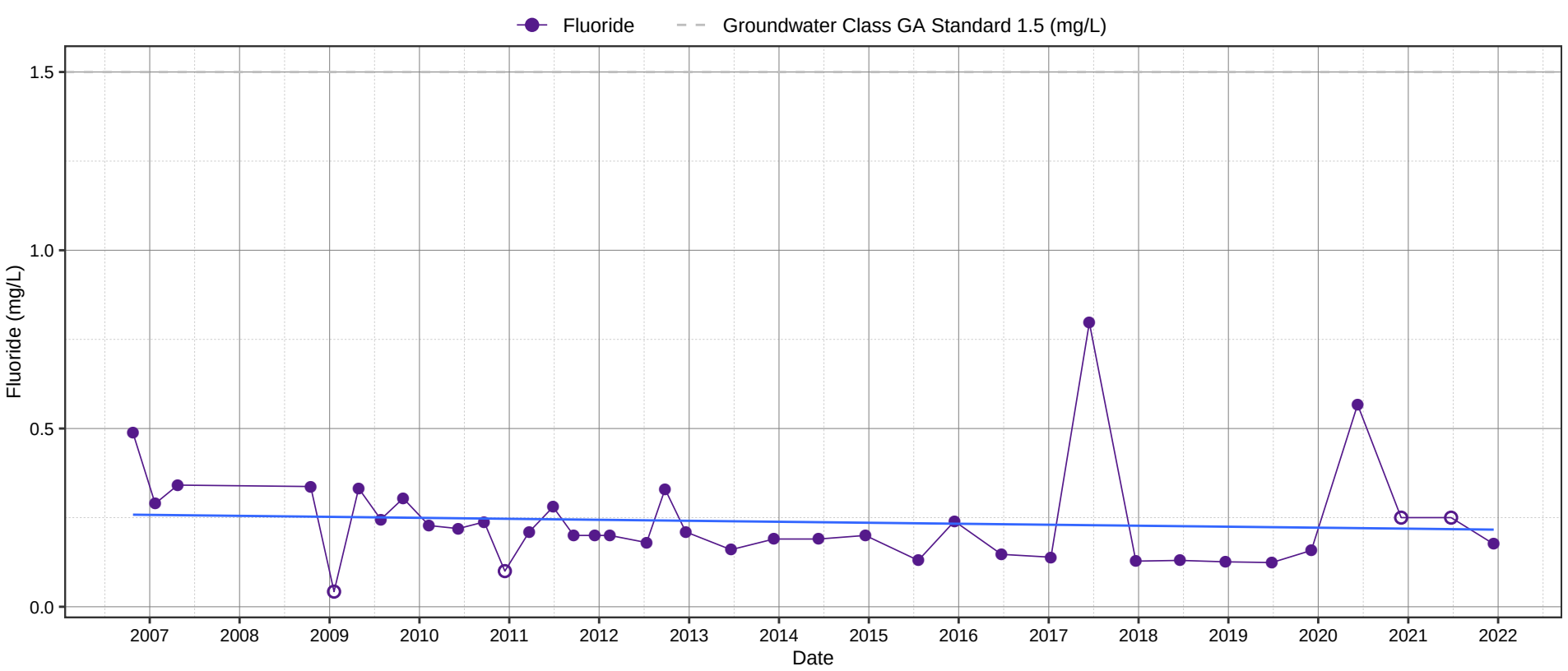
No Trend



Mann−Kendall p−value =0.291

MW−20−85−S

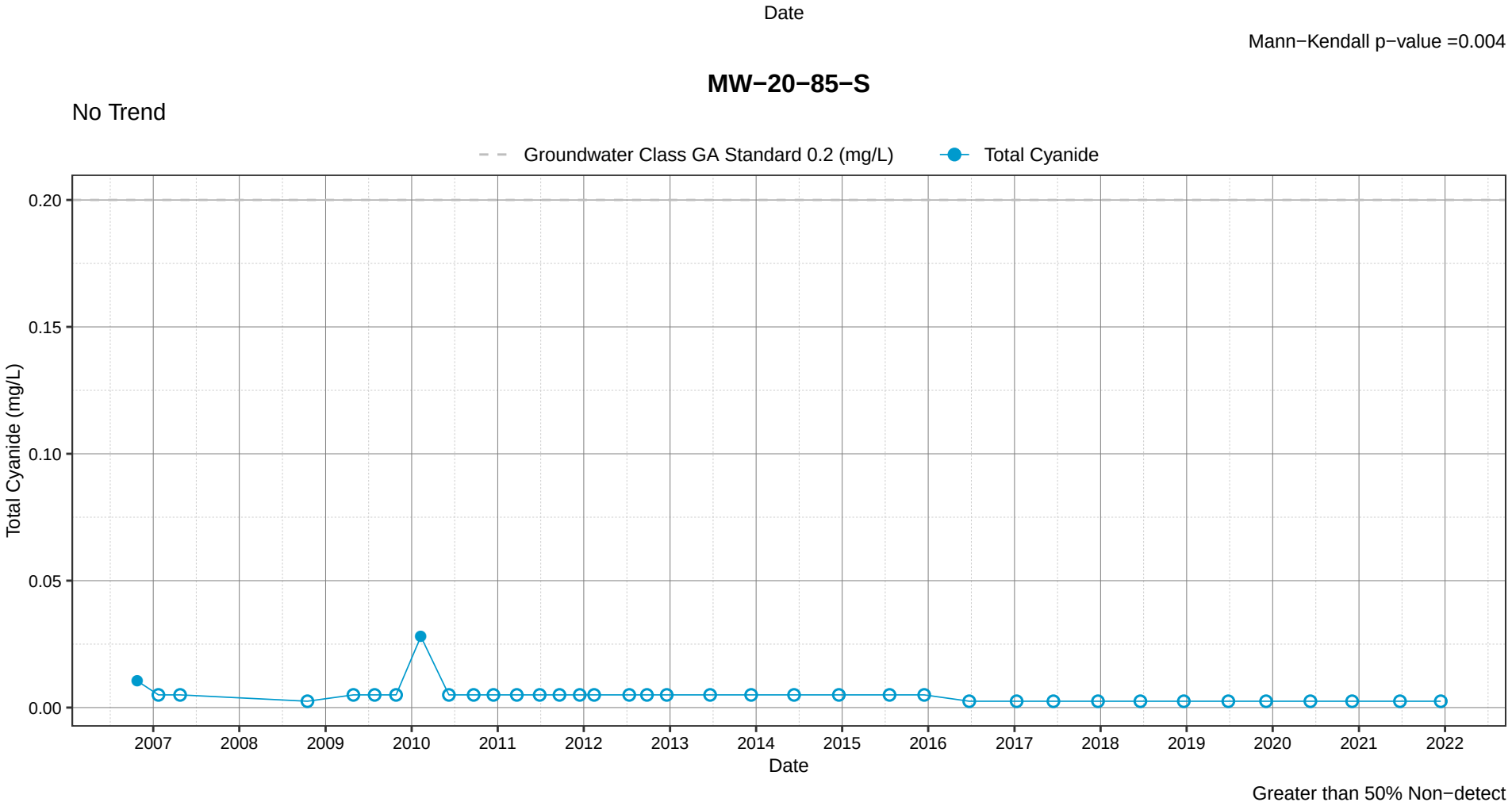
Decreasing



Mann−Kendall p−value =0.004

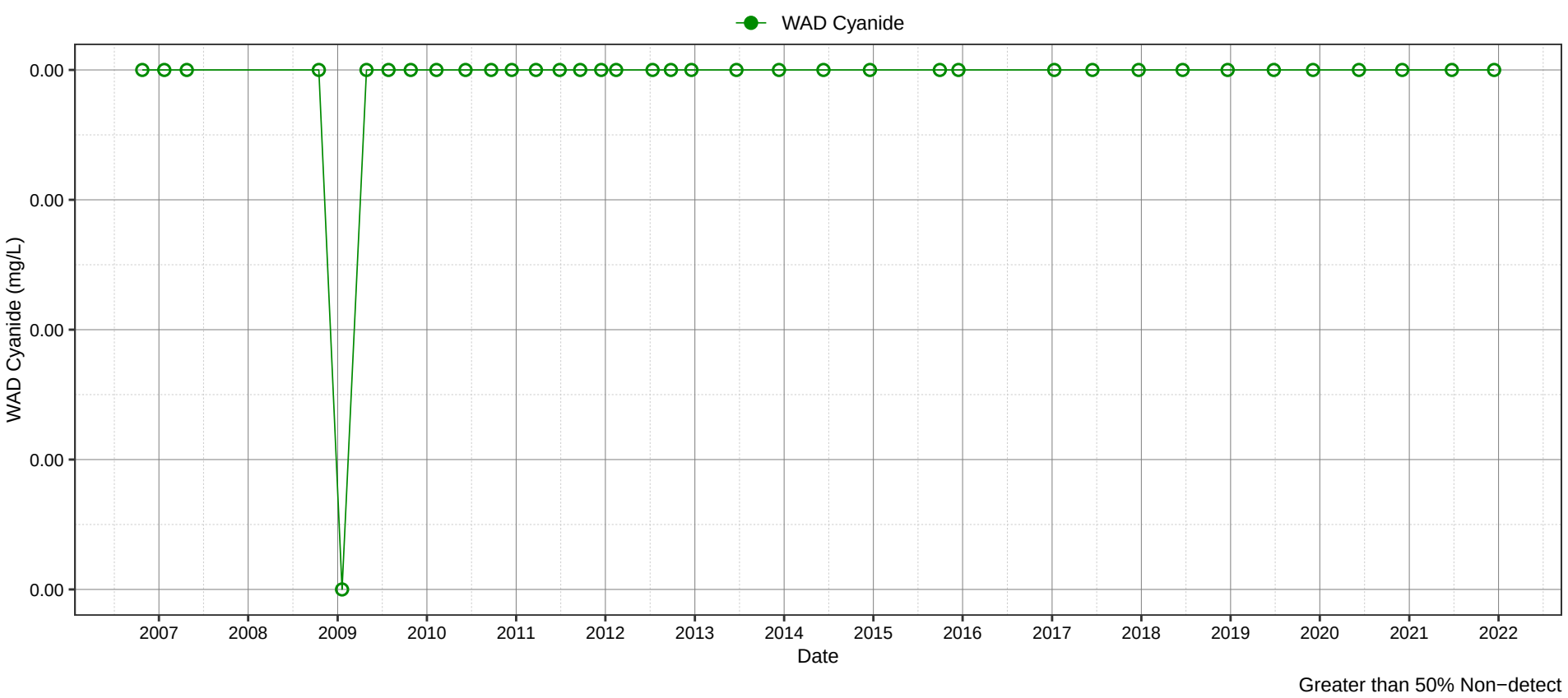
MW−20−85−S

No Trend



Greater than 50% Non−detect

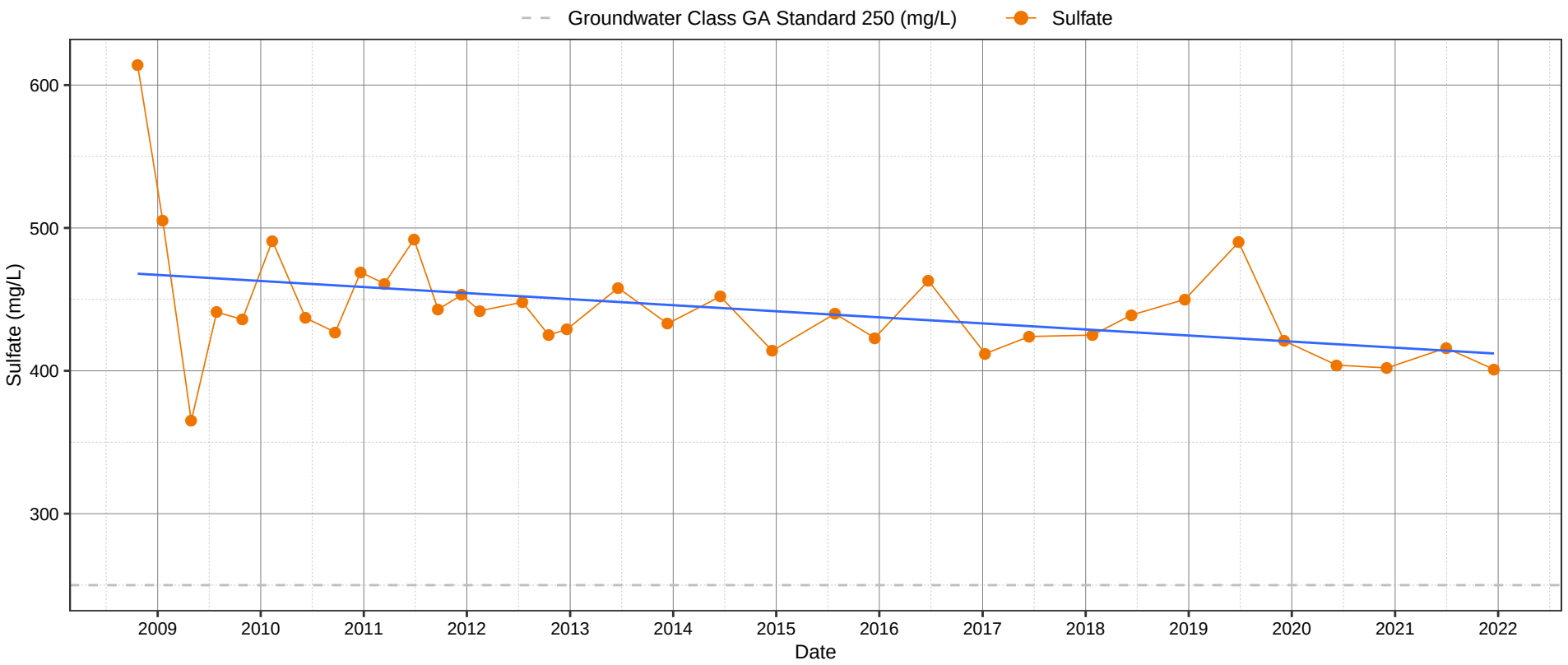
Well MW−20−85−S
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)



Well MW−22−85−S
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)

MW−22−85−S

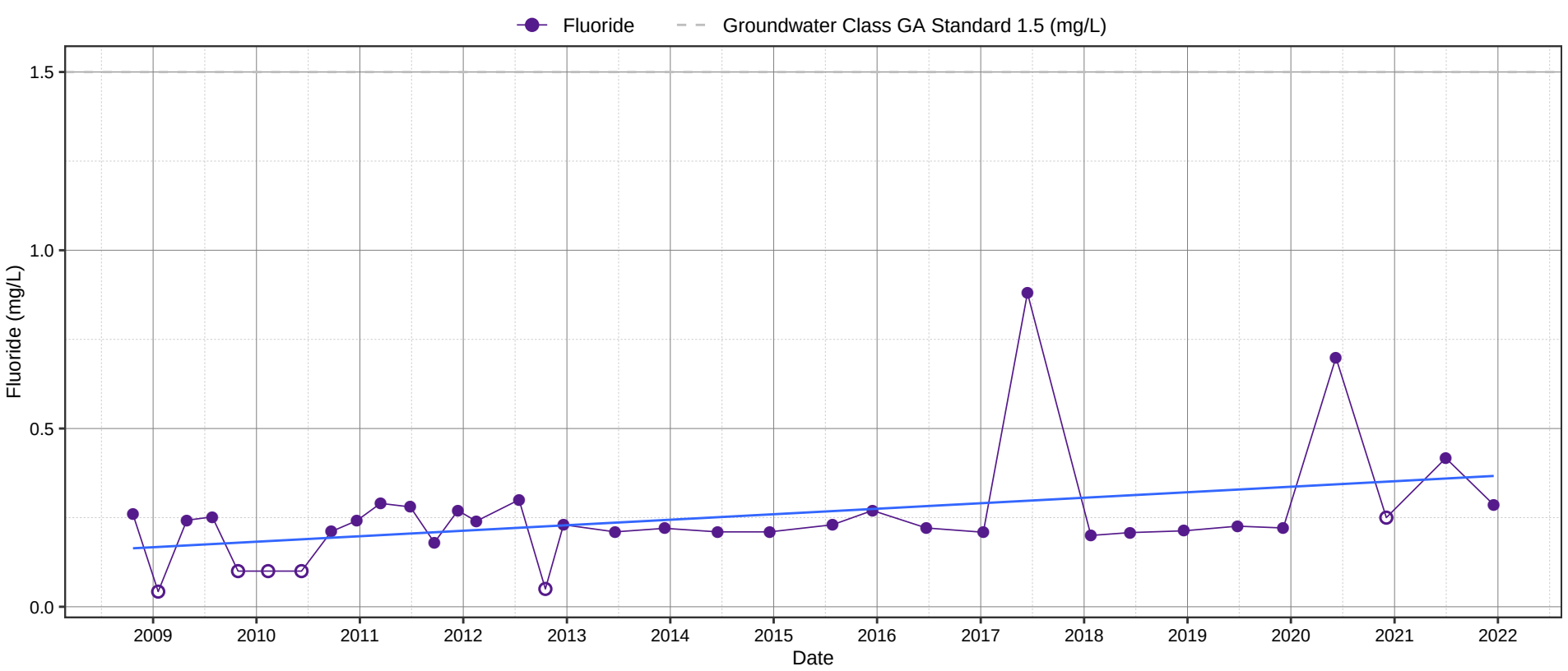
Decreasing



Mann−Kendall p−value =0.001

MW−22−85−S

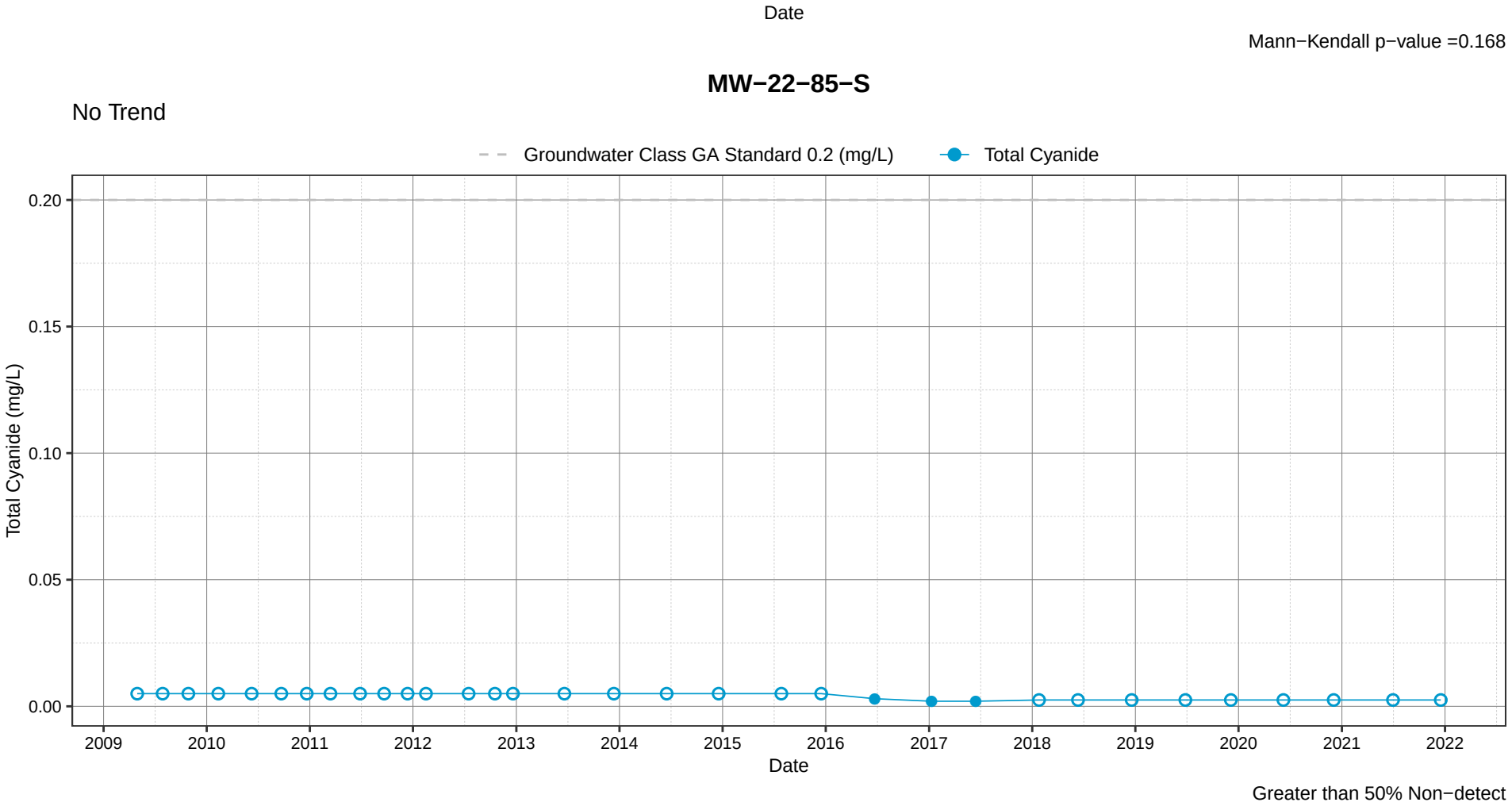
No Trend



Mann−Kendall p−value =0.168

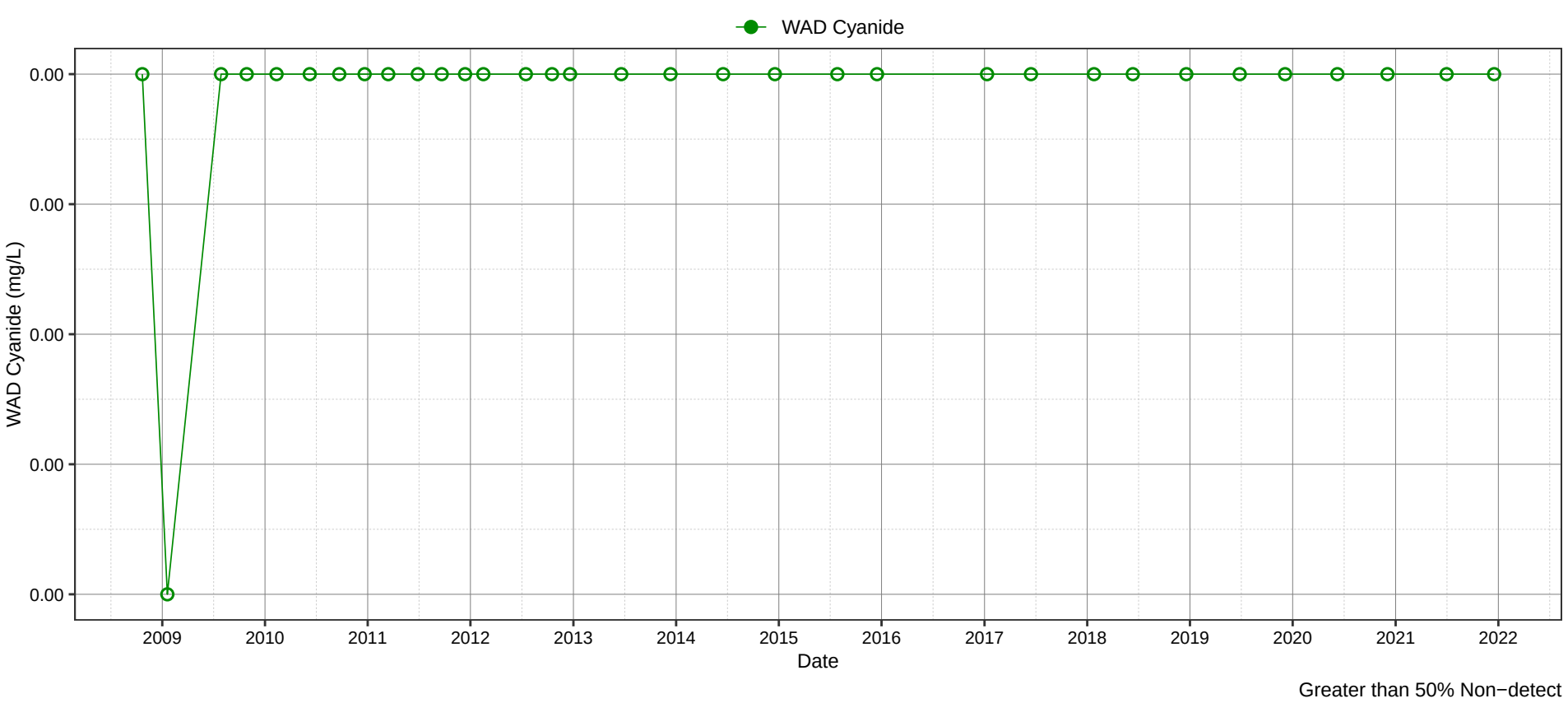
MW−22−85−S

No Trend



Greater than 50% Non−detect

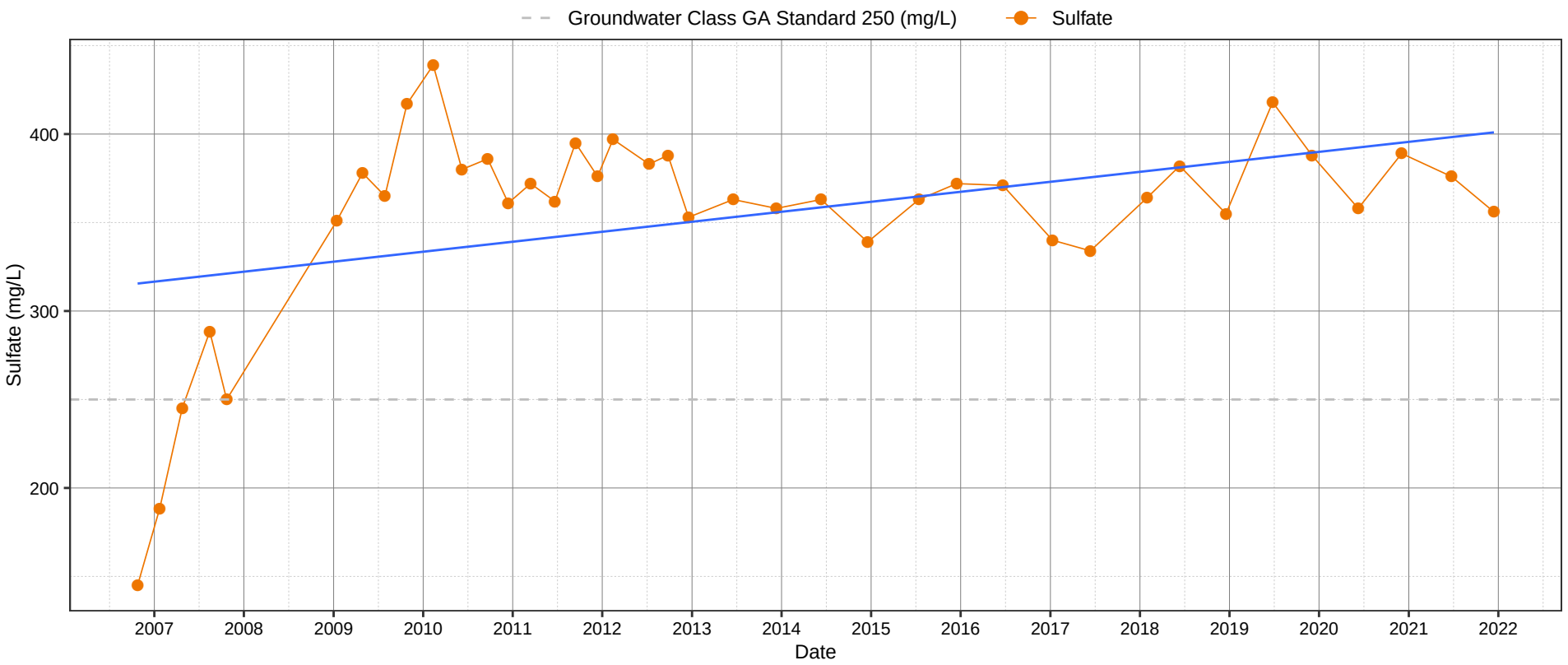
Well MW−22−85−S
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)



Well MW−23−85−S
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)

MW−23−85−S

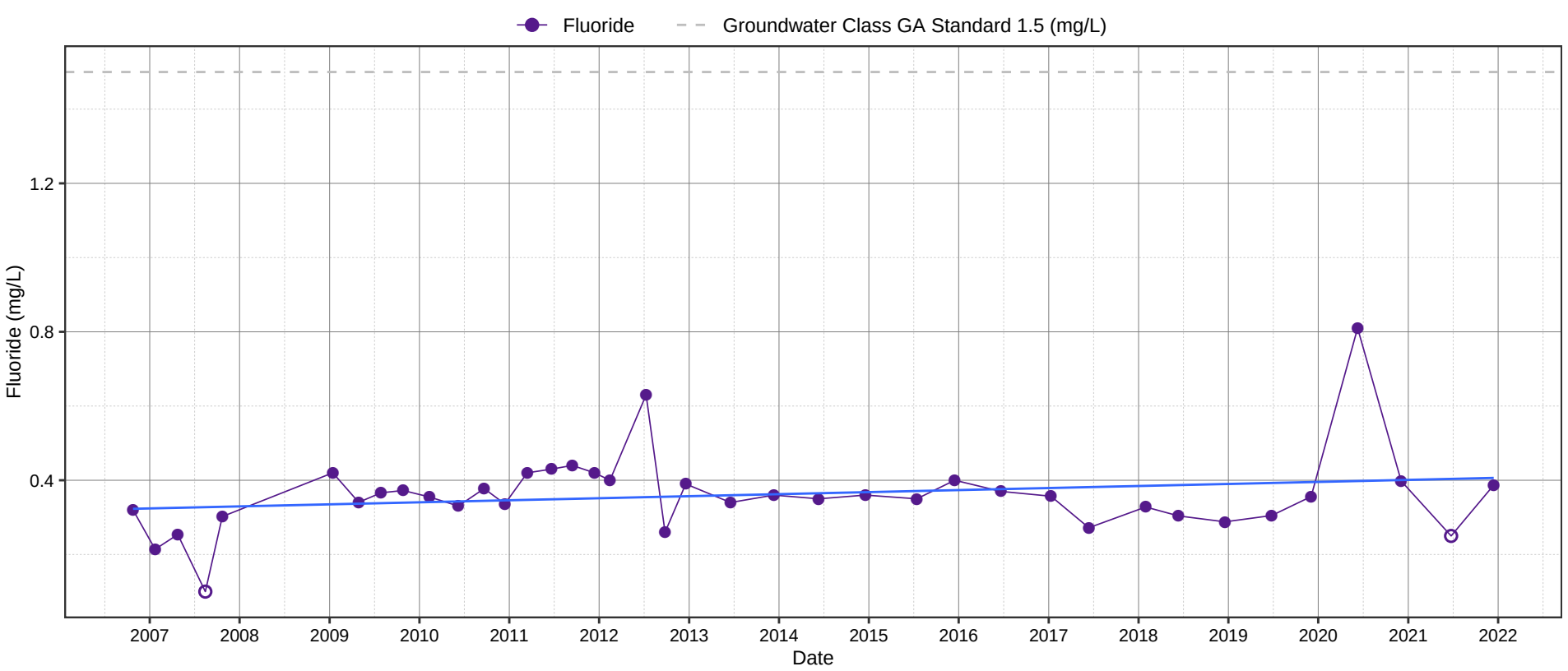
No Trend



Mann−Kendall p−value =0.187

MW−23−85−S

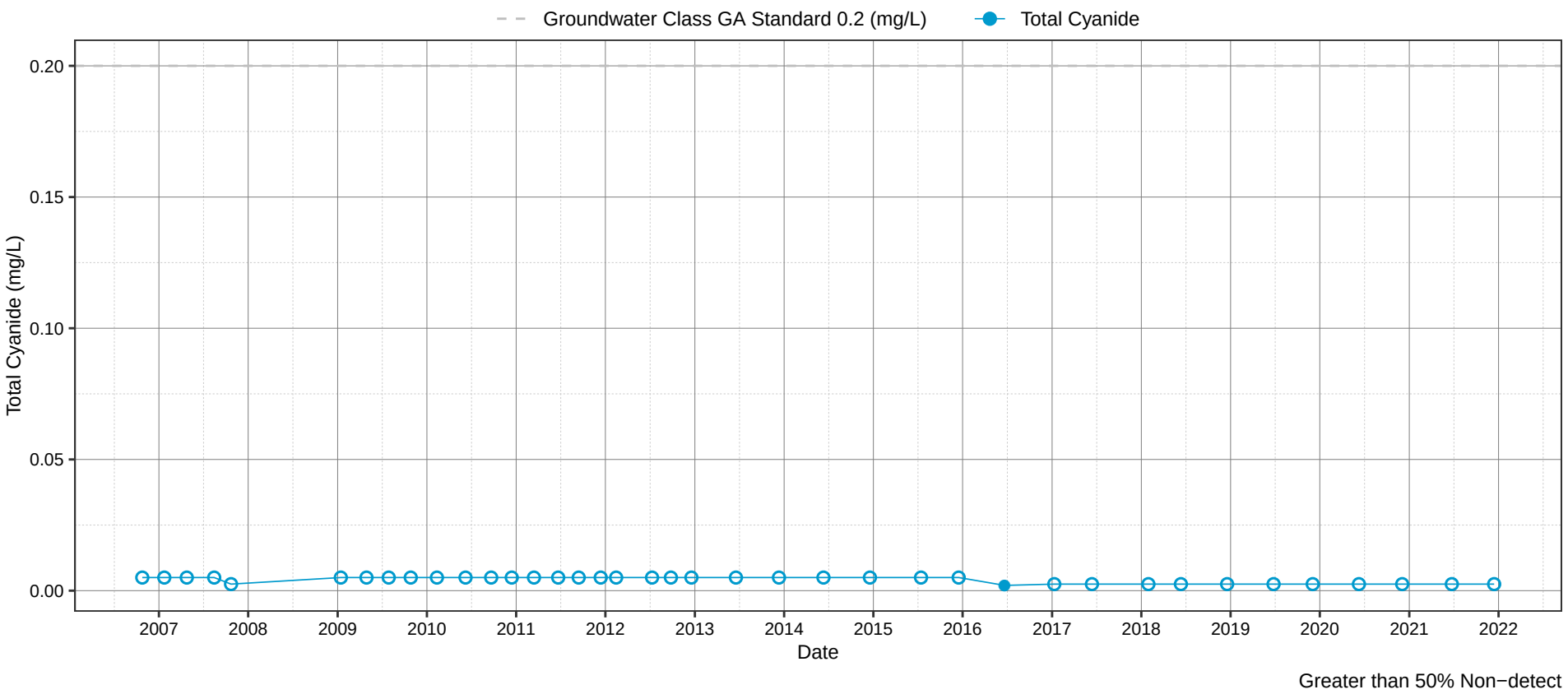
No Trend



Mann−Kendall p−value =0.578

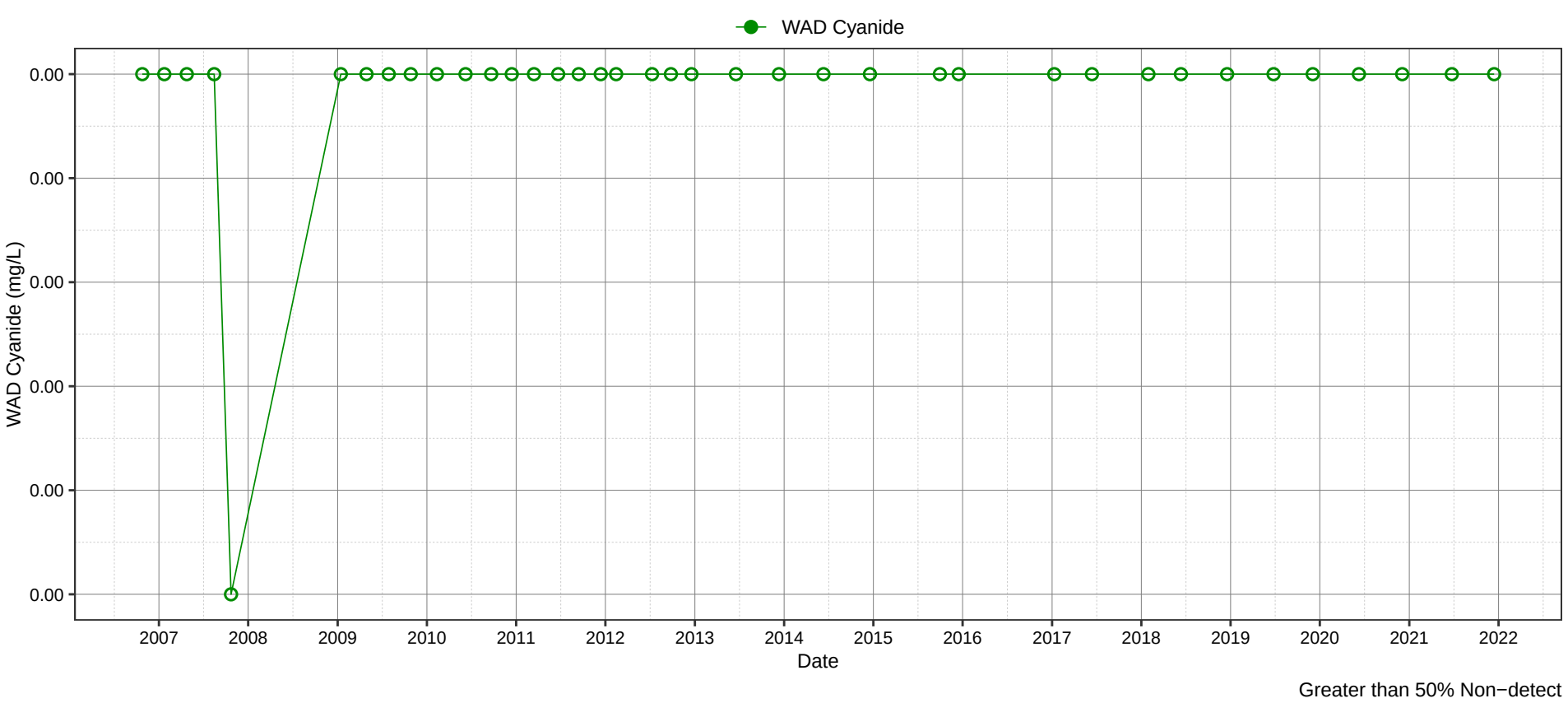
MW−23−85−S

No Trend



Greater than 50% Non−detect

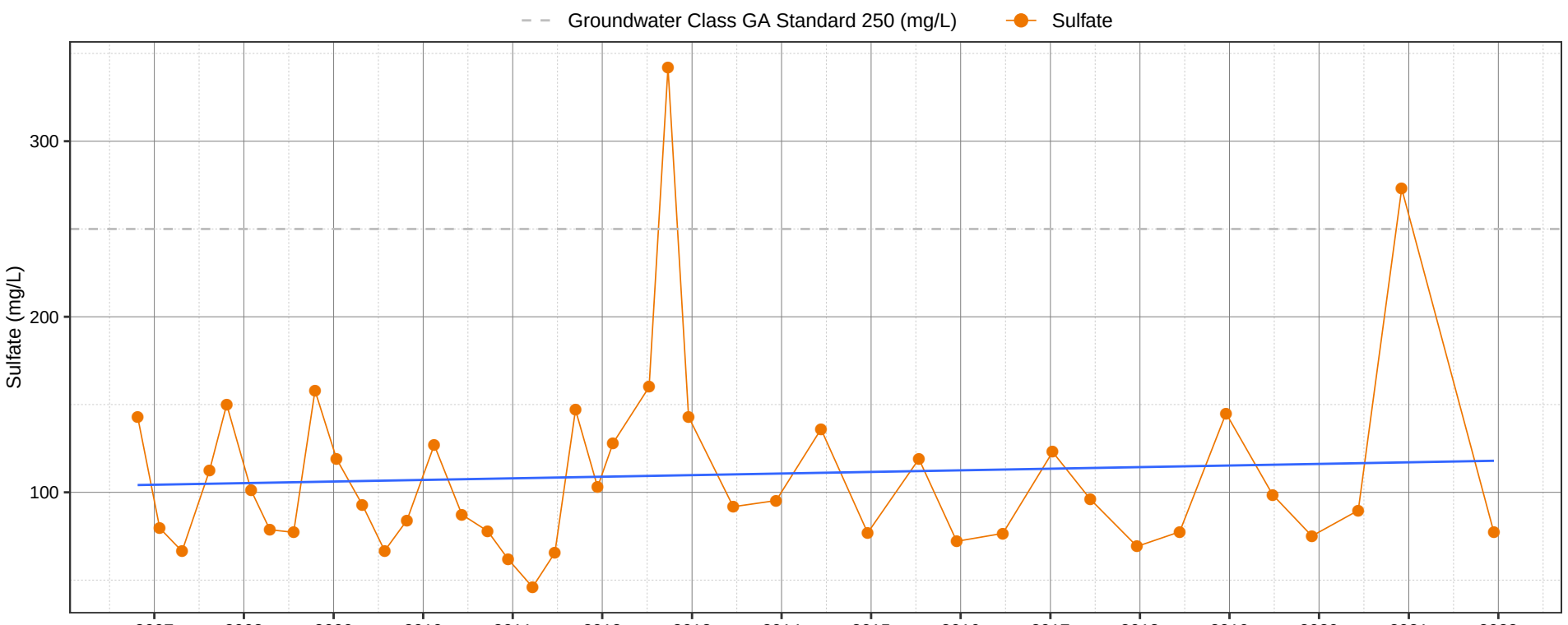
Well MW−23−85−S
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)



Well MW−30S
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)

MW−30S

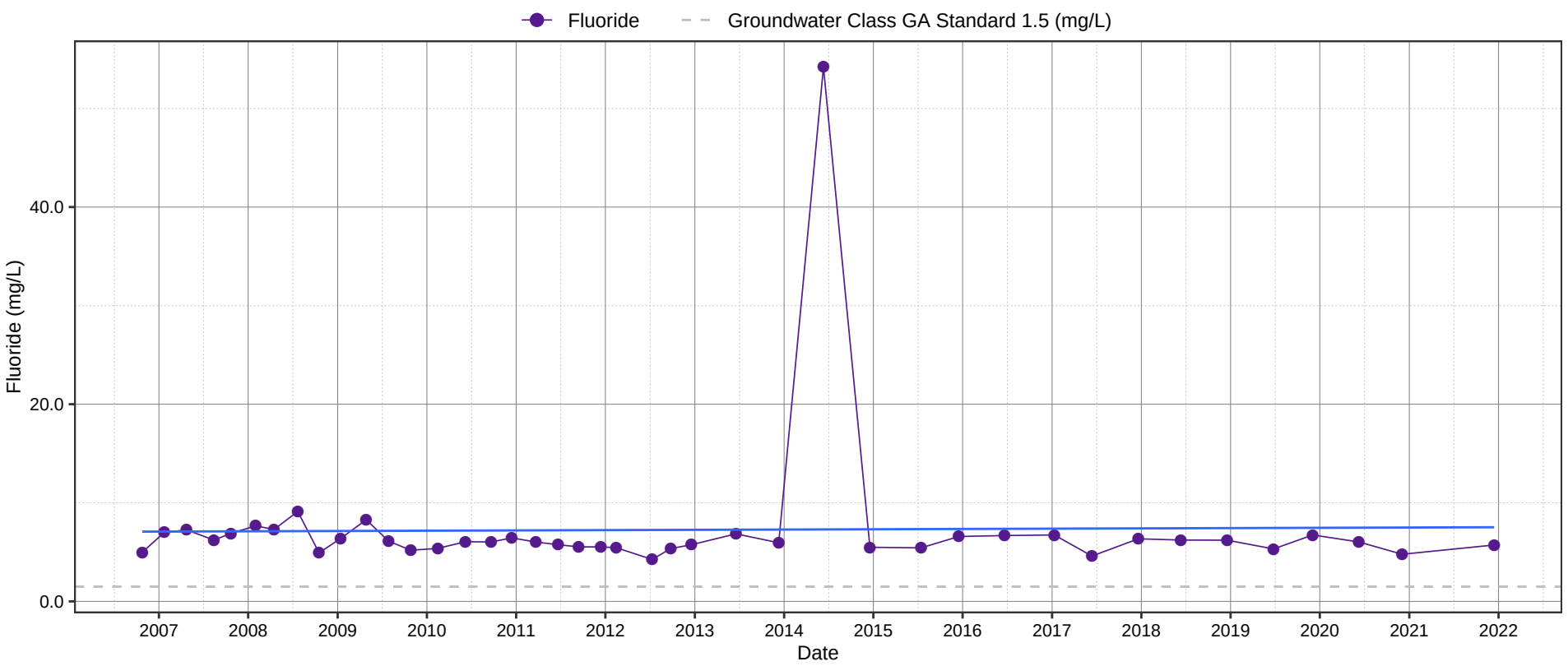
No Trend



Mann−Kendall p−value =0.854

MW−30S

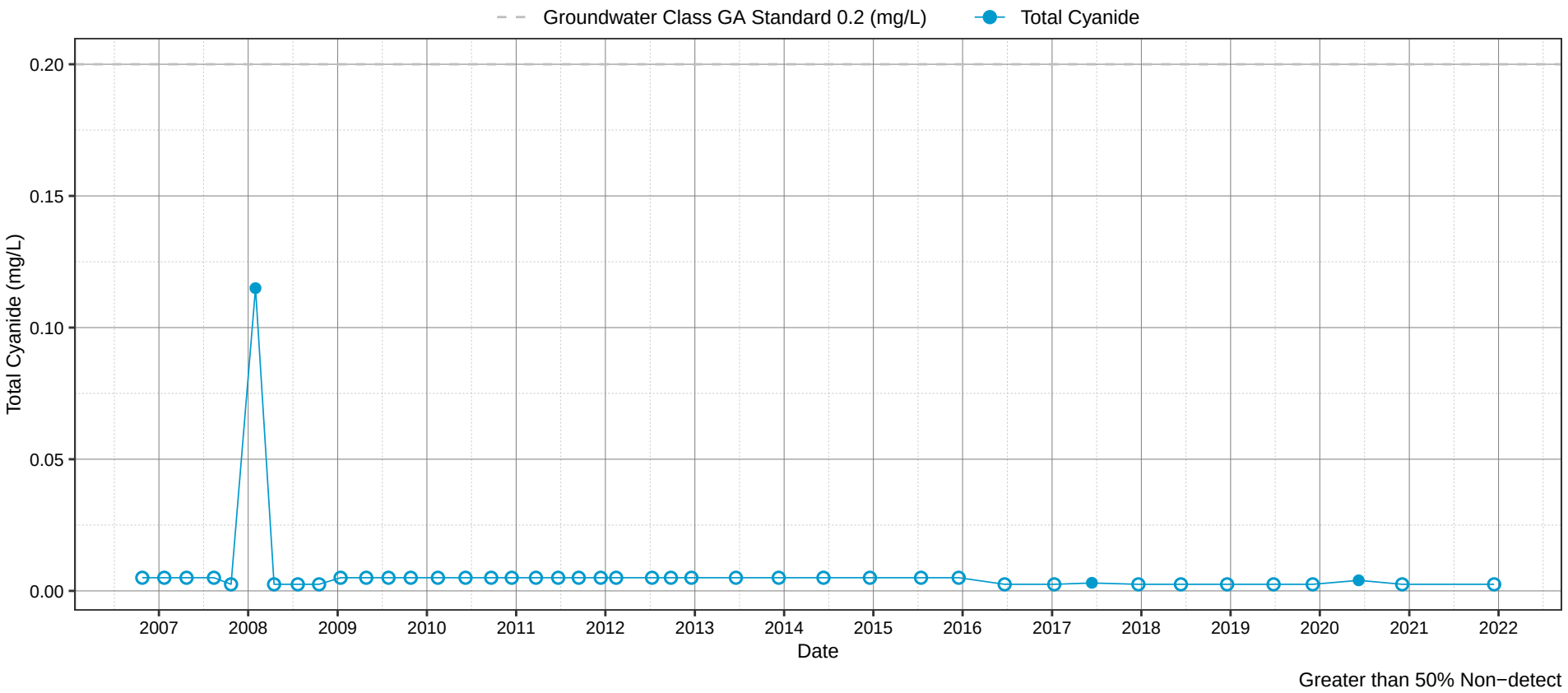
No Trend



Mann−Kendall p−value =0.102

MW−30S

No Trend

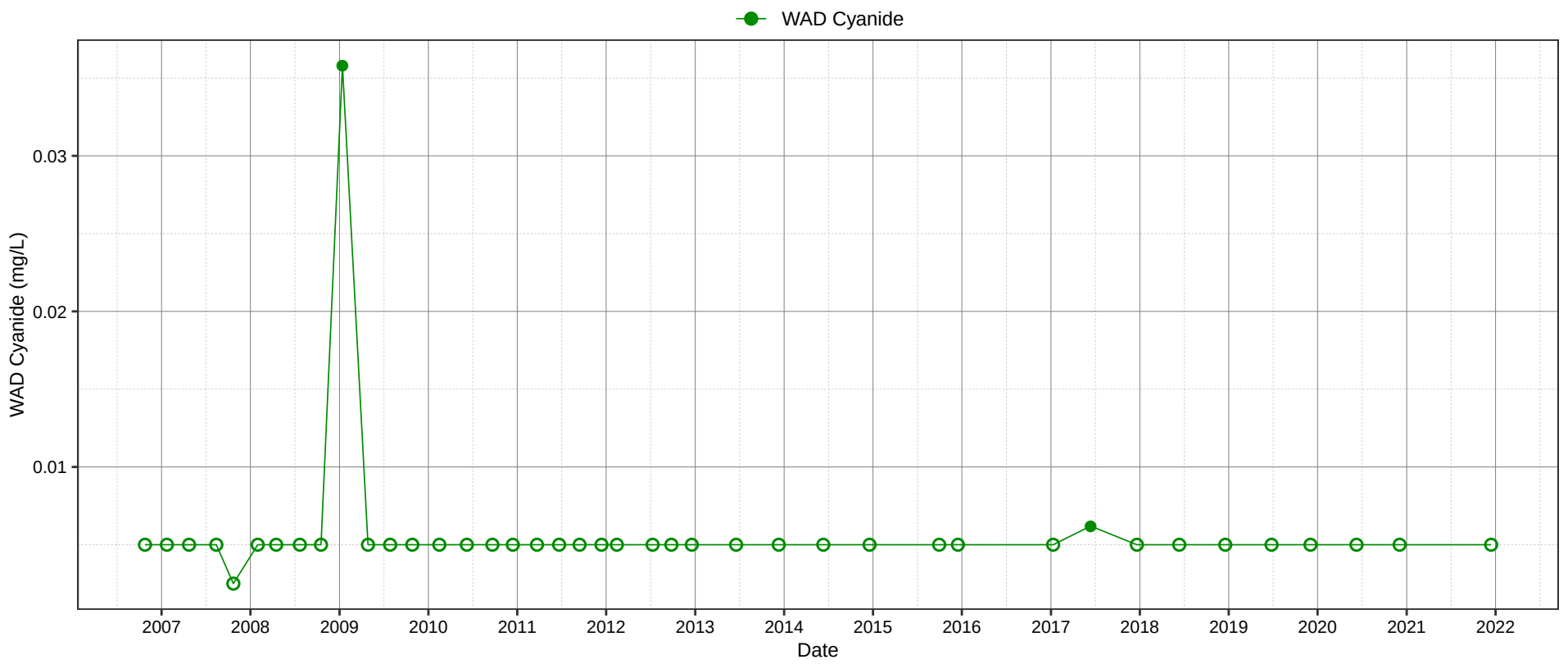


Greater than 50% Non−detect

Well MW−30S
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)

MW−30S

No Trend

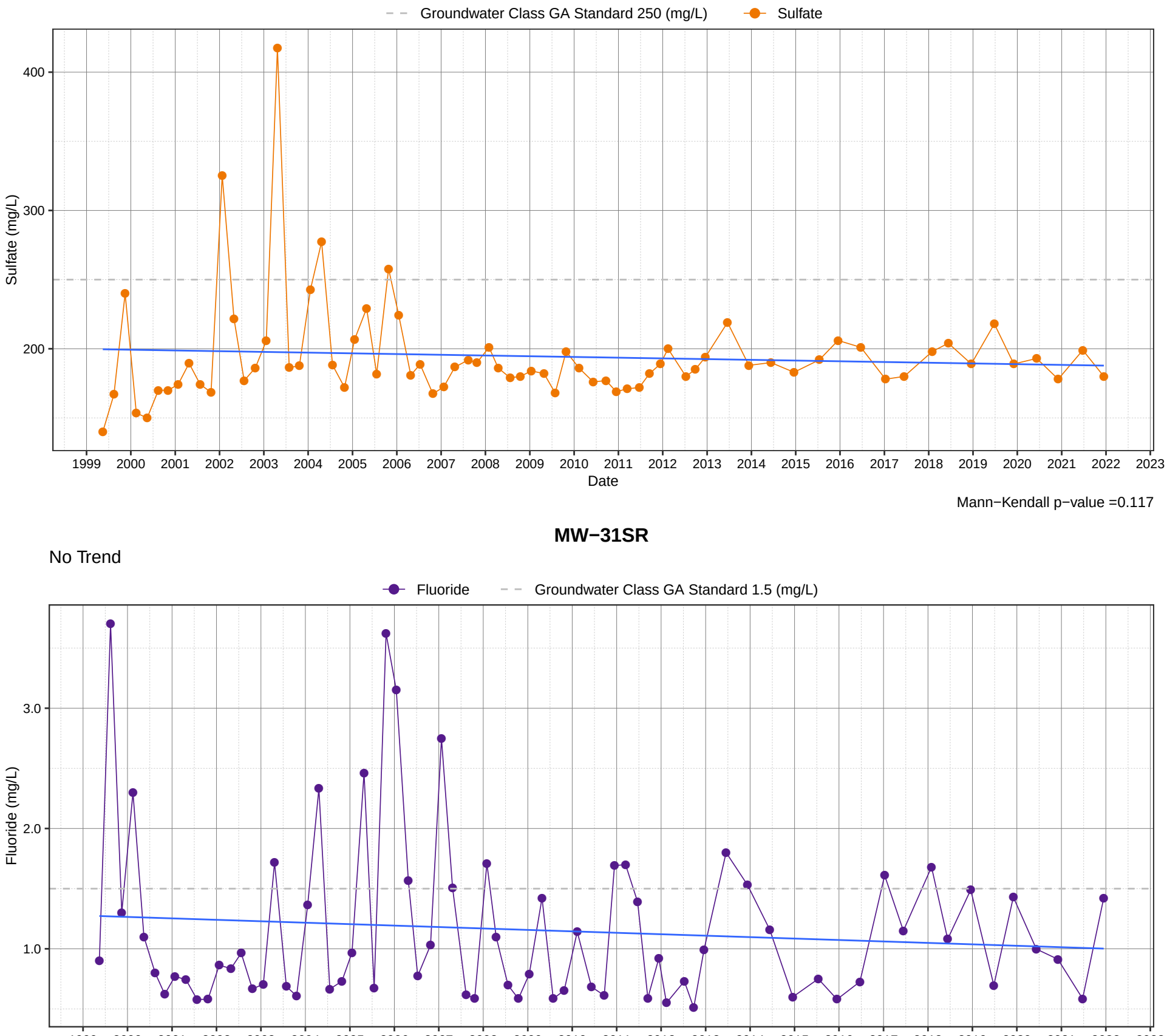


Greater than 50% Non−detect

Well MW−31SR
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)

MW−31SR

No Trend



Mann−Kendall p−value =0.117

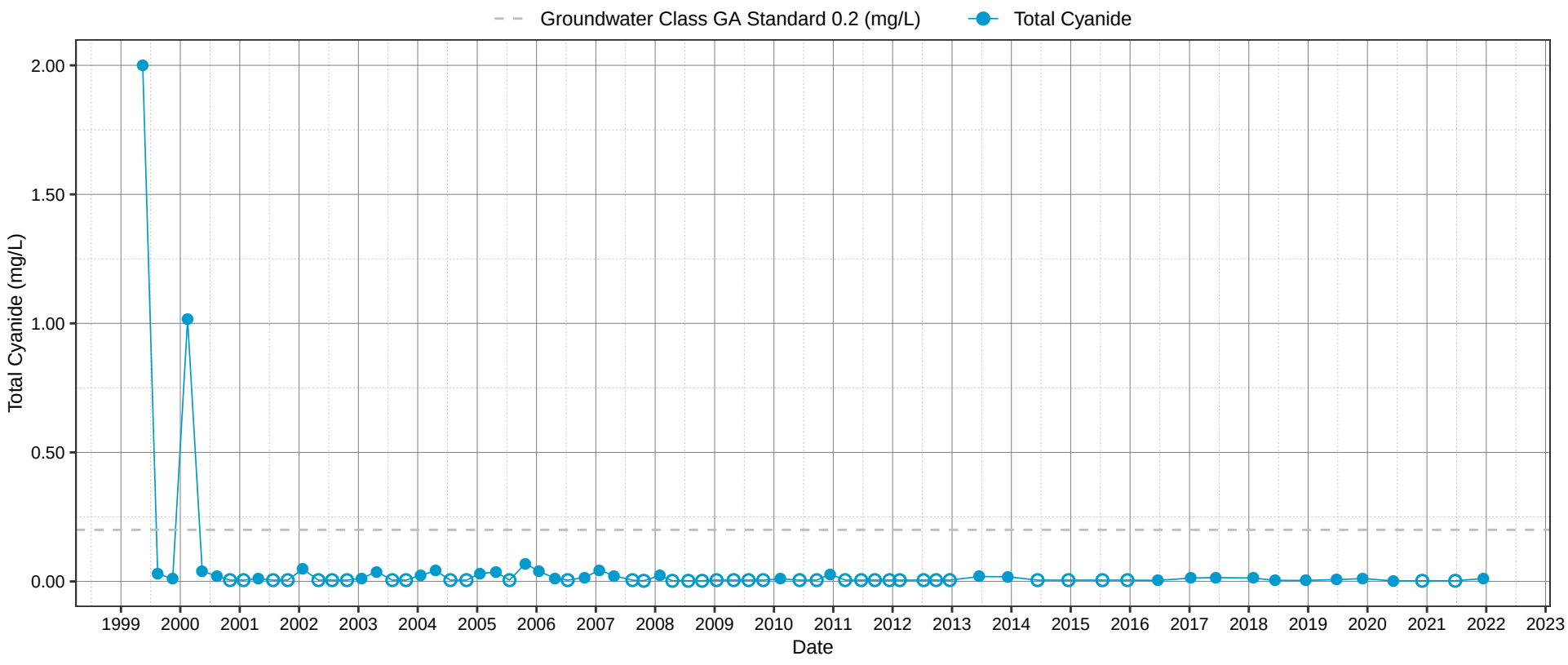
MW−31SR

No Trend

Mann−Kendall p−value =0.782

MW−31SR

No Trend

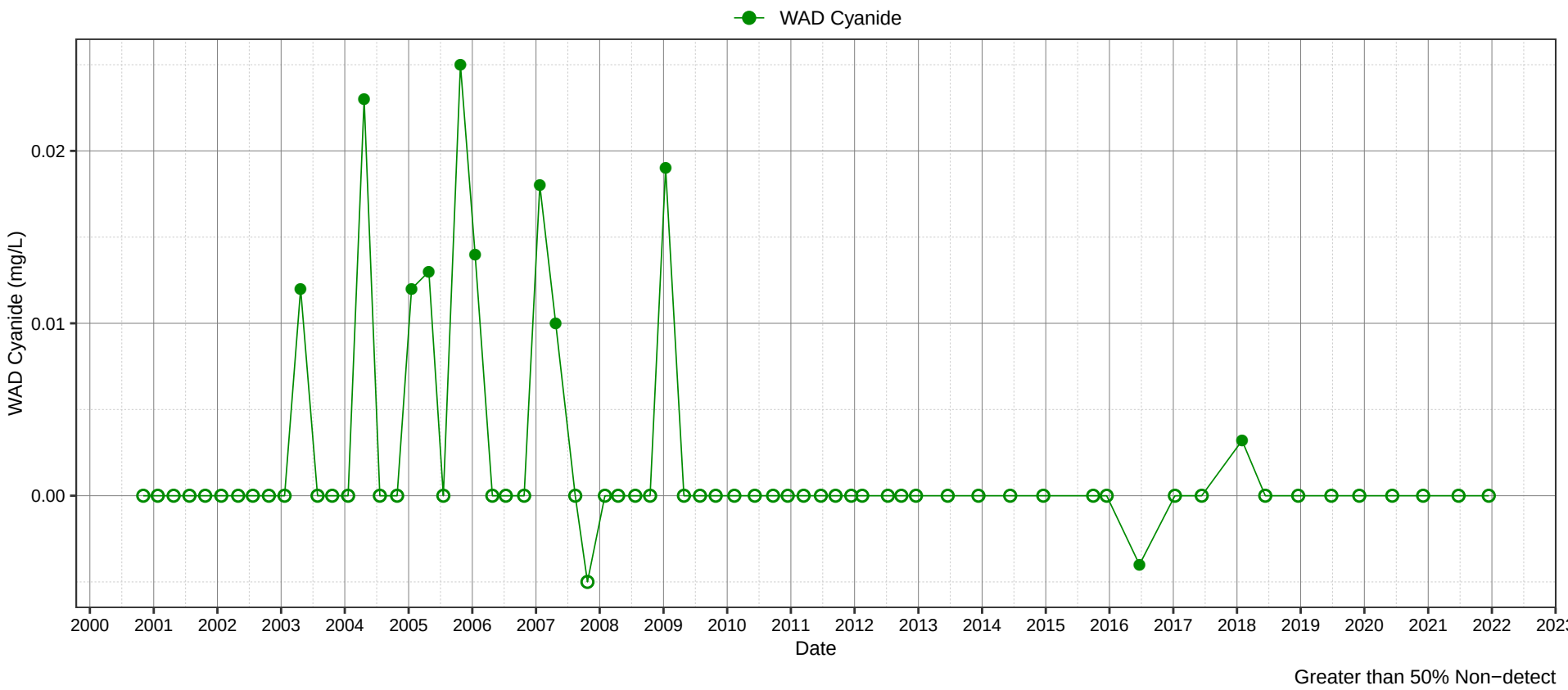


Greater than 50% Non−detect

Well MW−31SR
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)

MW−31SR

No Trend

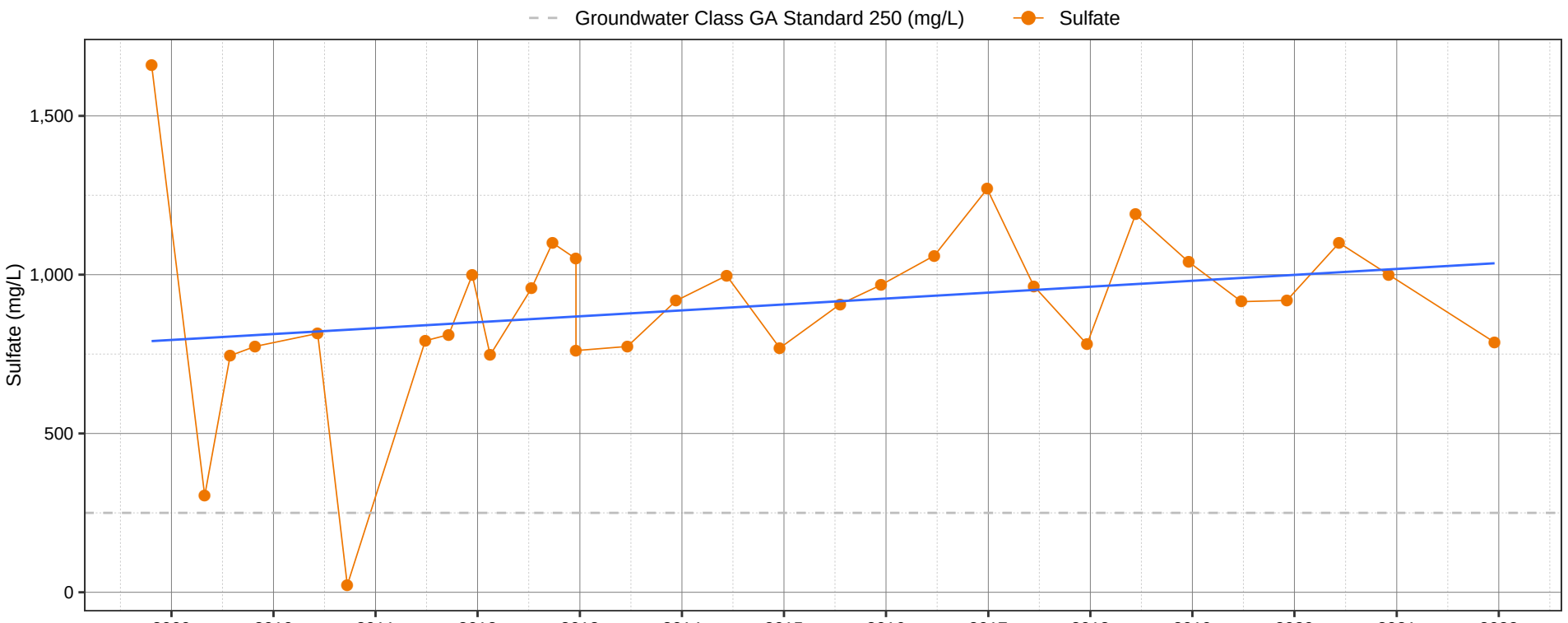


Greater than 50% Non−detect

Well PZ−44
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)

PZ−44

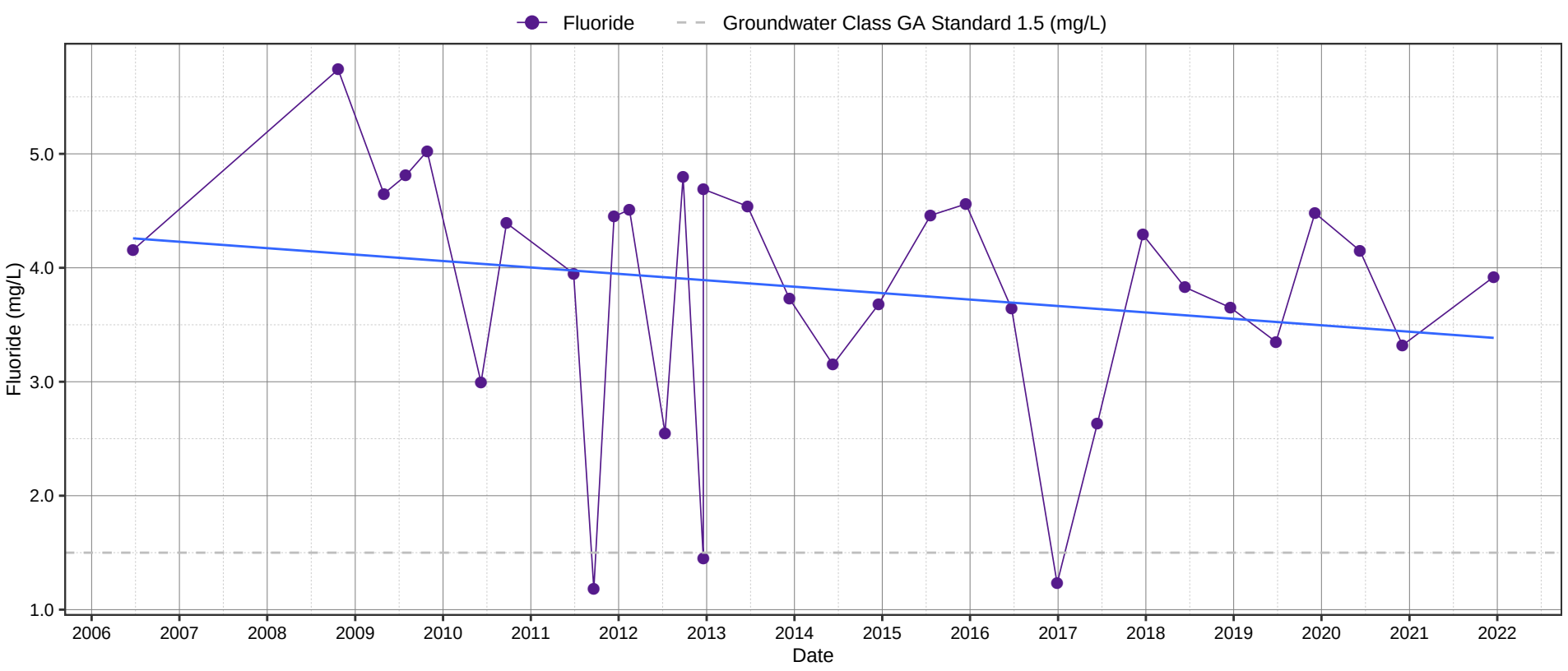
Increasing



Mann−Kendall p−value =0.027

PZ−44

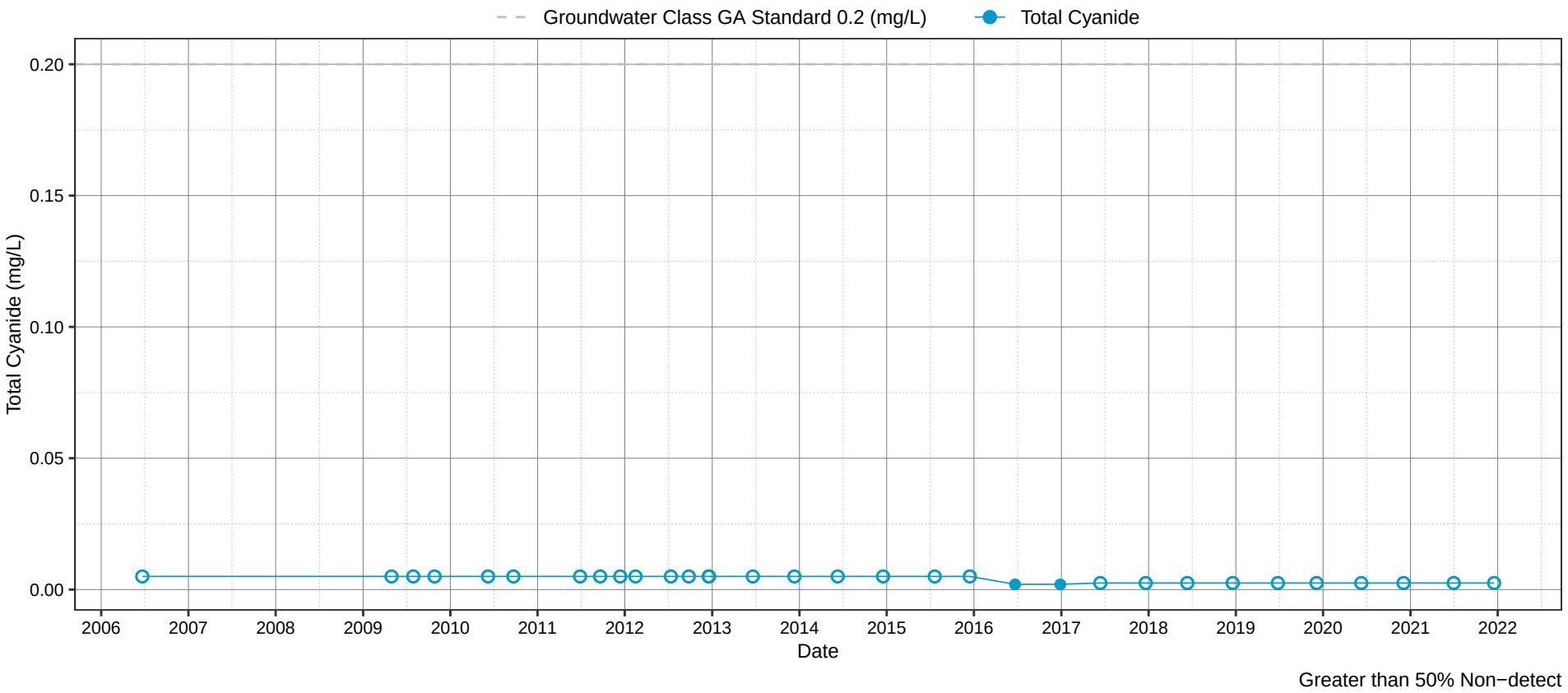
No Trend



Mann−Kendall p−value =0.062

PZ−44

No Trend

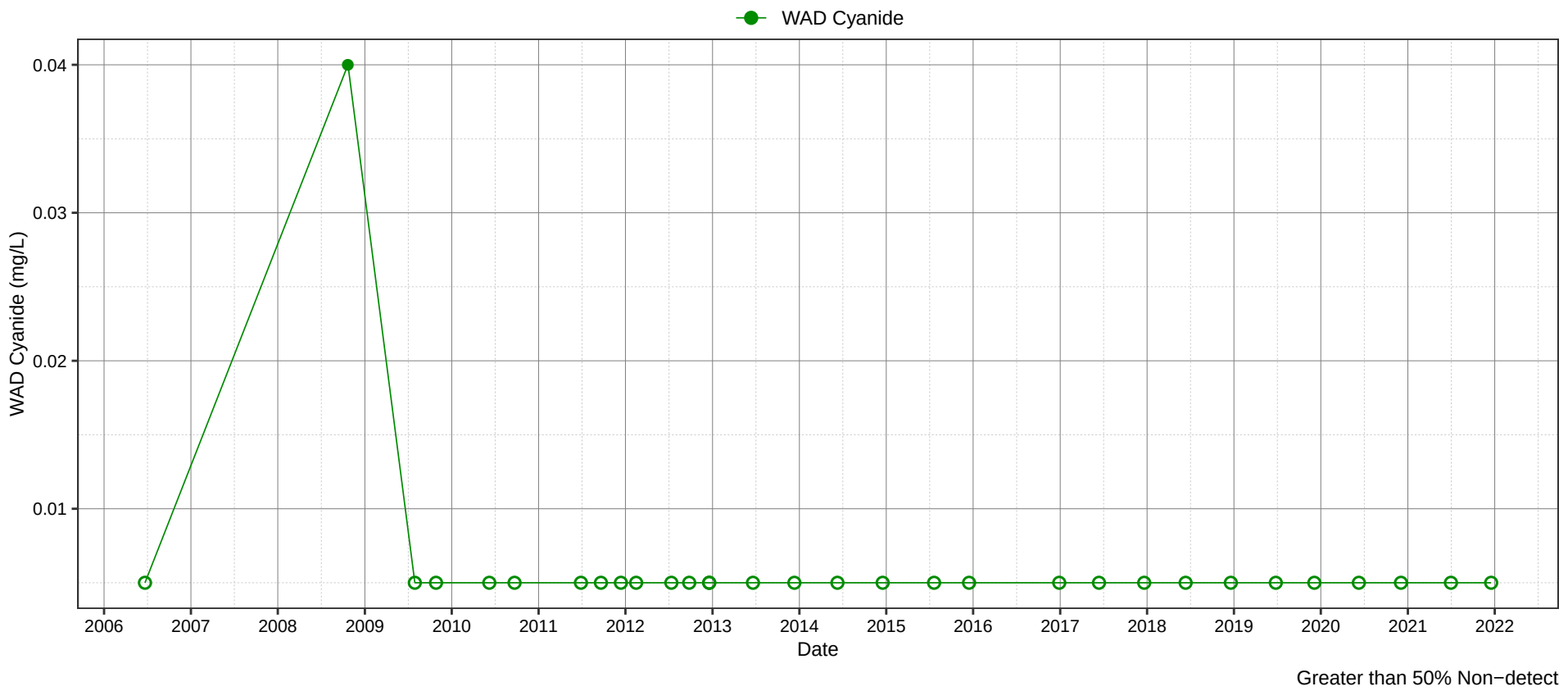


Greater than 50% Non−detect

Well PZ−44
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)

PZ−44

No Trend

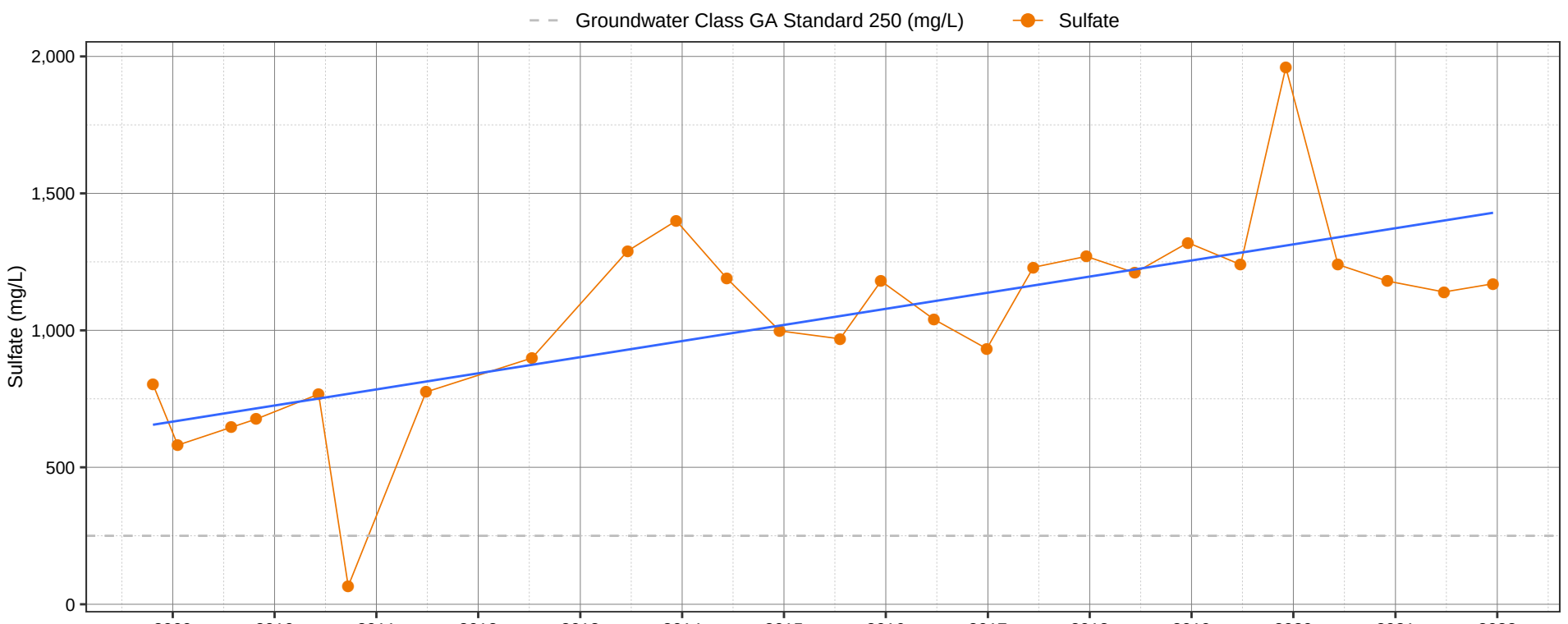


Greater than 50% Non−detect

Well PZ−45
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)

PZ−45

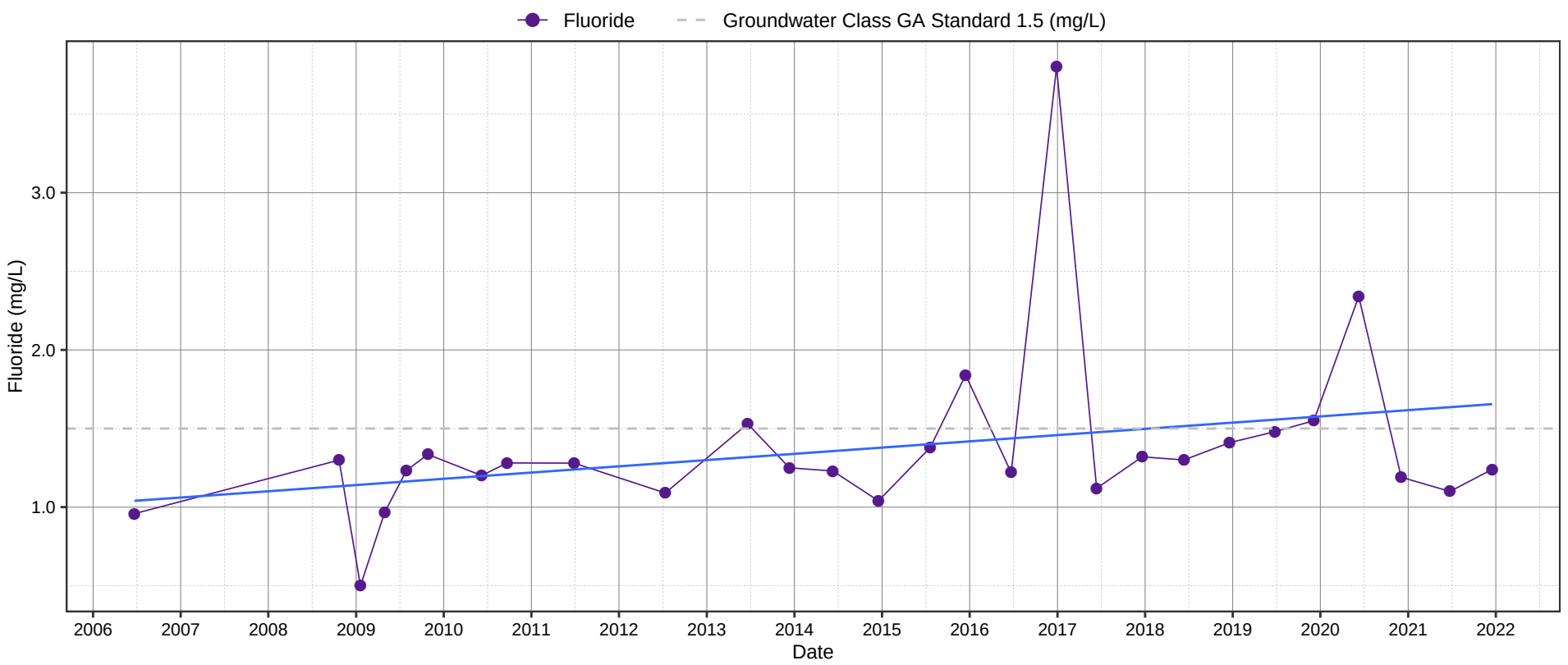
Increasing



Mann−Kendall p−value < 0.001

PZ−45

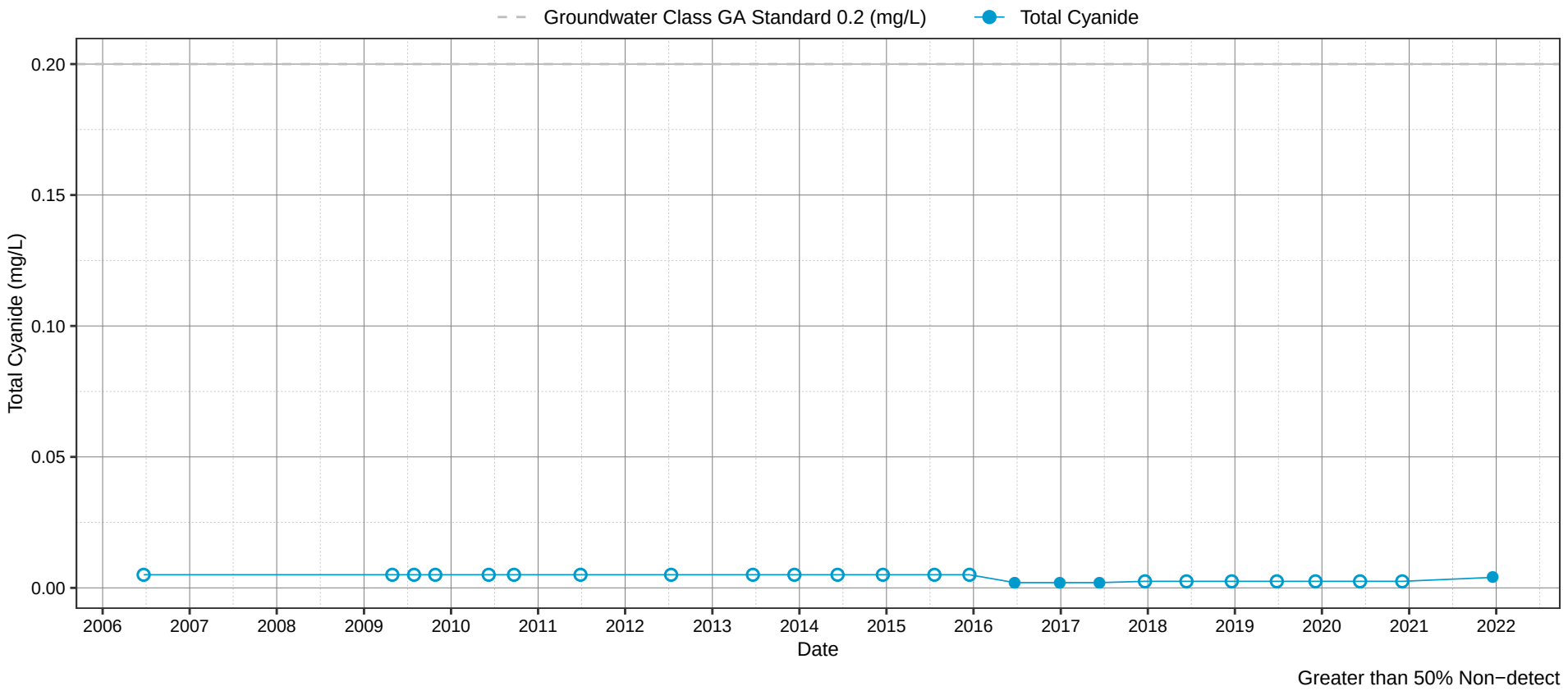
No Trend



Mann−Kendall p−value =0.05

PZ−45

No Trend

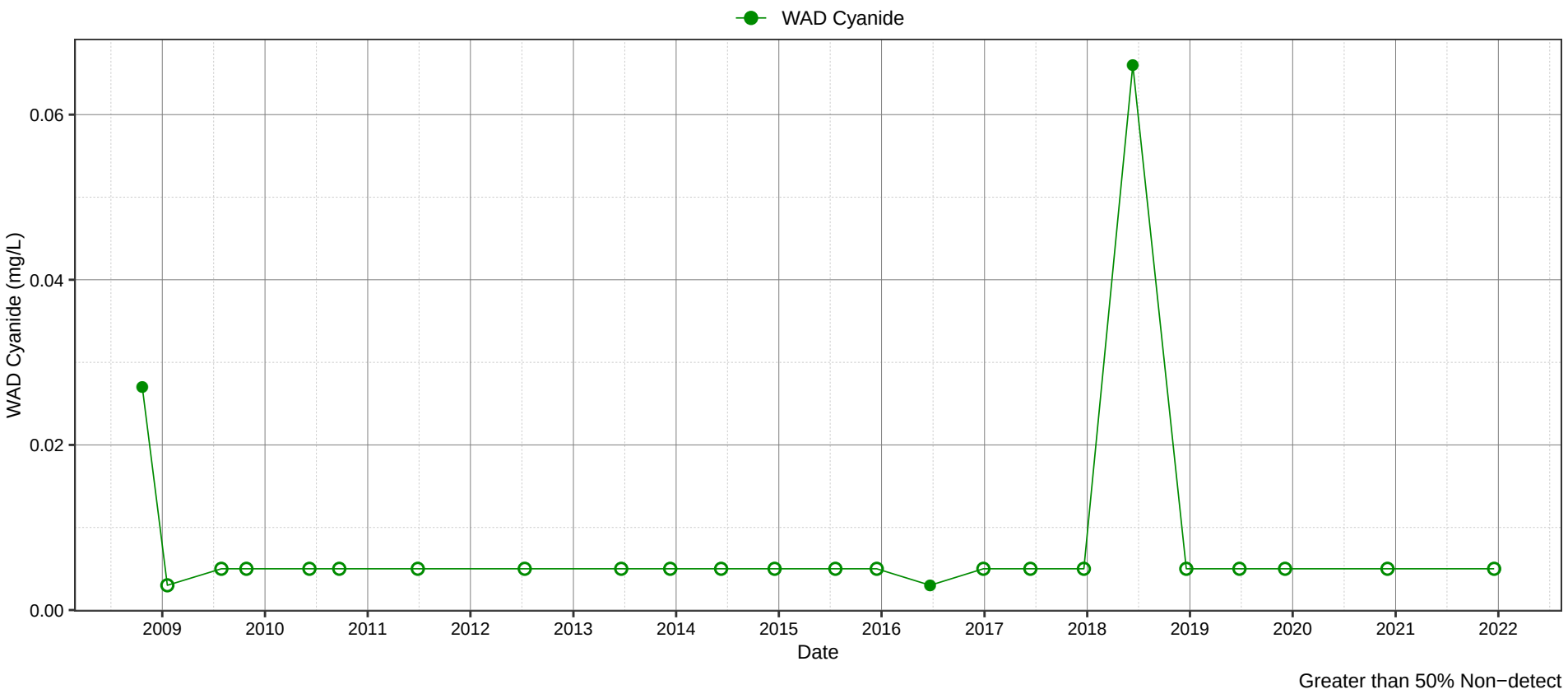


Greater than 50% Non−detect

Well PZ−45
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)

PZ−45

No Trend



Greater than 50% Non−detect

Well PZ−46
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)

PZ−46

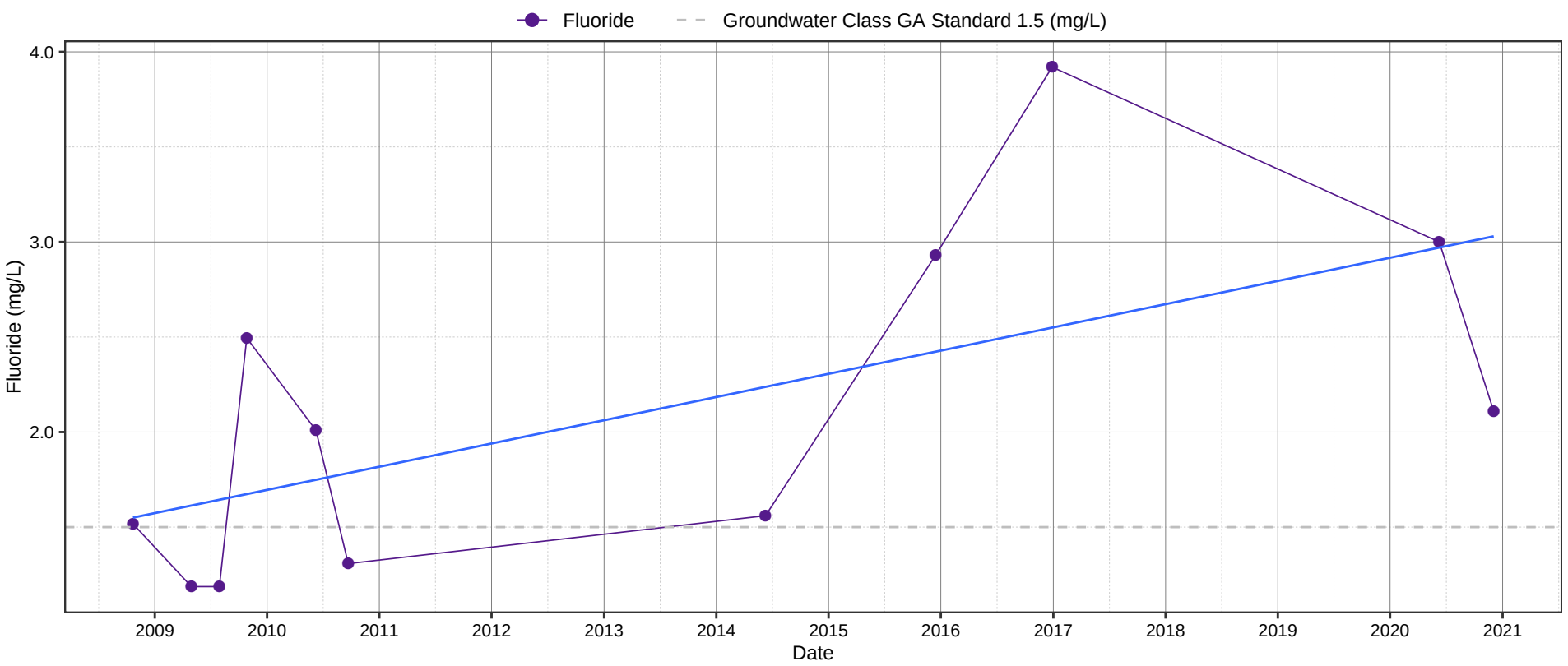
No Trend



Mann−Kendall p−value =0.174

PZ−46

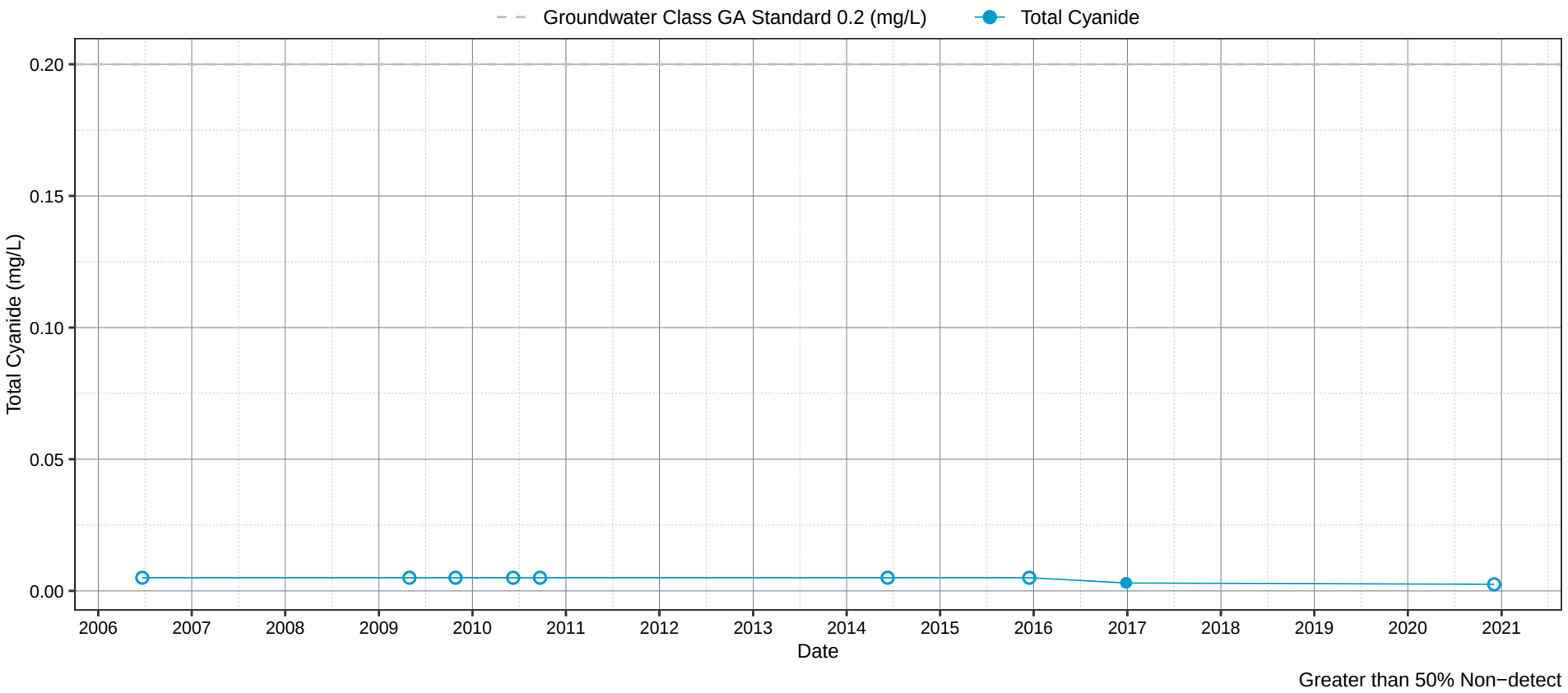
Increasing



Mann−Kendall p−value =0.035

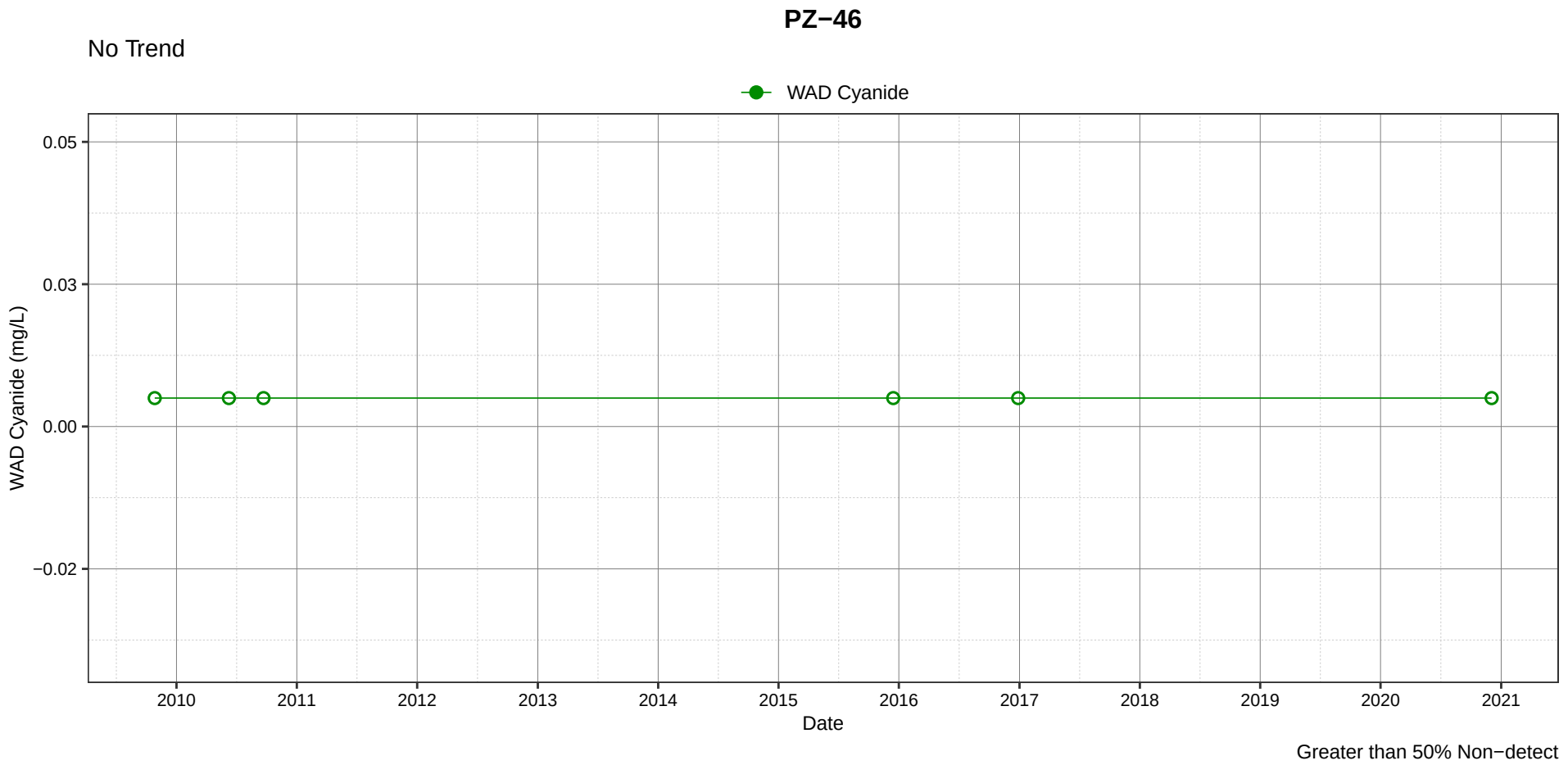
PZ−46

No Trend



Greater than 50% Non−detect

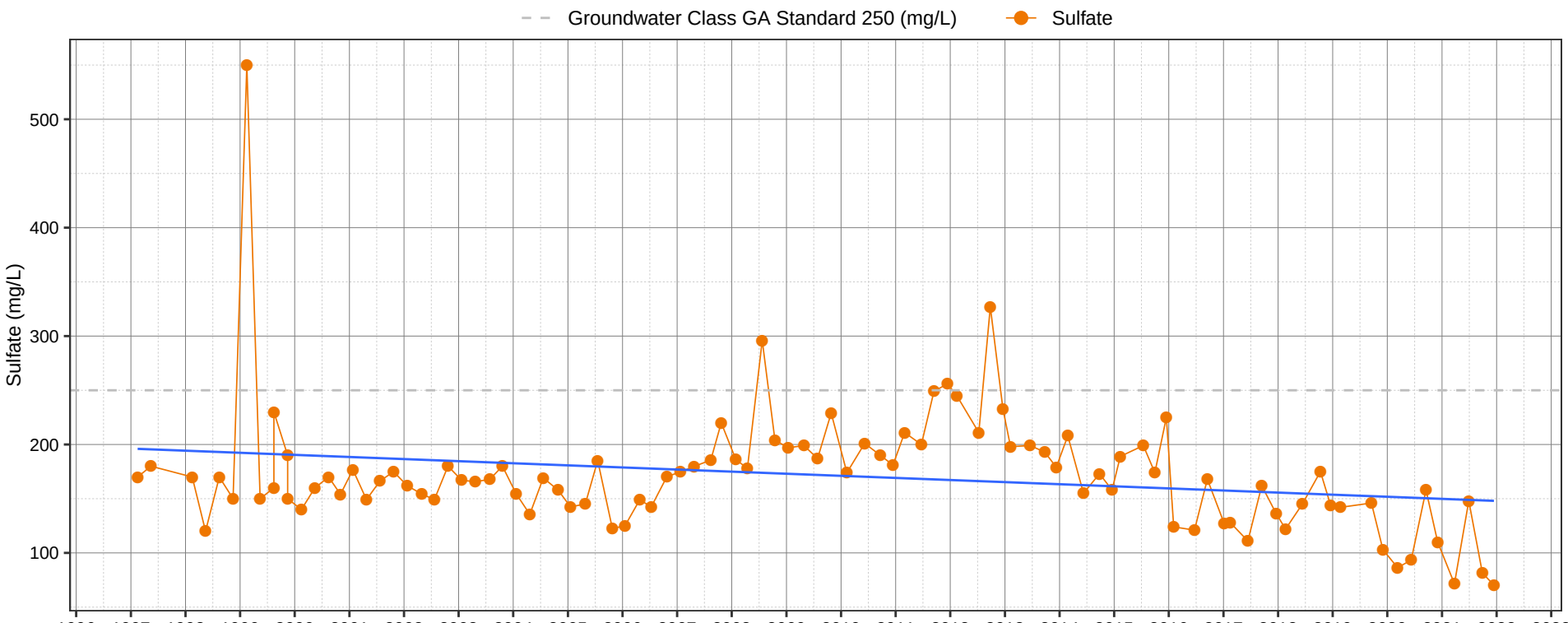
Well PZ−46
Black Mud Pond
(non−detects plotted as open symbols at half the method detection limit)



Well MW−10S
Industrial Landfill
(non−detects plotted as open symbols at half the method detection limit)

MW−10S

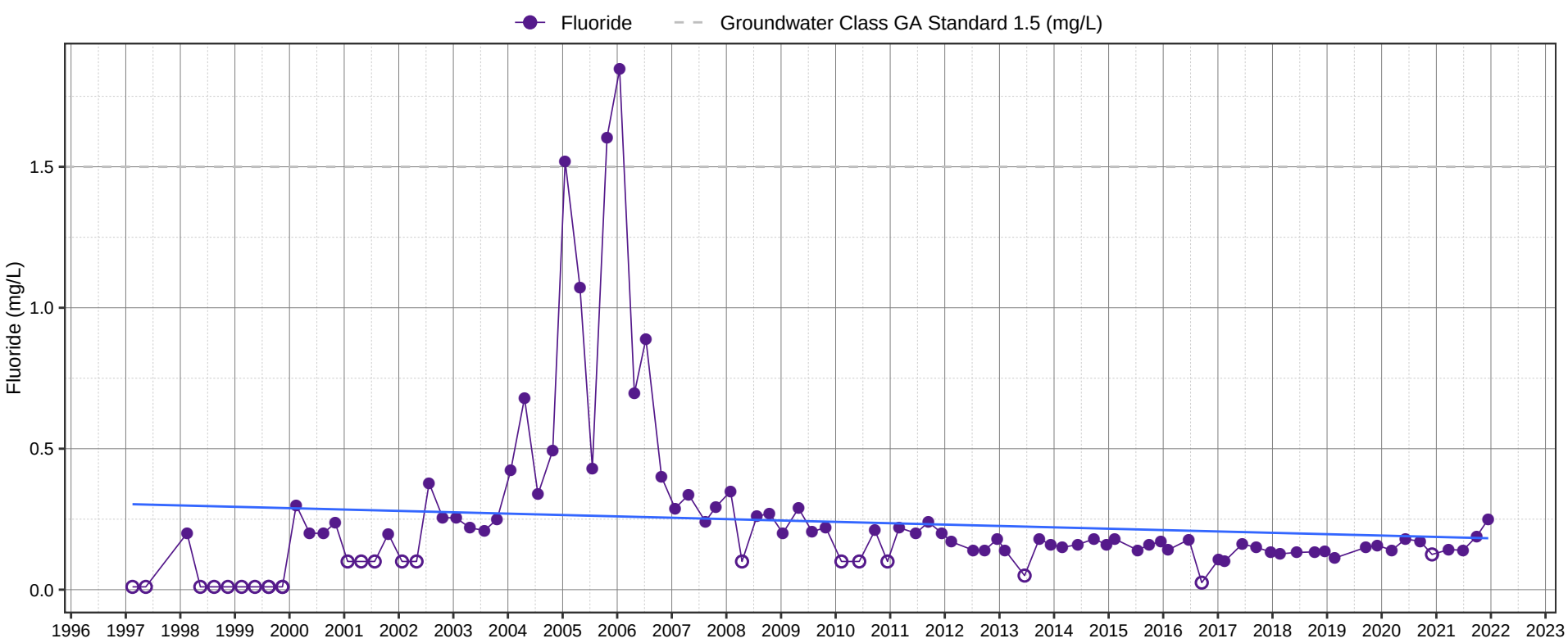
No Trend



Mann−Kendall p−value =0.11

MW−10S

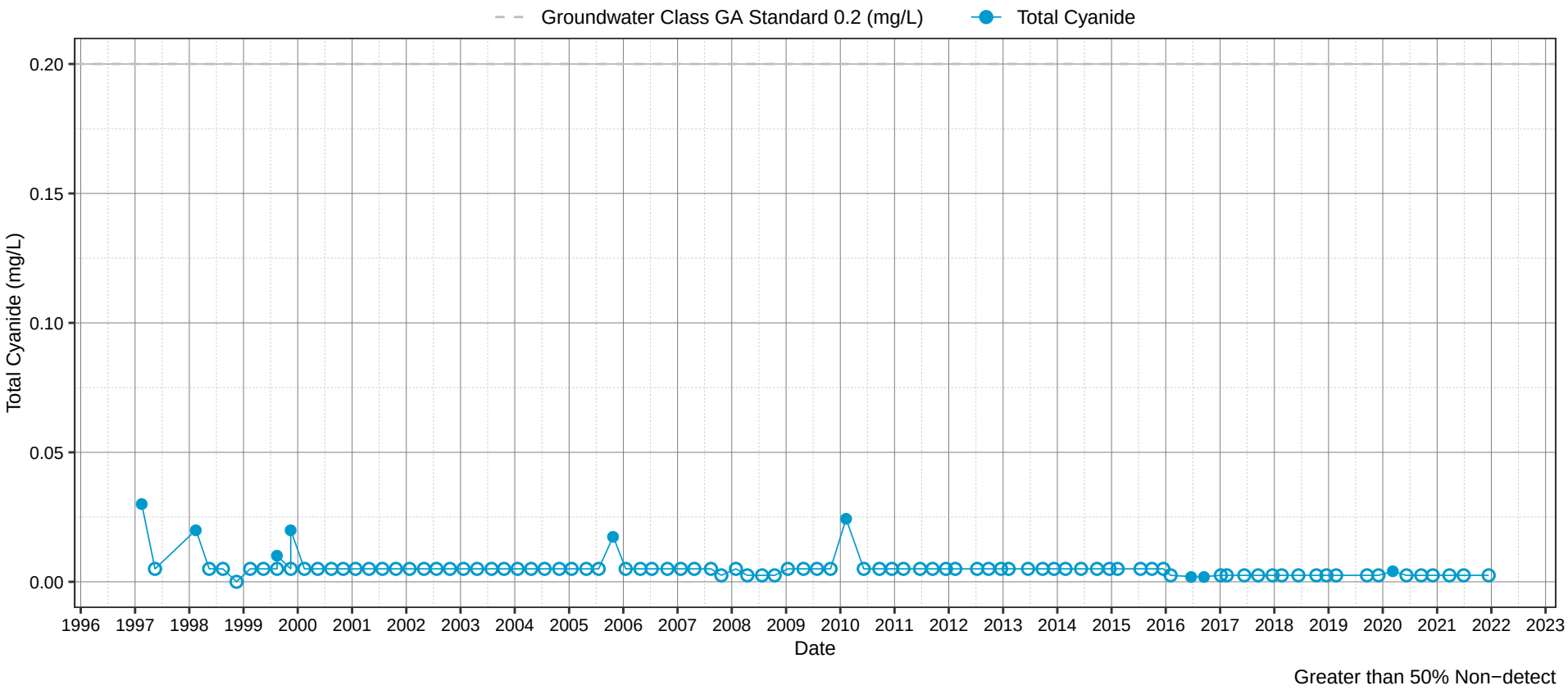
No Trend



Mann−Kendall p−value =0.372

MW−10S

No Trend

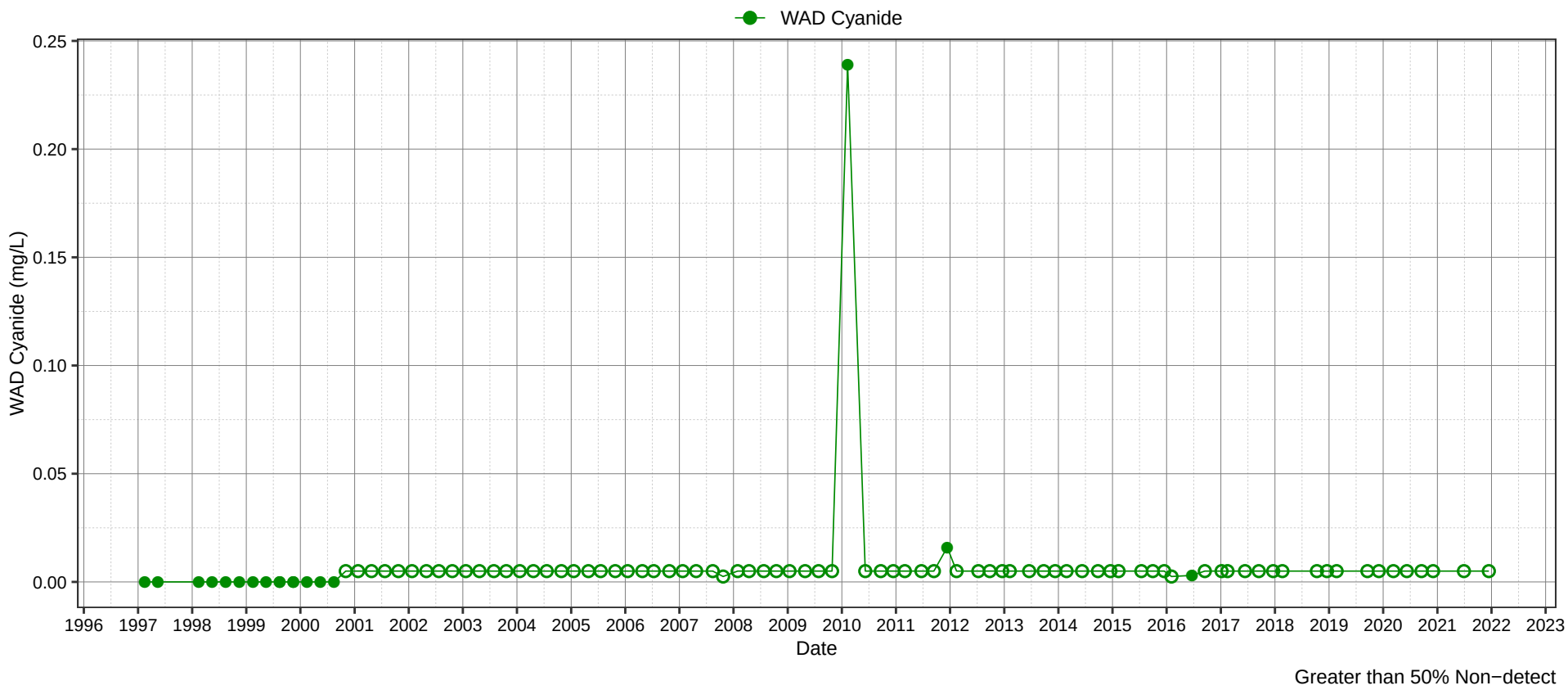


Greater than 50% Non−detect

Well MW−10S
Industrial Landfill
(non−detects plotted as open symbols at half the method detection limit)

MW−10S

No Trend

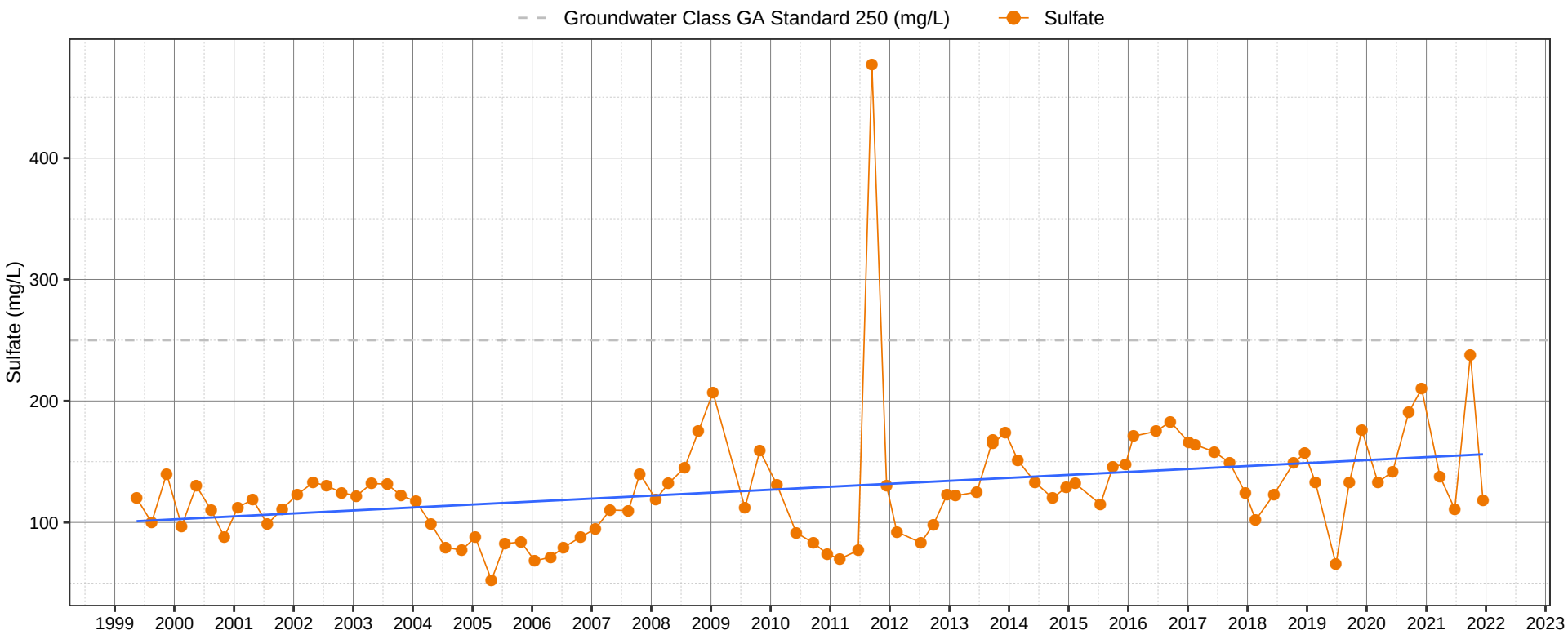


Greater than 50% Non−detect

Well MW−39S
Industrial Landfill
(non−detects plotted as open symbols at half the method detection limit)

MW−39S

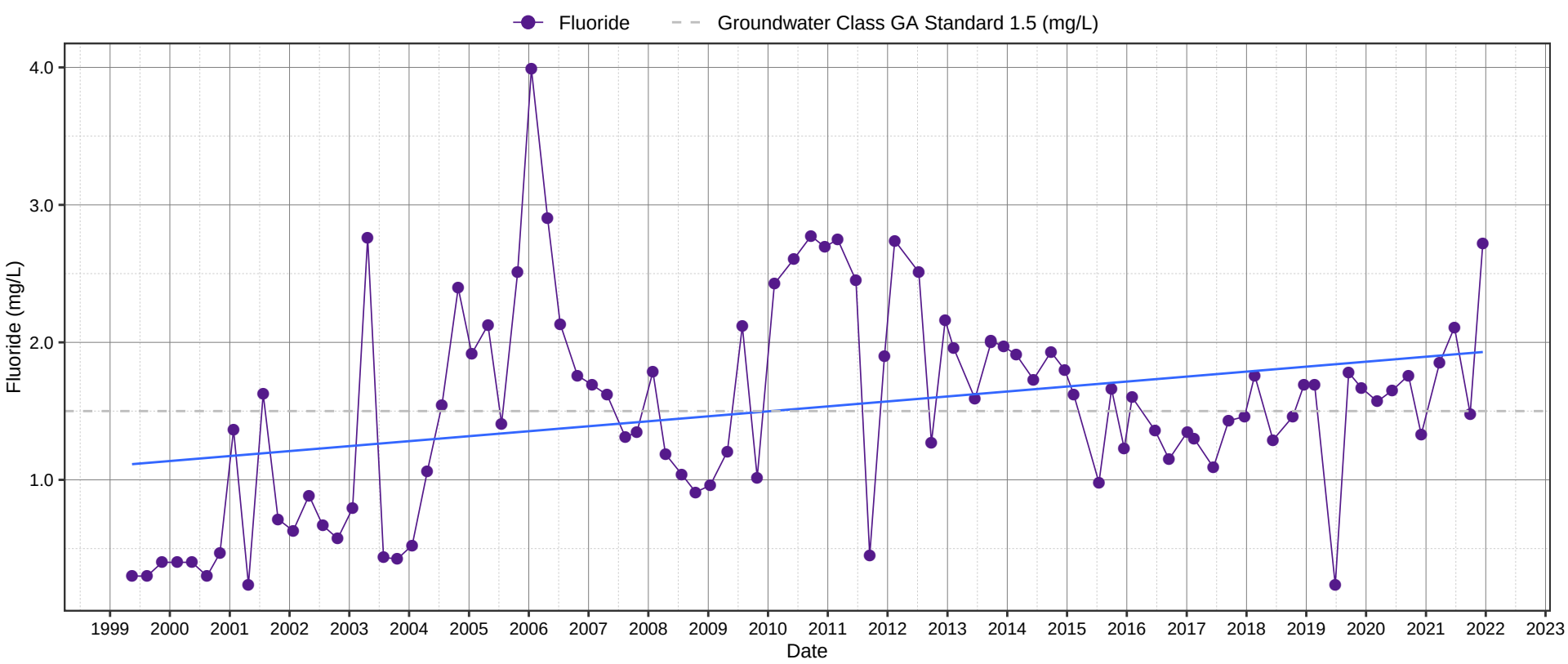
Increasing



Mann−Kendall p−value < 0.001

MW−39S

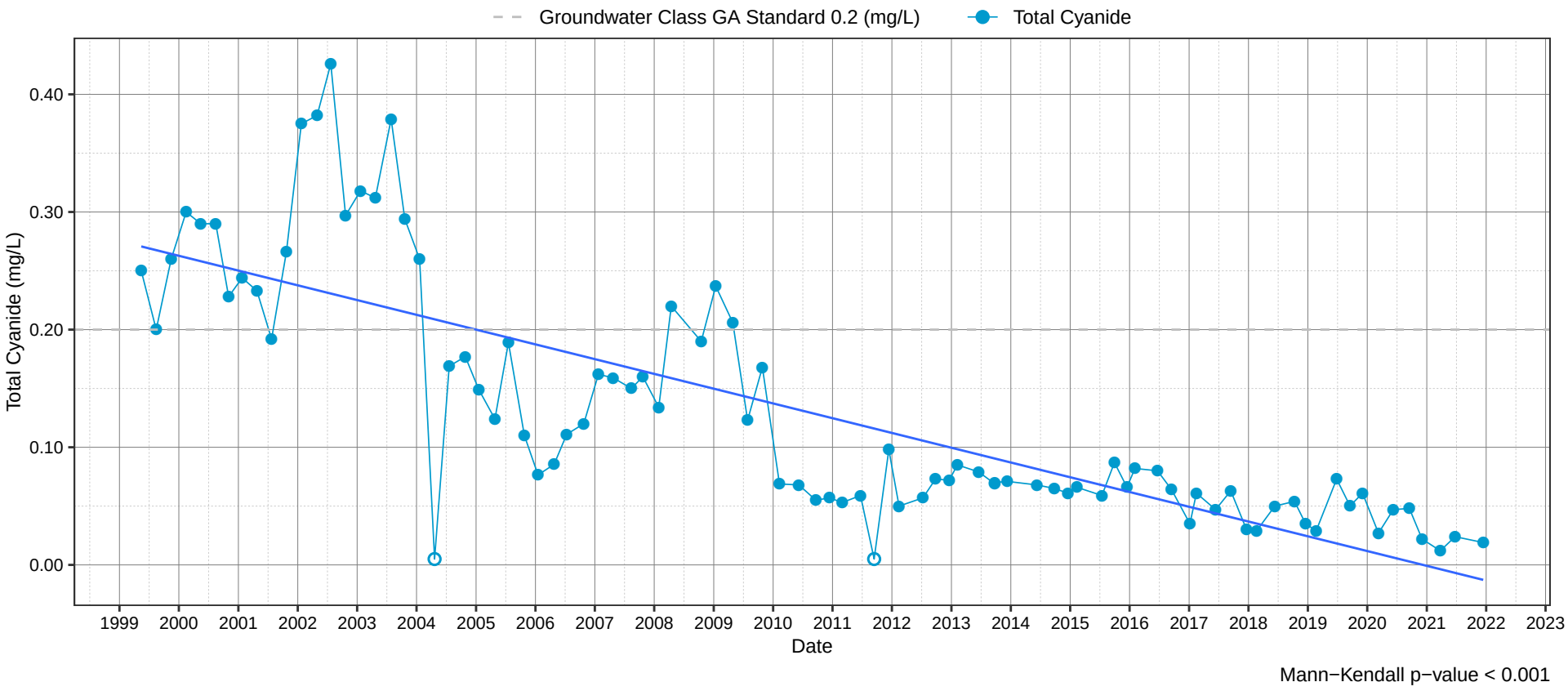
Increasing



Mann−Kendall p−value =0.003

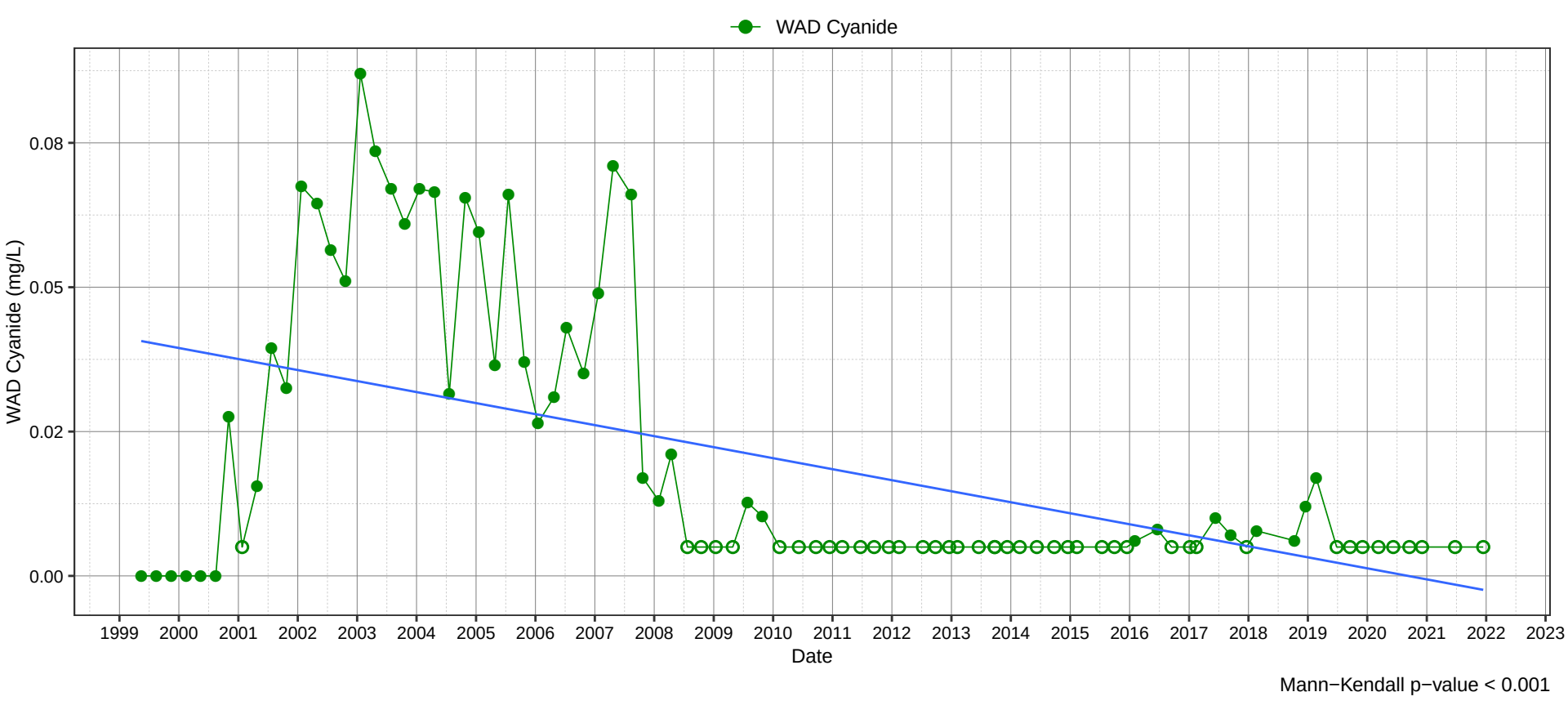
MW−39S

Decreasing



Mann−Kendall p−value < 0.001

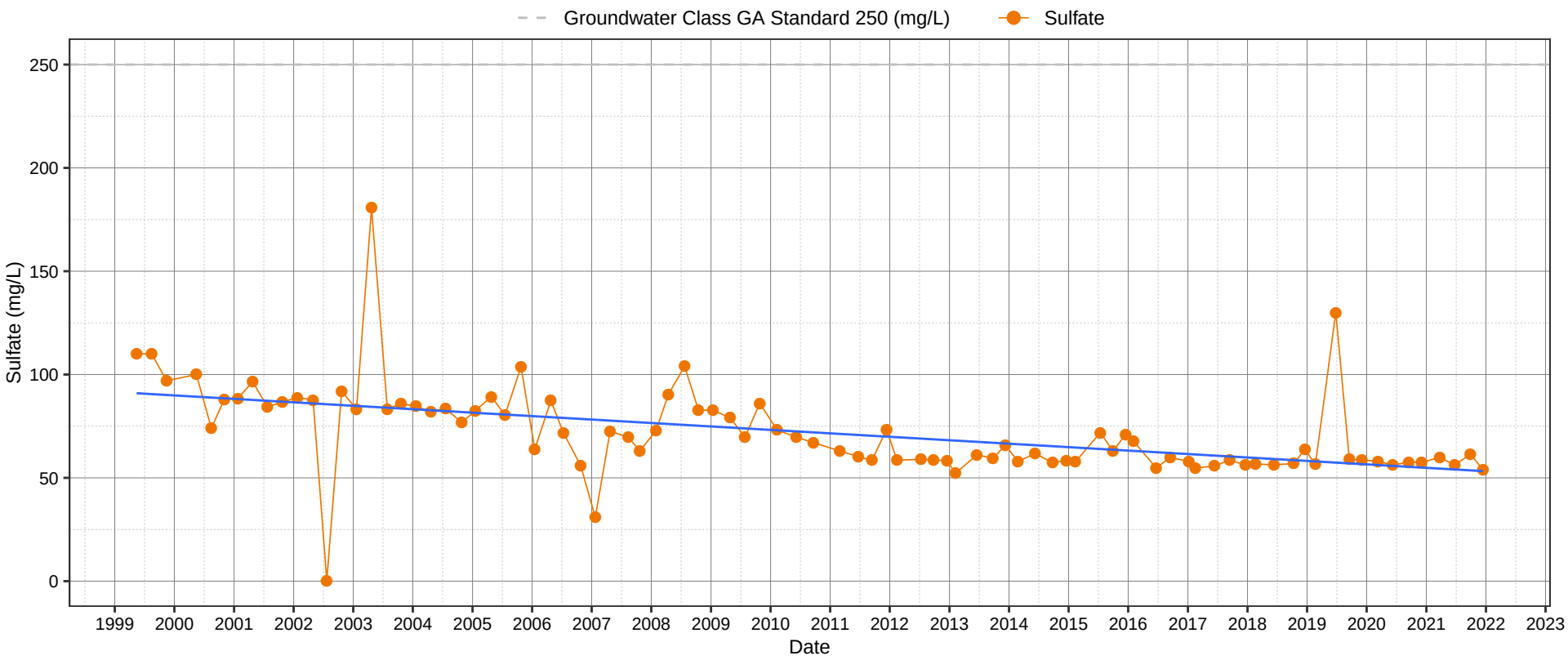
Well MW−39S
Industrial Landfill
(non−detects plotted as open symbols at half the method detection limit)



Well MW−40S
Industrial Landfill
(non−detects plotted as open symbols at half the method detection limit)

MW−40S

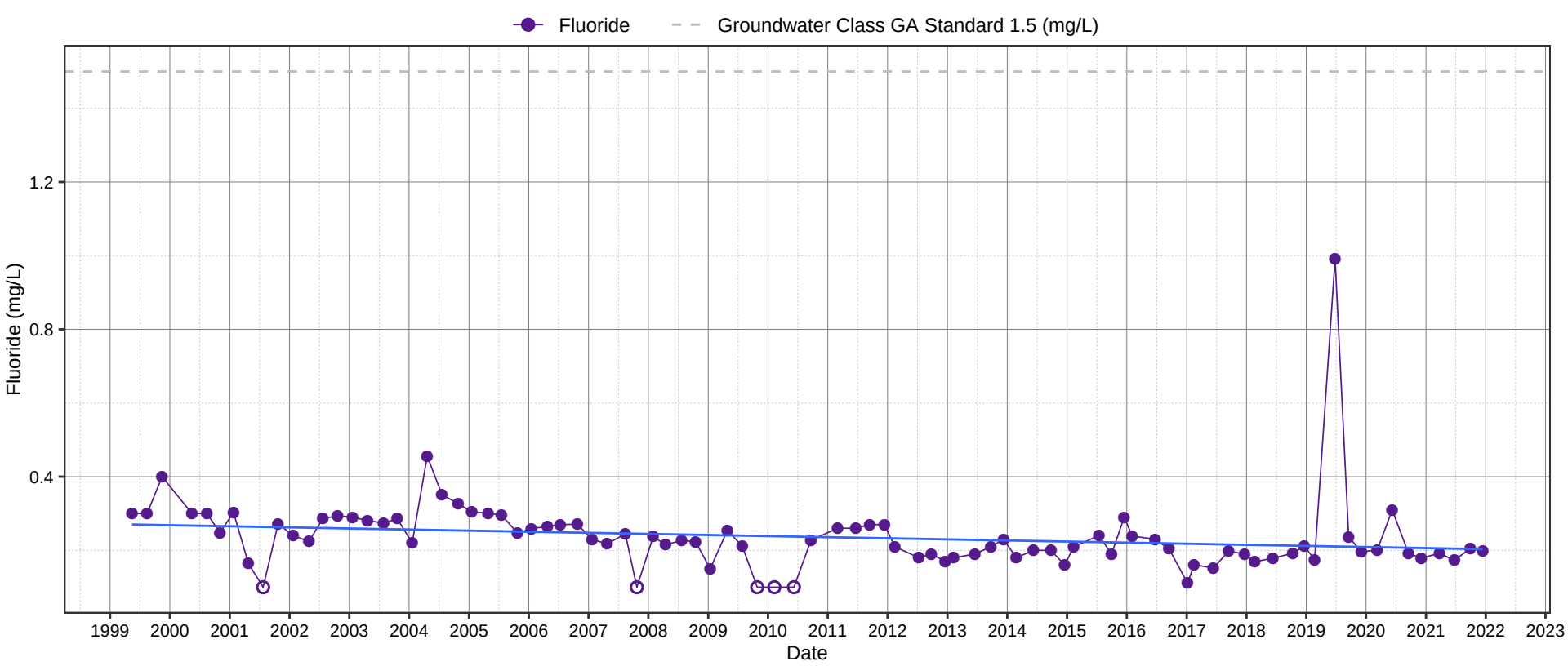
Decreasing



Mann−Kendall p−value < 0.001

MW−40S

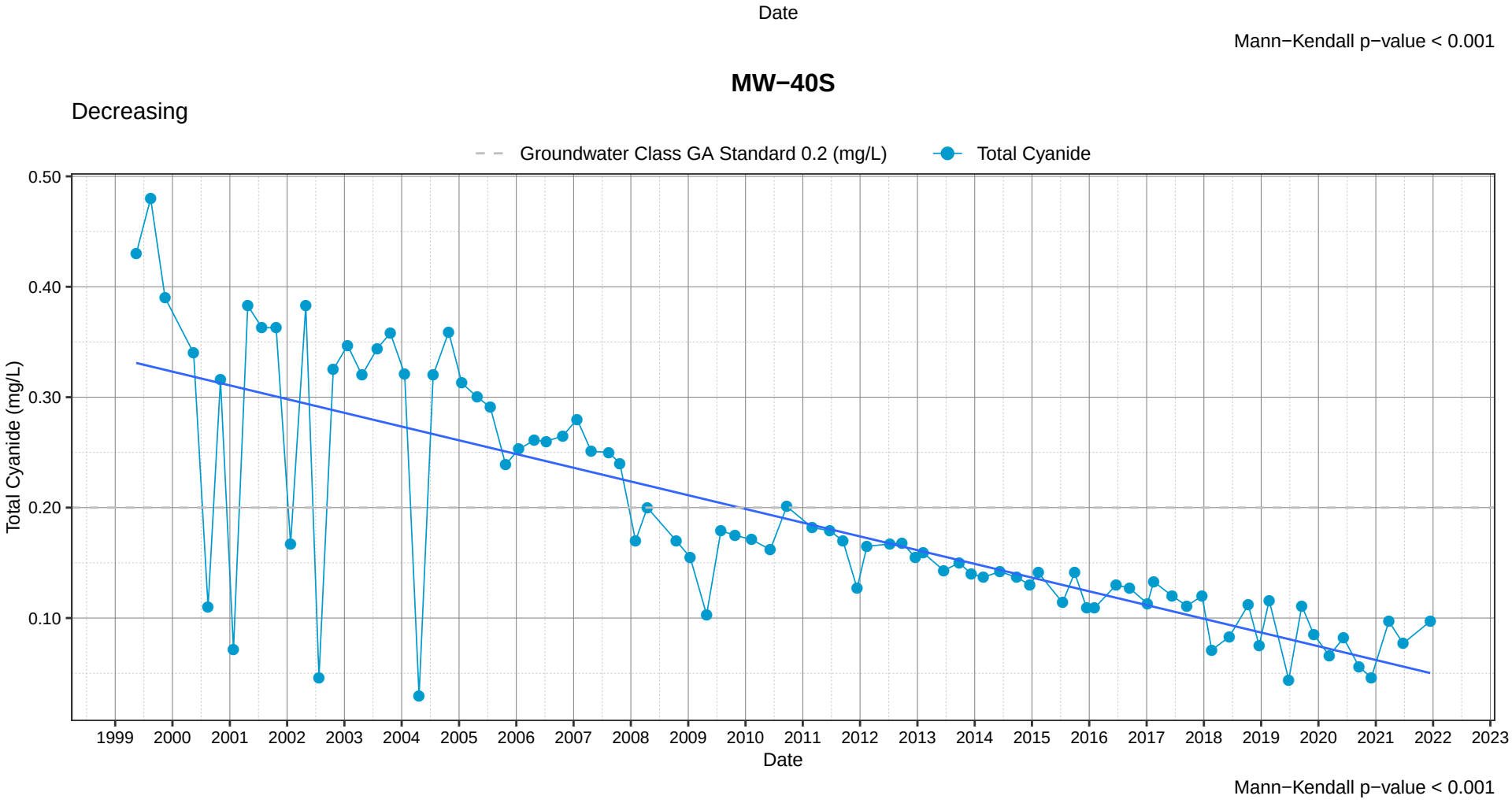
Decreasing



Mann−Kendall p−value < 0.001

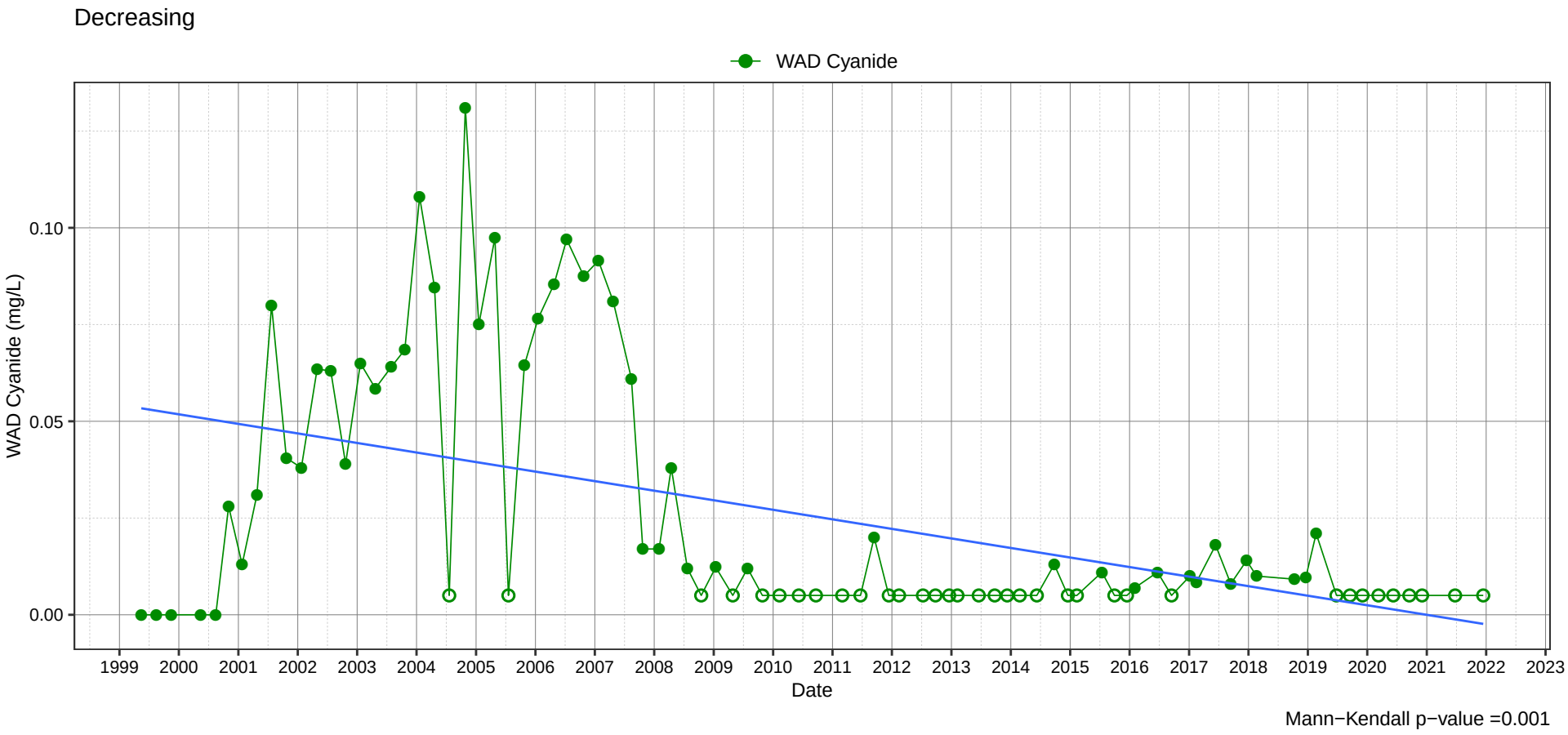
MW−40S

Decreasing



Mann−Kendall p−value < 0.001

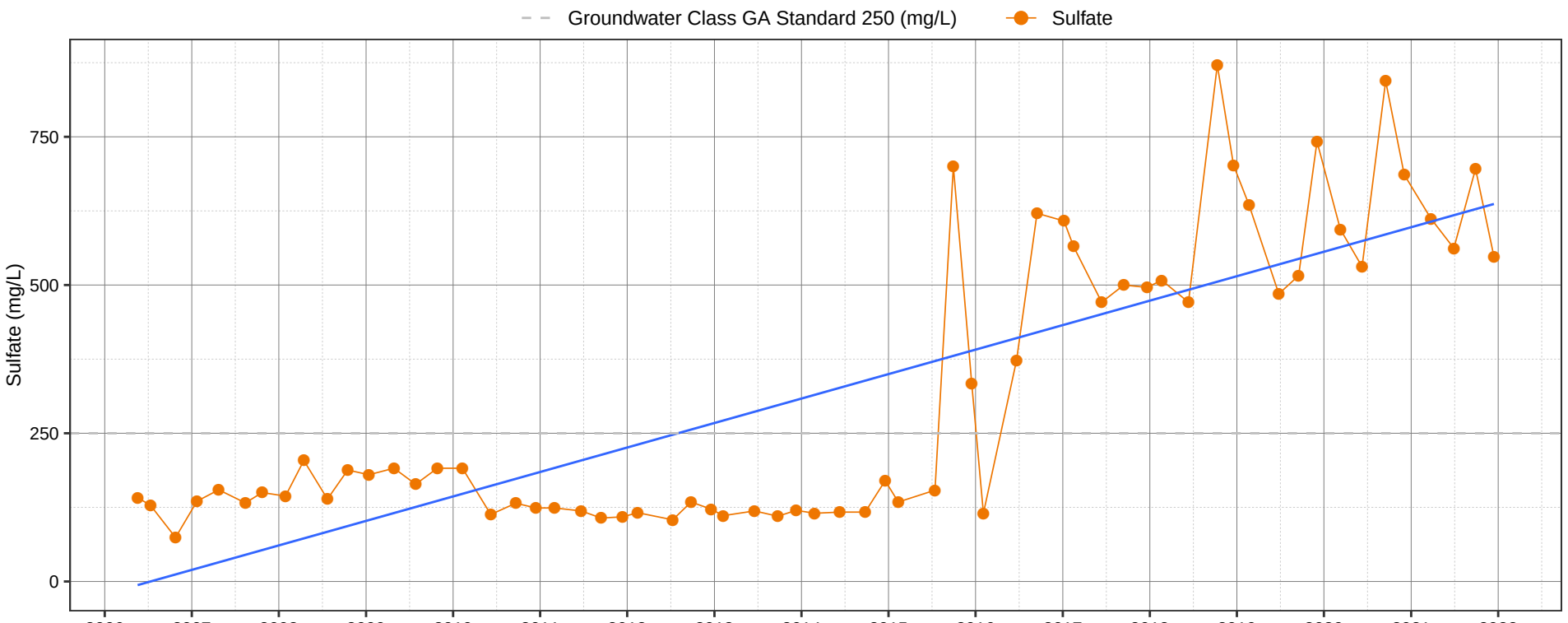
Well MW−40S
Industrial Landfill
(non−detects plotted as open symbols at half the method detection limit)



Well MW−45
Industrial Landfill
(non−detects plotted as open symbols at half the method detection limit)

MW−45

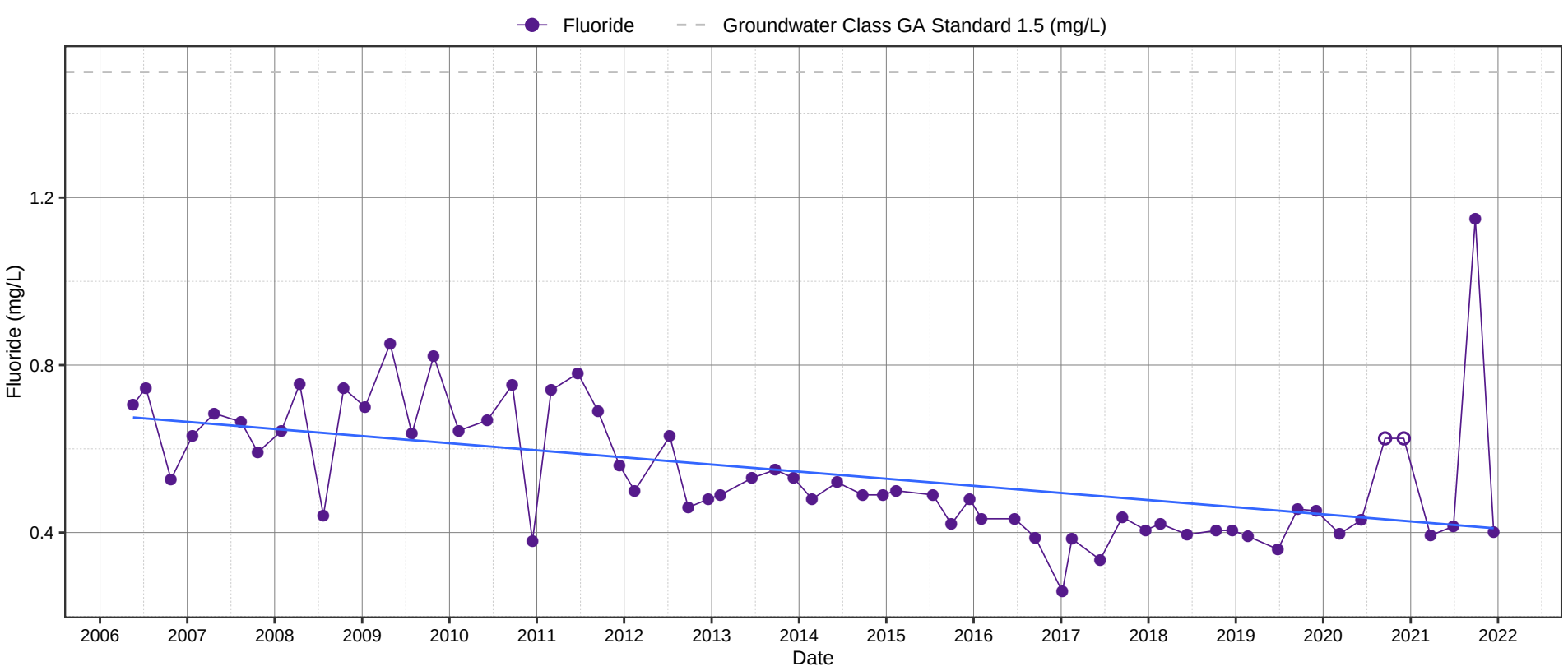
Increasing



Mann−Kendall p−value < 0.001

MW−45

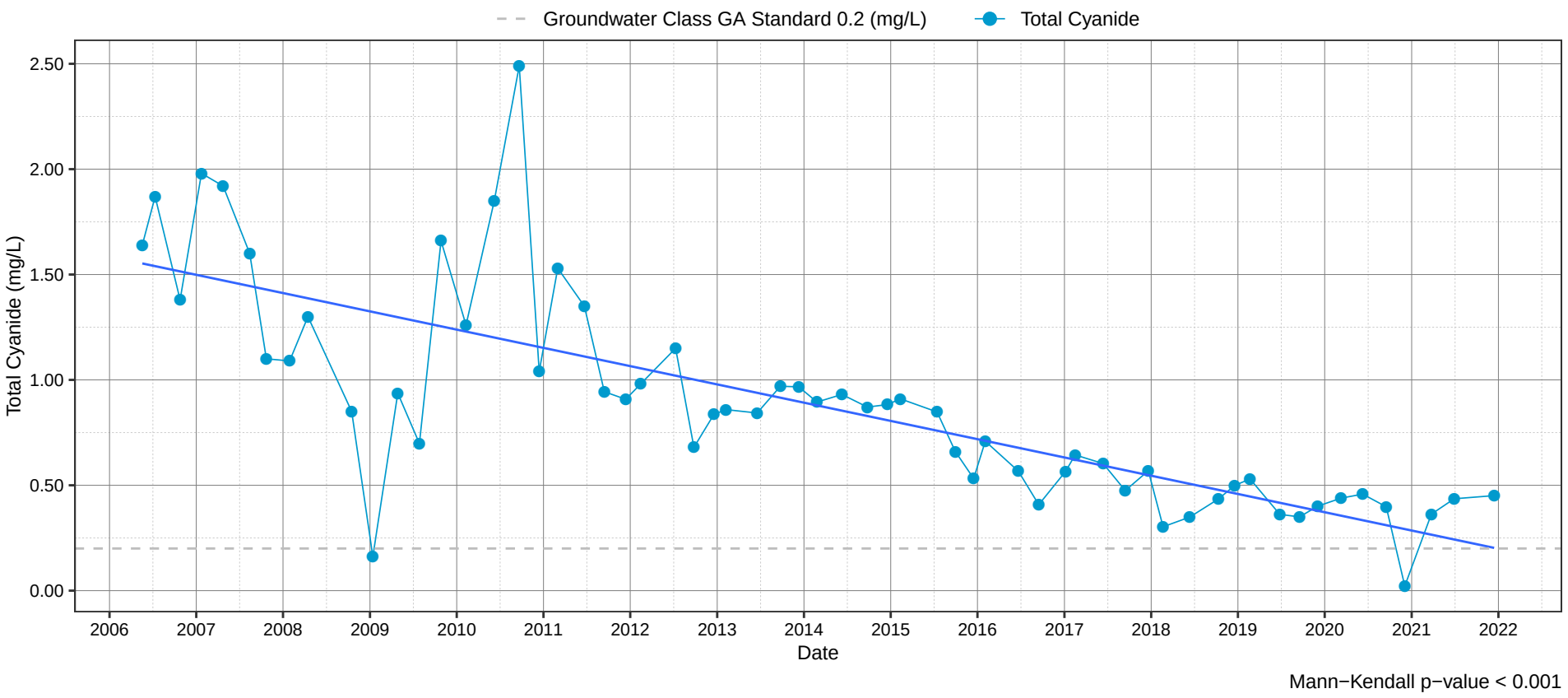
Decreasing



Mann−Kendall p−value < 0.001

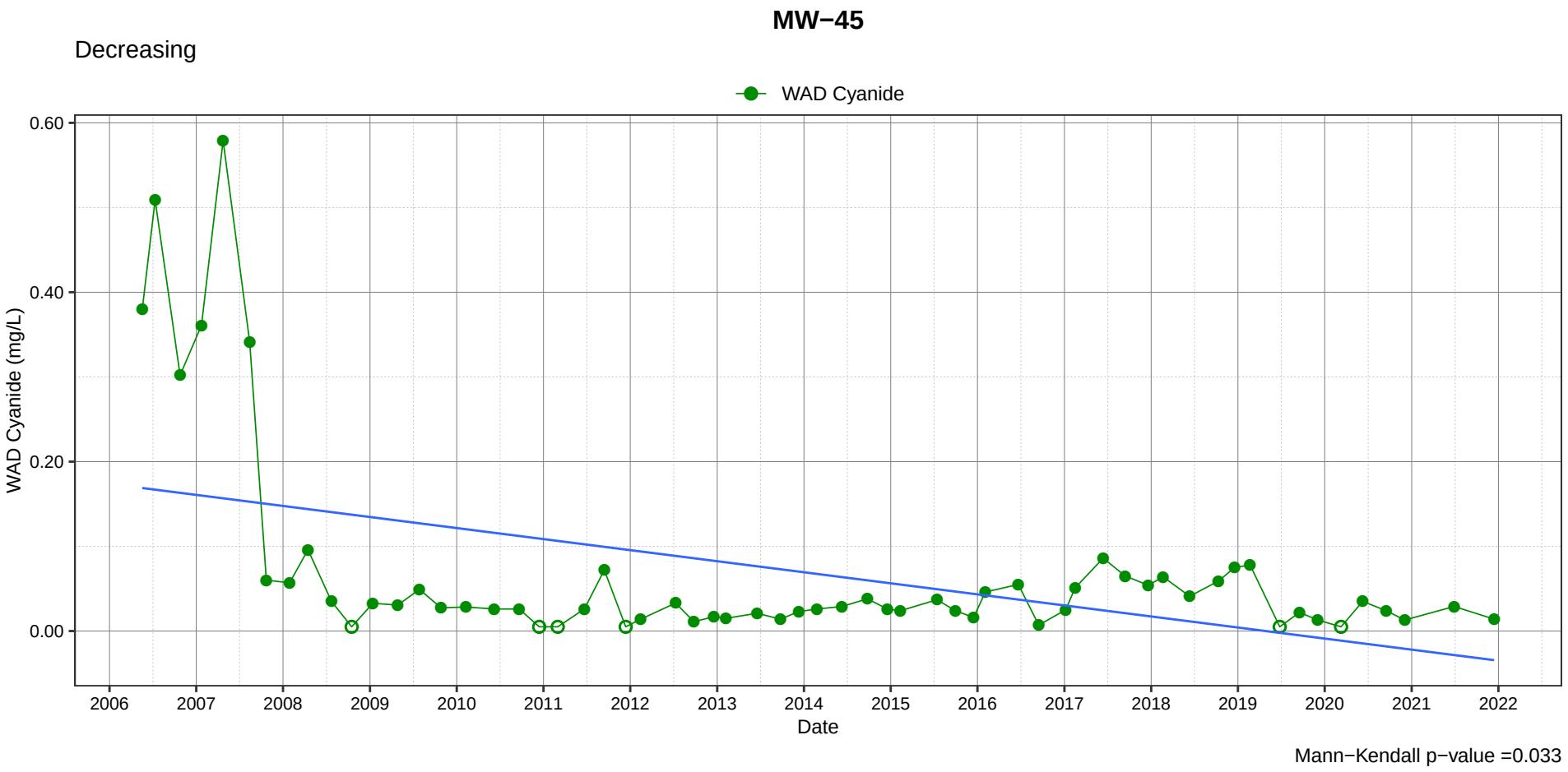
MW−45

Decreasing



Mann−Kendall p−value < 0.001

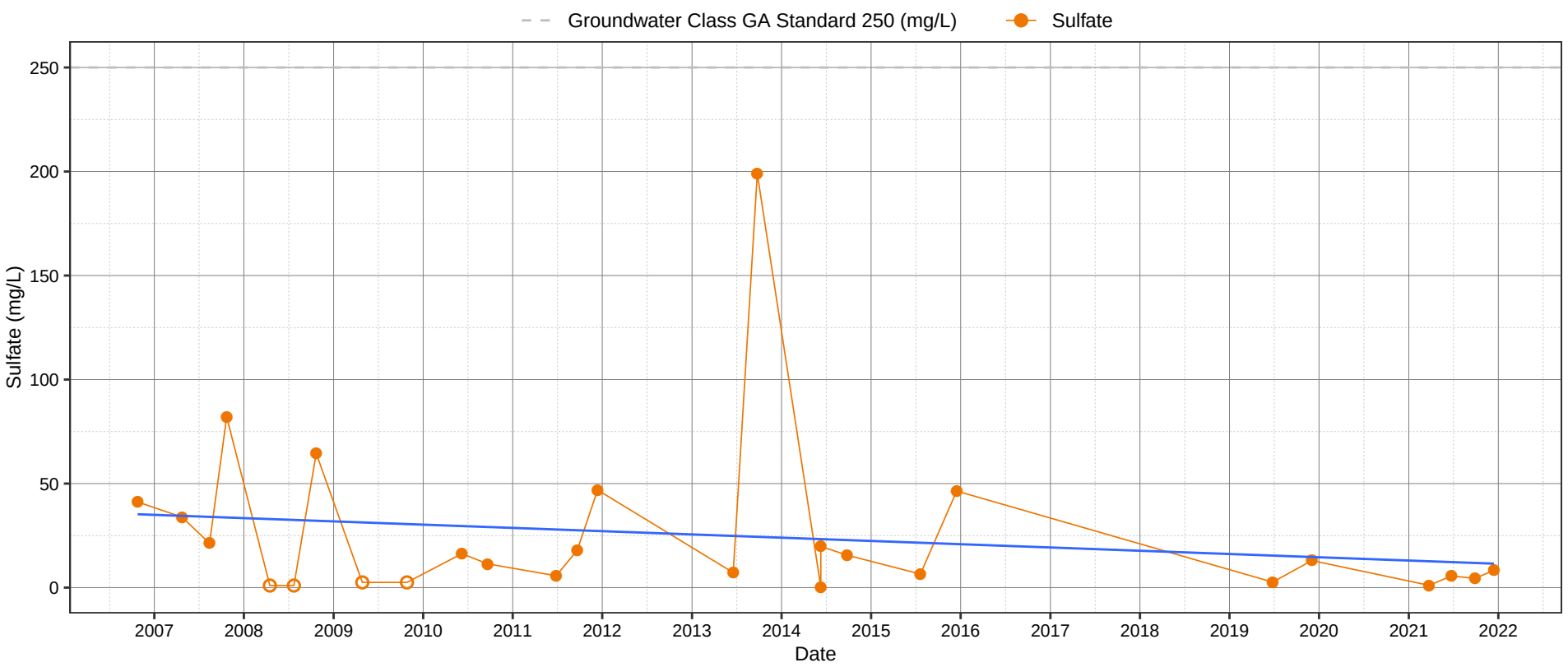
Well MW−45
Industrial Landfill
(non−detects plotted as open symbols at half the method detection limit)



Well SLPWETE
Industrial Landfill
(non−detects plotted as open symbols at half the method detection limit)

SLPWETE

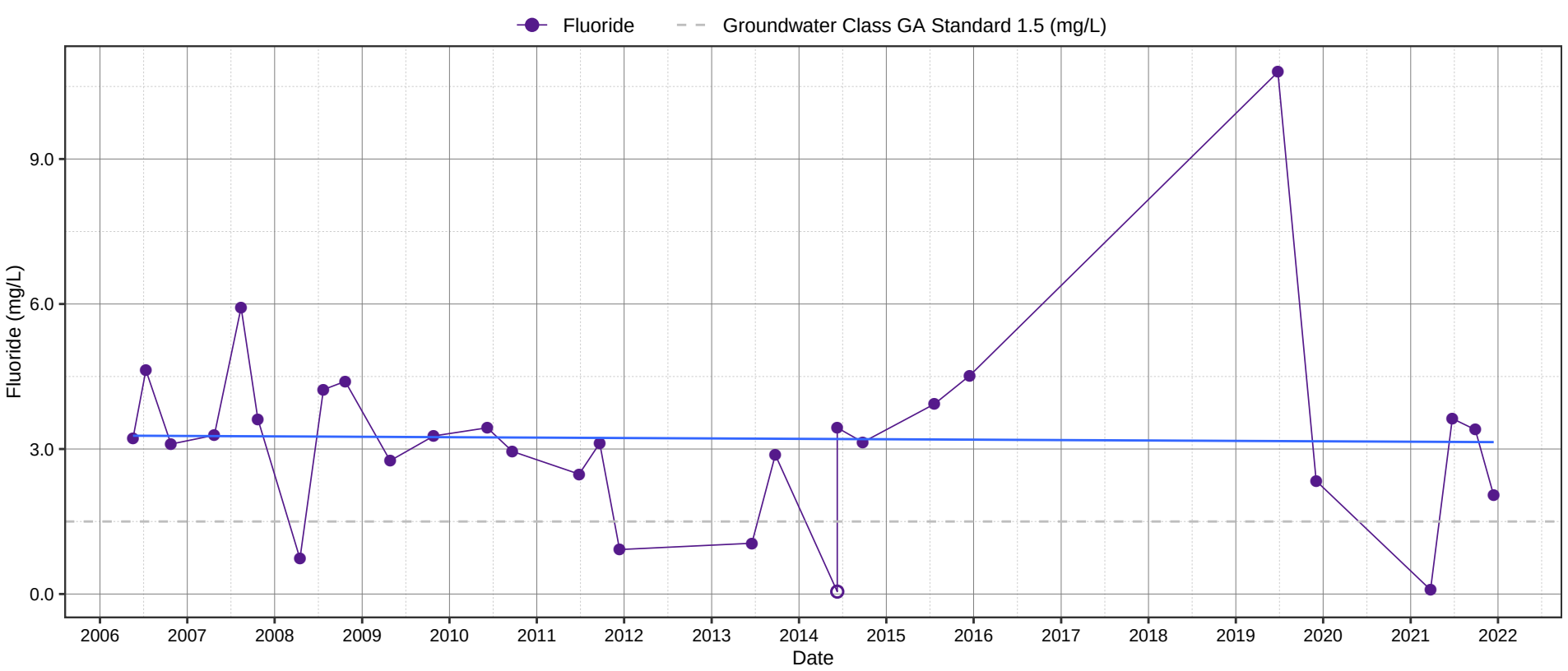
No Trend



Mann−Kendall p−value =0.243

SLPWETE

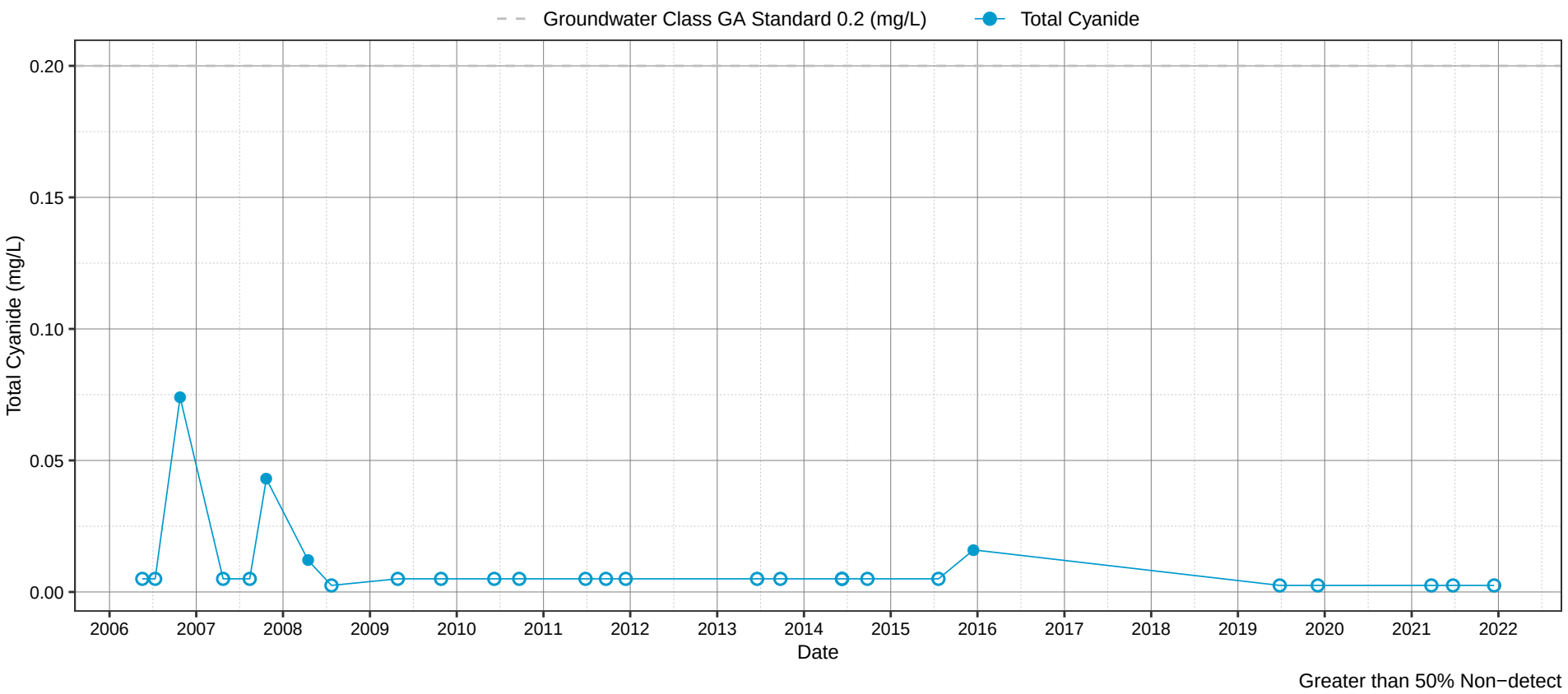
No Trend



Mann−Kendall p−value =0.339

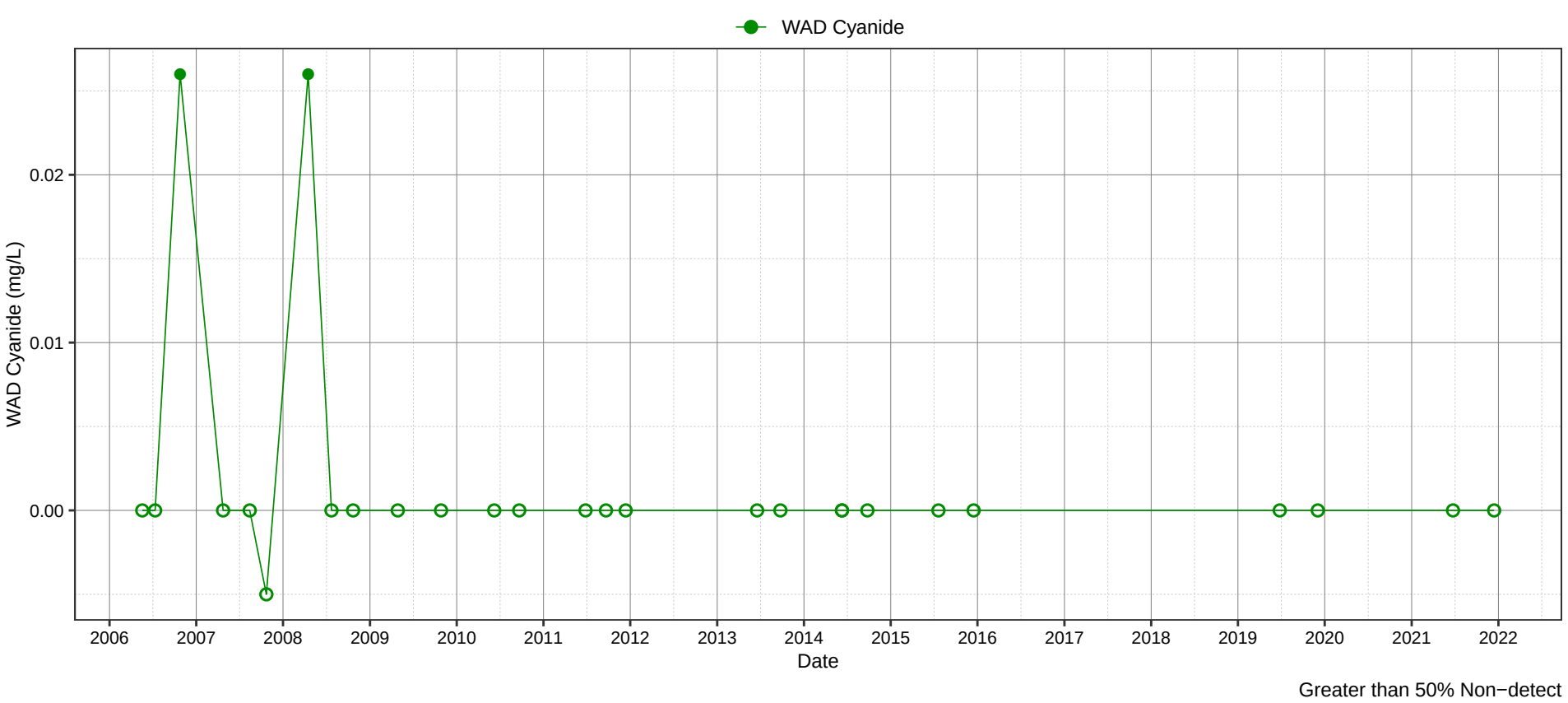
SLPWETE

No Trend



Greater than 50% Non−detect

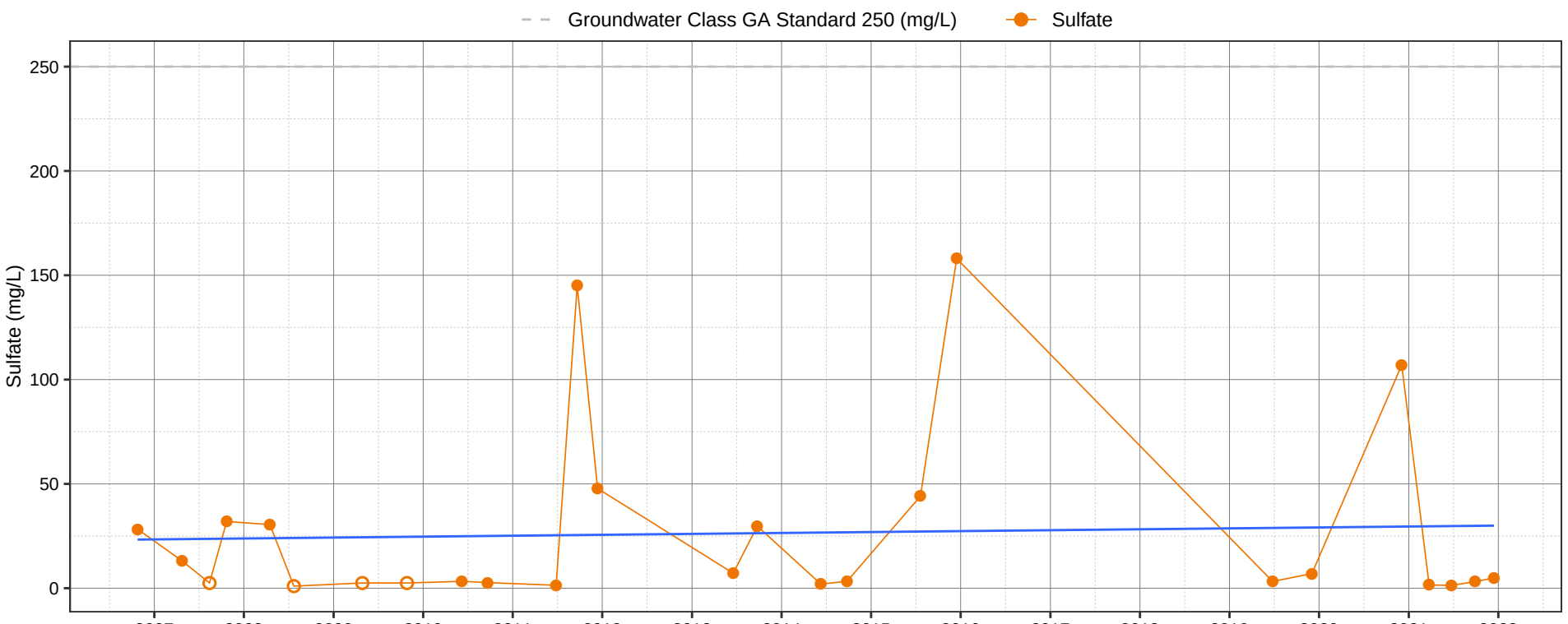
Well SLPWETE
Industrial Landfill
(non−detects plotted as open symbols at half the method detection limit)



Well SLPWETW
Industrial Landfill
(non−detects plotted as open symbols at half the method detection limit)

SLPWETW

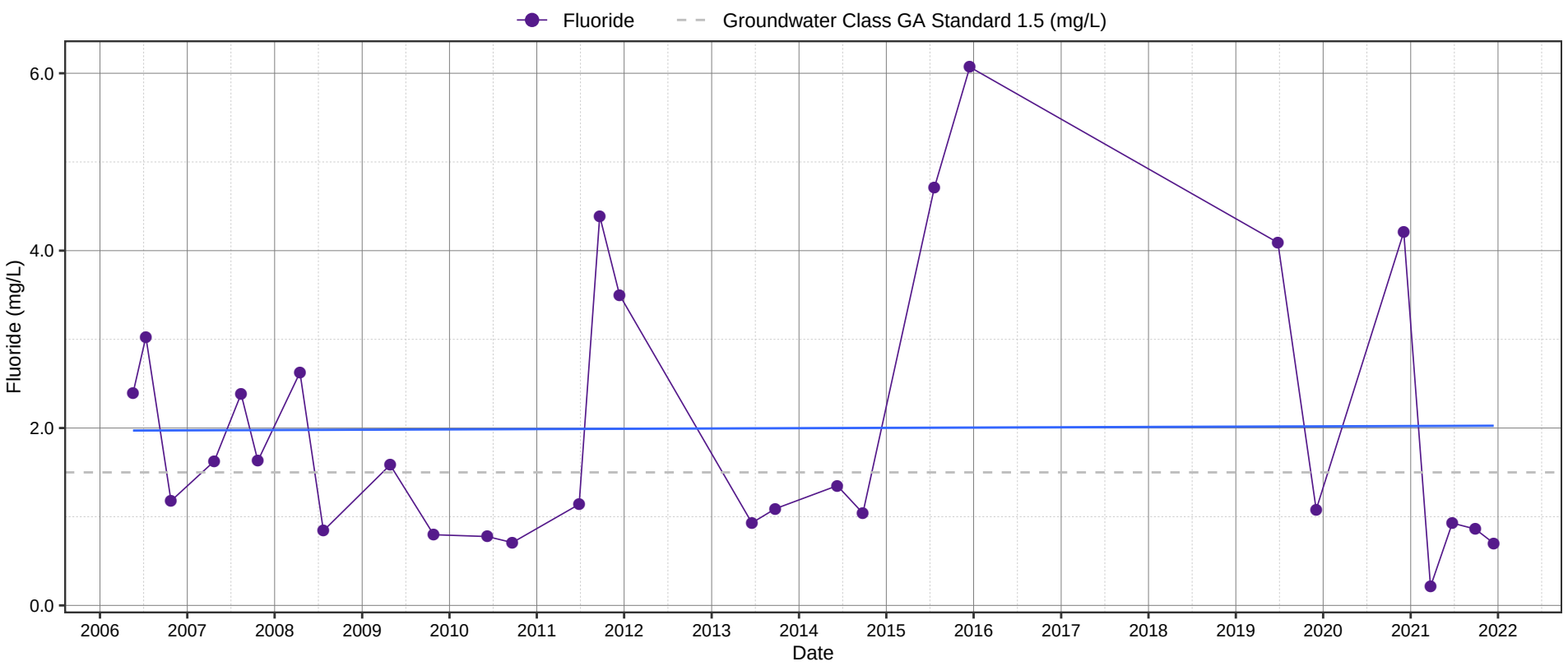
No Trend



Mann−Kendall p−value =0.965

SLPWETW

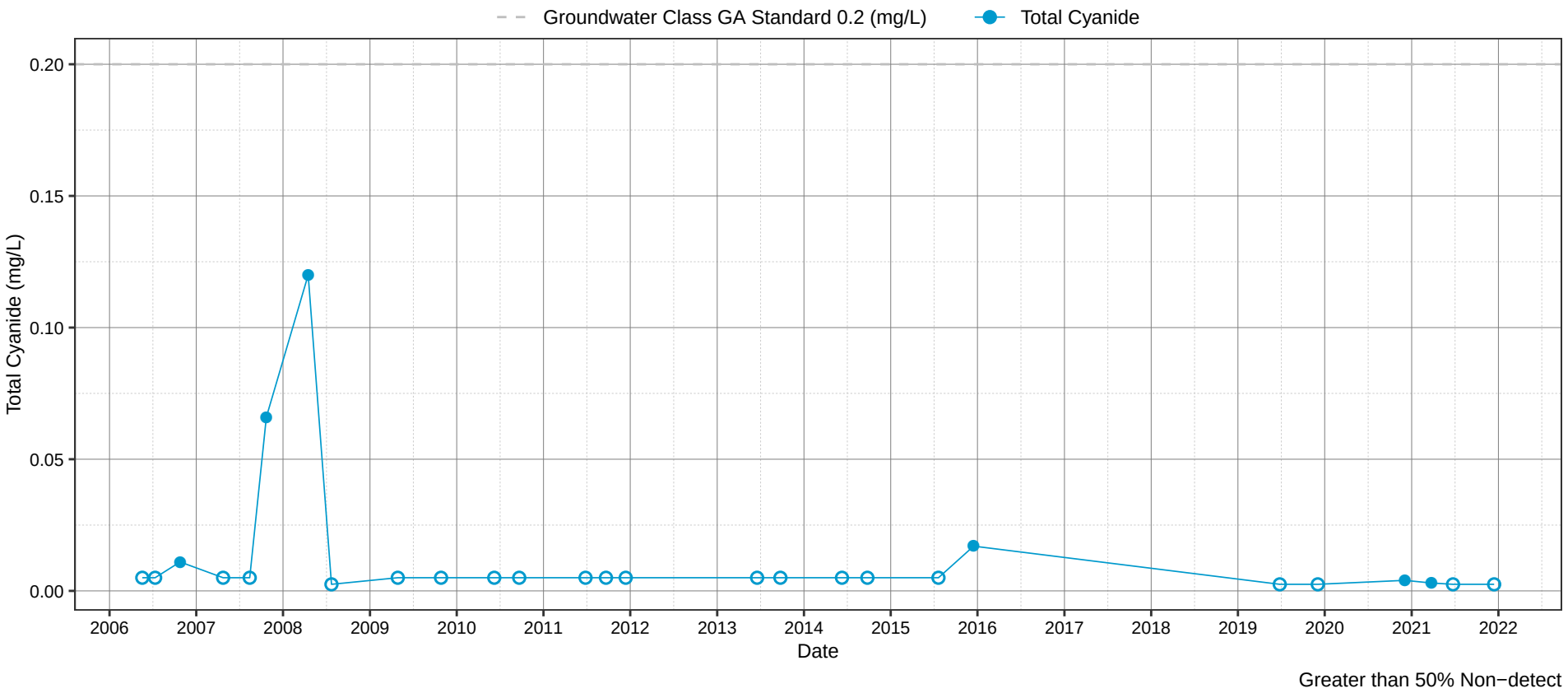
No Trend



Mann−Kendall p−value =0.244

SLPWETW

No Trend

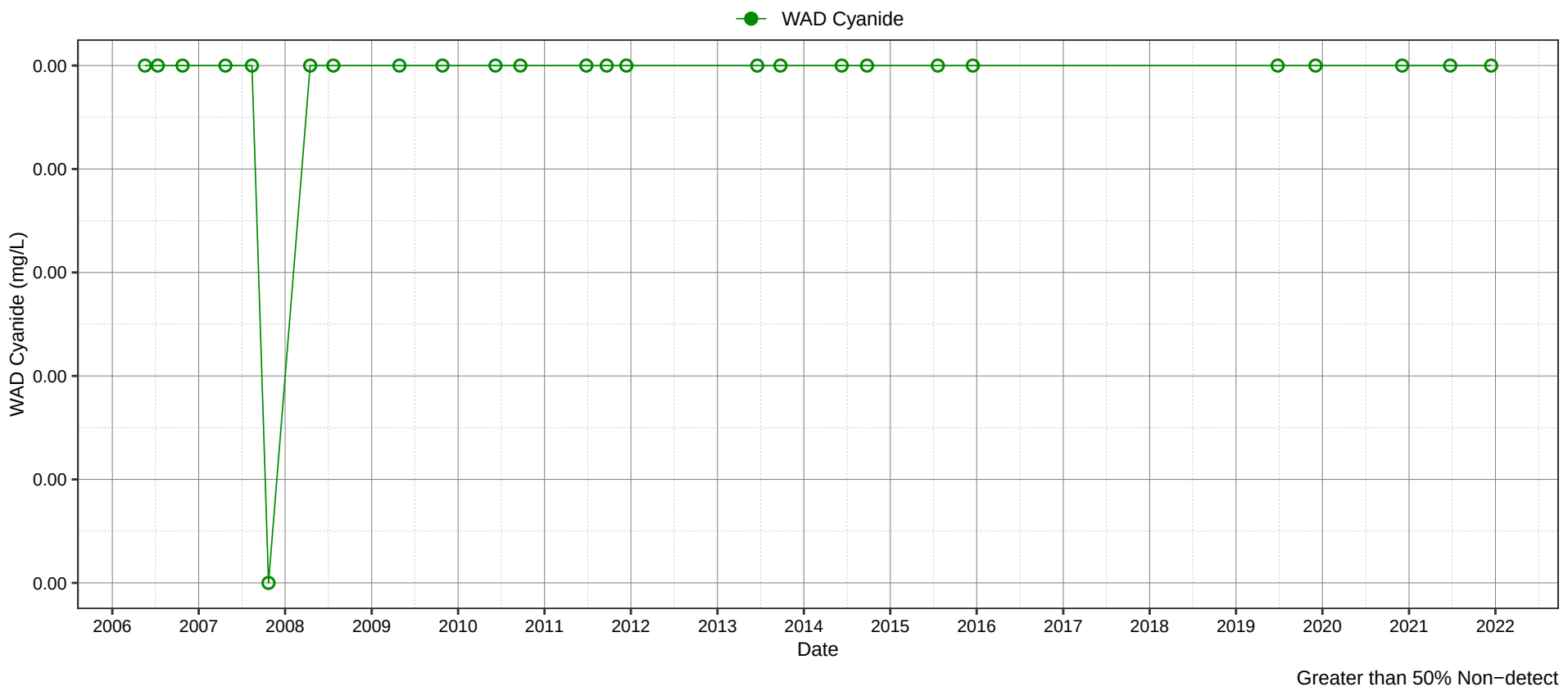


Greater than 50% Non−detect

Well SLPWETW
Industrial Landfill
(non−detects plotted as open symbols at half the method detection limit)

SLPWETW

No Trend

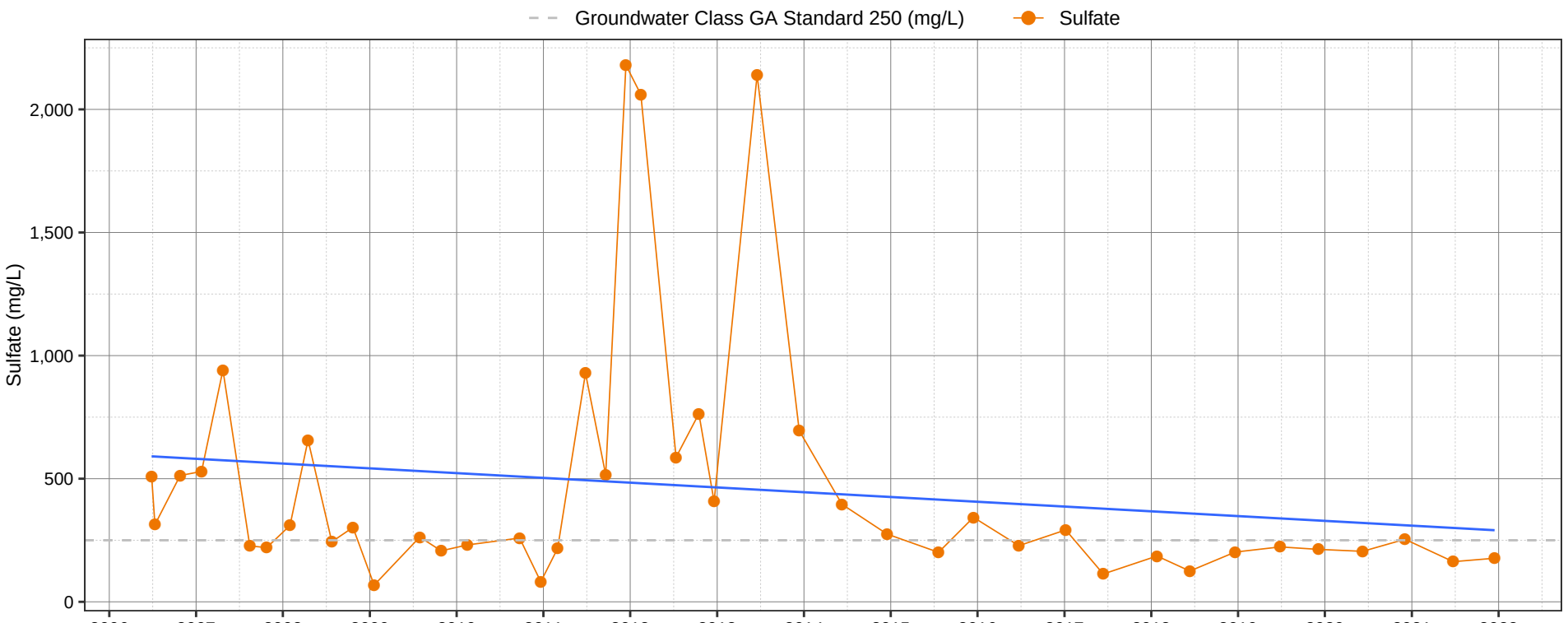


Greater than 50% Non−detect

Well FDRAIN1
North Yard
(non−detects plotted as open symbols at half the method detection limit)

FDRAIN1

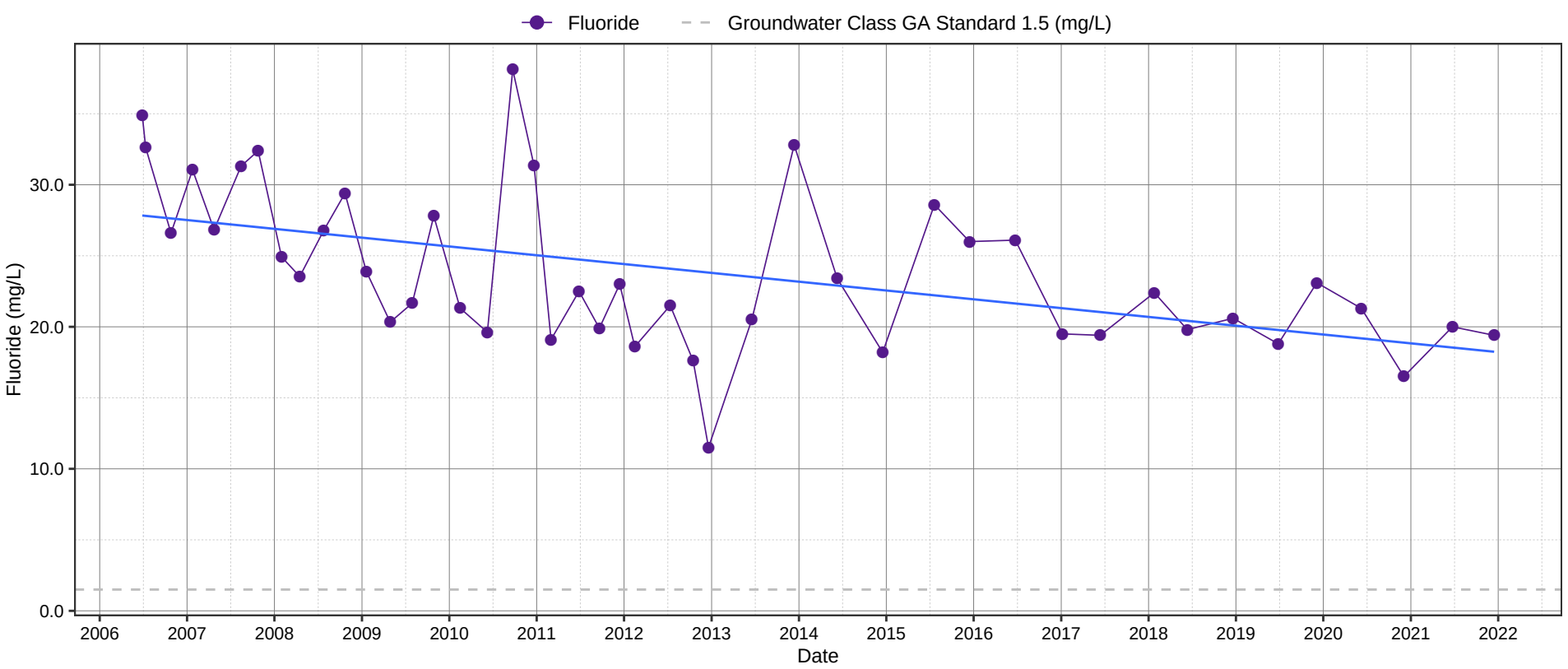
Decreasing



Mann−Kendall p−value =0.013

FDRAIN1

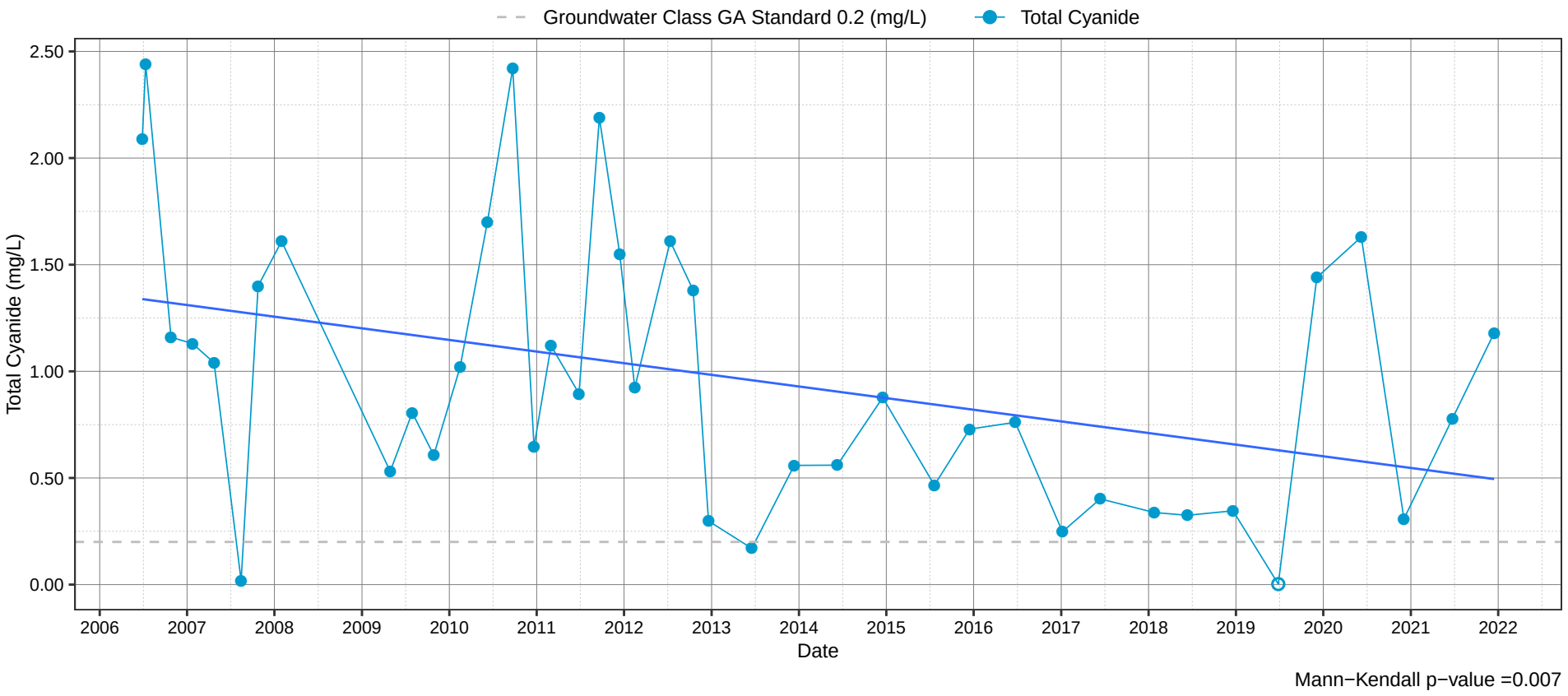
Decreasing



Mann−Kendall p−value < 0.001

FDRAIN1

Decreasing

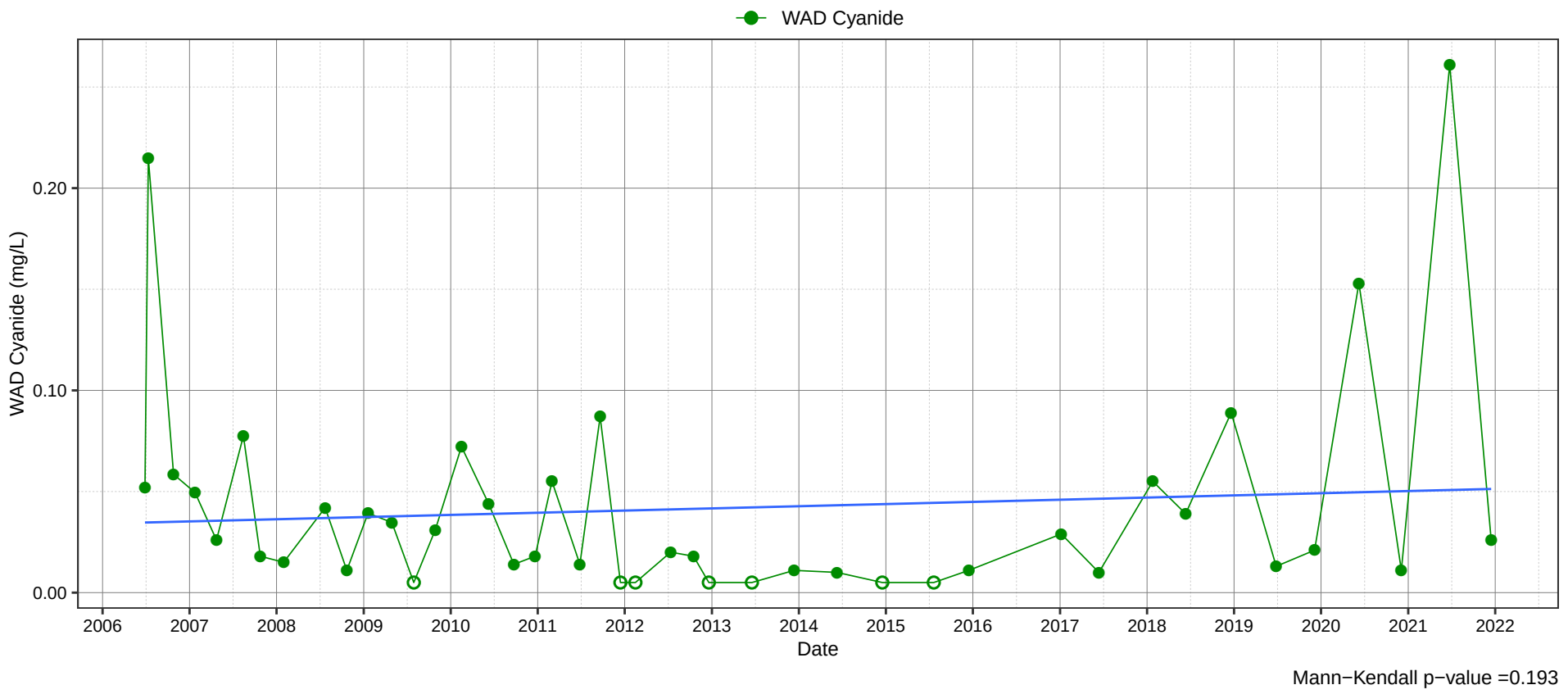


Mann−Kendall p−value =0.007

Well FDRAIN1
North Yard
(non−detects plotted as open symbols at half the method detection limit)

FDRAIN1

No Trend

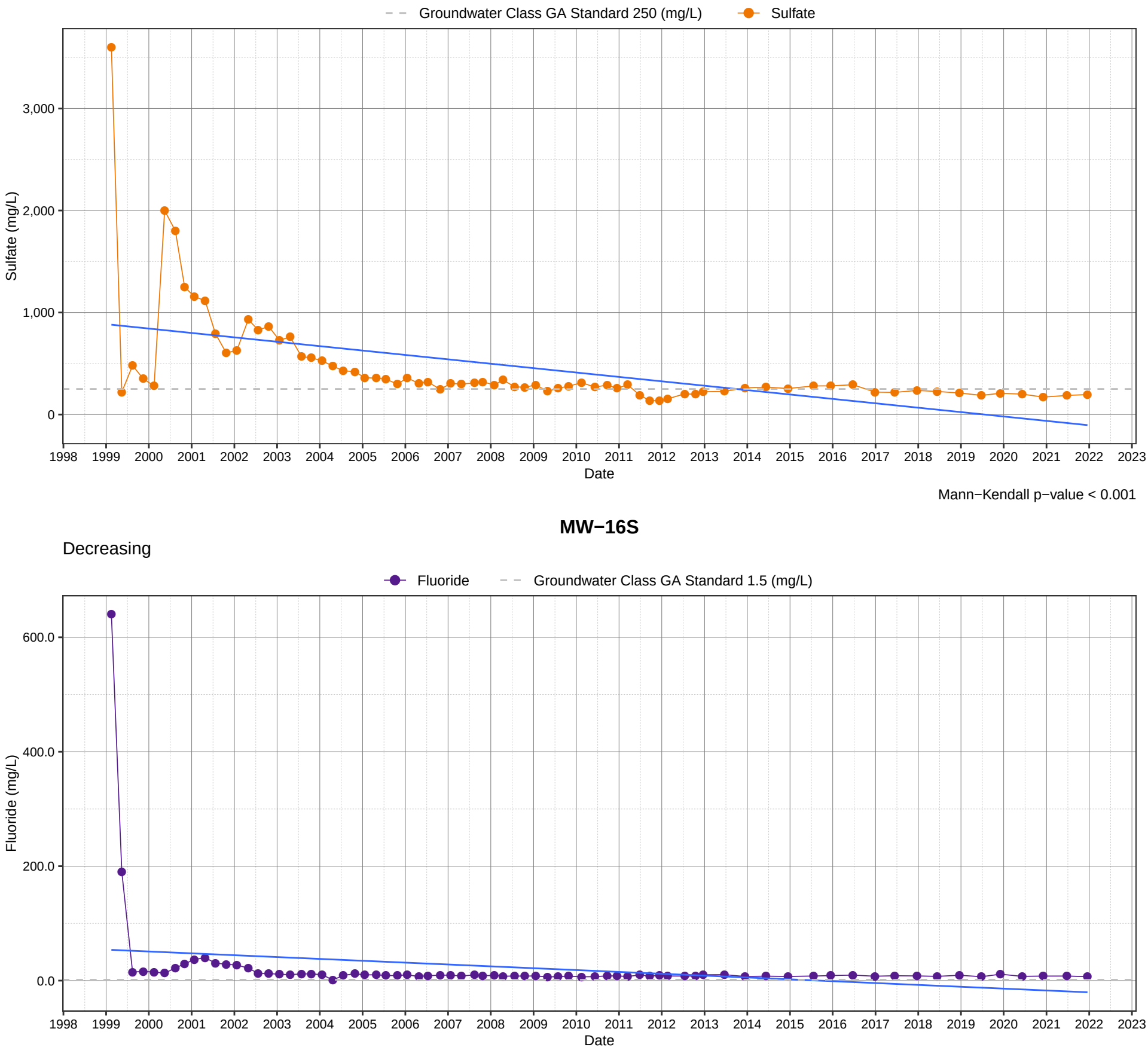


Mann−Kendall p−value =0.193

Well MW−16S
North Yard
(non−detects plotted as open symbols at half the method detection limit)

MW−16S

Decreasing



Mann−Kendall p−value < 0.001

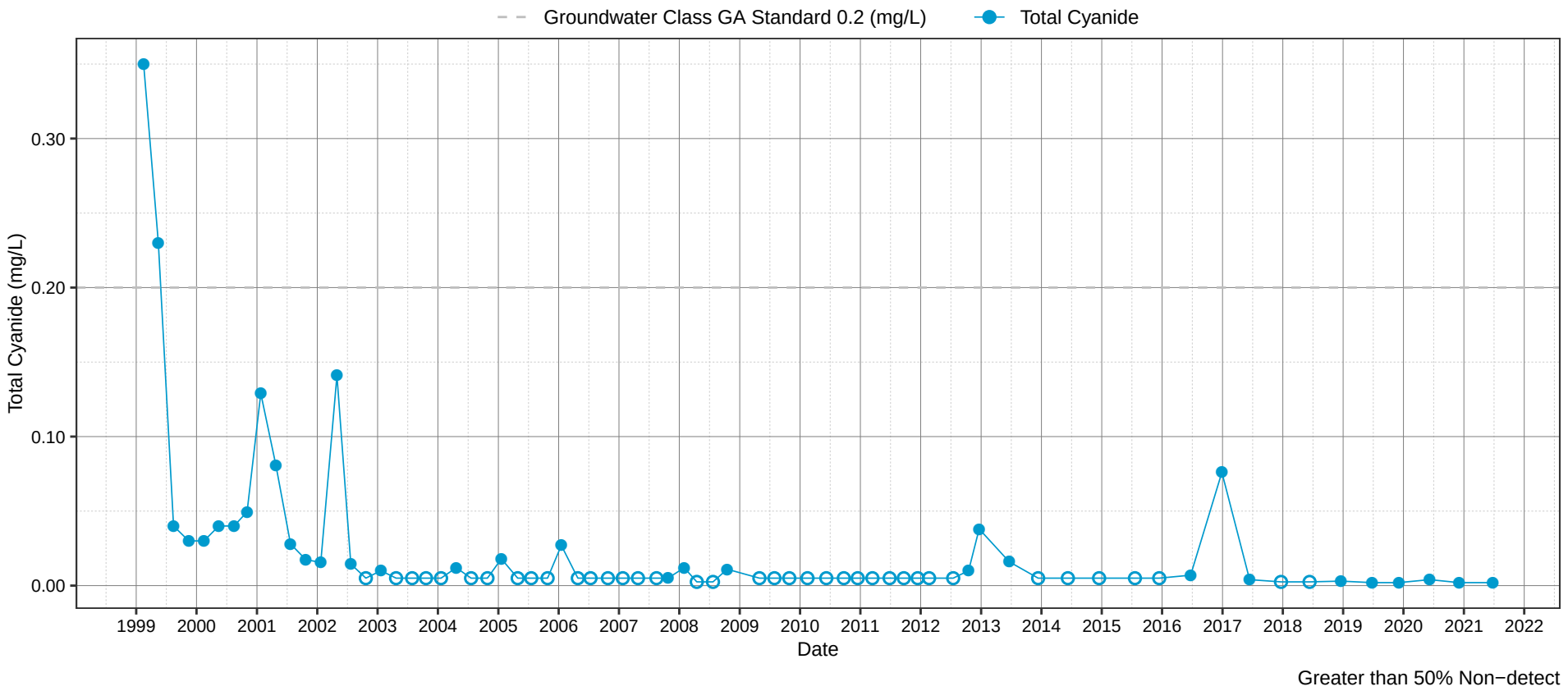
MW−16S

Decreasing

Mann−Kendall p−value < 0.001

MW−16S

No Trend

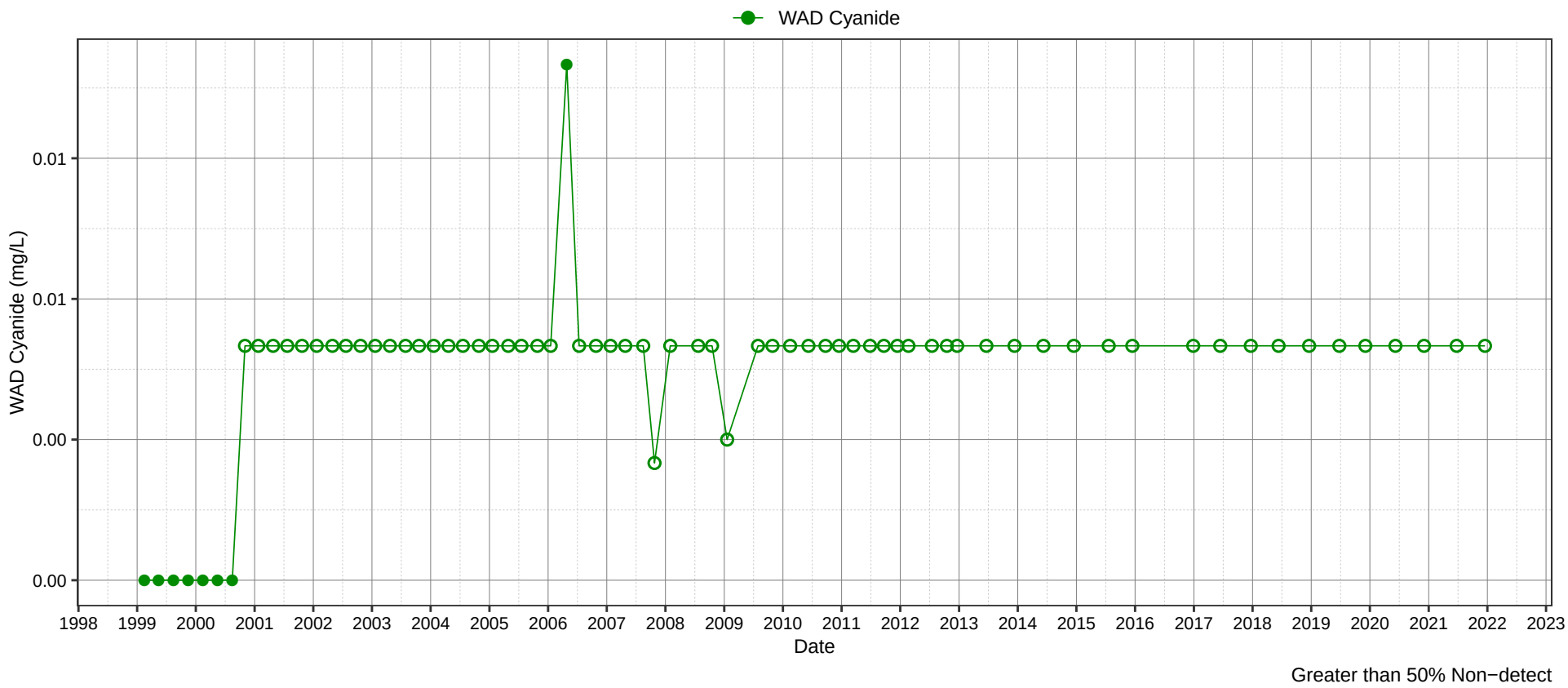


Greater than 50% Non−detect

Well MW−16S
North Yard
(non−detects plotted as open symbols at half the method detection limit)

MW−16S

No Trend

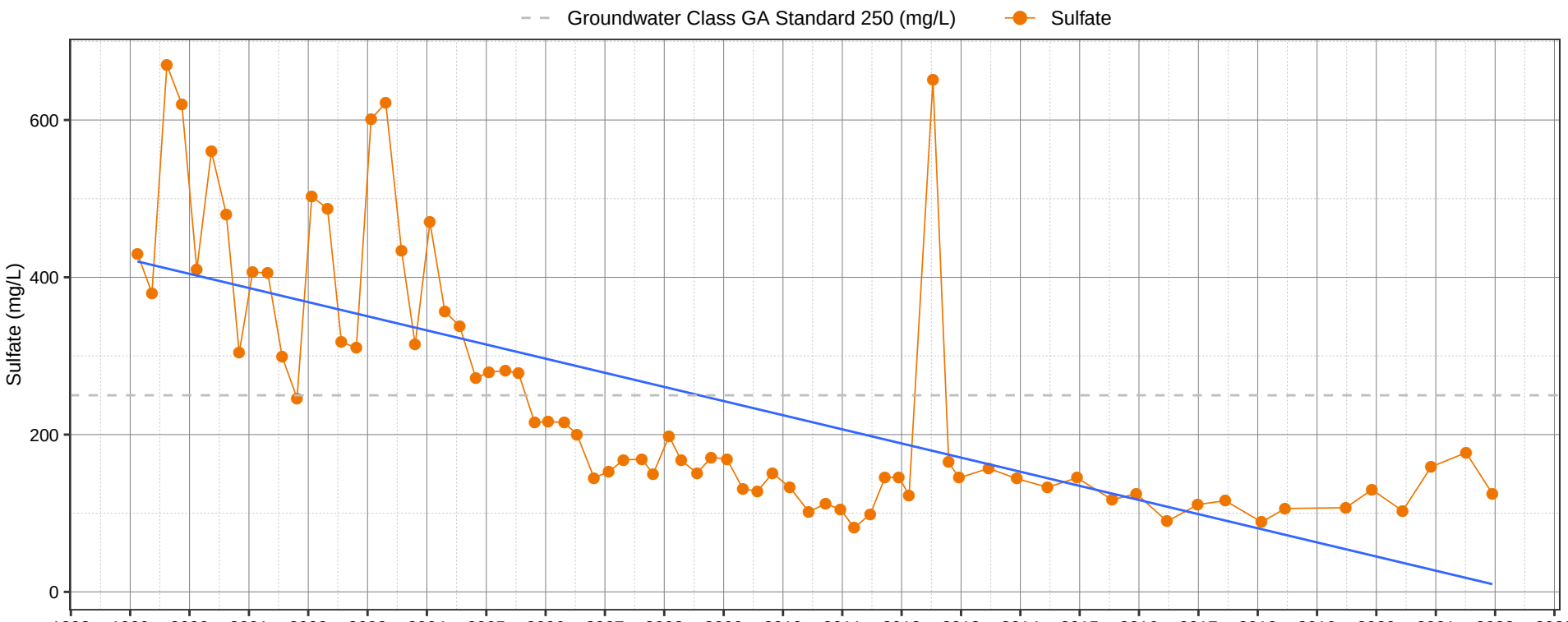


Greater than 50% Non−detect

Well MW−17S
North Yard
(non−detects plotted as open symbols at half the method detection limit)

MW−17S

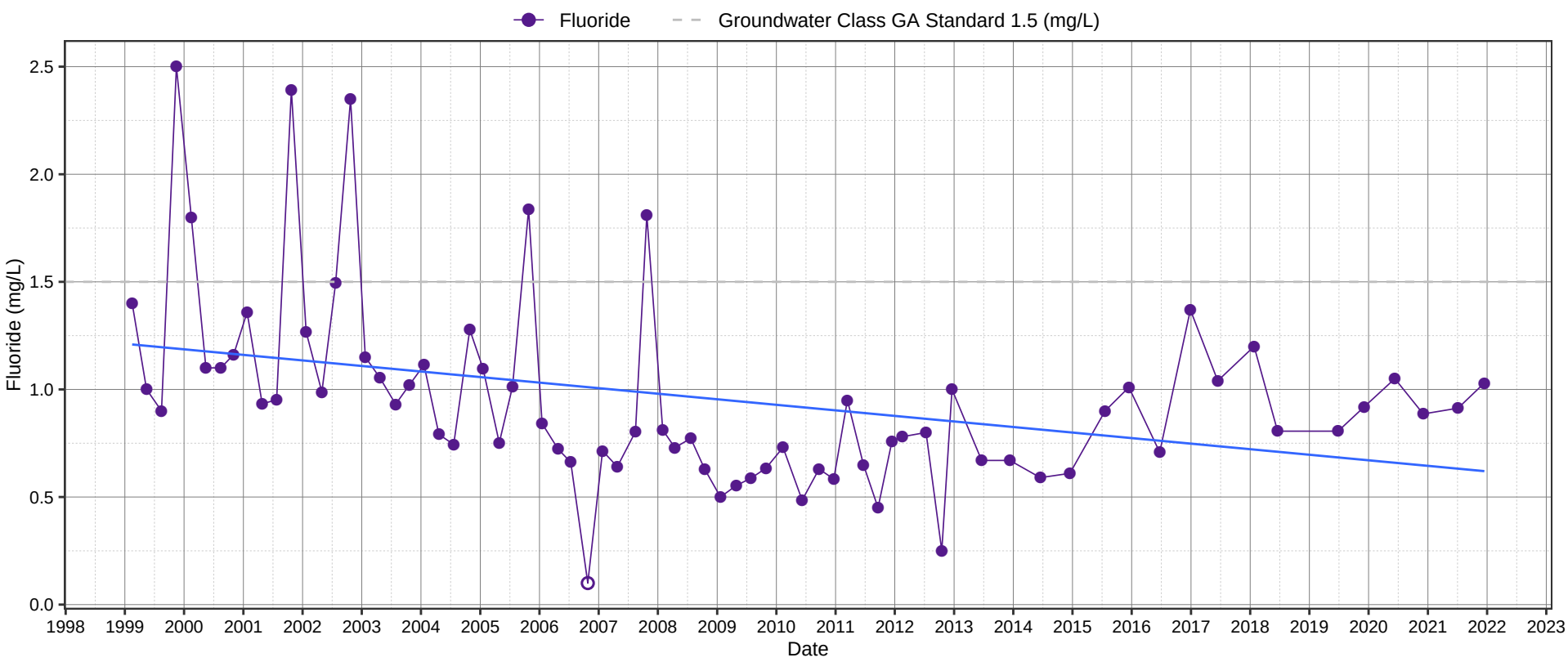
Decreasing



Mann−Kendall p−value < 0.001

MW−17S

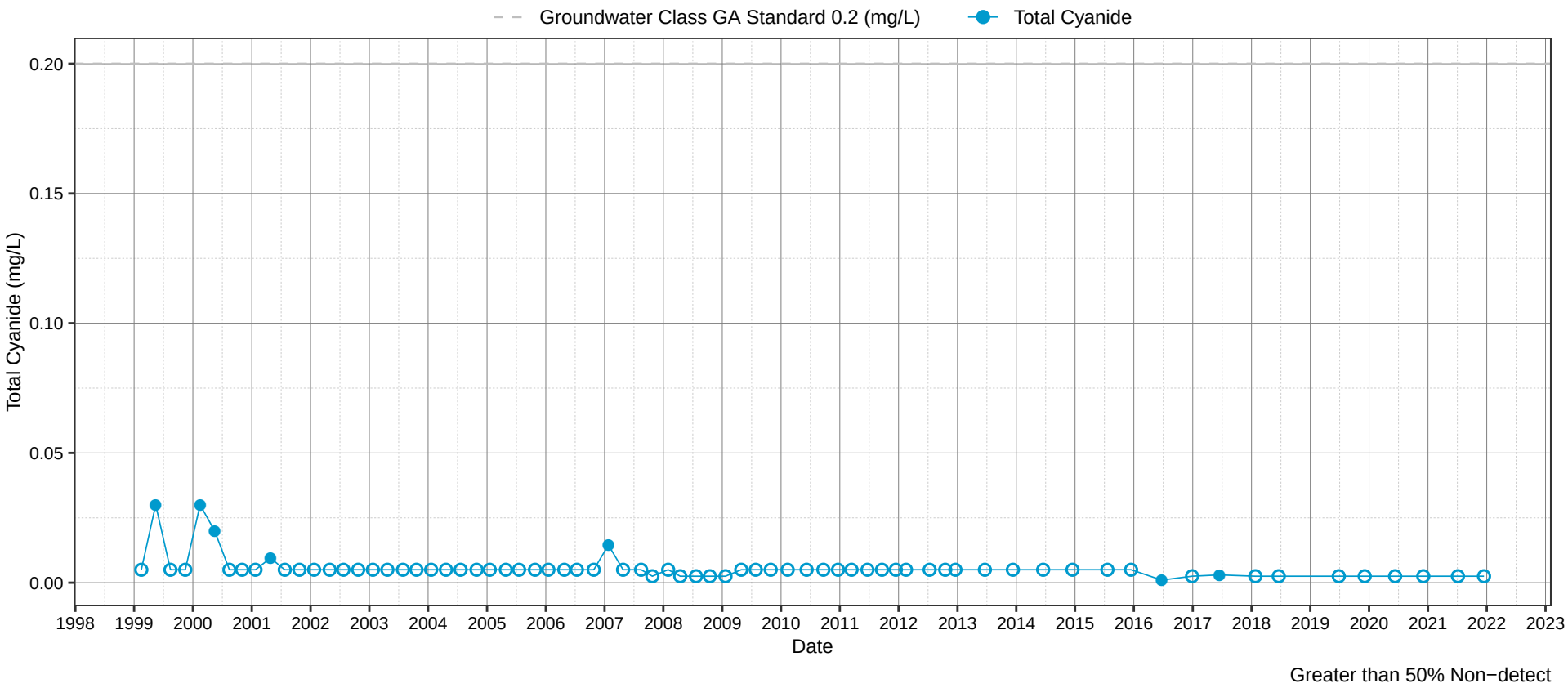
Decreasing



Mann−Kendall p−value < 0.001

MW−17S

No Trend

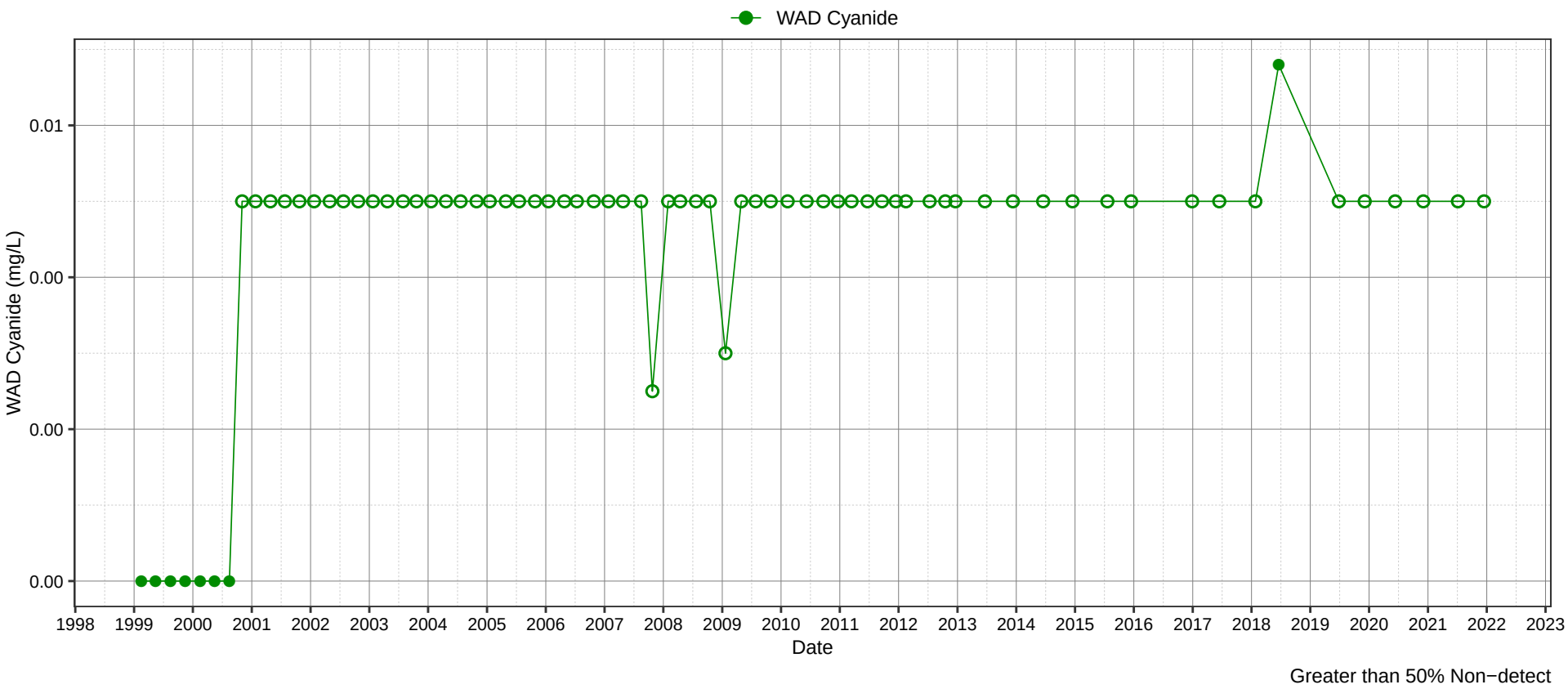


Greater than 50% Non−detect

Well MW−17S
North Yard
(non−detects plotted as open symbols at half the method detection limit)

MW−17S

No Trend

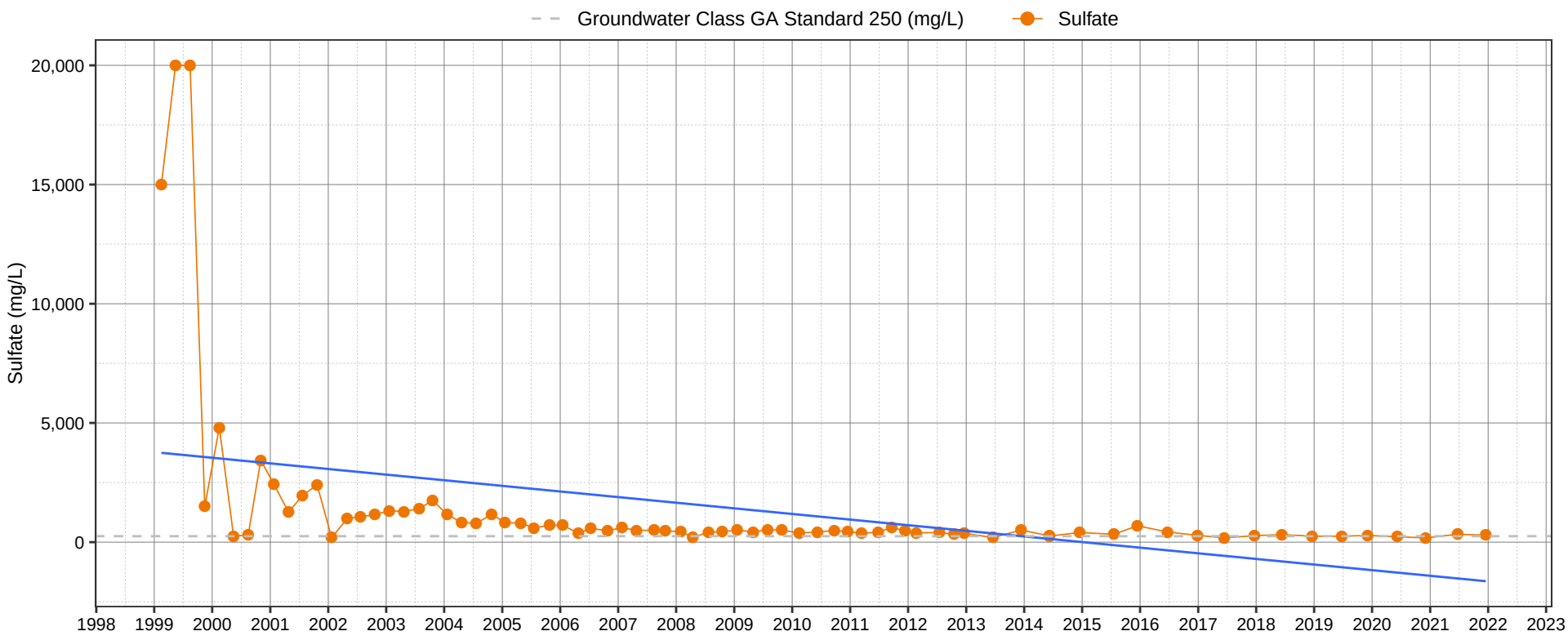


Greater than 50% Non−detect

Well MW−18S
North Yard
(non−detects plotted as open symbols at half the method detection limit)

MW−18S

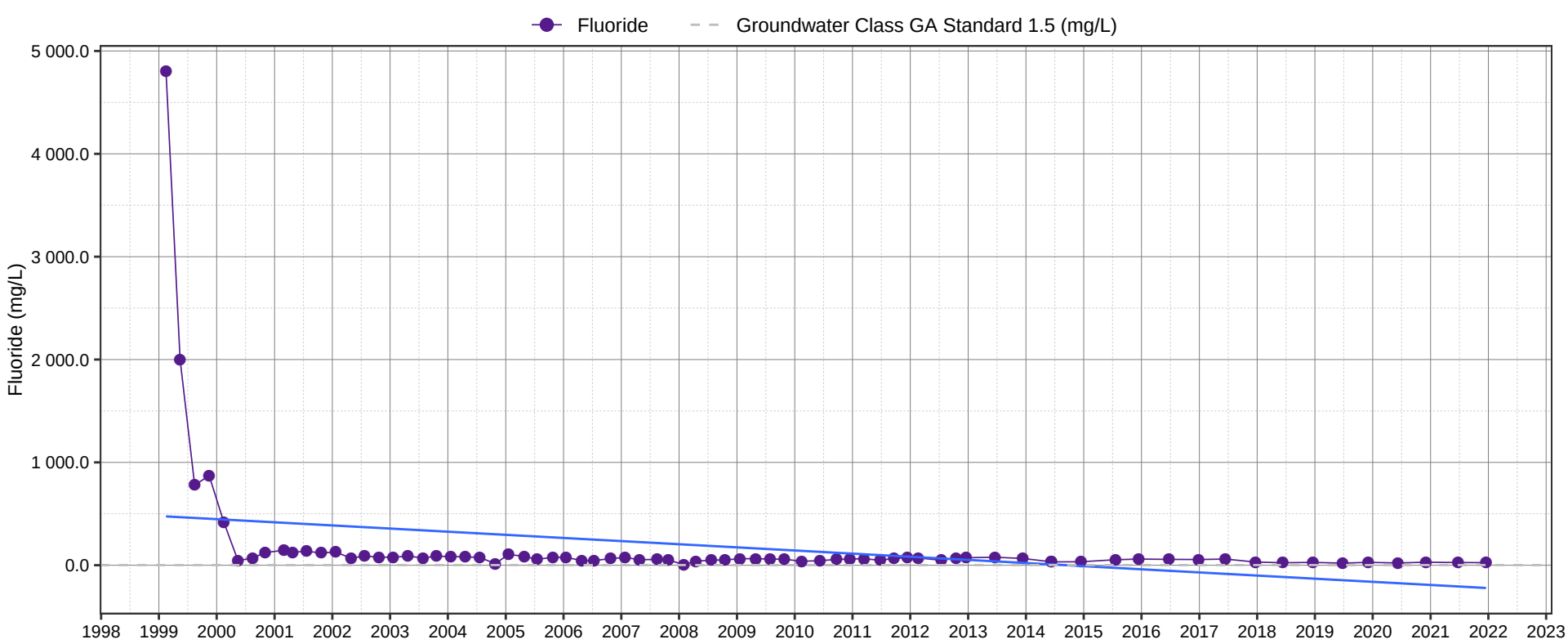
Decreasing



Mann−Kendall p−value < 0.001

MW−18S

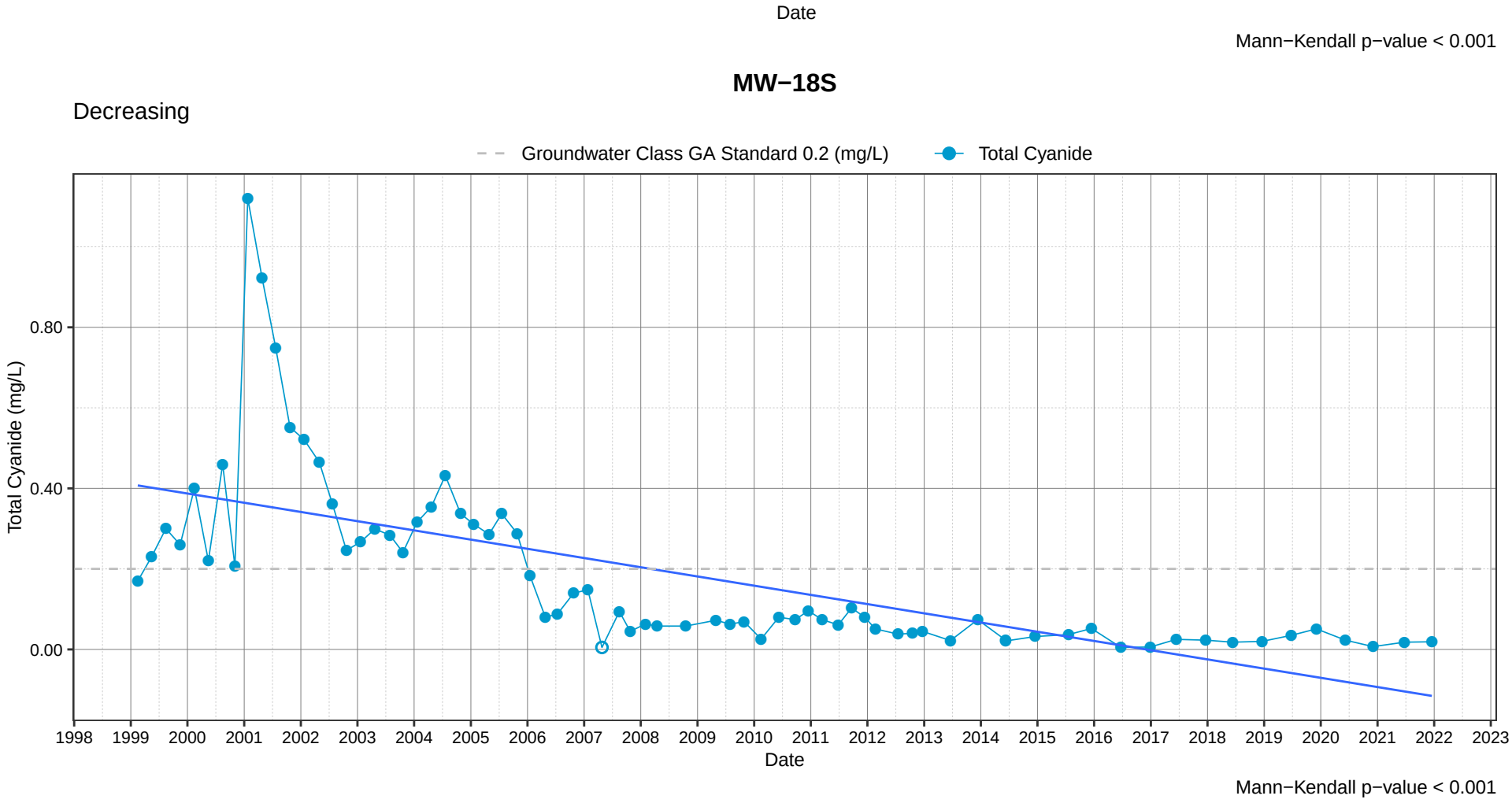
Decreasing



Mann−Kendall p−value < 0.001

MW−18S

Decreasing

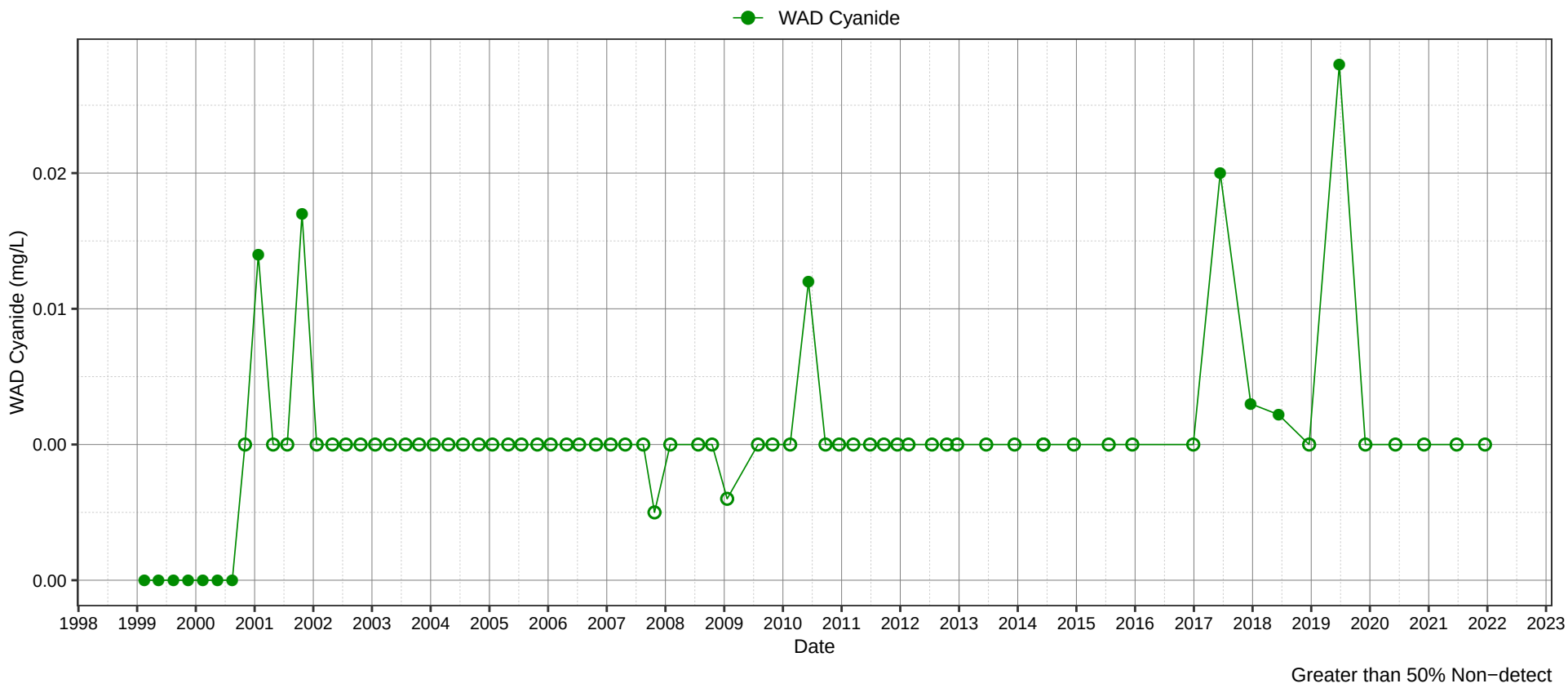


Mann−Kendall p−value < 0.001

Well MW−18S
North Yard
(non−detects plotted as open symbols at half the method detection limit)

MW−18S

No Trend

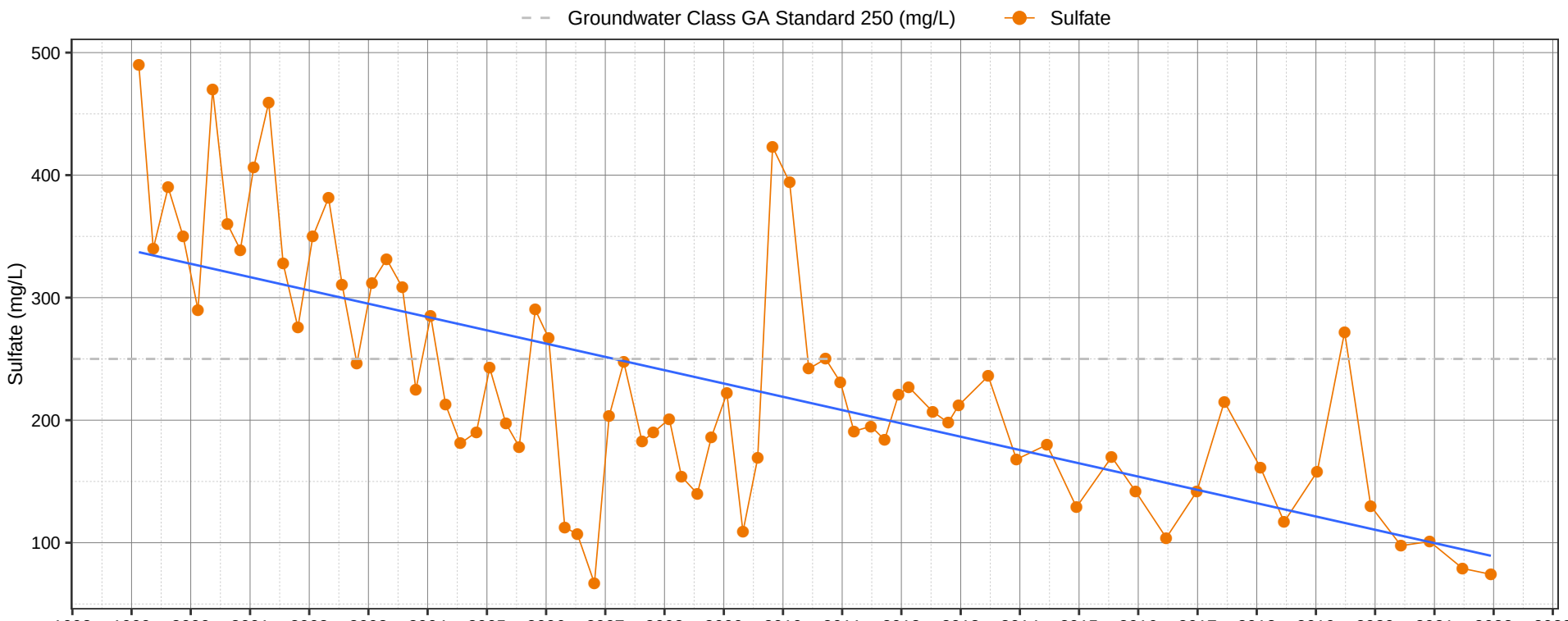


Greater than 50% Non−detect

Well MW−19S
North Yard
(non−detects plotted as open symbols at half the method detection limit)

MW−19S

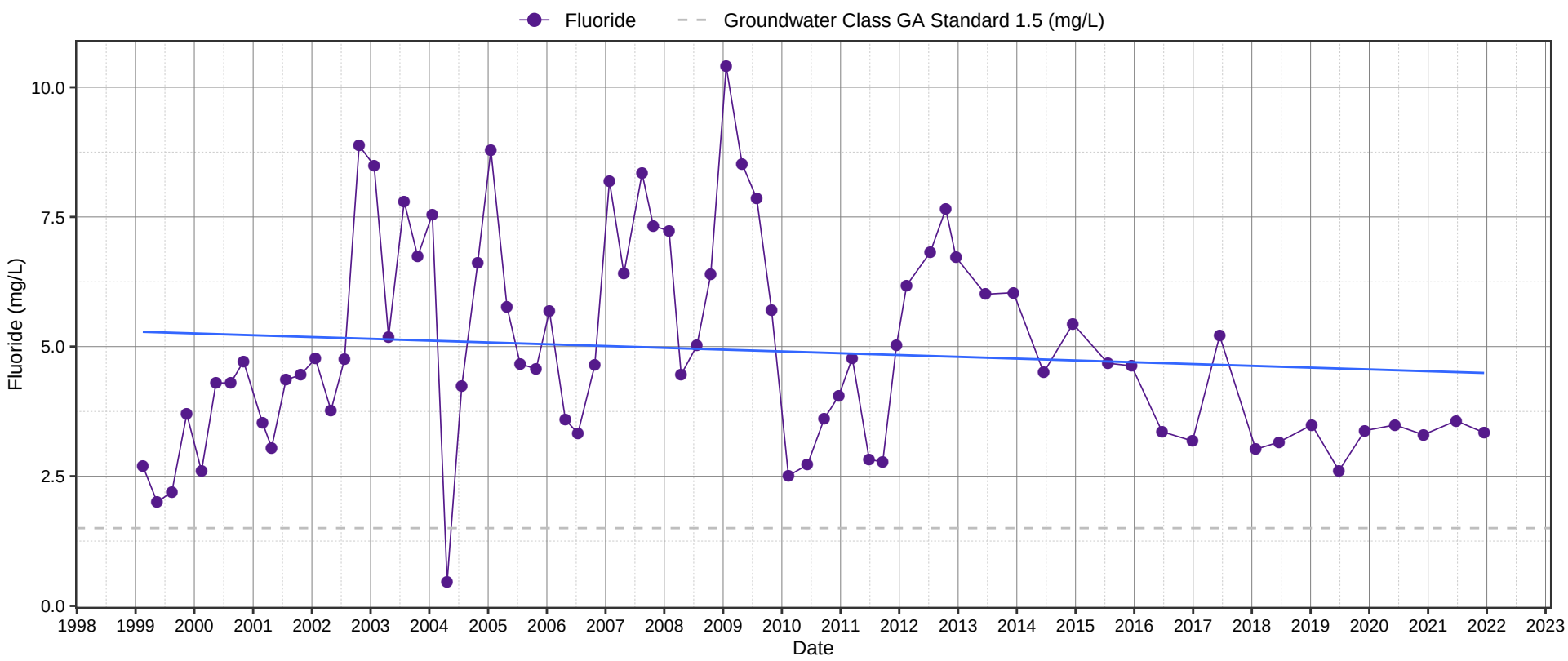
Decreasing



Mann−Kendall p−value < 0.001

MW−19S

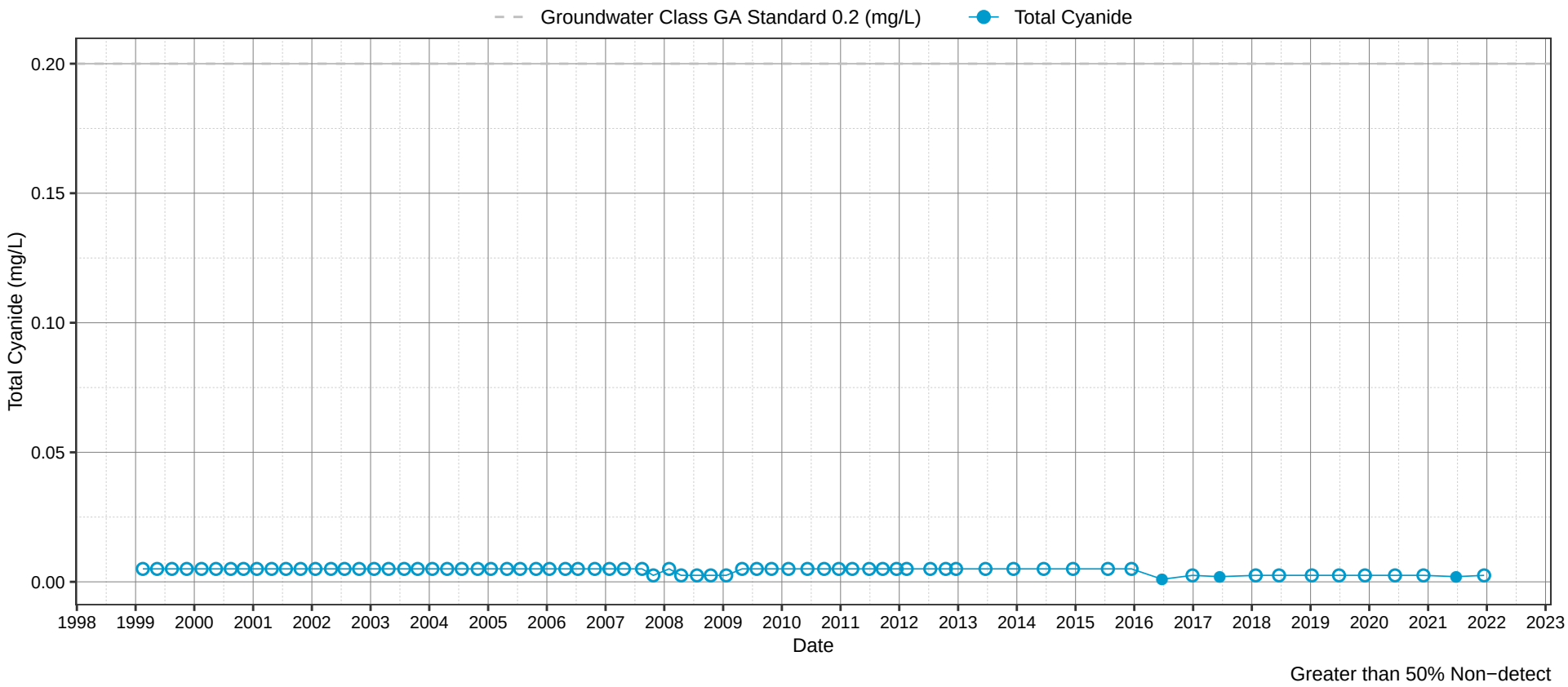
No Trend



Mann−Kendall p−value =0.654

MW−19S

No Trend

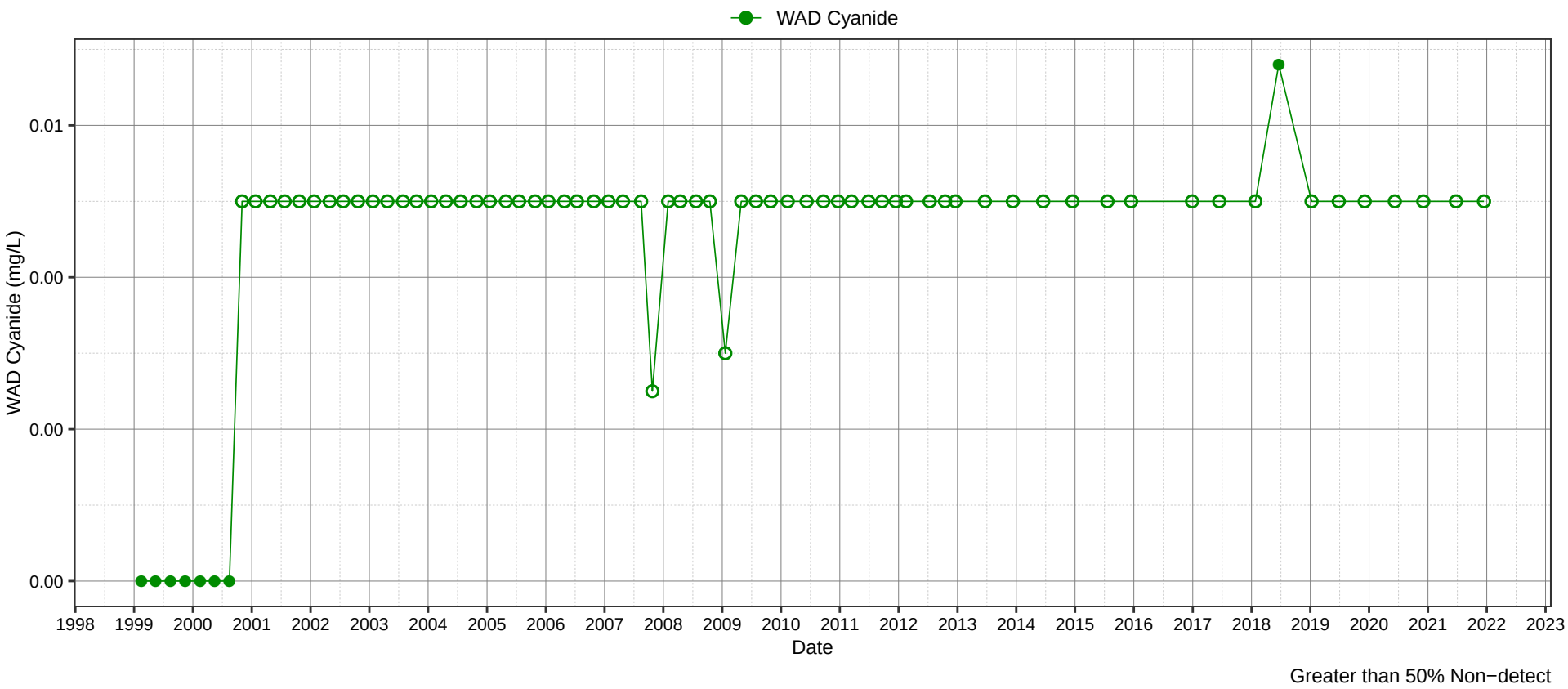


Greater than 50% Non−detect

Well MW−19S
North Yard
(non−detects plotted as open symbols at half the method detection limit)

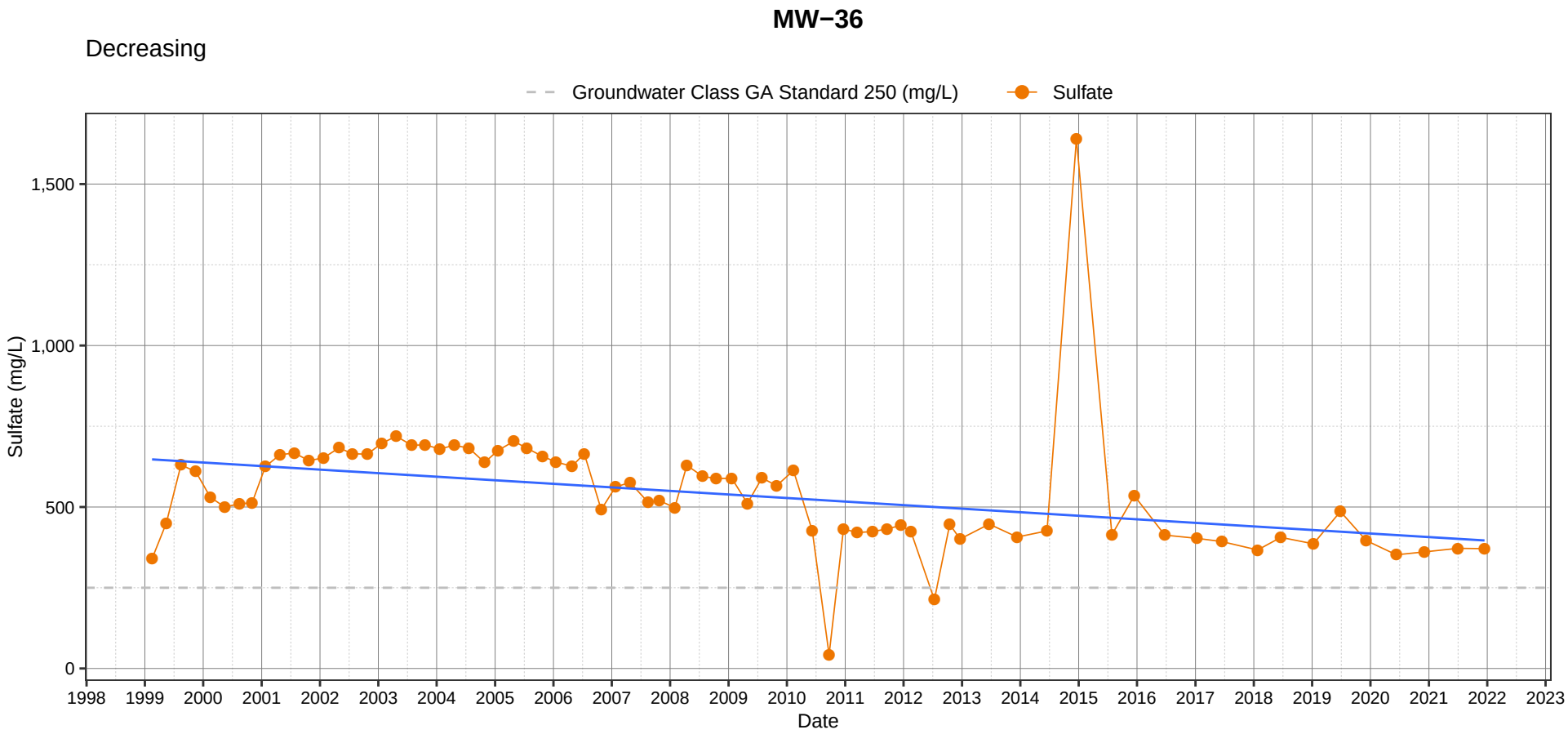
MW−19S

No Trend

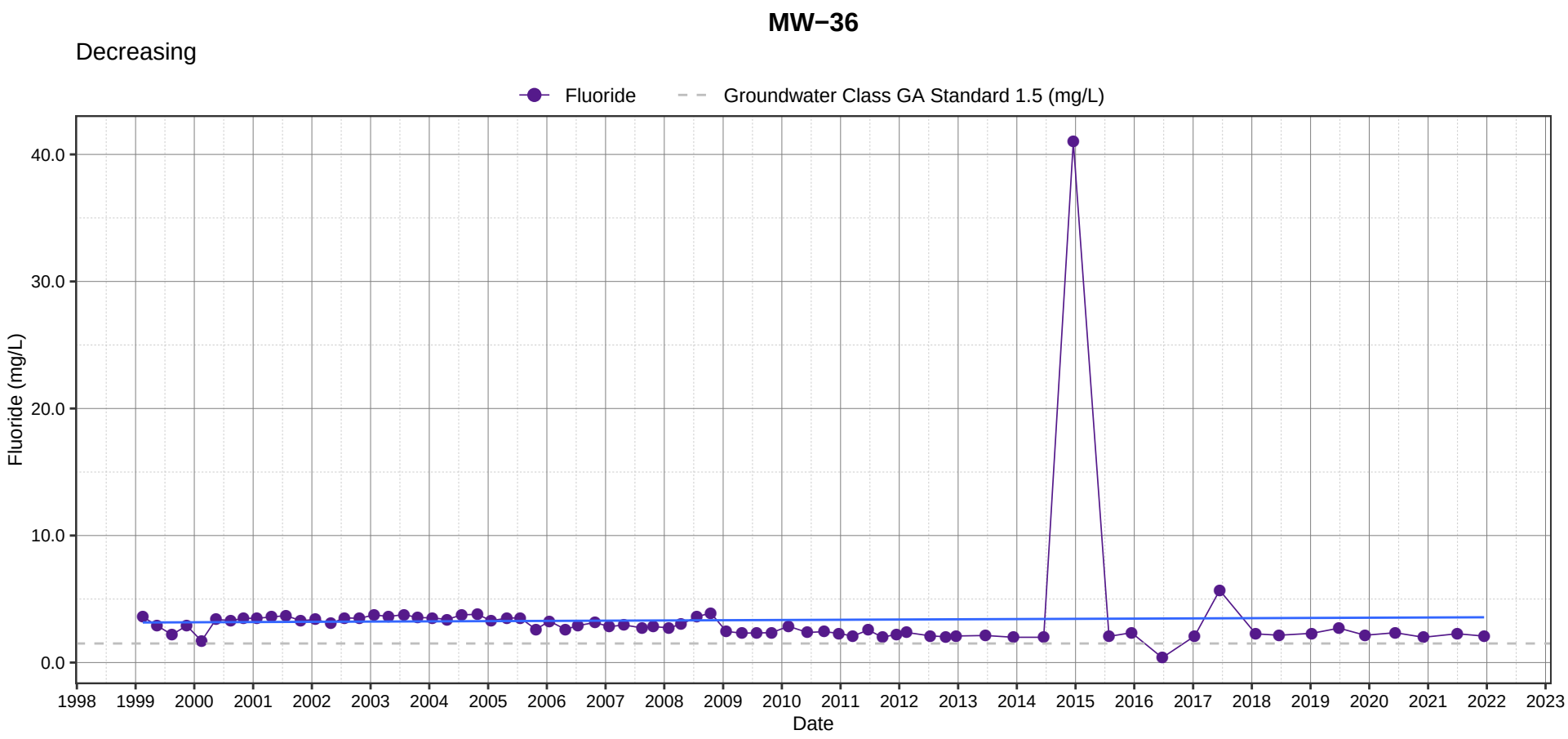


Greater than 50% Non−detect

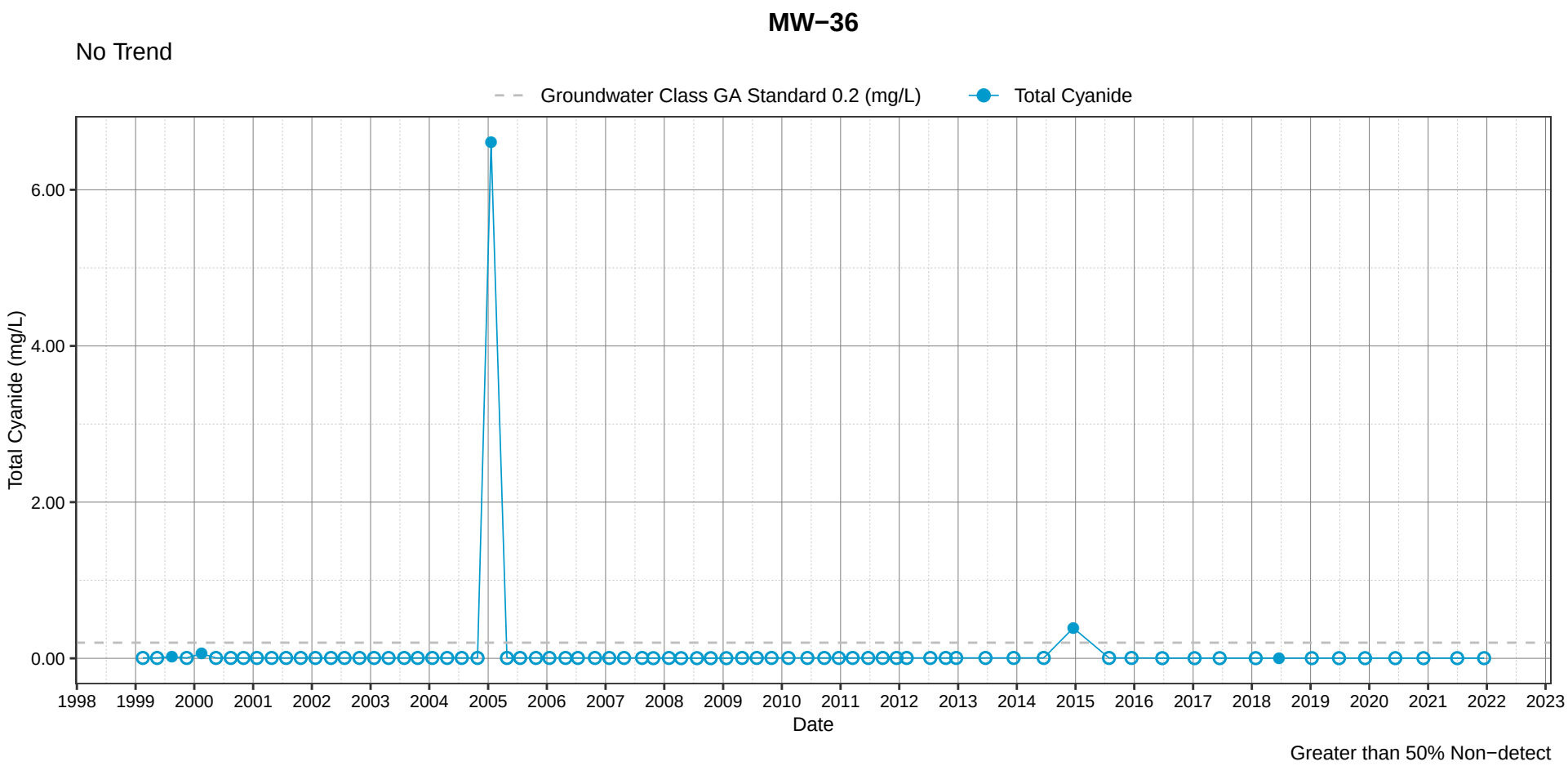
Well MW−36
North Yard
(non−detects plotted as open symbols at half the method detection limit)



Mann−Kendall p−value < 0.001



Mann−Kendall p−value < 0.001

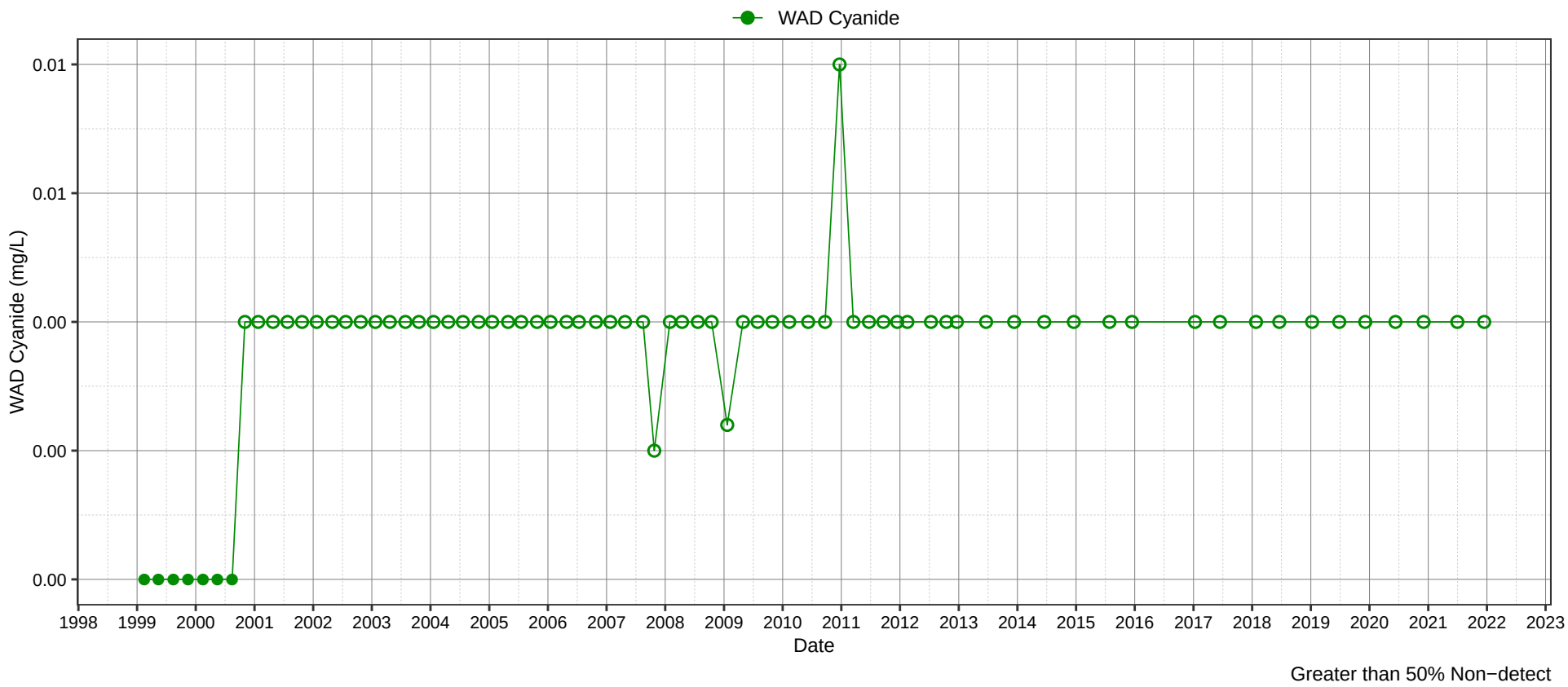


Greater than 50% Non−detect

Well MW−36
North Yard
(non−detects plotted as open symbols at half the method detection limit)

MW−36

No Trend

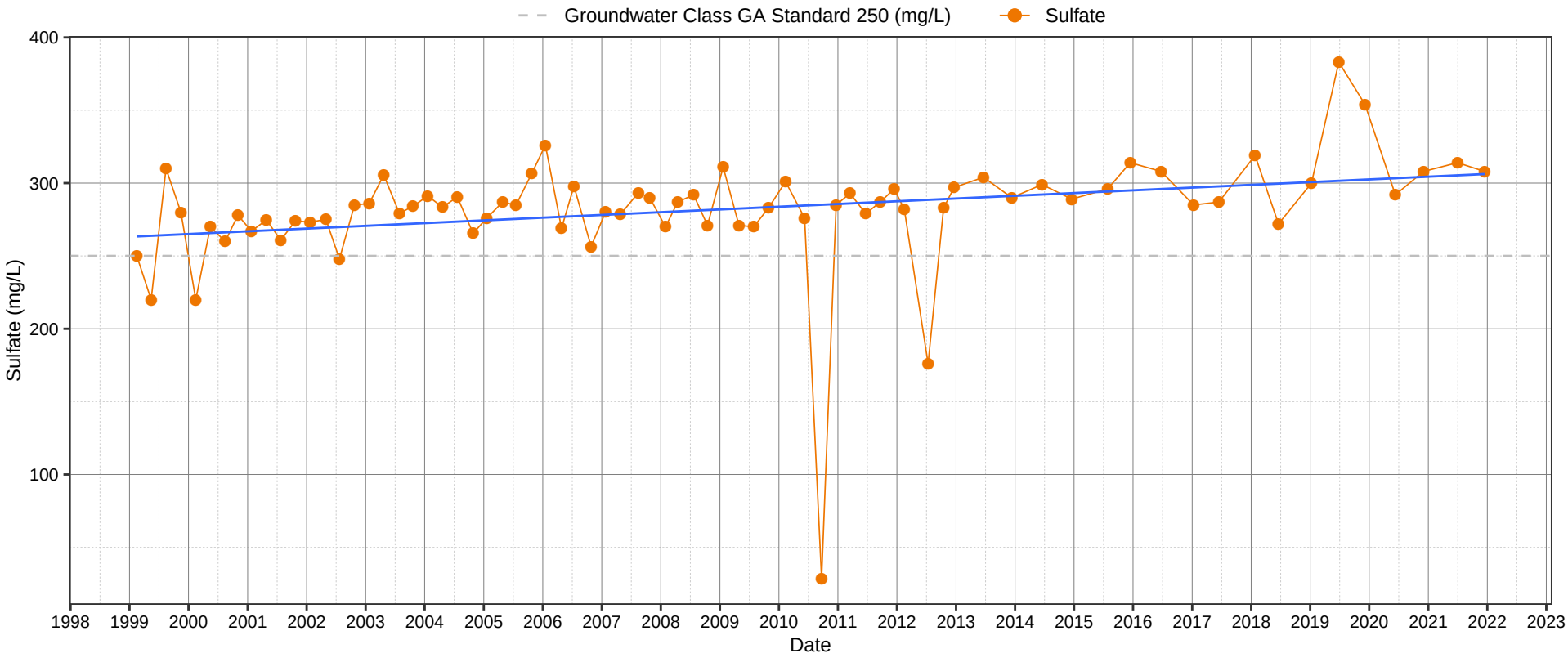


Greater than 50% Non−detect

Well MW−37
North Yard
(non−detects plotted as open symbols at half the method detection limit)

MW−37

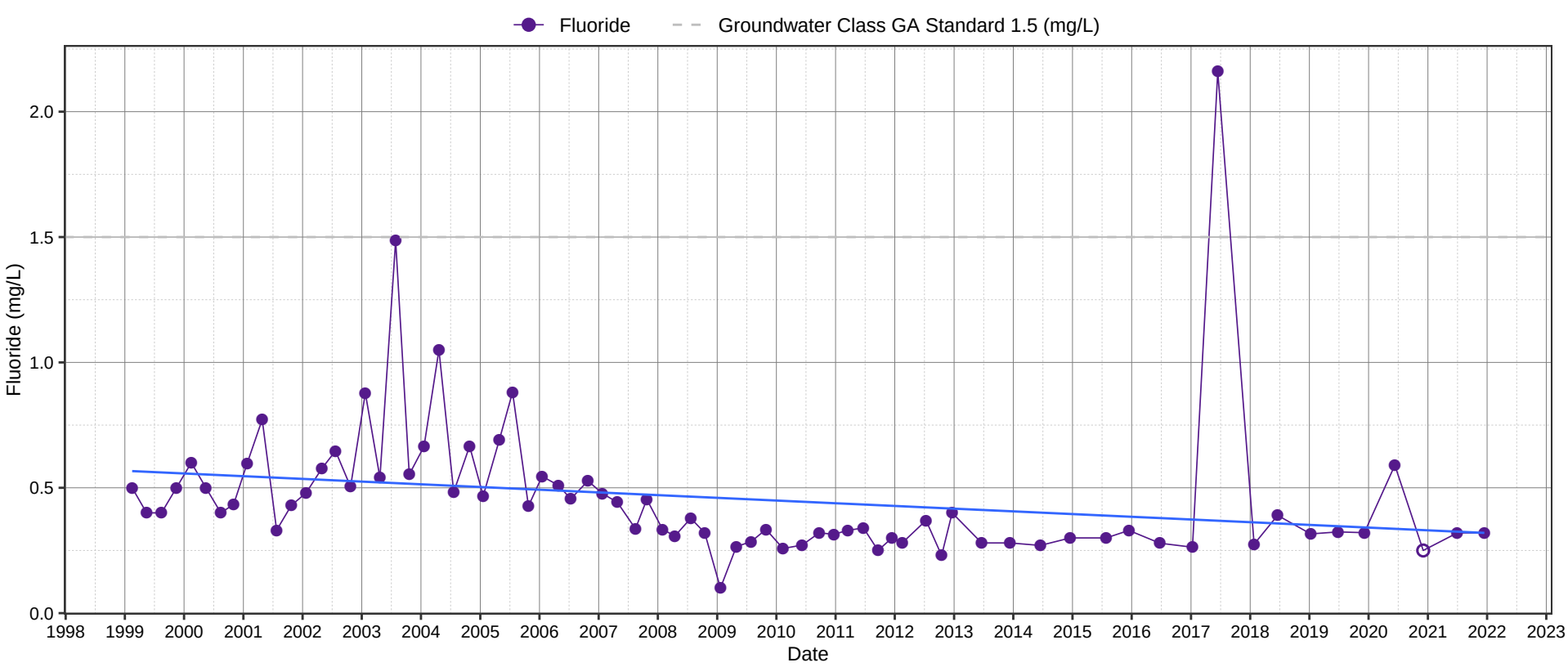
Increasing



Mann−Kendall p−value < 0.001

MW−37

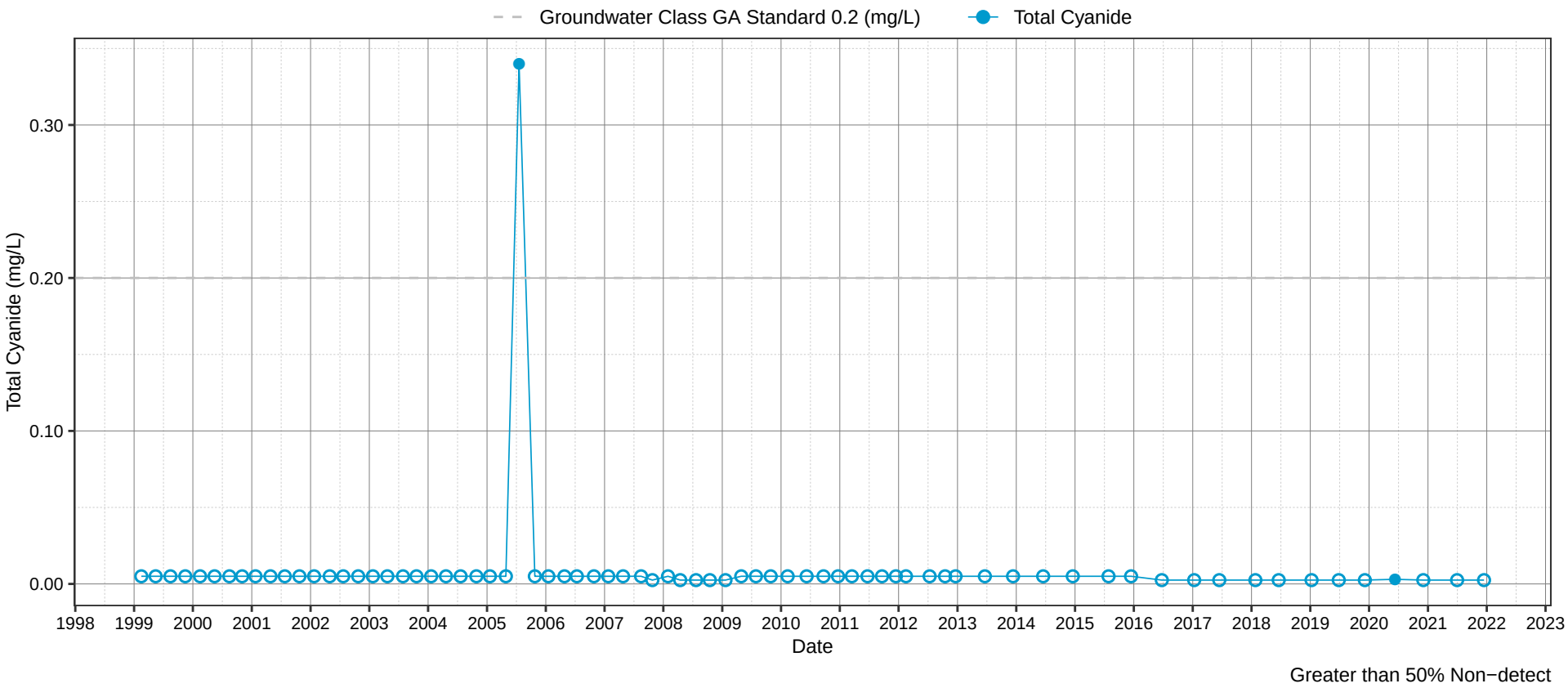
Decreasing



Mann−Kendall p−value < 0.001

MW−37

No Trend

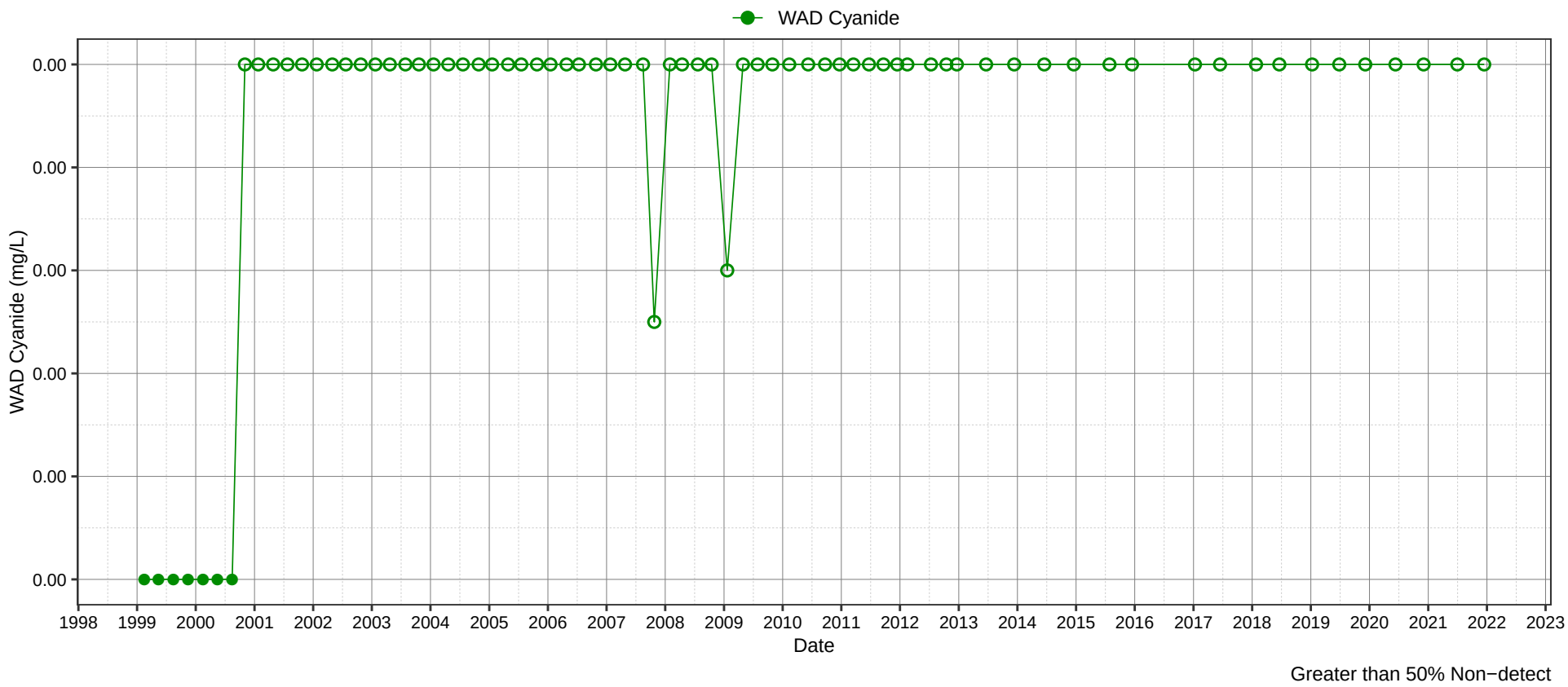


Greater than 50% Non−detect

Well MW−37
North Yard
(non−detects plotted as open symbols at half the method detection limit)

MW−37

No Trend

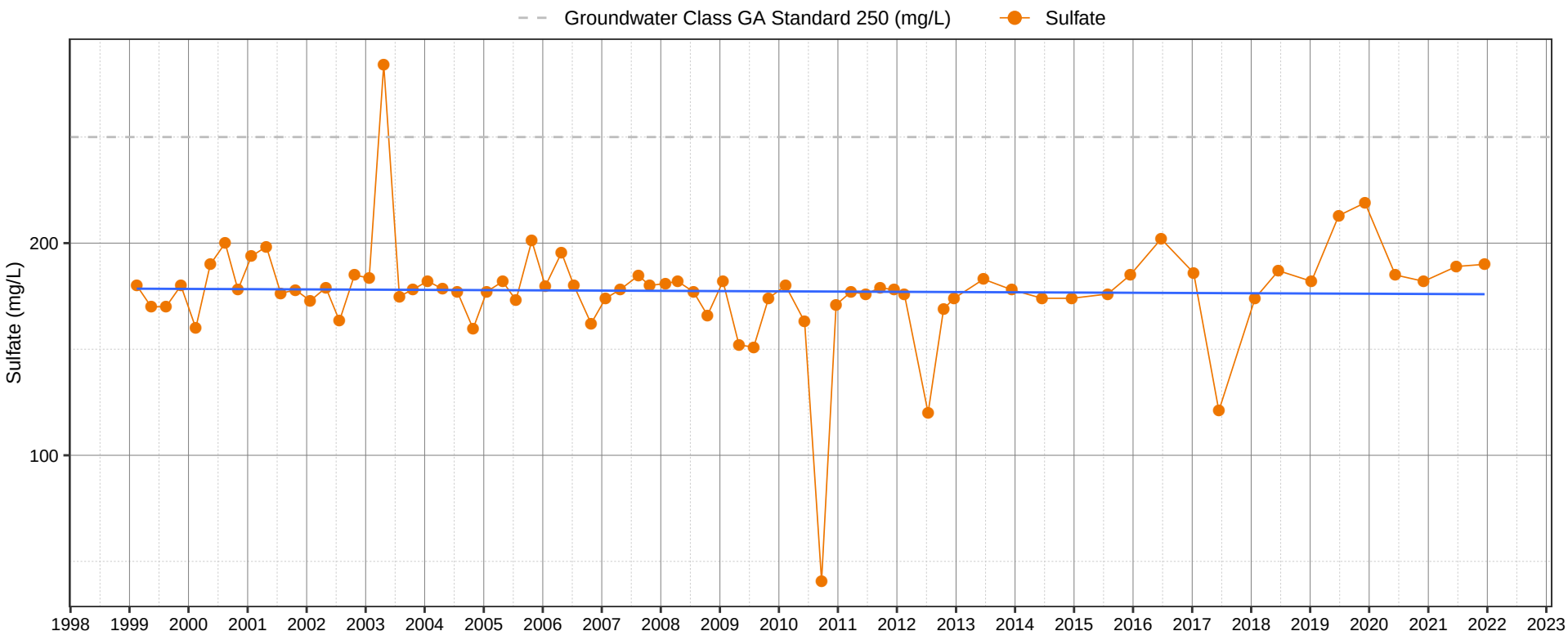


Greater than 50% Non−detect

Well MW−38
North Yard
(non−detects plotted as open symbols at half the method detection limit)

MW−38

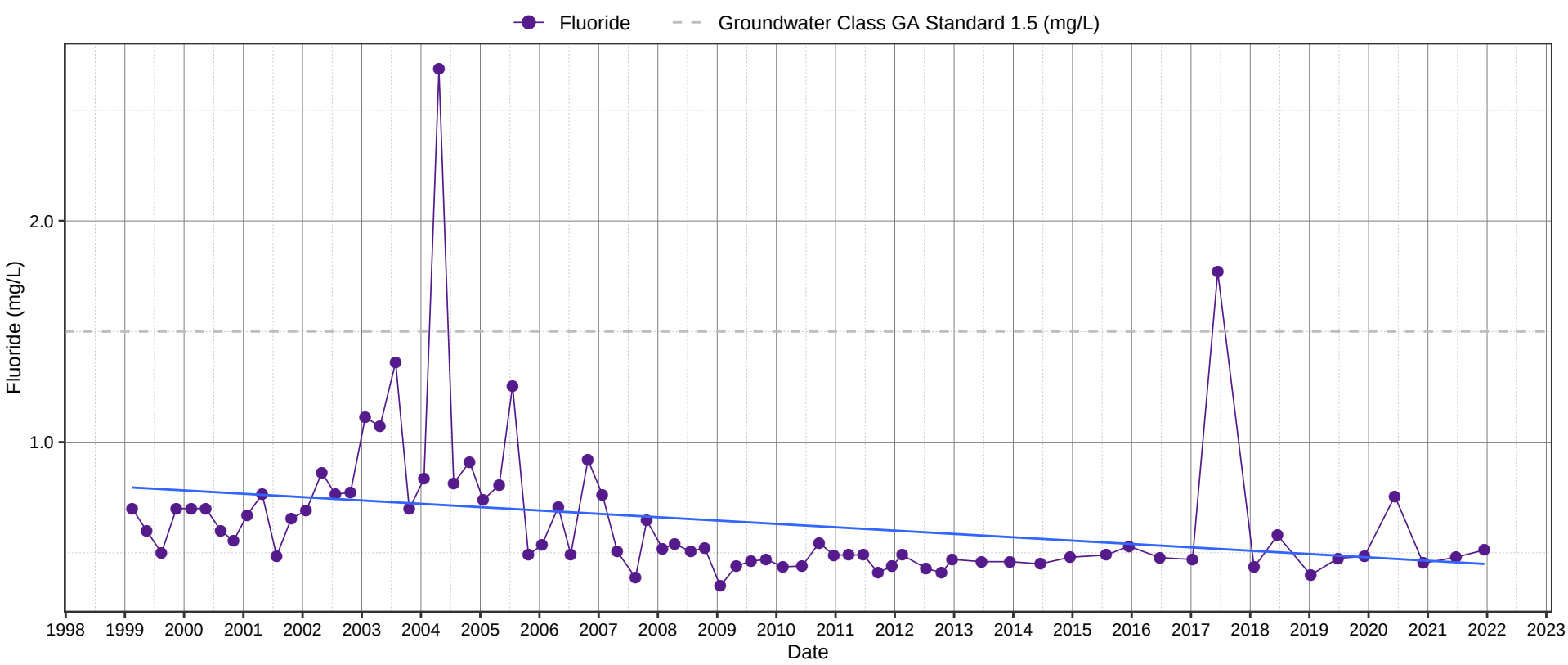
No Trend



Mann−Kendall p−value =0.591

MW−38

Decreasing



Mann−Kendall p−value < 0.001

MW−38

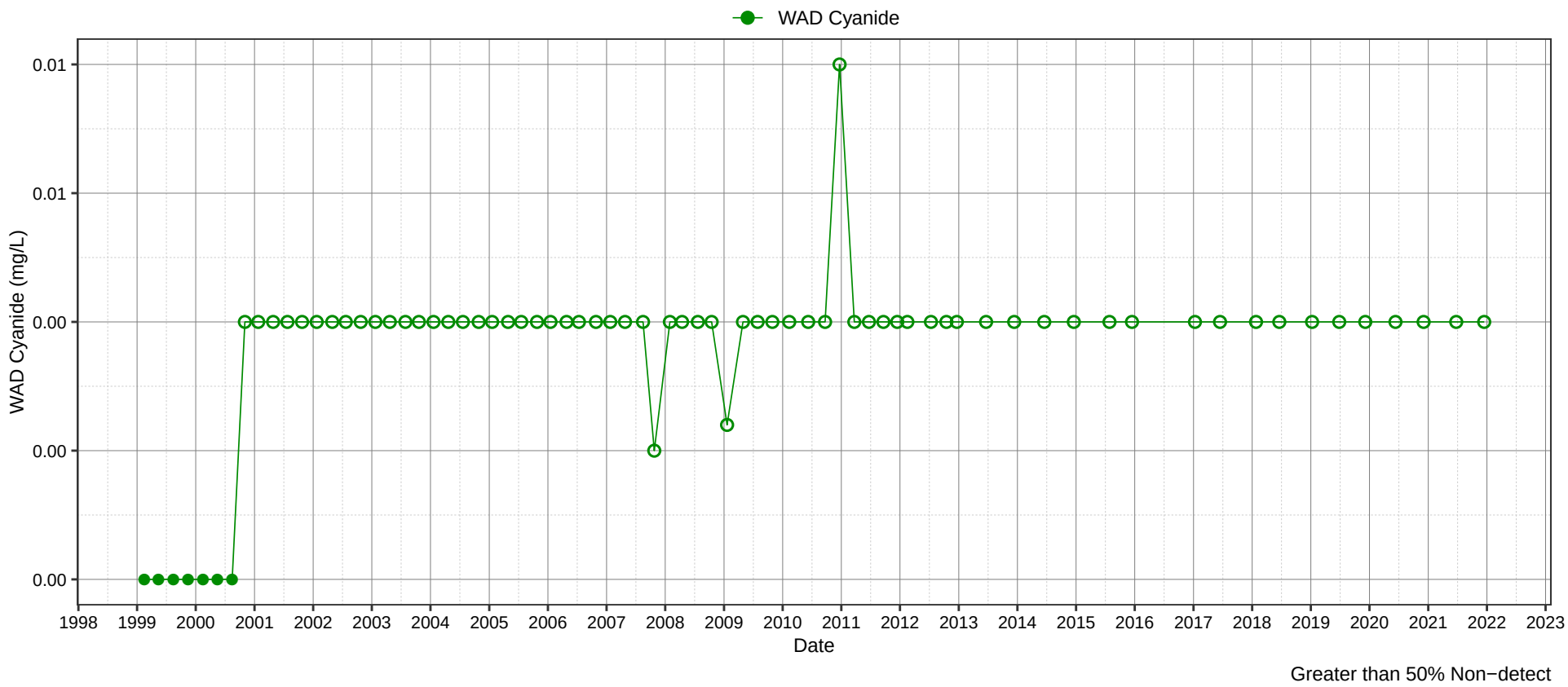
No Trend

Greater than 50% Non−detect

Well MW−38
North Yard
(non−detects plotted as open symbols at half the method detection limit)

MW−38

No Trend

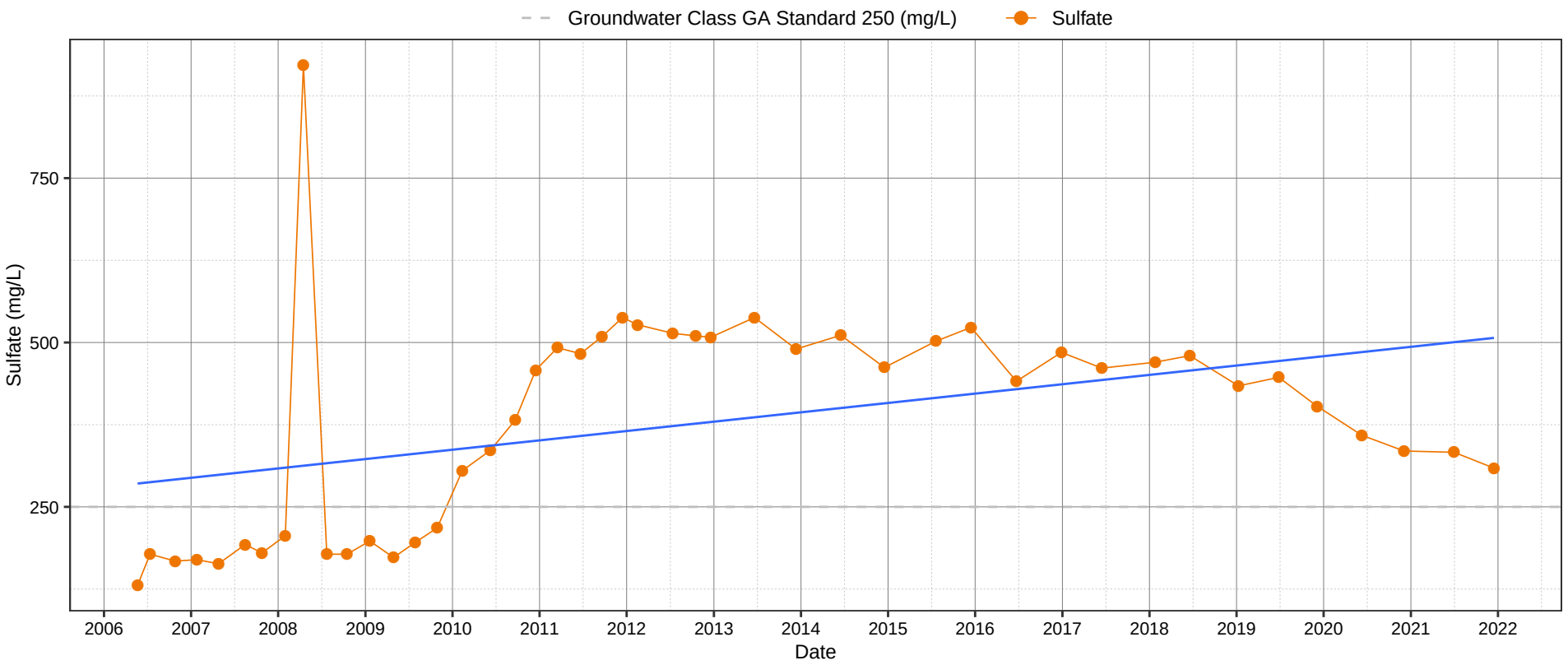


Greater than 50% Non−detect

Well MW−41
North Yard
(non−detects plotted as open symbols at half the method detection limit)

MW−41

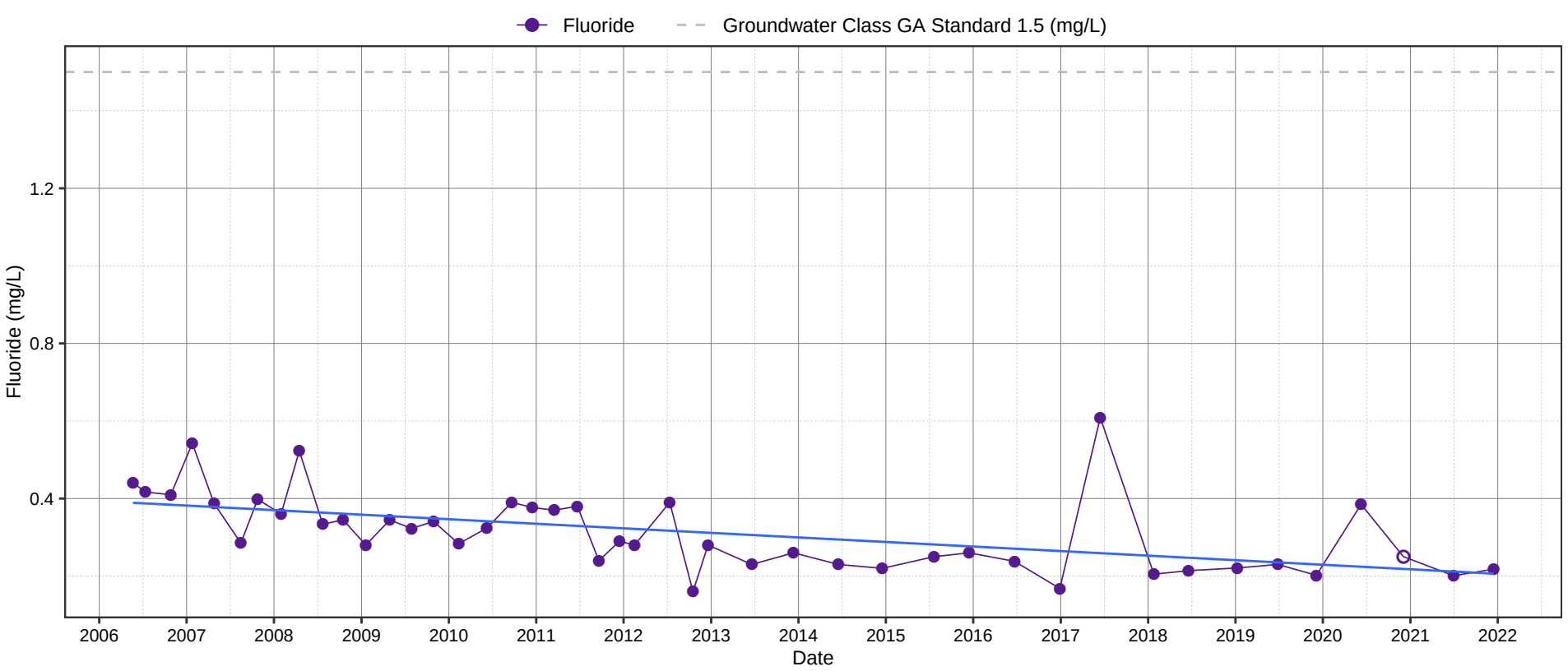
Increasing



Mann−Kendall p−value =0.003

MW−41

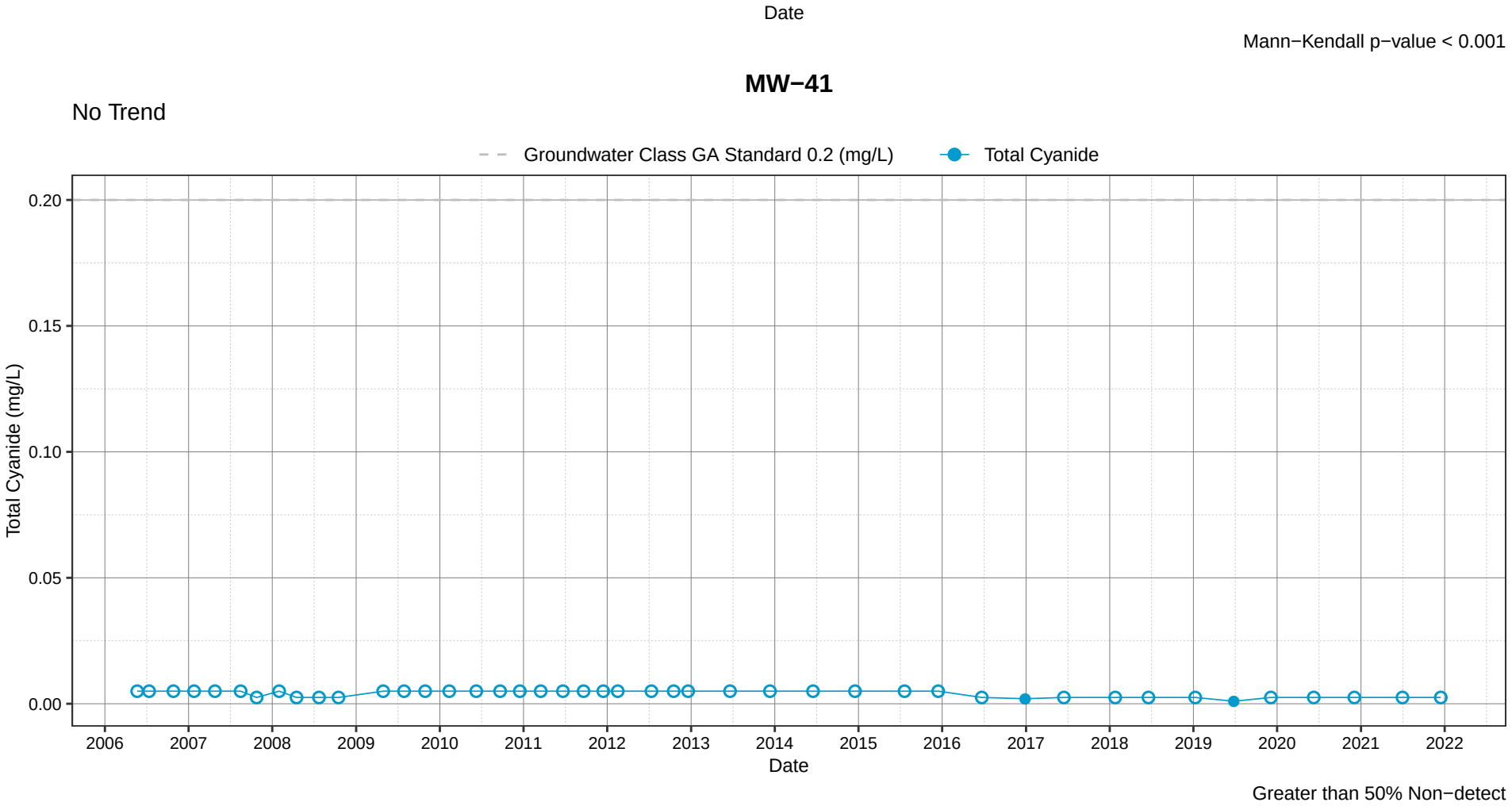
Decreasing



Mann−Kendall p−value < 0.001

MW−41

No Trend

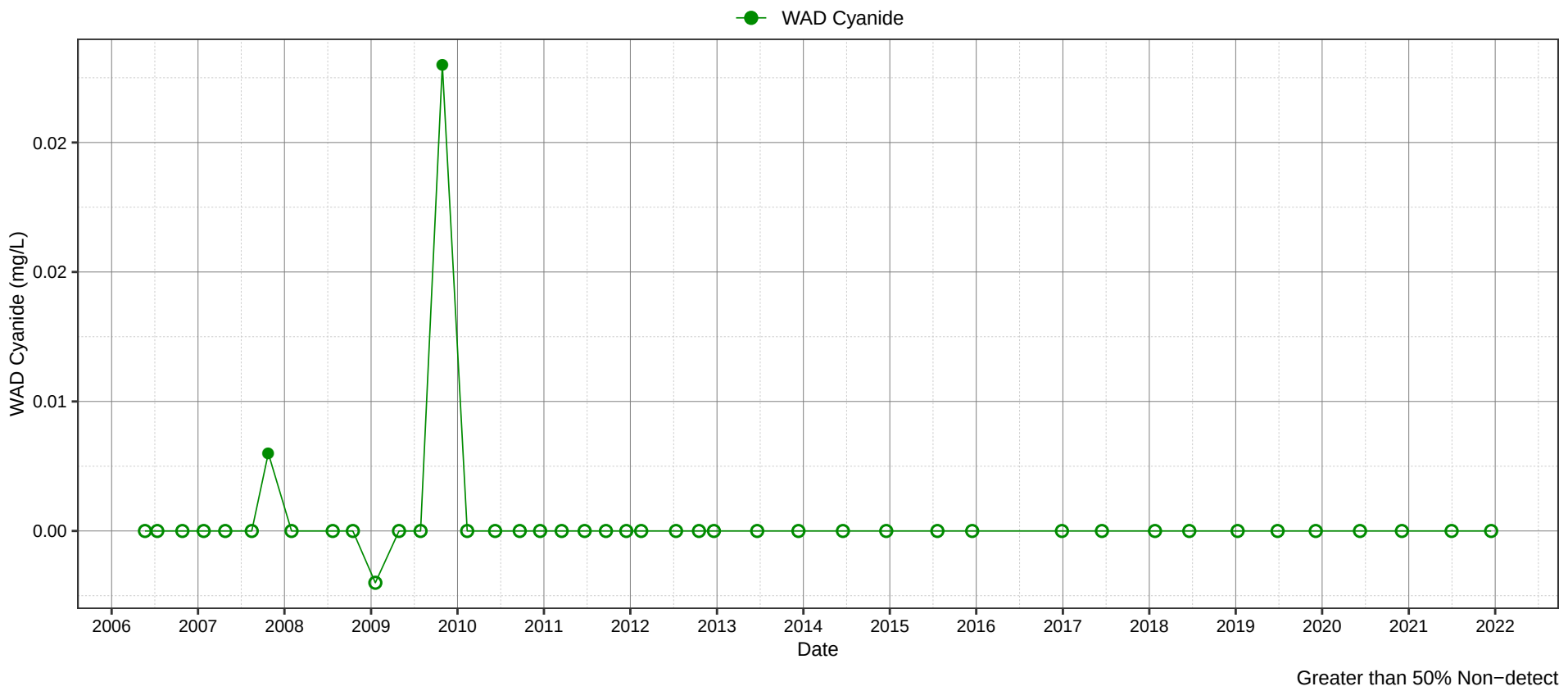


Greater than 50% Non−detect

Well MW−41
North Yard
(non−detects plotted as open symbols at half the method detection limit)

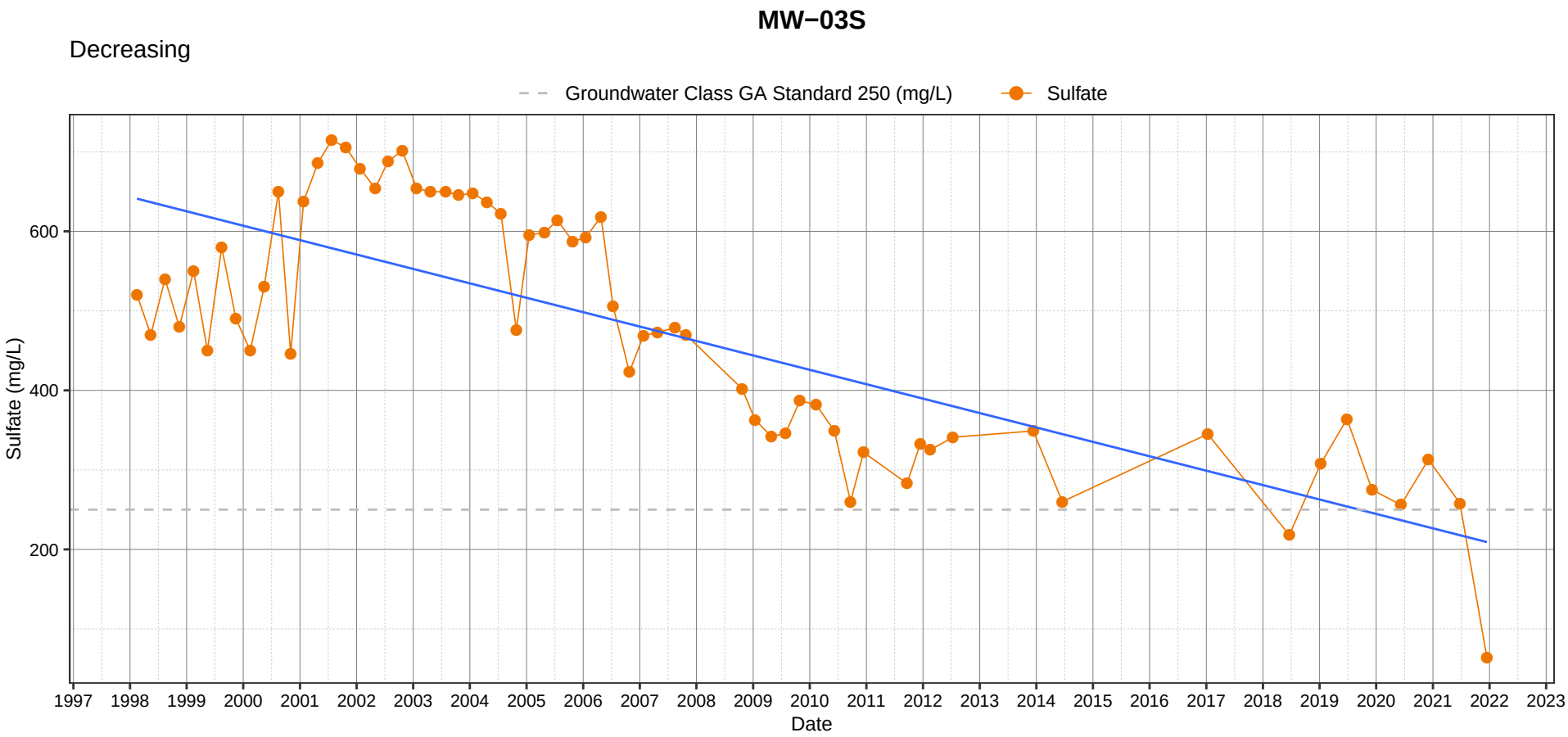
MW−41

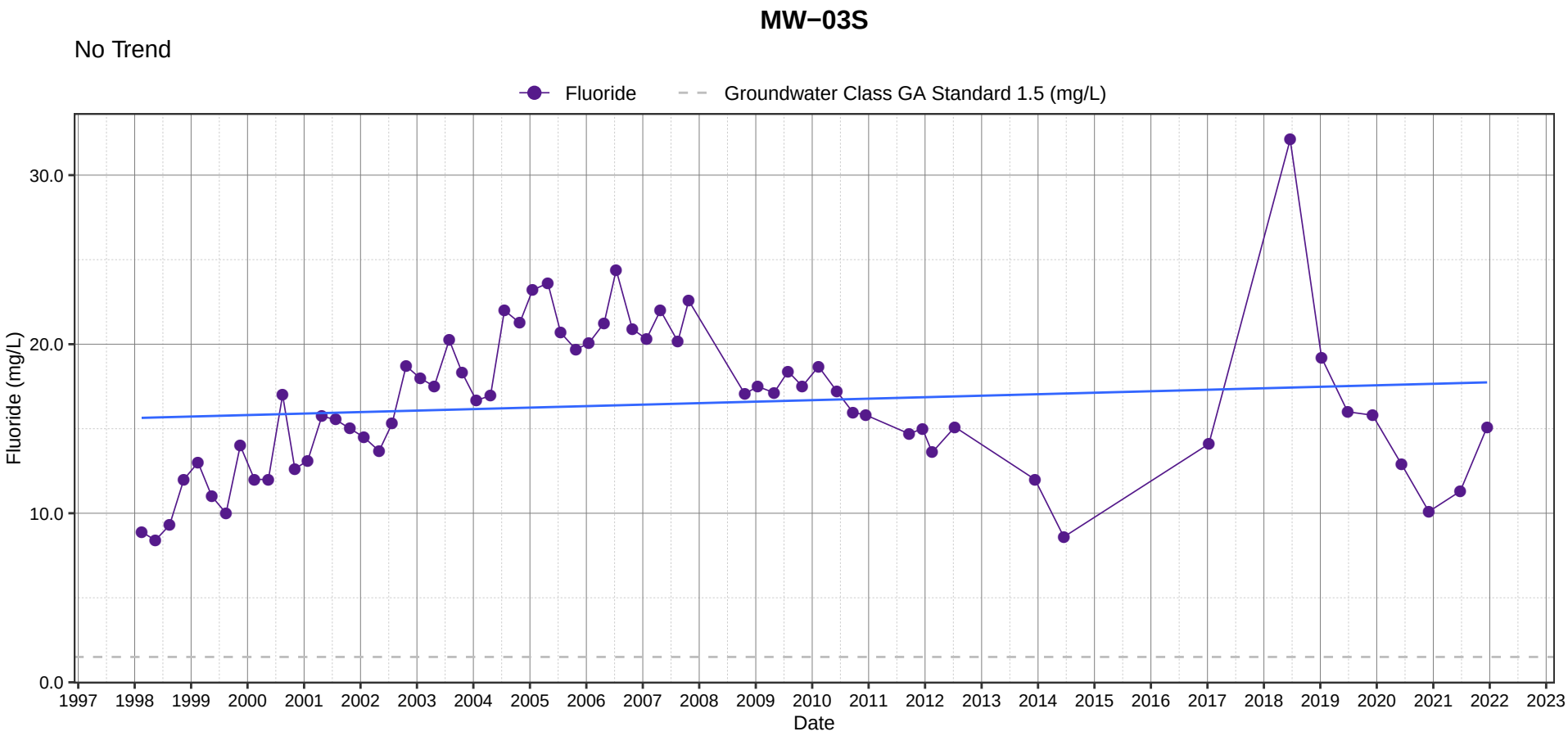
No Trend

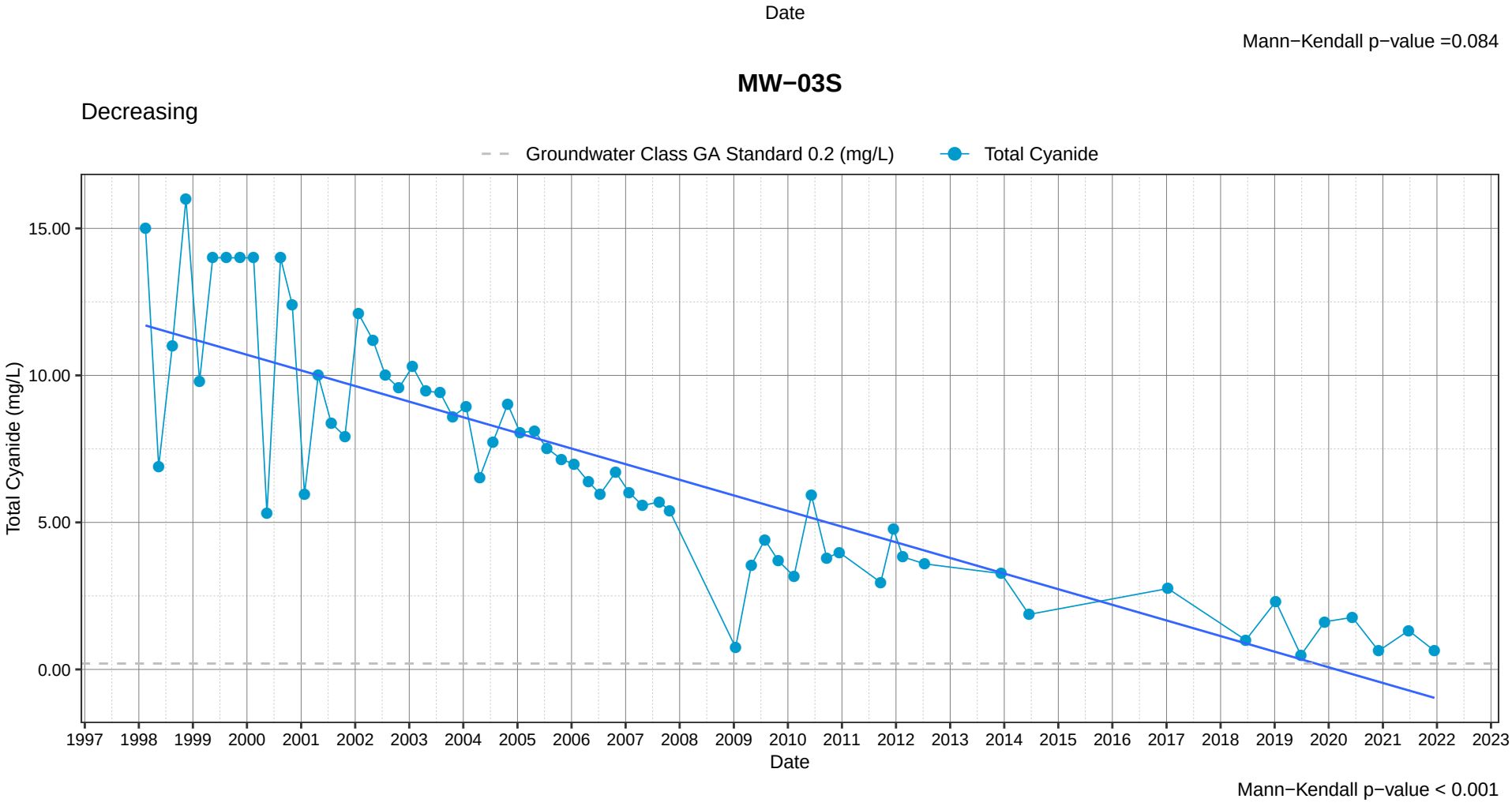


Greater than 50% Non−detect

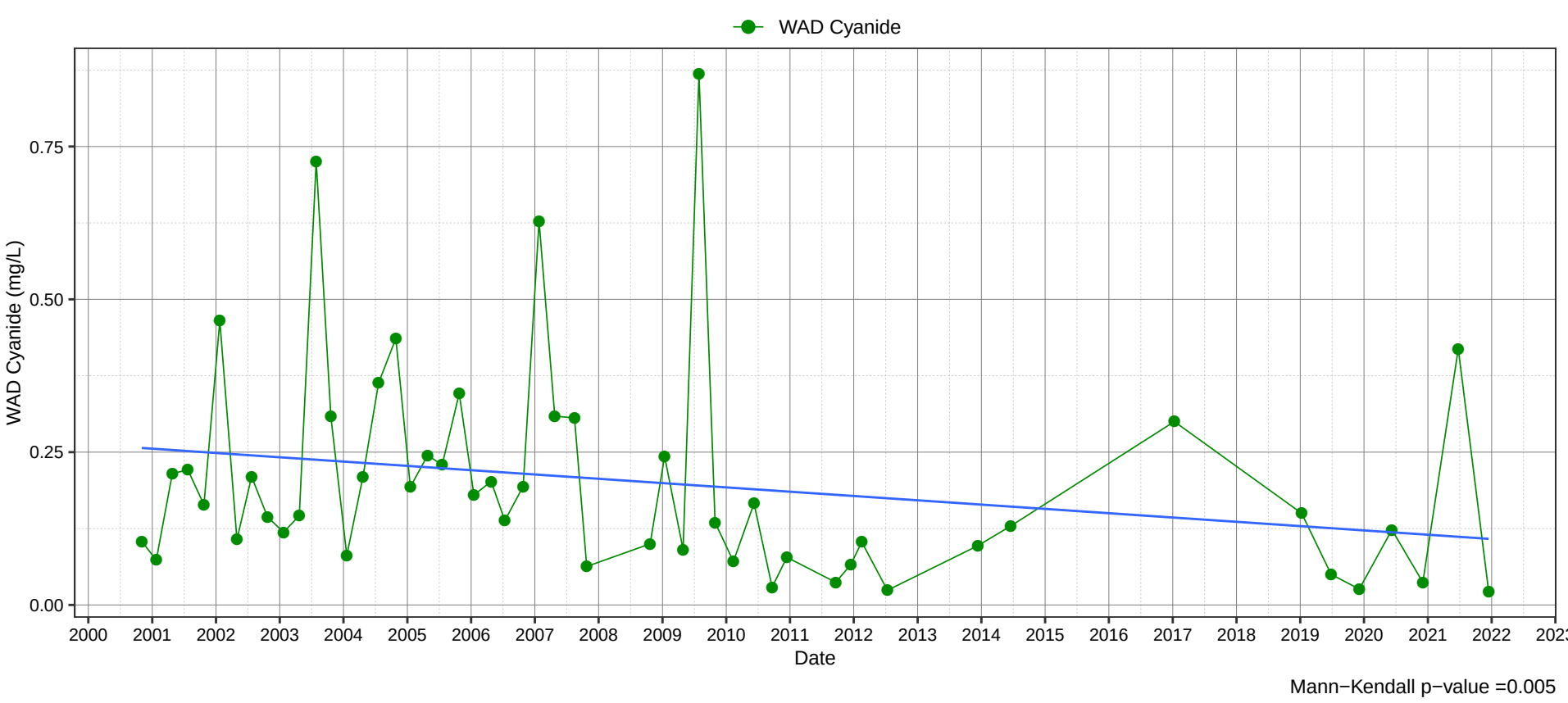
Well MW−03S
Former Potliner Storage Pad
(non−detects plotted as open symbols at half the method detection limit)







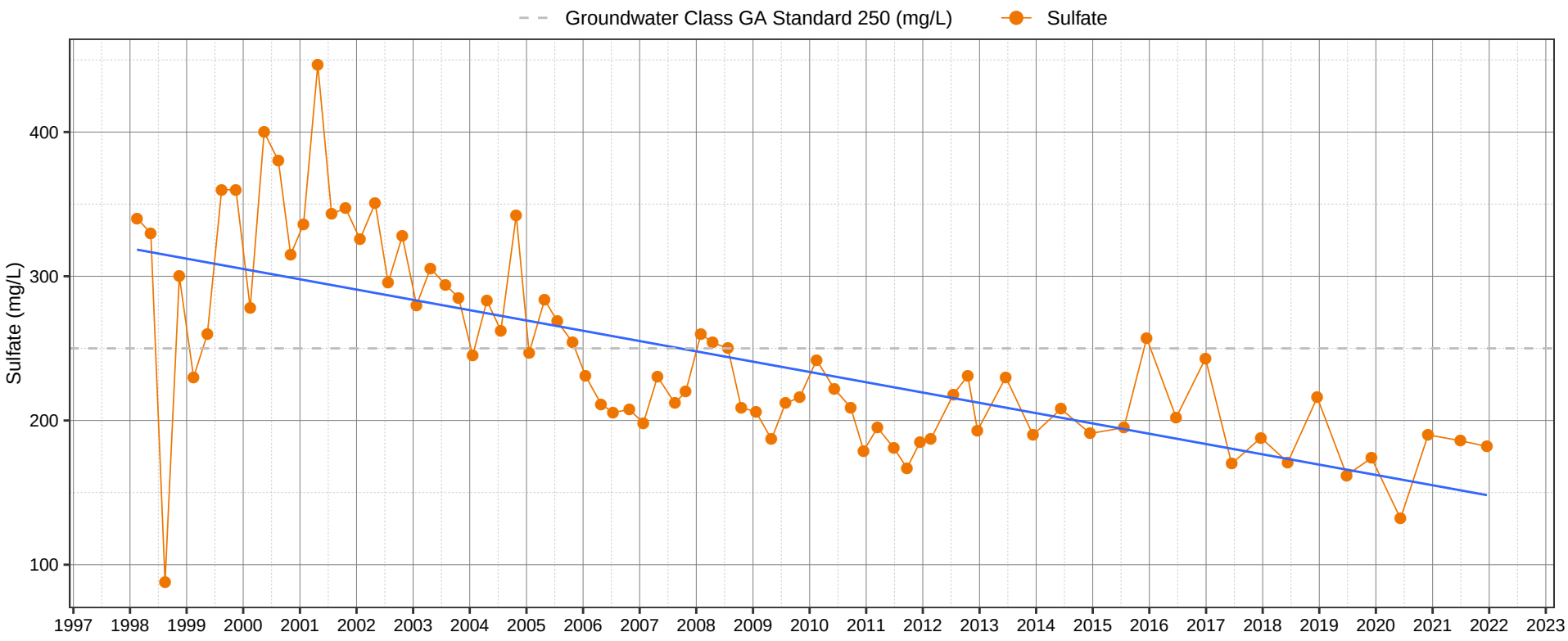
Well MW−03S
Former Potliner Storage Pad
(non−detects plotted as open symbols at half the method detection limit)



Well MW−26S
Former Potliner Storage Pad
(non−detects plotted as open symbols at half the method detection limit)

MW−26S

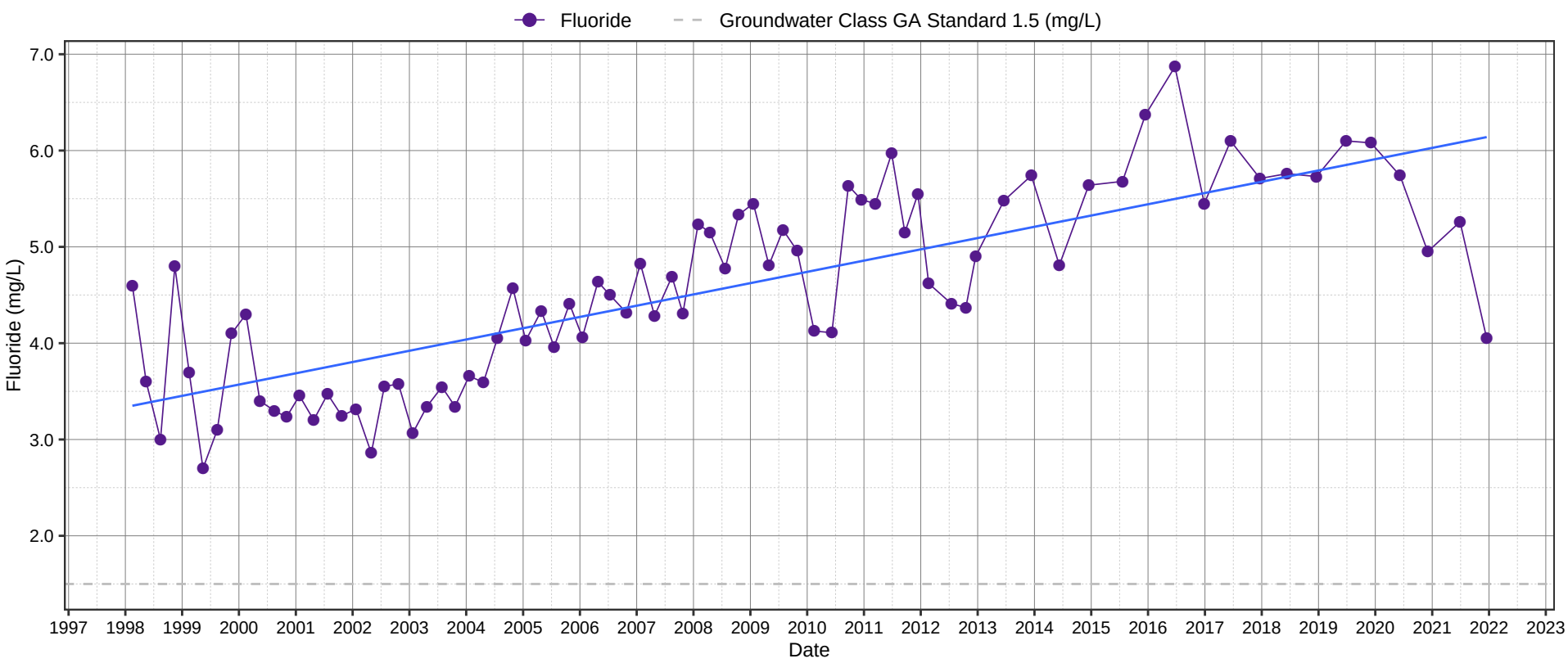
Decreasing



Mann−Kendall p−value < 0.001

MW−26S

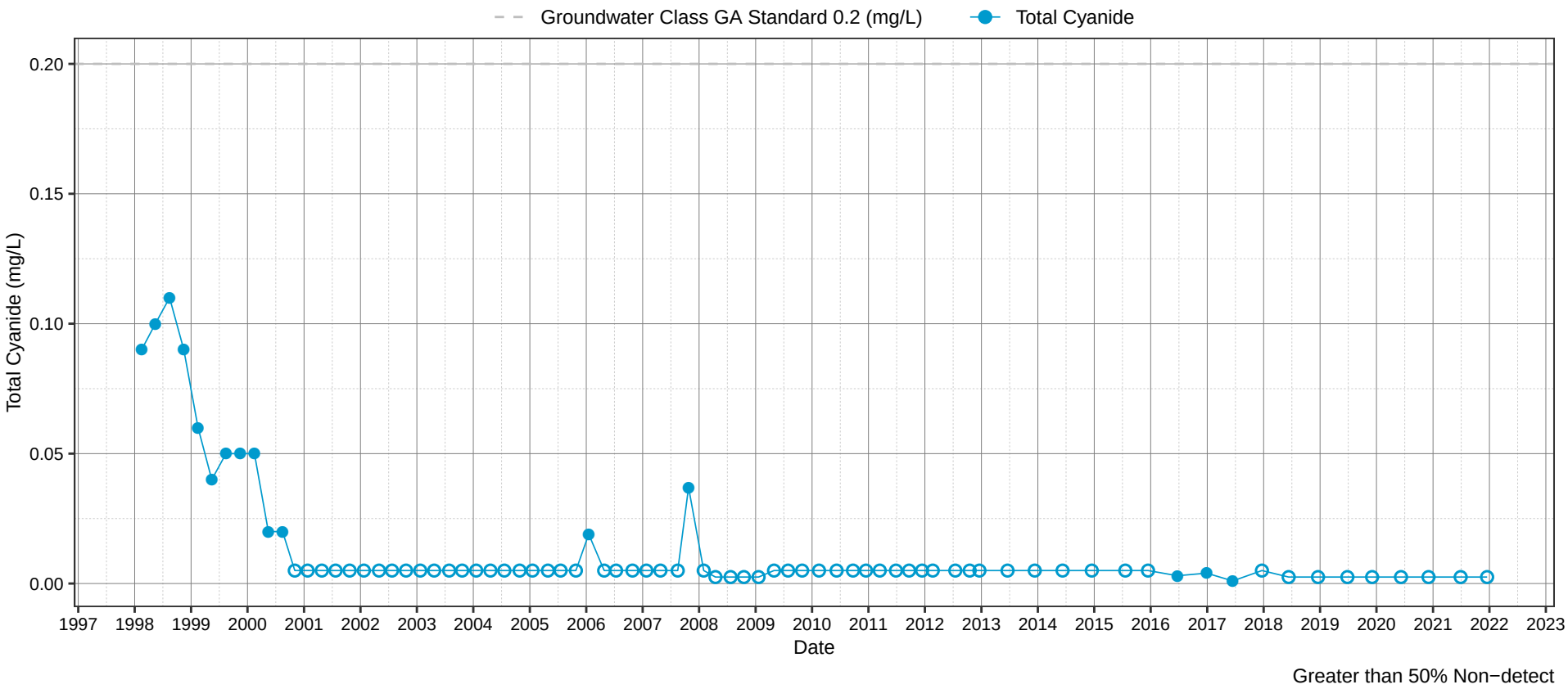
Increasing



Mann−Kendall p−value < 0.001

MW−26S

No Trend

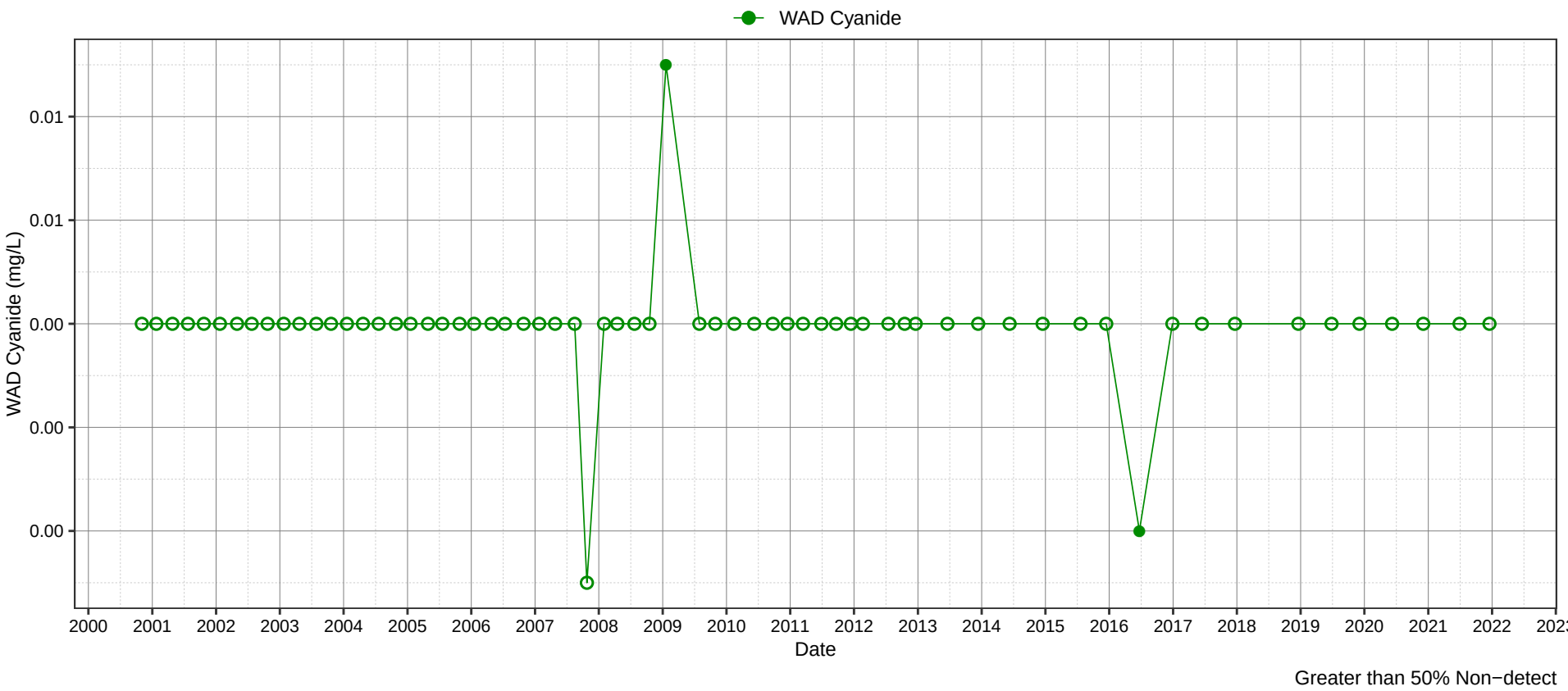


Greater than 50% Non−detect

Well MW−26S
Former Potliner Storage Pad
(non−detects plotted as open symbols at half the method detection limit)

MW−26S

No Trend

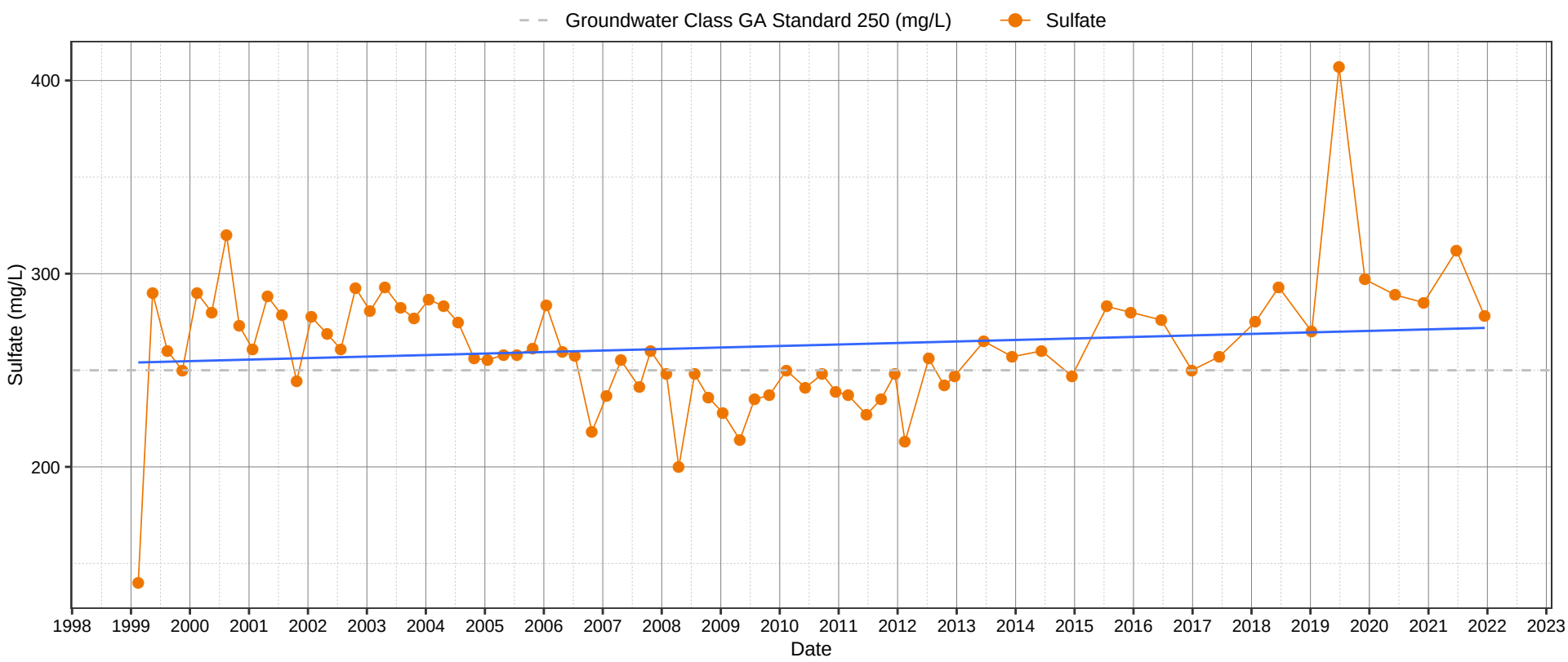


Greater than 50% Non−detect

Well MW−27S
Former Potliner Storage Pad
(non−detects plotted as open symbols at half the method detection limit)

MW−27S

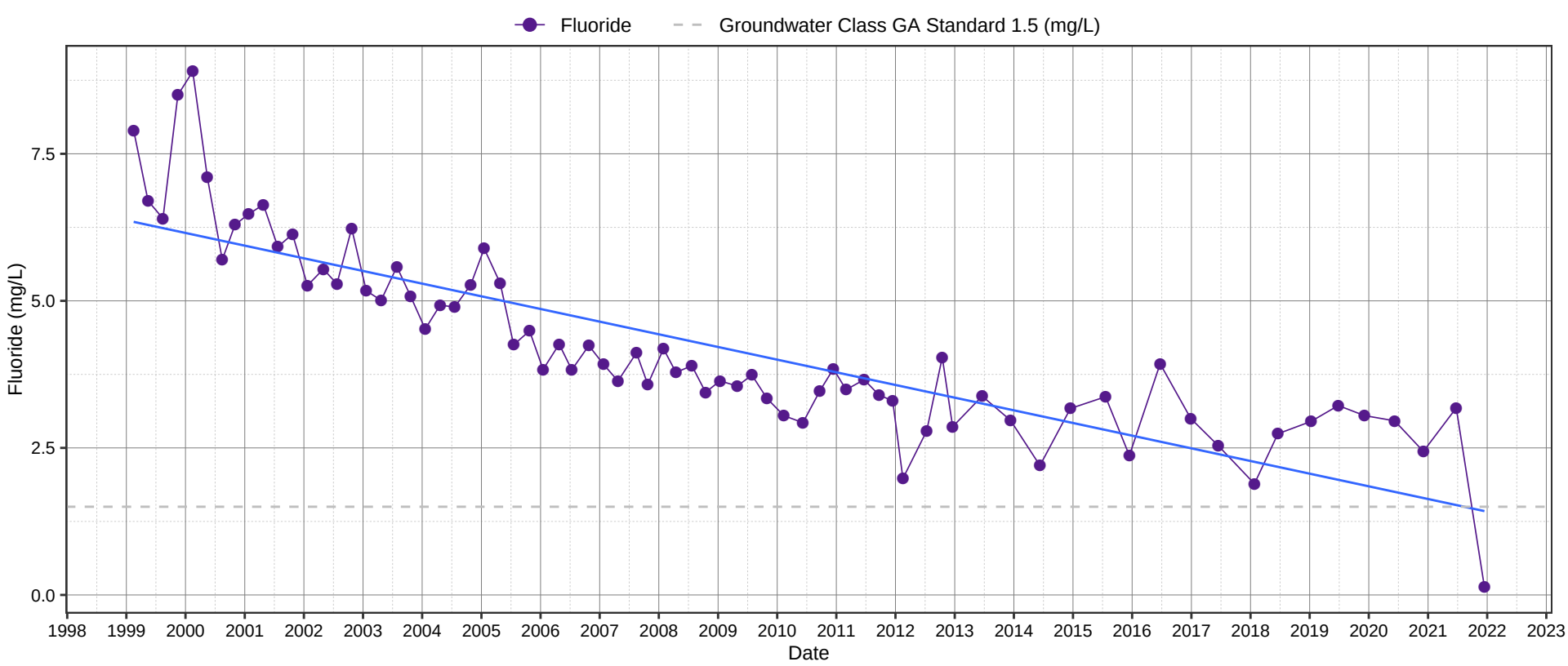
No Trend



Mann−Kendall p−value =0.419

MW−27S

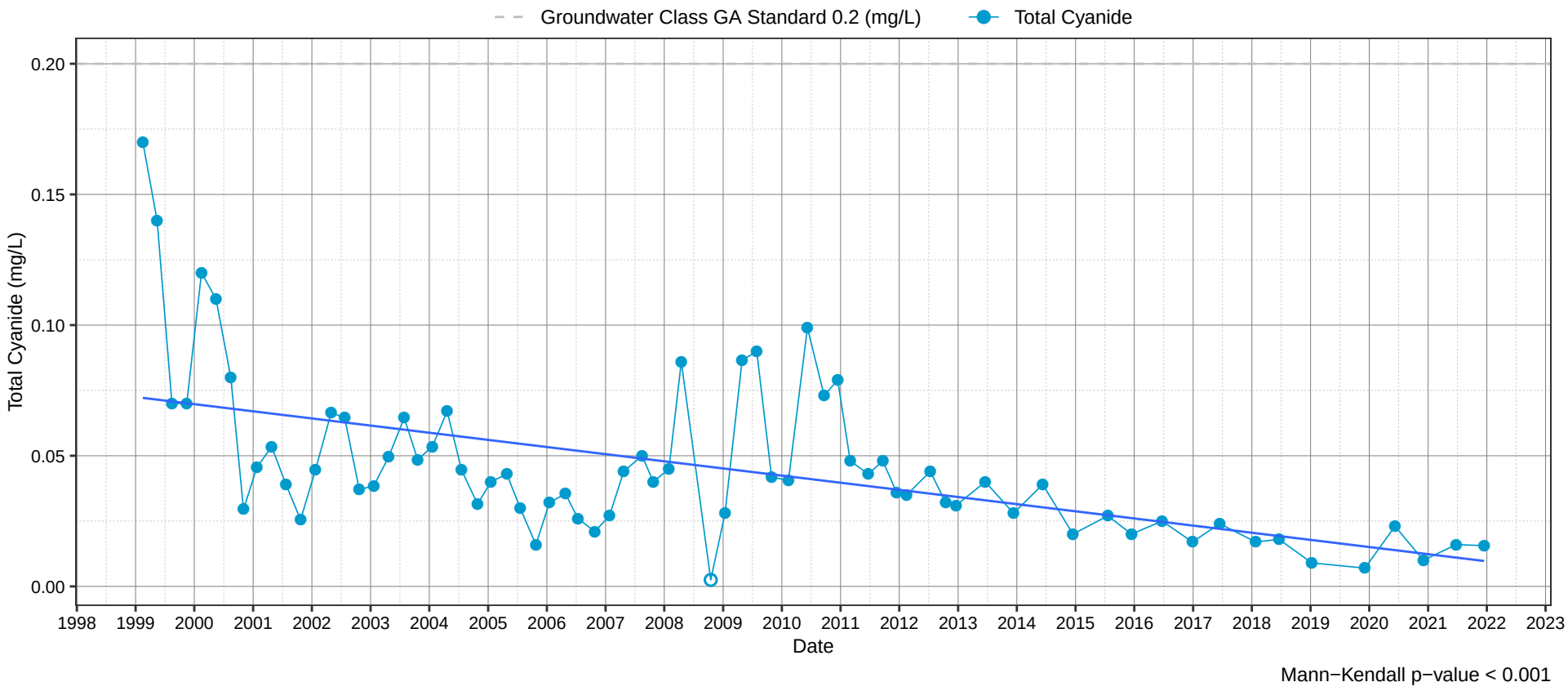
Decreasing



Mann−Kendall p−value < 0.001

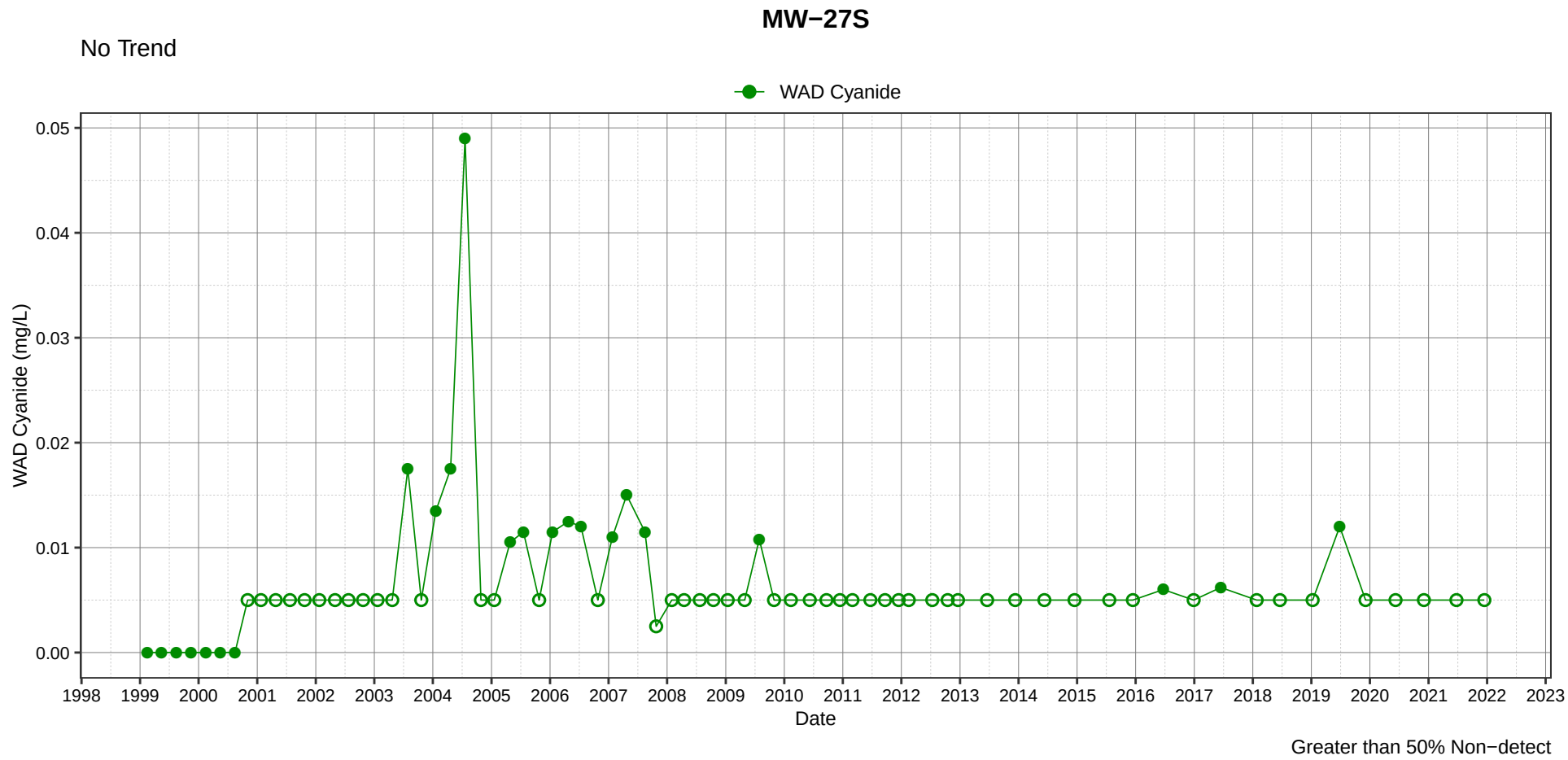
MW−27S

Decreasing

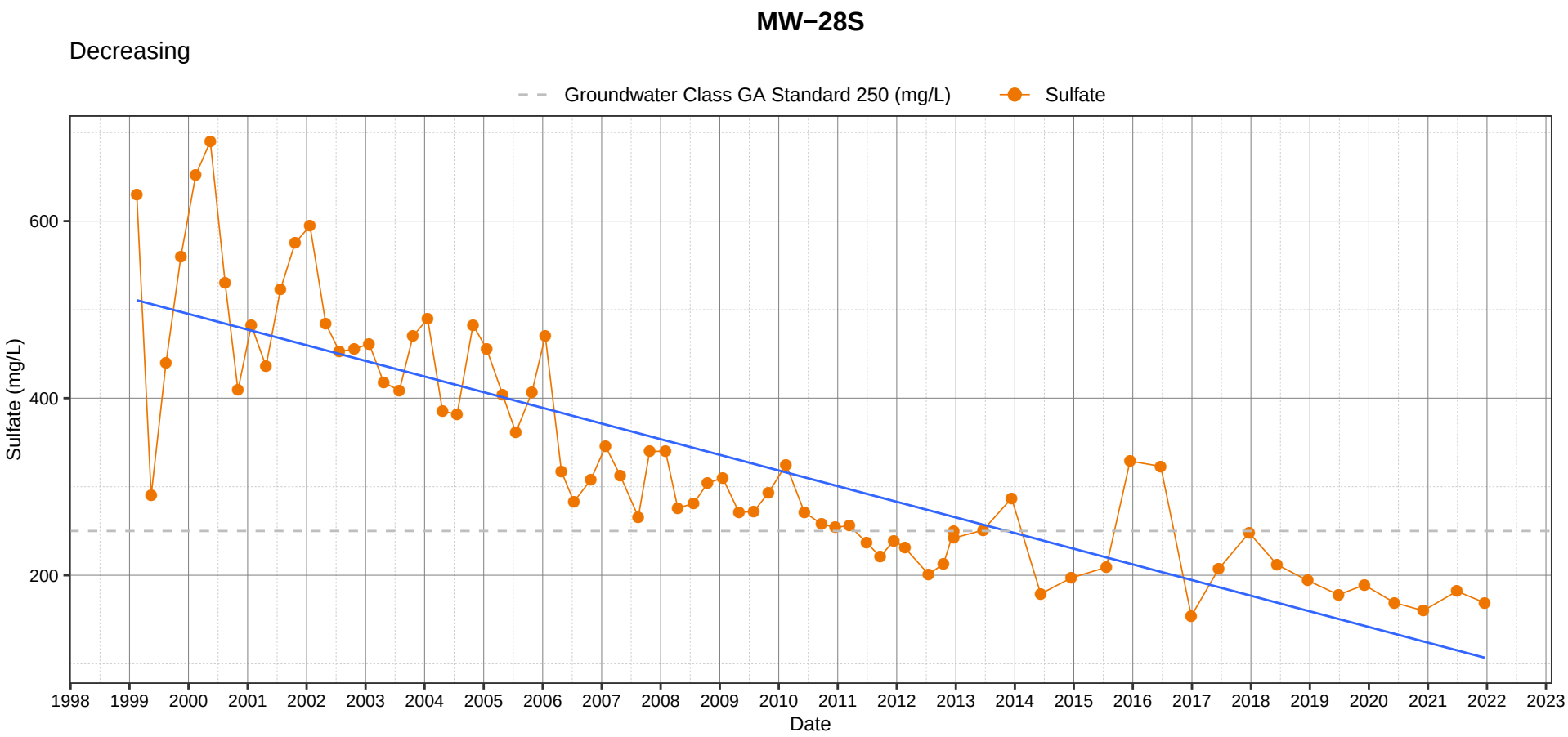


Mann−Kendall p−value < 0.001

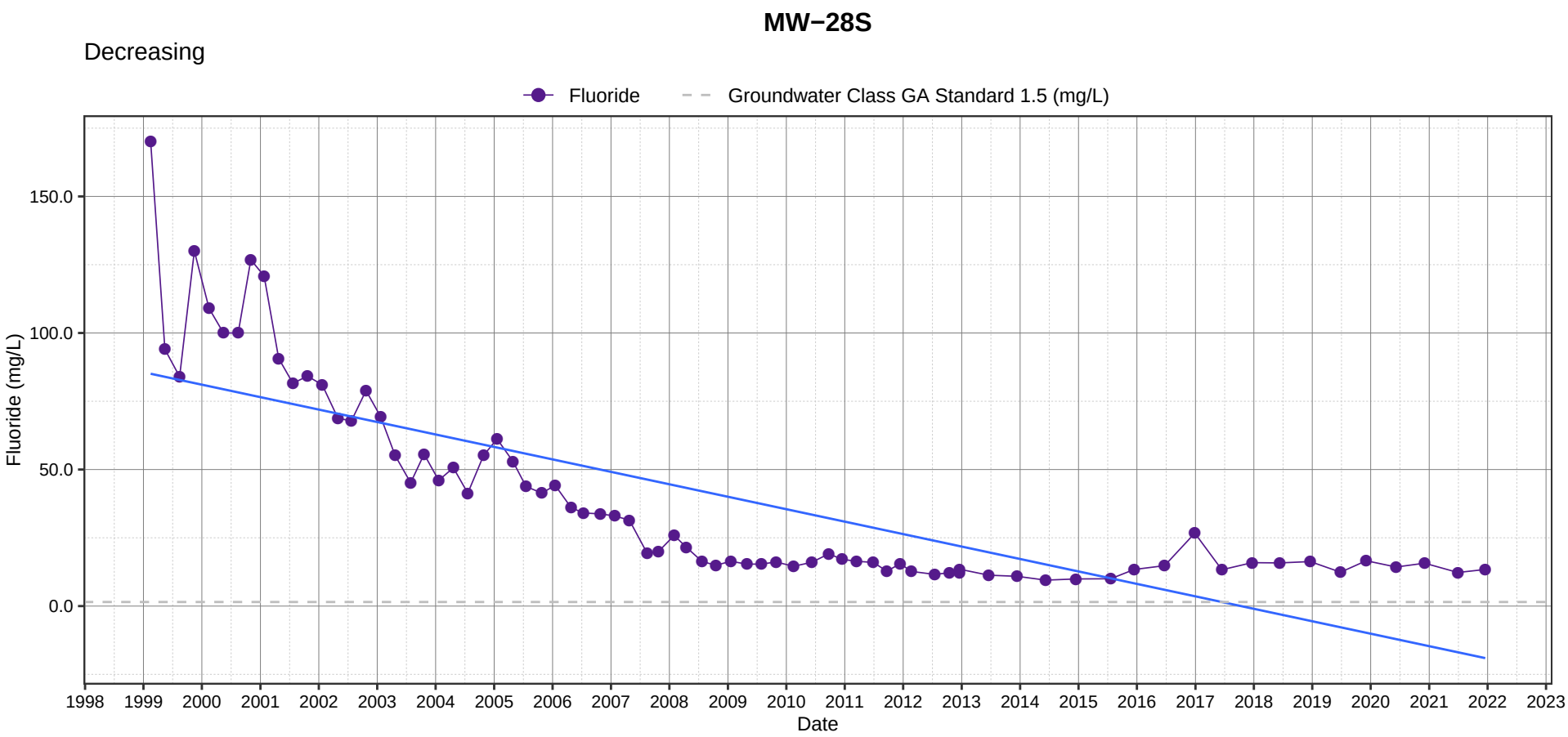
Well MW−27S
Former Potliner Storage Pad
(non−detects plotted as open symbols at half the method detection limit)



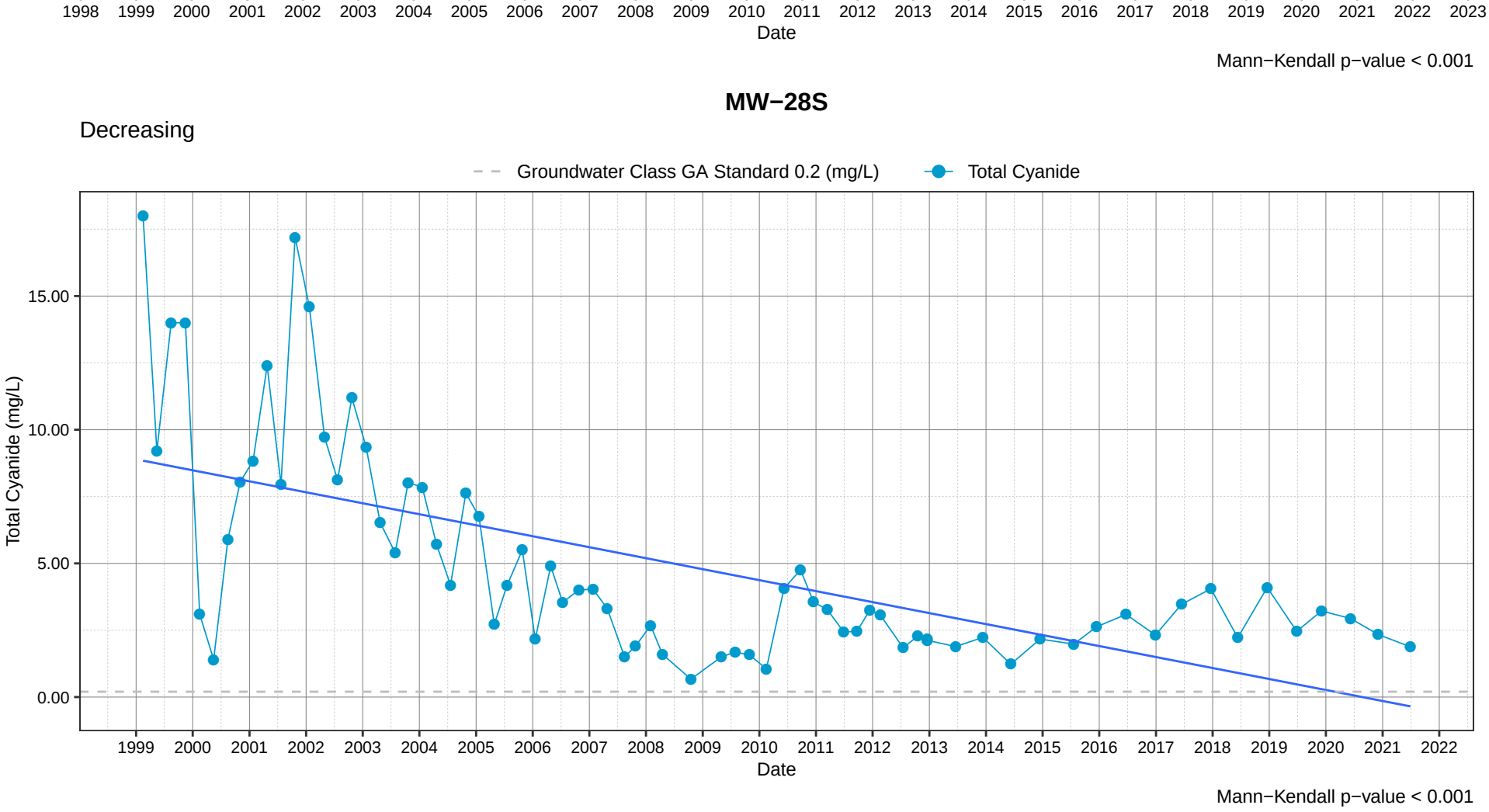
Well MW−28S
Former Potliner Storage Pad
(non−detects plotted as open symbols at half the method detection limit)



Mann−Kendall p−value < 0.001

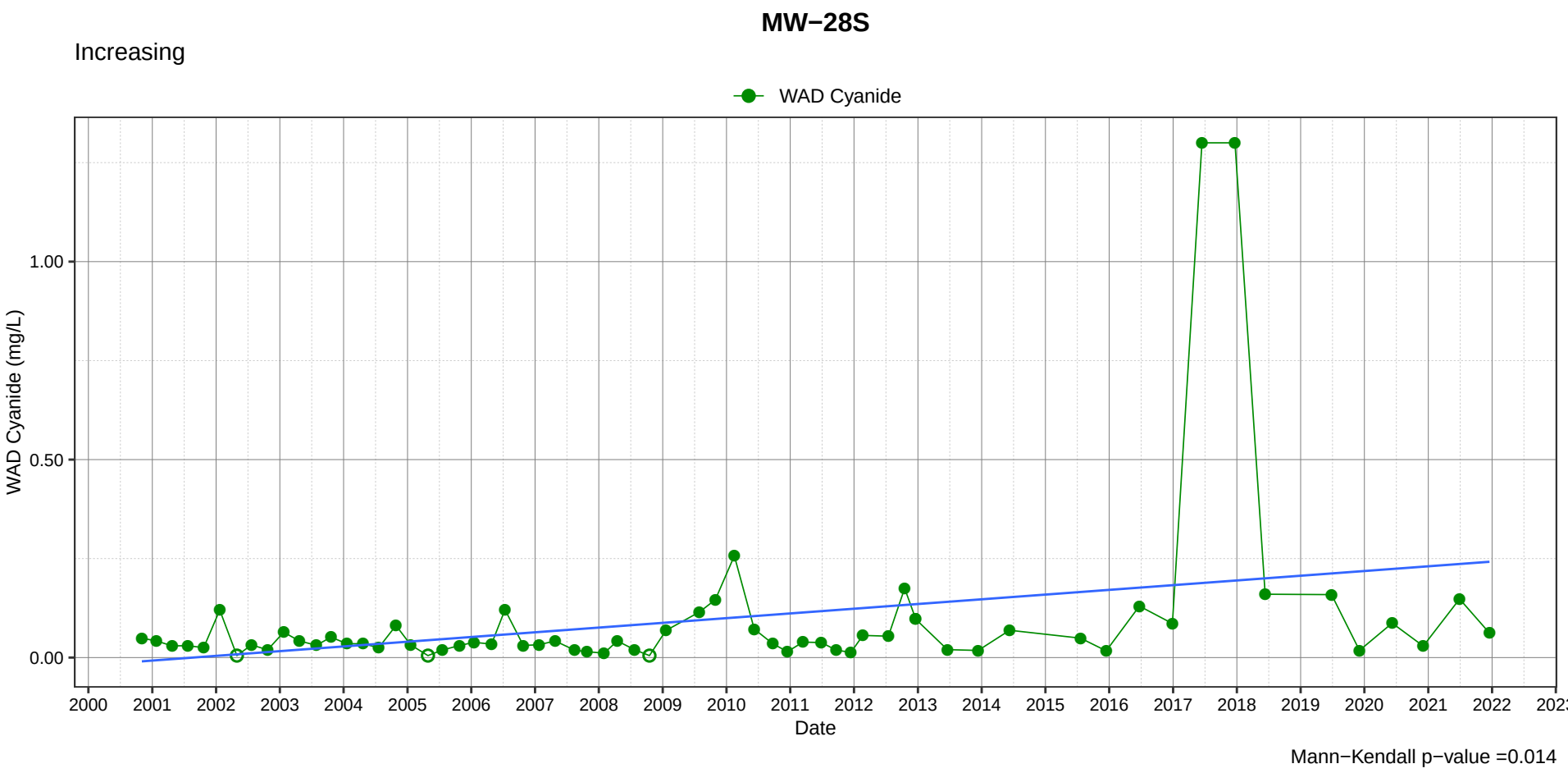


Mann−Kendall p−value < 0.001

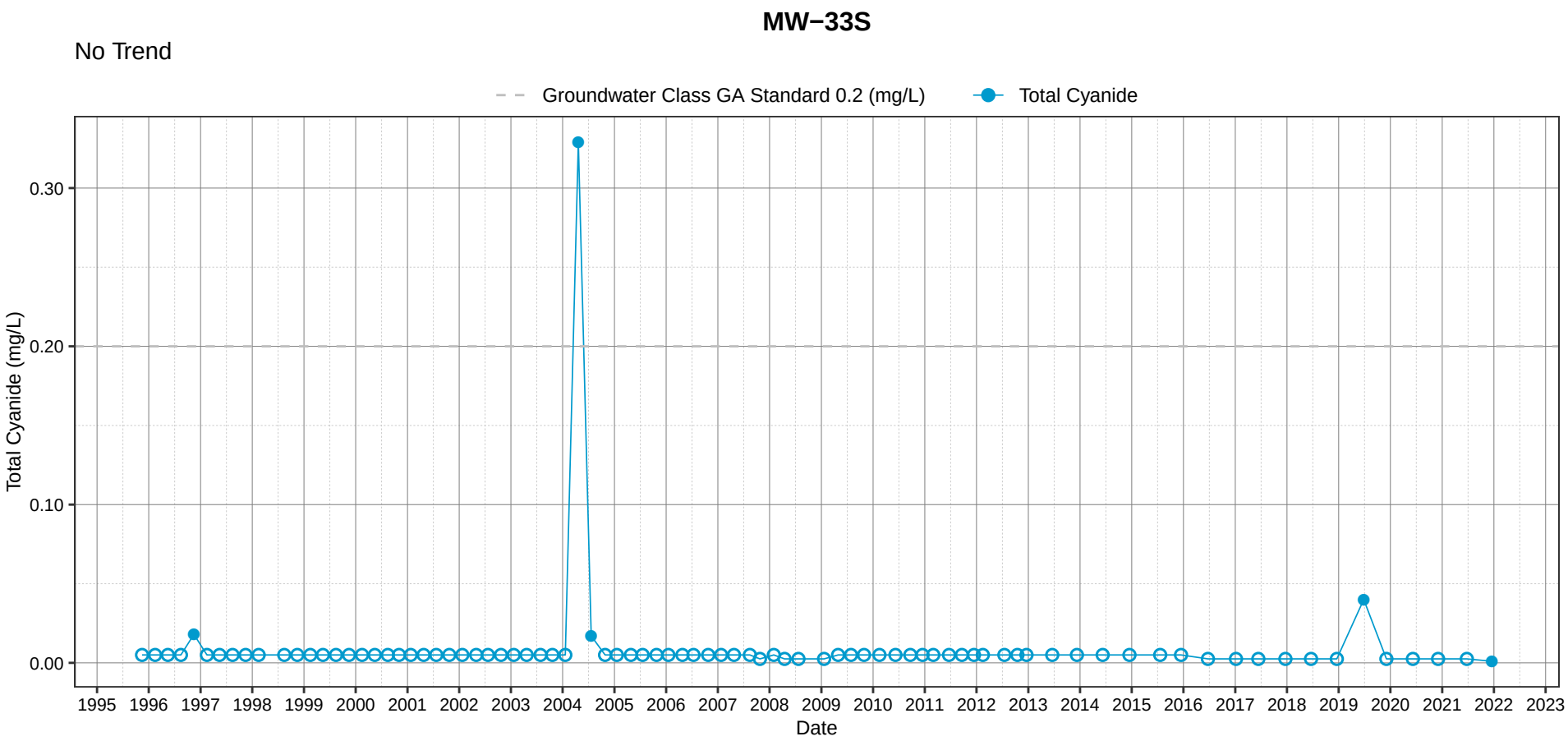


Mann−Kendall p−value < 0.001

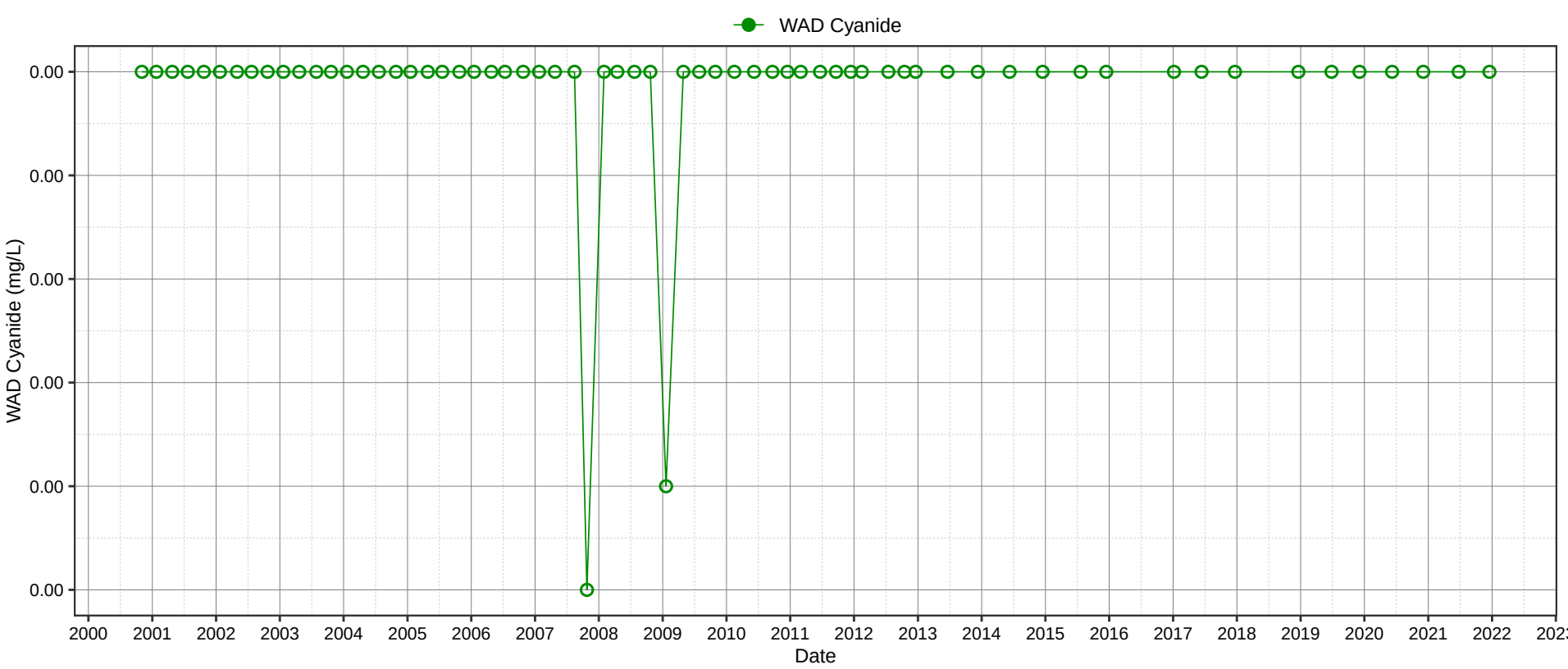
Well MW−28S
Former Potliner Storage Pad
(non−detects plotted as open symbols at half the method detection limit)



Well MW−33S
Former Potliner Storage Pad
(non−detects plotted as open symbols at half the method detection limit)



Greater than 50% Non−detect

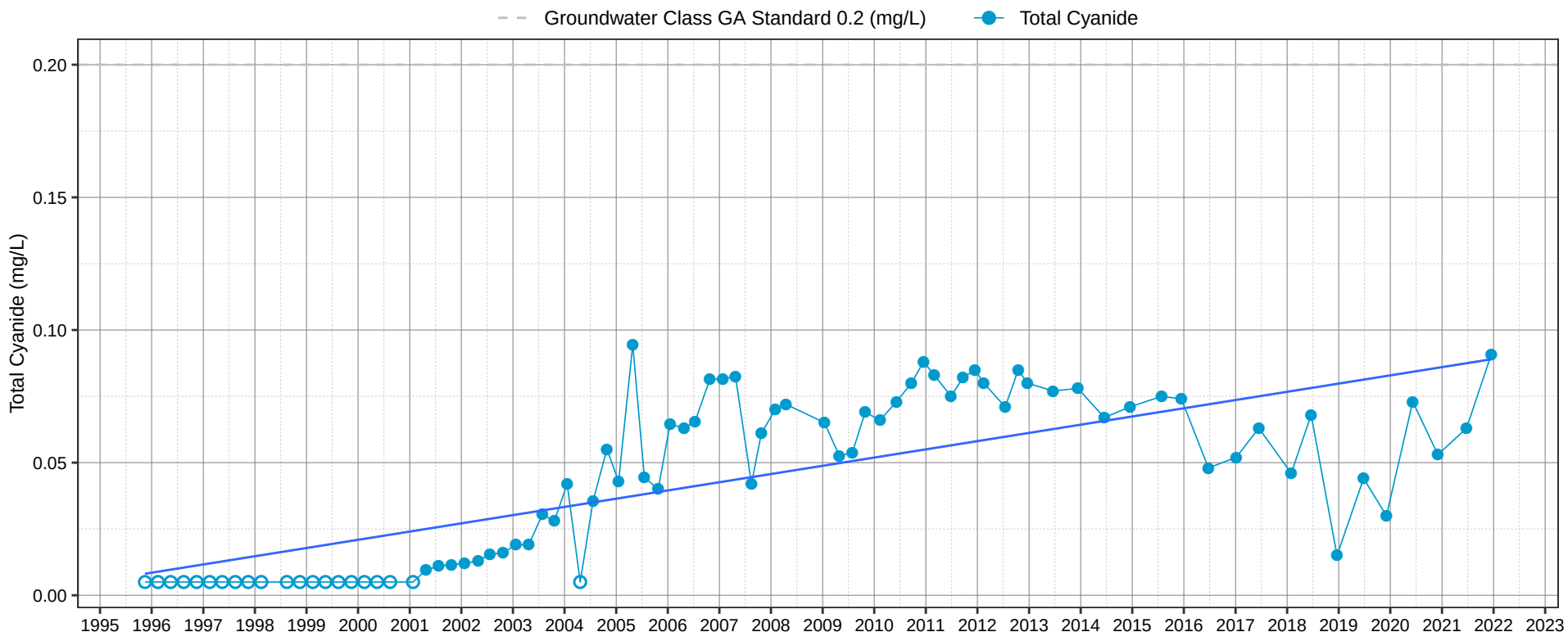


Greater than 50% Non−detect

Well MW−34S
Former Potliner Storage Pad
(non−detects plotted as open symbols at half the method detection limit)

MW−34S

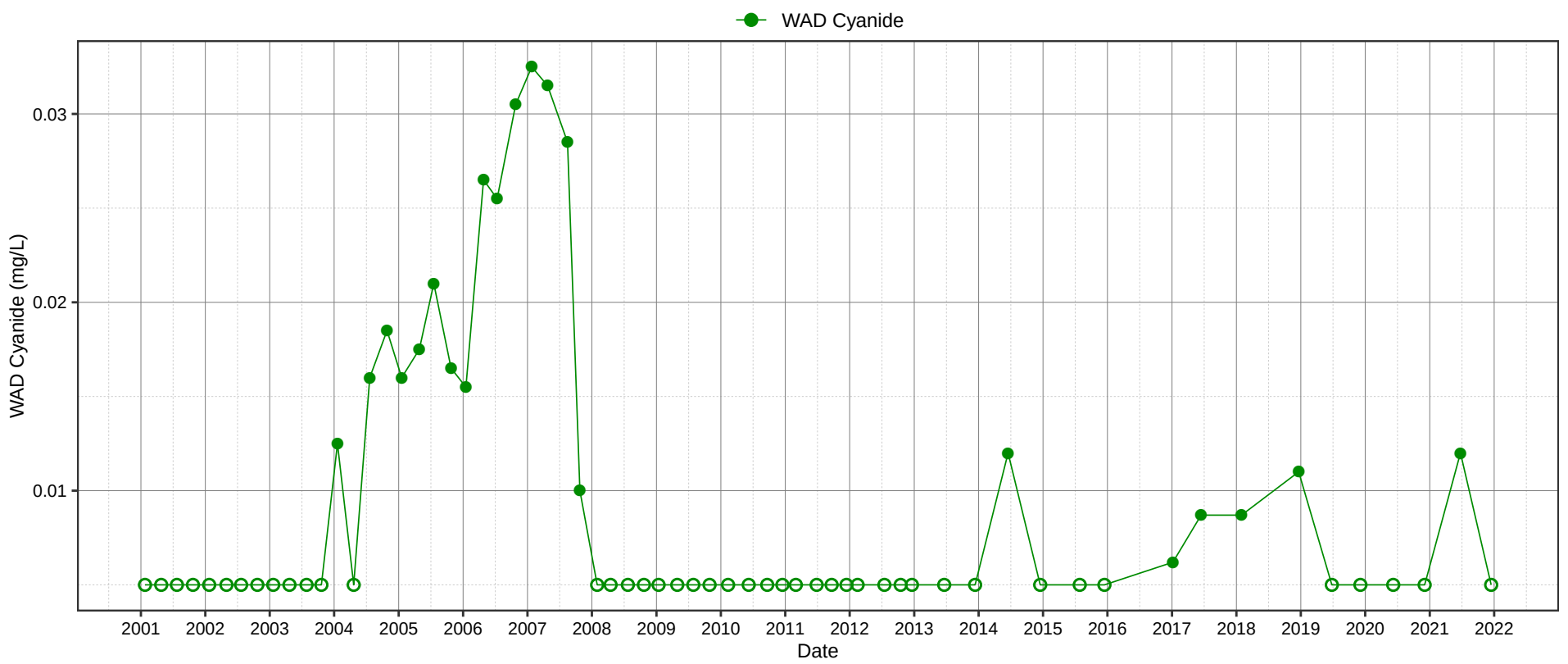
Increasing



Mann−Kendall p−value < 0.001

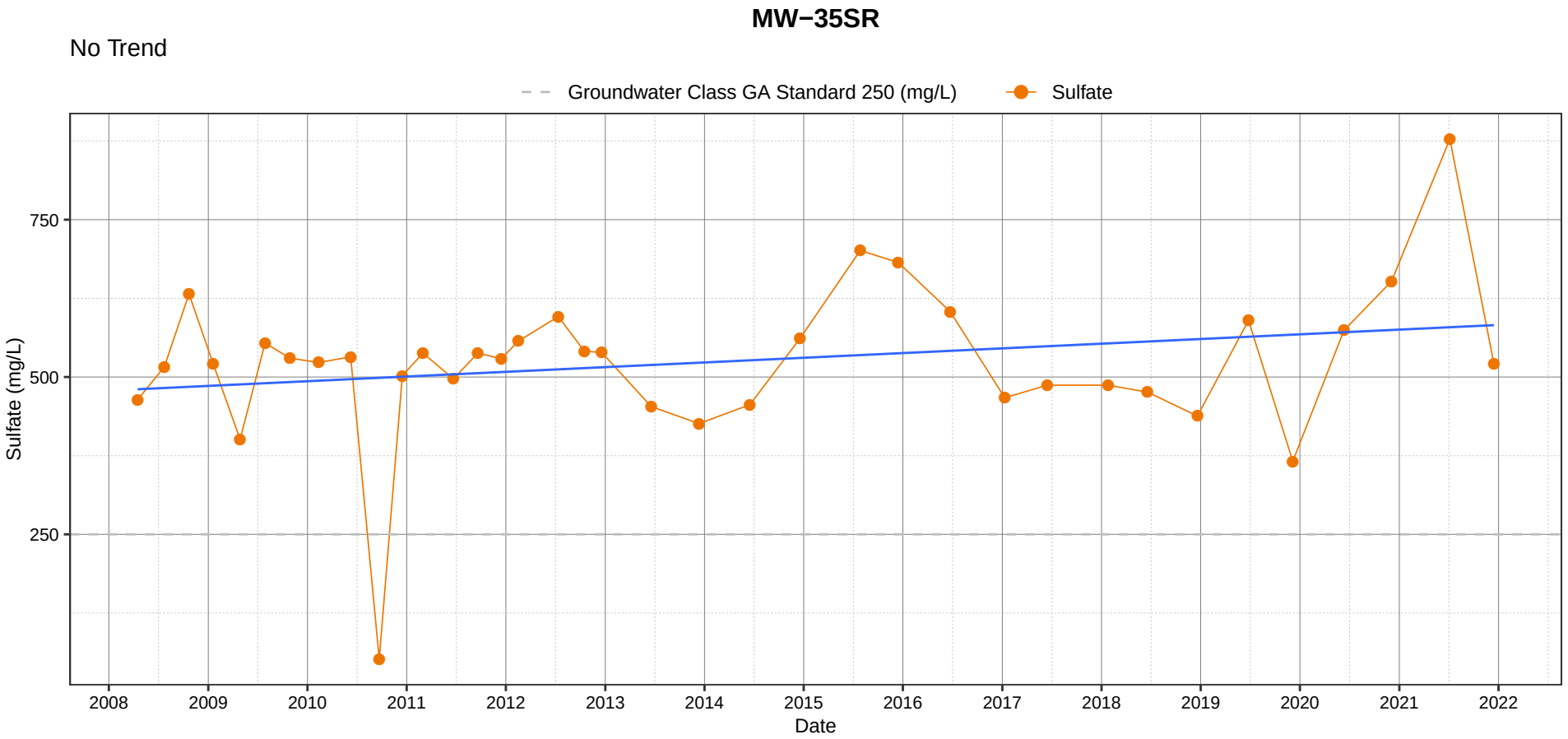
MW−34S

No Trend

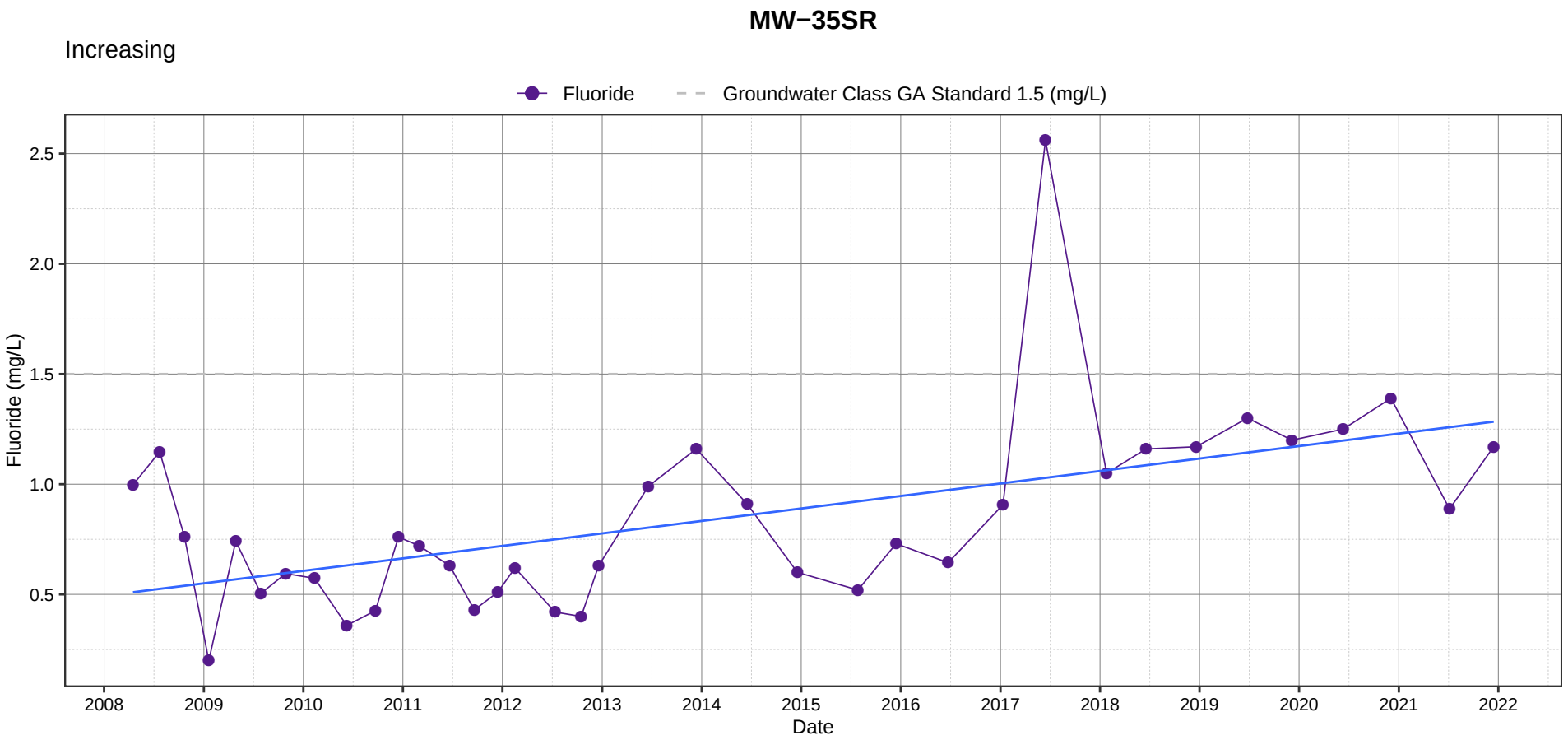


Greater than 50% Non−detect

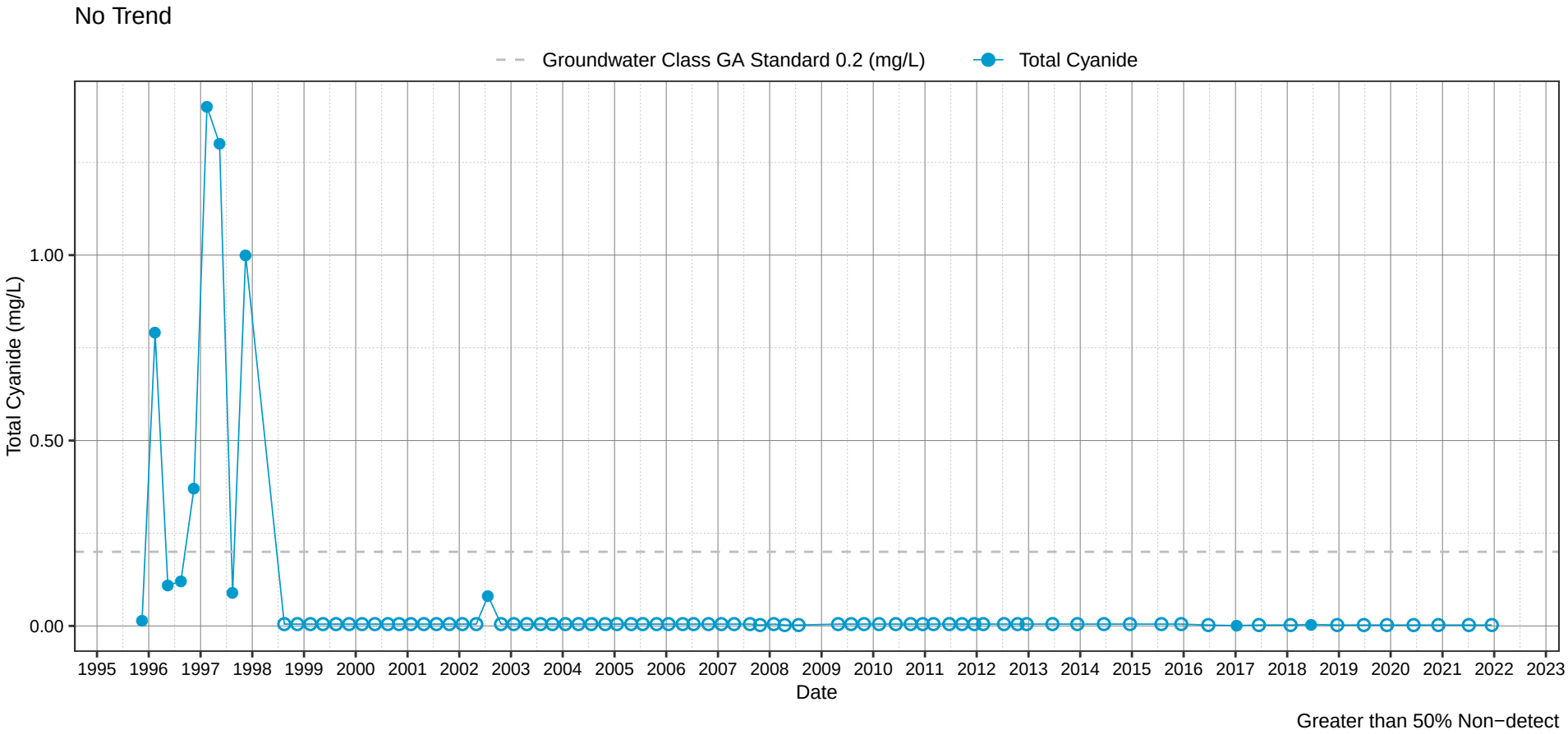
Well MW−35SR
Former Potliner Storage Pad
(non−detects plotted as open symbols at half the method detection limit)



Mann−Kendall p−value =0.283

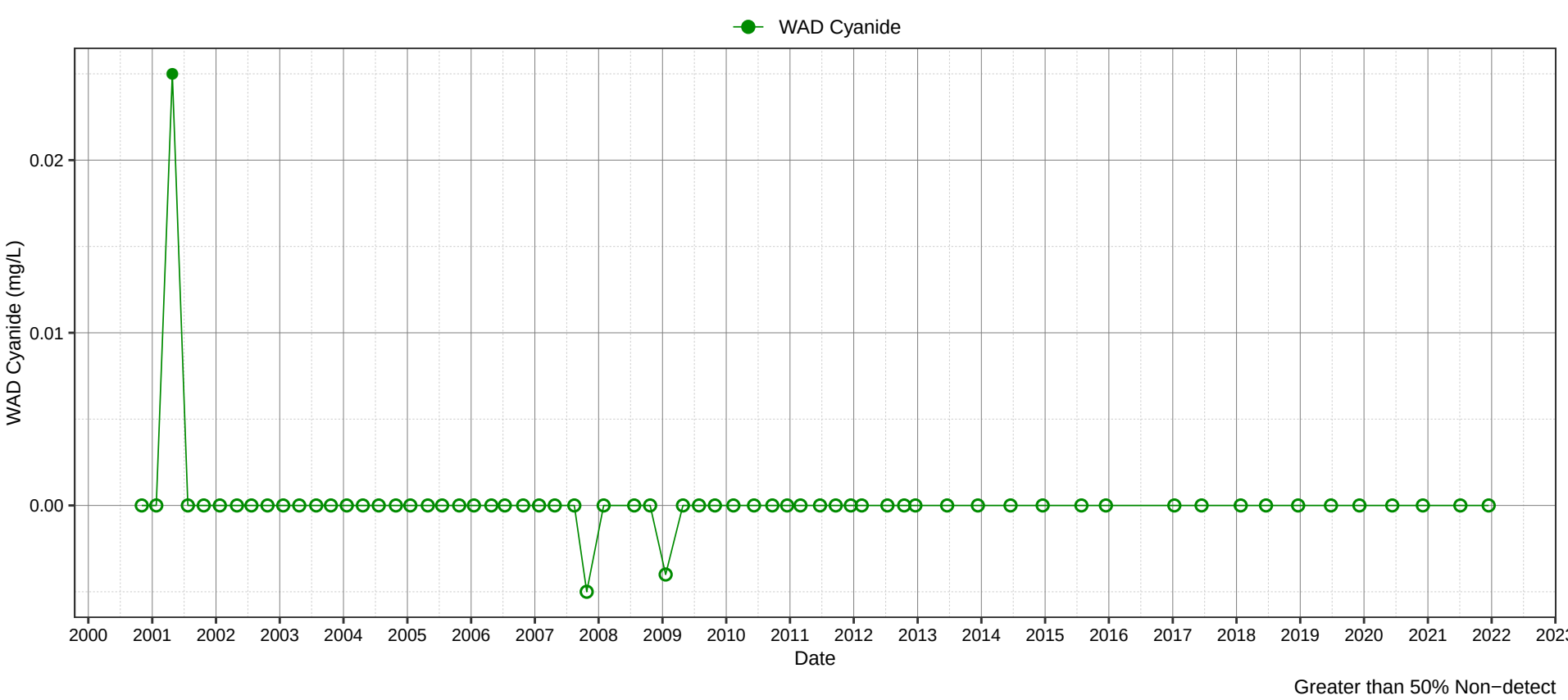


Mann−Kendall p−value < 0.001



Greater than 50% Non−detect

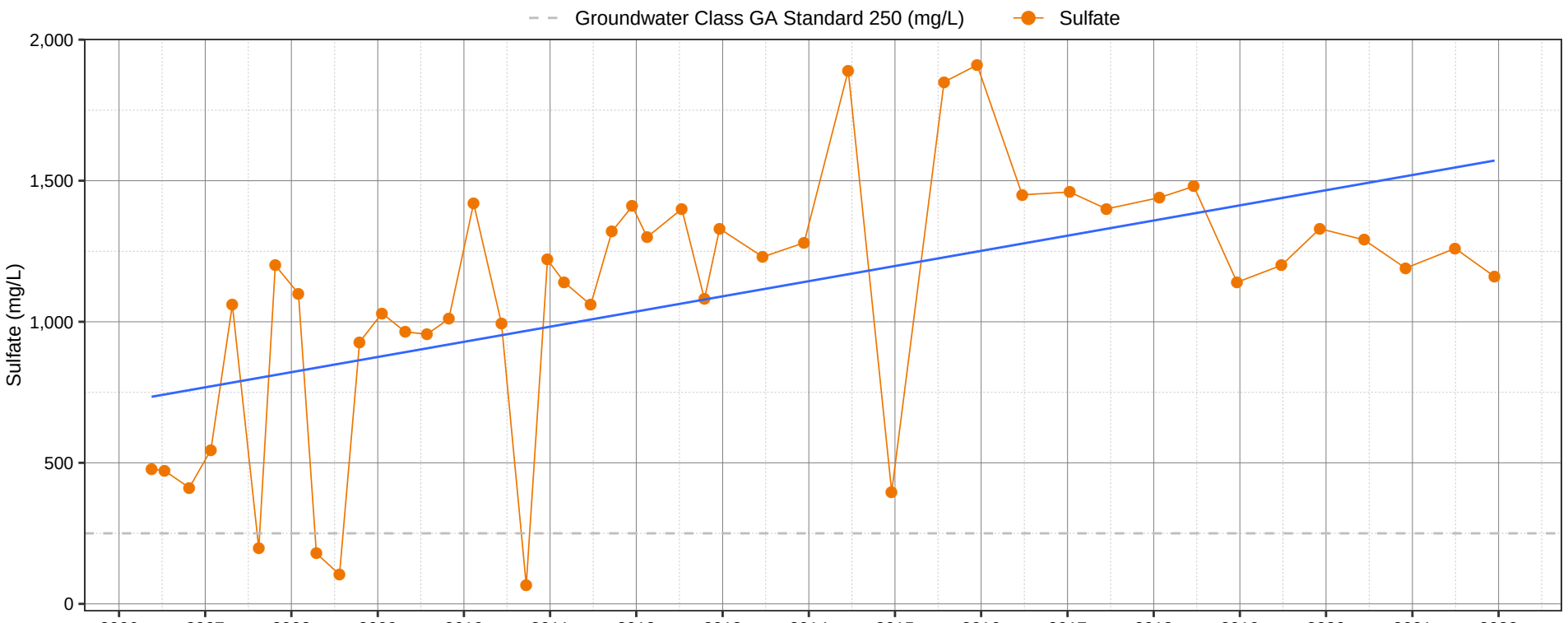
Well MW−35SR
Former Potliner Storage Pad
(non−detects plotted as open symbols at half the method detection limit)



Well MW−42
Former Potliner Storage Pad
(non−detects plotted as open symbols at half the method detection limit)

MW−42

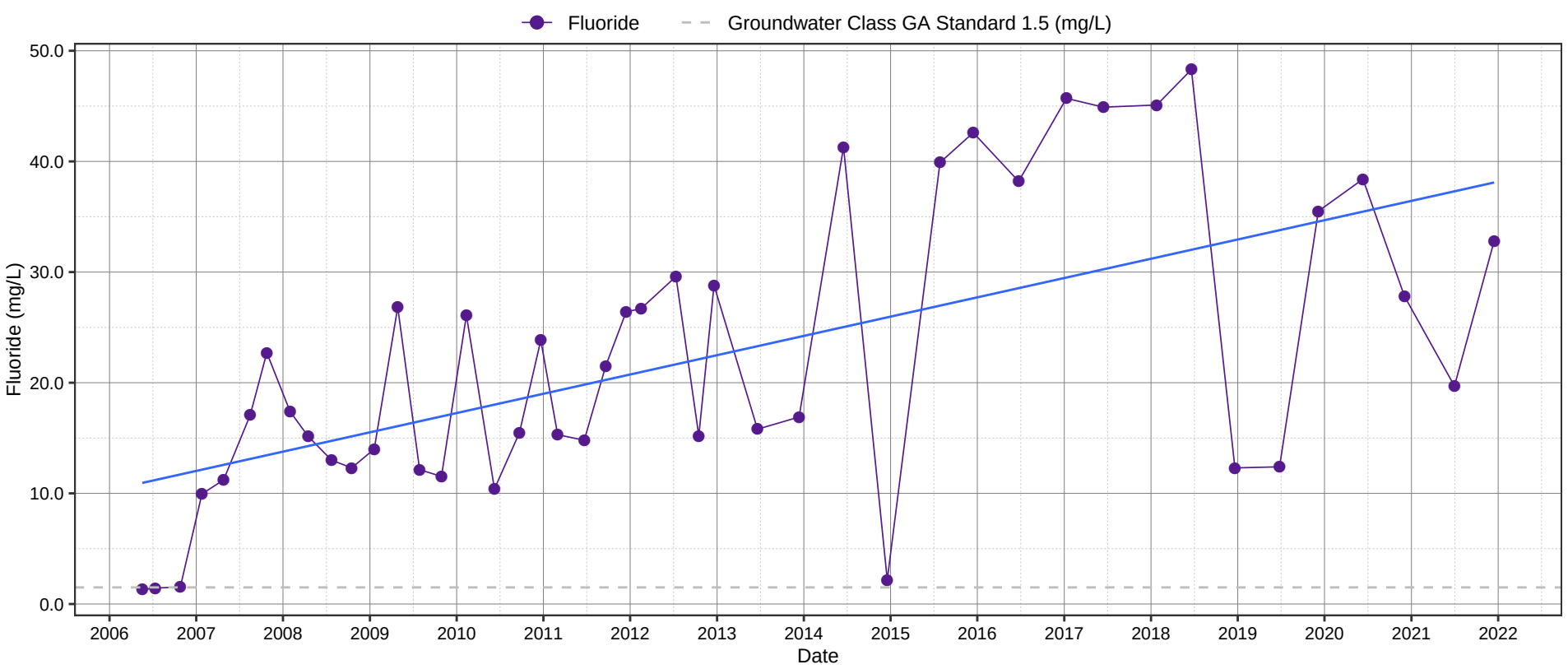
Increasing



Mann−Kendall p−value < 0.001

MW−42

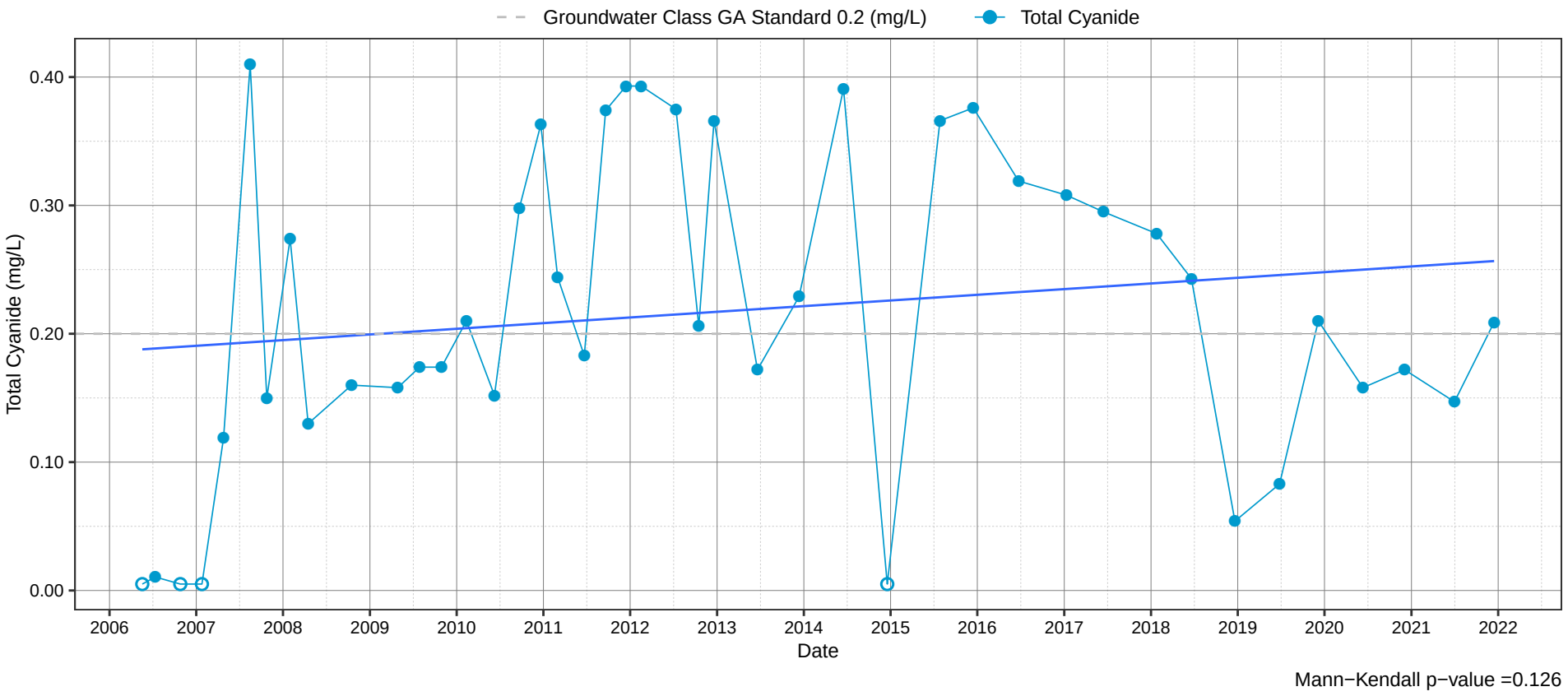
Increasing



Mann−Kendall p−value < 0.001

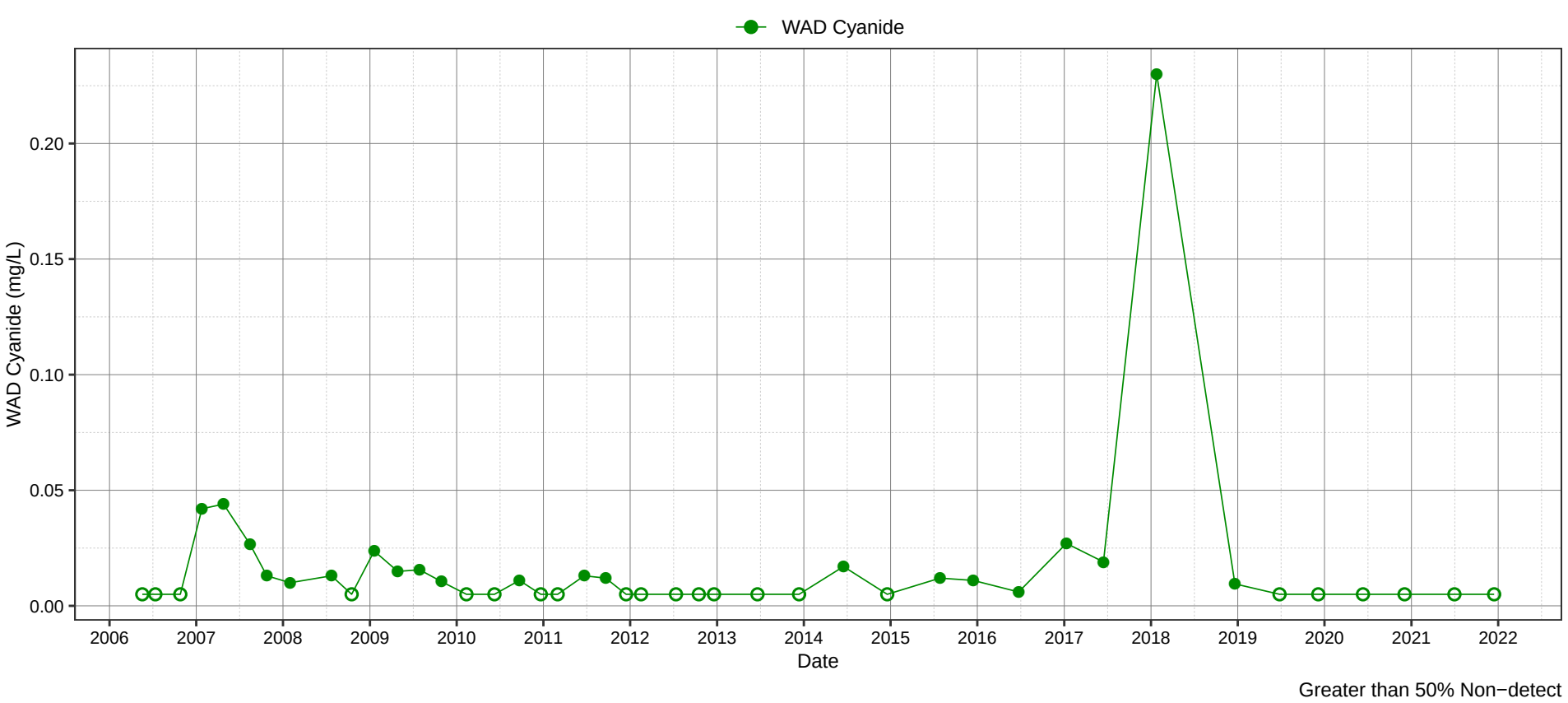
MW−42

No Trend



Mann−Kendall p−value =0.126

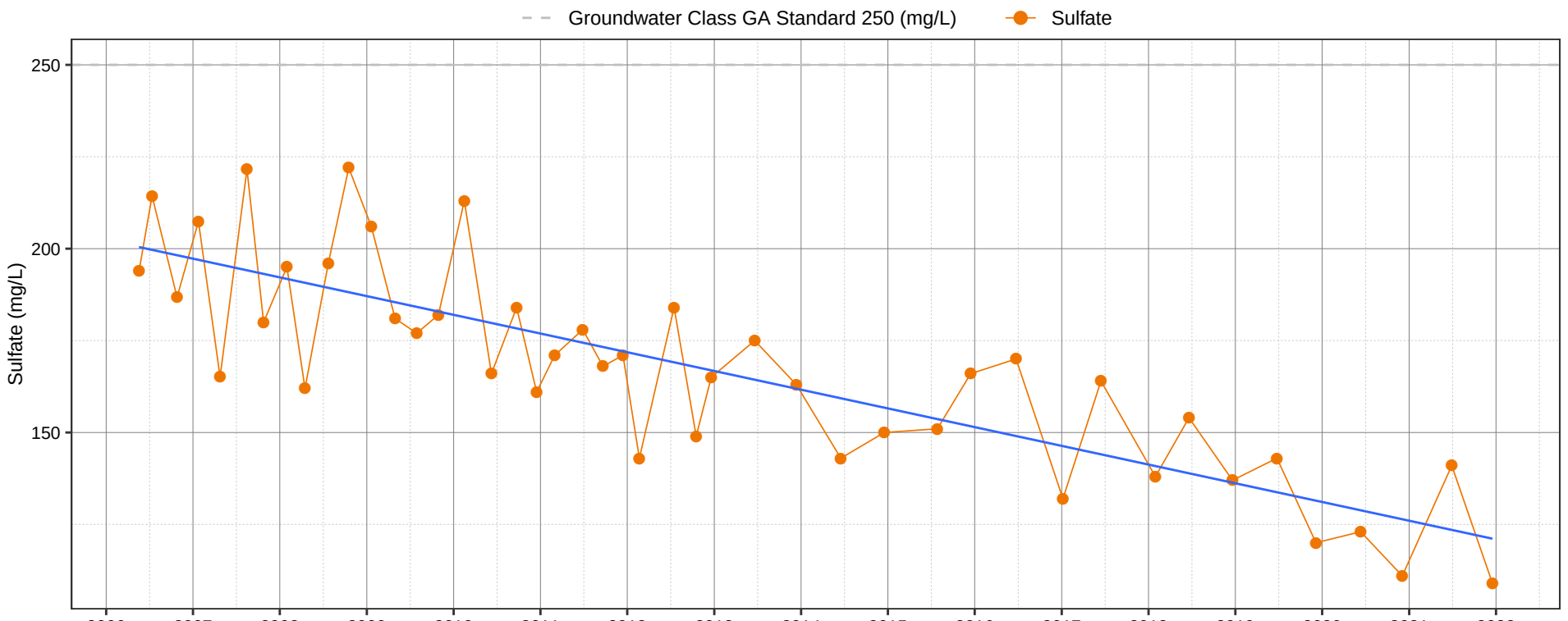
Well MW−42
Former Potliner Storage Pad
(non−detects plotted as open symbols at half the method detection limit)



Well MW−43
Former Potliner Storage Pad
(non−detects plotted as open symbols at half the method detection limit)

MW−43

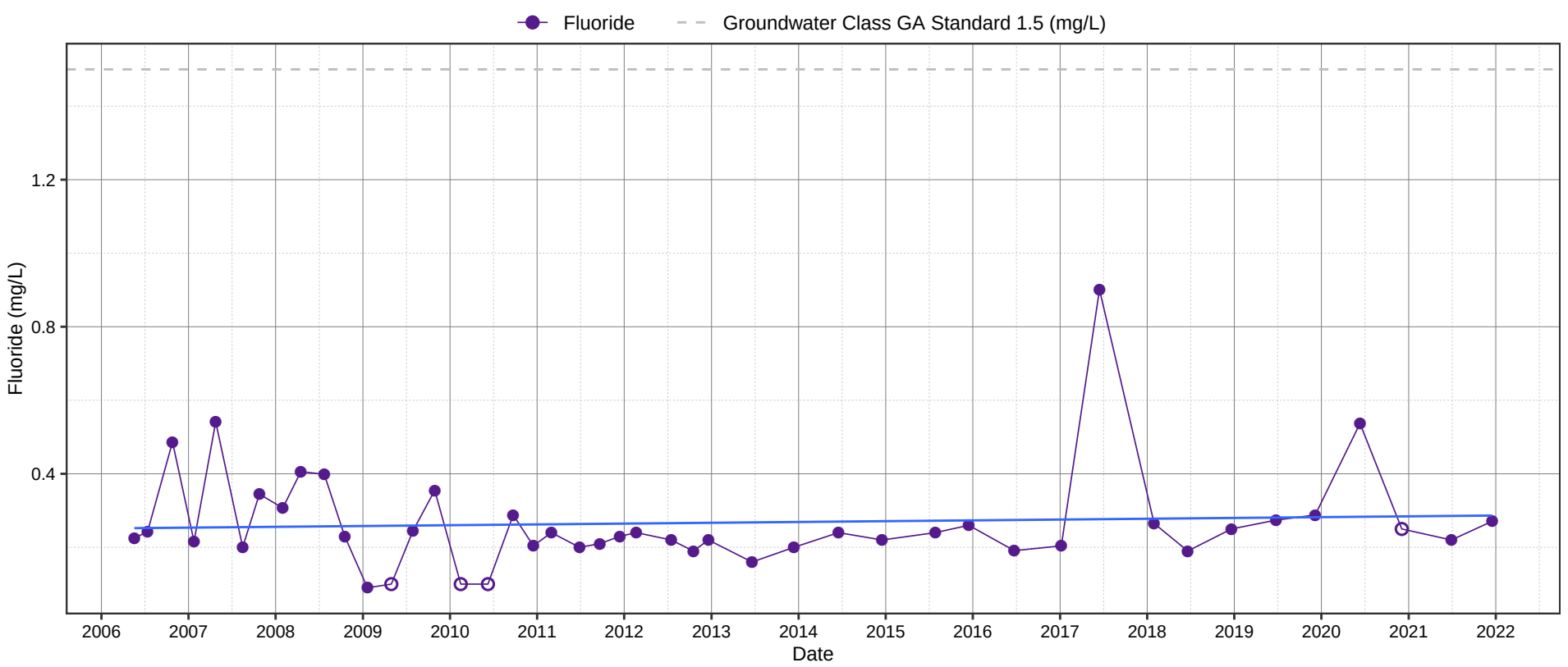
Decreasing



Mann−Kendall p−value < 0.001

MW−43

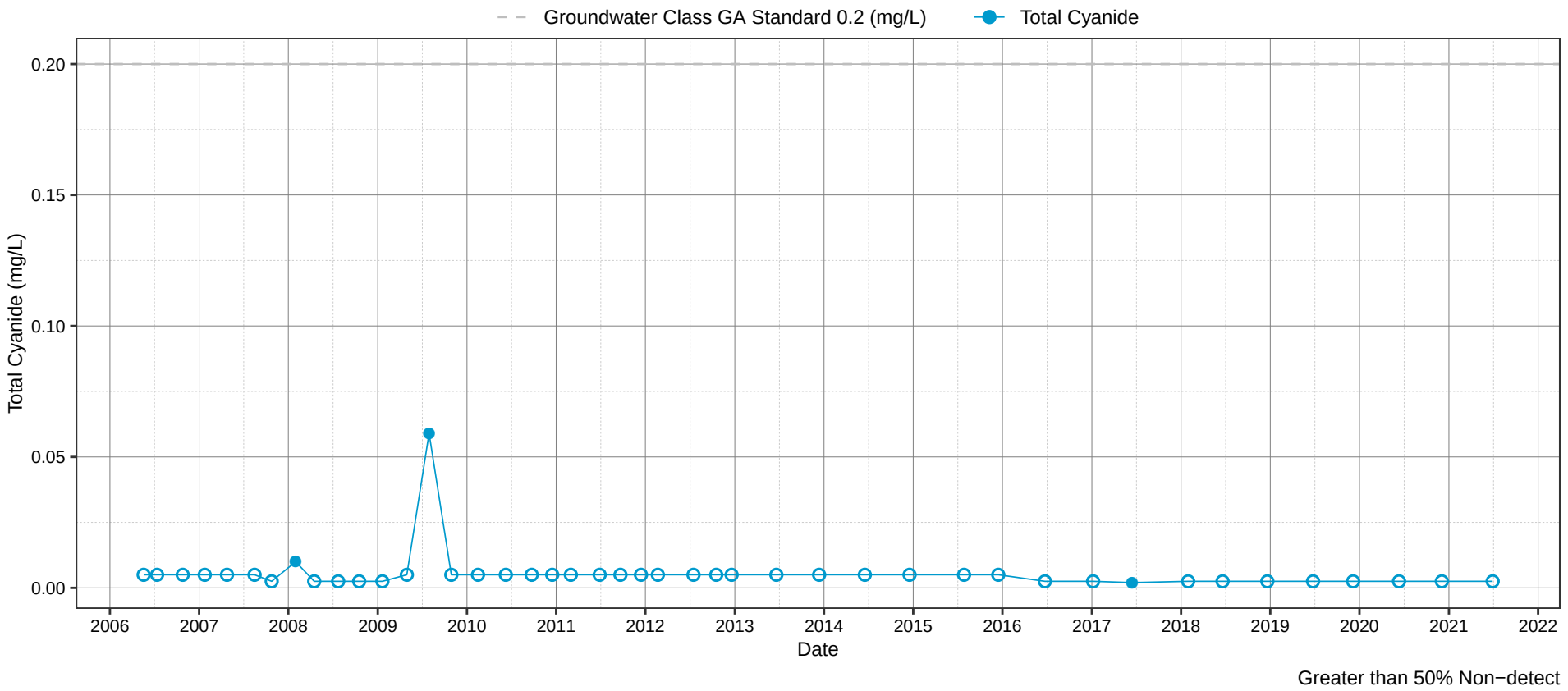
No Trend



Mann−Kendall p−value =0.852

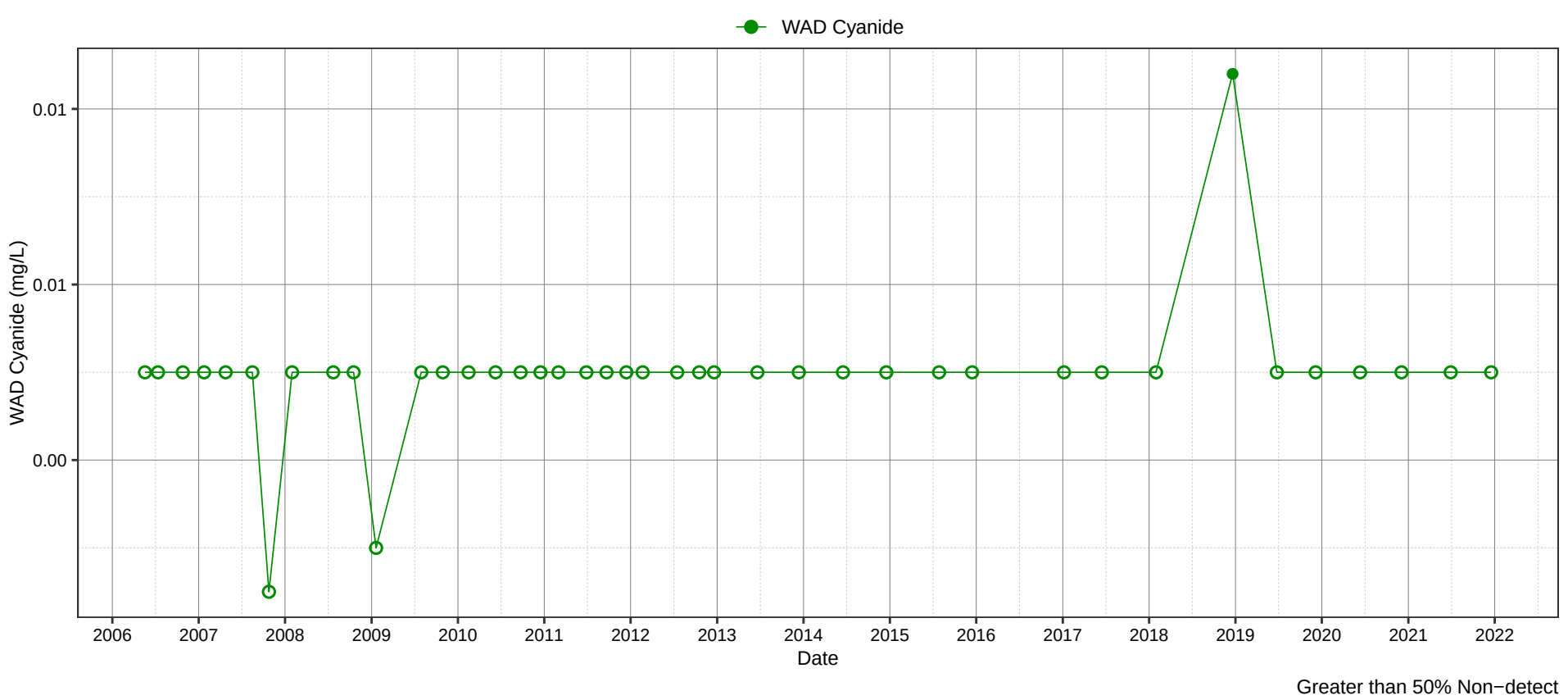
MW−43

No Trend



Greater than 50% Non−detect

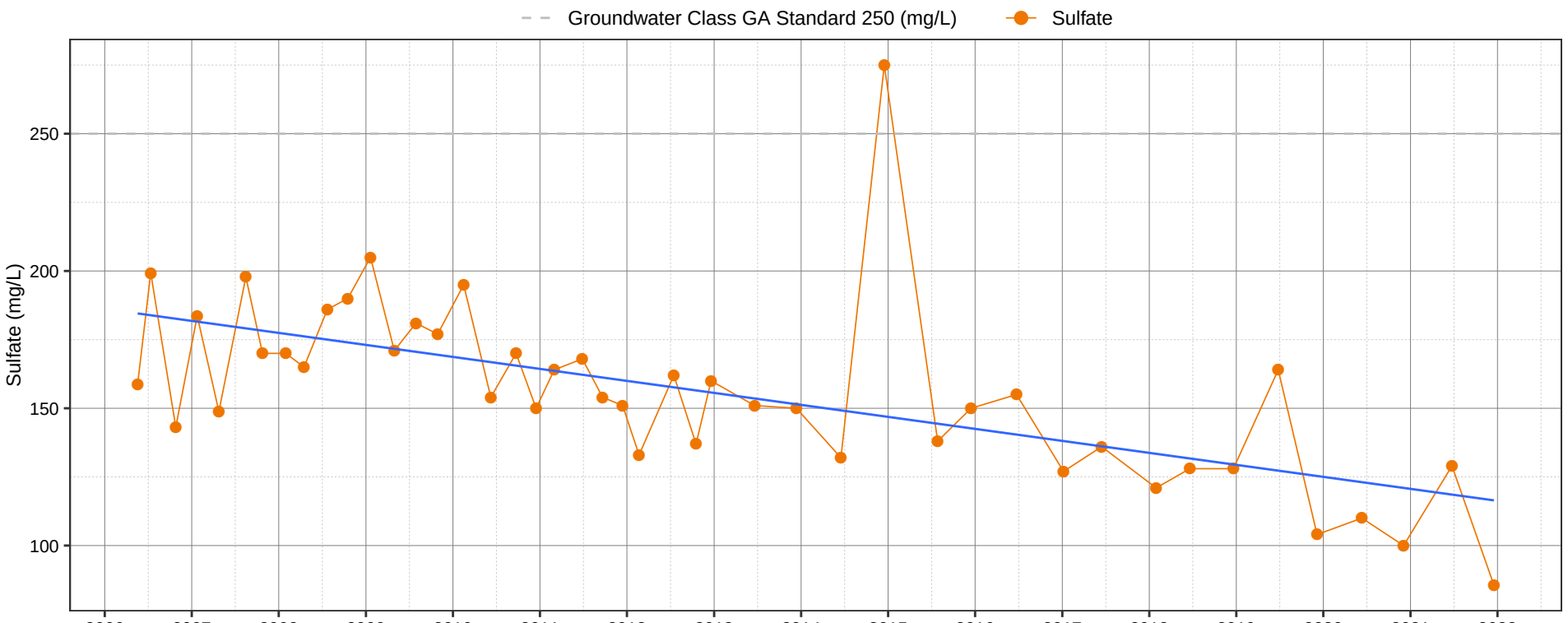
Well MW−43
Former Potliner Storage Pad
(non−detects plotted as open symbols at half the method detection limit)



Well MW−44
Former Potliner Storage Pad
(non−detects plotted as open symbols at half the method detection limit)

MW−44

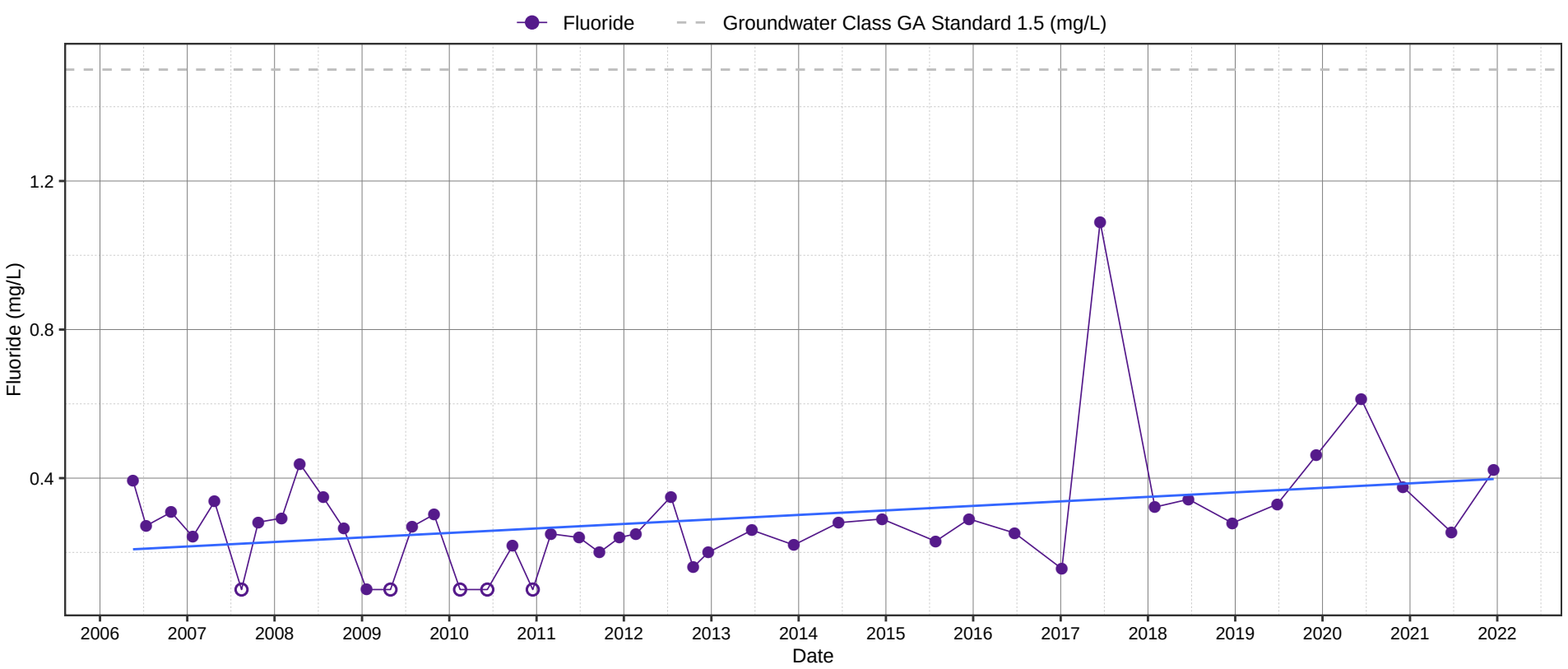
Decreasing



Mann−Kendall p−value < 0.001

MW−44

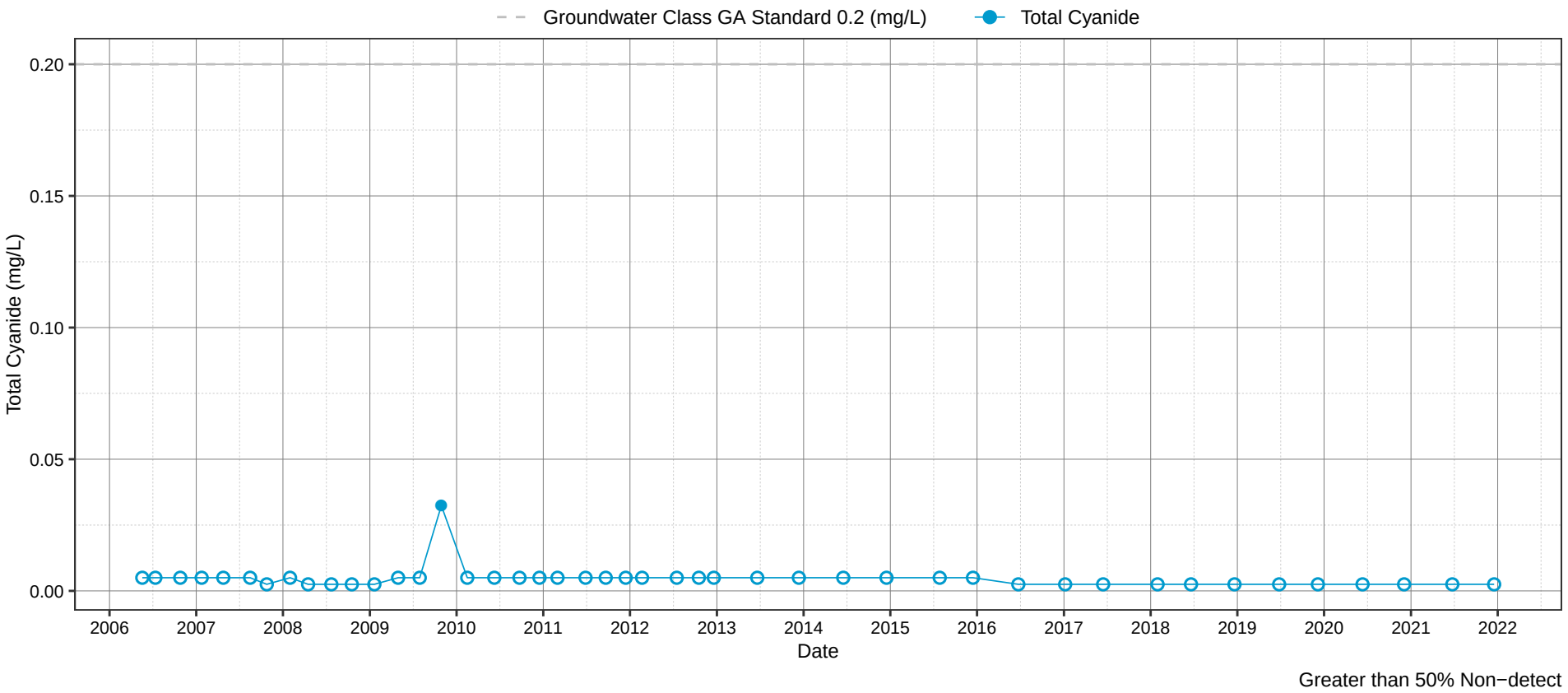
No Trend



Mann−Kendall p−value =0.088

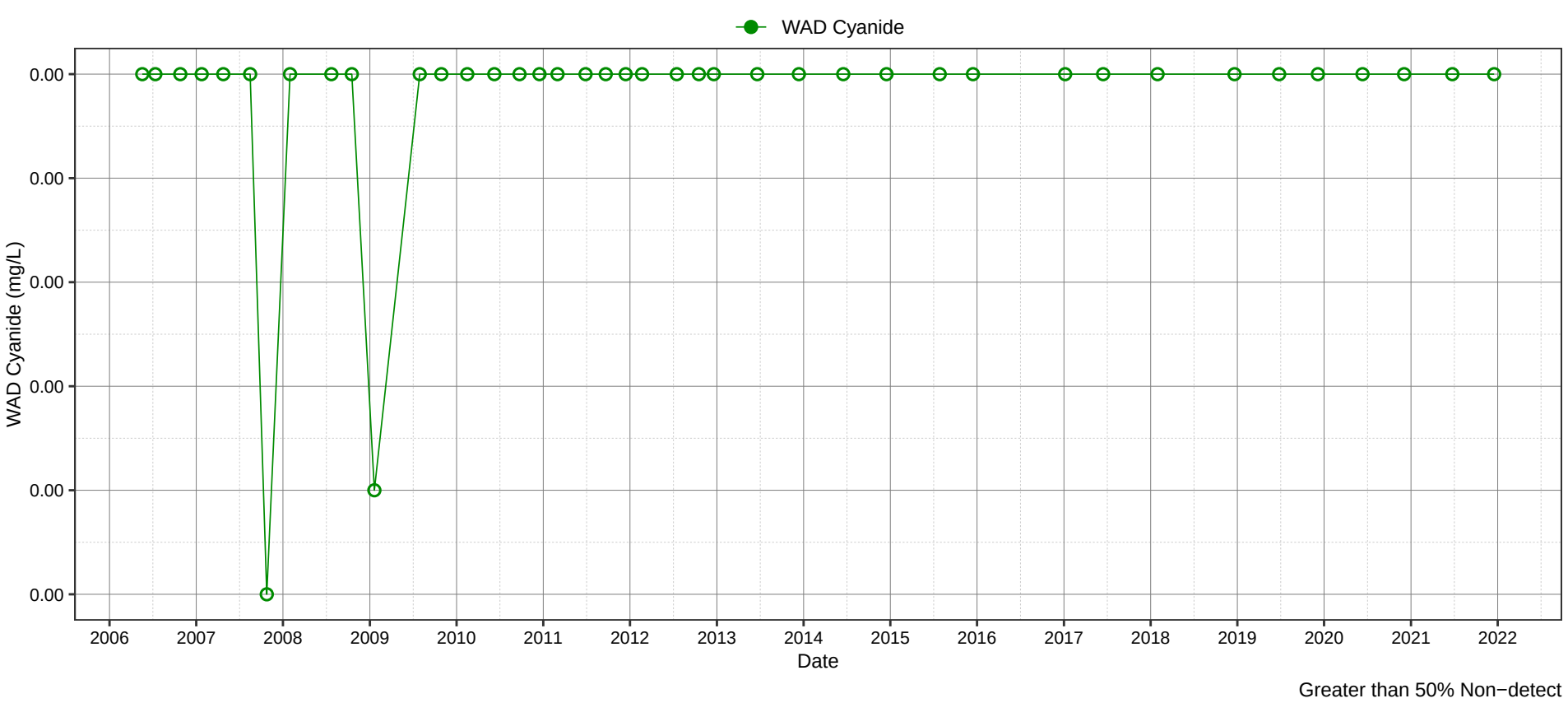
MW−44

No Trend



Greater than 50% Non−detect

Well MW−44
Former Potliner Storage Pad
(non−detects plotted as open symbols at half the method detection limit)

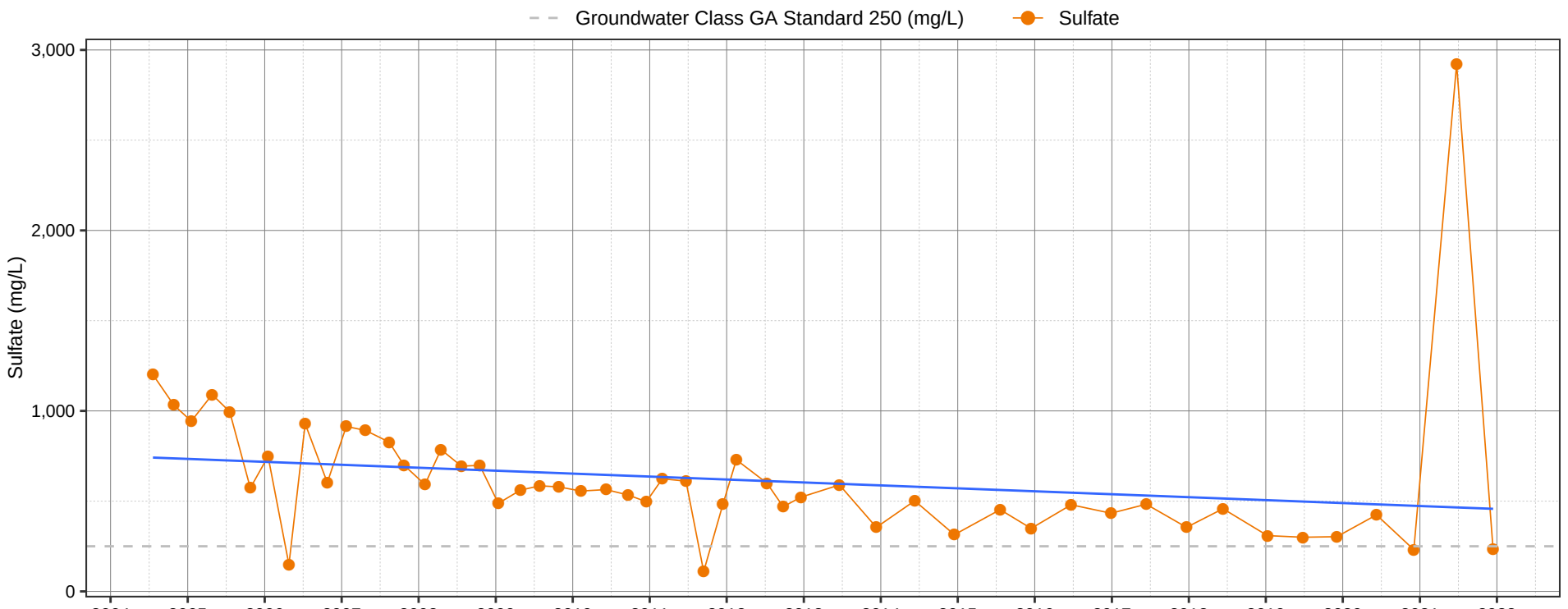


Appendix D2 Revised

Well MW−11SR
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

MW−11SR

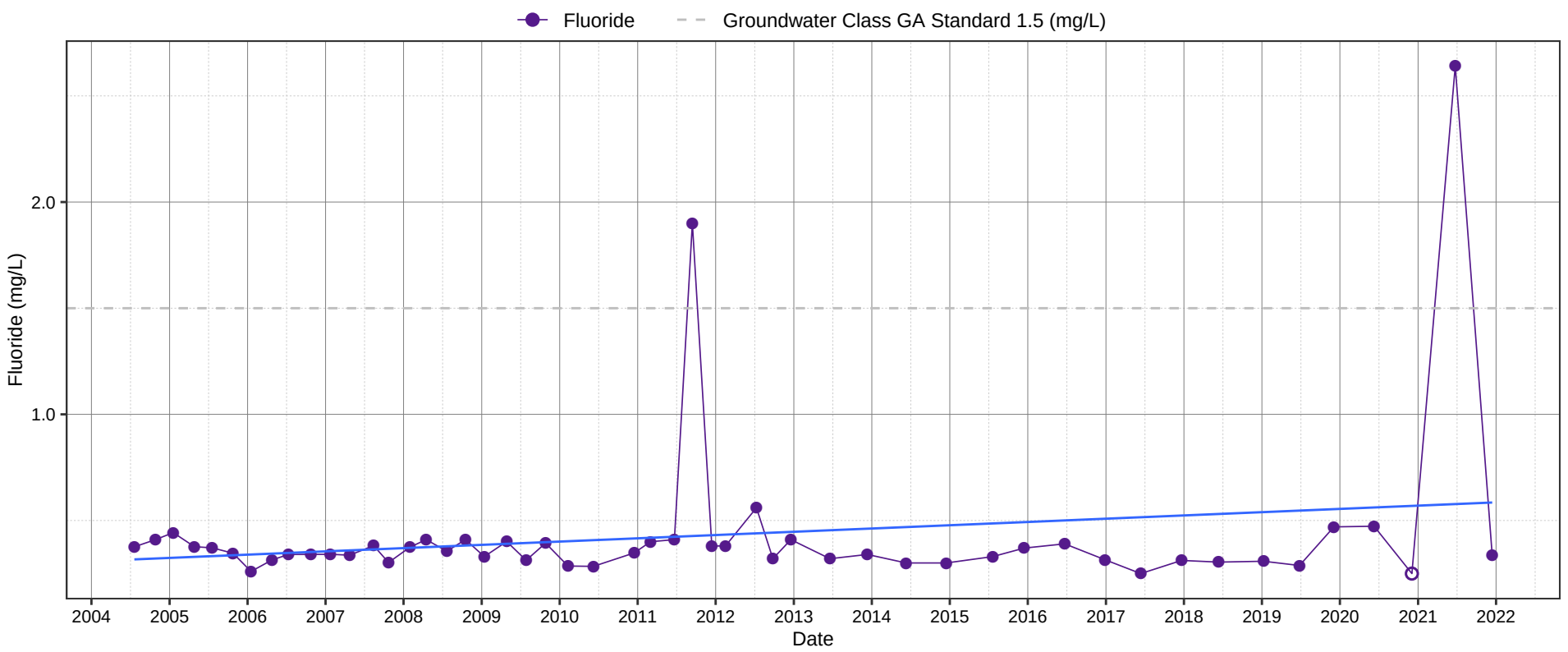
Decreasing



Mann−Kendall p−value < 0.001

MW−11SR

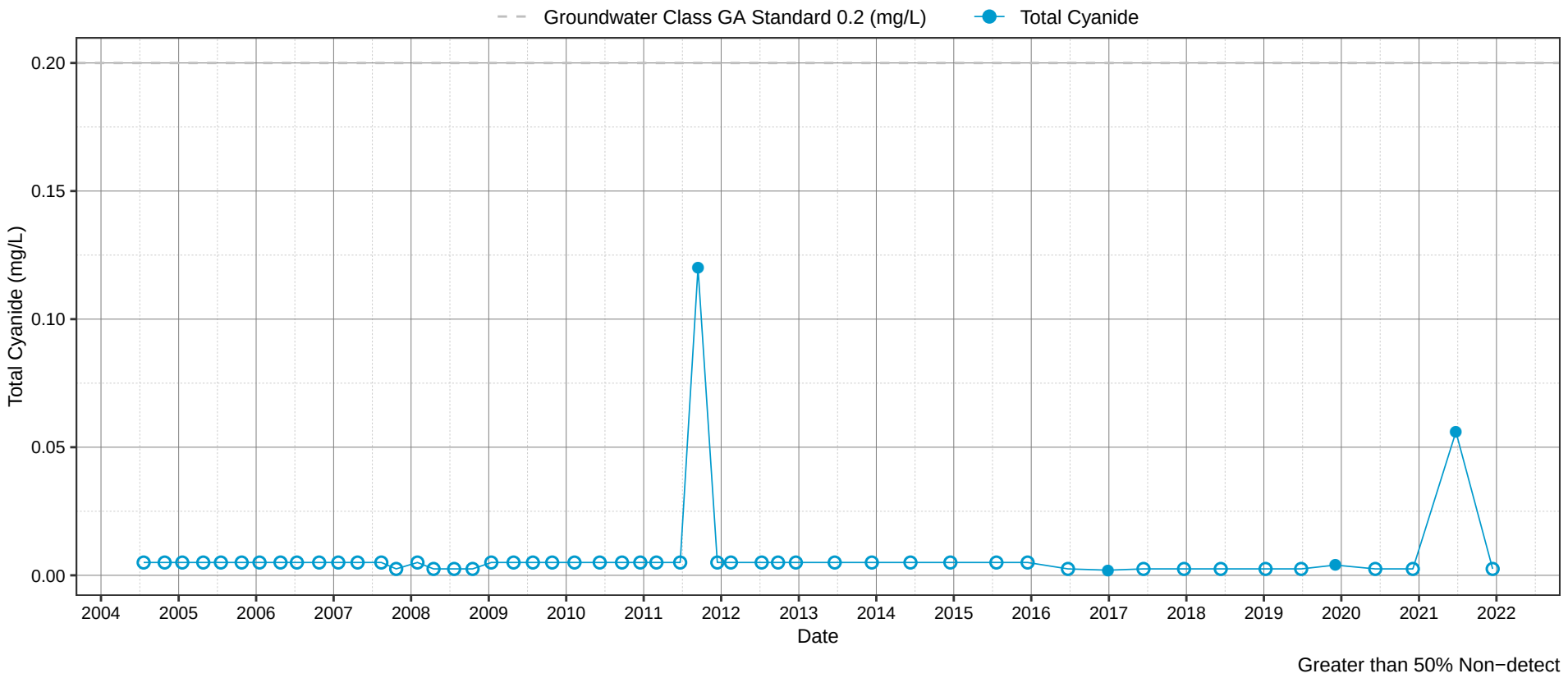
No Trend



Mann−Kendall p−value =0.236

MW−11SR

No Trend

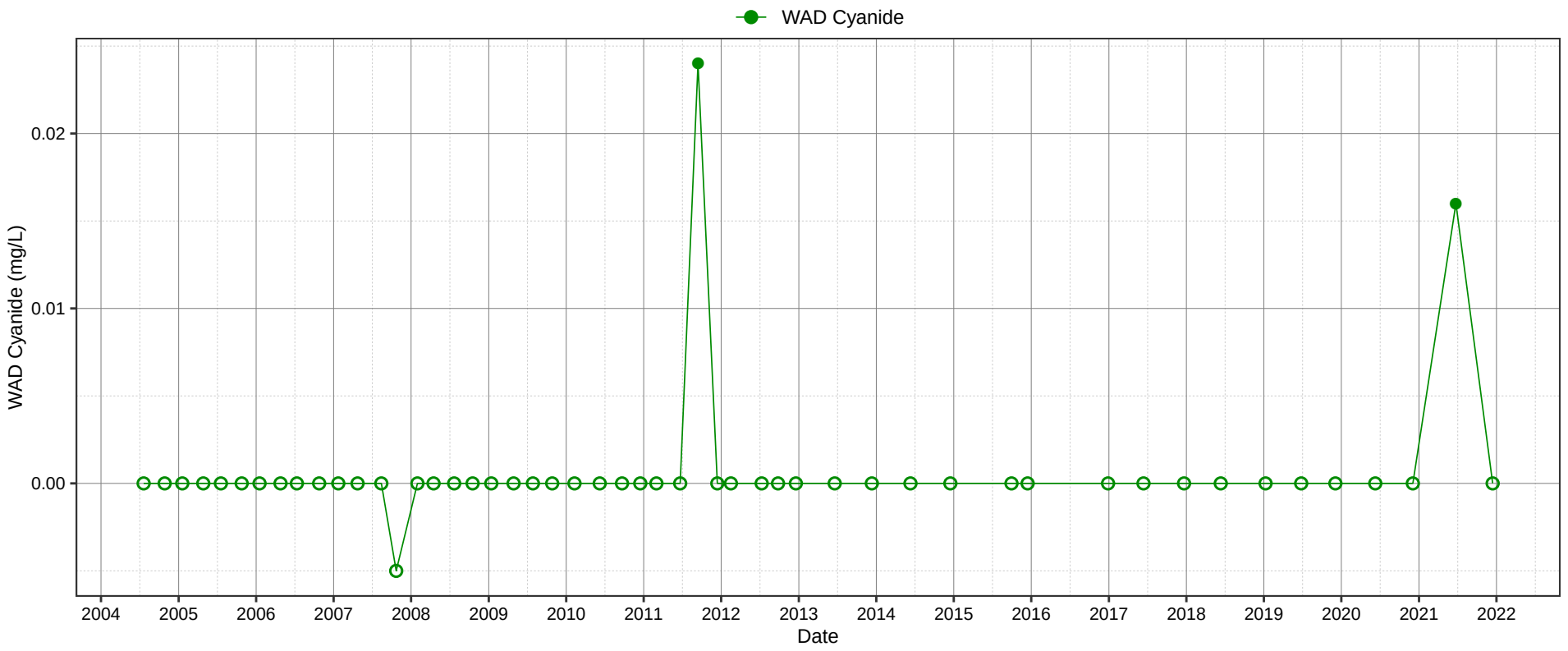


Greater than 50% Non−detect

Well MW−11SR
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

MW−11SR

No Trend

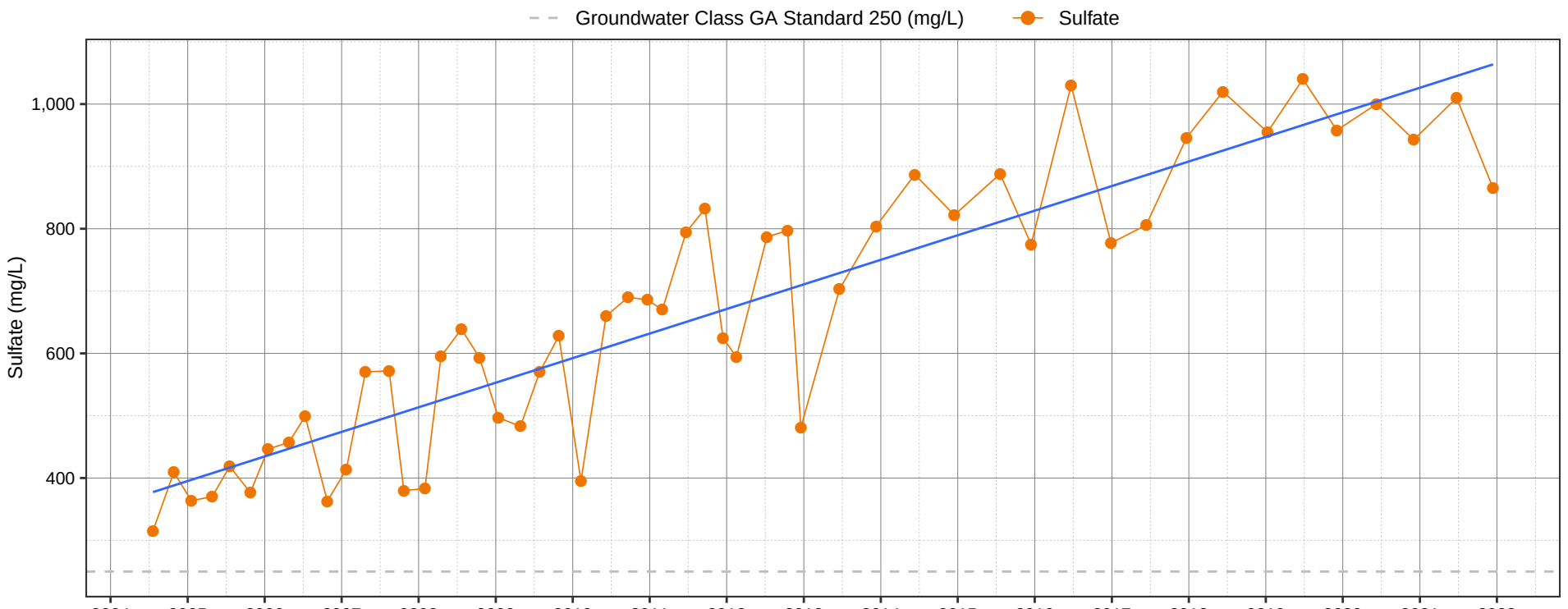


Greater than 50% Non−detect

Well MW−12S
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

MW−12S

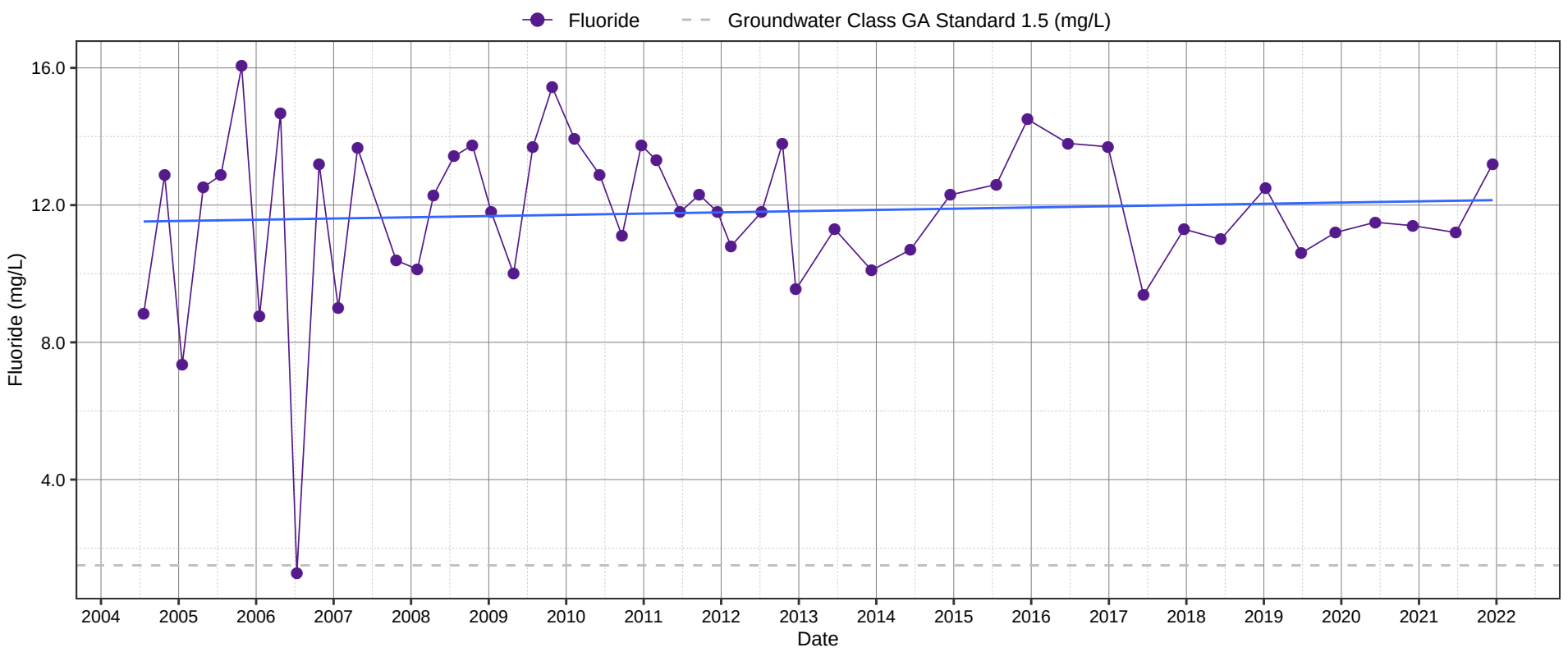
Increasing



Mann−Kendall p−value < 0.001

MW−12S

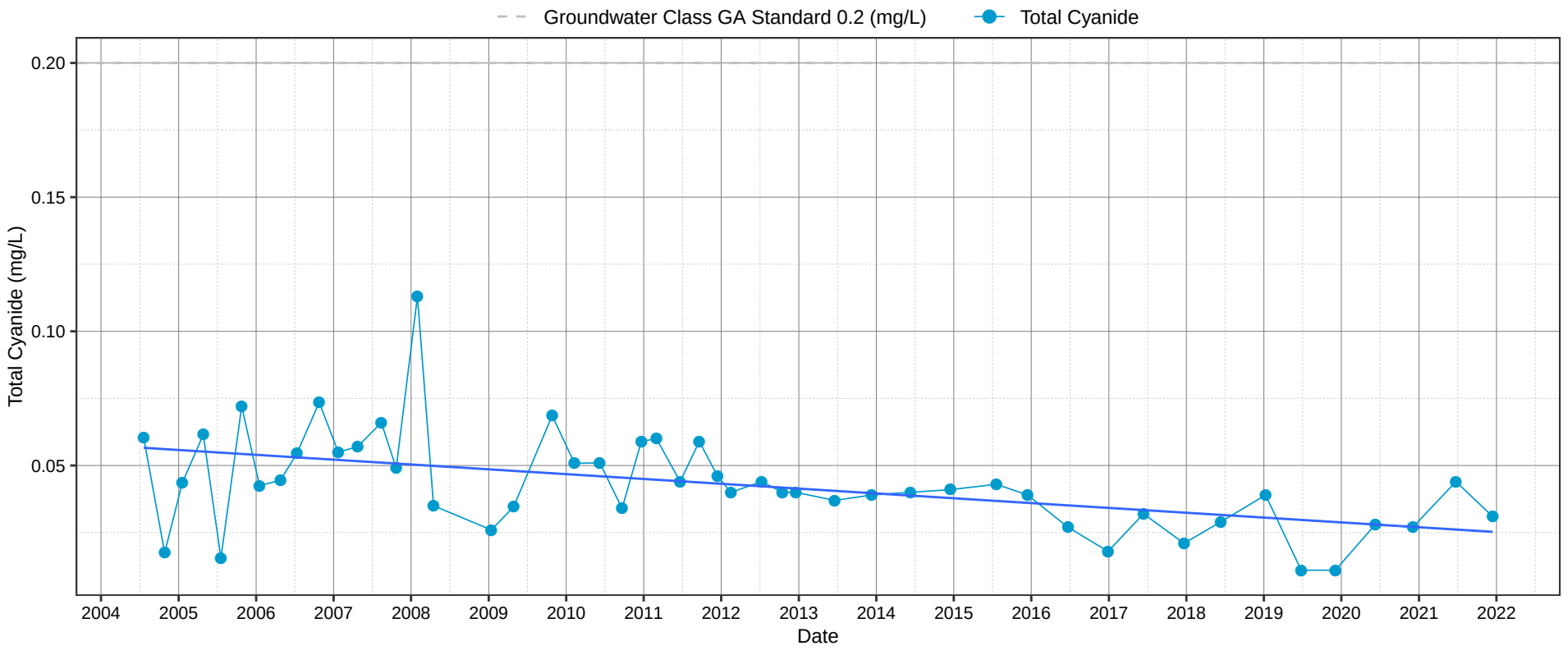
No Trend



Mann−Kendall p−value =0.871

MW−12S

Decreasing

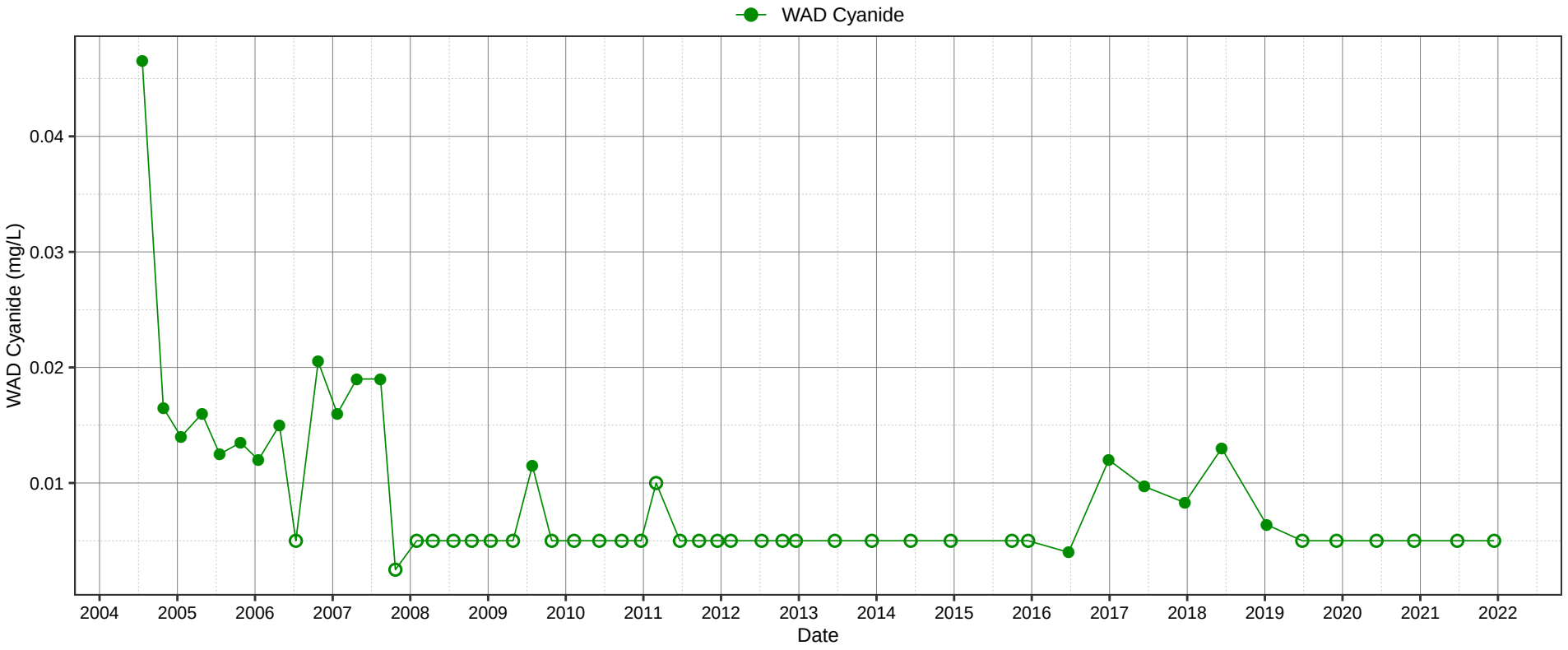


Mann−Kendall p−value < 0.001

Well MW−12S
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

MW−12S

No Trend

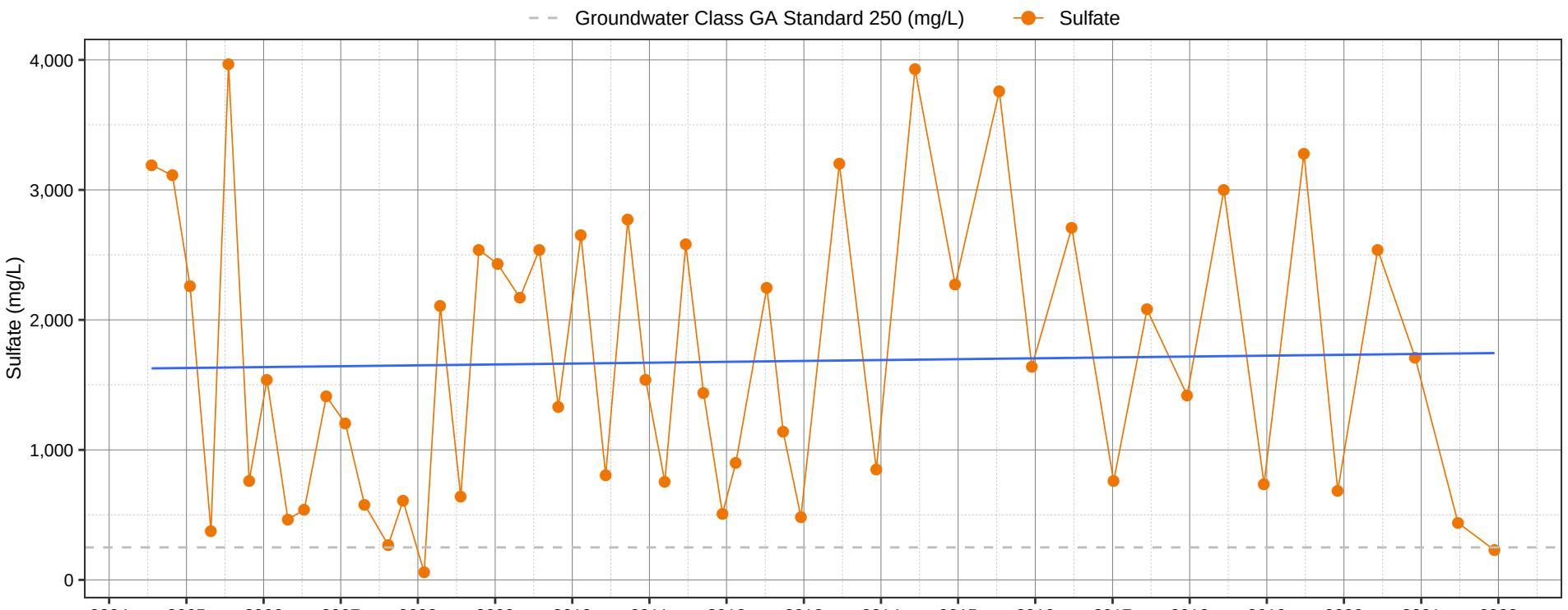


Greater than 50% Non−detect

Well MW−13S
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

MW−13S

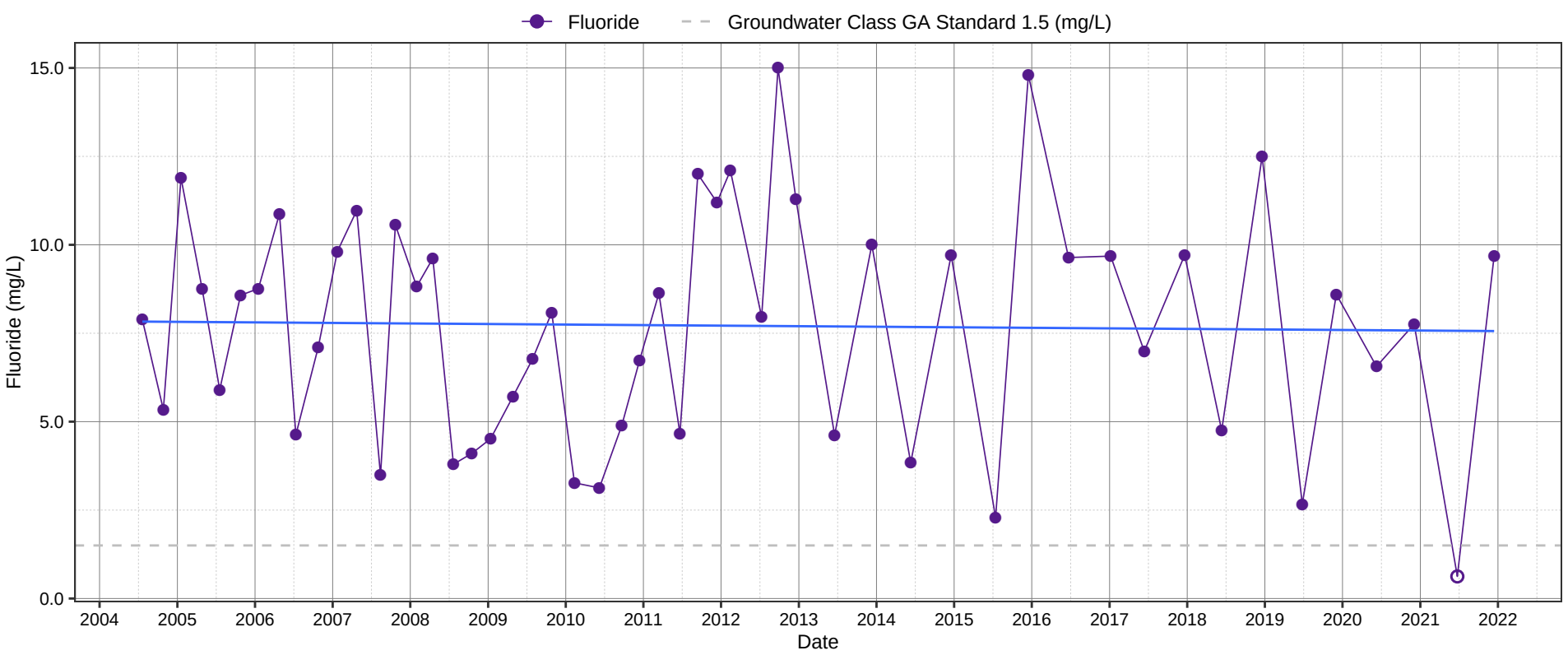
No Trend



Mann−Kendall p−value =0.659

MW−13S

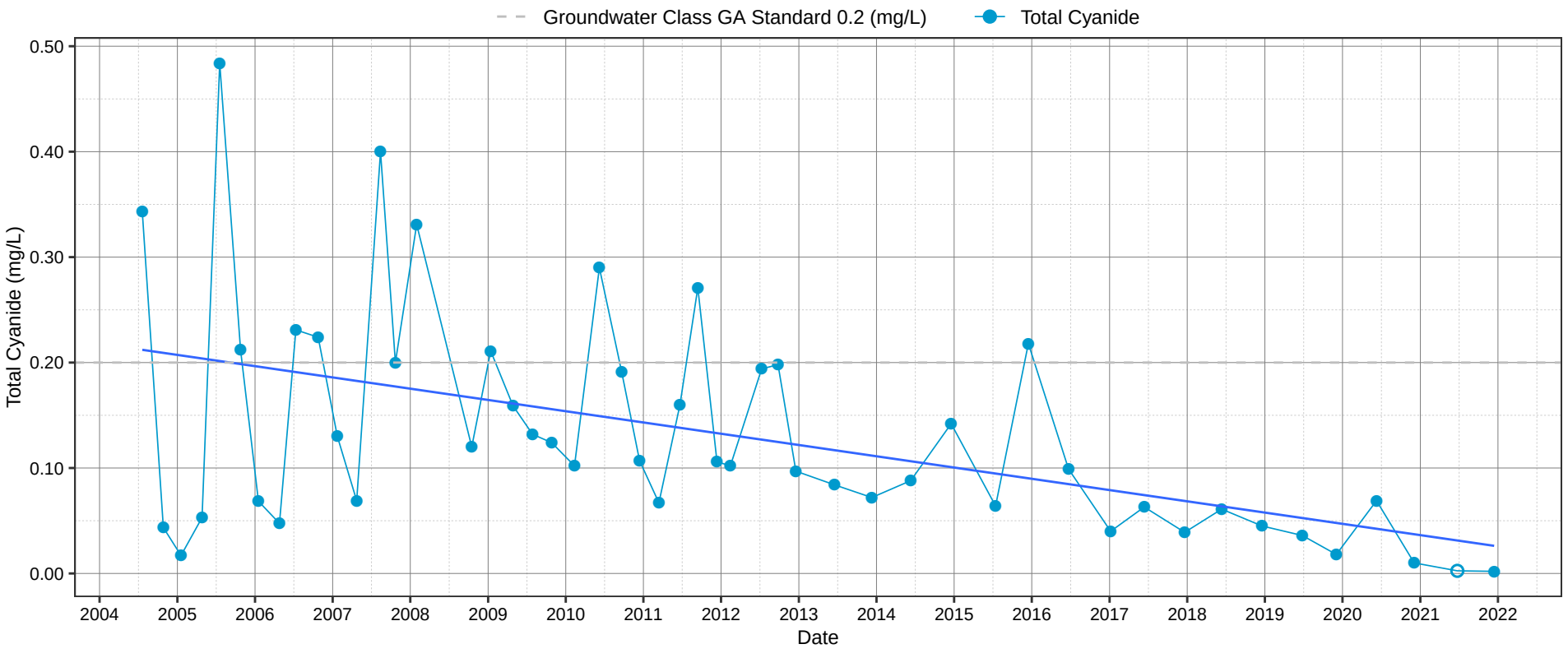
No Trend



Mann−Kendall p−value =0.975

MW−13S

Decreasing

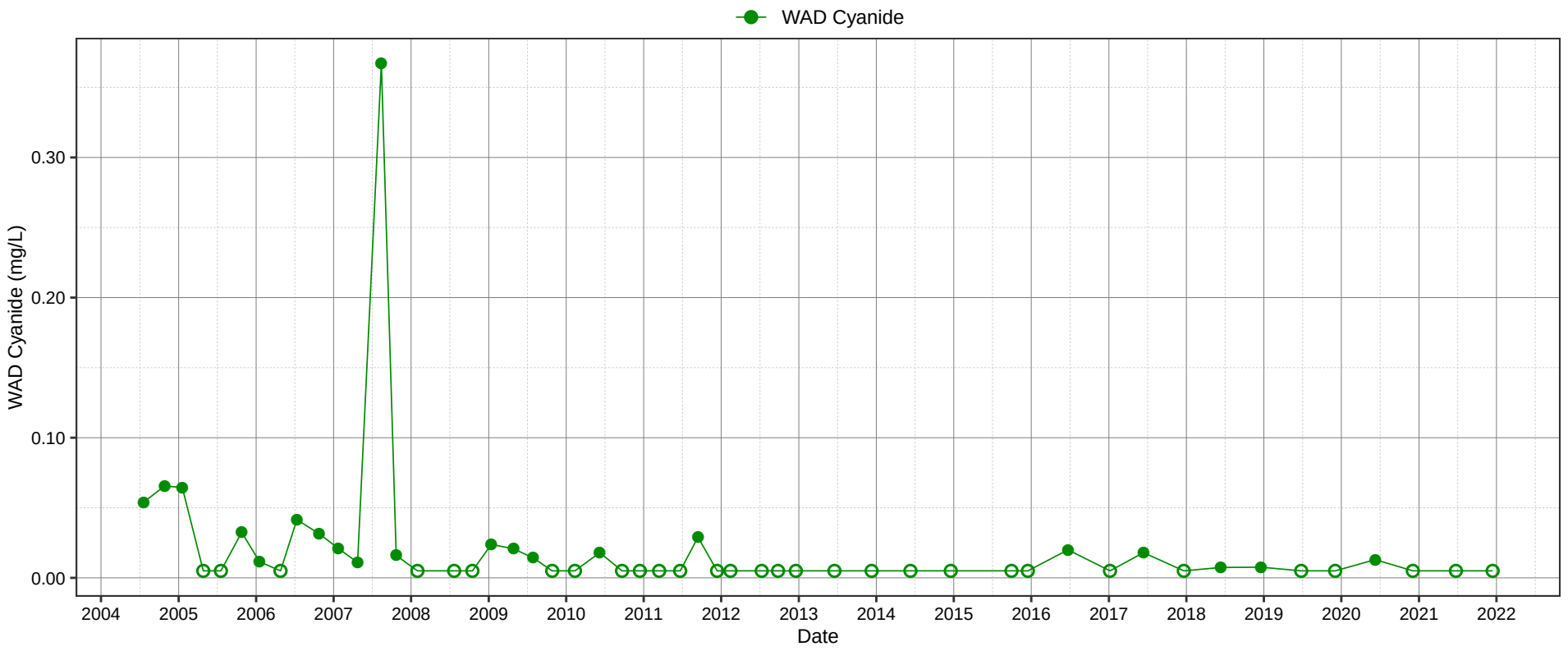


Mann−Kendall p−value < 0.001

Well MW−13S
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

MW−13S

No Trend

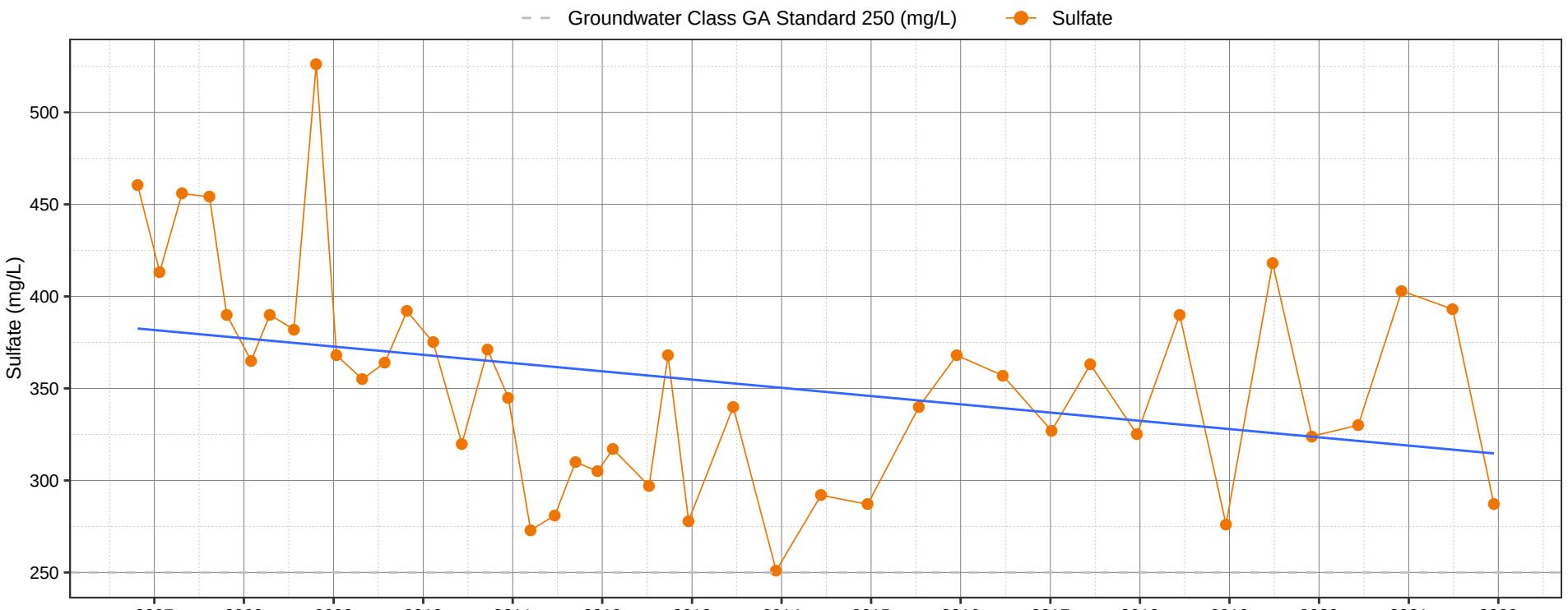


Greater than 50% Non−detect

Well MW−14S
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

MW−14S

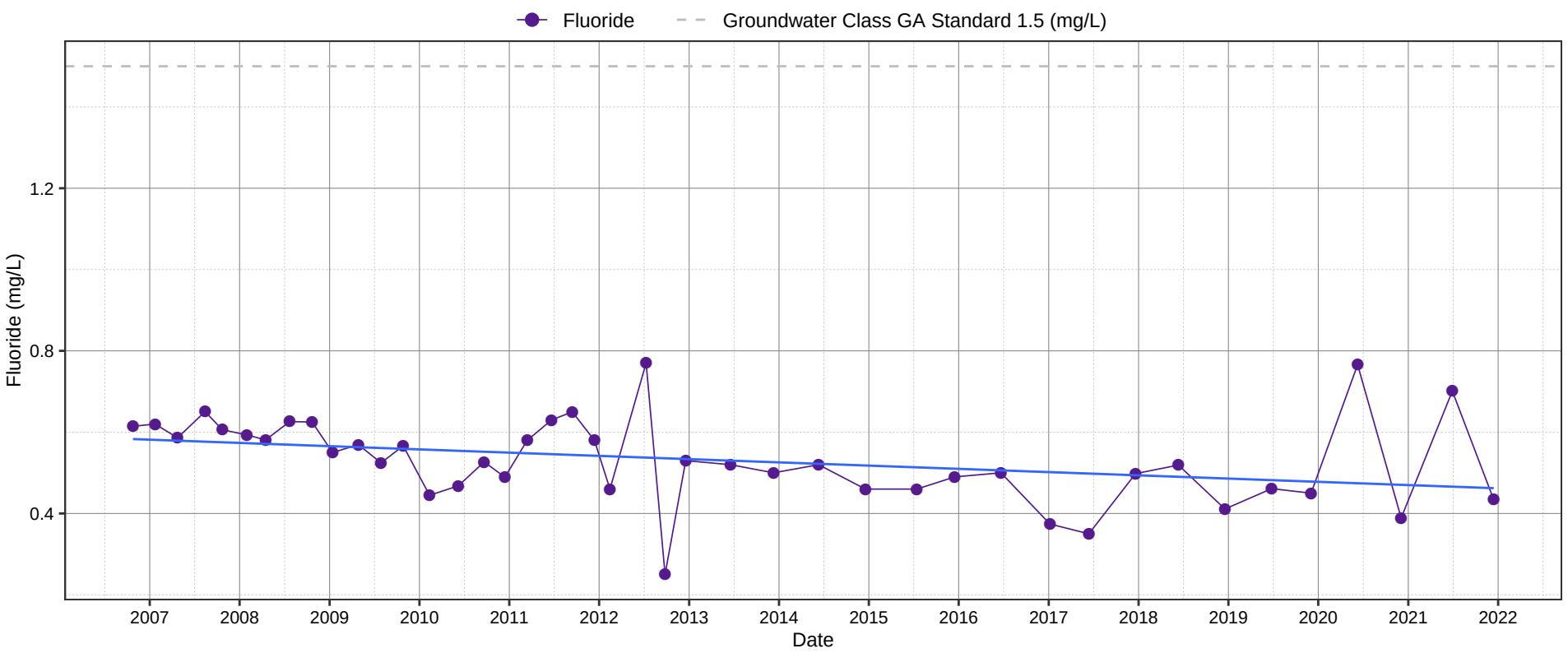
Decreasing



Mann−Kendall p−value =0.005

MW−14S

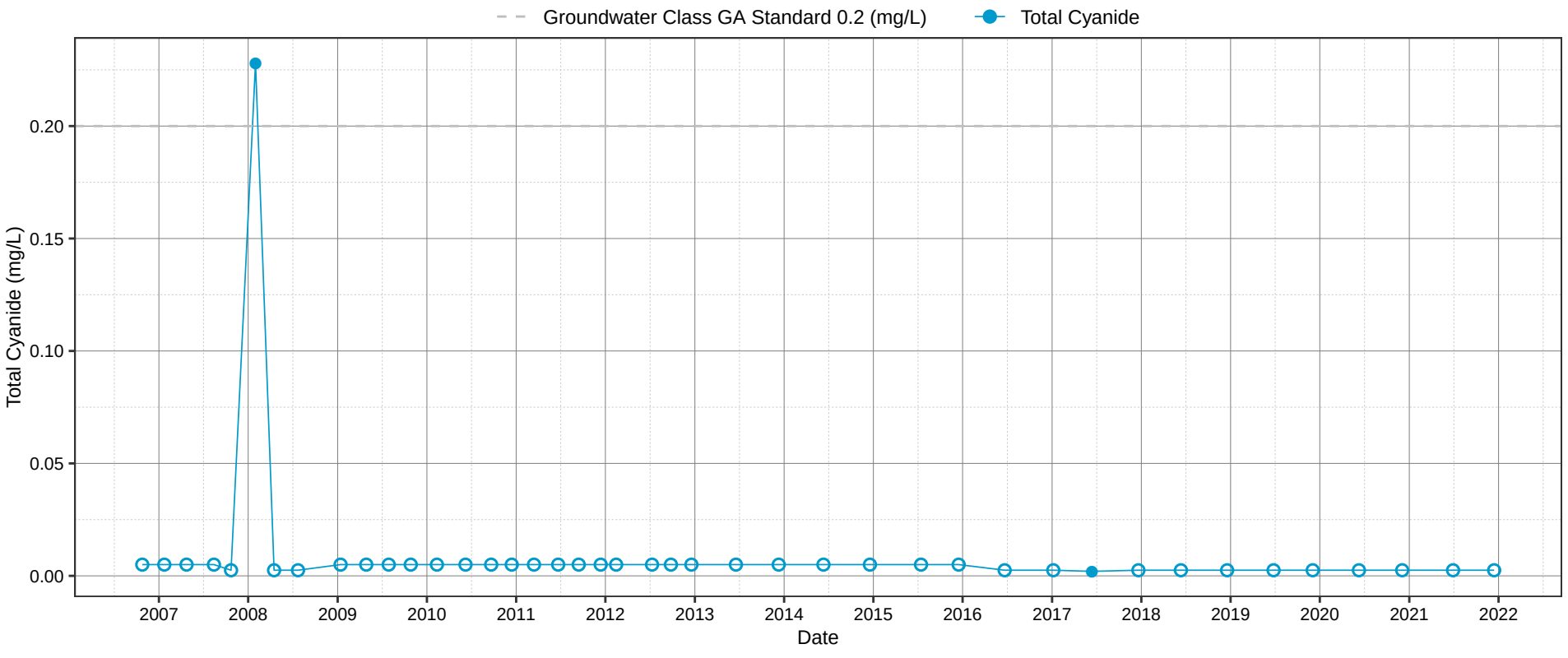
Decreasing



Mann−Kendall p−value < 0.001

MW−14S

No Trend

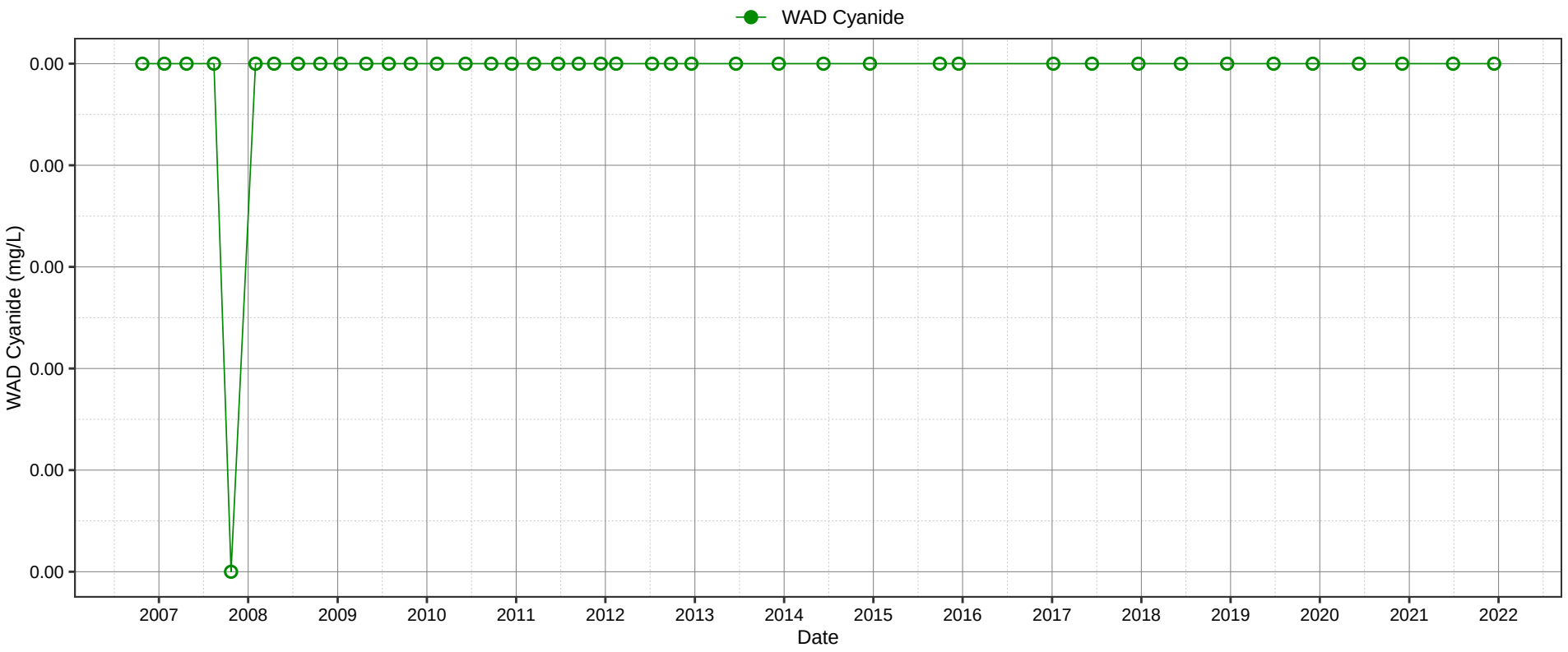


Greater than 50% Non−detect

Well MW−14S
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

MW−14S

No Trend

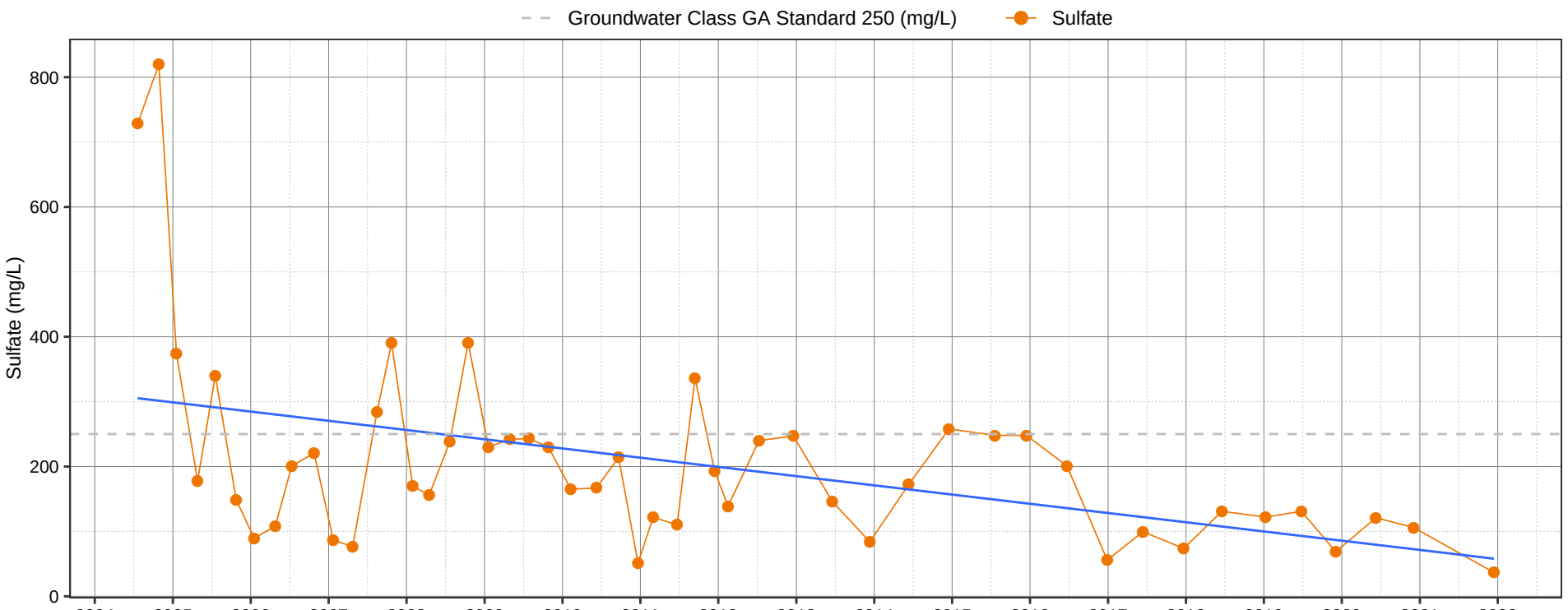


Greater than 50% Non−detect

Well MW−15S−87
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

MW−15S−87

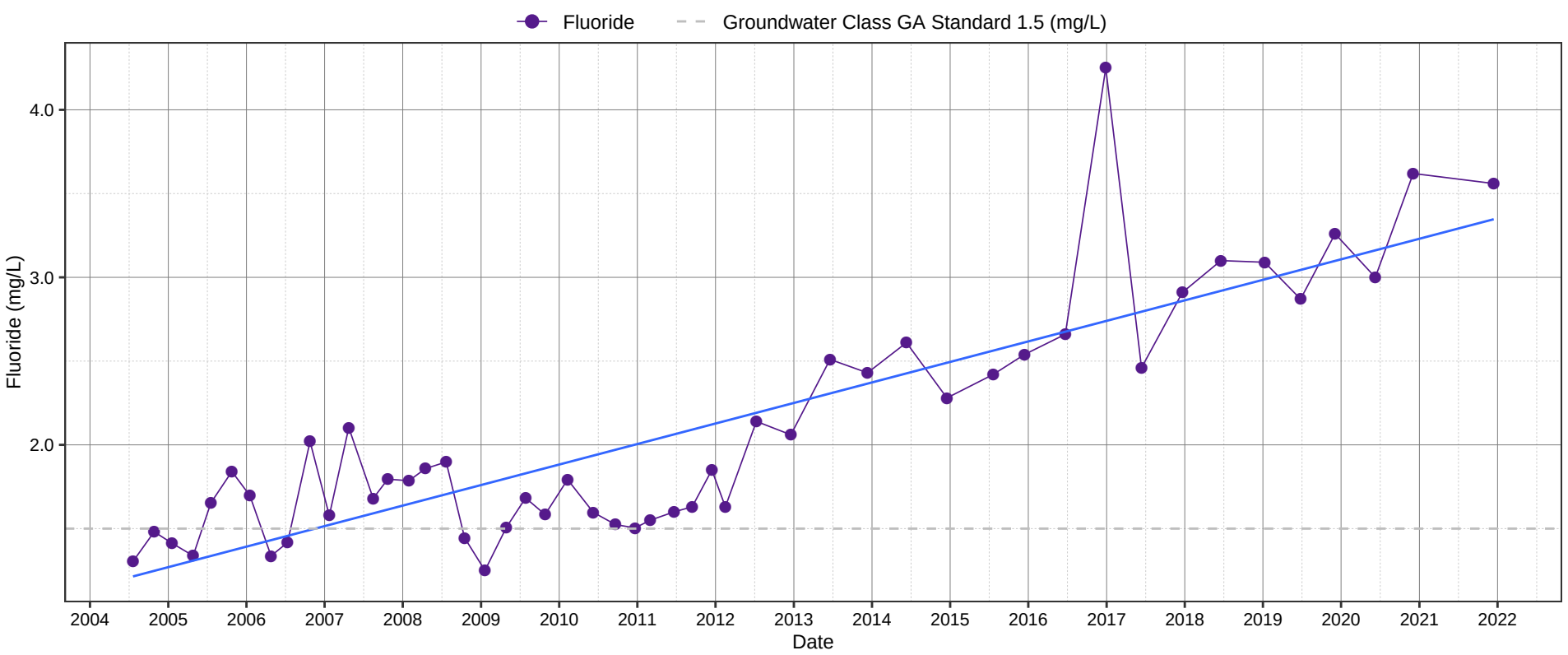
Decreasing



Mann−Kendall p−value =0.002

MW−15S−87

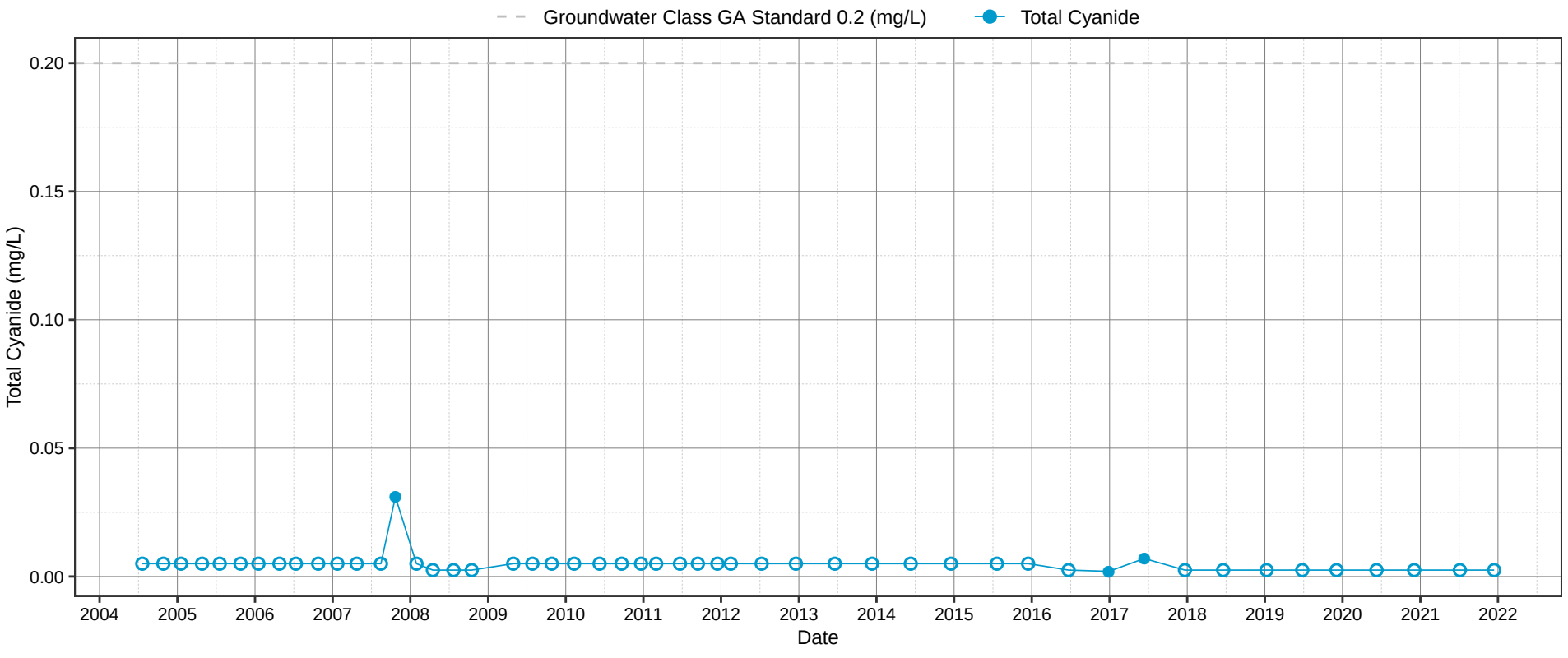
Increasing



Mann−Kendall p−value < 0.001

MW−15S−87

No Trend

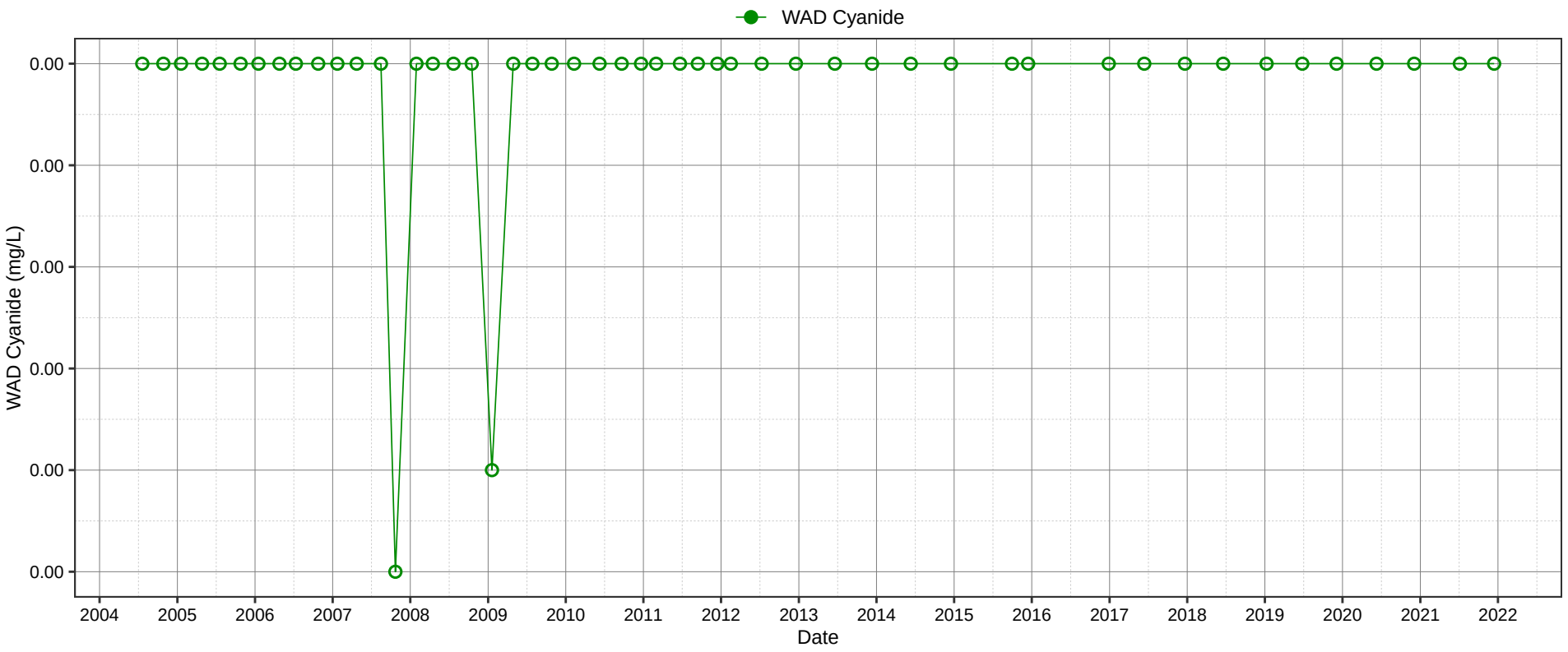


Greater than 50% Non−detect

Well MW−15S−87
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

MW−15S−87

No Trend

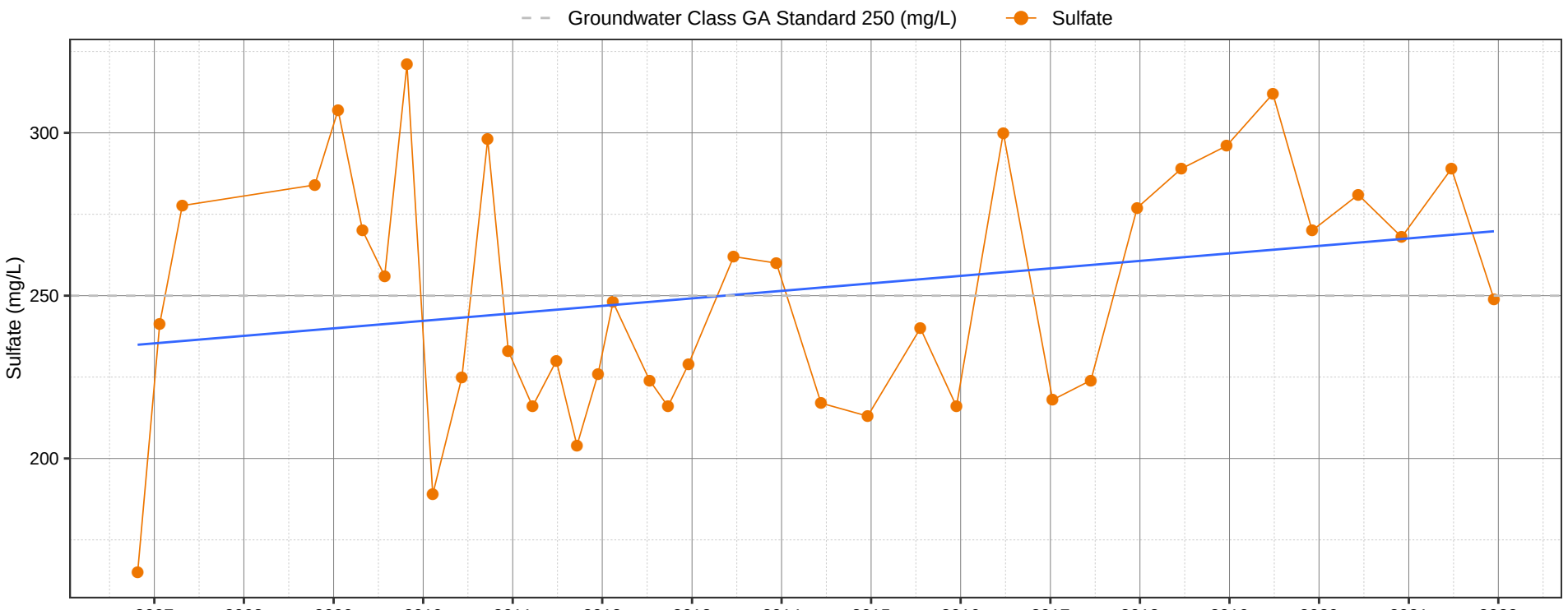


Greater than 50% Non−detect

Well MW−20−85−S
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

MW−20−85−S

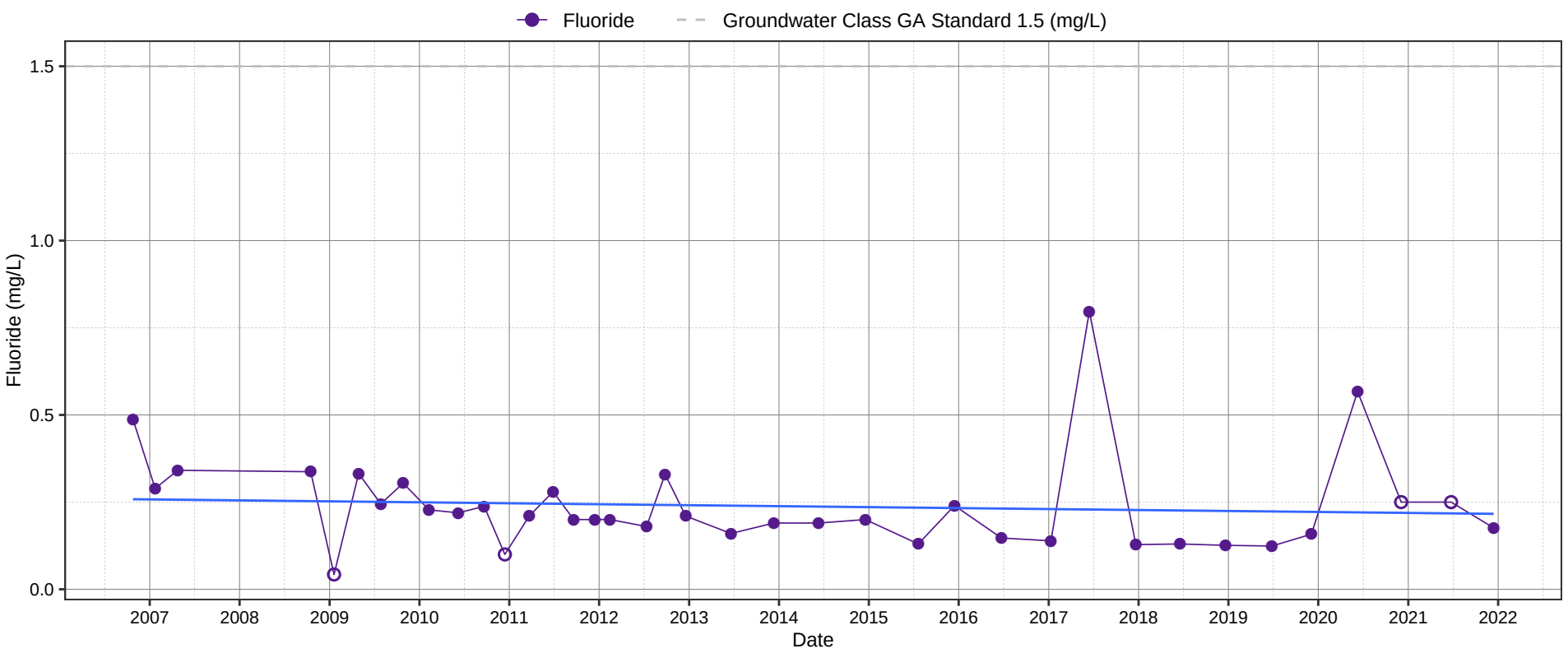
No Trend



Mann−Kendall p−value =0.291

MW−20−85−S

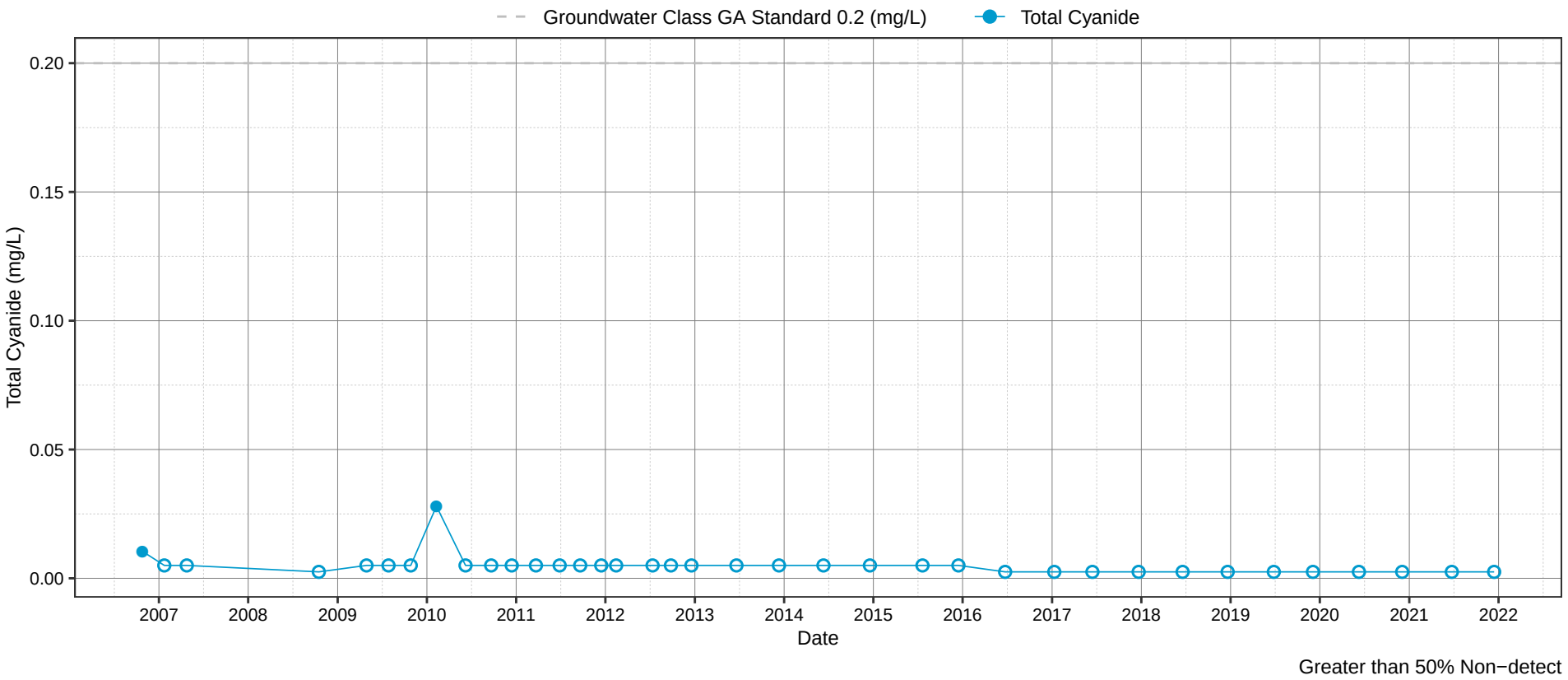
Decreasing



Mann−Kendall p−value =0.004

MW−20−85−S

No Trend

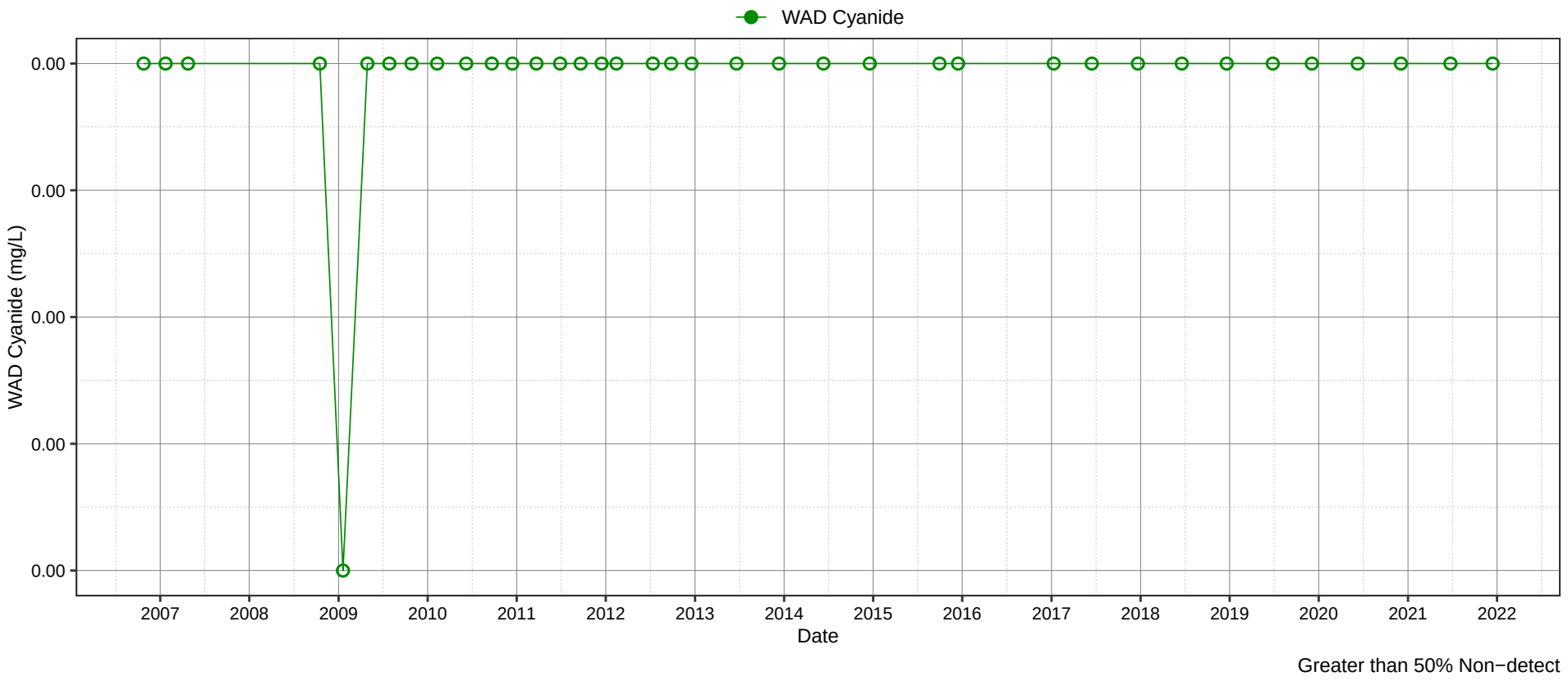


Greater than 50% Non−detect

Well MW−20−85−S
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

MW−20−85−S

No Trend

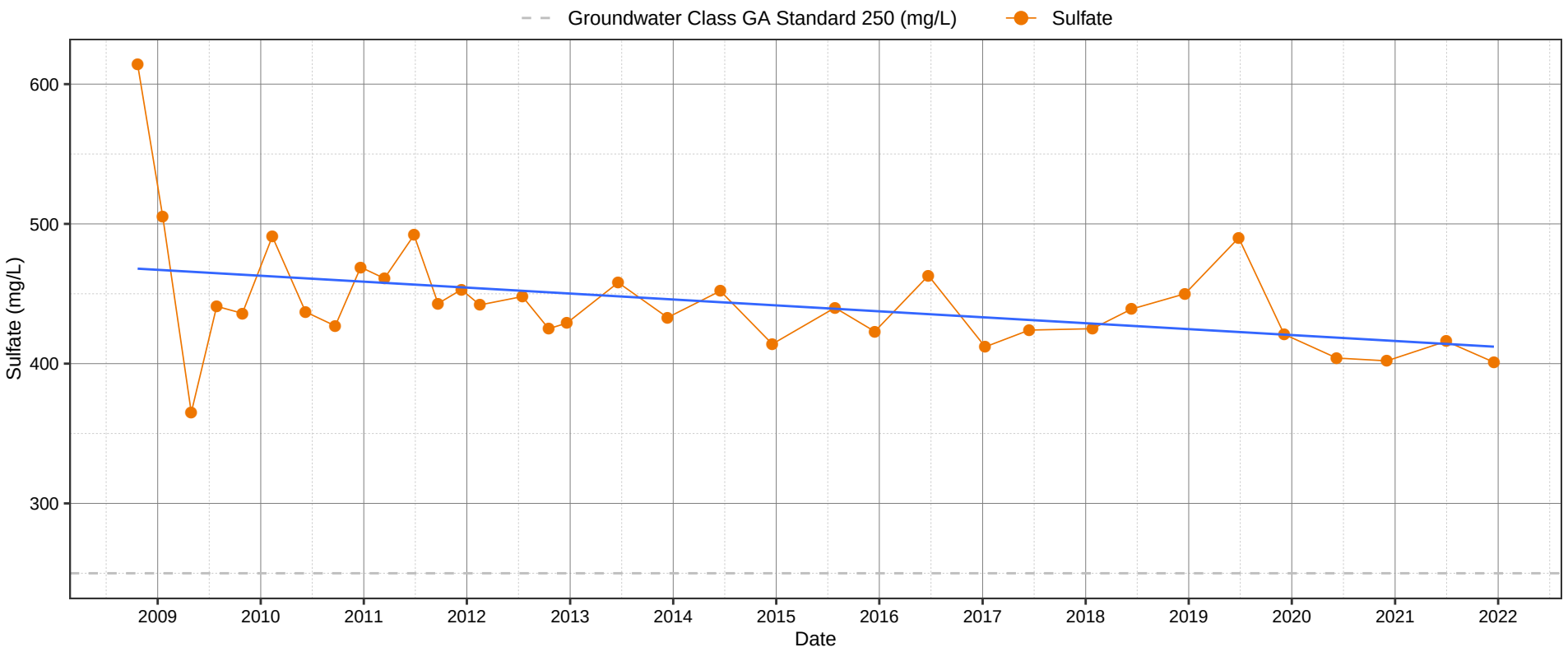


Greater than 50% Non−detect

Well MW−22−85−S
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

MW−22−85−S

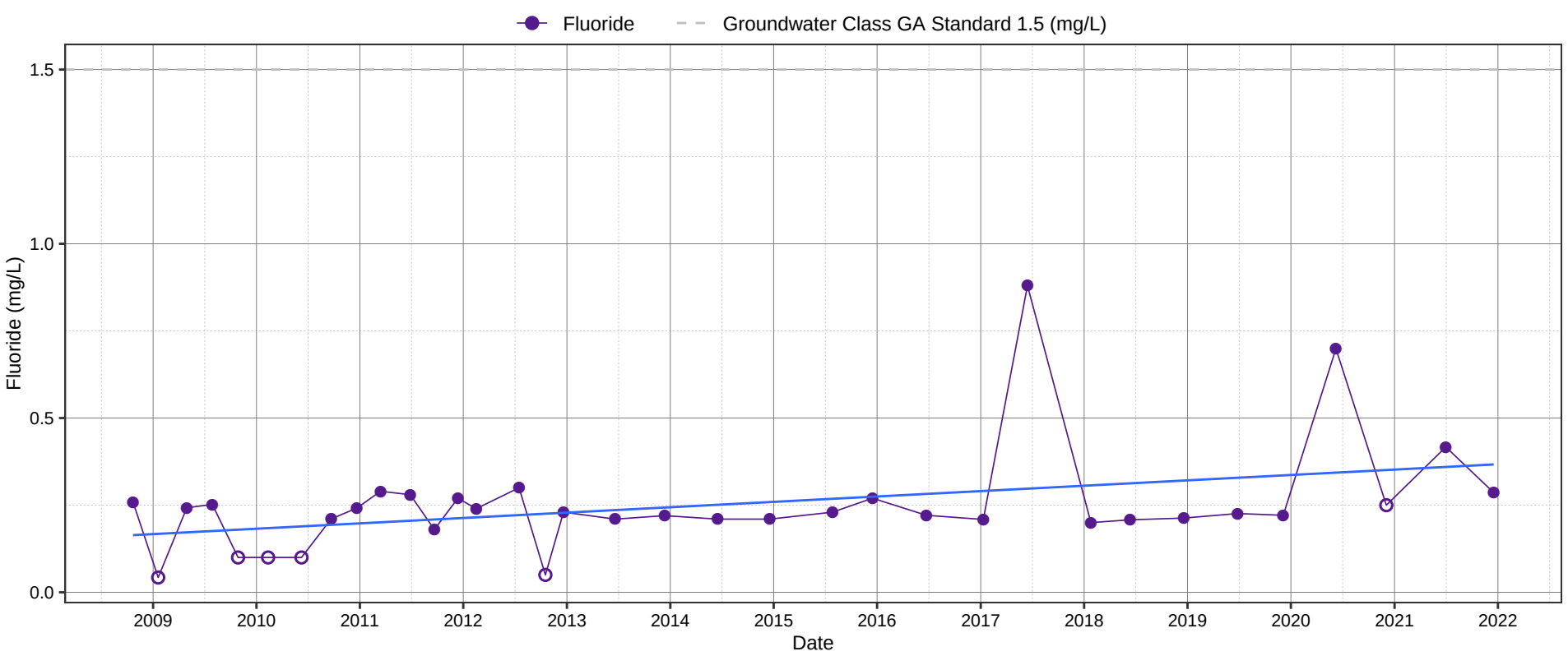
Decreasing



Mann−Kendall p−value =0.001

MW−22−85−S

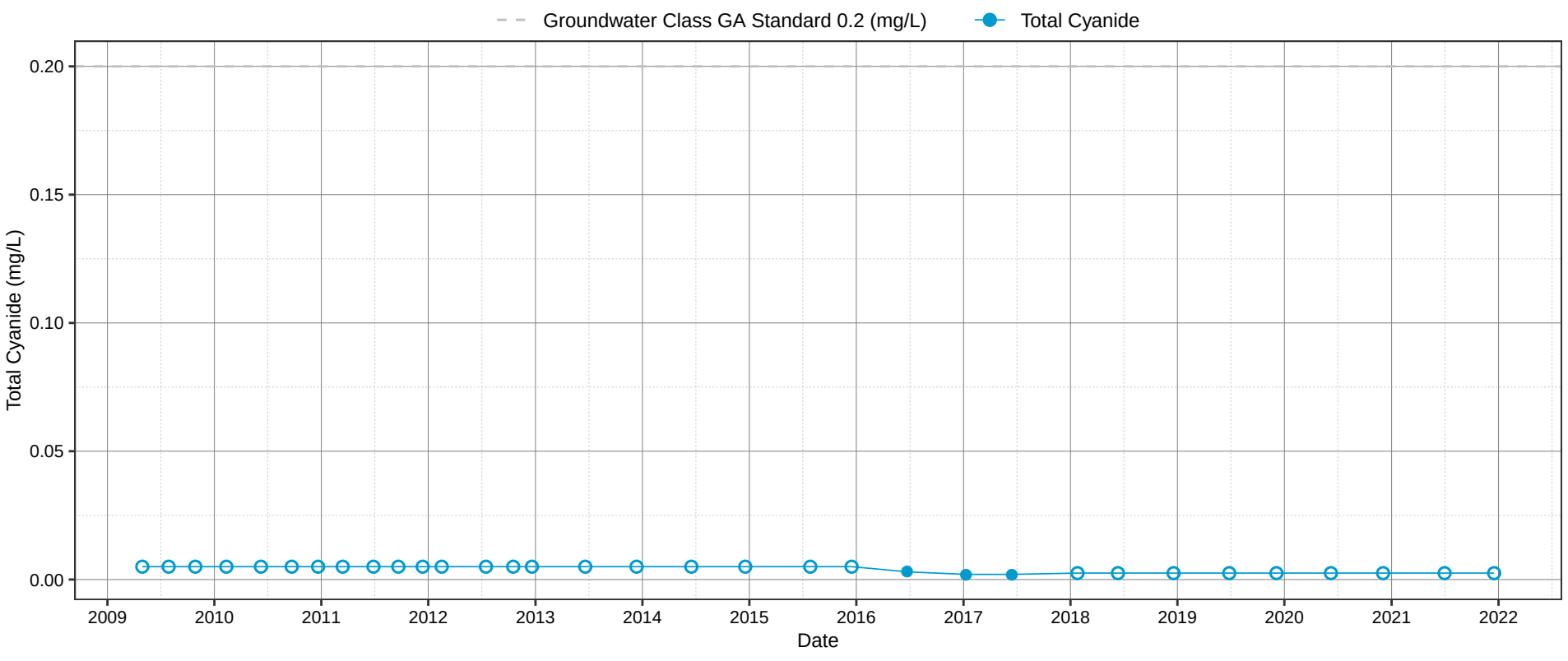
No Trend



Mann−Kendall p−value =0.168

MW−22−85−S

No Trend

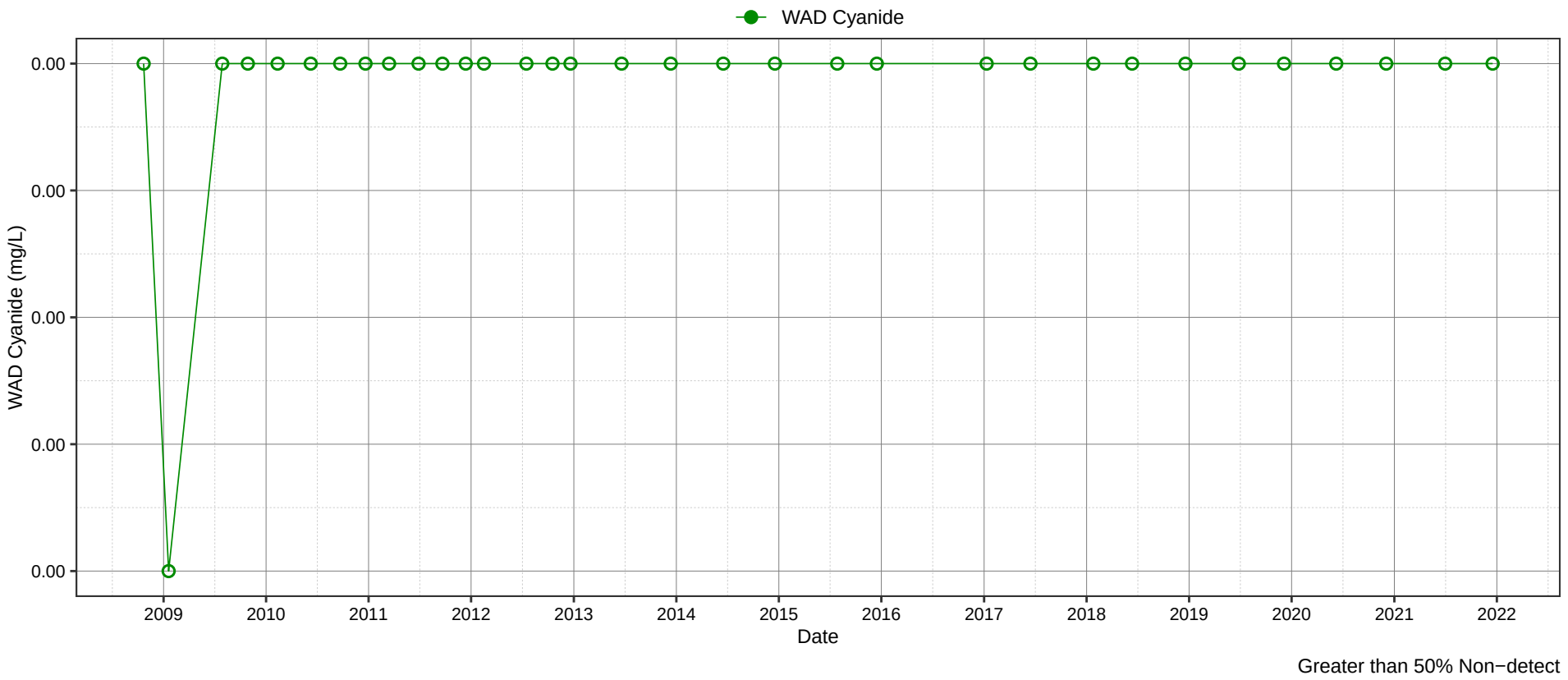


Greater than 50% Non−detect

Well MW−22−85−S
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

MW−22−85−S

No Trend

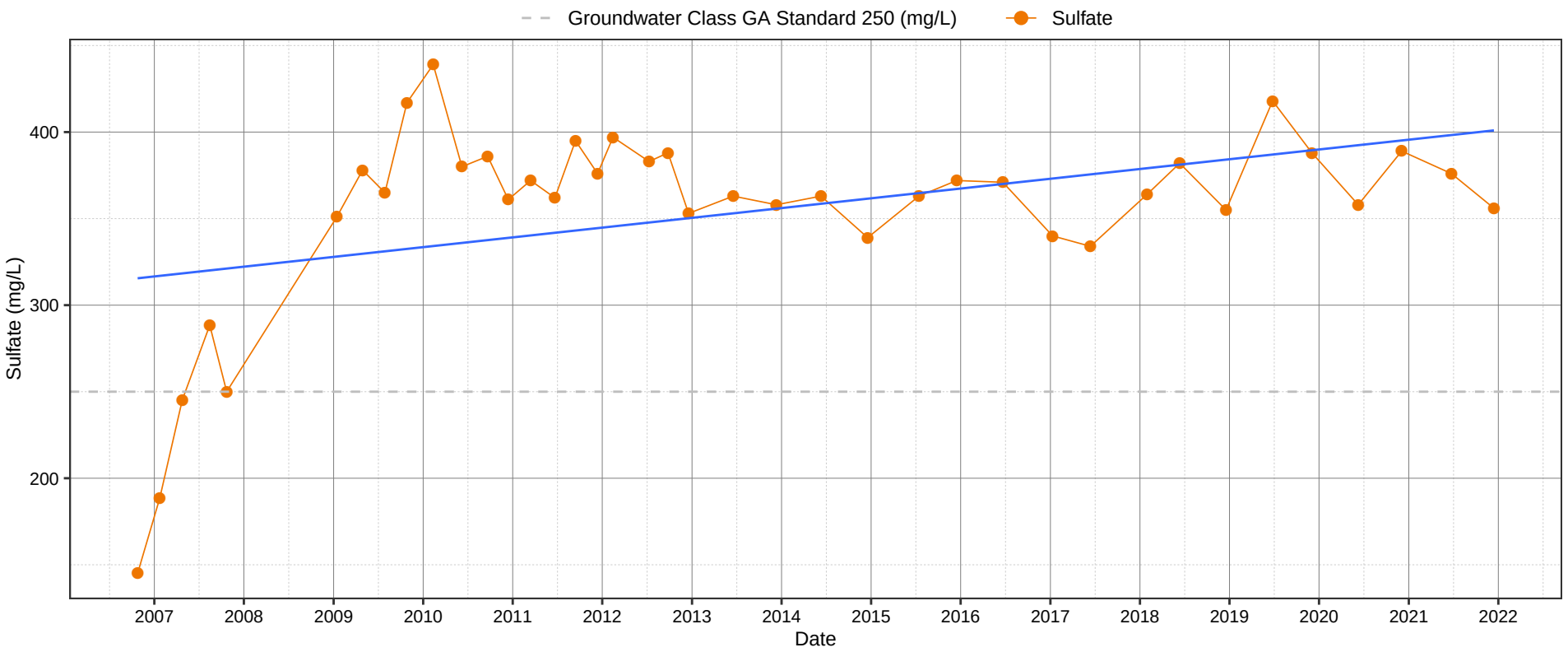


Greater than 50% Non−detect

Well MW−23−85−S
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

MW−23−85−S

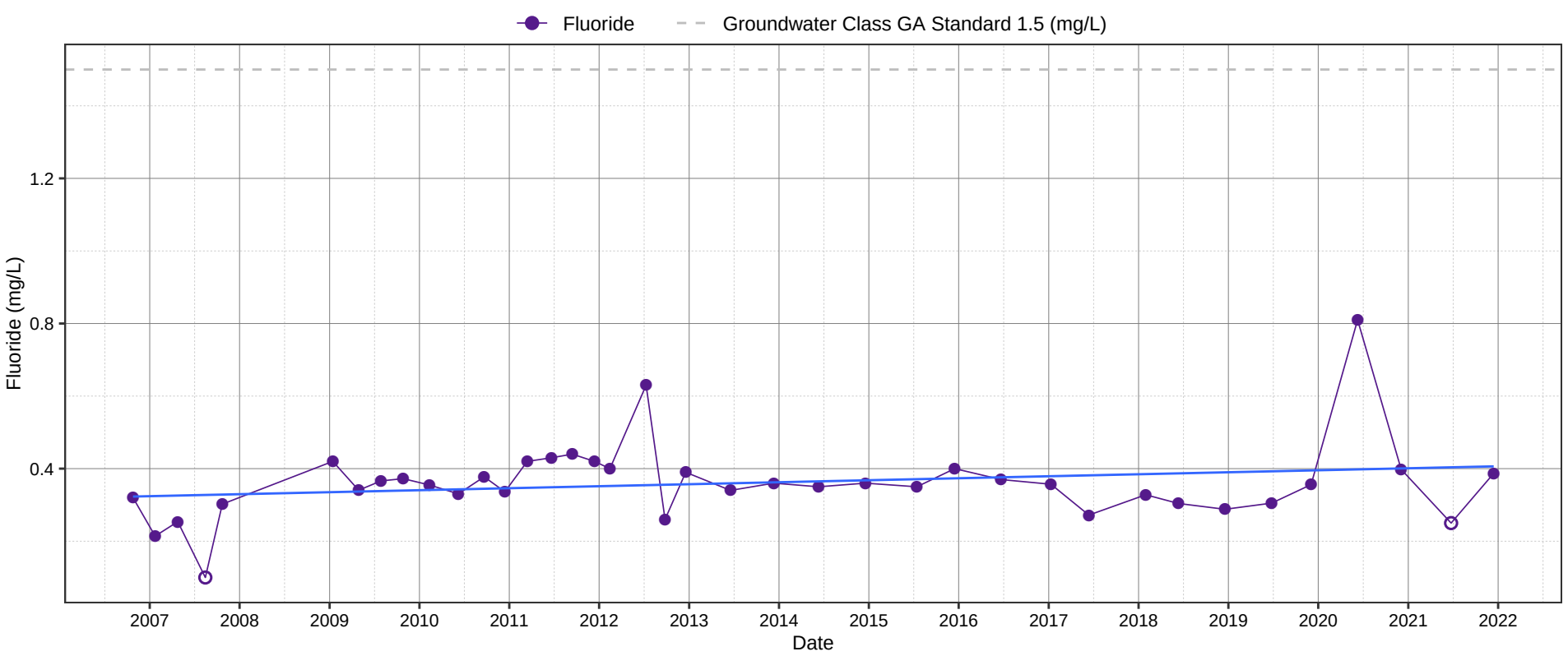
No Trend



Mann−Kendall p−value =0.187

MW−23−85−S

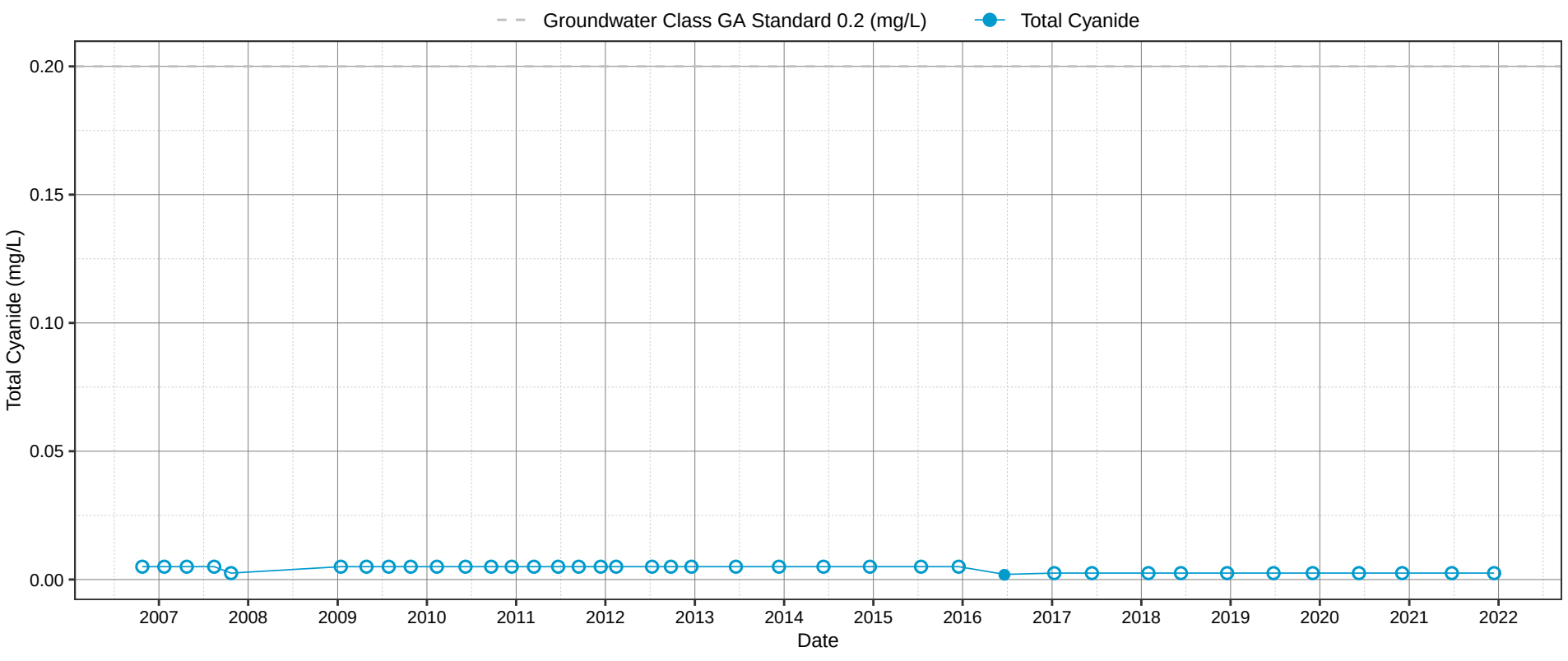
No Trend



Mann−Kendall p−value =0.578

MW−23−85−S

No Trend

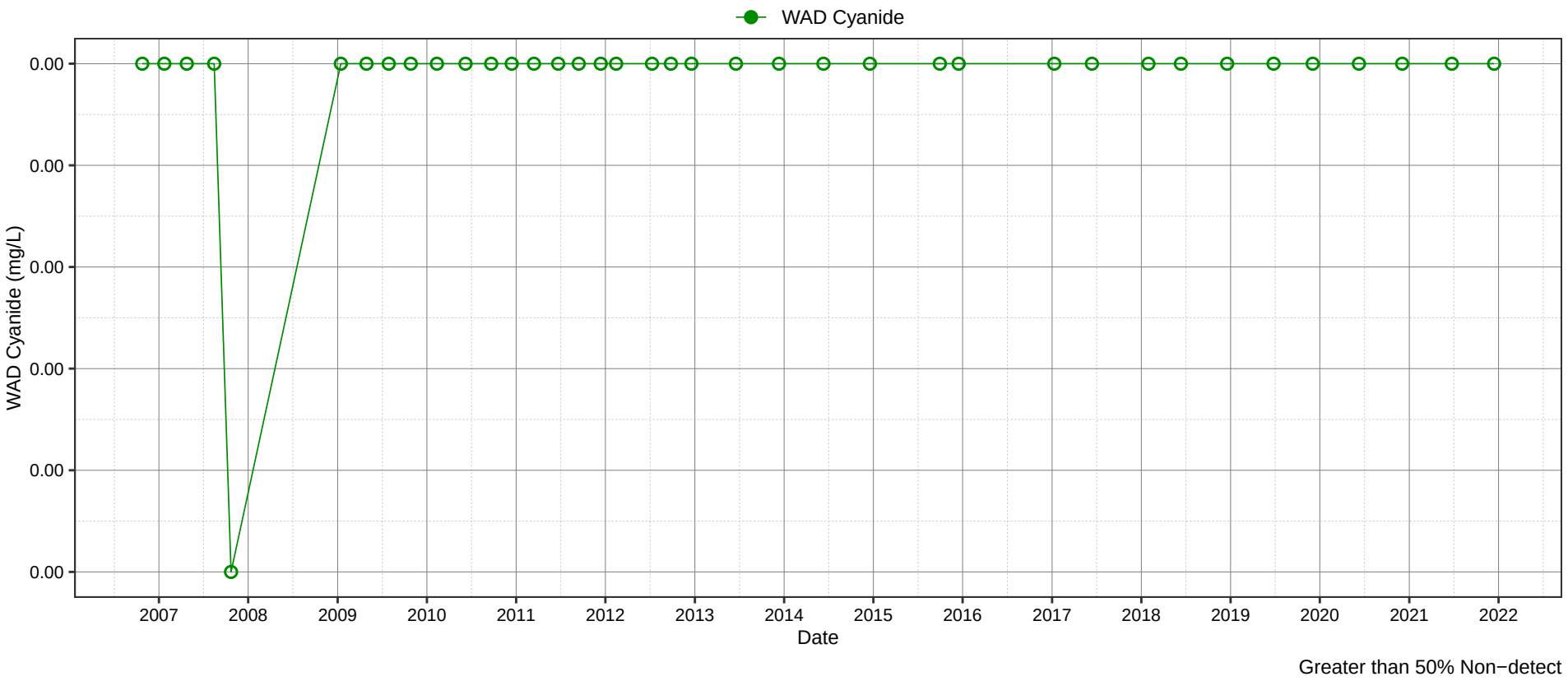


Greater than 50% Non−detect

Well MW−23−85−S
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

MW−23−85−S

No Trend

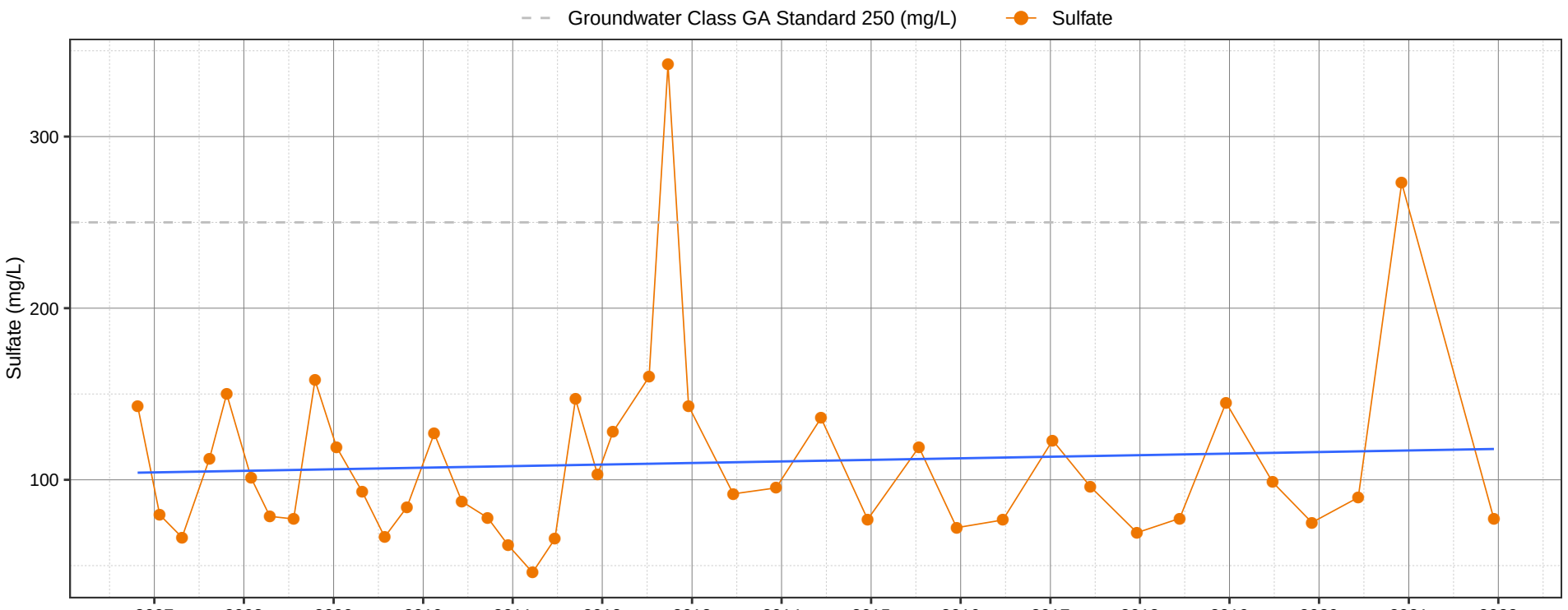


Greater than 50% Non−detect

Well MW−30S
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

MW−30S

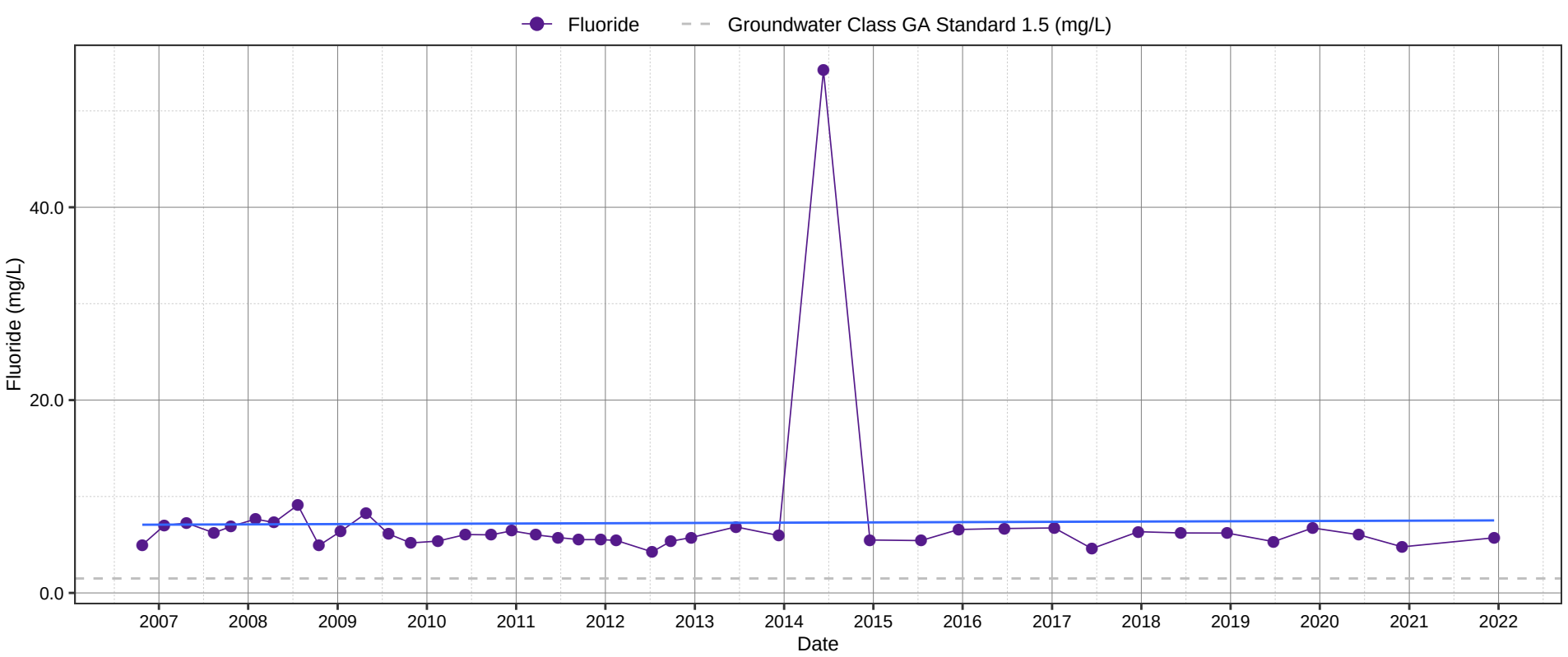
No Trend



Mann−Kendall p−value =0.854

MW−30S

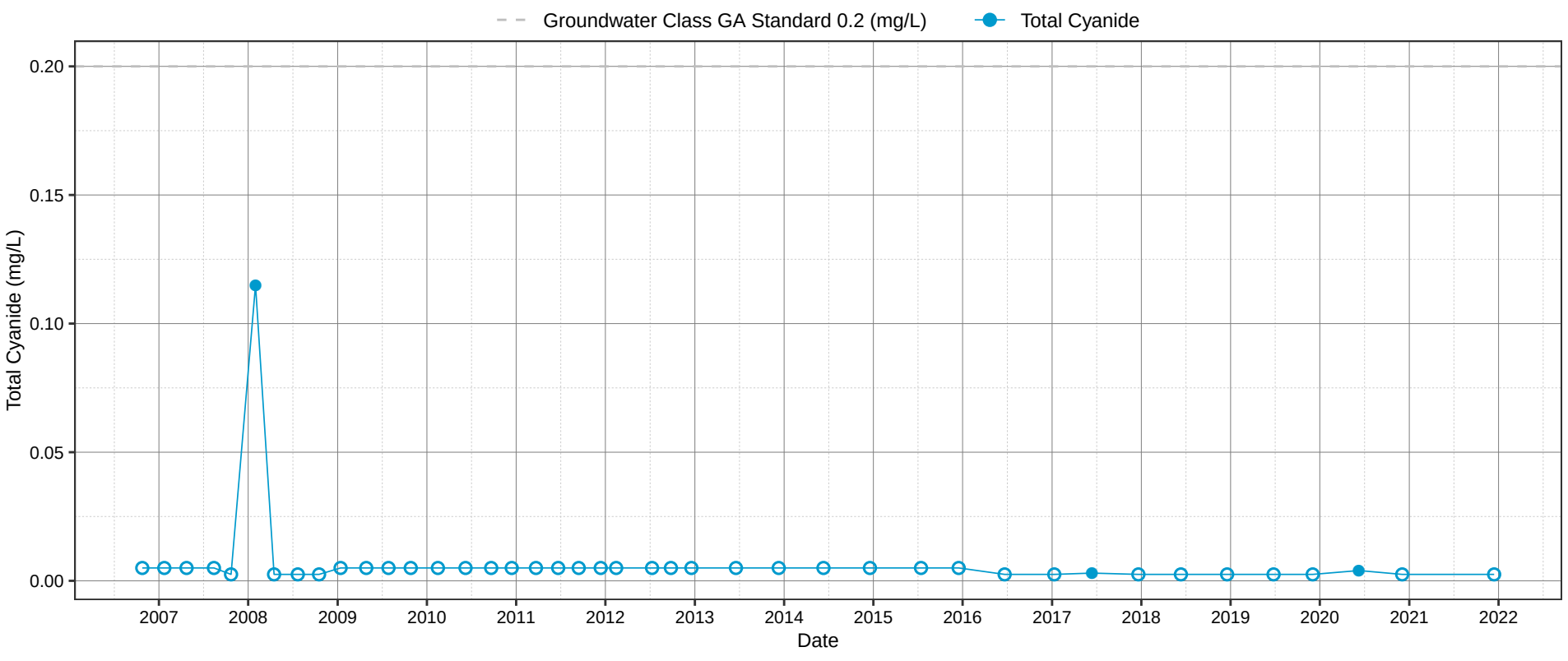
No Trend



Mann−Kendall p−value =0.102

MW−30S

No Trend

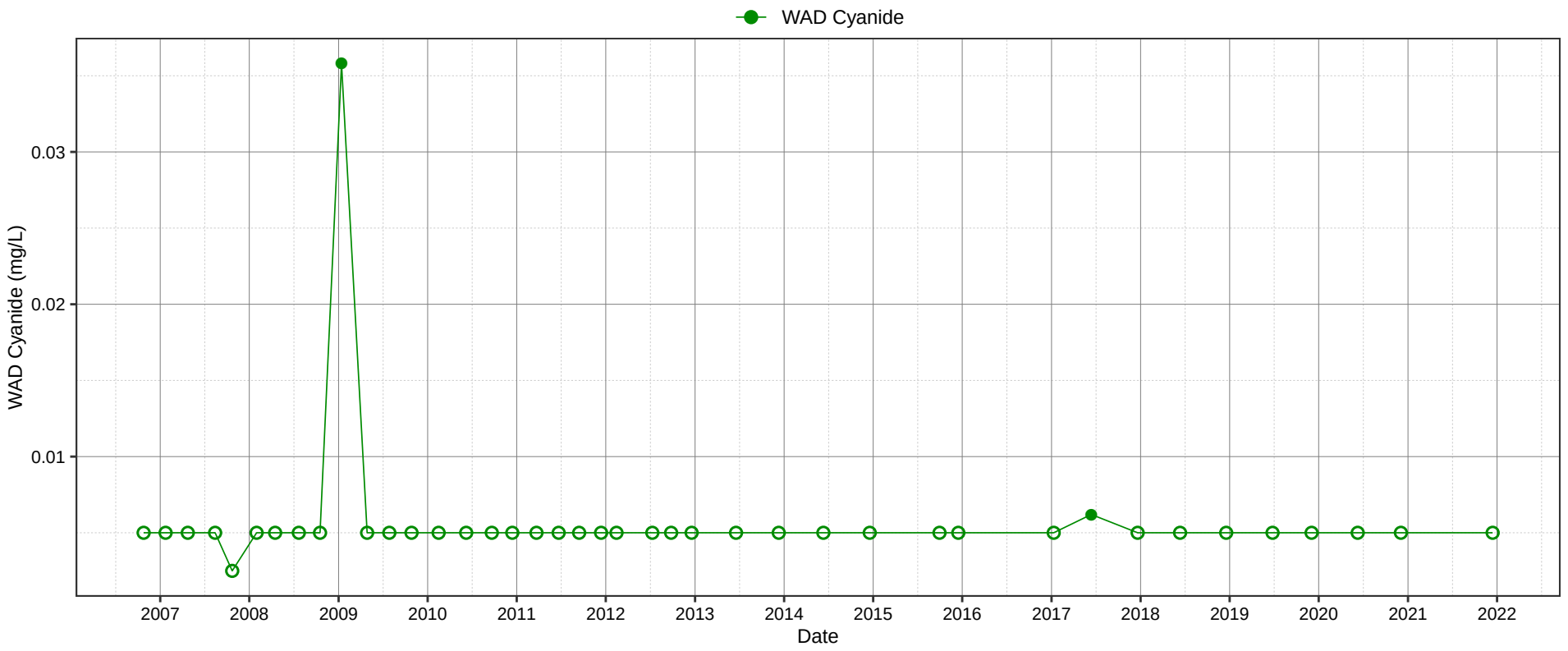


Greater than 50% Non−detect

Well MW−30S
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

MW−30S

No Trend

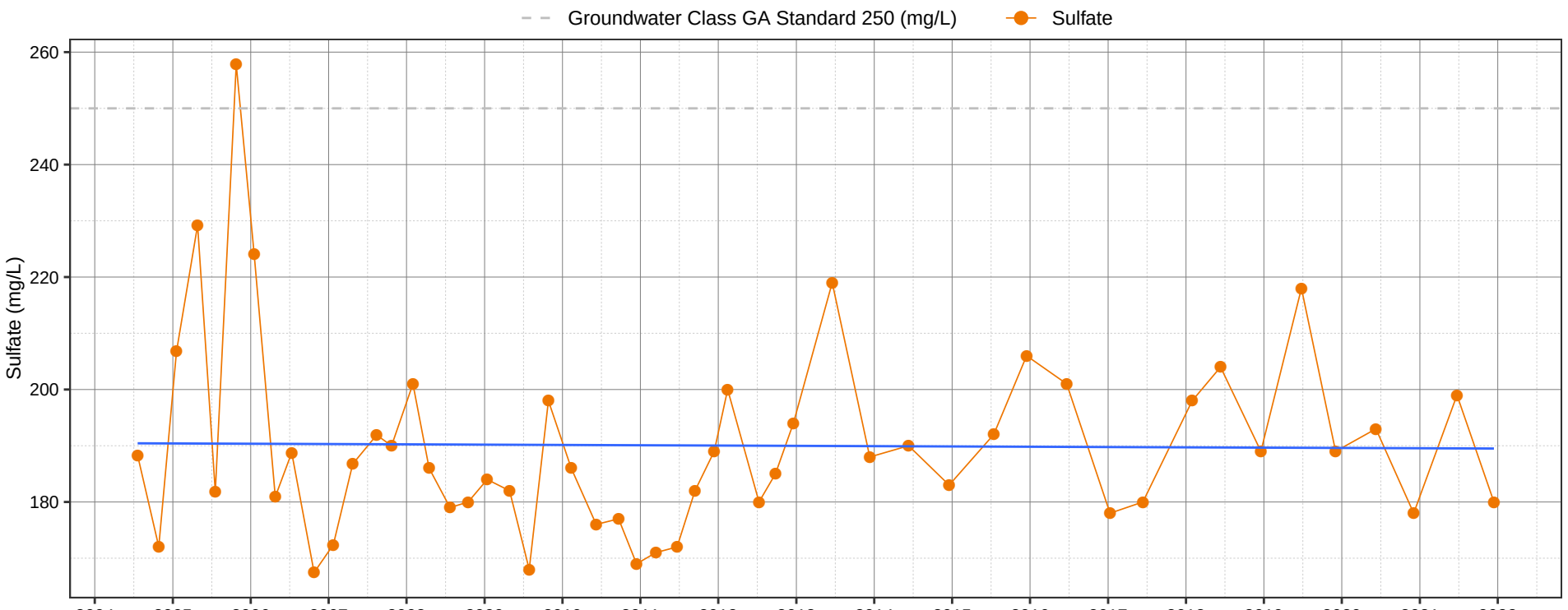


Greater than 50% Non−detect

Well MW−31SR
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

MW−31SR

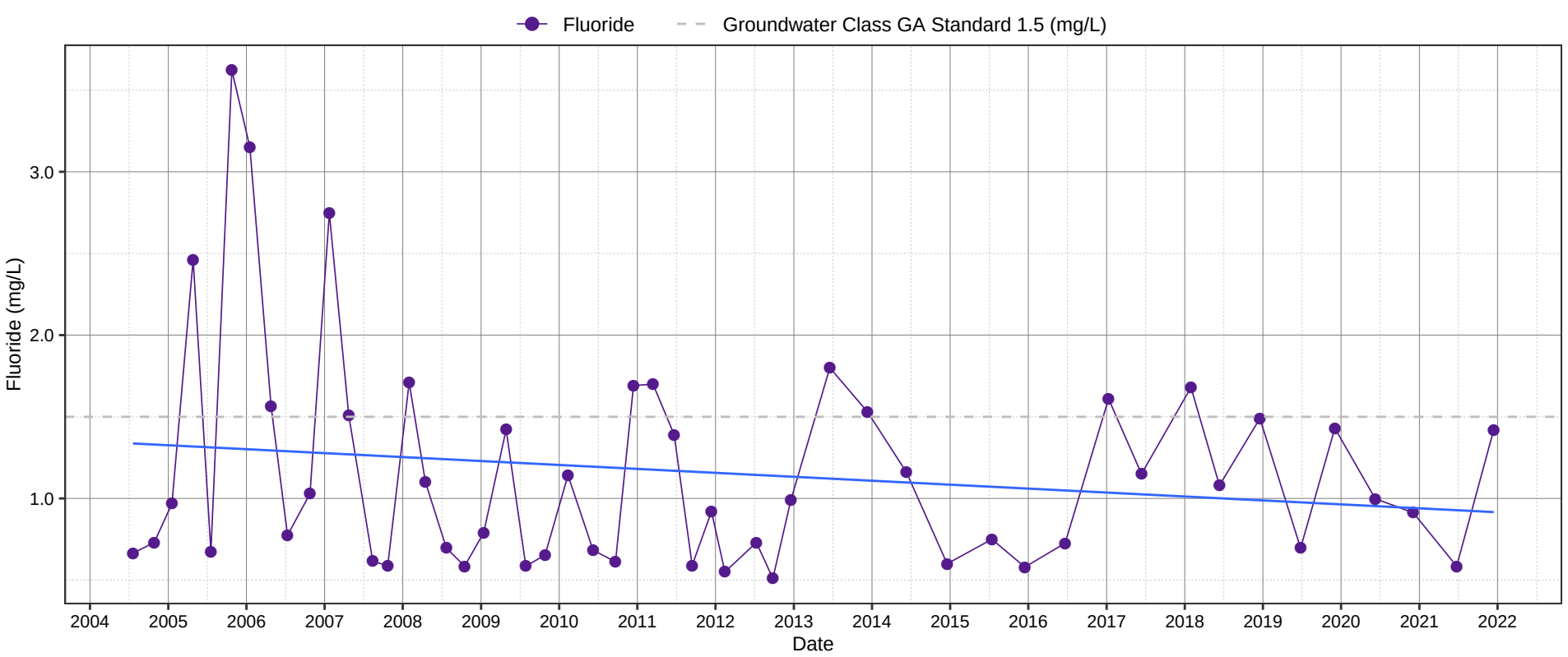
No Trend



Mann−Kendall p−value =0.43

MW−31SR

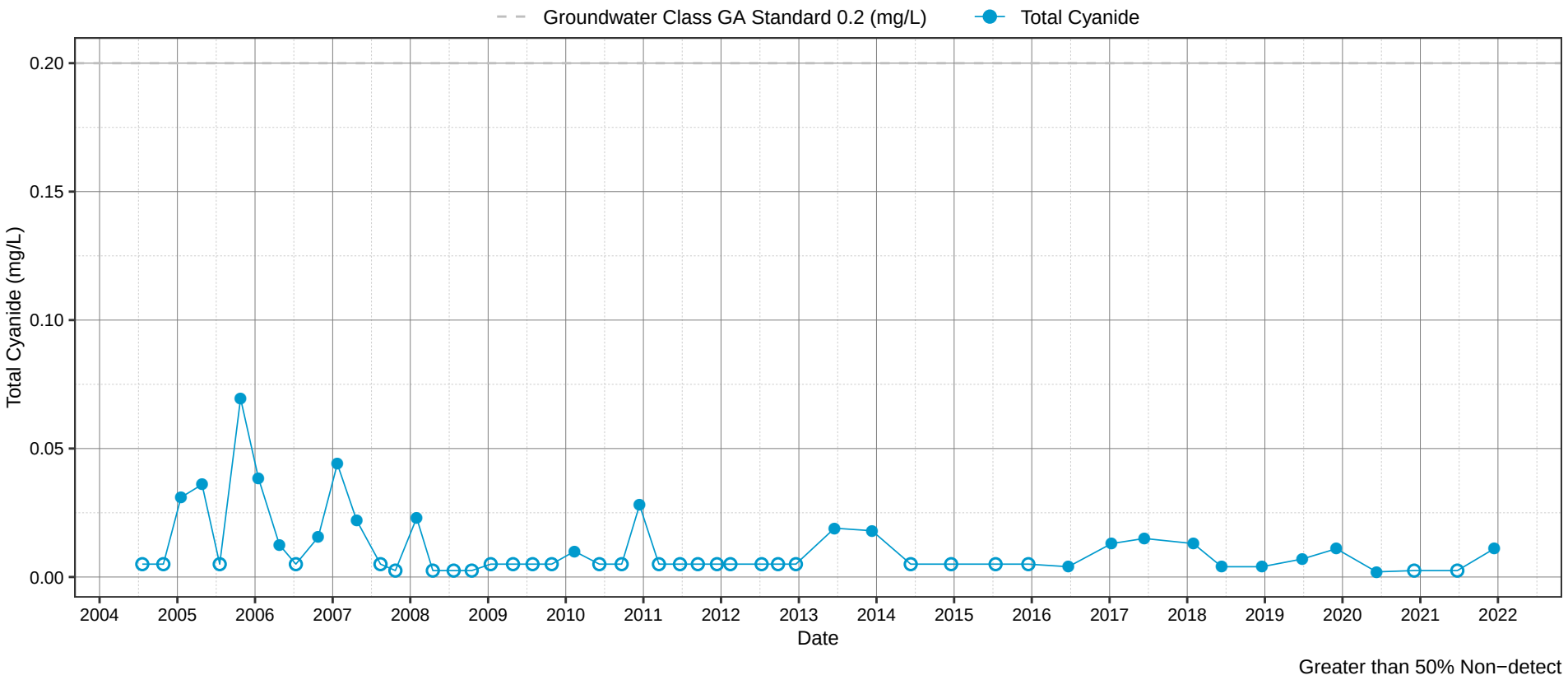
No Trend



Mann−Kendall p−value =0.528

MW−31SR

No Trend

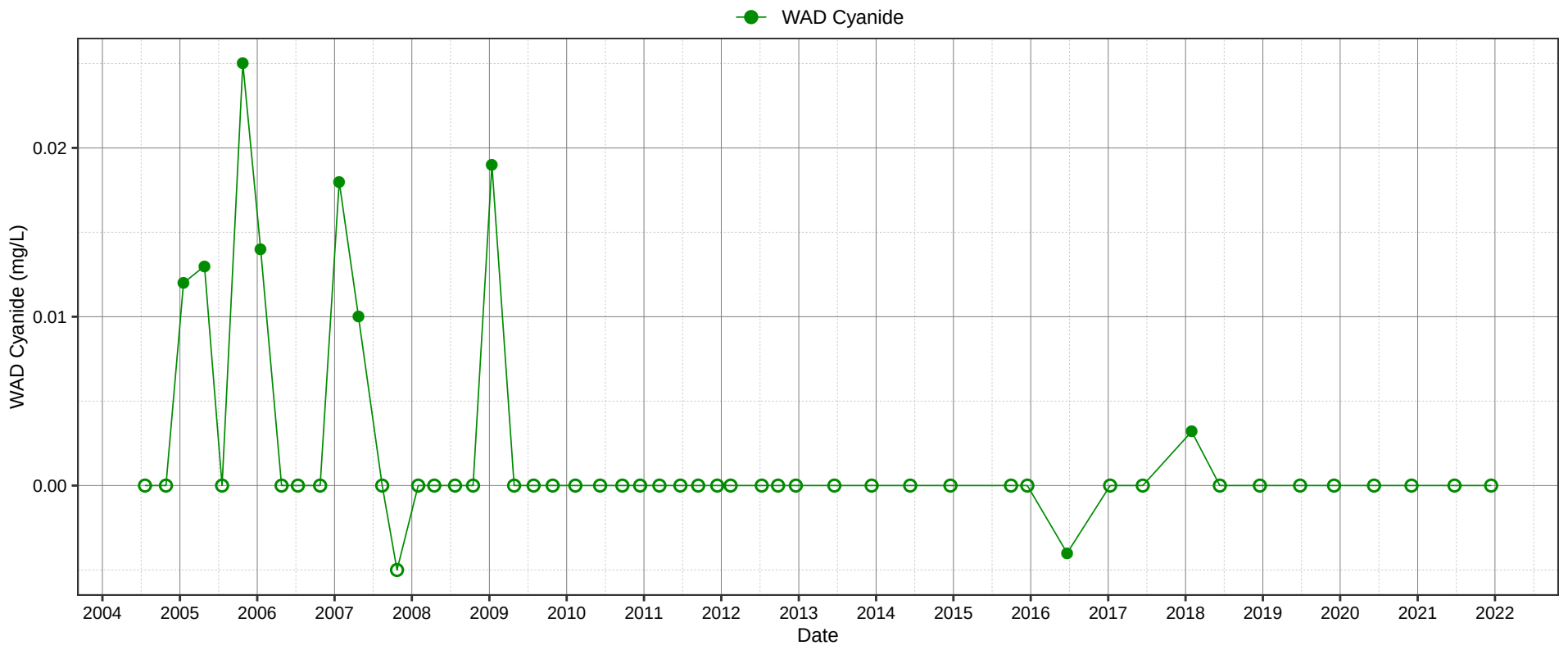


Greater than 50% Non−detect

Well MW−31SR
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

MW−31SR

No Trend

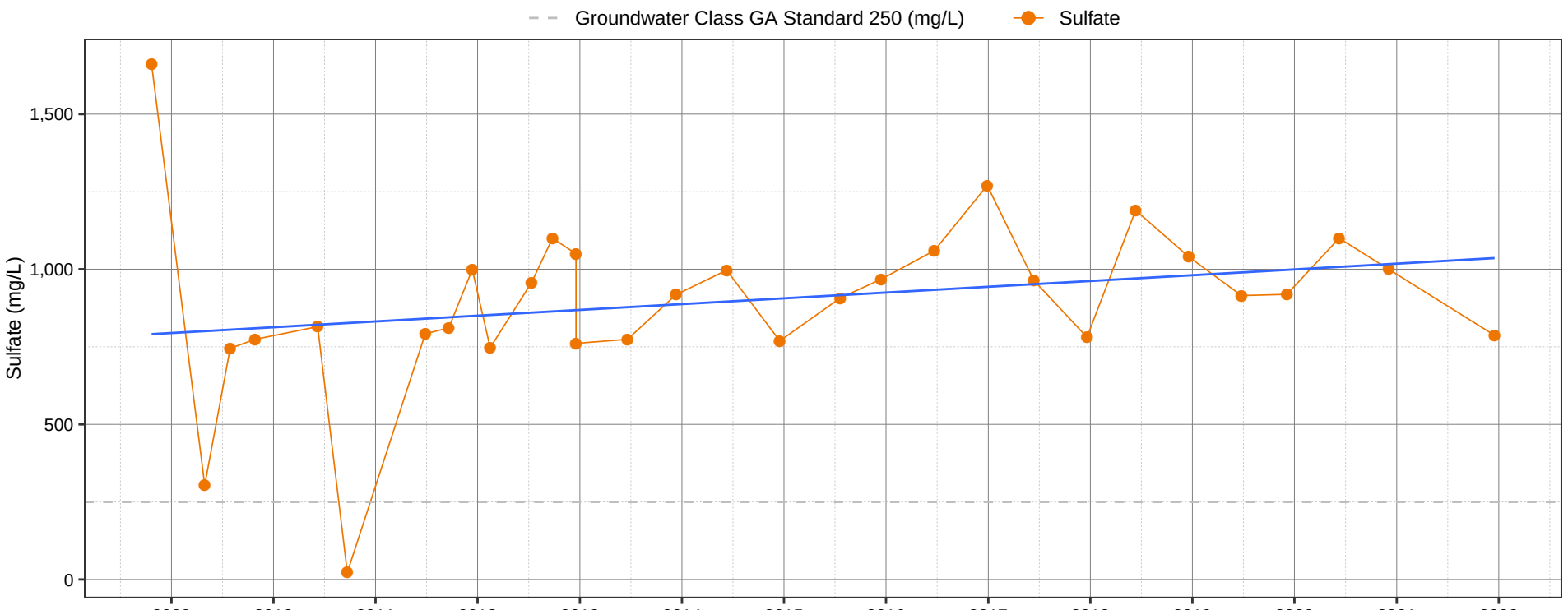


Greater than 50% Non−detect

Well PZ−44
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

PZ−44

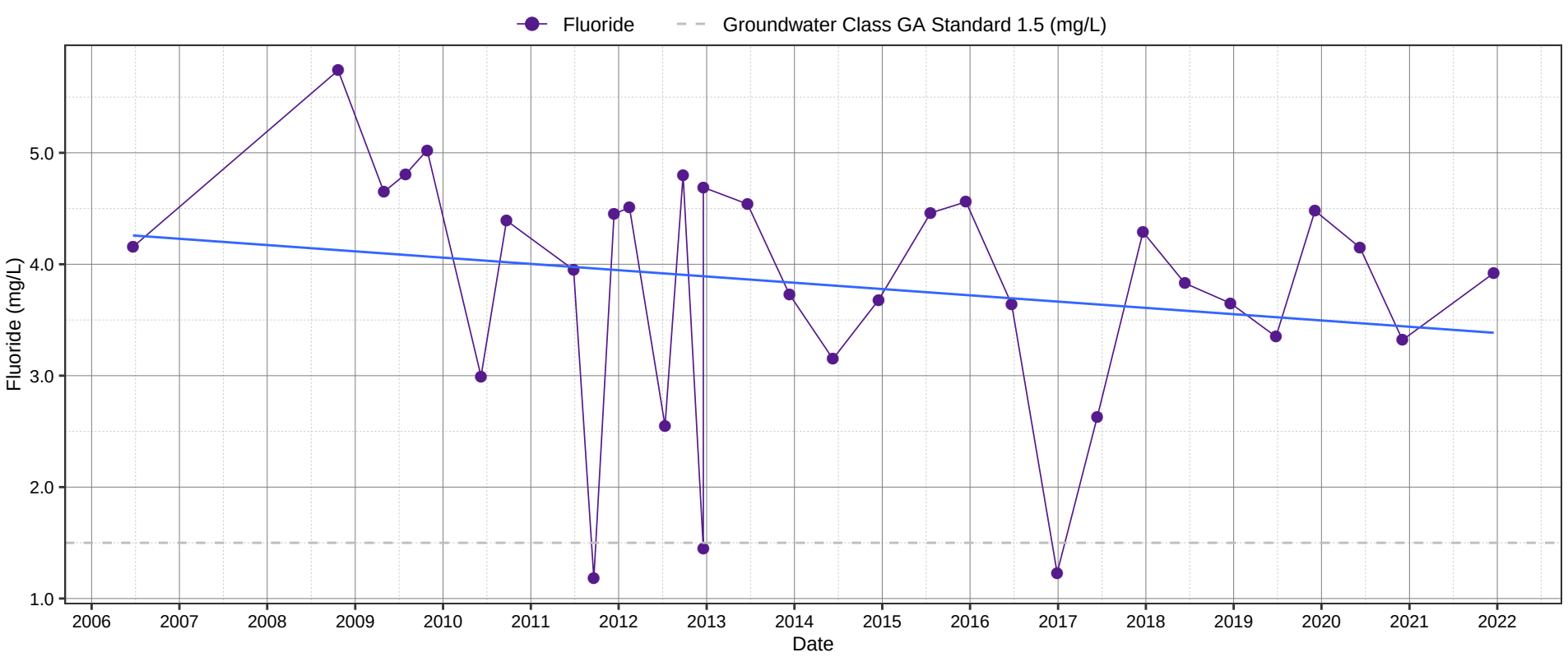
Increasing



Mann−Kendall p−value =0.027

PZ−44

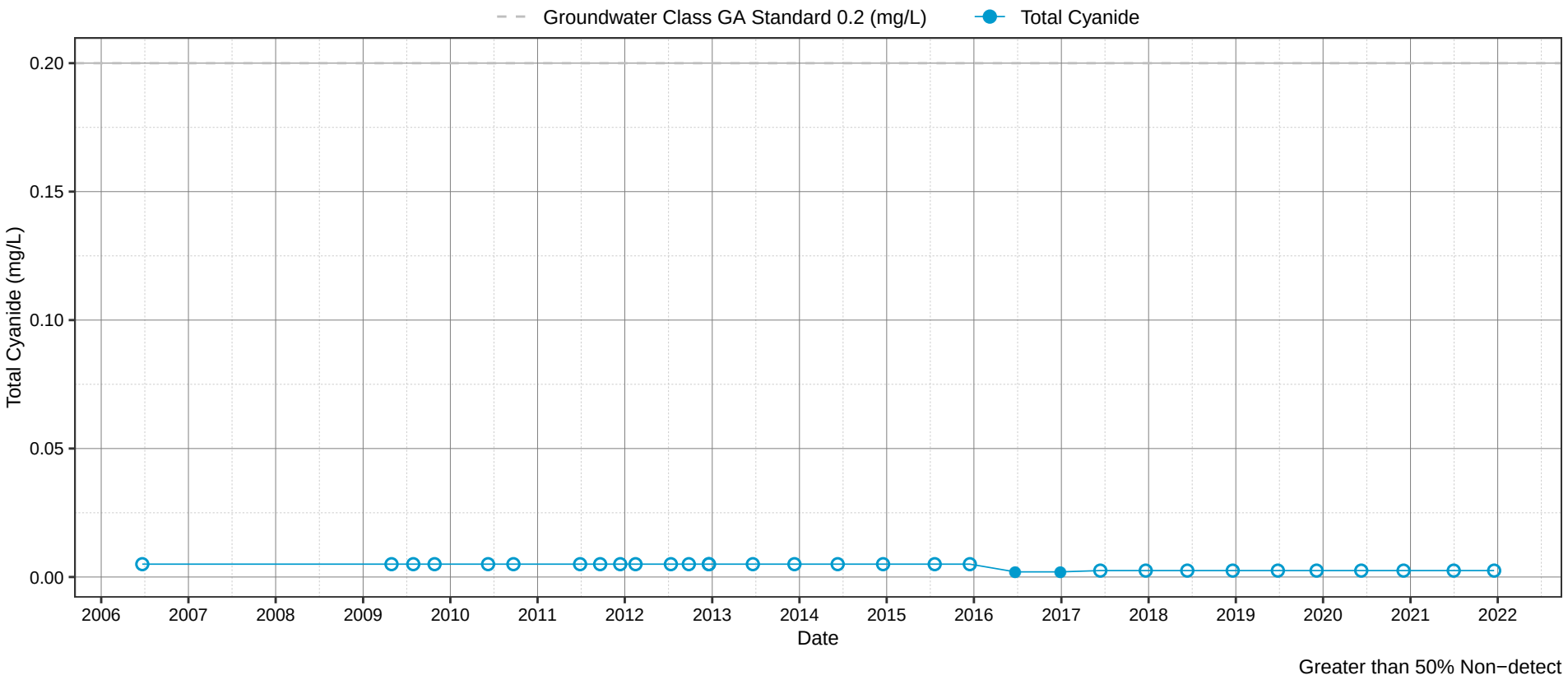
No Trend



Mann−Kendall p−value =0.062

PZ−44

No Trend

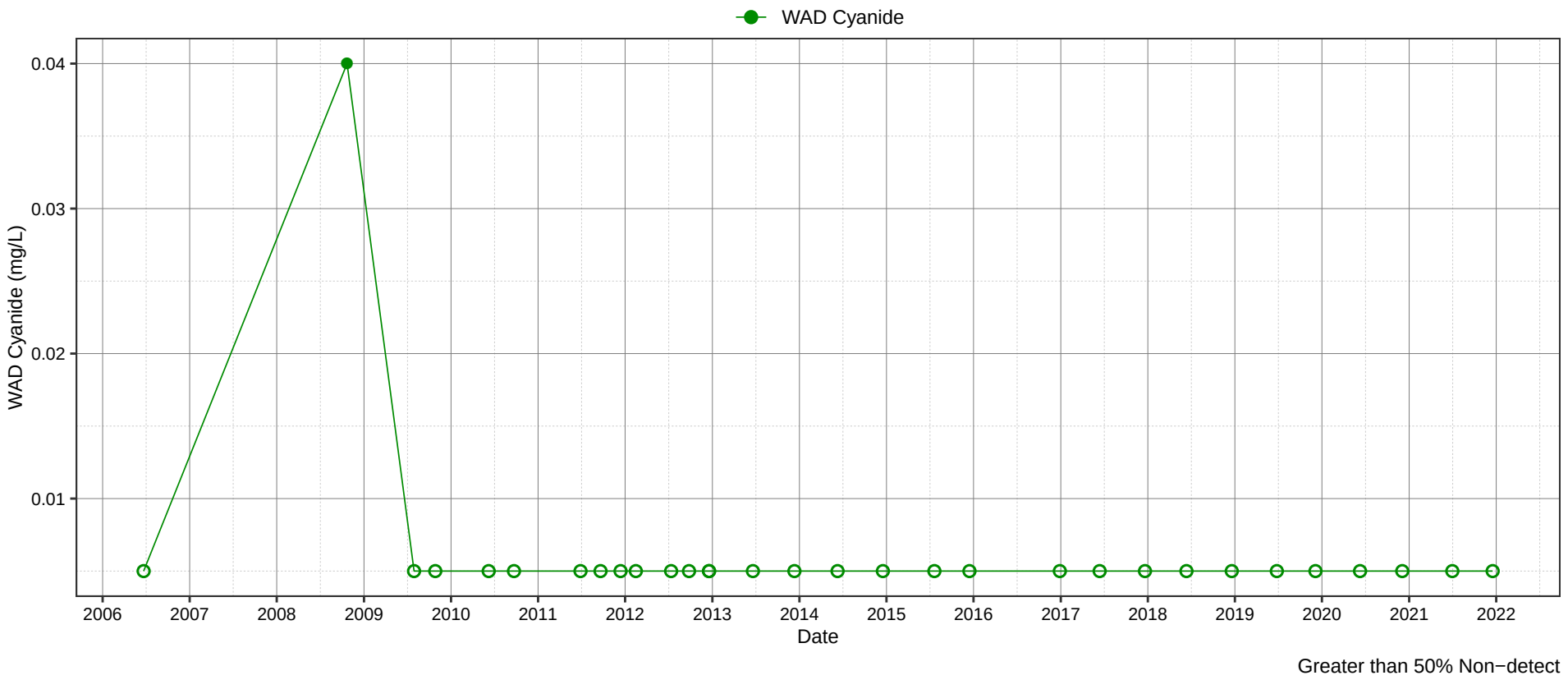


Greater than 50% Non−detect

Well PZ−44
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

PZ−44

No Trend

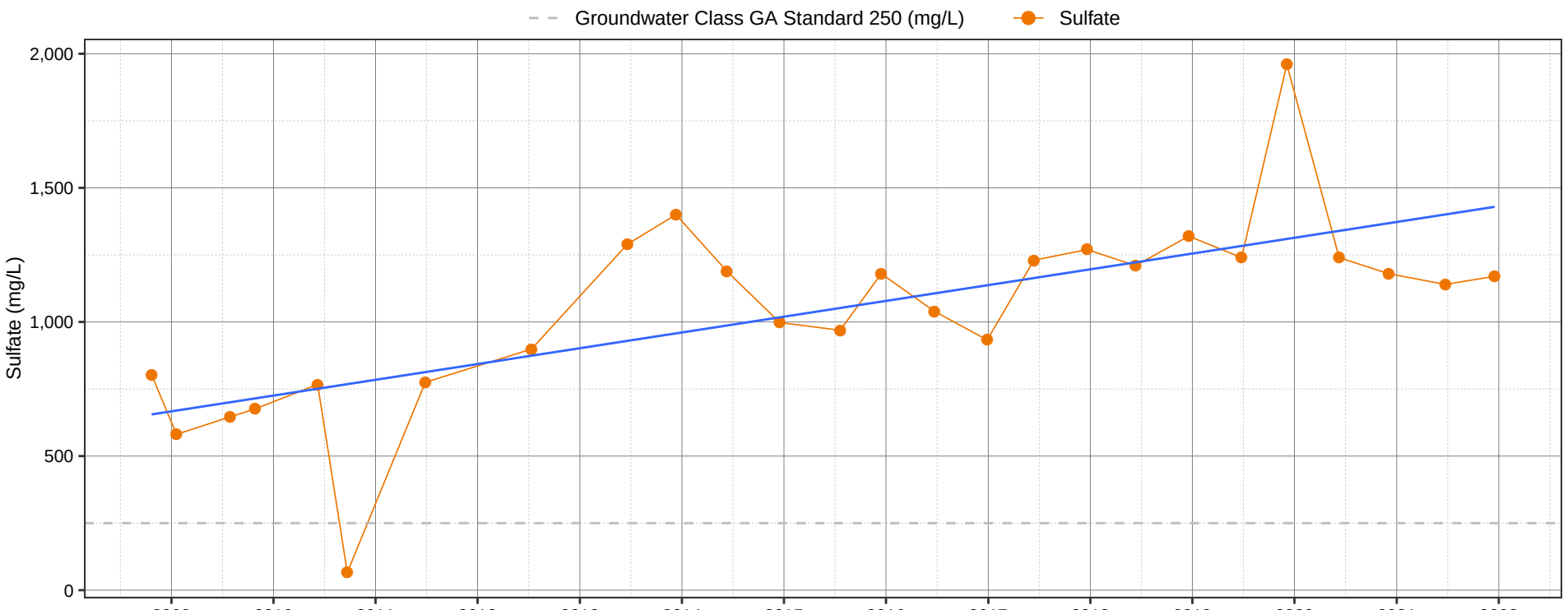


Greater than 50% Non−detect

Well PZ−45
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

PZ−45

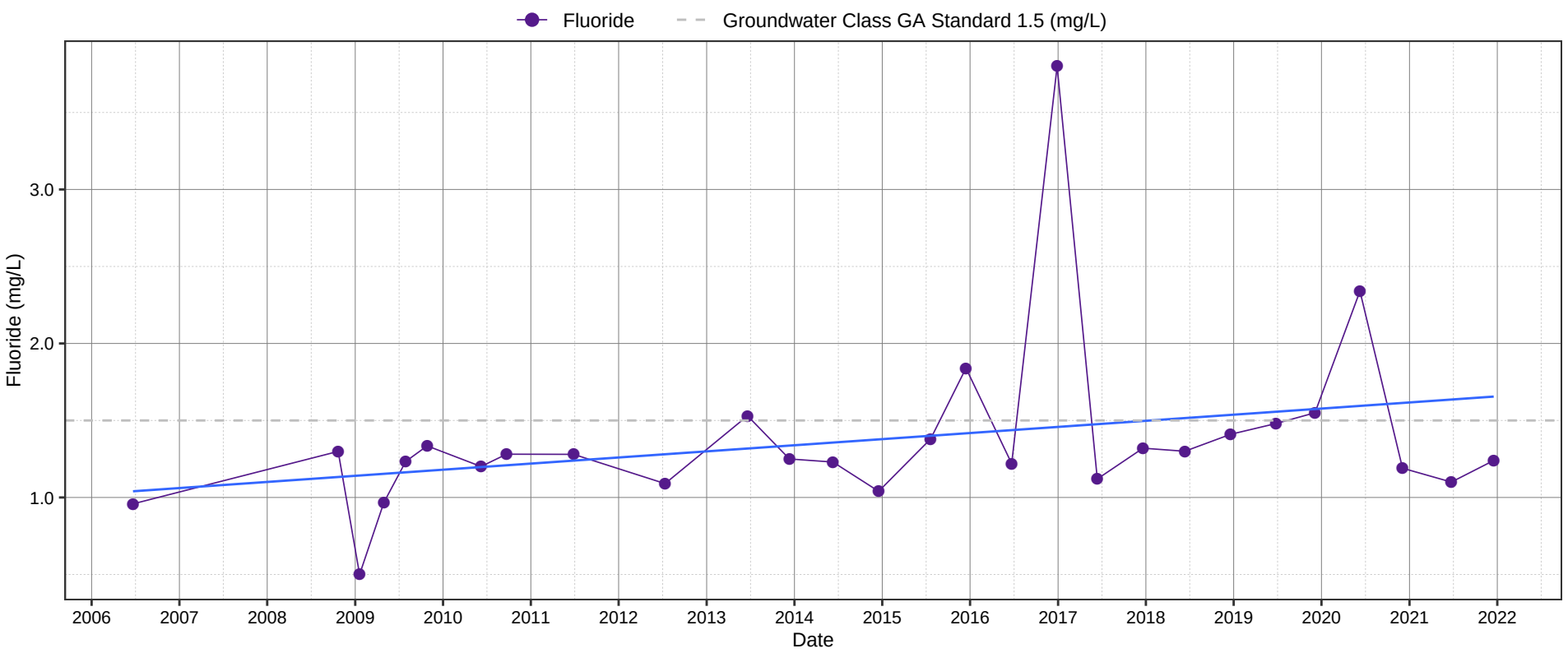
Increasing



Mann−Kendall p−value < 0.001

PZ−45

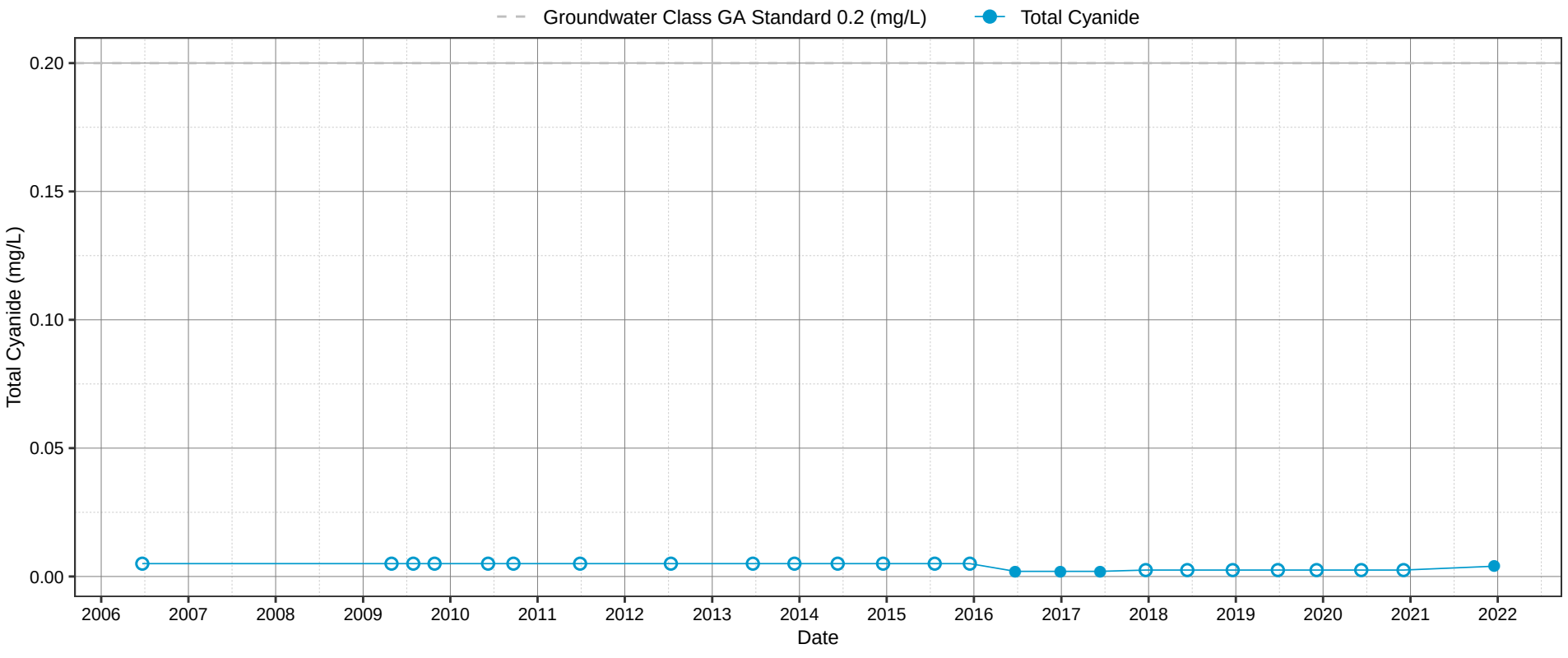
No Trend



Mann−Kendall p−value =0.05

PZ−45

No Trend

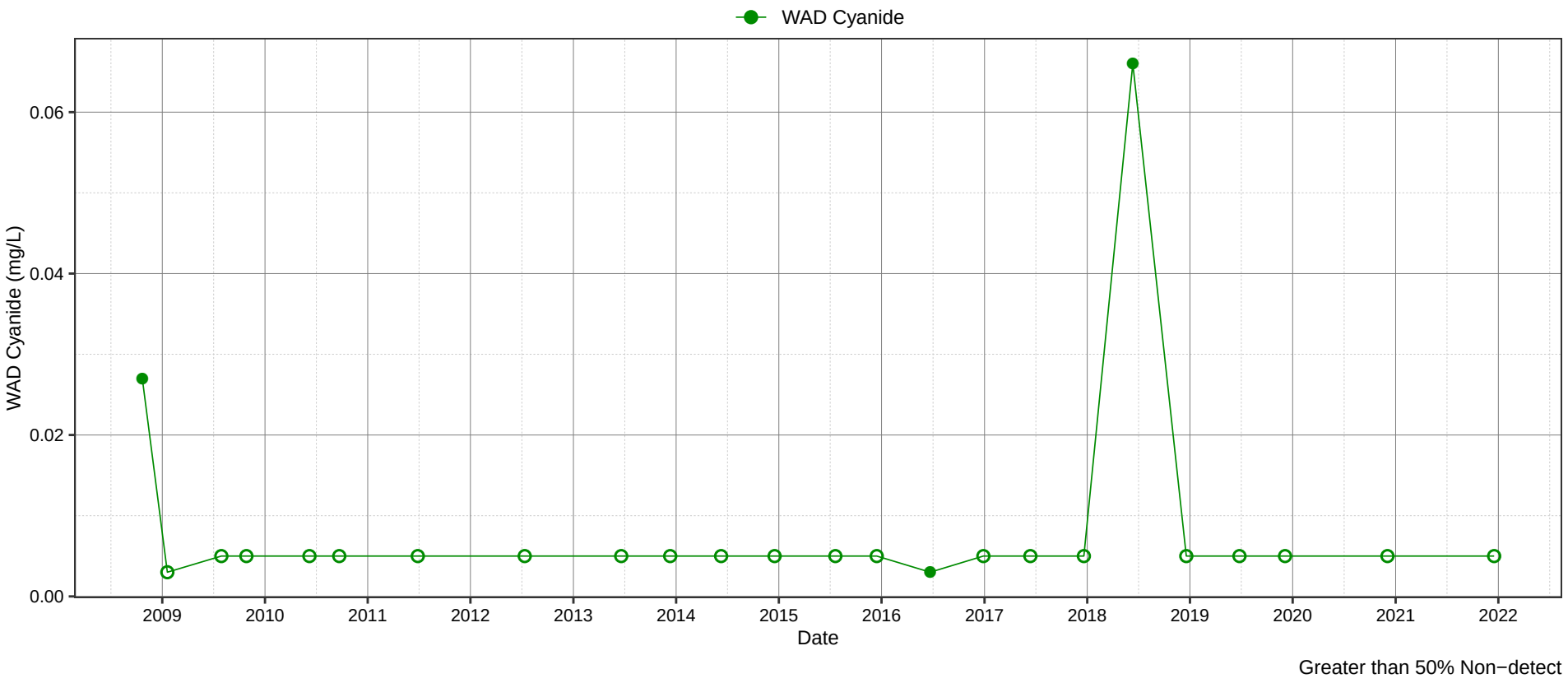


Greater than 50% Non−detect

Well PZ−45
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

PZ−45

No Trend

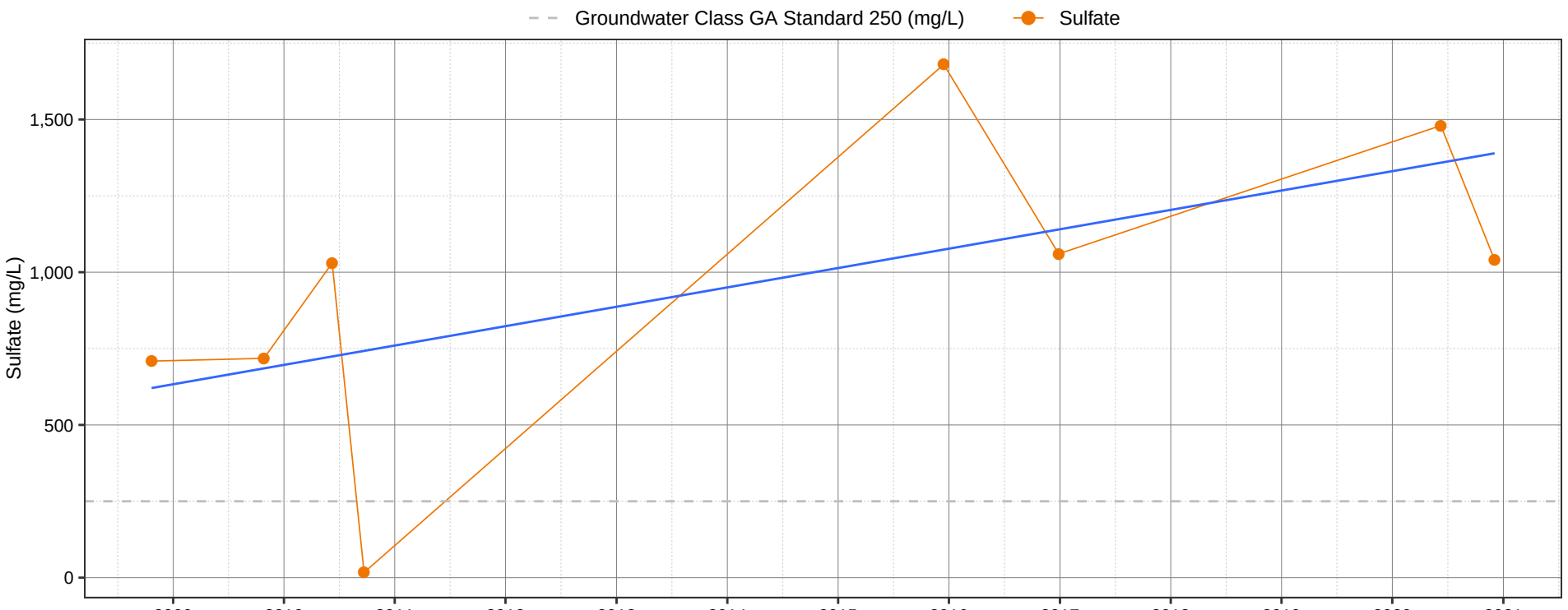


Greater than 50% Non−detect

Well PZ−46
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

PZ−46

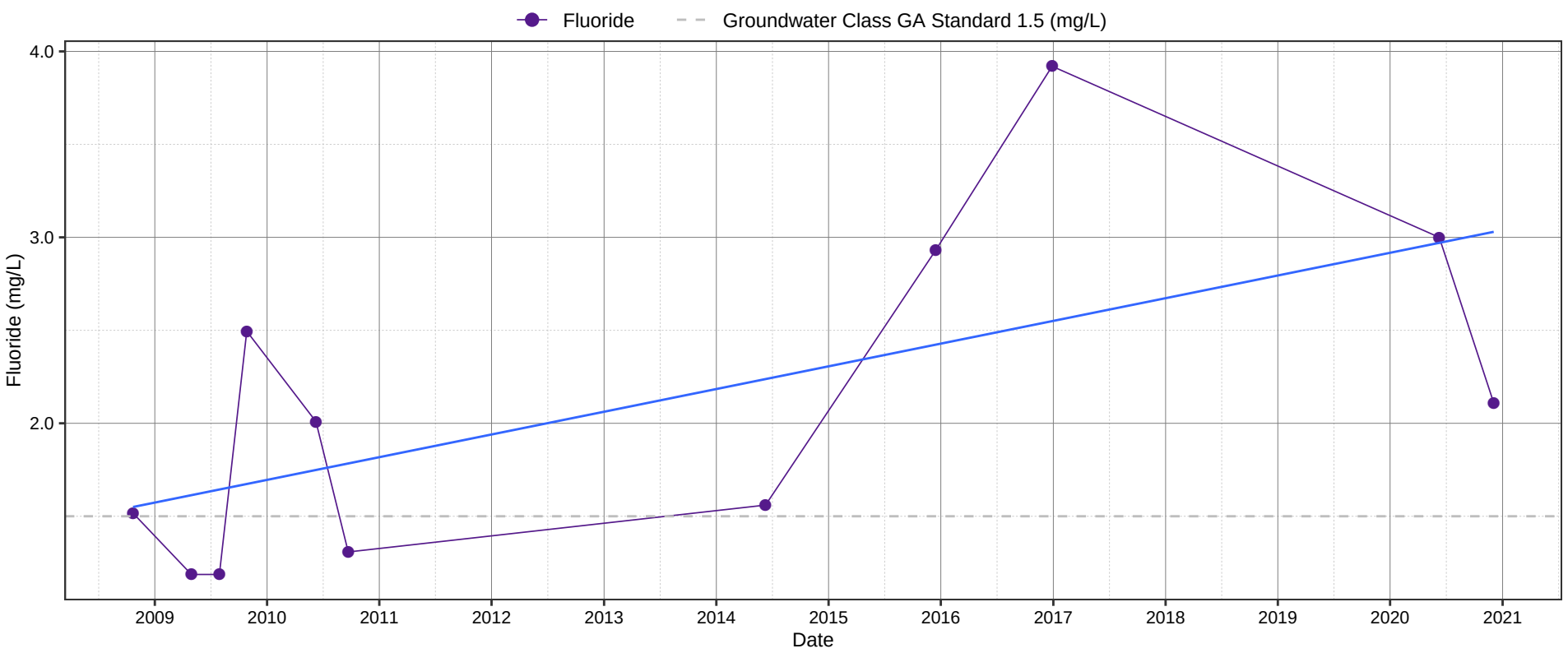
No Trend



Mann−Kendall p−value =0.174

PZ−46

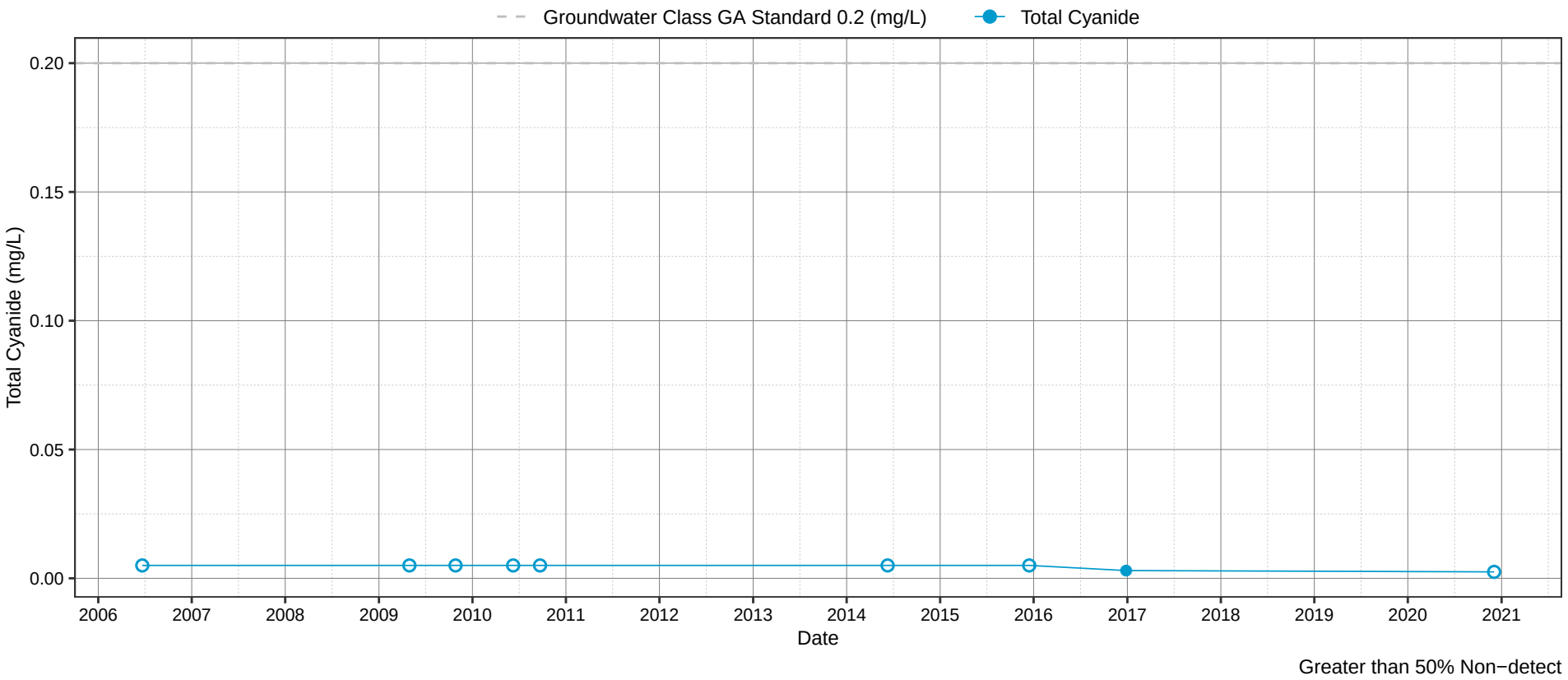
Increasing



Mann−Kendall p−value =0.035

PZ−46

No Trend

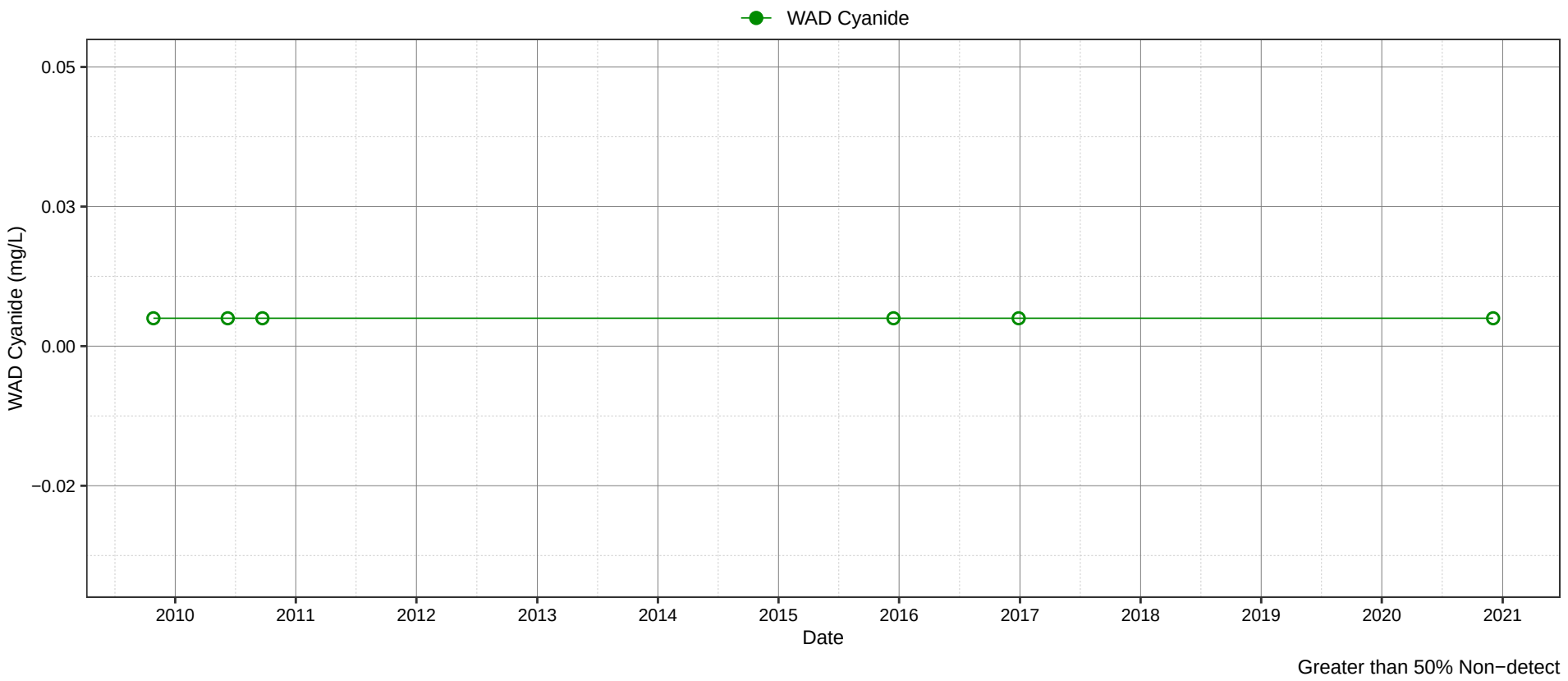


Greater than 50% Non−detect

Well PZ−46
Black Mud Pond
Samples from Post−May 2004 Leachate Transfer Line Upgrade
(non−detects plotted as open symbols at half the method detection limit)

PZ−46

No Trend

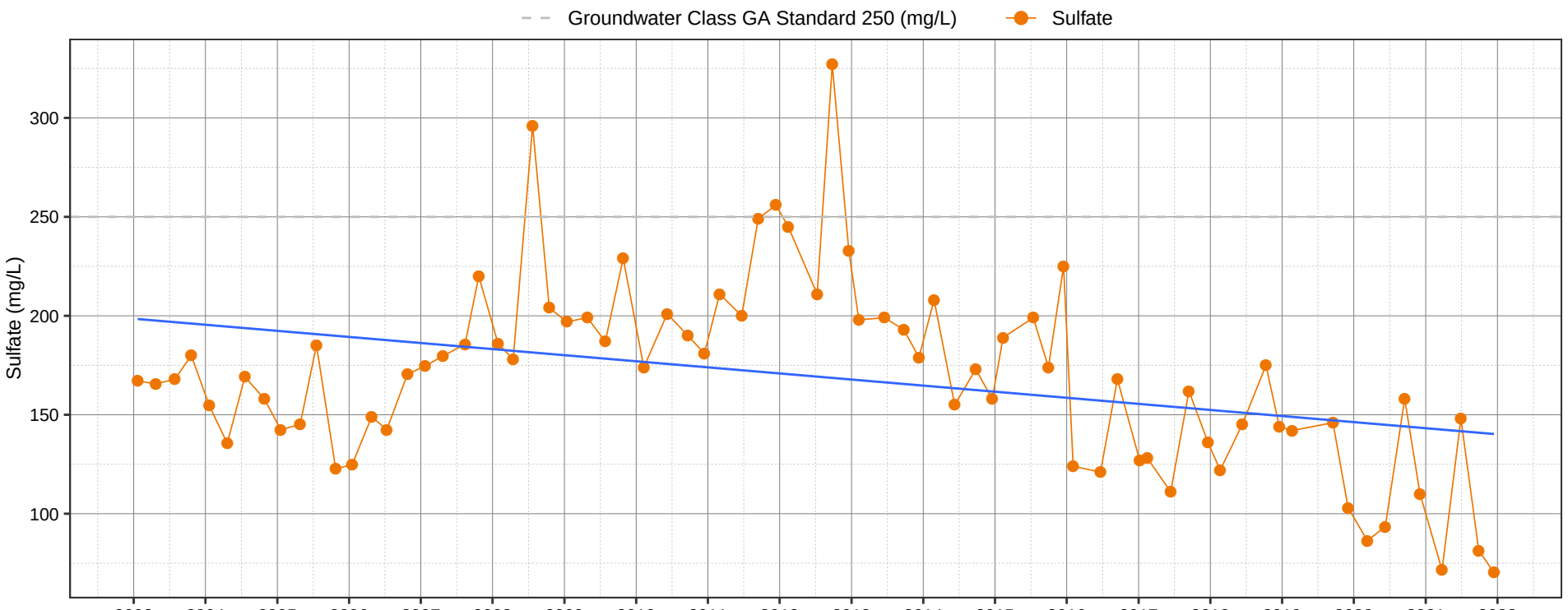


Greater than 50% Non−detect

Well MW−10S
Industrial Landfill
Samples from Post− 2003 Introduction of Perimeter Trench
(non−detects plotted as open symbols at half the method detection limit)

MW−10S

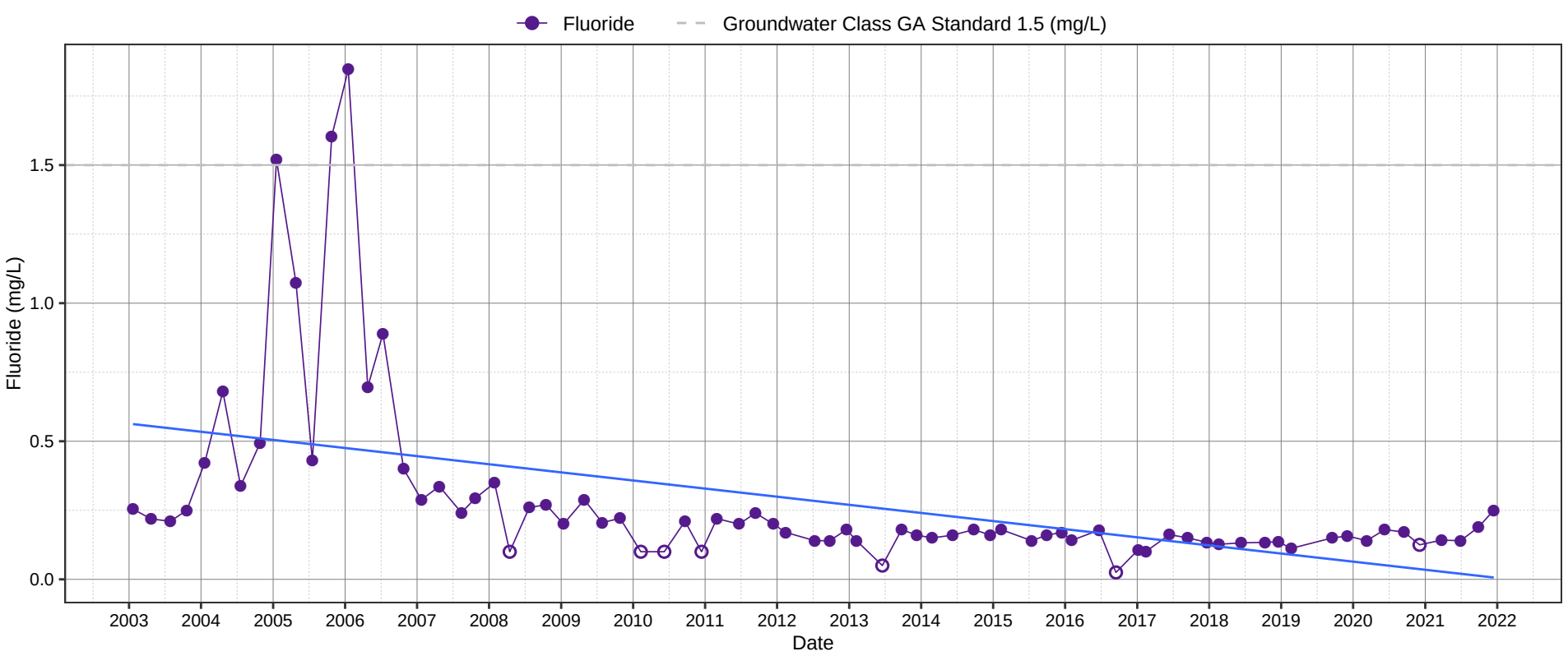
Decreasing



Mann−Kendall p−value =0.006

MW−10S

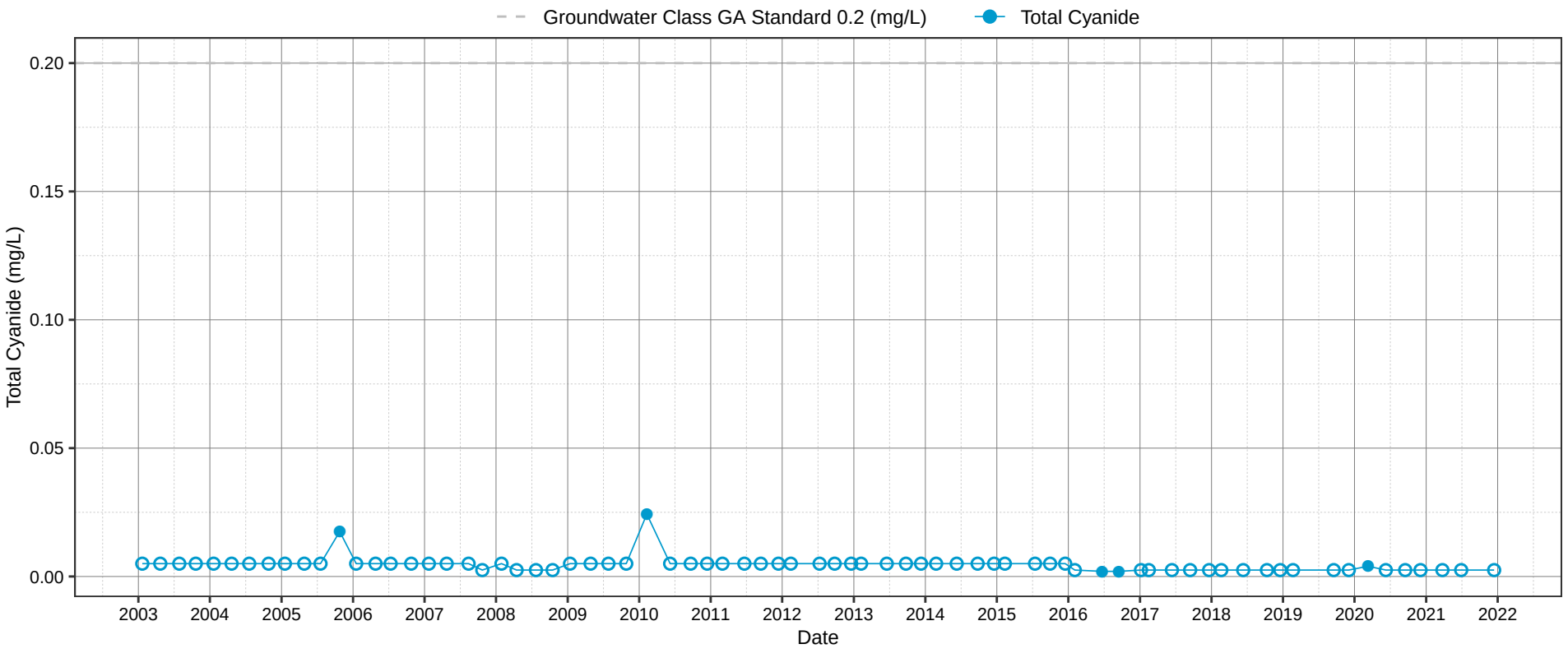
Decreasing



Mann−Kendall p−value < 0.001

MW−10S

No Trend

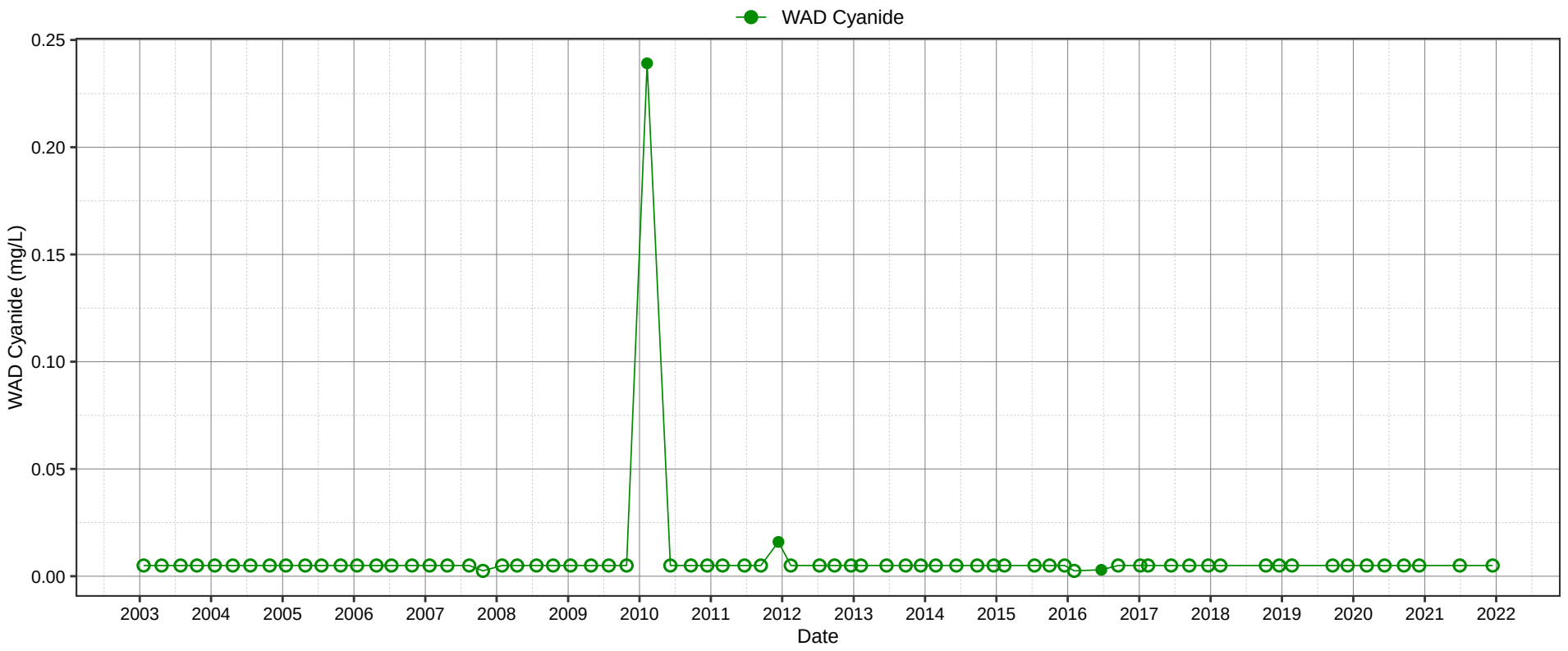


Greater than 50% Non−detect

Well MW−10S
Industrial Landfill
Samples from Post− 2003 Introduction of Perimeter Trench
(non−detects plotted as open symbols at half the method detection limit)

MW−10S

No Trend

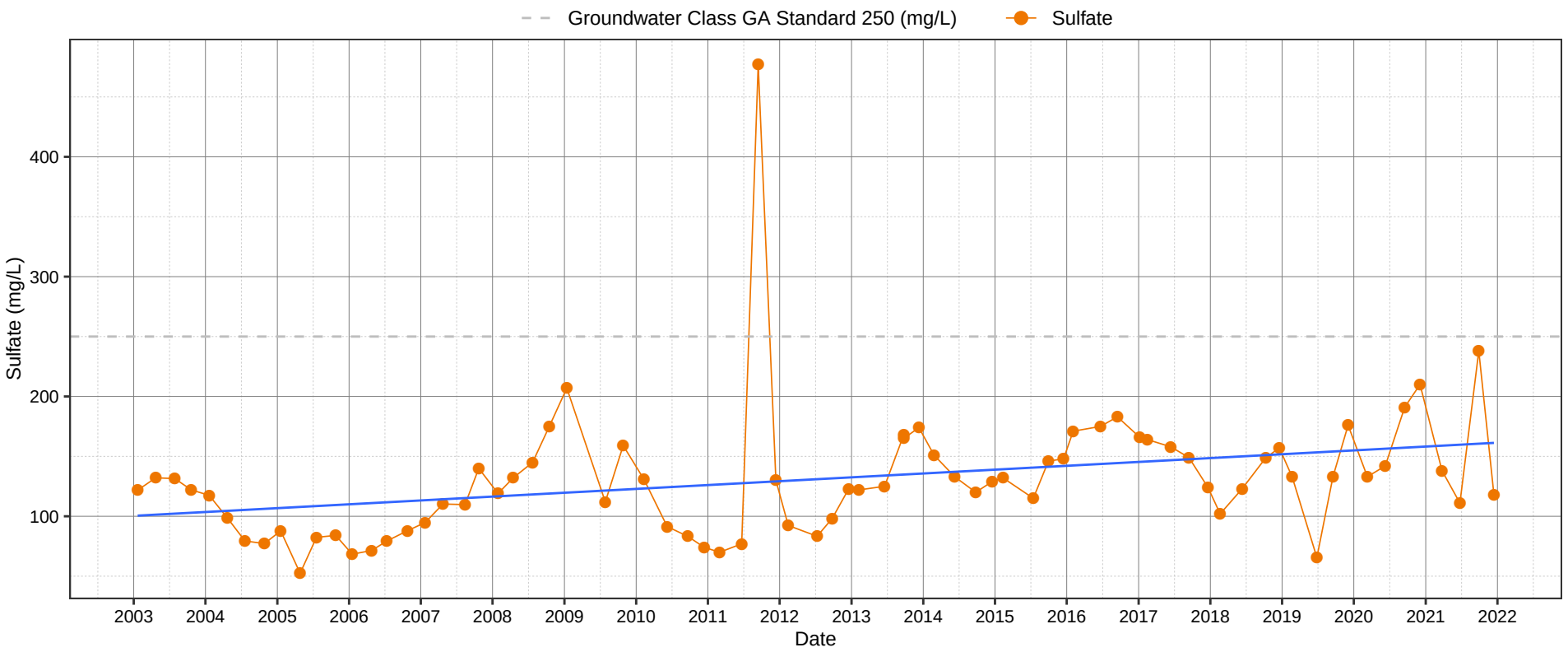


Greater than 50% Non−detect

Well MW−39S
Industrial Landfill
Samples from Post− 2003 Introduction of Perimeter Trench
(non−detects plotted as open symbols at half the method detection limit)

MW−39S

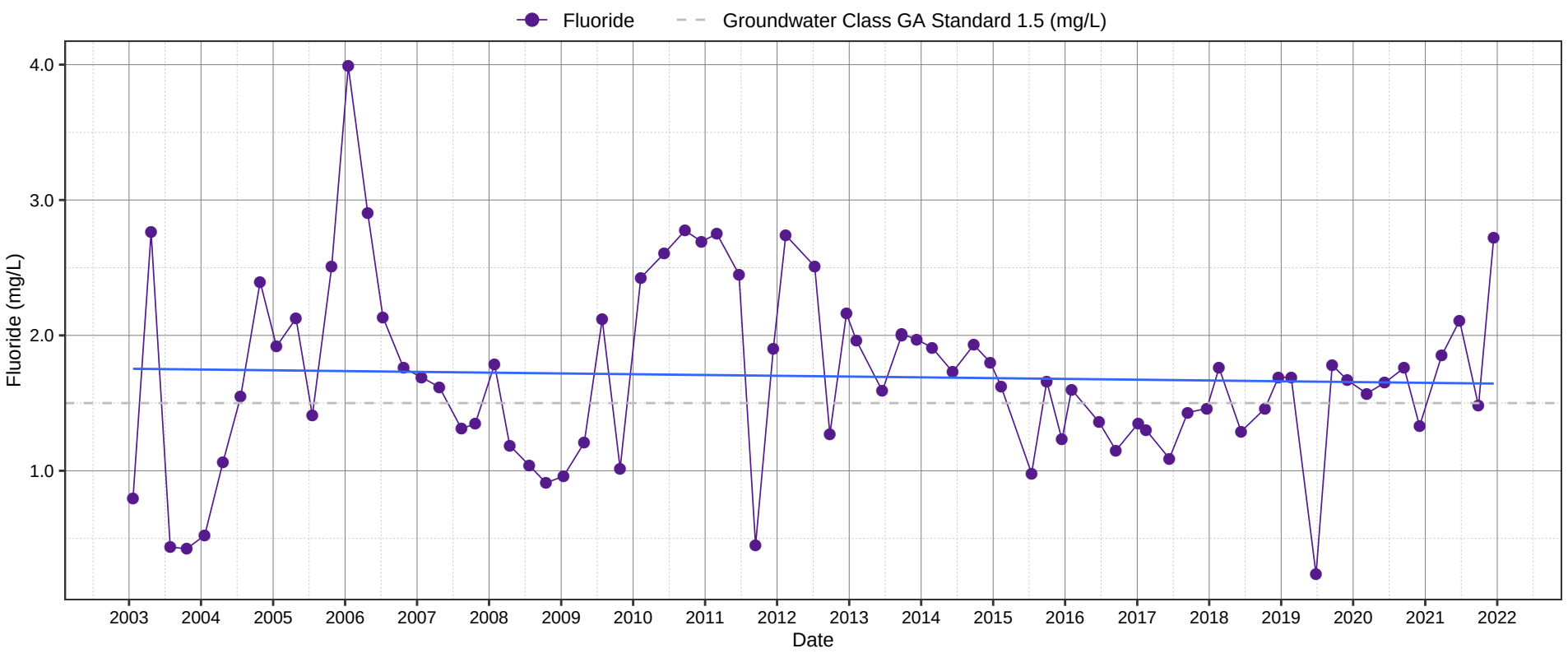
Increasing



Mann−Kendall p−value < 0.001

MW−39S

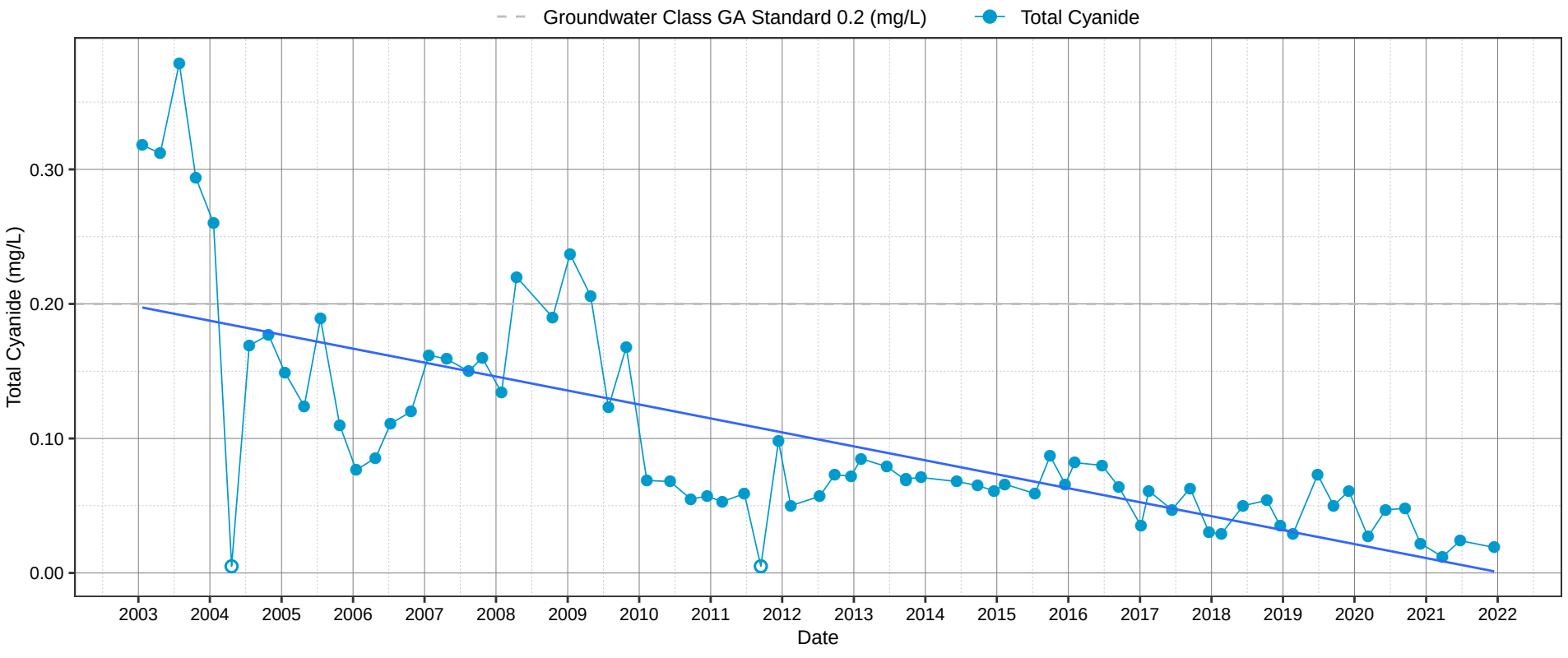
No Trend



Mann−Kendall p−value =0.632

MW−39S

Decreasing

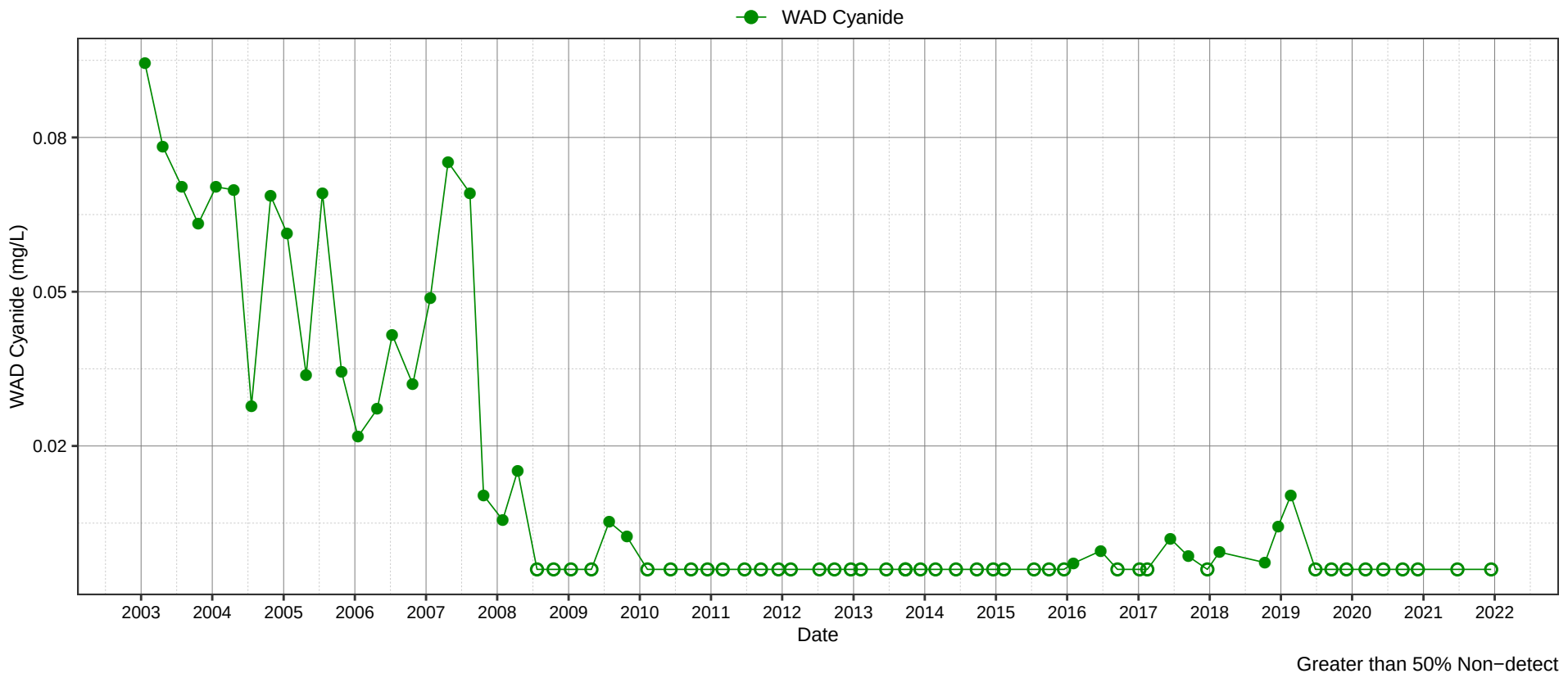


Mann−Kendall p−value < 0.001

Well MW−39S
Industrial Landfill
Samples from Post− 2003 Introduction of Perimeter Trench
(non−detects plotted as open symbols at half the method detection limit)

MW−39S

No Trend

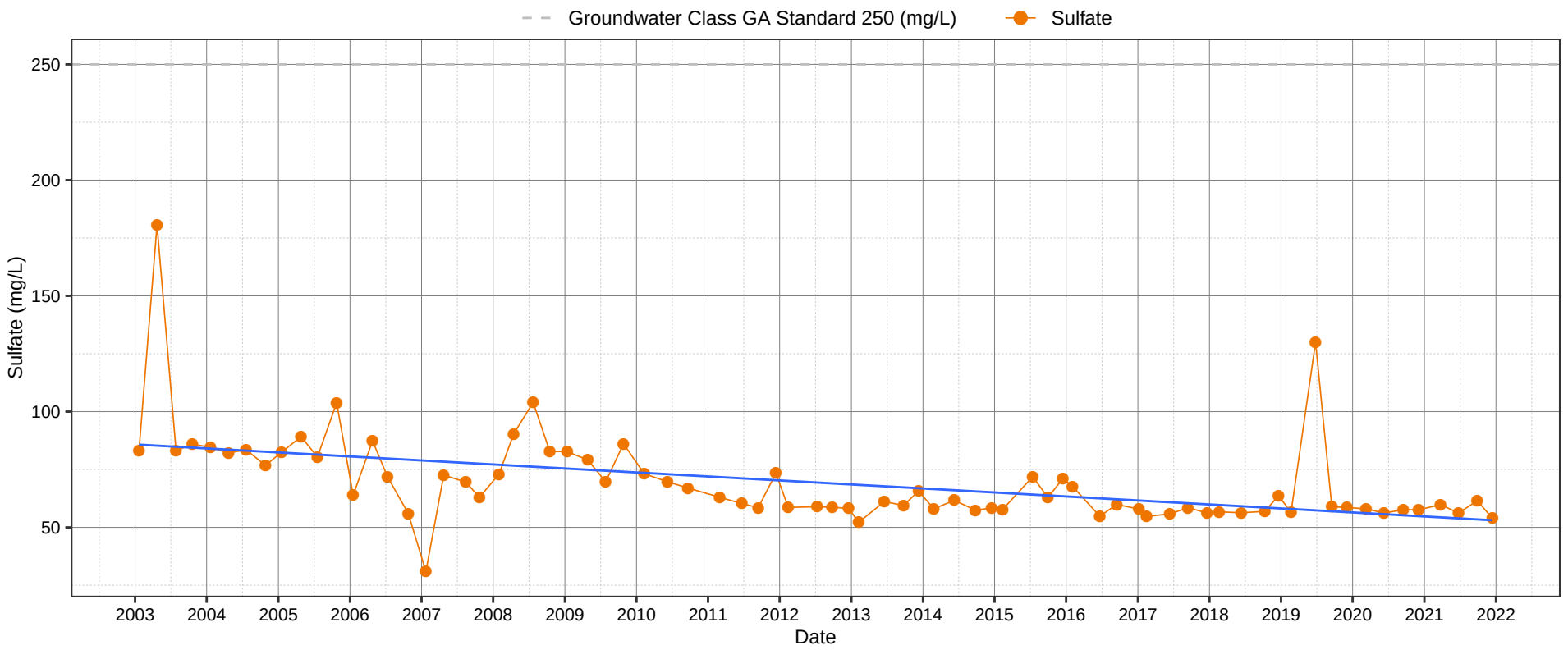


Greater than 50% Non−detect

Well MW−40S
Industrial Landfill
Samples from Post− 2003 Introduction of Perimeter Trench
(non−detects plotted as open symbols at half the method detection limit)

MW−40S

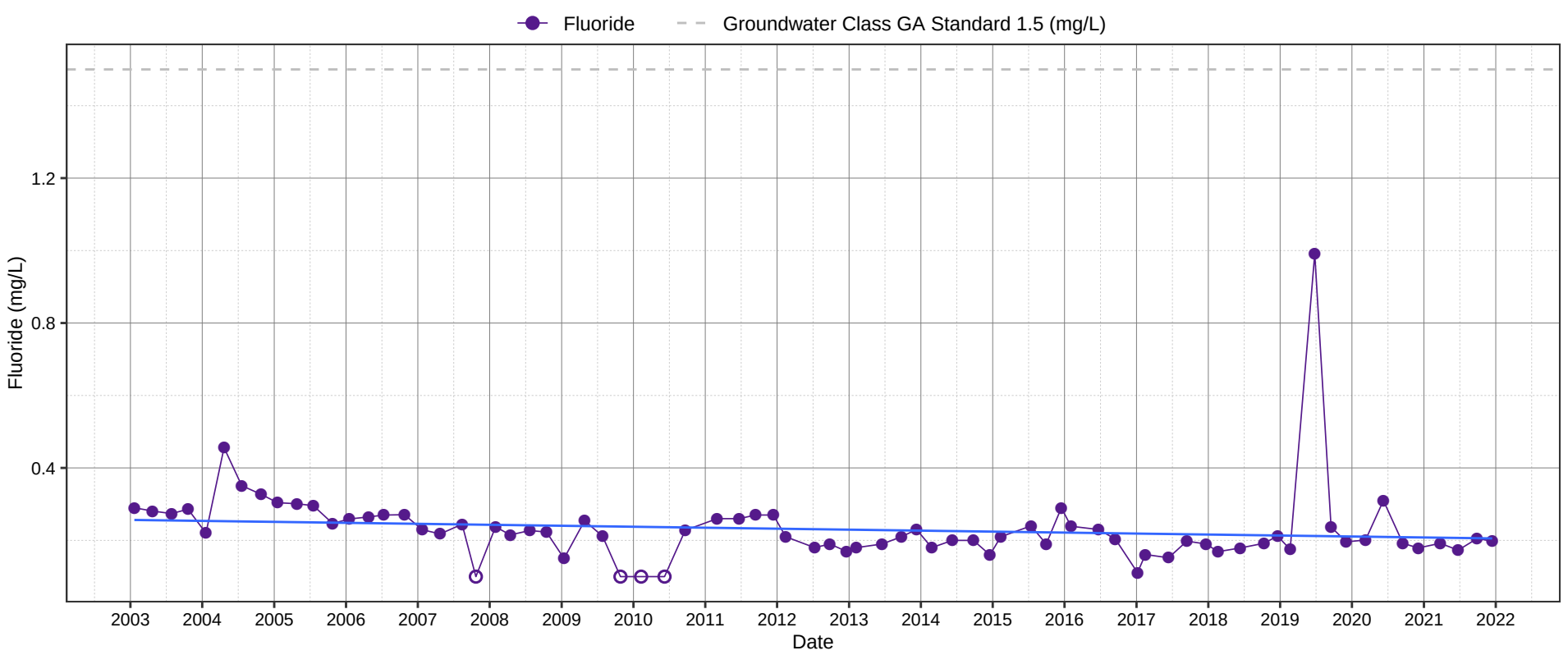
Decreasing



Mann−Kendall p−value < 0.001

MW−40S

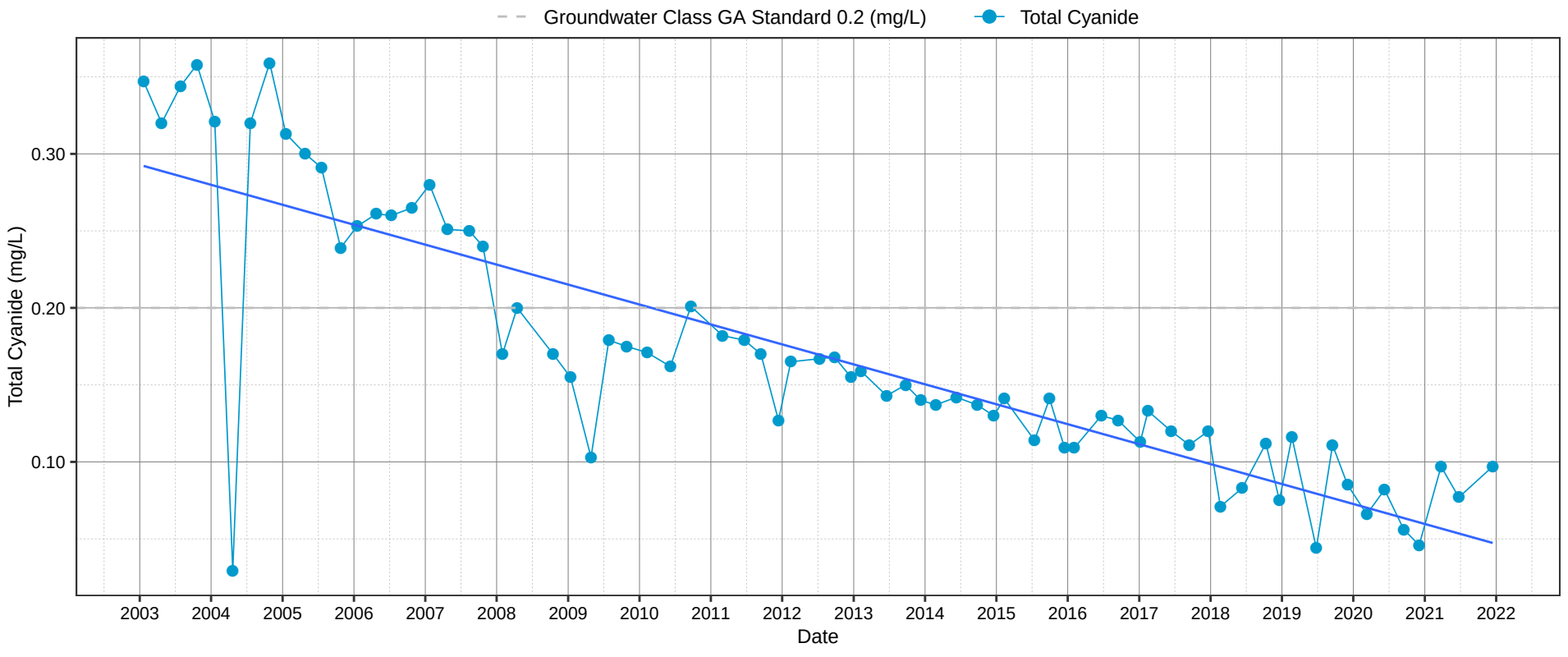
Decreasing



Mann−Kendall p−value < 0.001

MW−40S

Decreasing

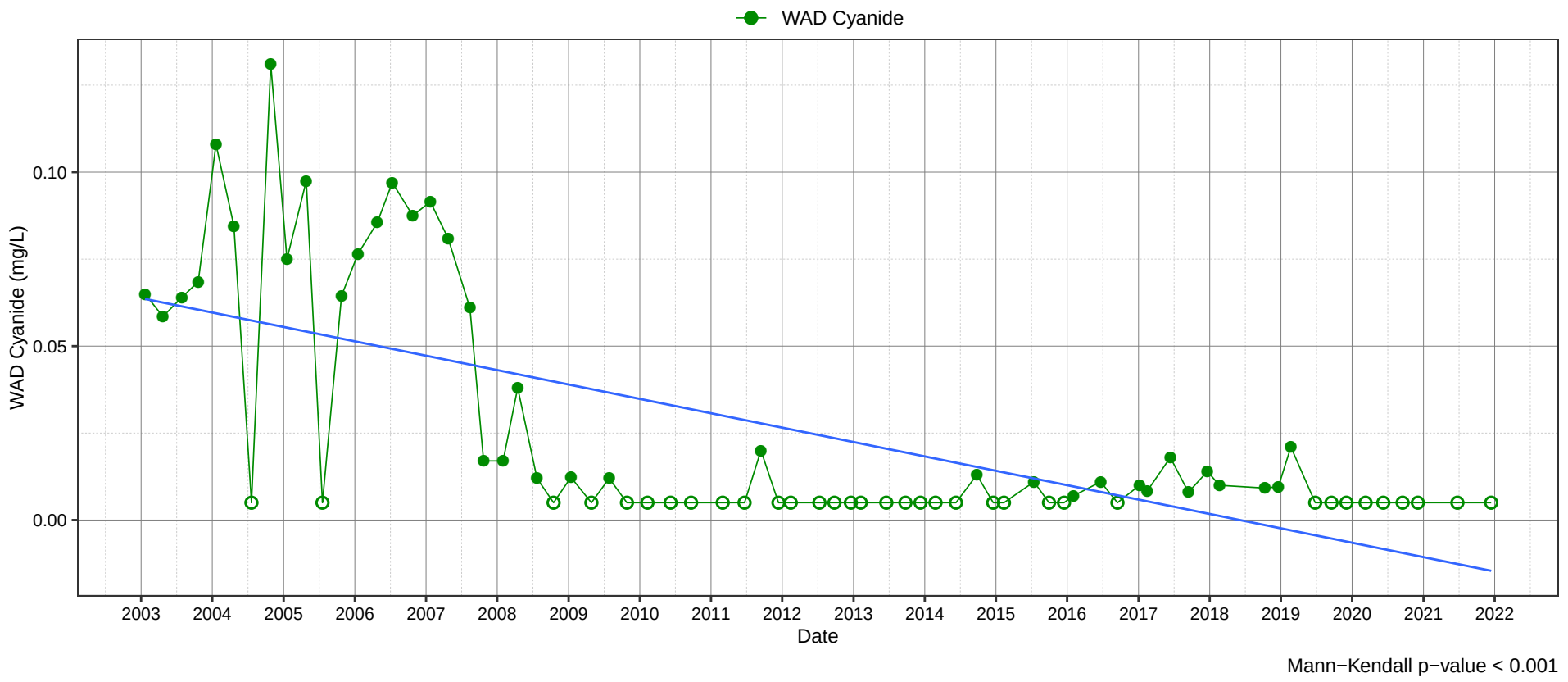


Mann−Kendall p−value < 0.001

Well MW−40S
Industrial Landfill
Samples from Post− 2003 Introduction of Perimeter Trench
(non−detects plotted as open symbols at half the method detection limit)

MW−40S

Decreasing

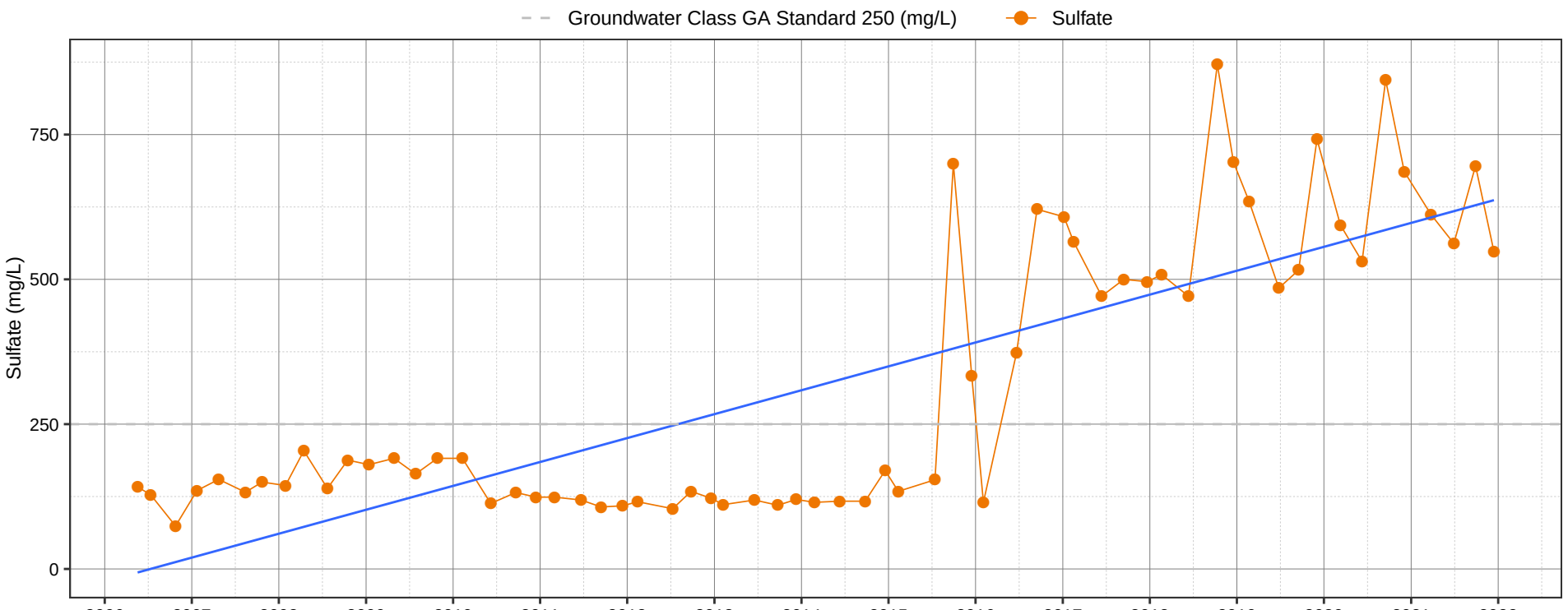


Mann−Kendall p−value < 0.001

Well MW−45
Industrial Landfill
Samples from Post− 2003 Introduction of Perimeter Trench
(non−detects plotted as open symbols at half the method detection limit)

MW−45

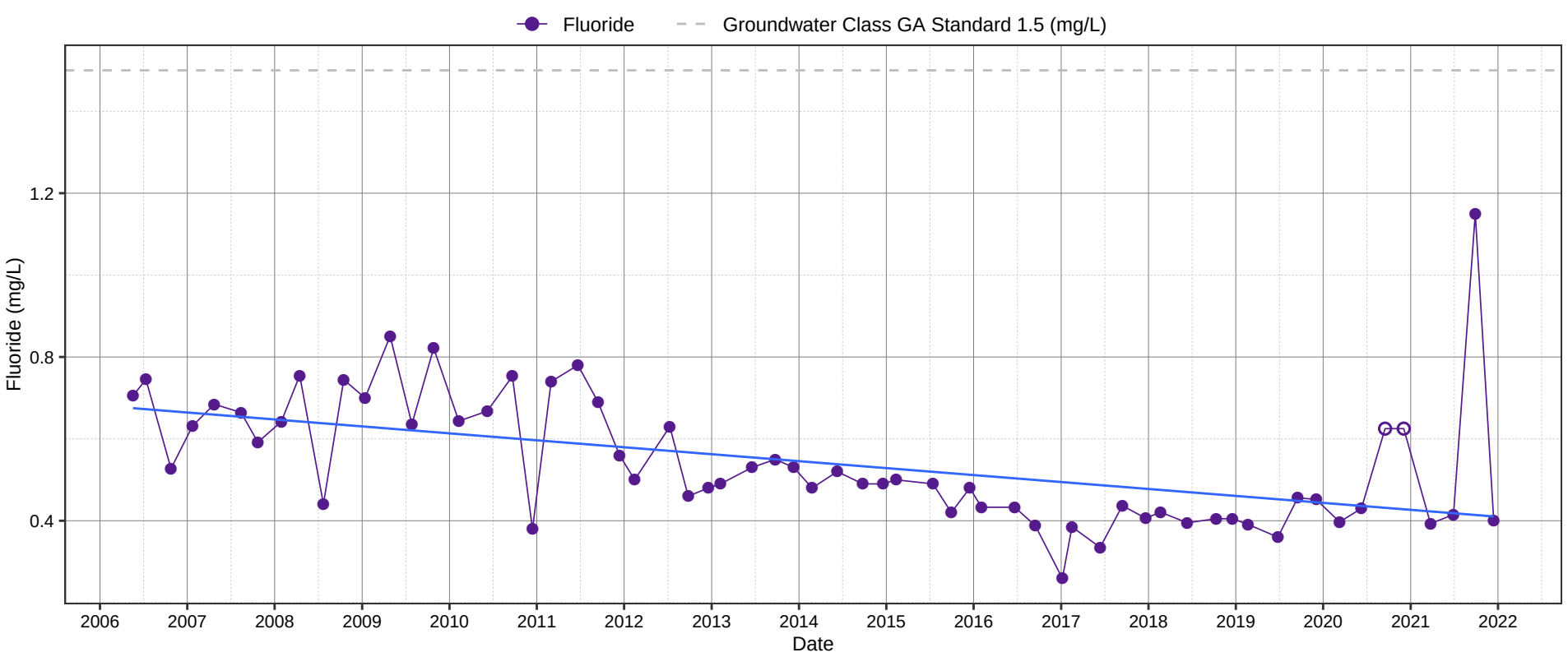
Increasing



Mann−Kendall p−value < 0.001

MW−45

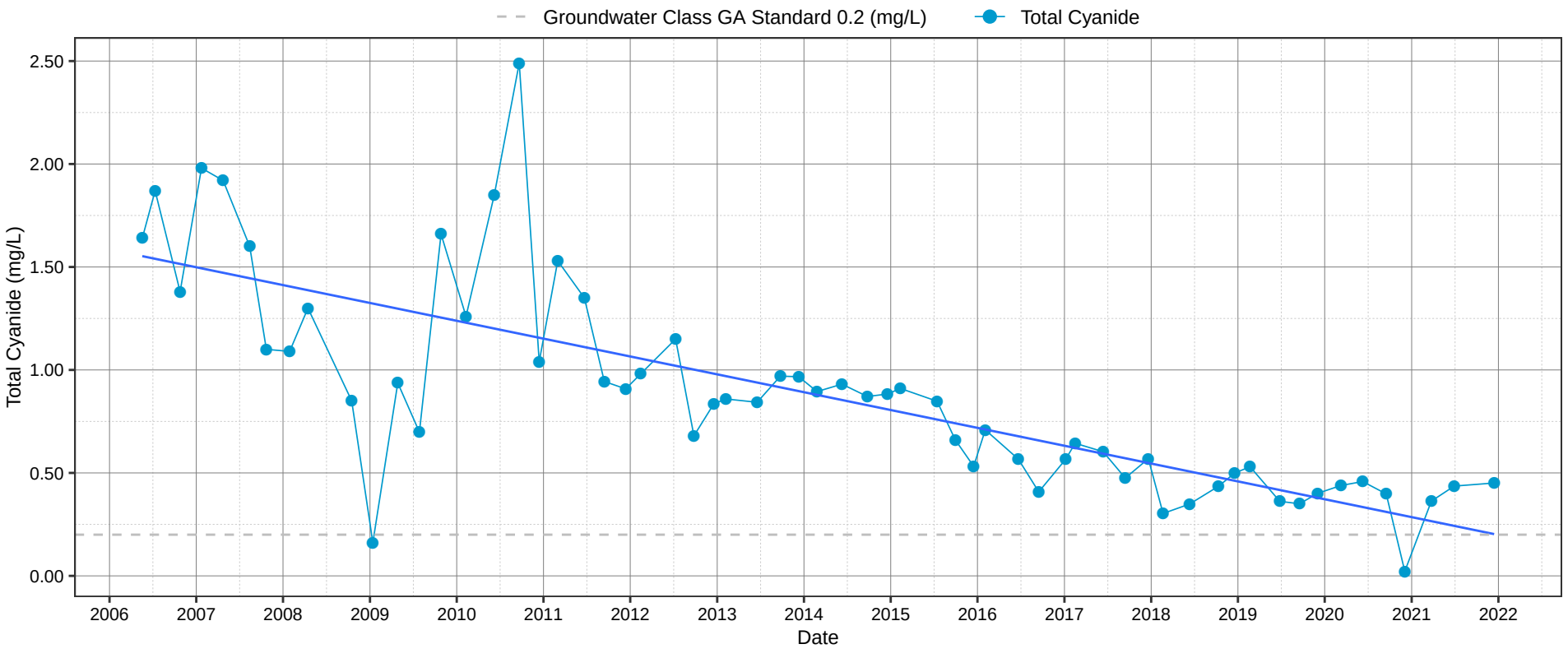
Decreasing



Mann−Kendall p−value < 0.001

MW−45

Decreasing

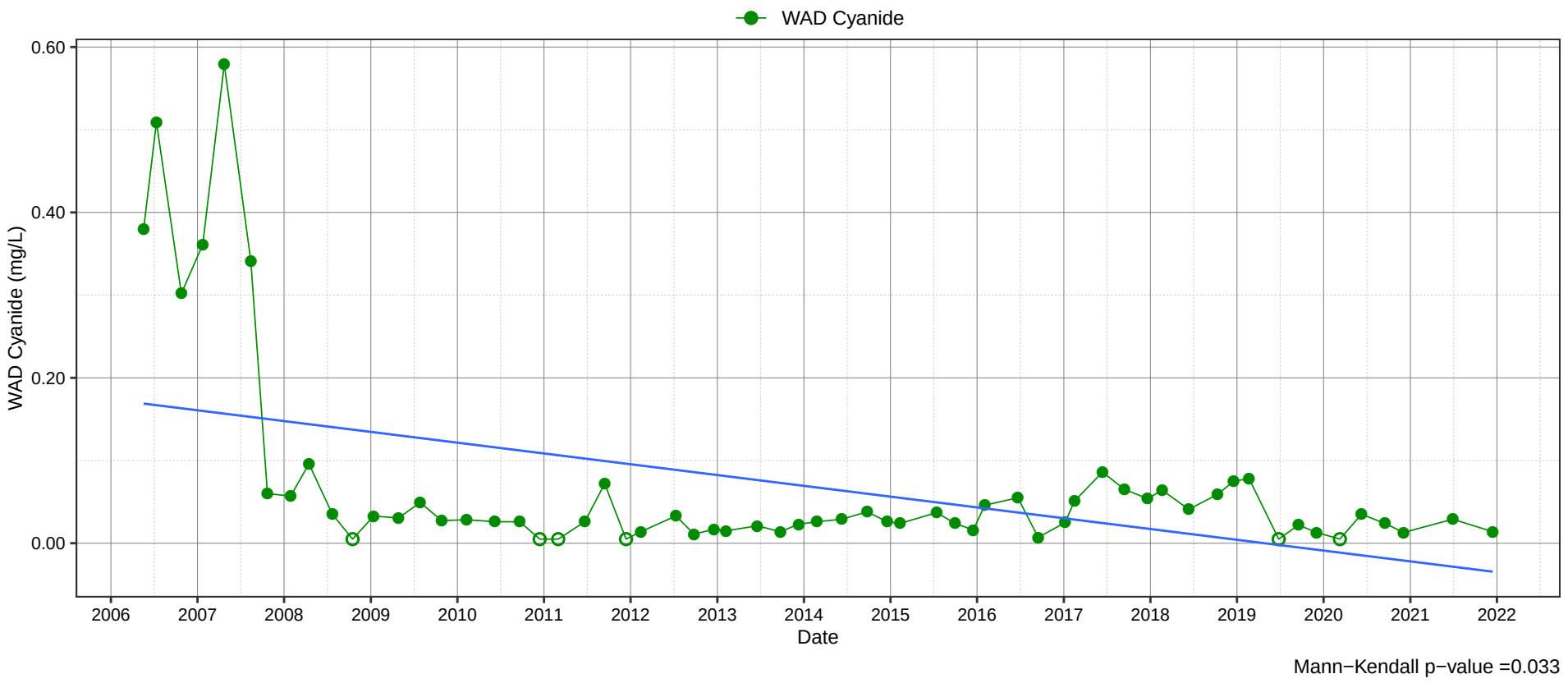


Mann−Kendall p−value < 0.001

Well MW−45
Industrial Landfill
Samples from Post− 2003 Introduction of Perimeter Trench
(non−detects plotted as open symbols at half the method detection limit)

MW−45

Decreasing

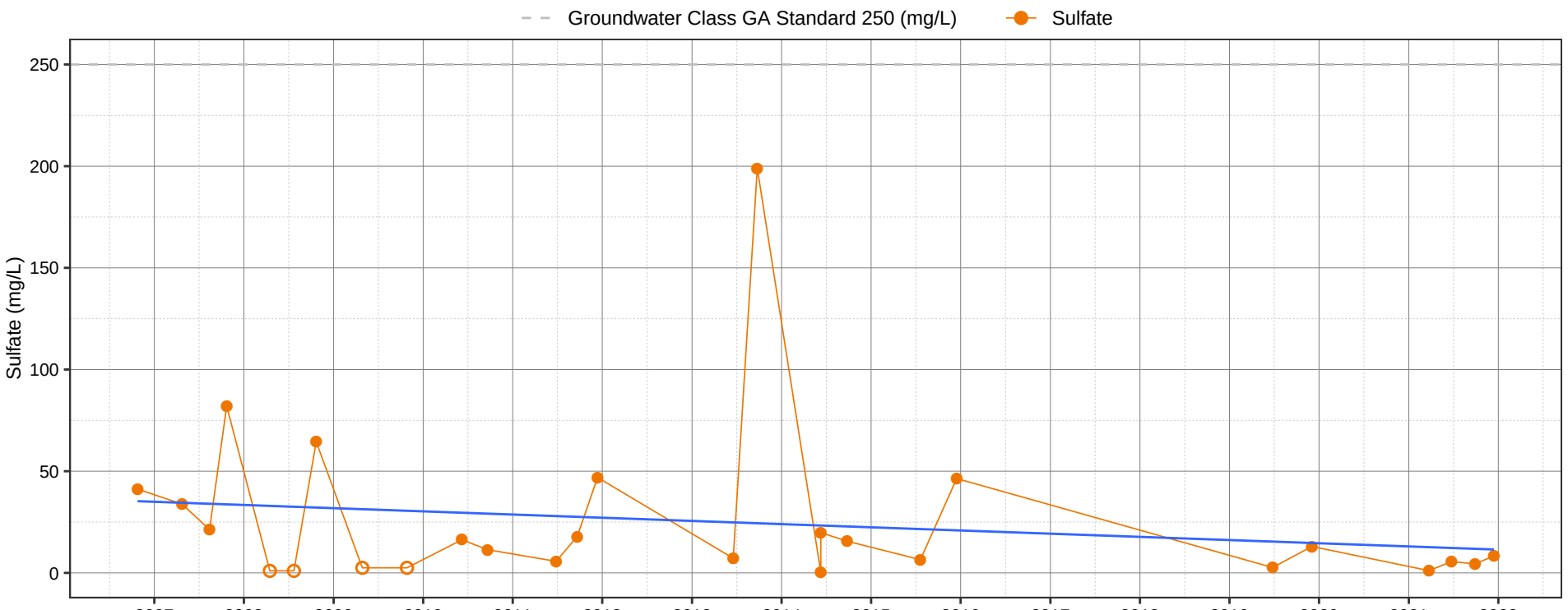


Mann−Kendall p−value =0.033

Well SLPWETE
Industrial Landfill
Samples from Post− 2003 Introduction of Perimeter Trench
(non−detects plotted as open symbols at half the method detection limit)

SLPWETE

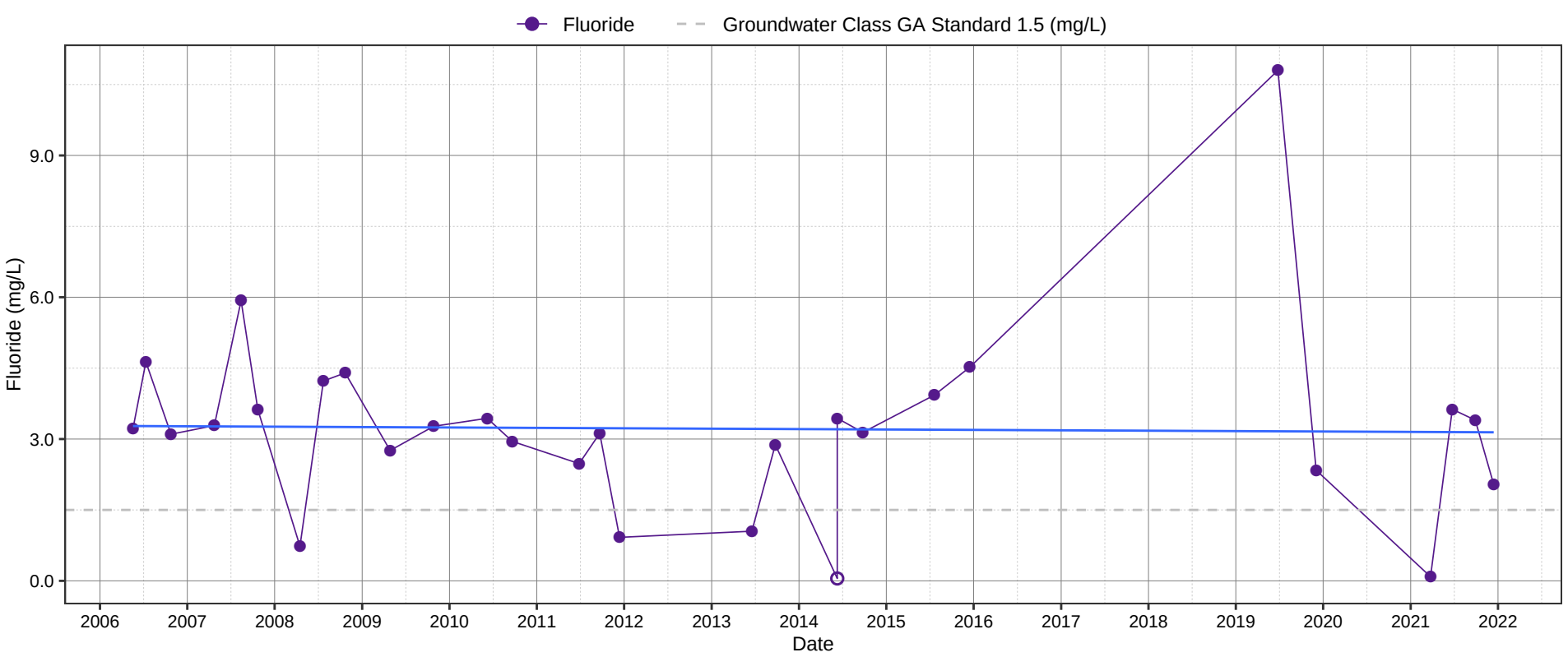
No Trend



Mann−Kendall p−value =0.243

SLPWETE

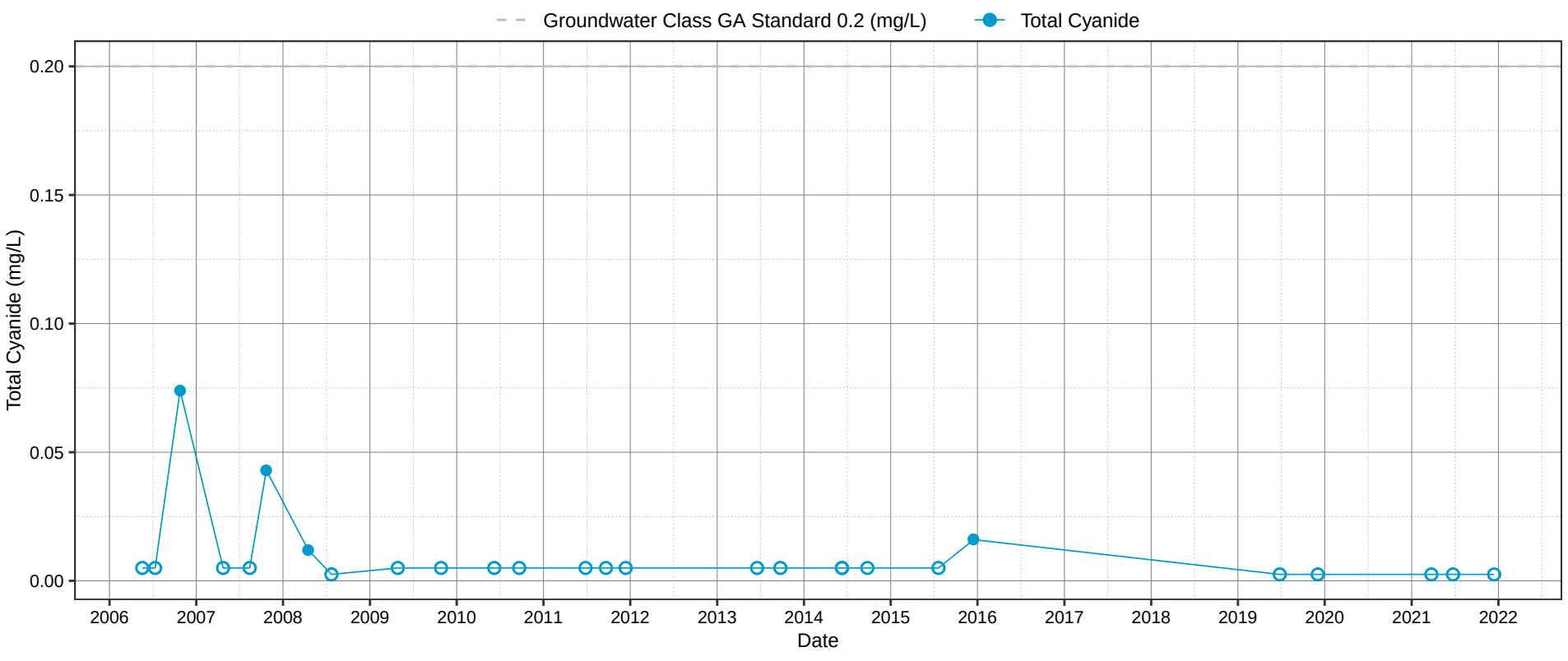
No Trend



Mann−Kendall p−value =0.339

SLPWETE

No Trend

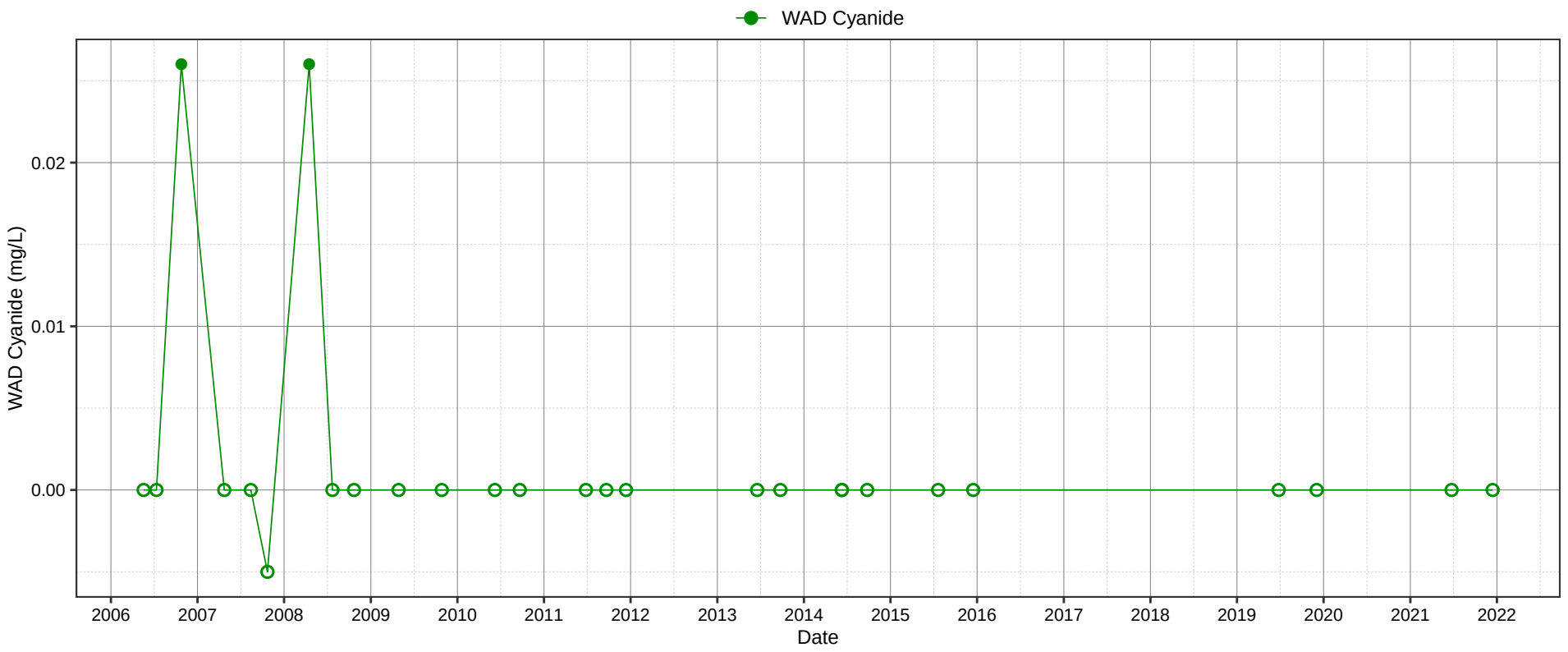


Greater than 50% Non−detect

Well SLPWETE
Industrial Landfill
Samples from Post− 2003 Introduction of Perimeter Trench
(non−detects plotted as open symbols at half the method detection limit)

SLPWETE

No Trend

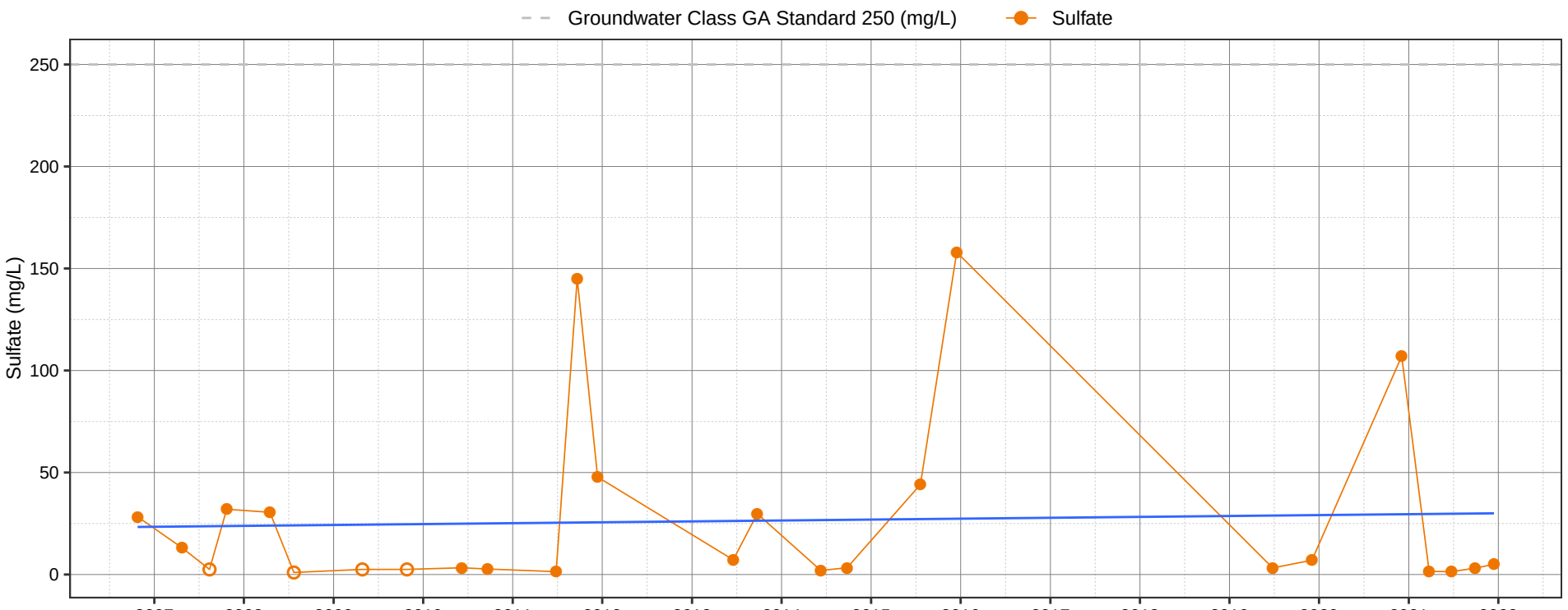


Greater than 50% Non−detect

Well SLPWETW
Industrial Landfill
Samples from Post− 2003 Introduction of Perimeter Trench
(non−detects plotted as open symbols at half the method detection limit)

SLPWETW

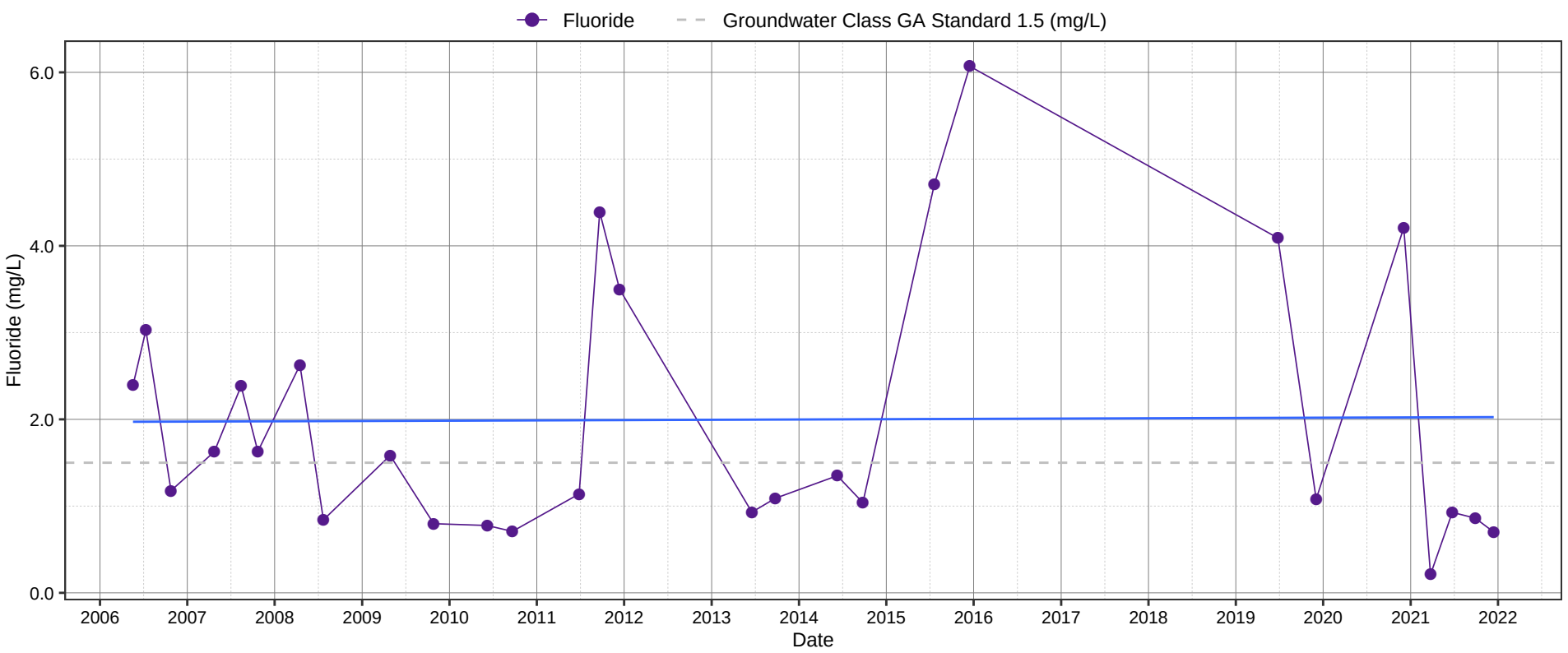
No Trend



Mann−Kendall p−value =0.965

SLPWETW

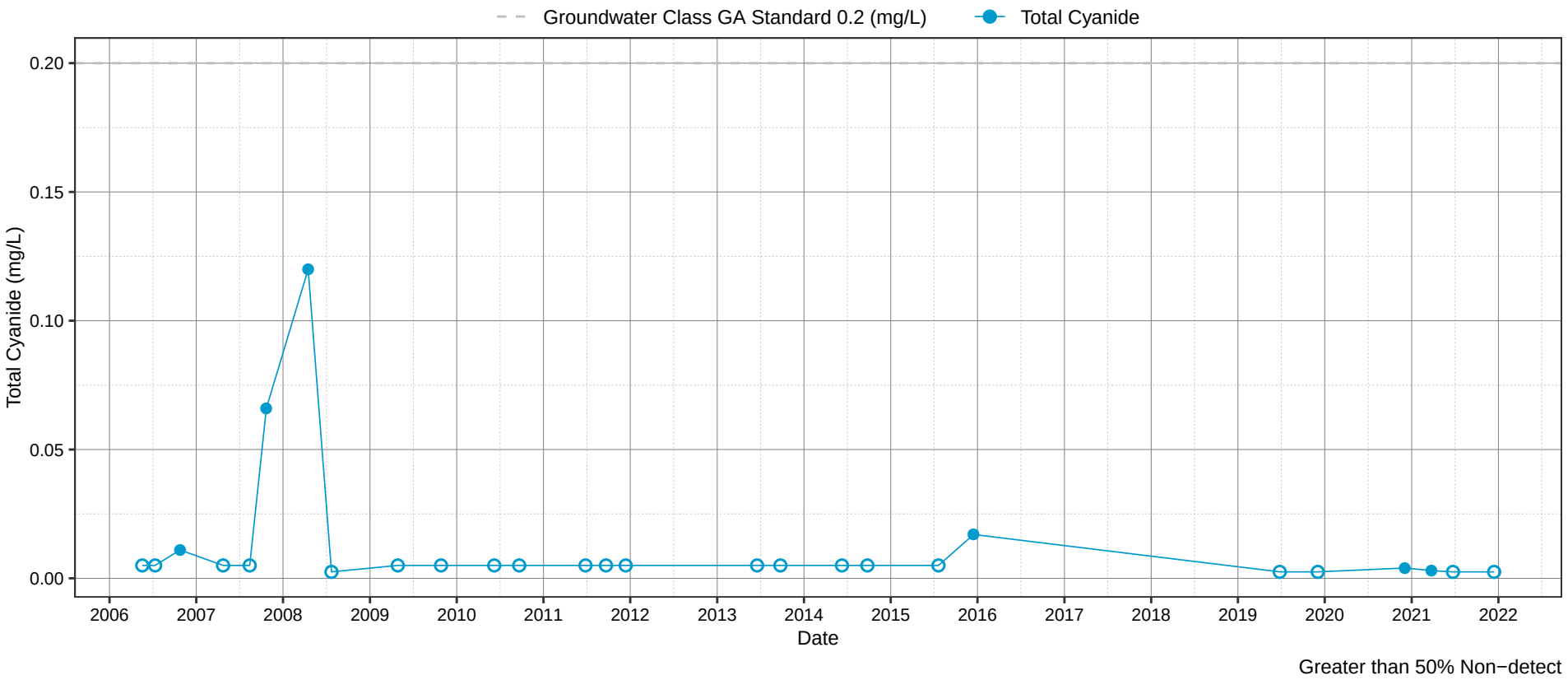
No Trend



Mann−Kendall p−value =0.244

SLPWETW

No Trend

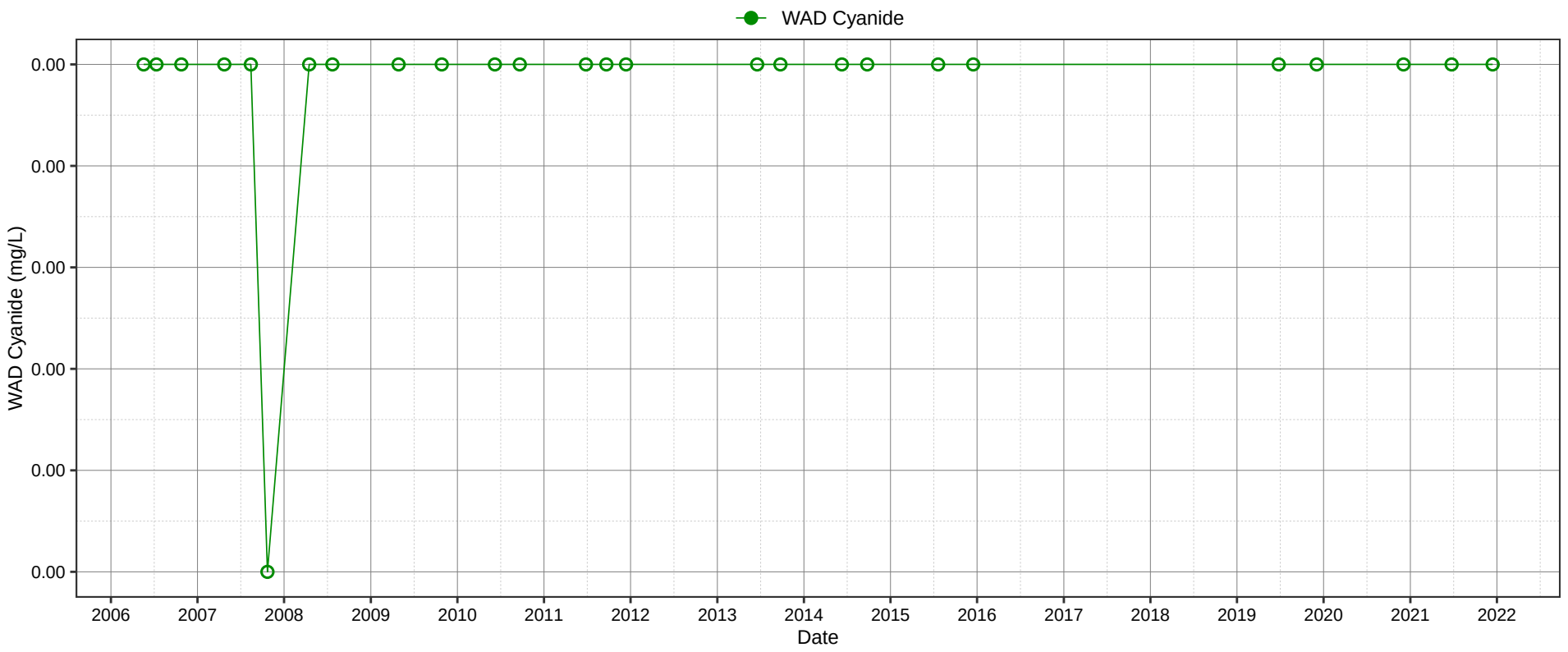


Greater than 50% Non−detect

Well SLPWETW
Industrial Landfill
Samples from Post− 2003 Introduction of Perimeter Trench
(non−detects plotted as open symbols at half the method detection limit)

SLPWETW

No Trend

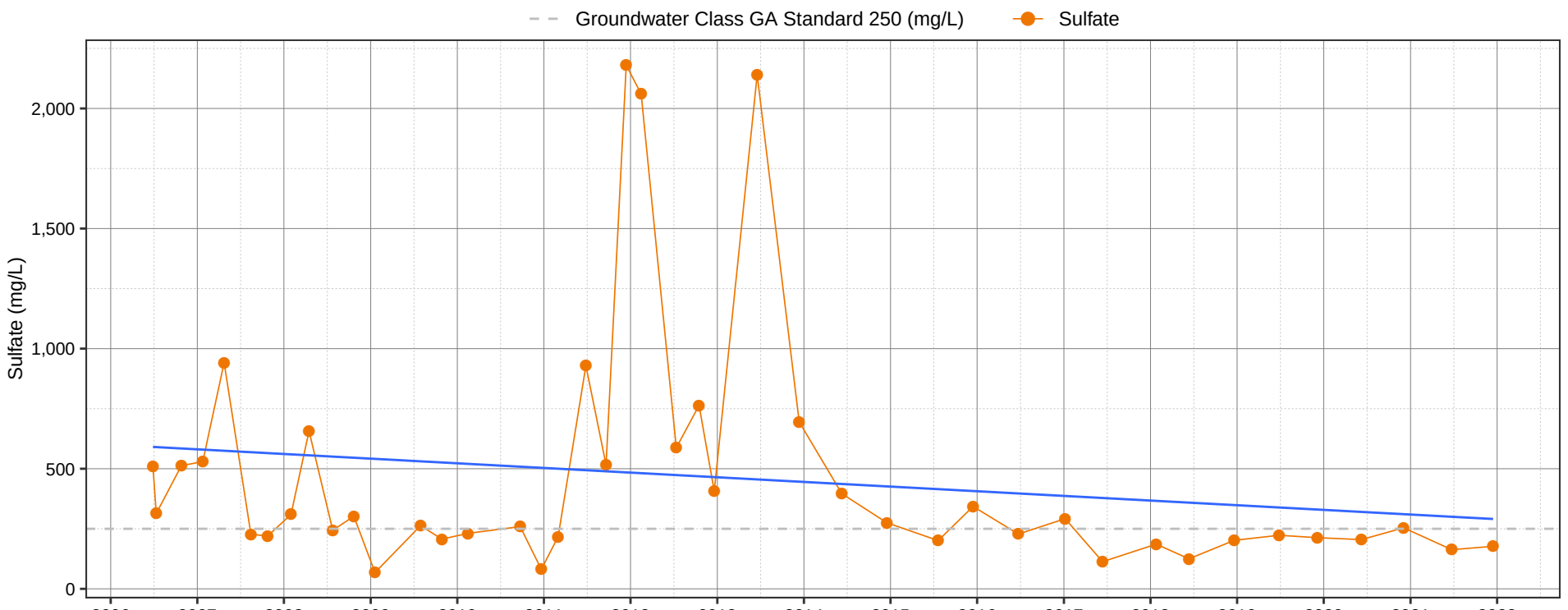


Greater than 50% Non−detect

Well FDRAIN1
North Yard
Samples from Post−November 2001 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

FDRAIN1

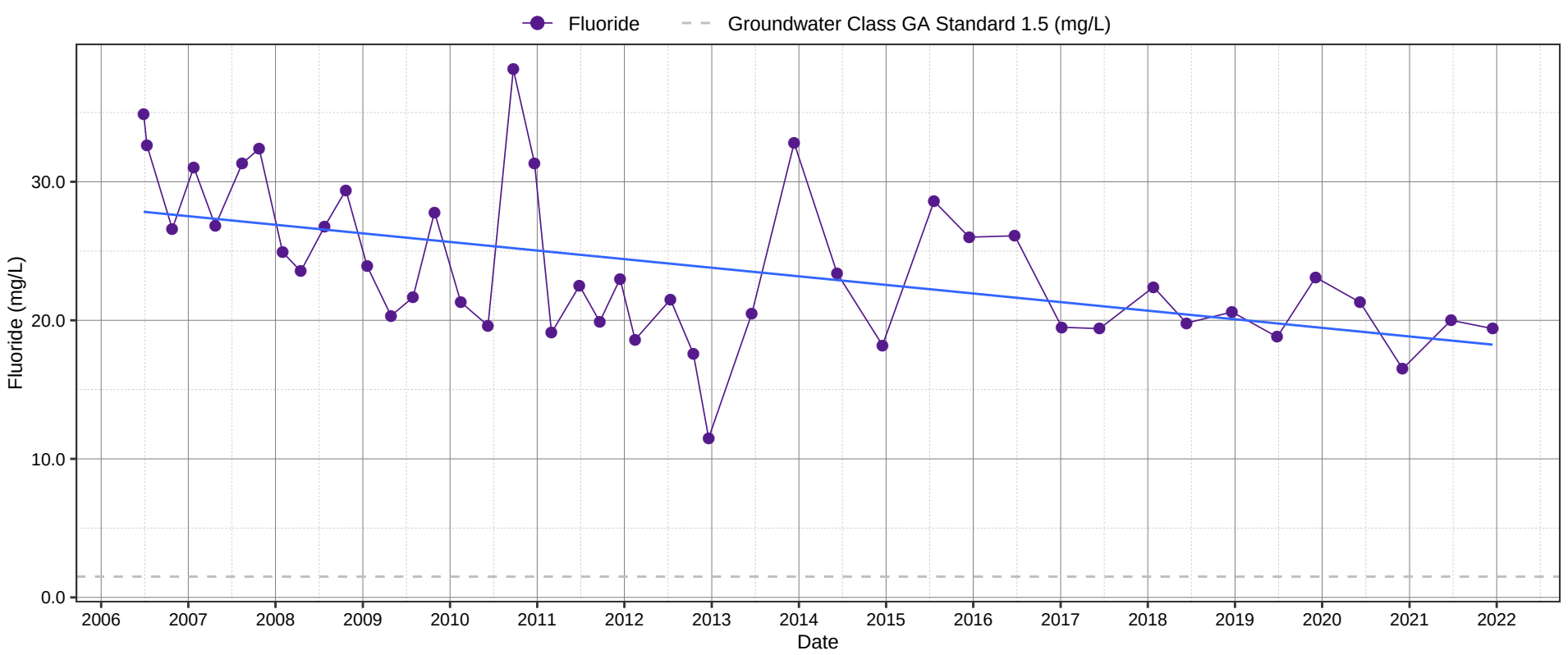
Decreasing



Mann−Kendall p−value =0.013

FDRAIN1

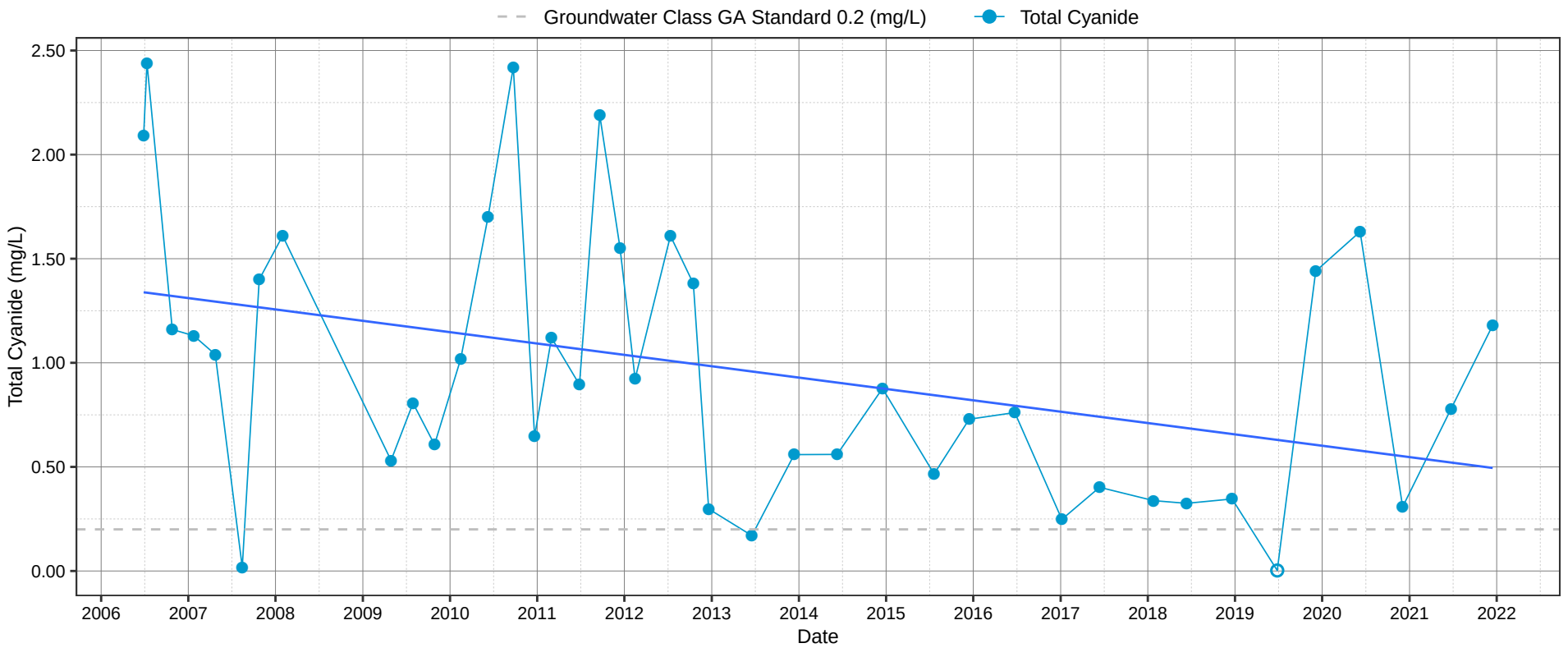
Decreasing



Mann−Kendall p−value < 0.001

FDRAIN1

Decreasing

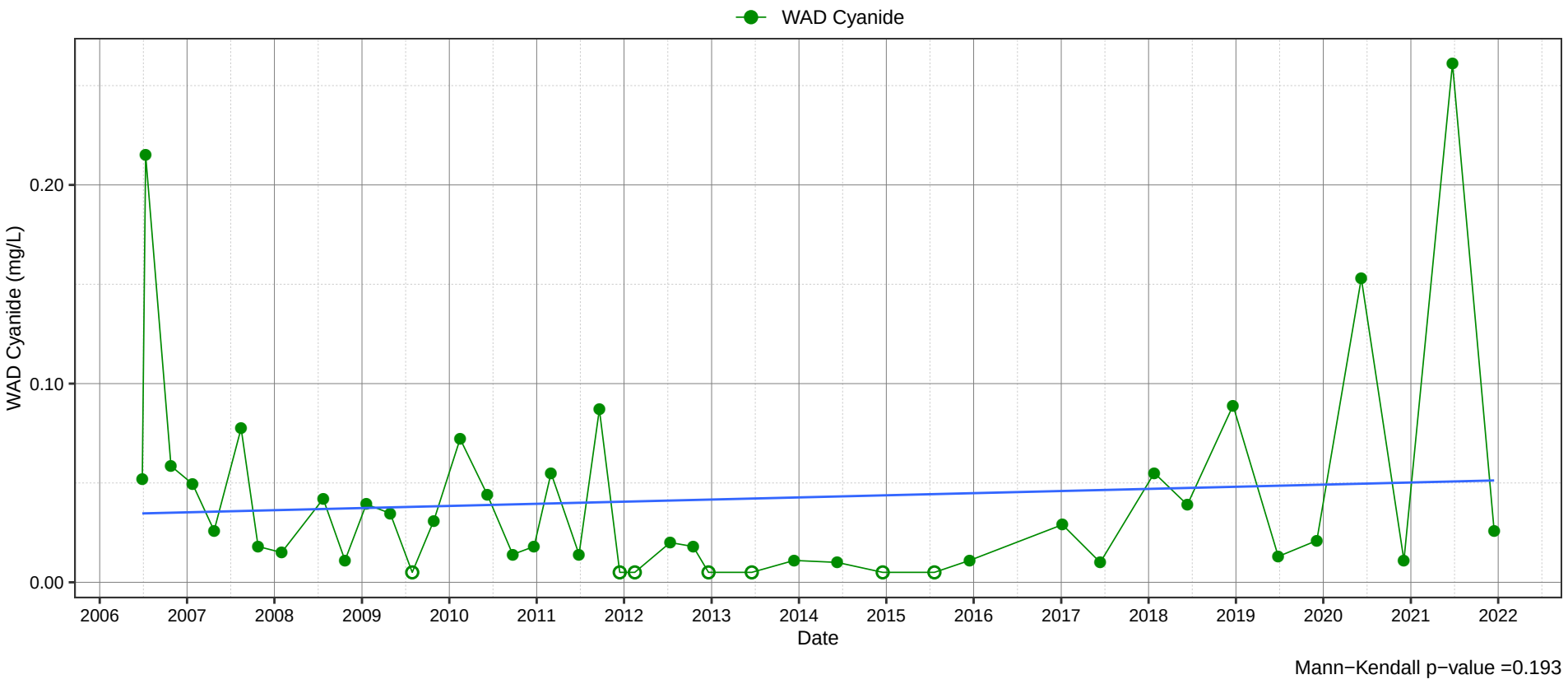


Mann−Kendall p−value =0.007

Well FDRAIN1
North Yard
Samples from Post−November 2001 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

FDRAIN1

No Trend

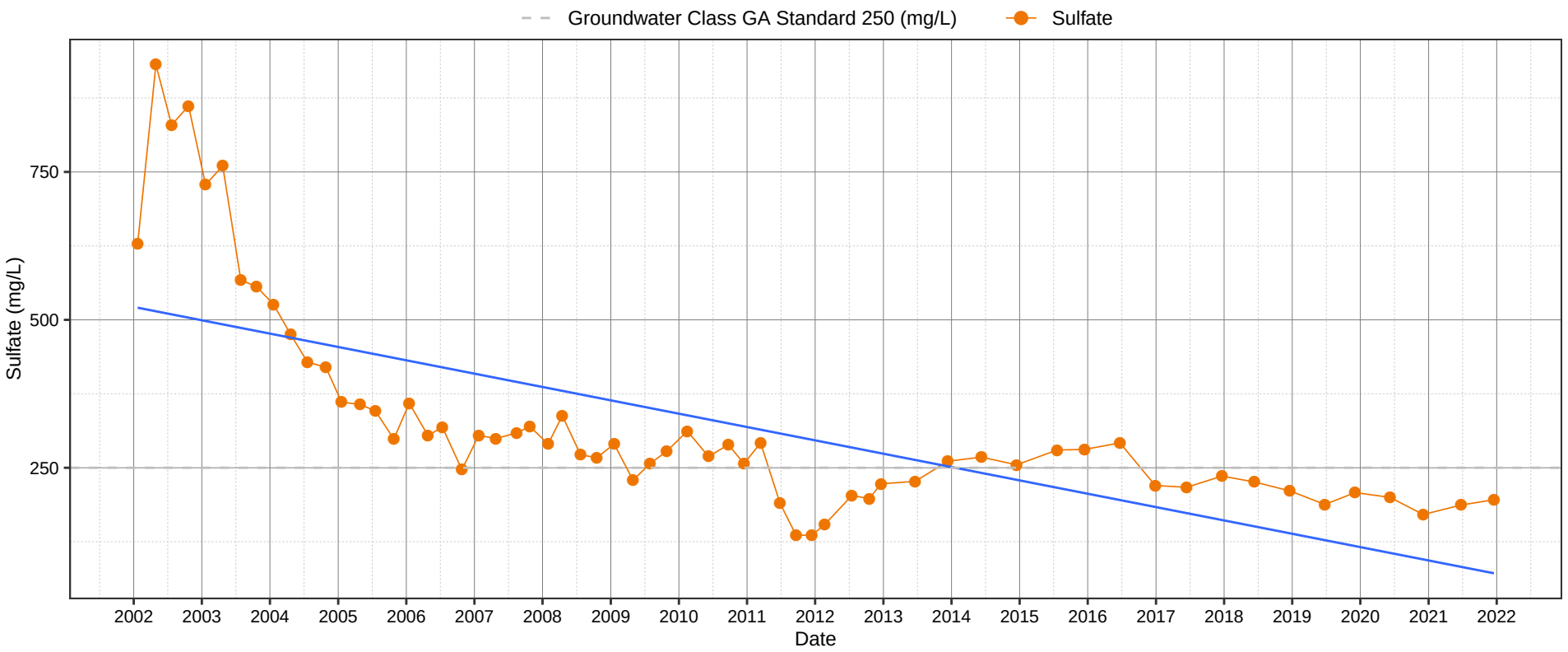


Mann−Kendall p−value =0.193

Well MW−16S
North Yard
Samples from Post−November 2001 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−16S

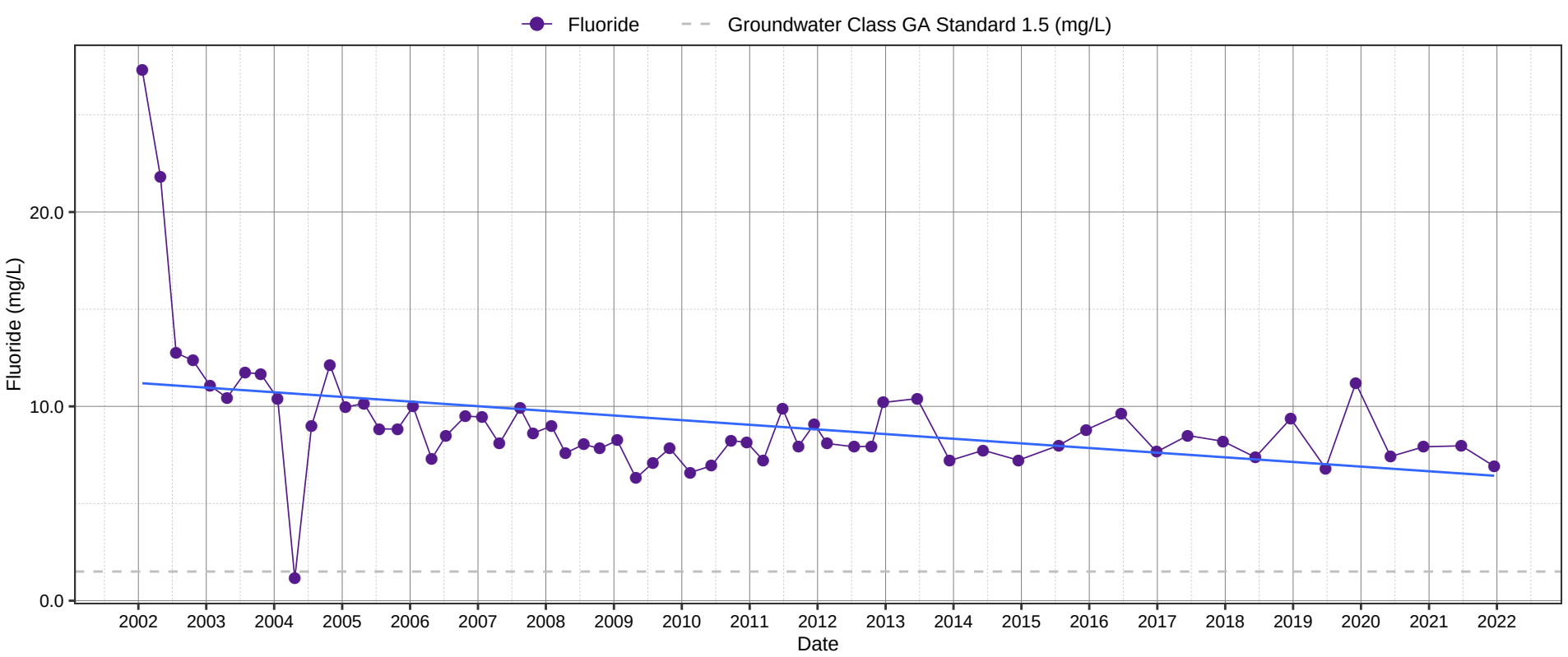
Decreasing



Mann−Kendall p−value < 0.001

MW−16S

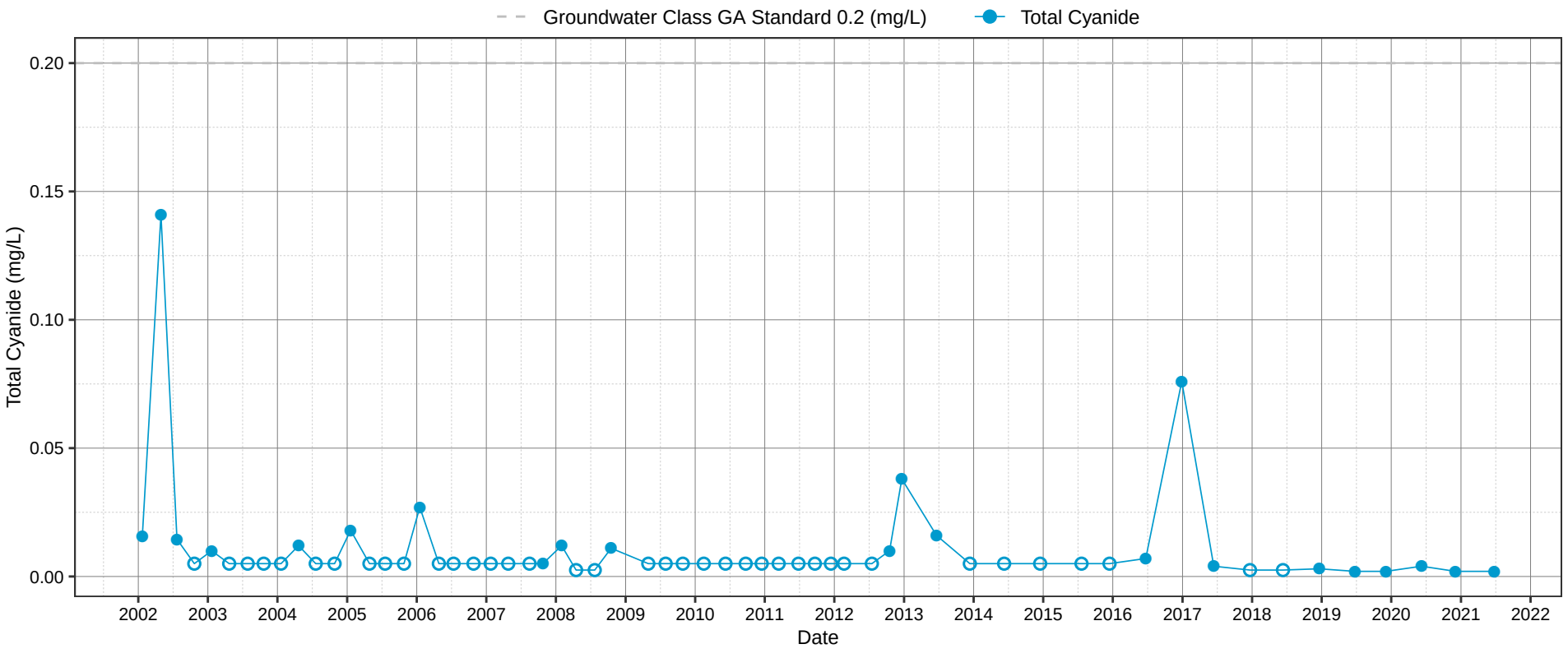
Decreasing



Mann−Kendall p−value < 0.001

MW−16S

No Trend

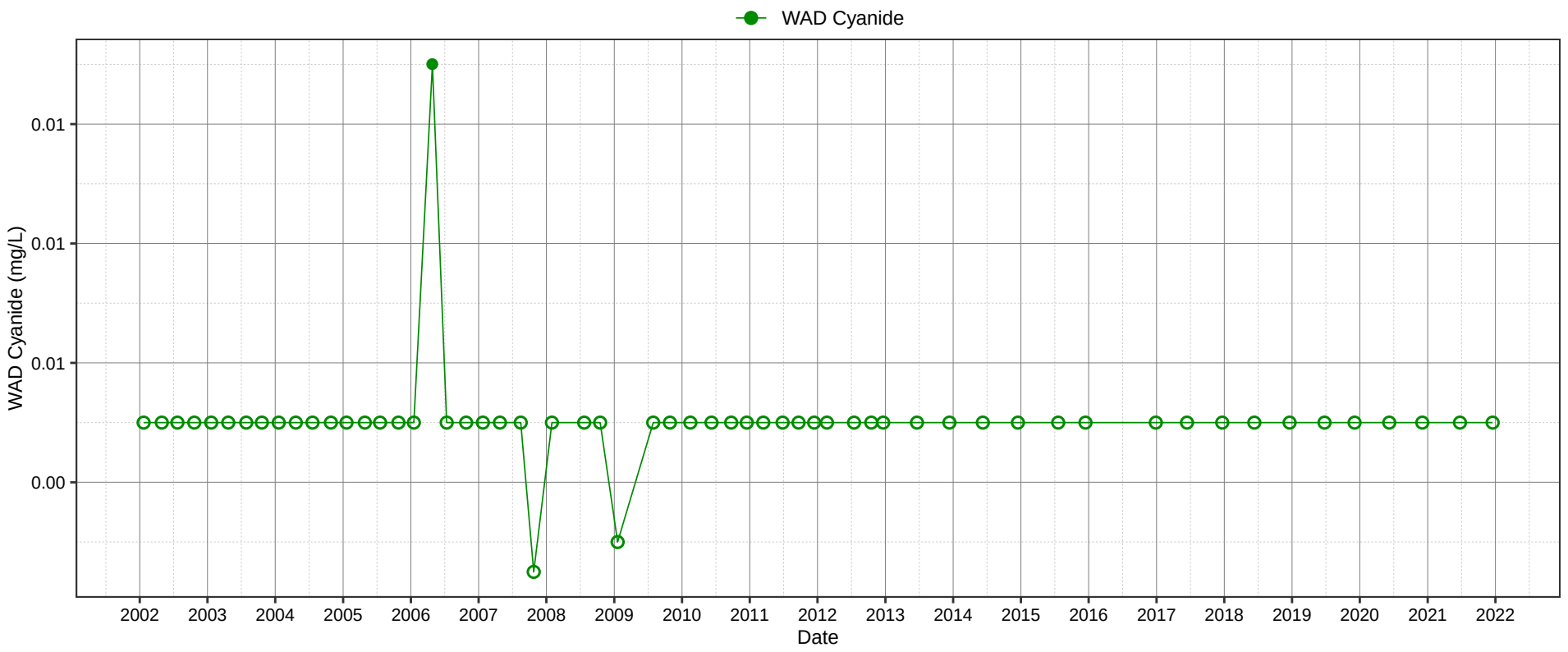


Greater than 50% Non−detect

Well MW−16S
North Yard
Samples from Post−November 2001 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−16S

No Trend

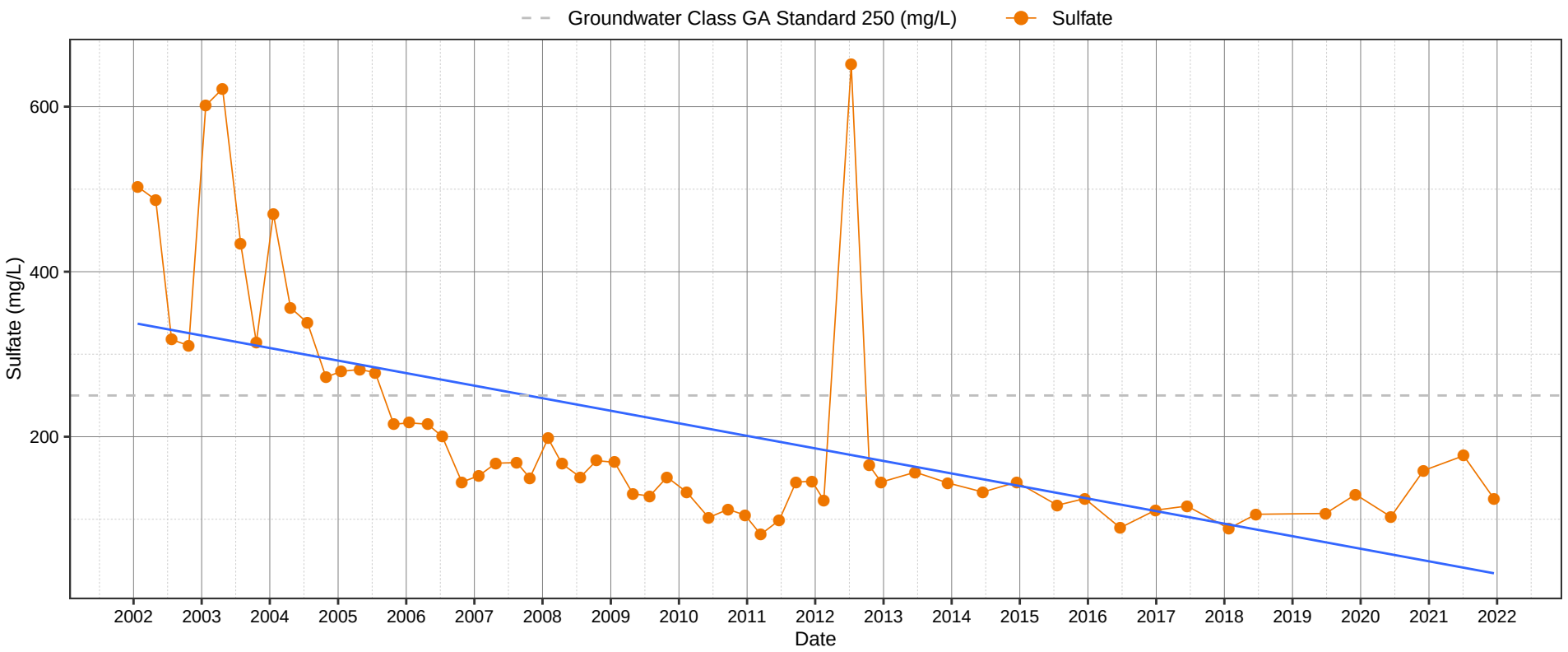


Greater than 50% Non−detect

Well MW−17S
North Yard
Samples from Post−November 2001 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−17S

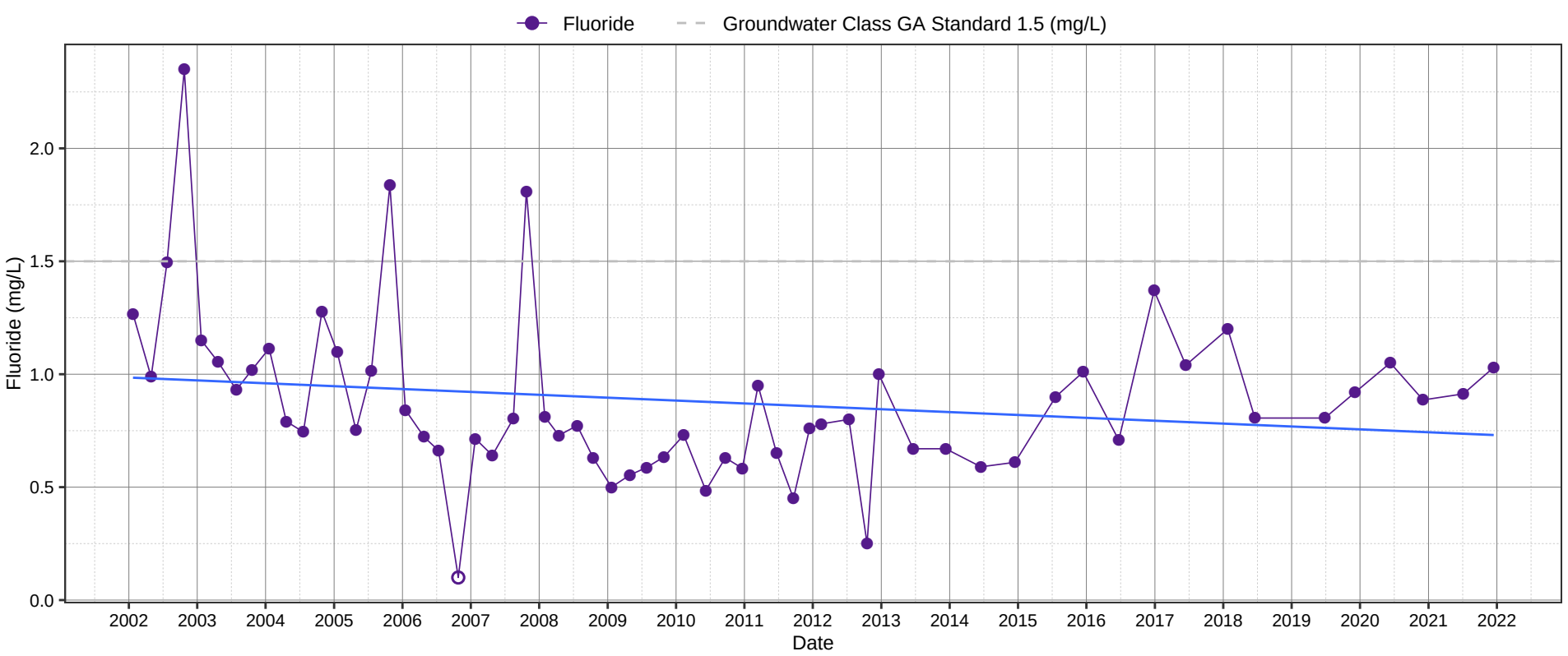
Decreasing



Mann−Kendall p−value < 0.001

MW−17S

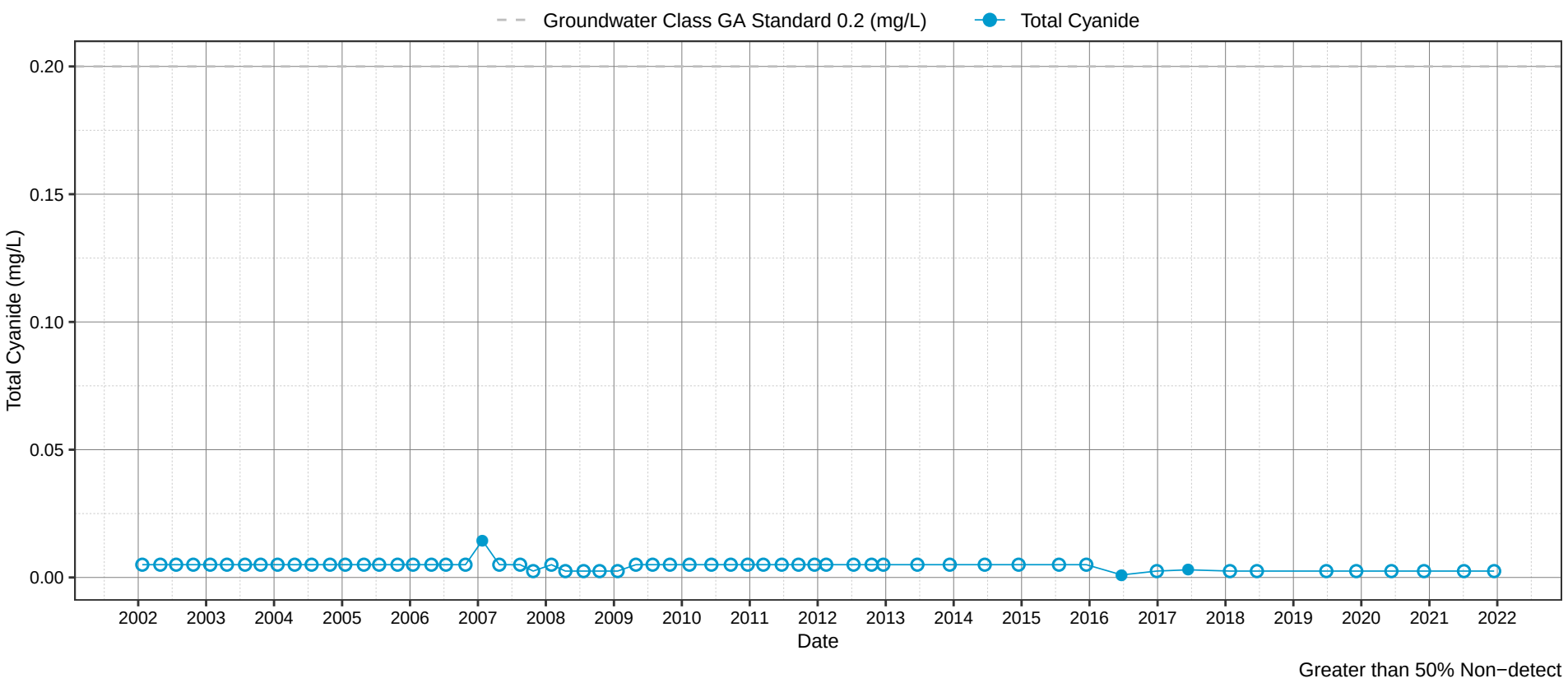
No Trend



Mann−Kendall p−value =0.14

MW−17S

No Trend

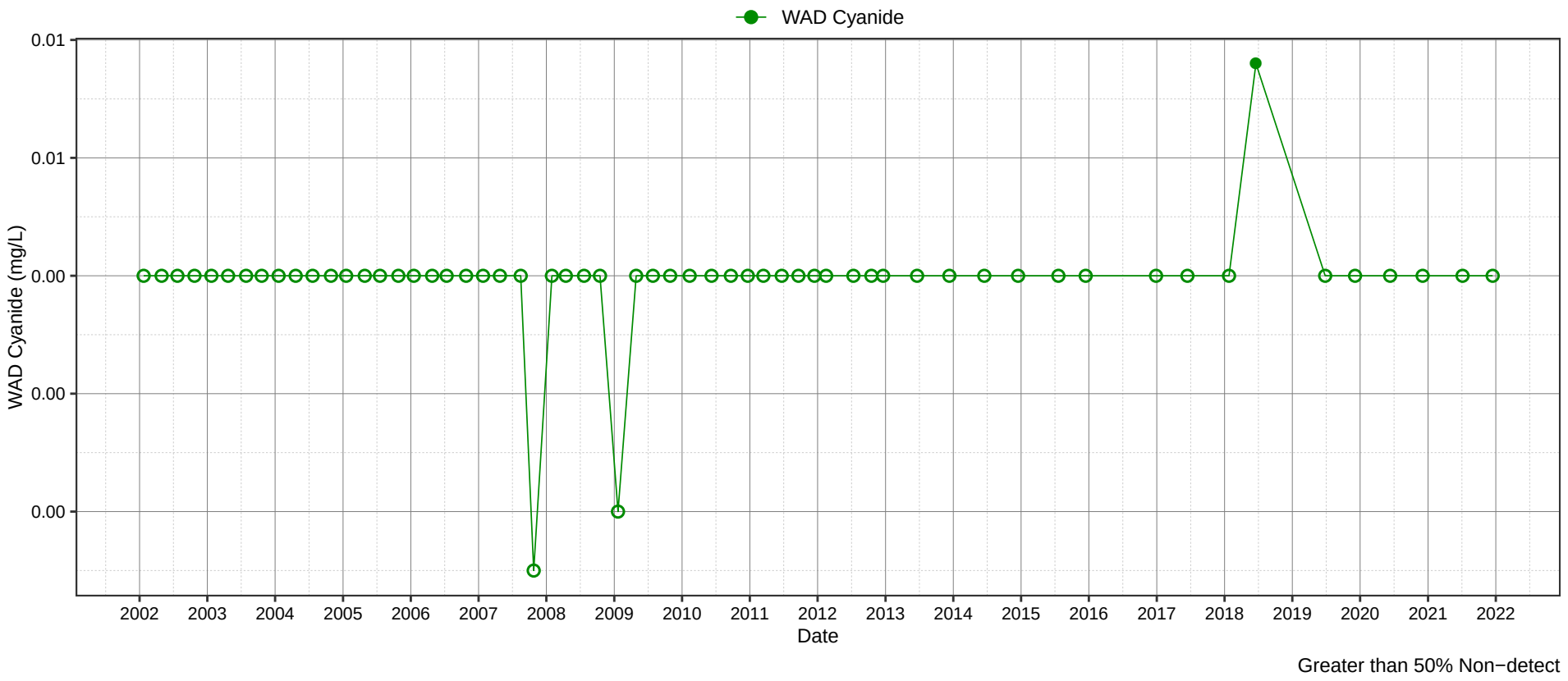


Greater than 50% Non−detect

Well MW−17S
North Yard
Samples from Post−November 2001 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−17S

No Trend

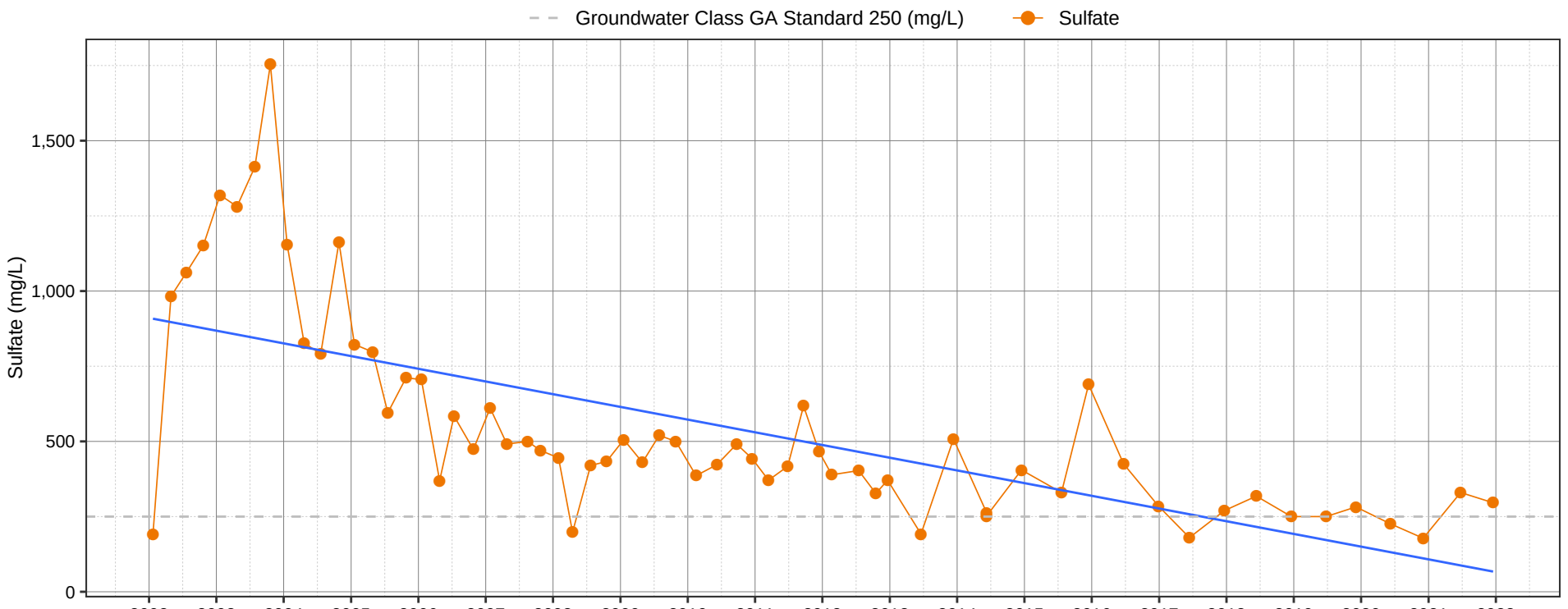


Greater than 50% Non−detect

Well MW−18S
North Yard
Samples from Post−November 2001 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−18S

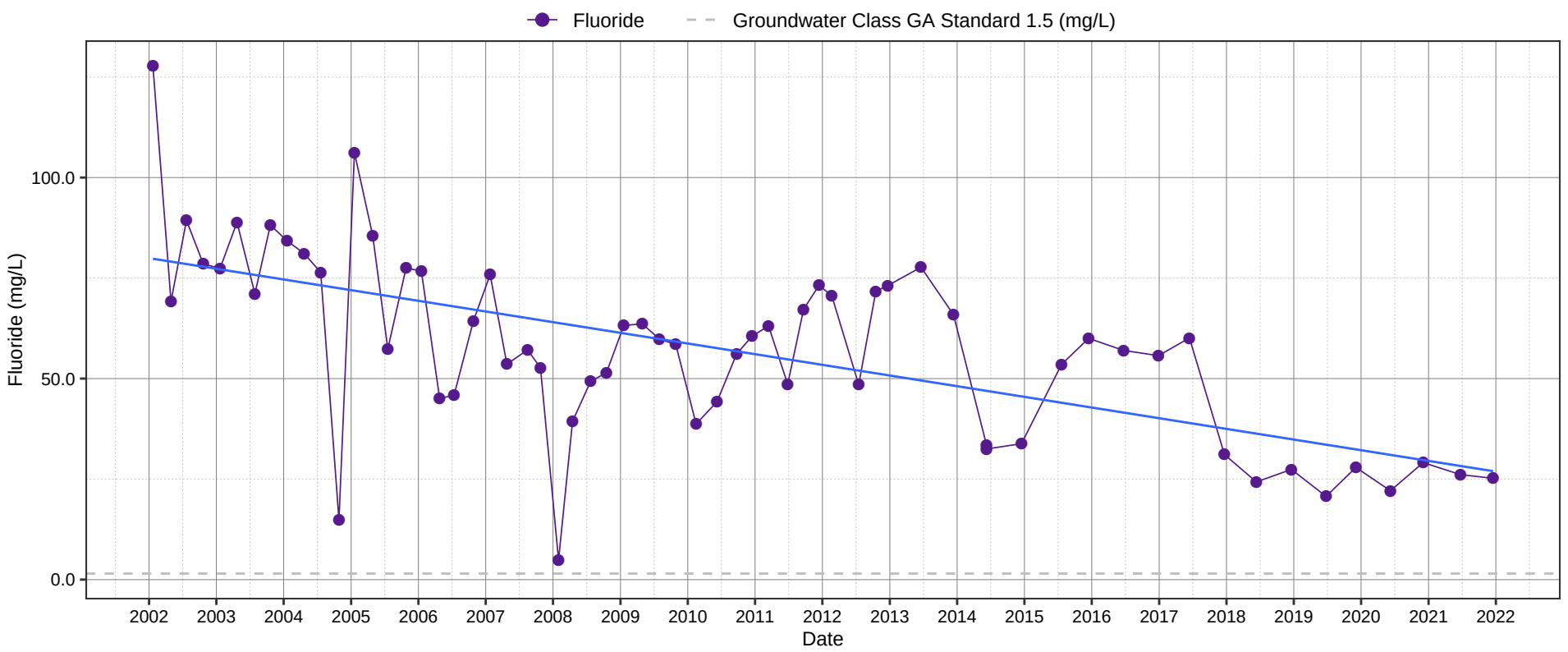
Decreasing



Mann−Kendall p−value < 0.001

MW−18S

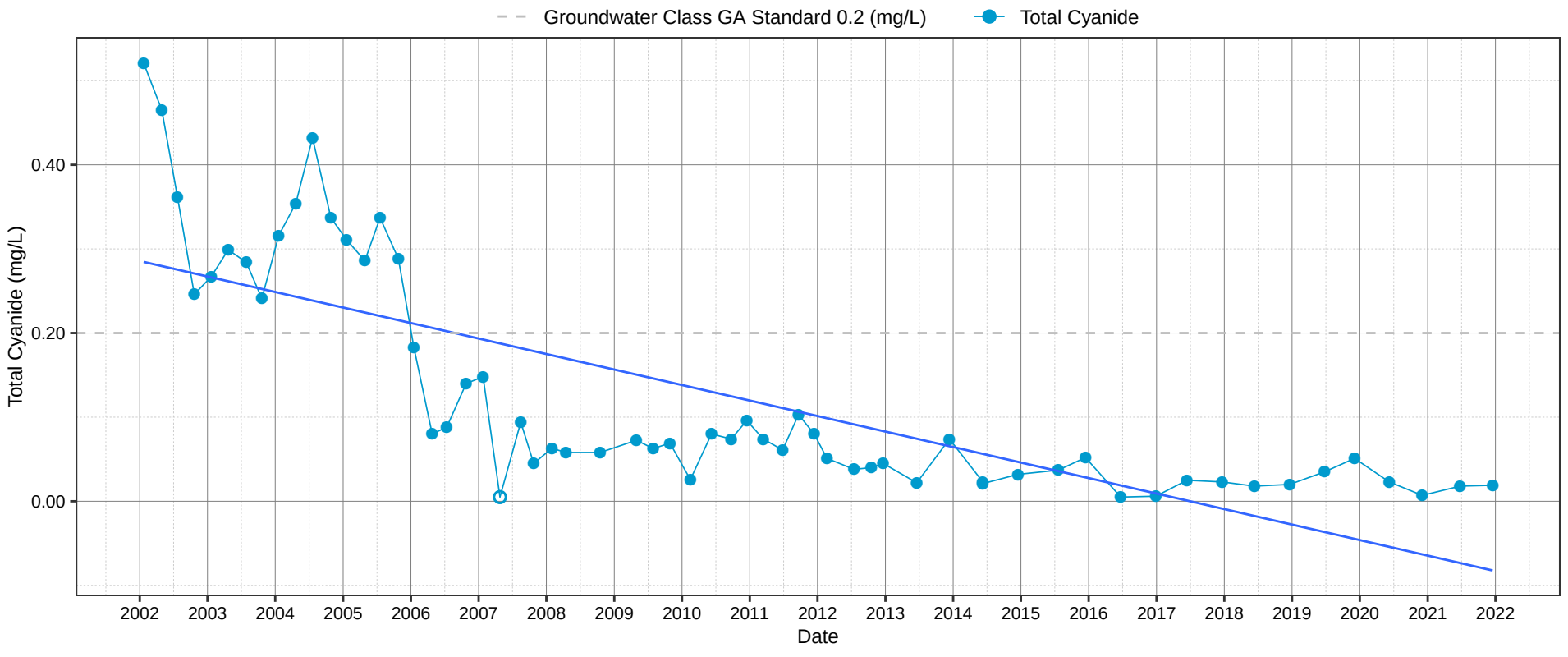
Decreasing



Mann−Kendall p−value < 0.001

MW−18S

Decreasing

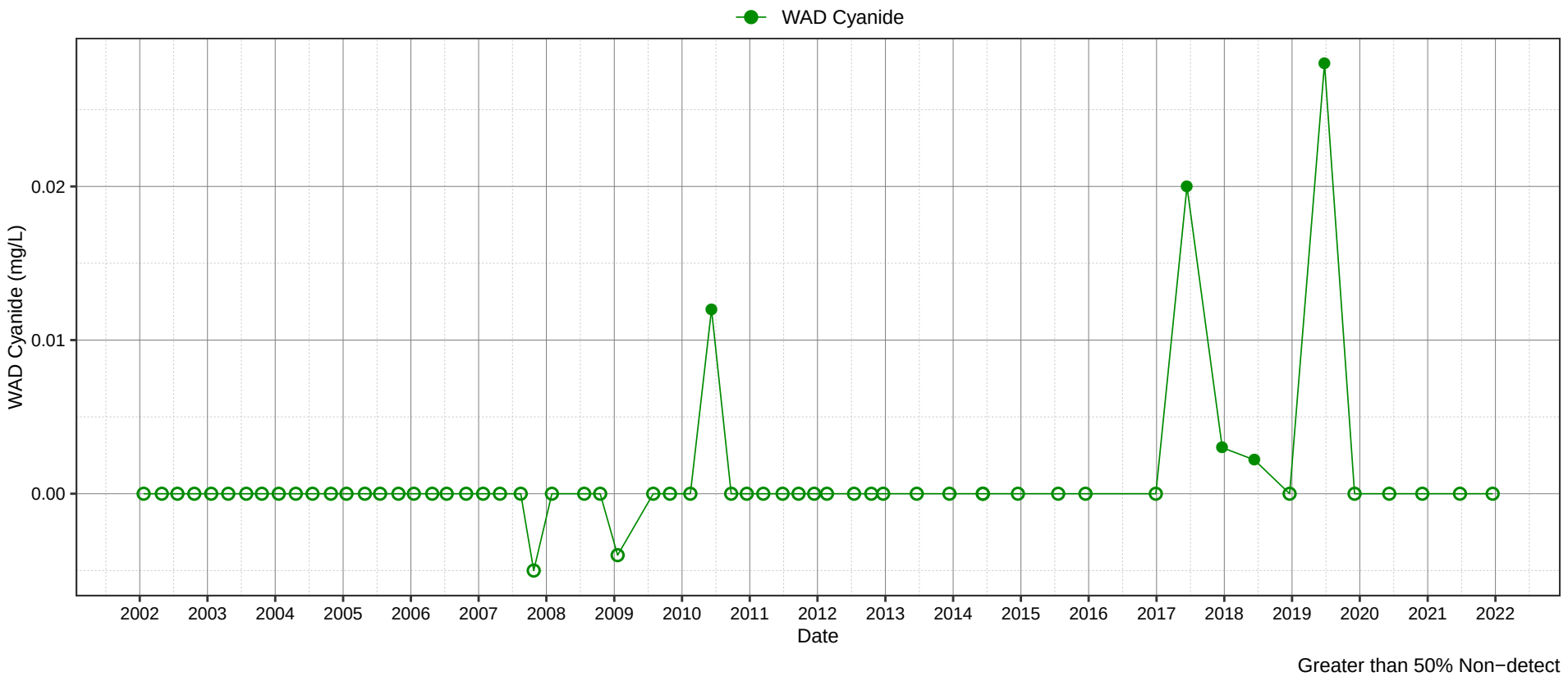


Mann−Kendall p−value < 0.001

Well MW−18S
North Yard
Samples from Post−November 2001 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−18S

No Trend

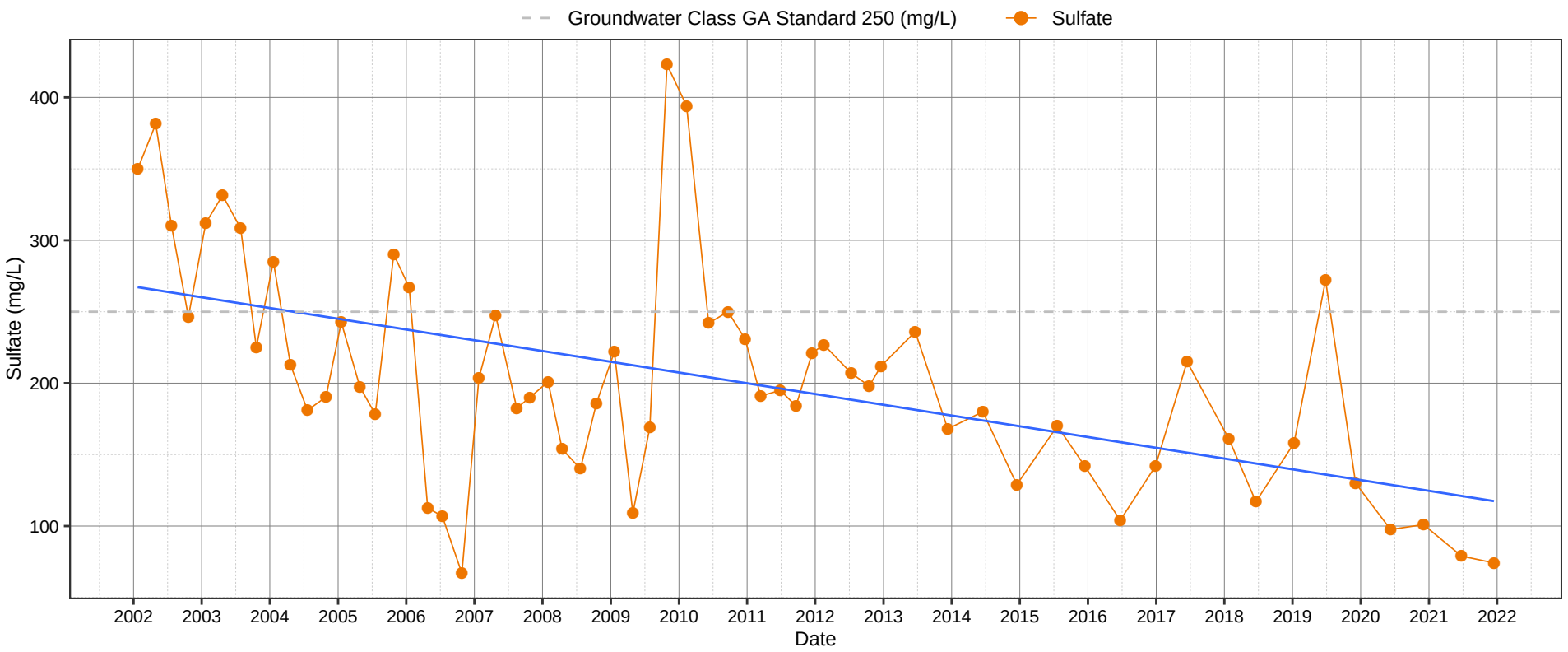


Greater than 50% Non−detect

Well MW−19S
North Yard
Samples from Post−November 2001 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−19S

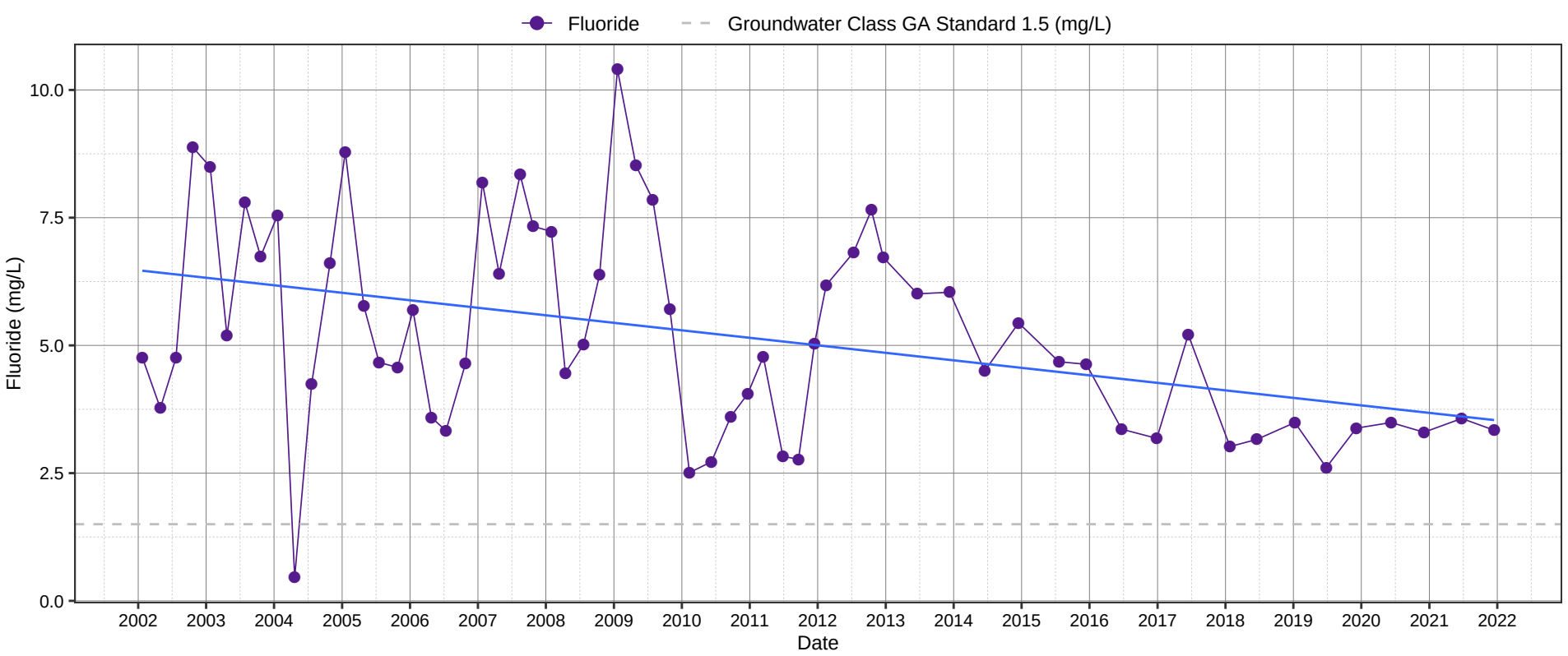
Decreasing



Mann−Kendall p−value < 0.001

MW−19S

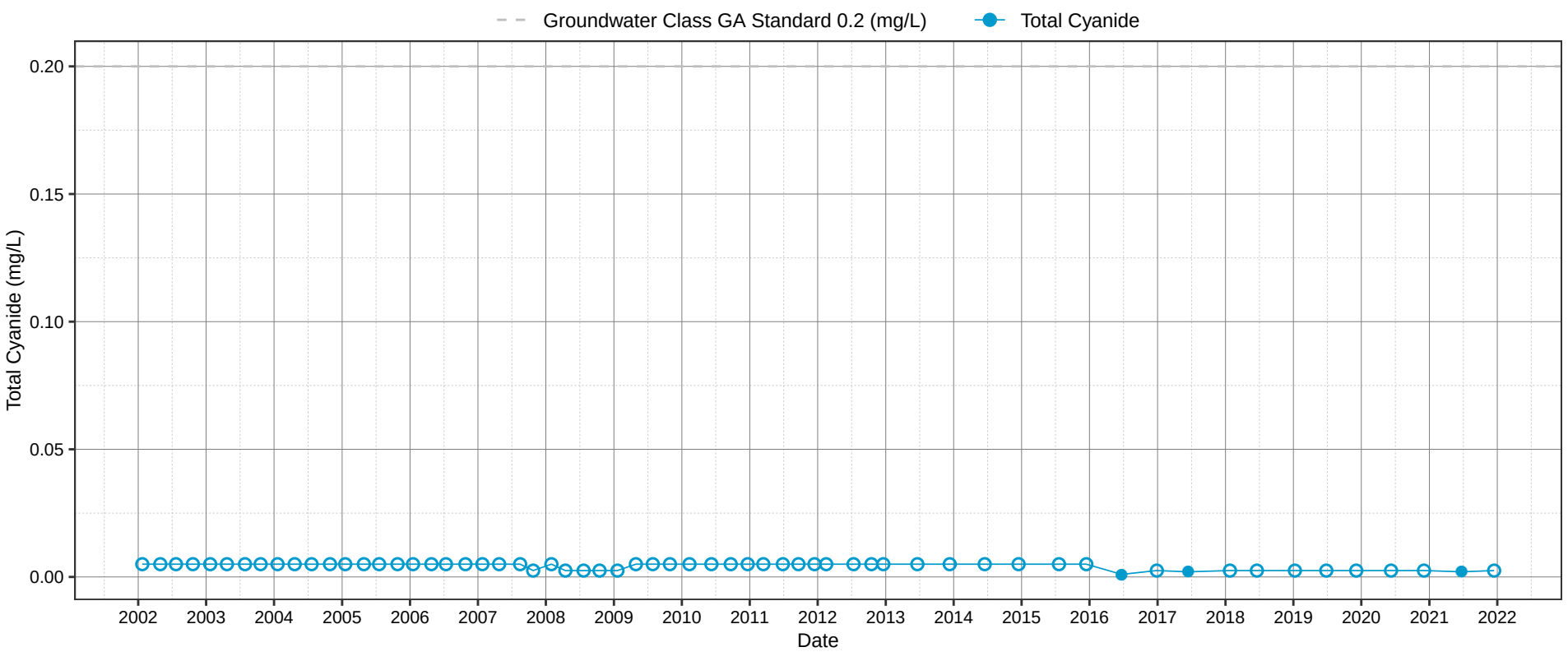
Decreasing



Mann−Kendall p−value < 0.001

MW−19S

No Trend

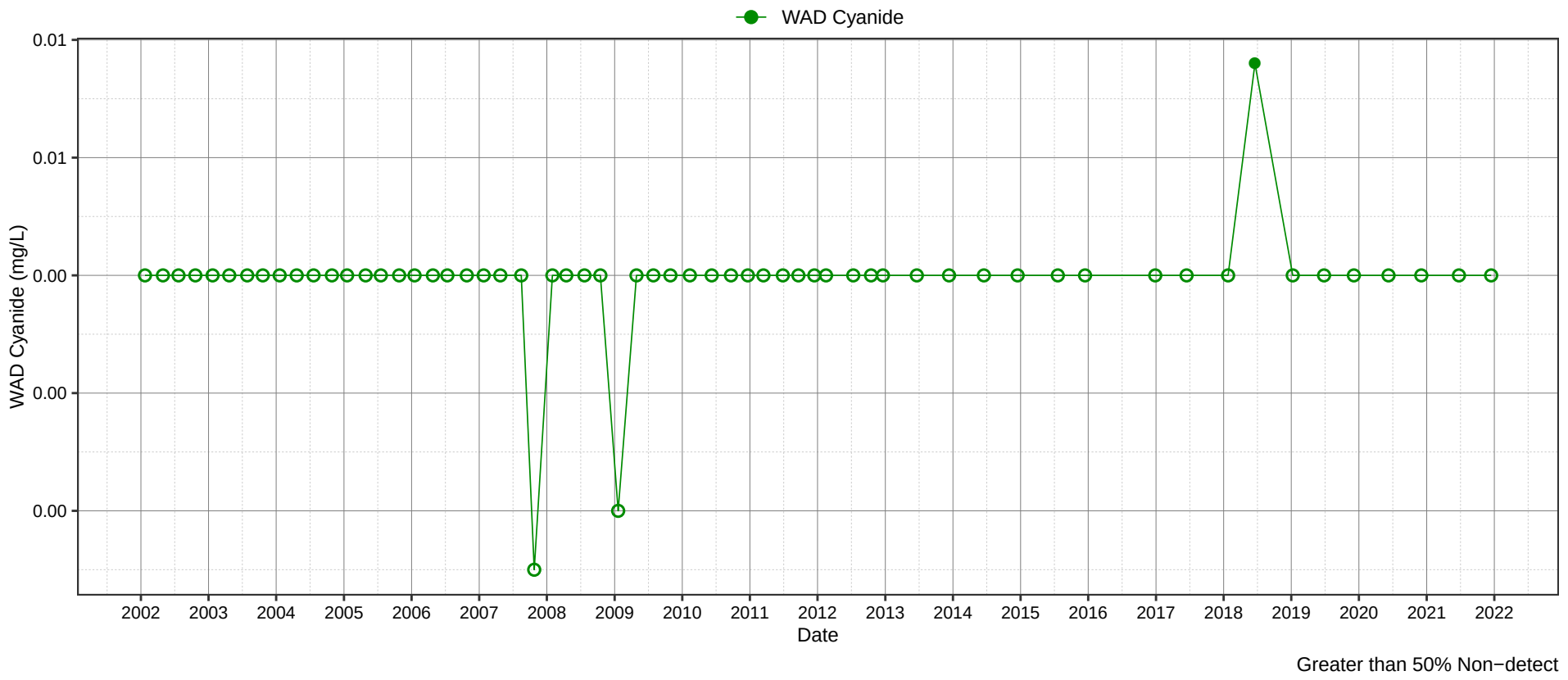


Greater than 50% Non−detect

Well MW−19S
North Yard
Samples from Post−November 2001 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−19S

No Trend

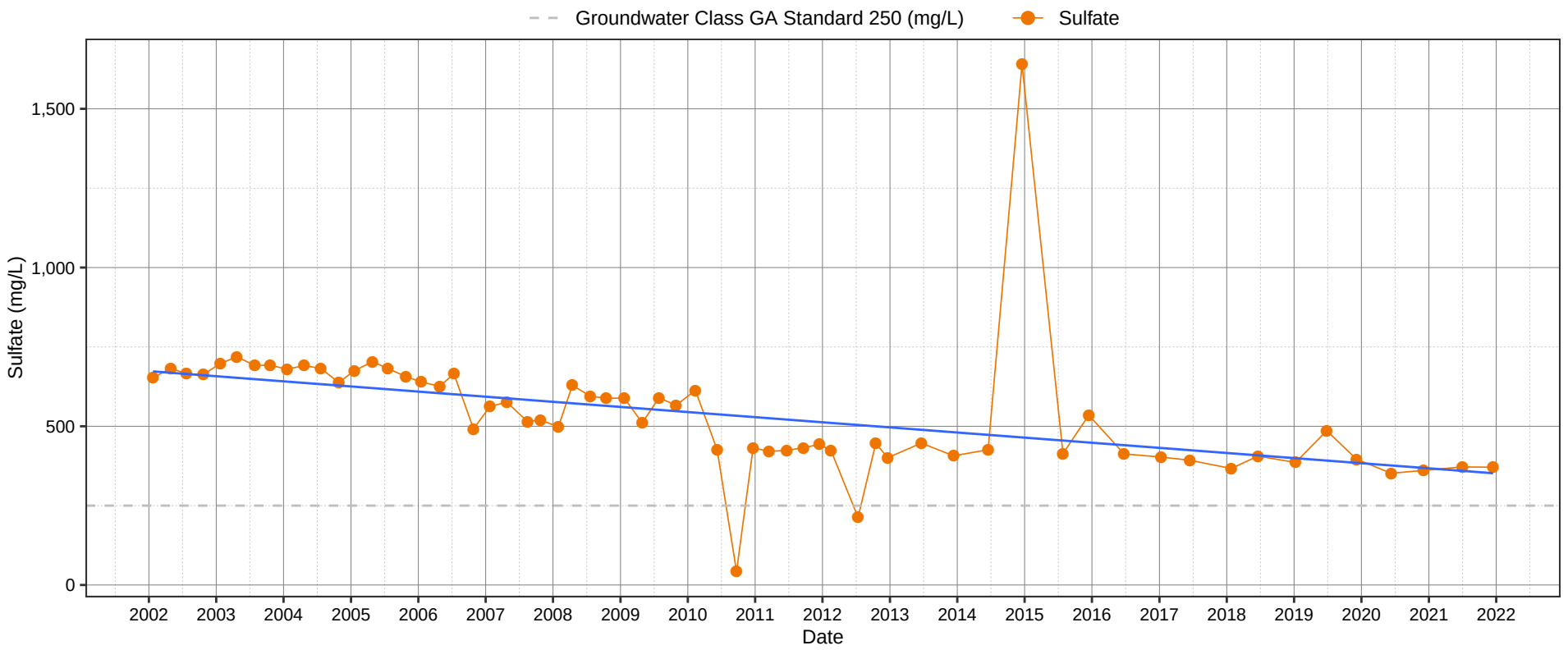


Greater than 50% Non−detect

Well MW−36
North Yard
Samples from Post−November 2001 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−36

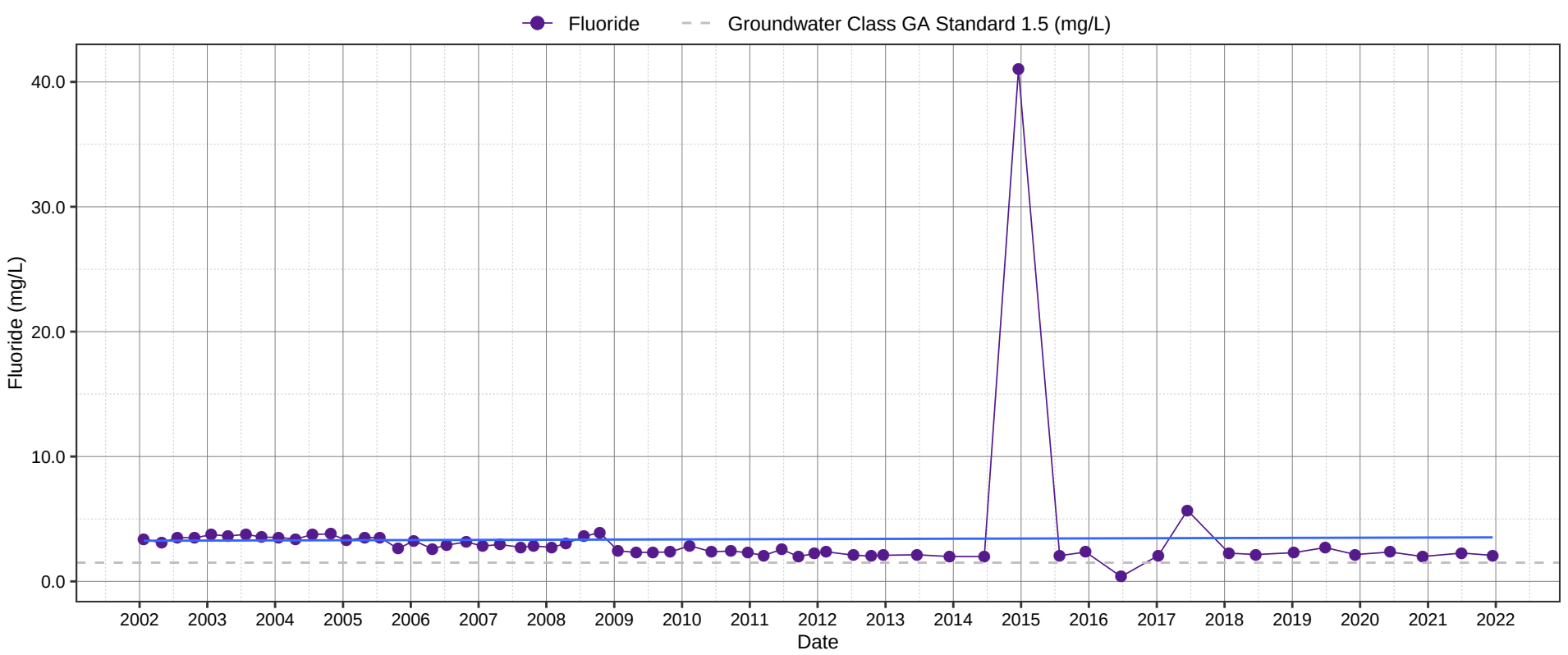
Decreasing



Mann−Kendall p−value < 0.001

MW−36

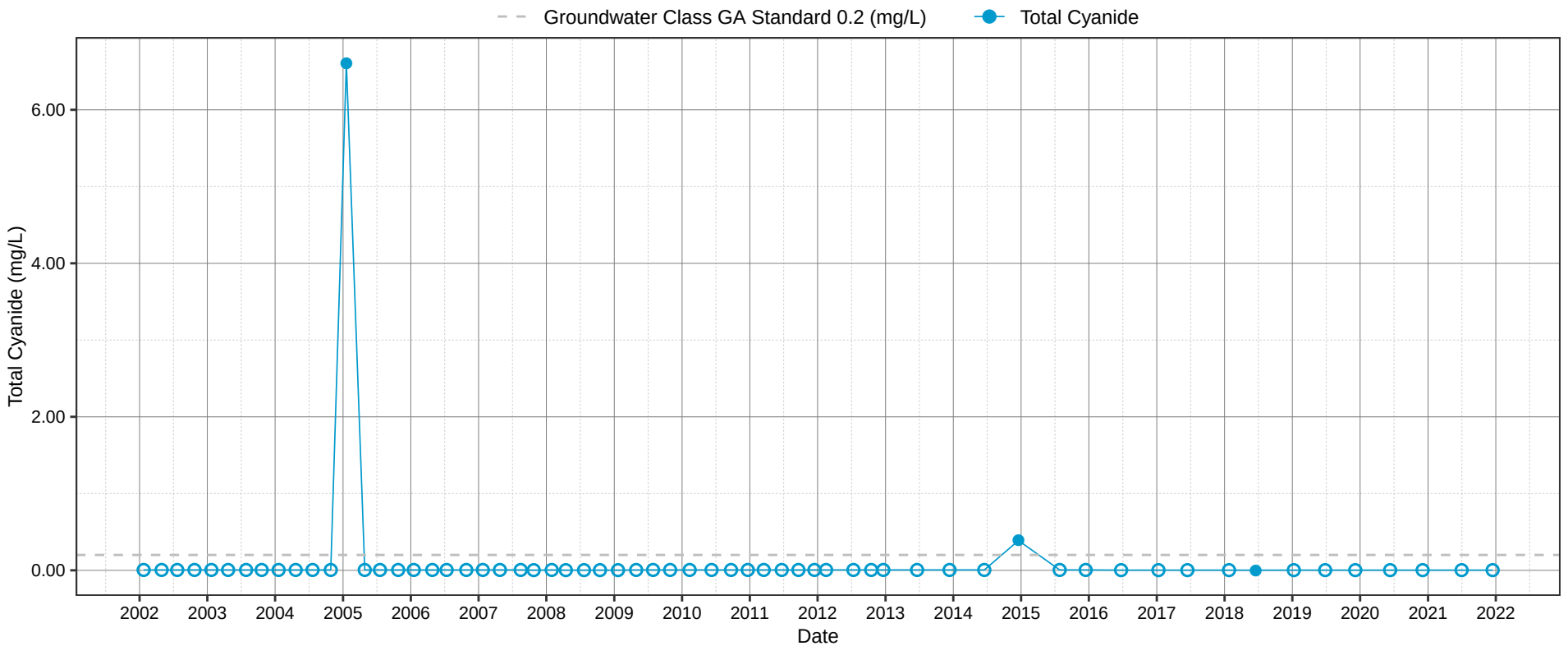
Decreasing



Mann−Kendall p−value < 0.001

MW−36

No Trend

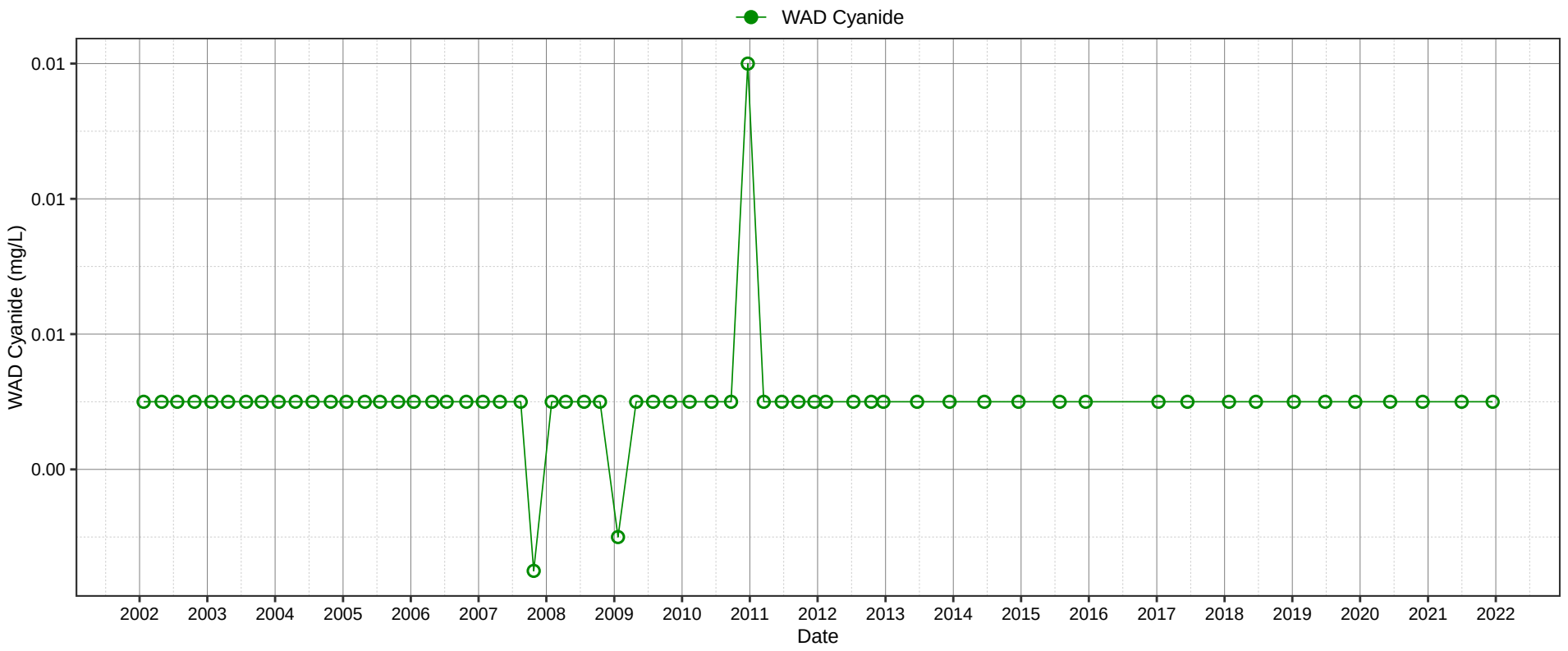


Greater than 50% Non−detect

Well MW−36
North Yard
Samples from Post−November 2001 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−36

No Trend

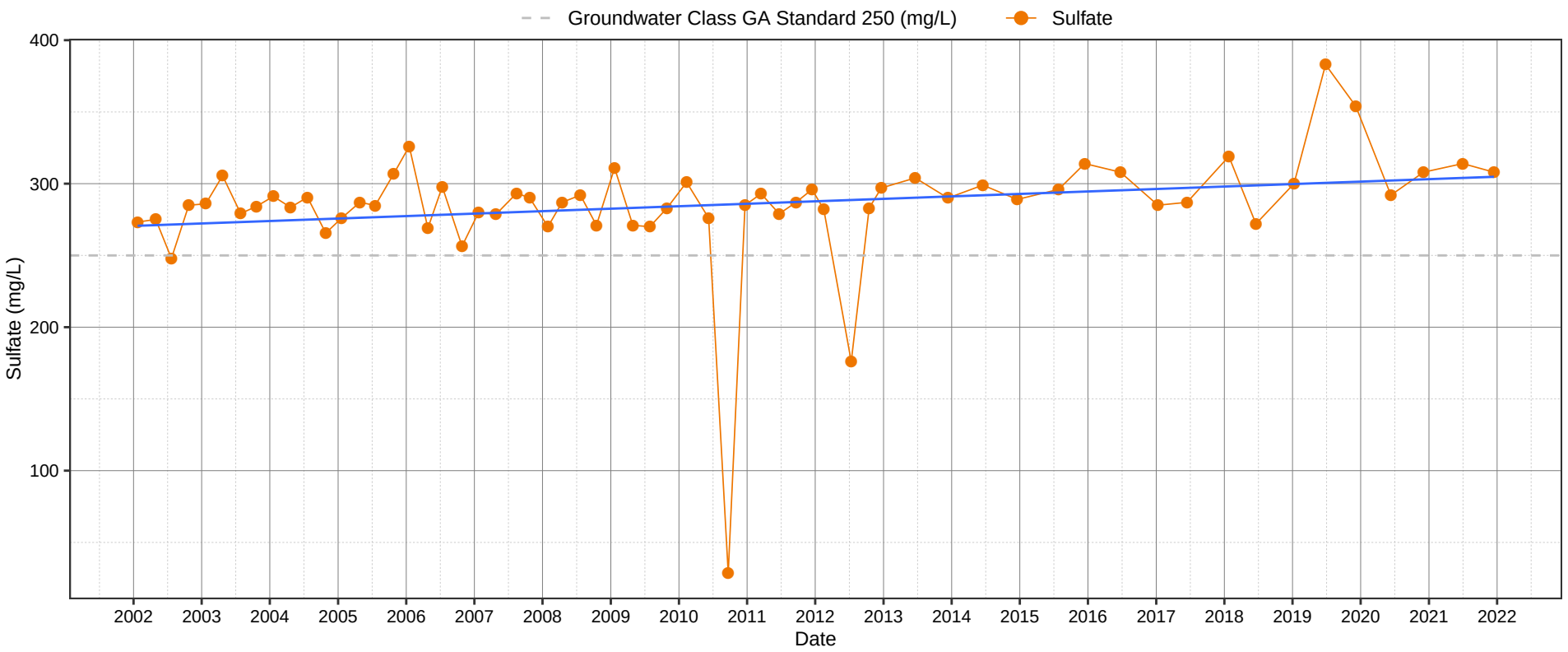


Greater than 50% Non−detect

Well MW−37
North Yard
Samples from Post−November 2001 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−37

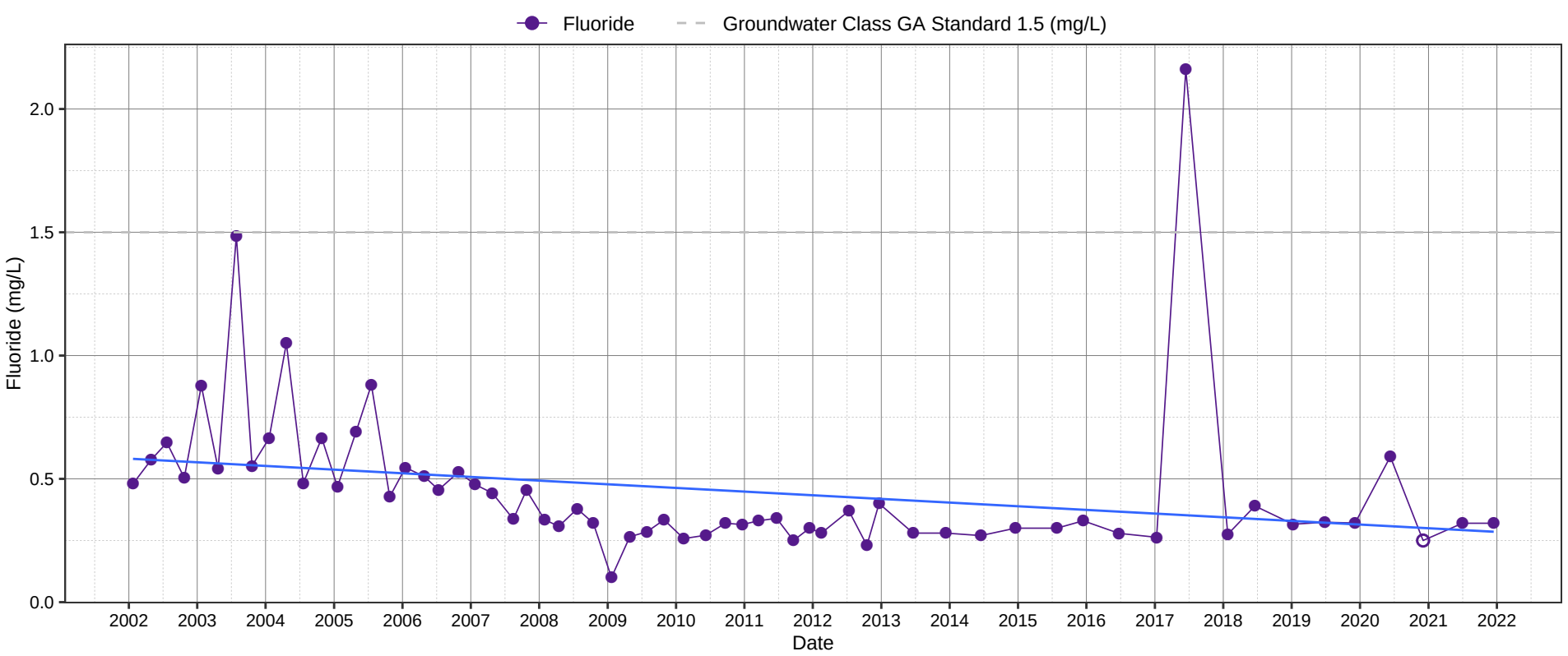
Increasing



Mann−Kendall p−value < 0.001

MW−37

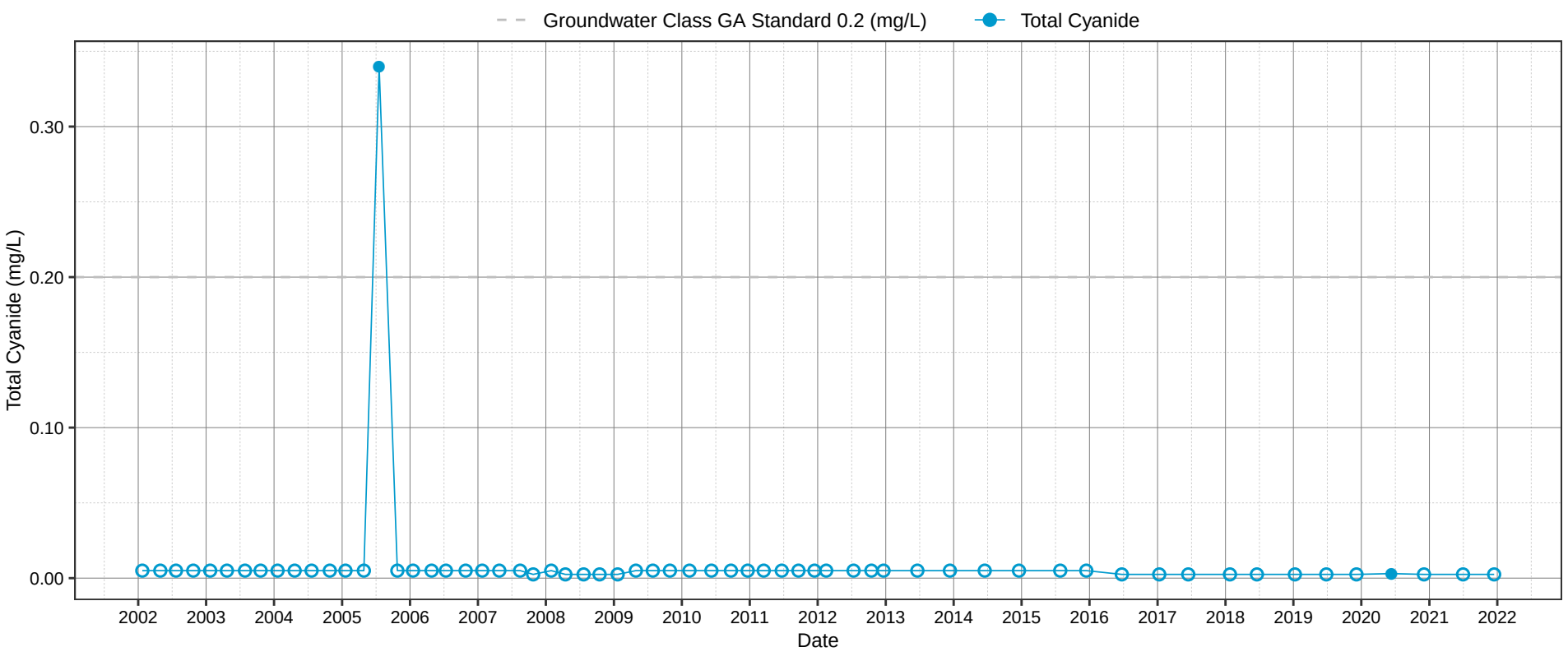
Decreasing



Mann−Kendall p−value < 0.001

MW−37

No Trend

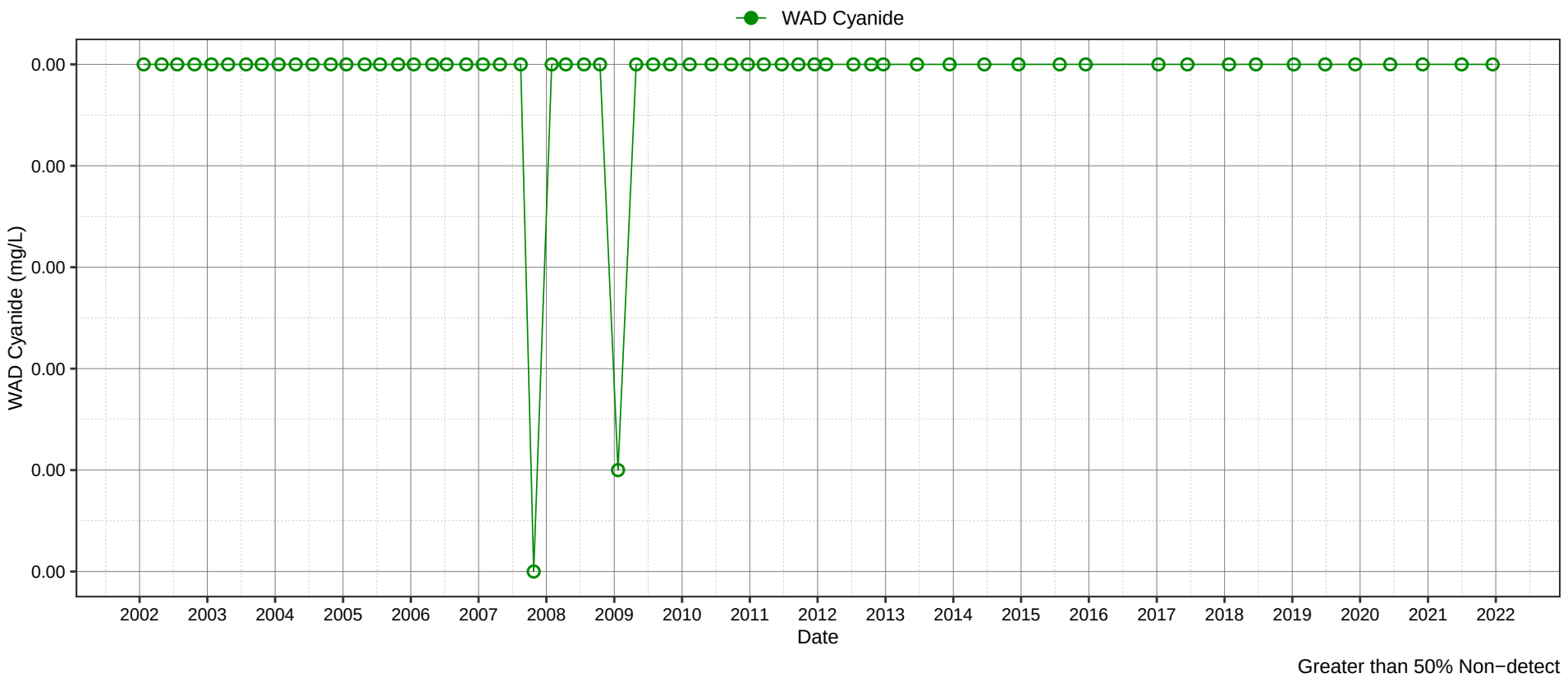


Greater than 50% Non−detect

Well MW−37
North Yard
Samples from Post−November 2001 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−37

No Trend

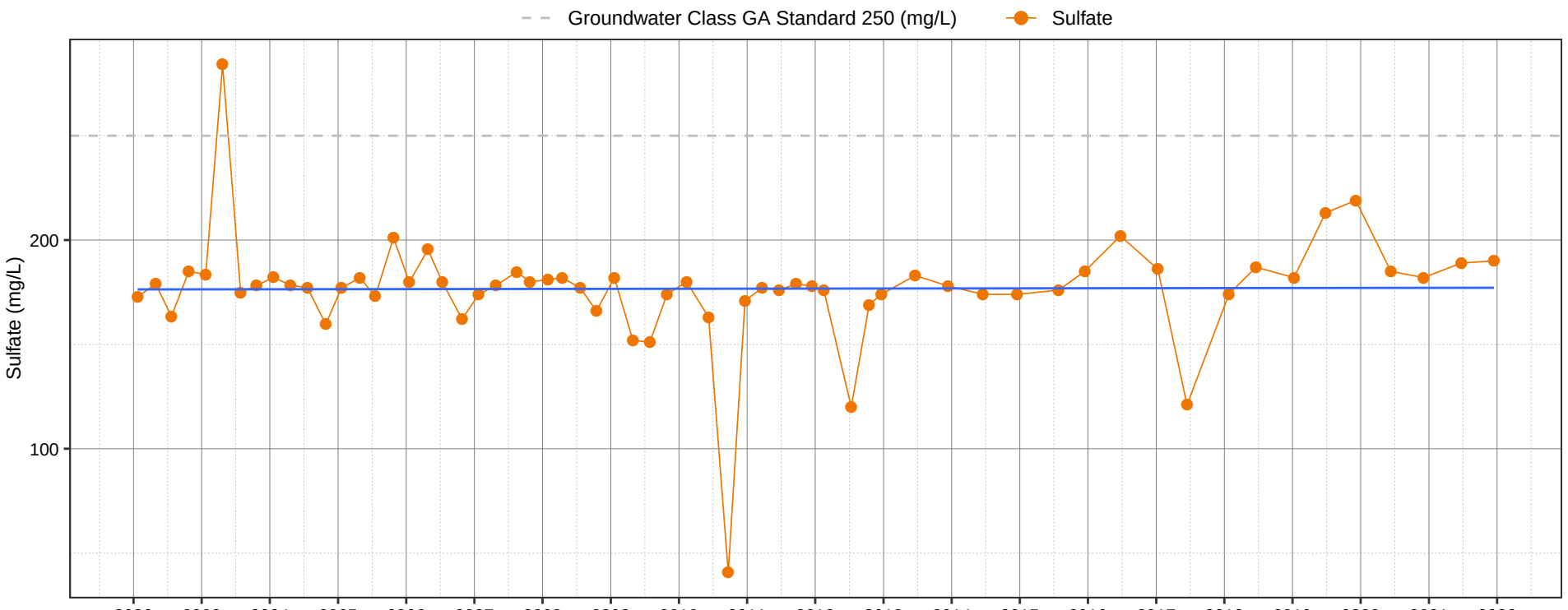


Greater than 50% Non−detect

Well MW−38
North Yard
Samples from Post−November 2001 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−38

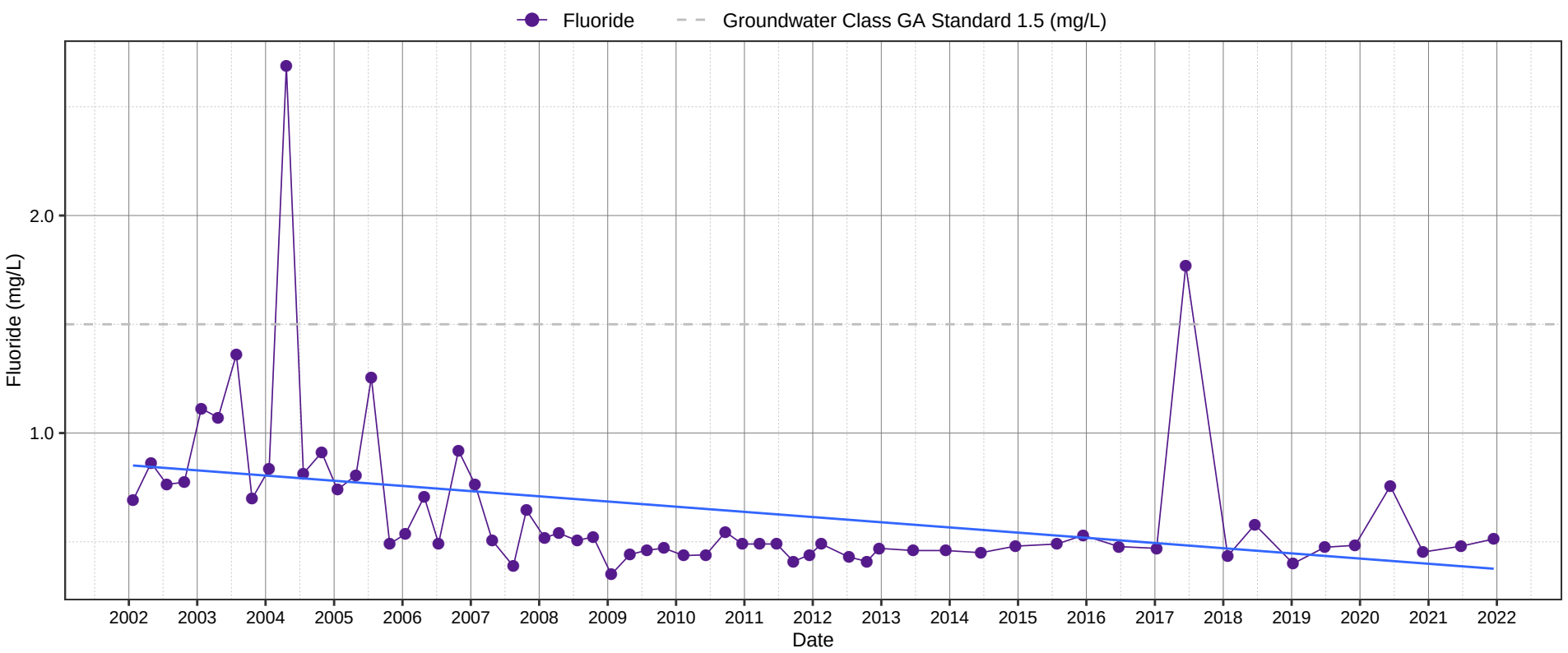
No Trend



Mann−Kendall p−value =0.274

MW−38

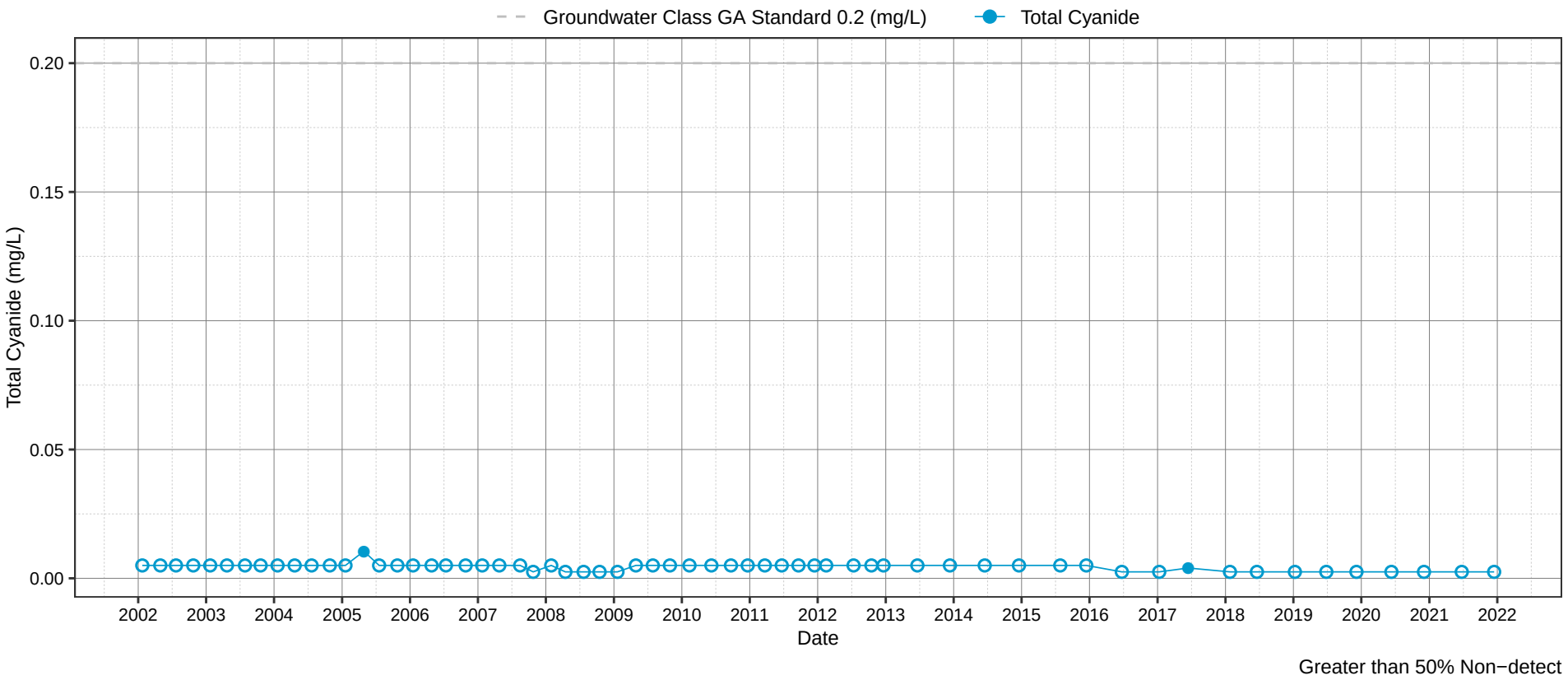
Decreasing



Mann−Kendall p−value < 0.001

MW−38

No Trend

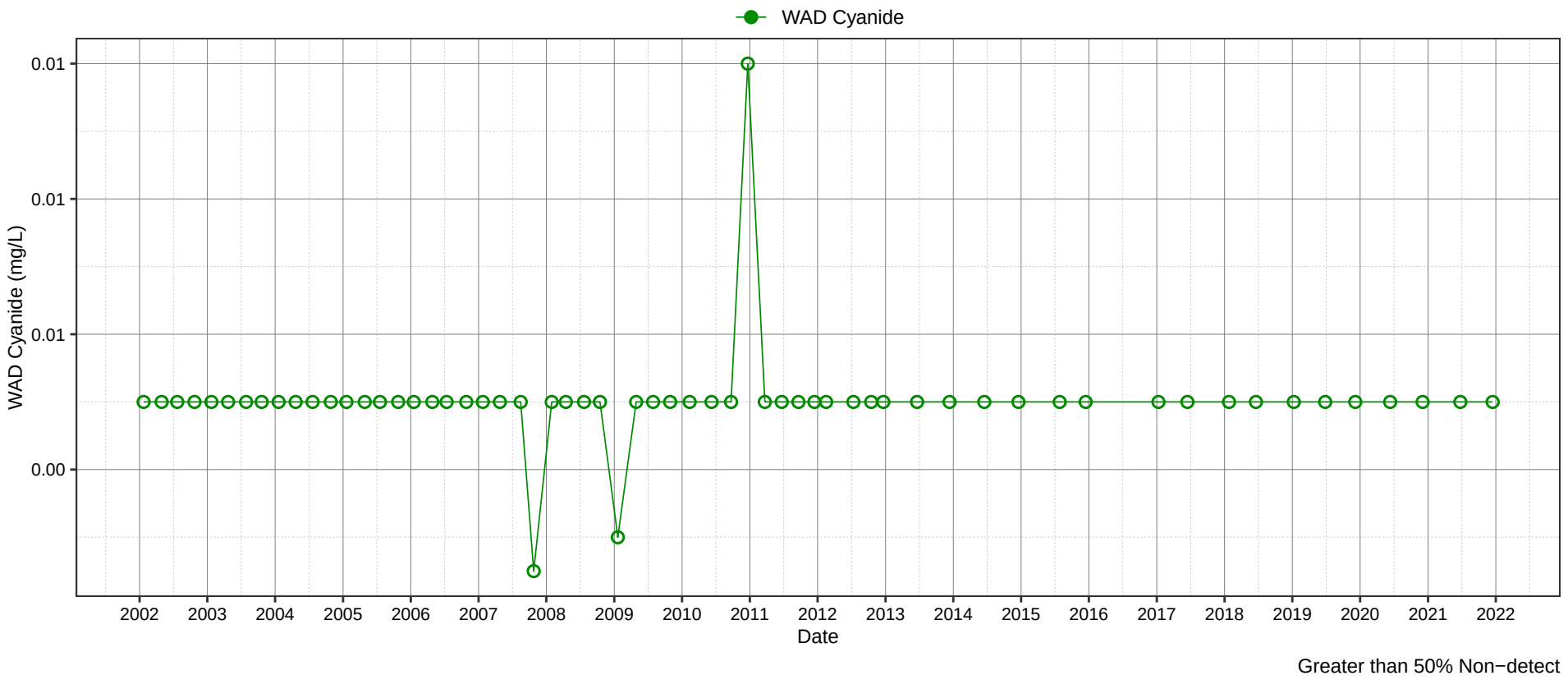


Greater than 50% Non−detect

Well MW−38
North Yard
Samples from Post−November 2001 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−38

No Trend

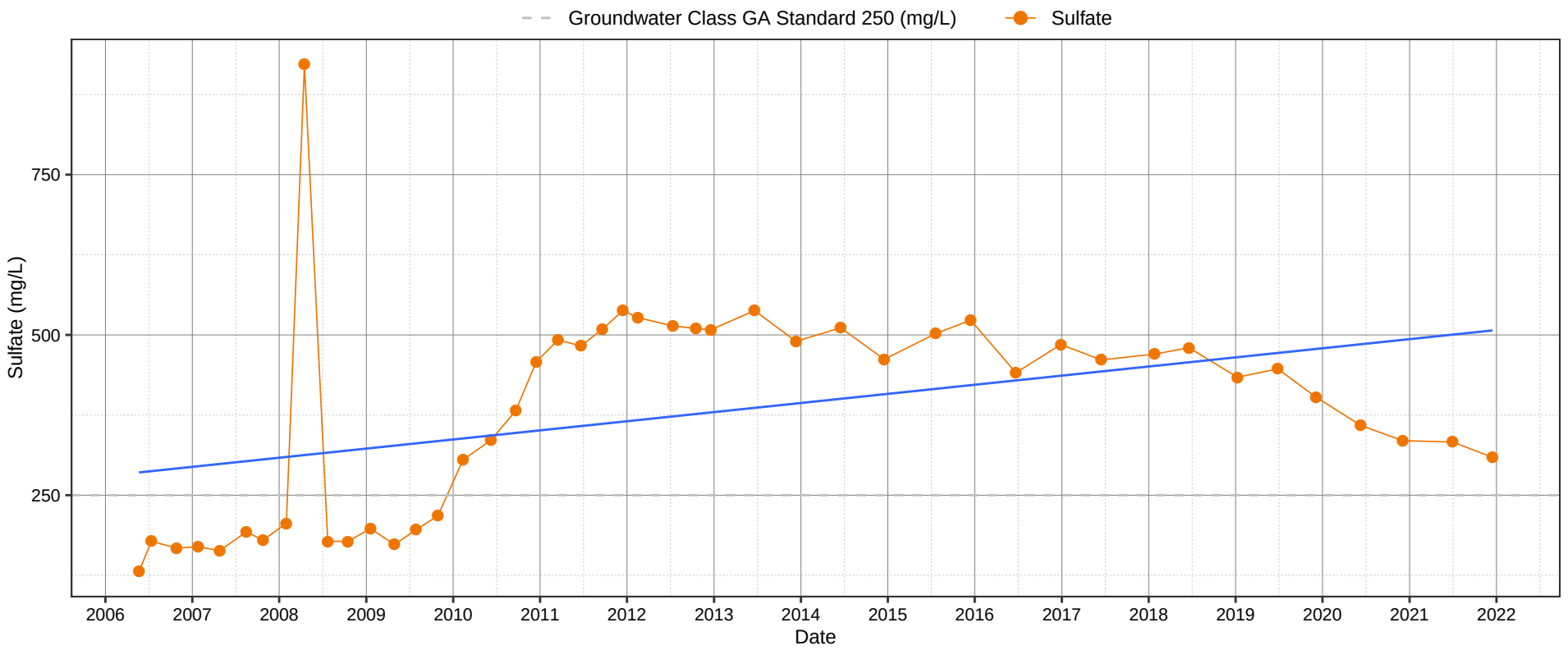


Greater than 50% Non−detect

Well MW−41
North Yard
Samples from Post−November 2001 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−41

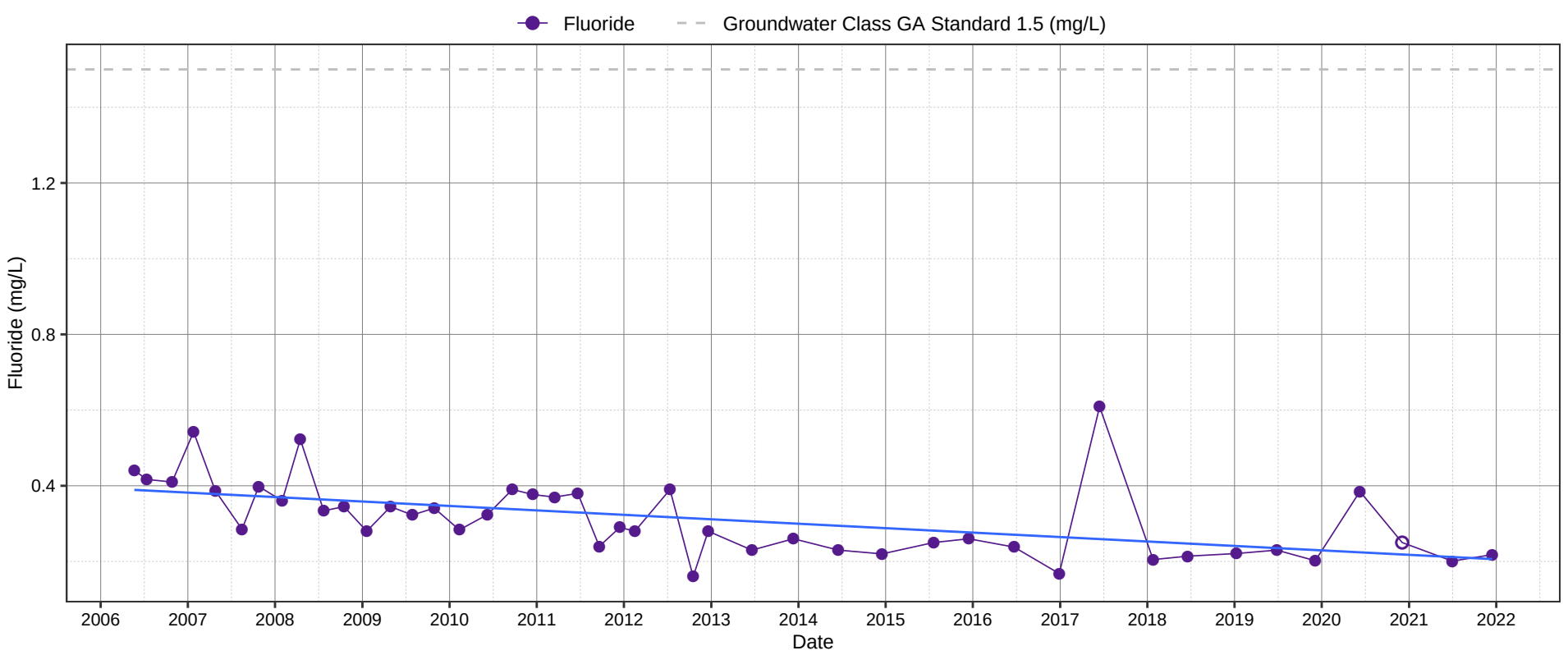
Increasing



Mann−Kendall p−value =0.003

MW−41

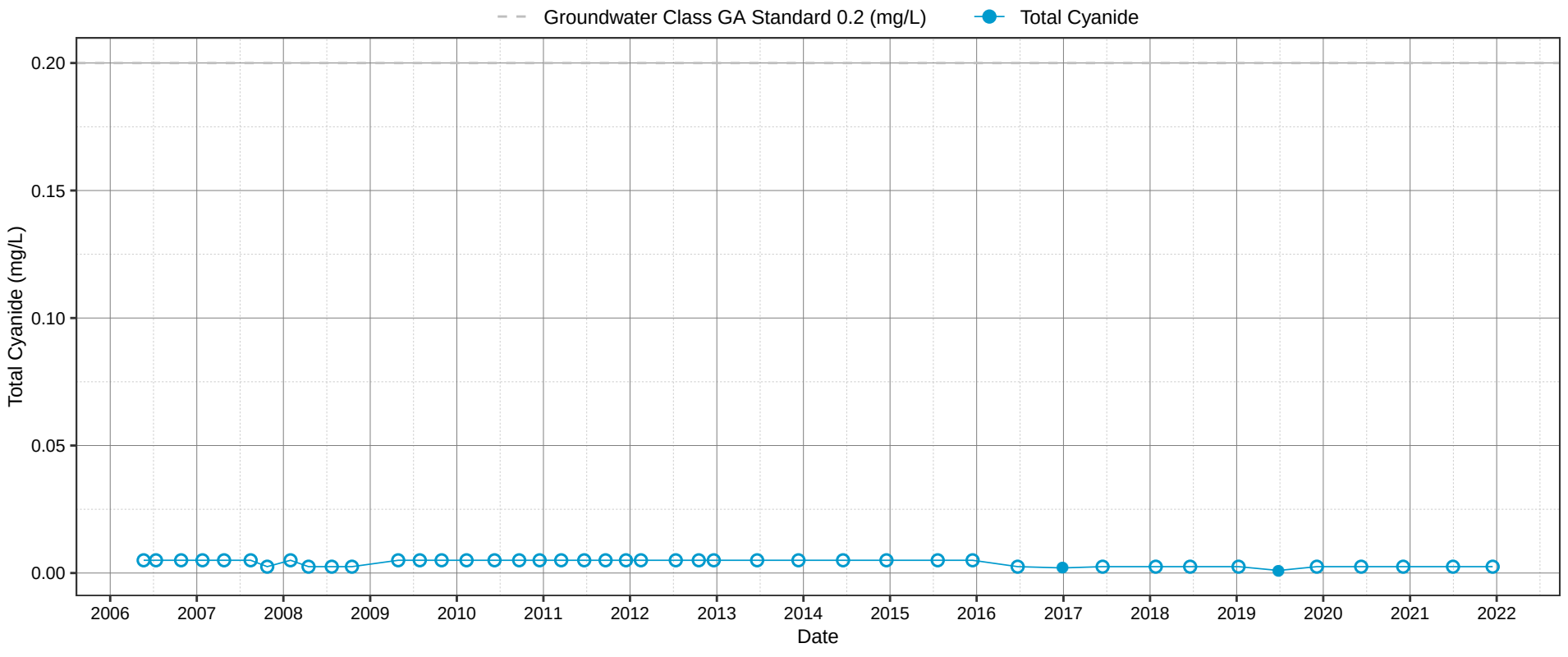
Decreasing



Mann−Kendall p−value < 0.001

MW−41

No Trend

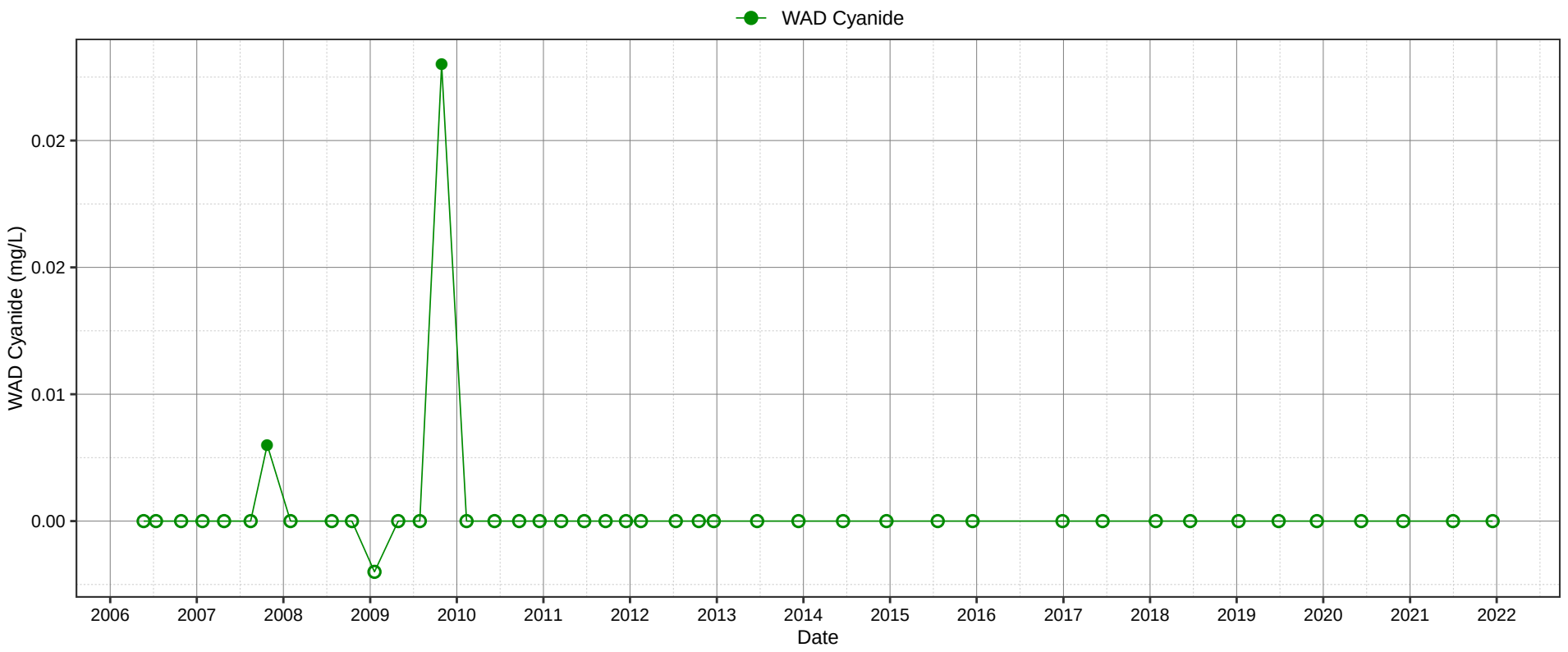


Greater than 50% Non−detect

Well MW−41
North Yard
Samples from Post−November 2001 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−41

No Trend

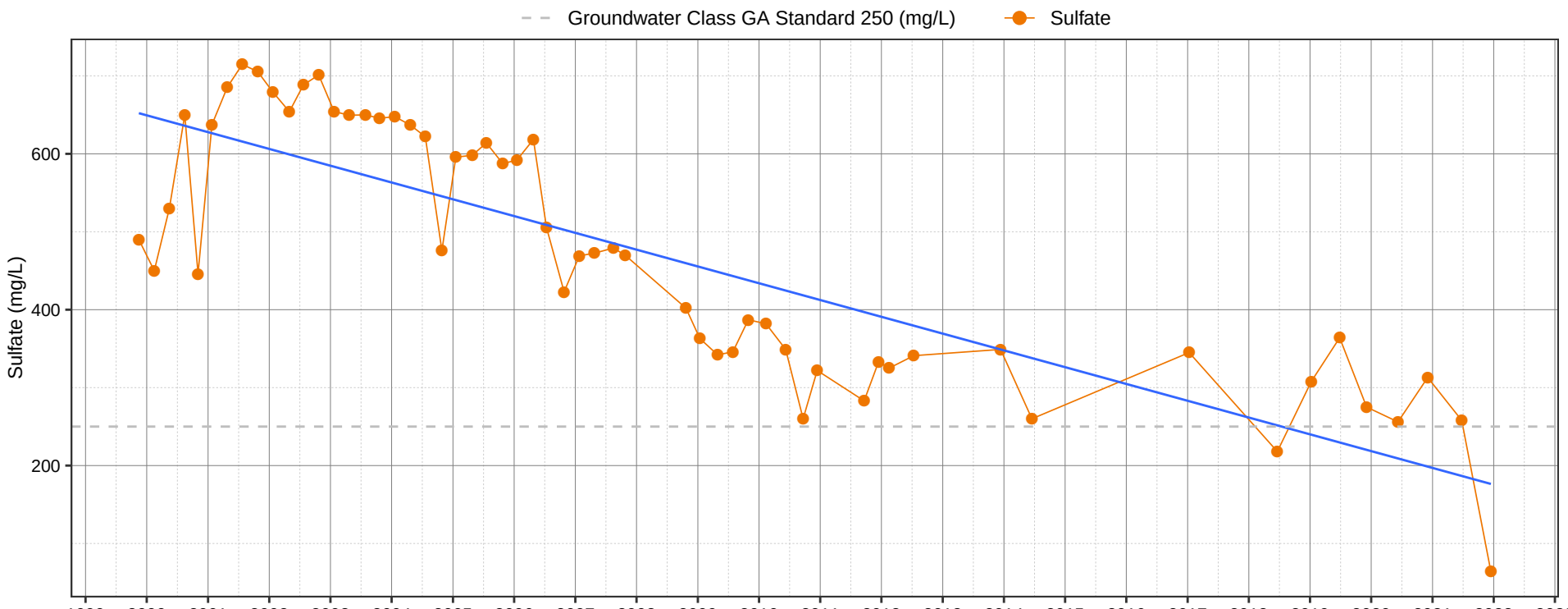


Greater than 50% Non−detect

Well MW−03S
Former Potliner Storage Pad
Samples from Post−September 1999 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−03S

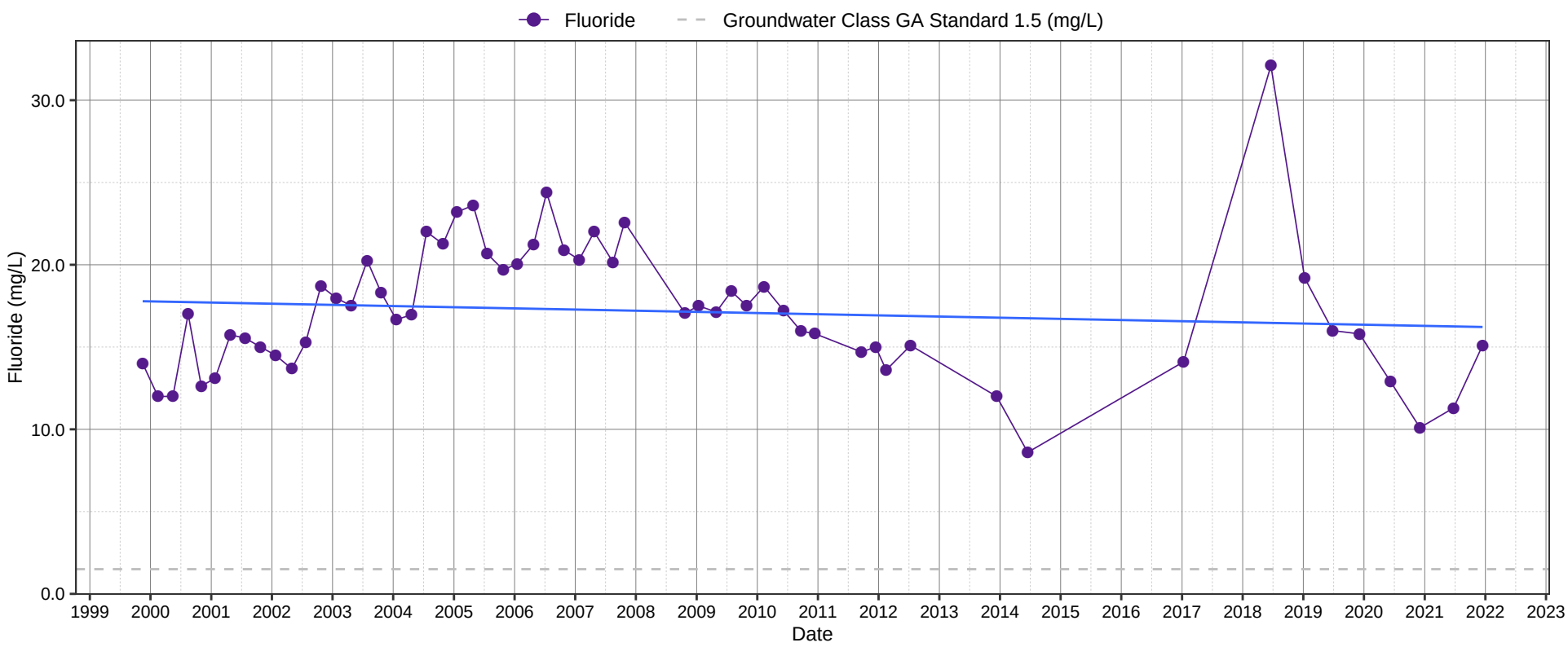
Decreasing



Mann−Kendall p−value < 0.001

MW−03S

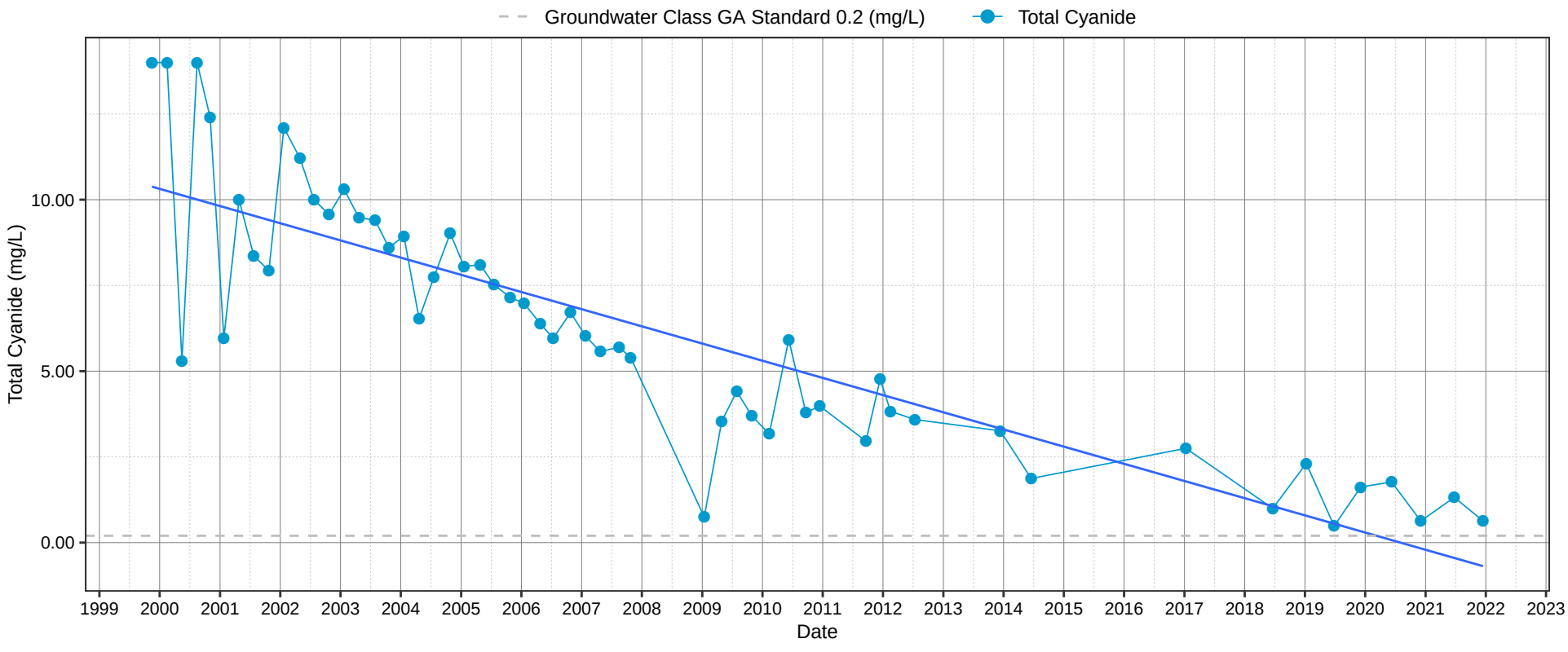
No Trend



Mann−Kendall p−value =0.615

MW−03S

Decreasing

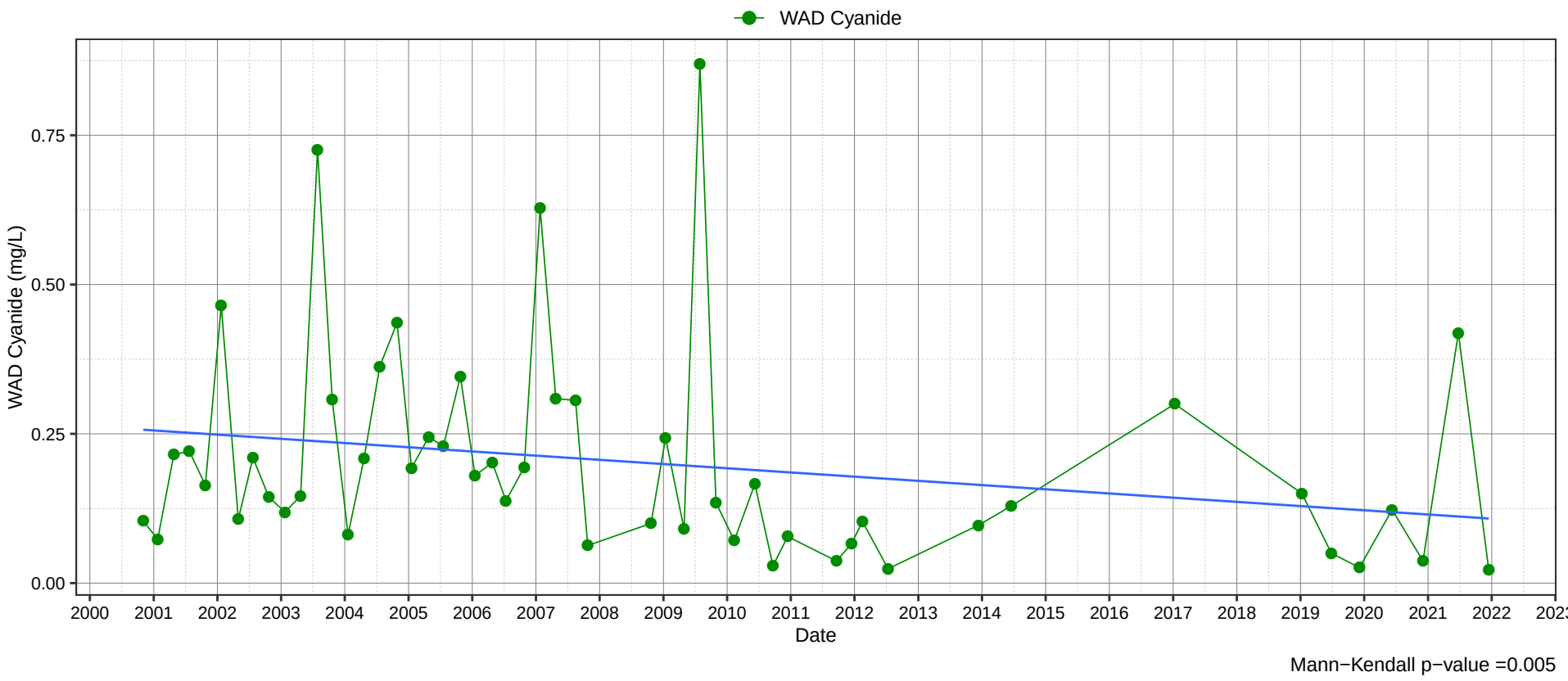


Mann−Kendall p−value < 0.001

Well MW−03S
Former Potliner Storage Pad
Samples from Post−September 1999 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−03S

Decreasing

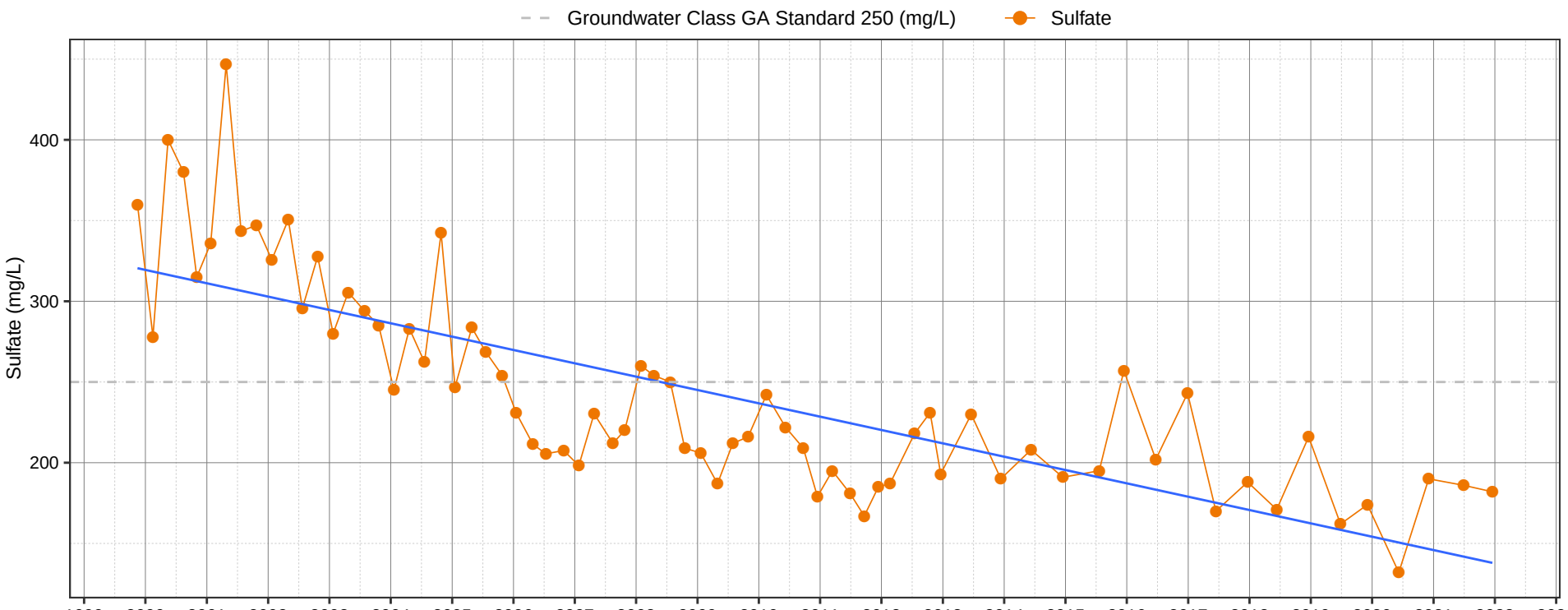


Mann−Kendall p−value =0.005

Well MW−26S
Former Potliner Storage Pad
Samples from Post−September 1999 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−26S

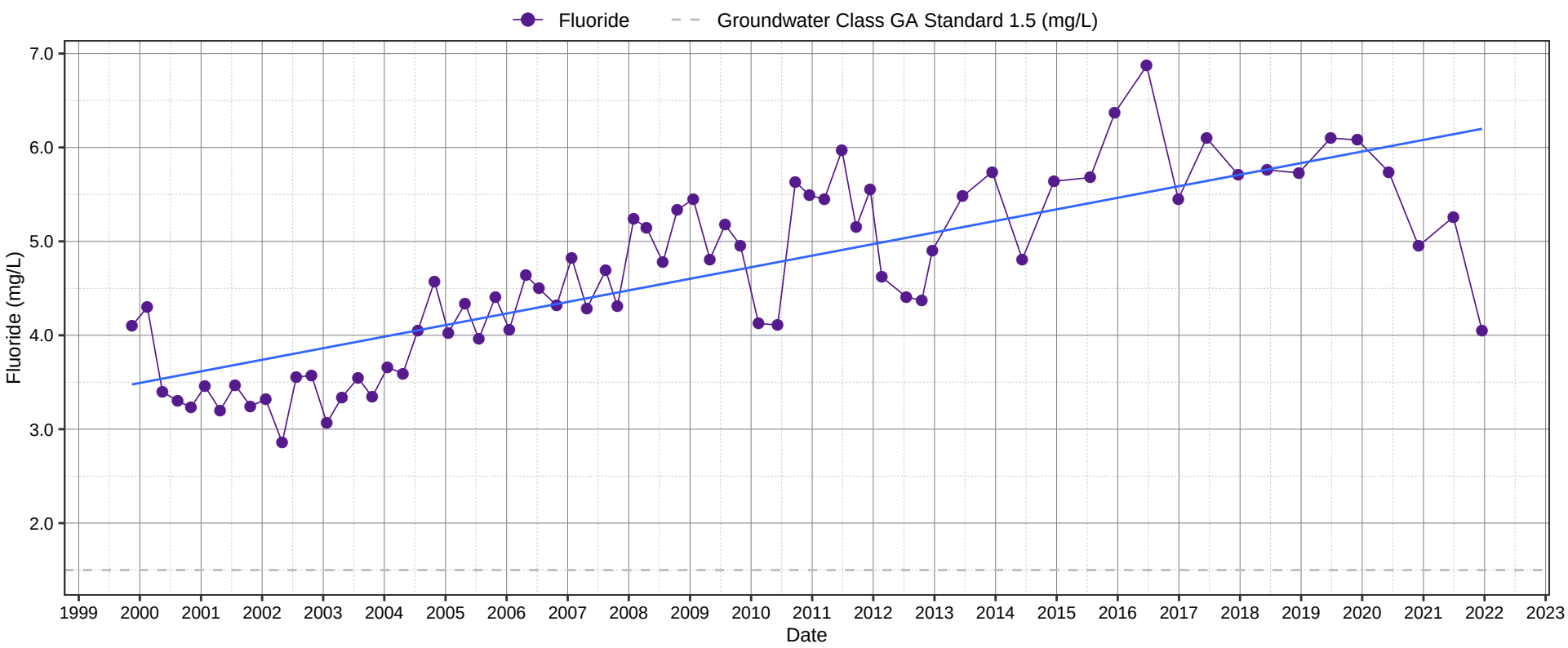
Decreasing



Mann−Kendall p−value < 0.001

MW−26S

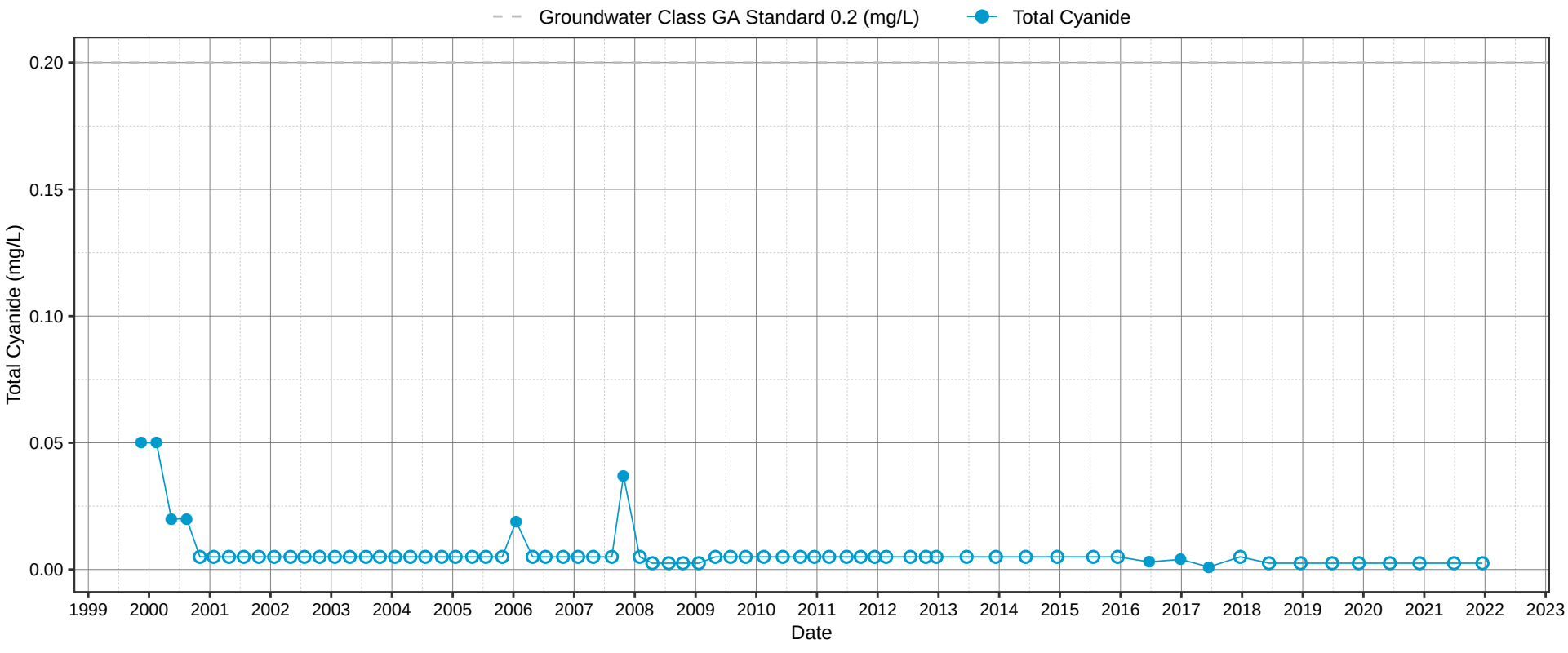
Increasing



Mann−Kendall p−value < 0.001

MW−26S

No Trend

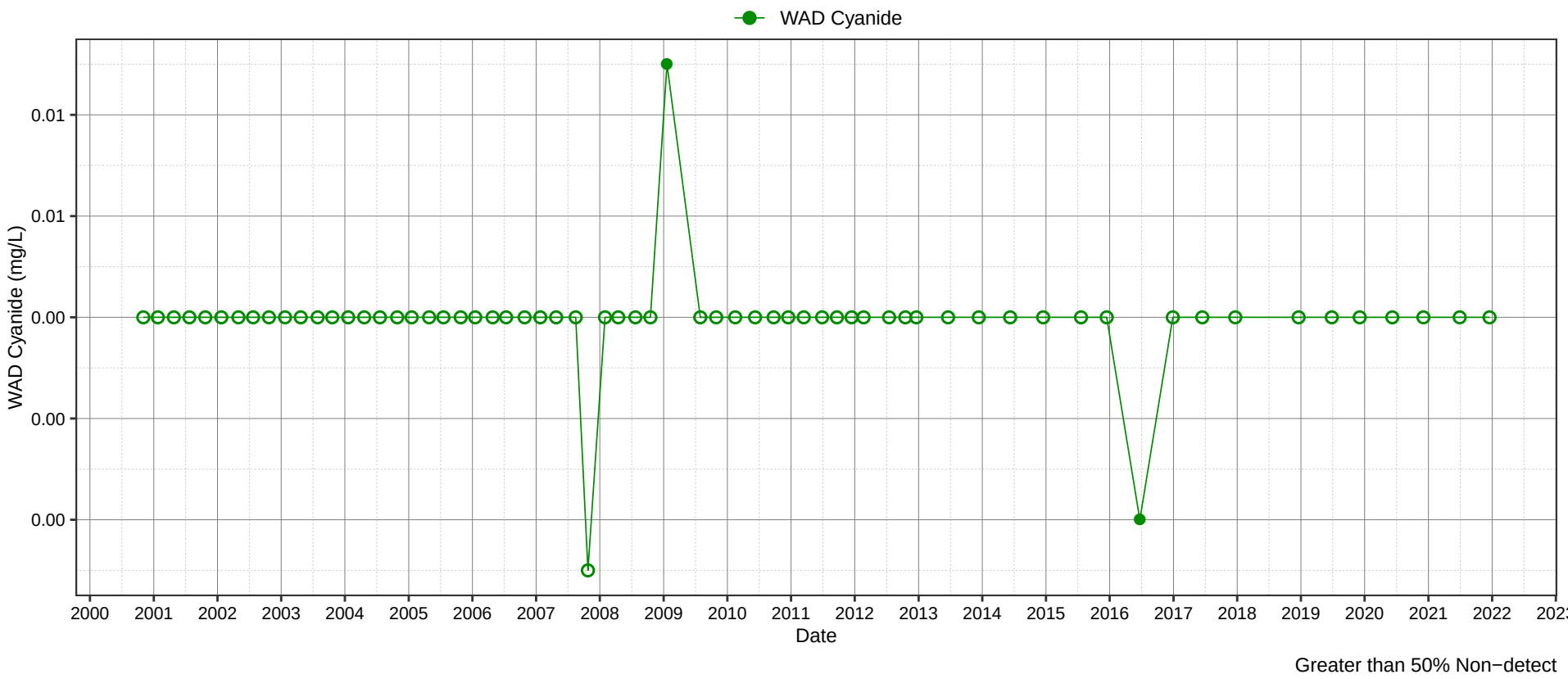


Greater than 50% Non−detect

Well MW−26S
Former Potliner Storage Pad
Samples from Post−September 1999 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−26S

No Trend

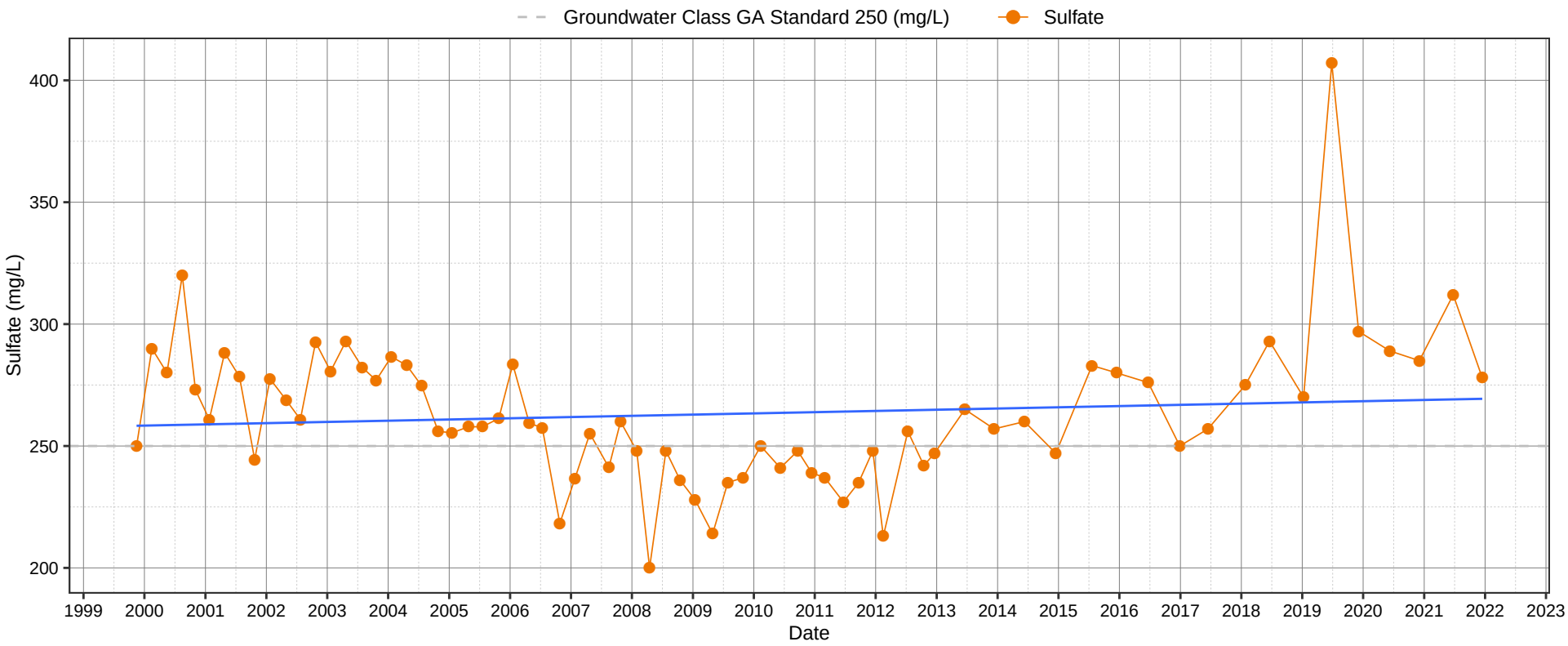


Greater than 50% Non−detect

Well MW−27S
Former Potliner Storage Pad
Samples from Post−September 1999 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−27S

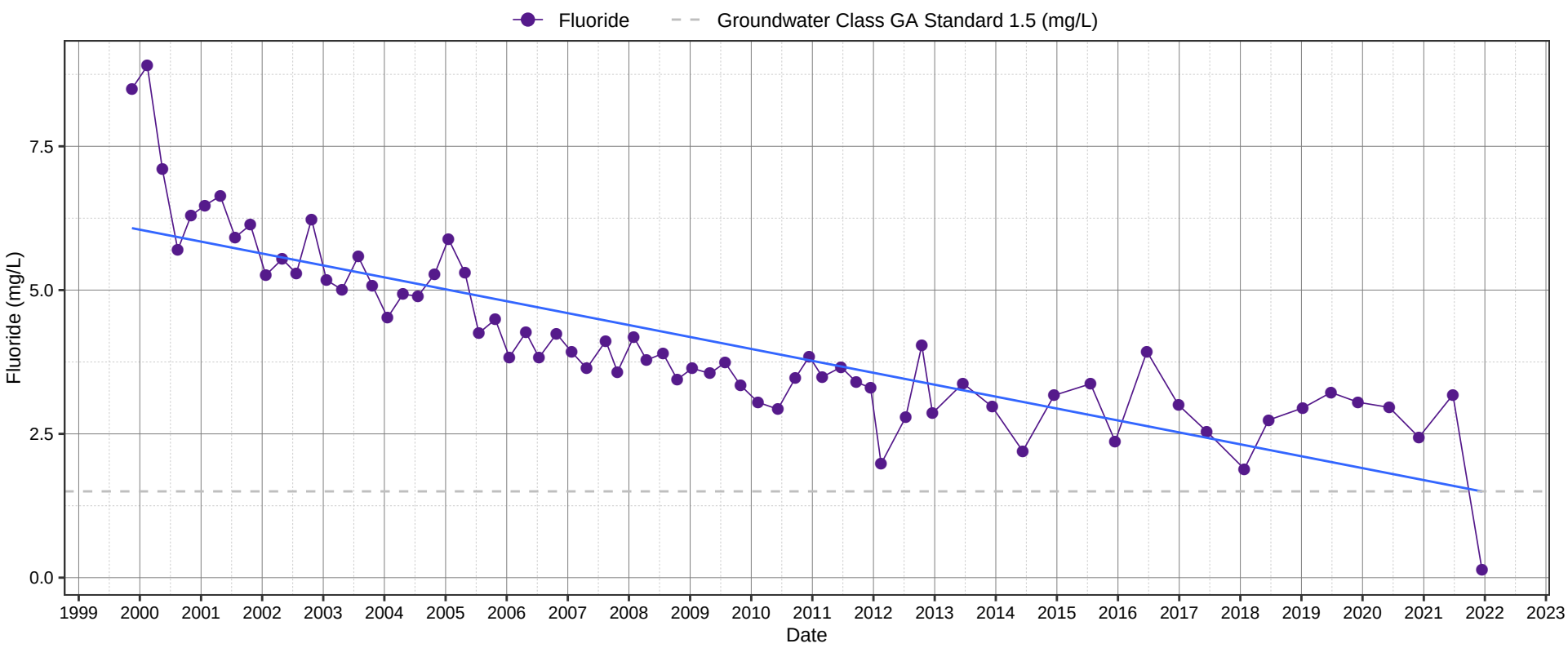
No Trend



Mann−Kendall p−value =0.356

MW−27S

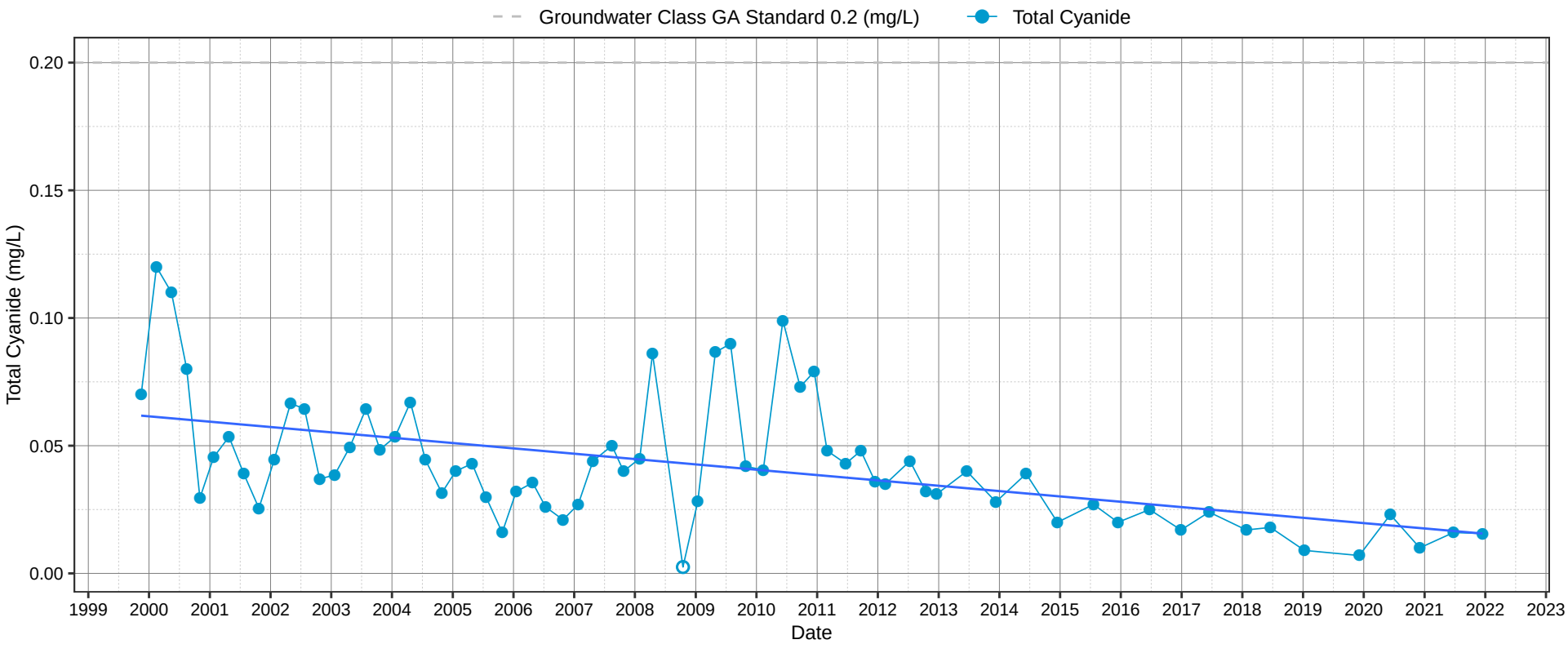
Decreasing



Mann−Kendall p−value < 0.001

MW−27S

Decreasing

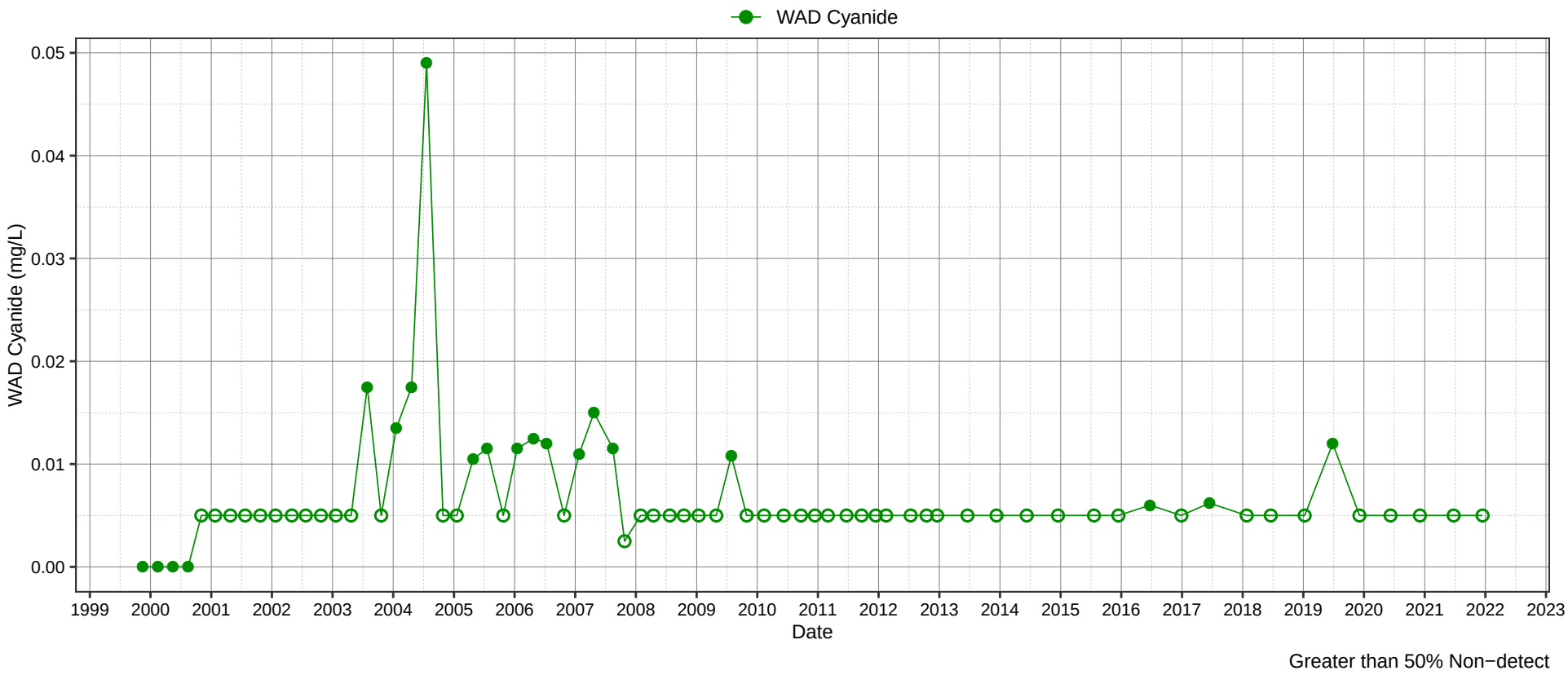


Mann−Kendall p−value < 0.001

Well MW−27S
Former Potliner Storage Pad
Samples from Post−September 1999 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

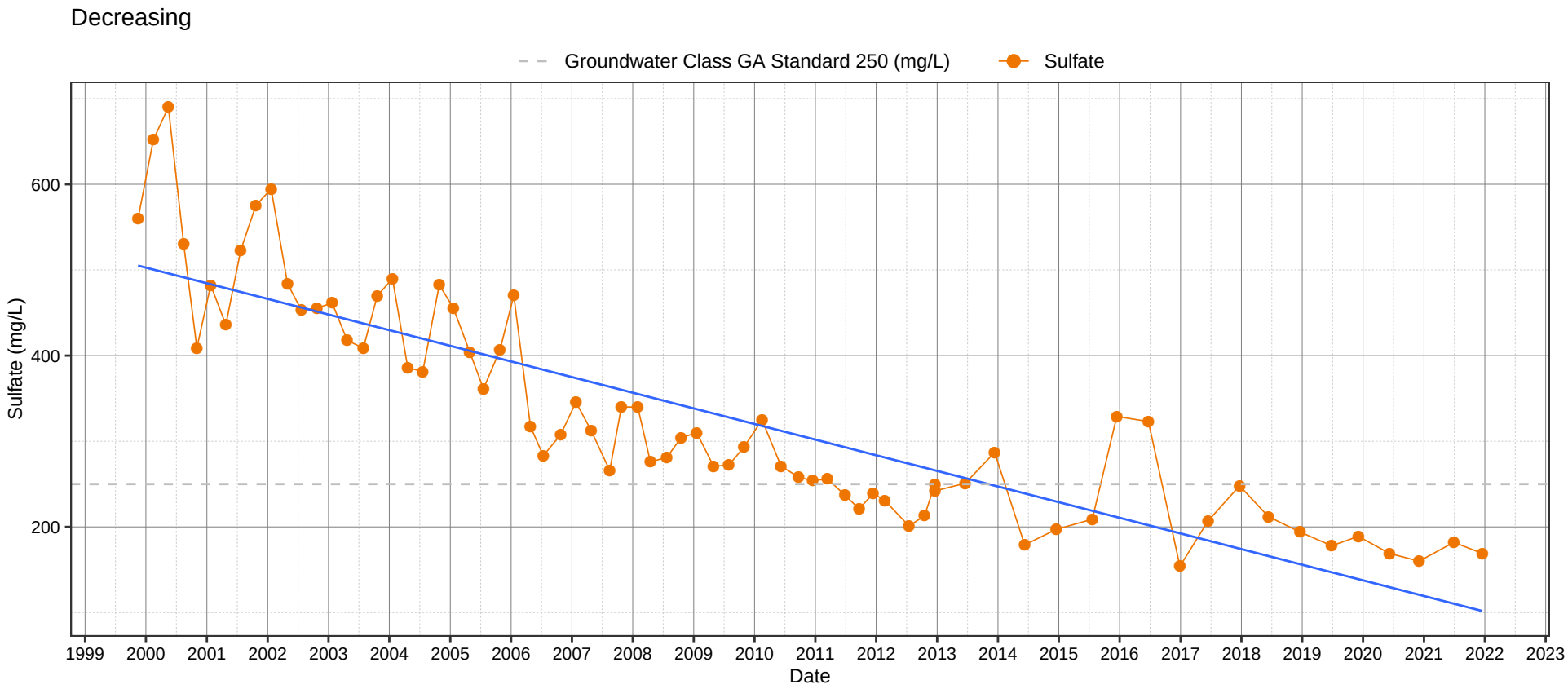
MW−27S

No Trend

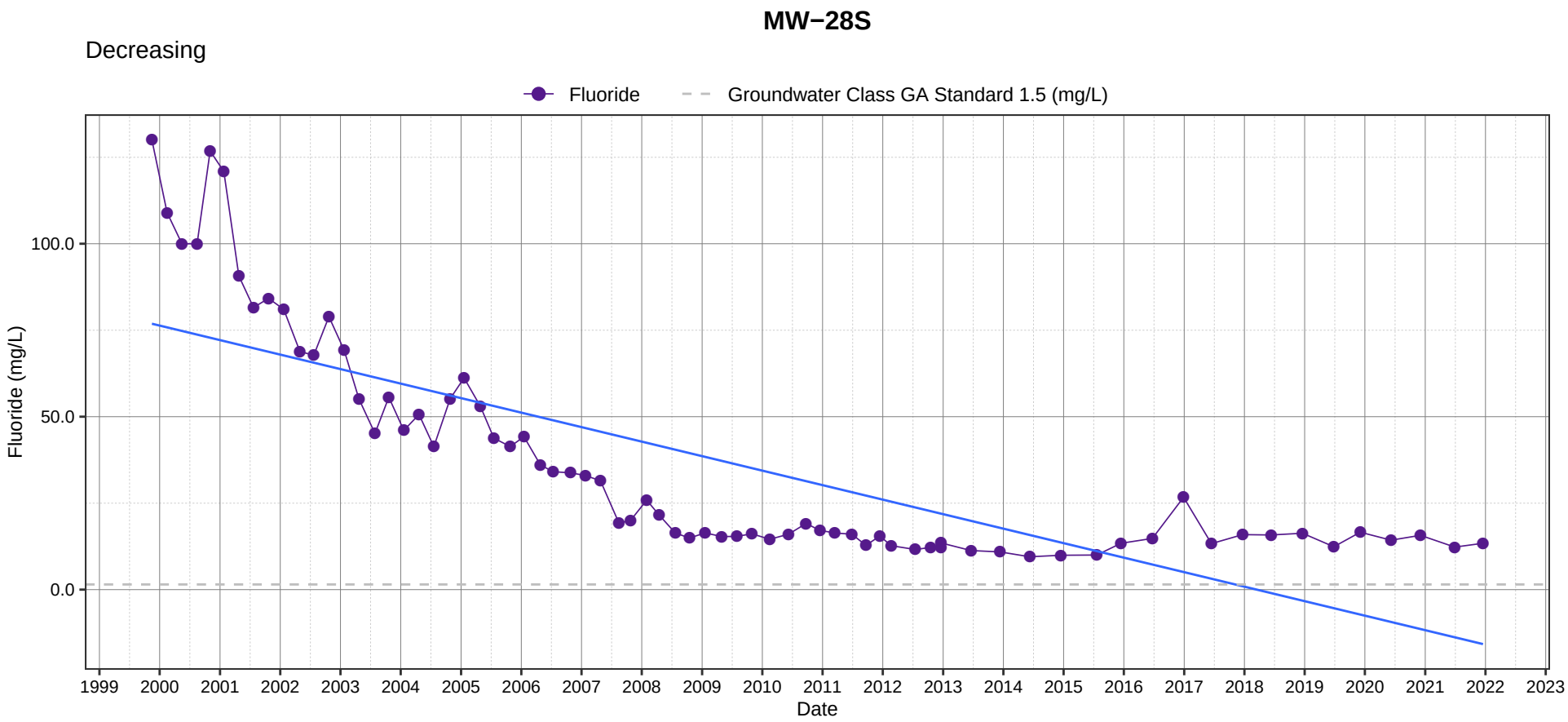


Greater than 50% Non−detect

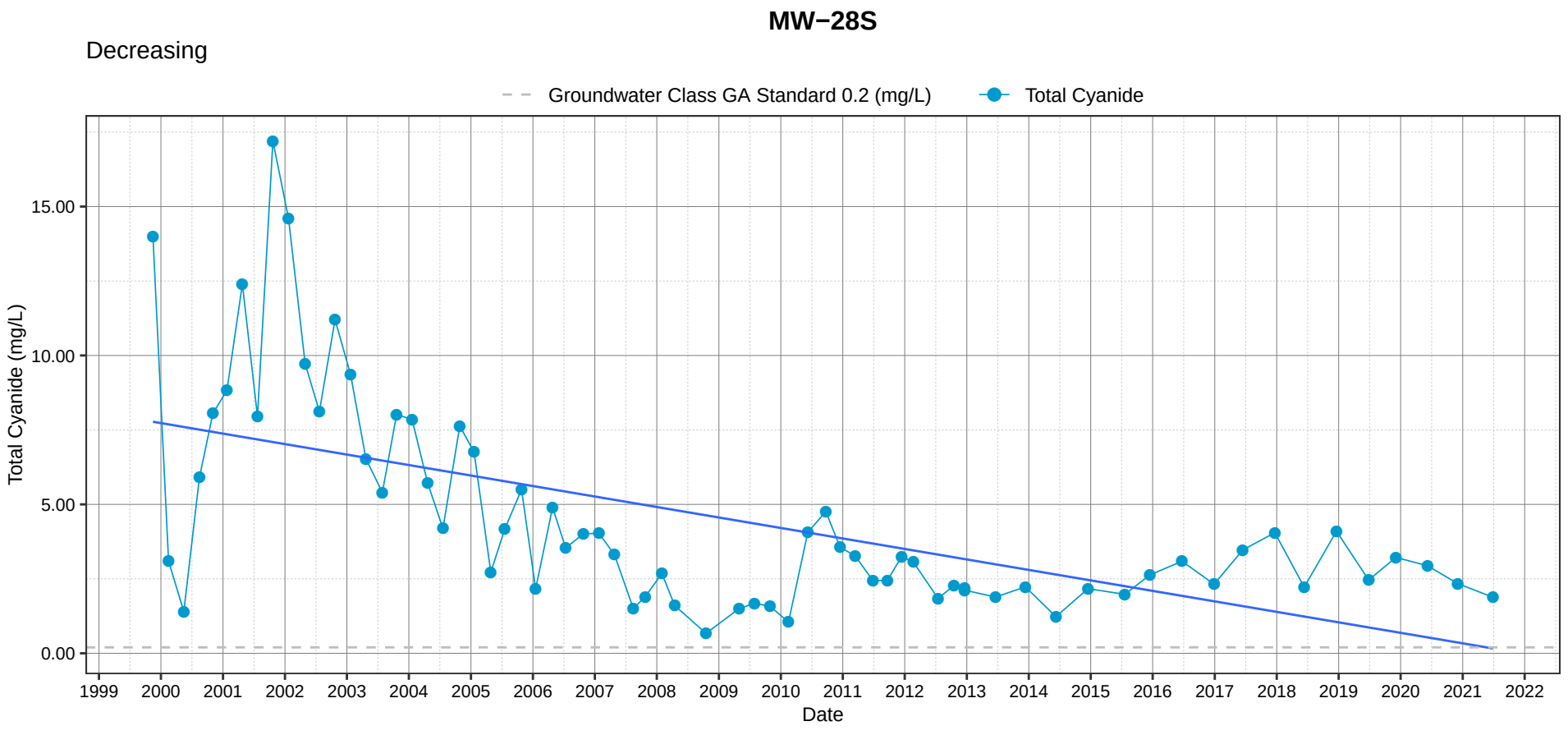
Well MW−28S
Former Potliner Storage Pad
Samples from Post−September 1999 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)



Mann−Kendall p−value < 0.001



Mann−Kendall p−value < 0.001

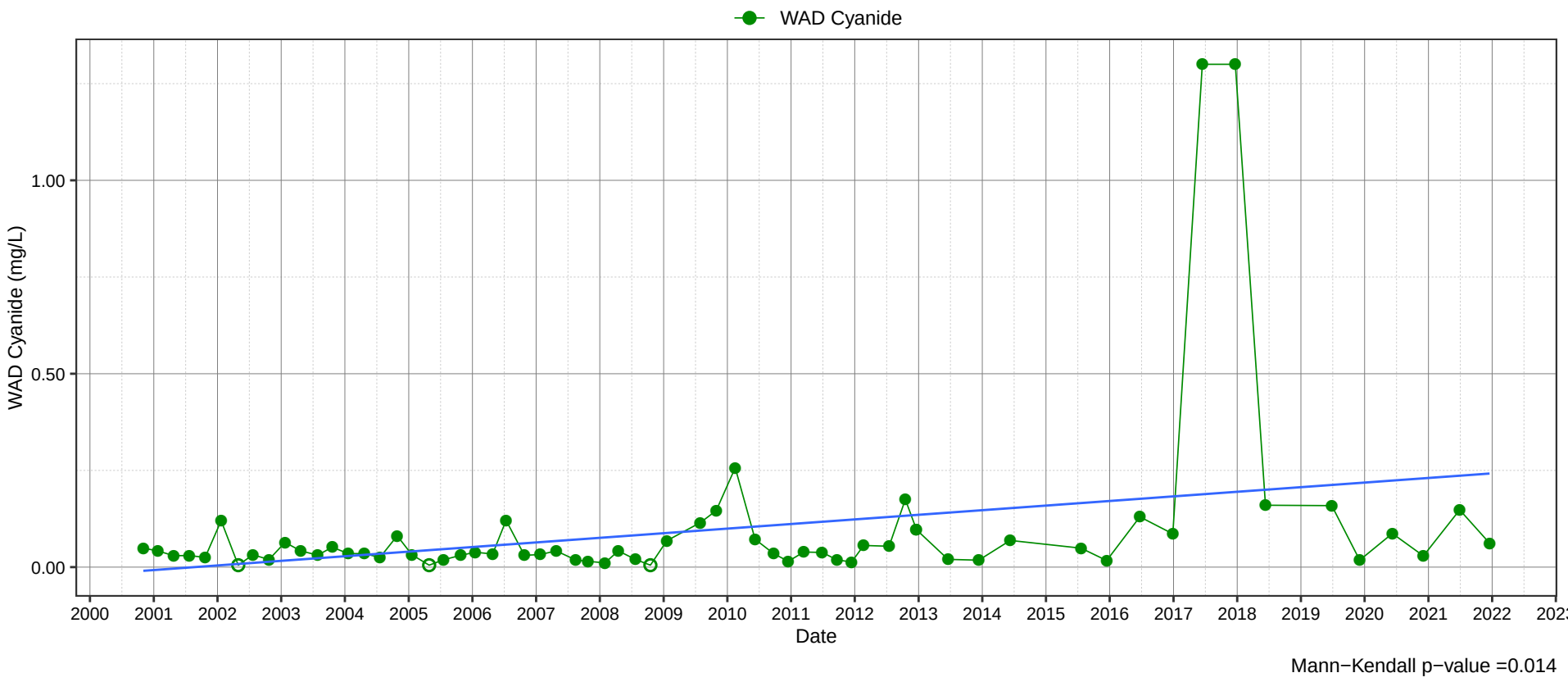


Mann−Kendall p−value < 0.001

Well MW−28S
Former Potliner Storage Pad
Samples from Post−September 1999 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−28S

Increasing

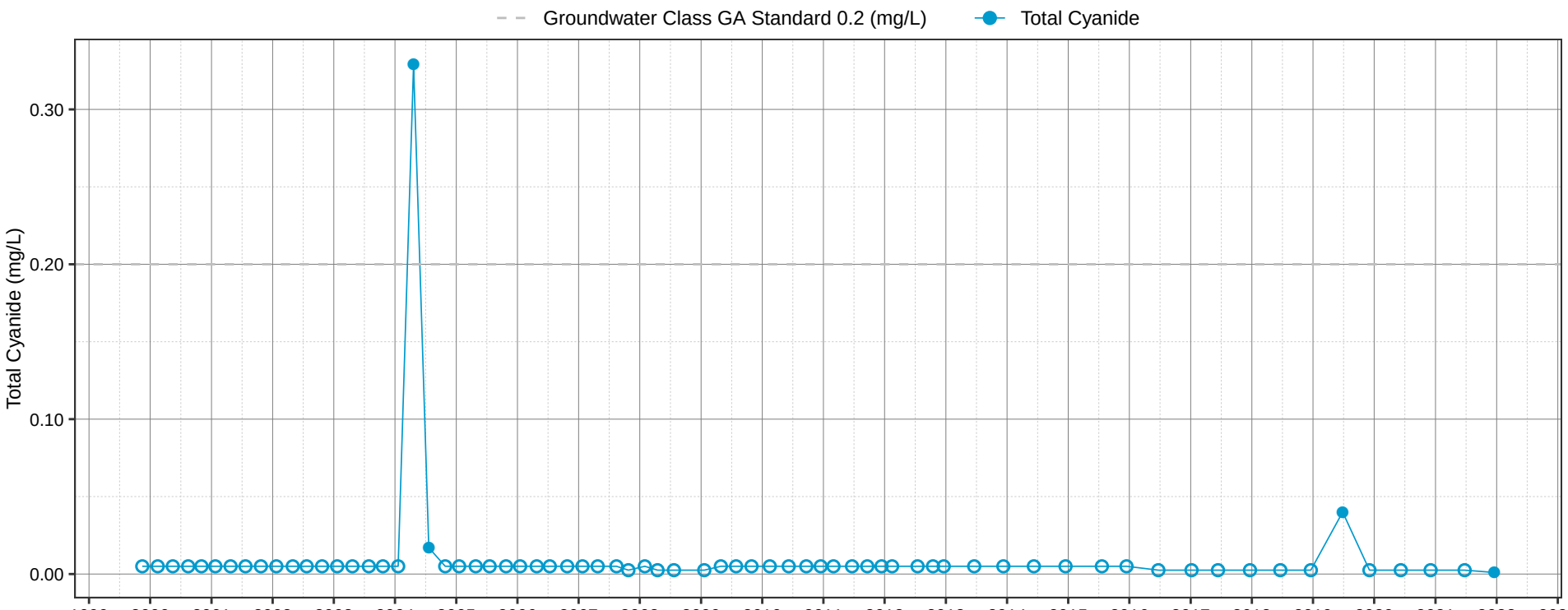


Mann−Kendall p−value =0.014

Well MW−33S
Former Potliner Storage Pad
Samples from Post−September 1999 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−33S

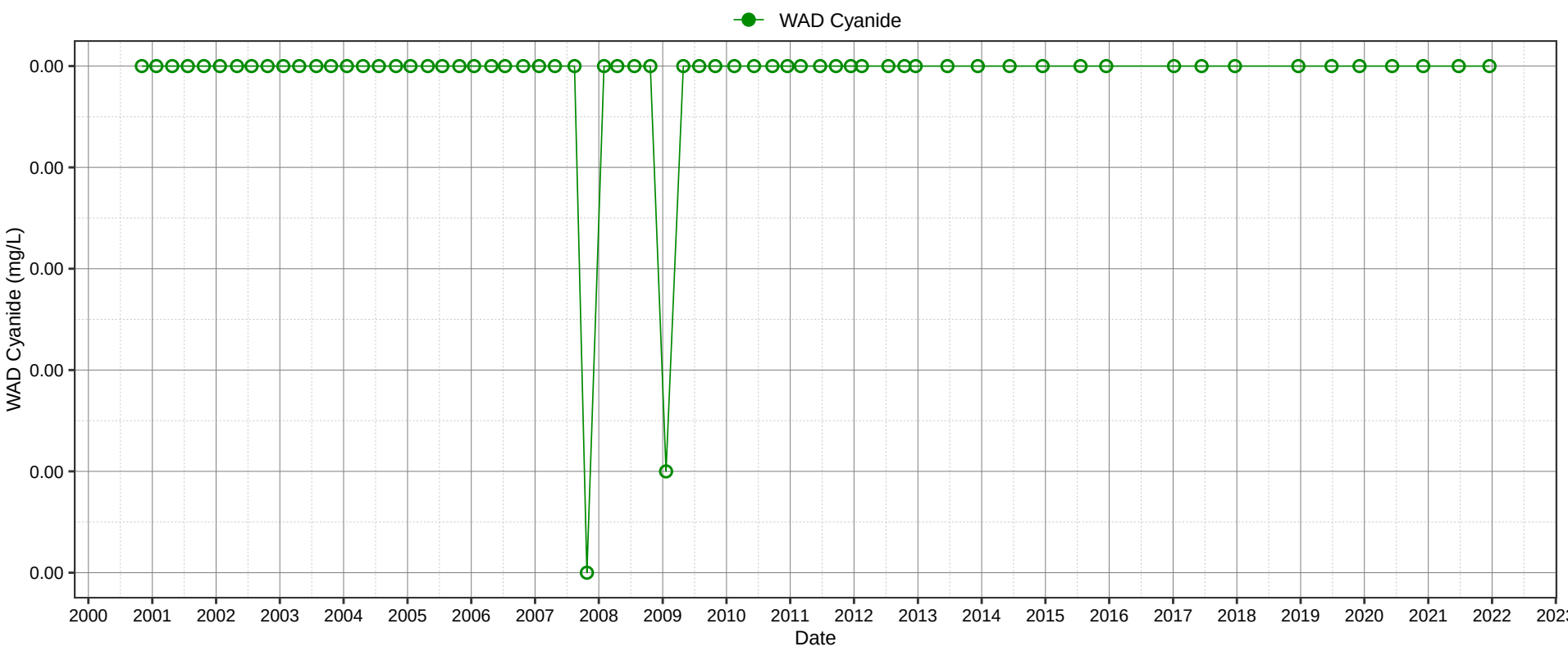
No Trend



Greater than 50% Non−detect

MW−33S

No Trend

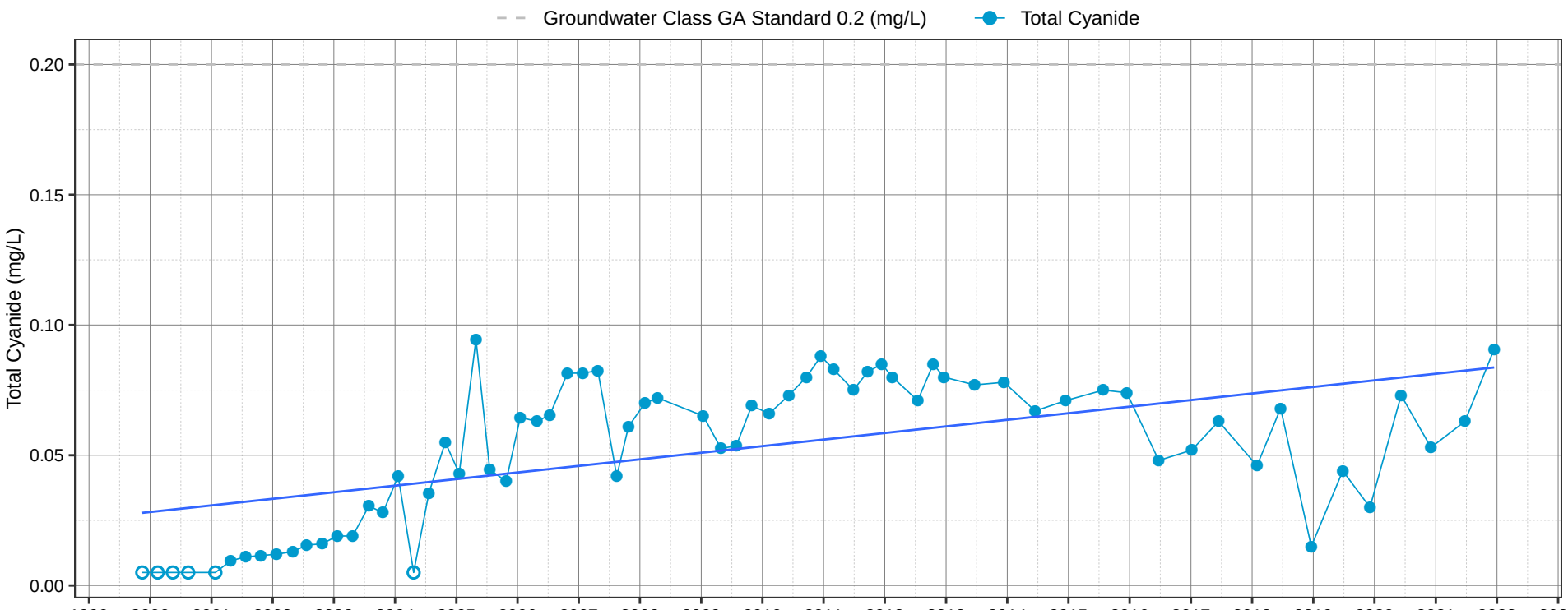


Greater than 50% Non−detect

Well MW−34S
Former Potliner Storage Pad
Samples from Post−September 1999 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−34S

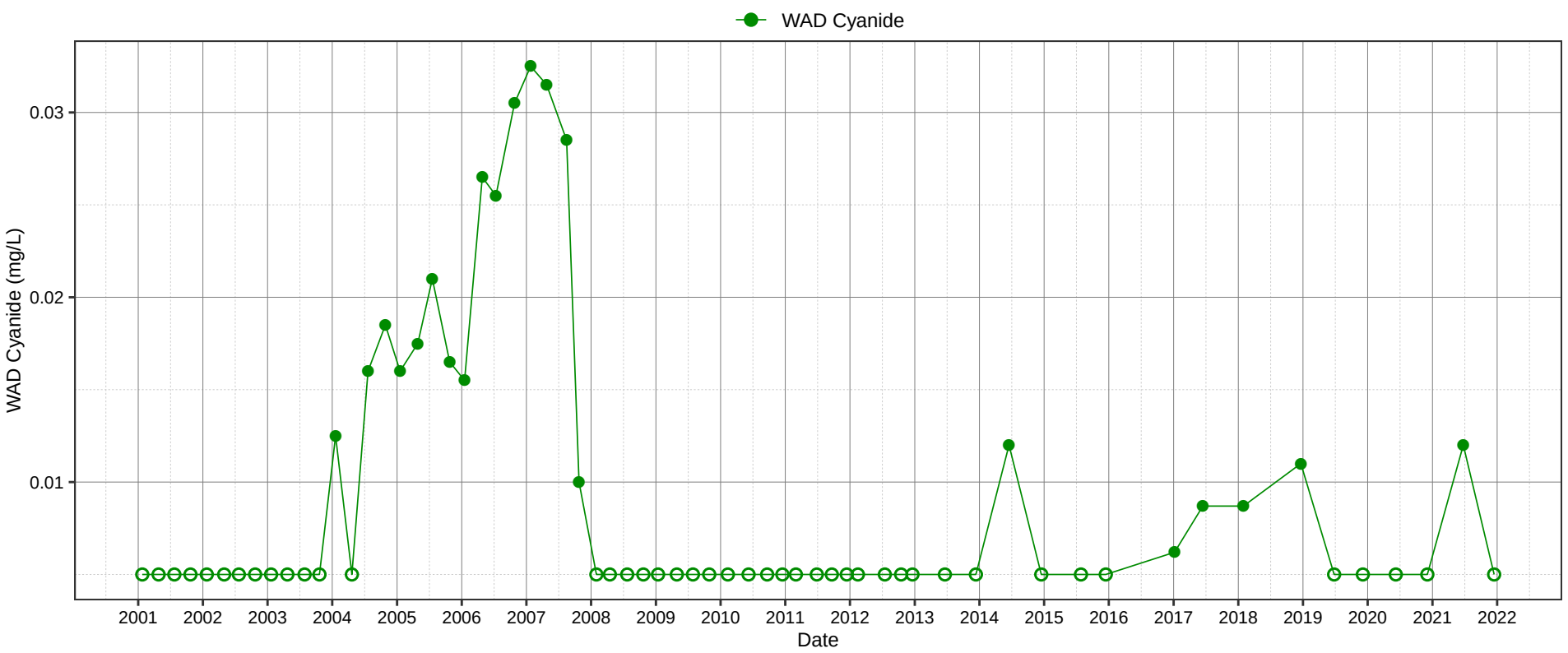
Increasing



Mann−Kendall p−value < 0.001

MW−34S

No Trend

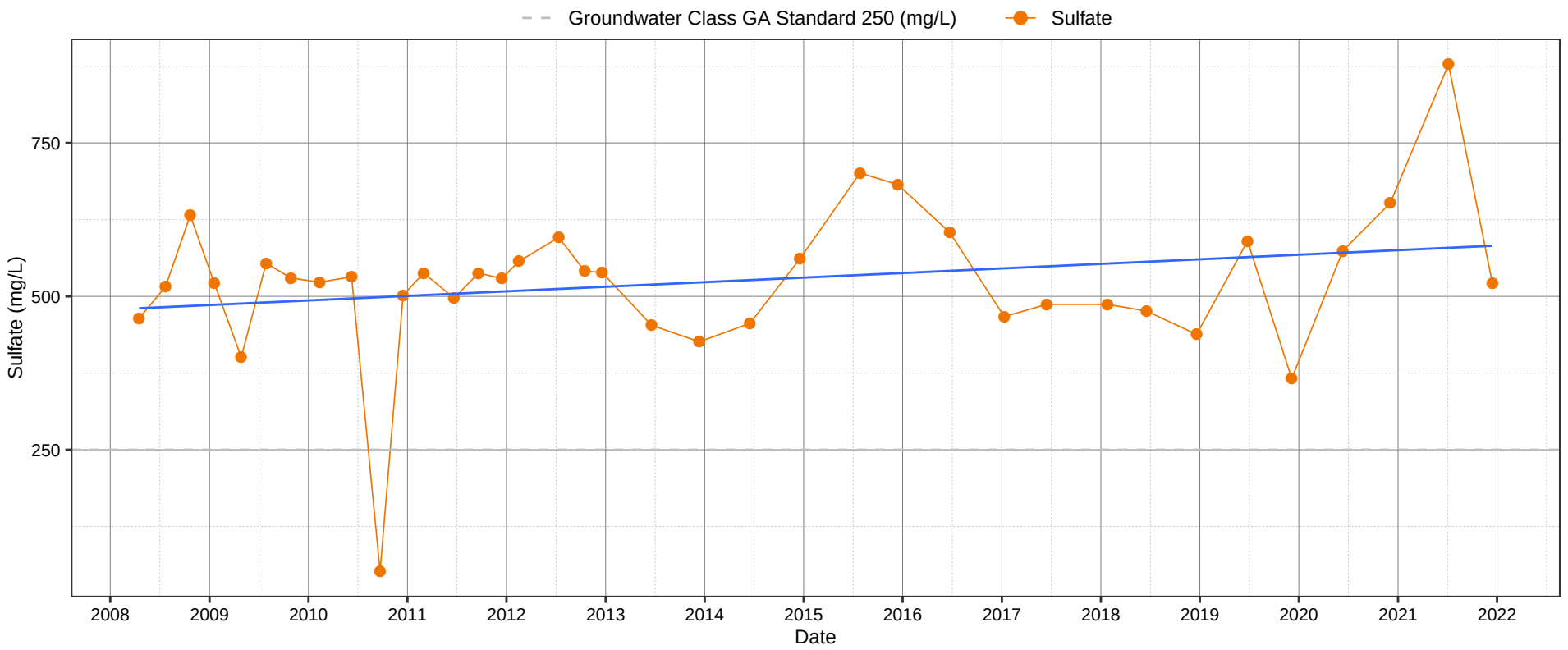


Greater than 50% Non−detect

Well MW−35SR
Former Potliner Storage Pad
Samples from Post−September 1999 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−35SR

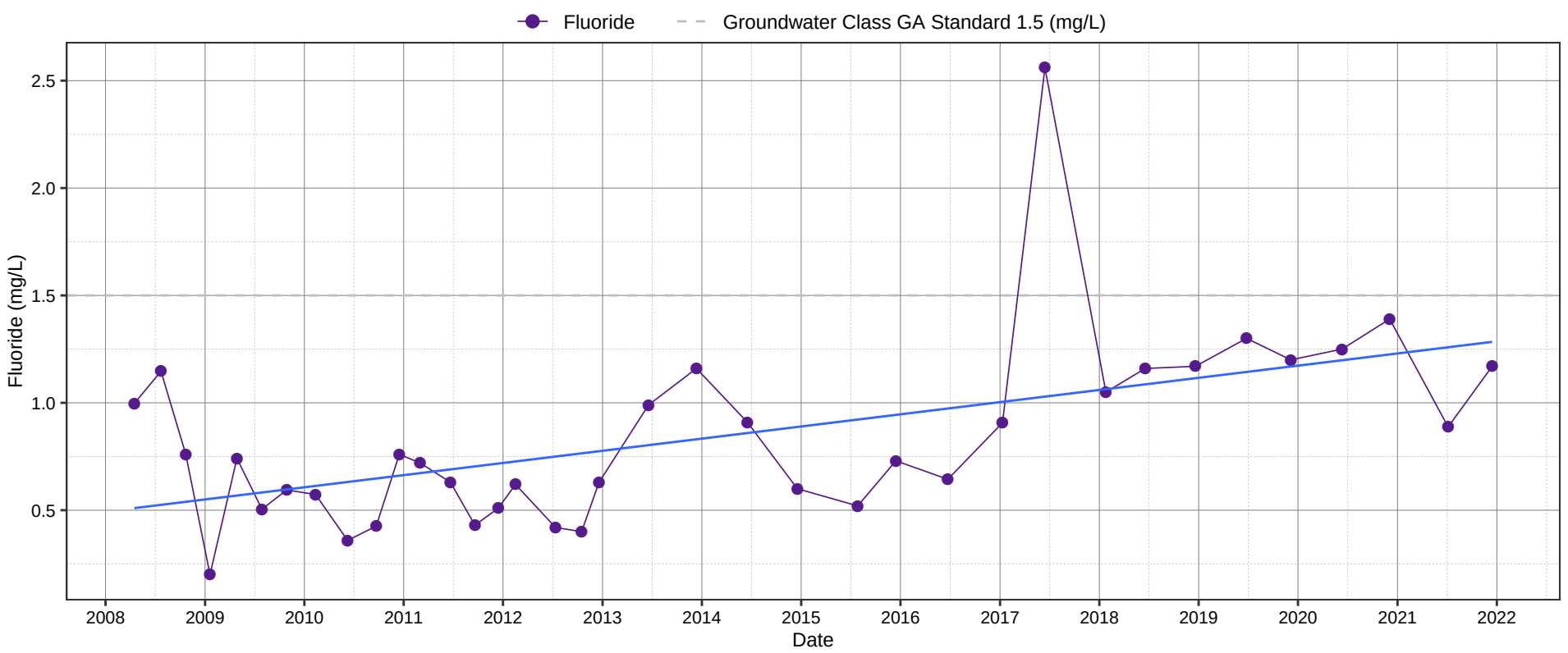
No Trend



Mann−Kendall p−value =0.283

MW−35SR

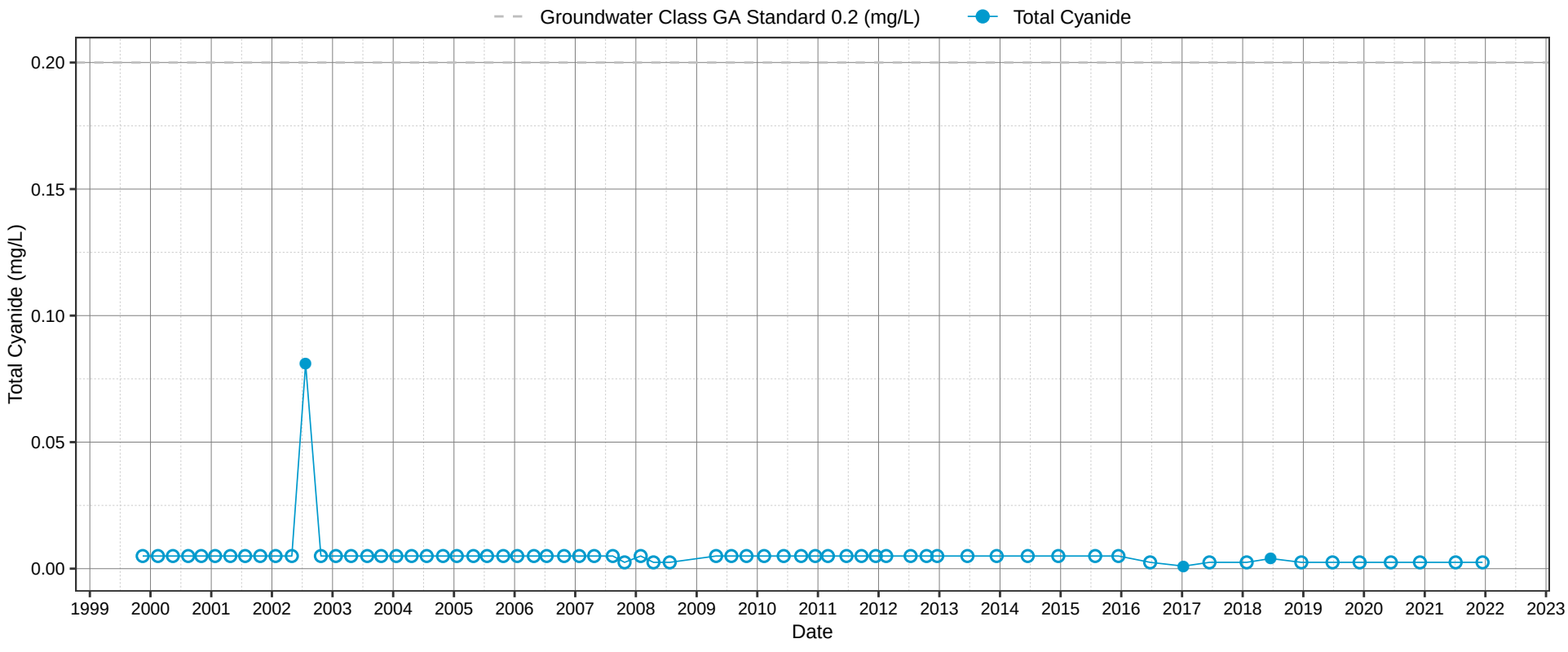
Increasing



Mann−Kendall p−value < 0.001

MW−35SR

No Trend

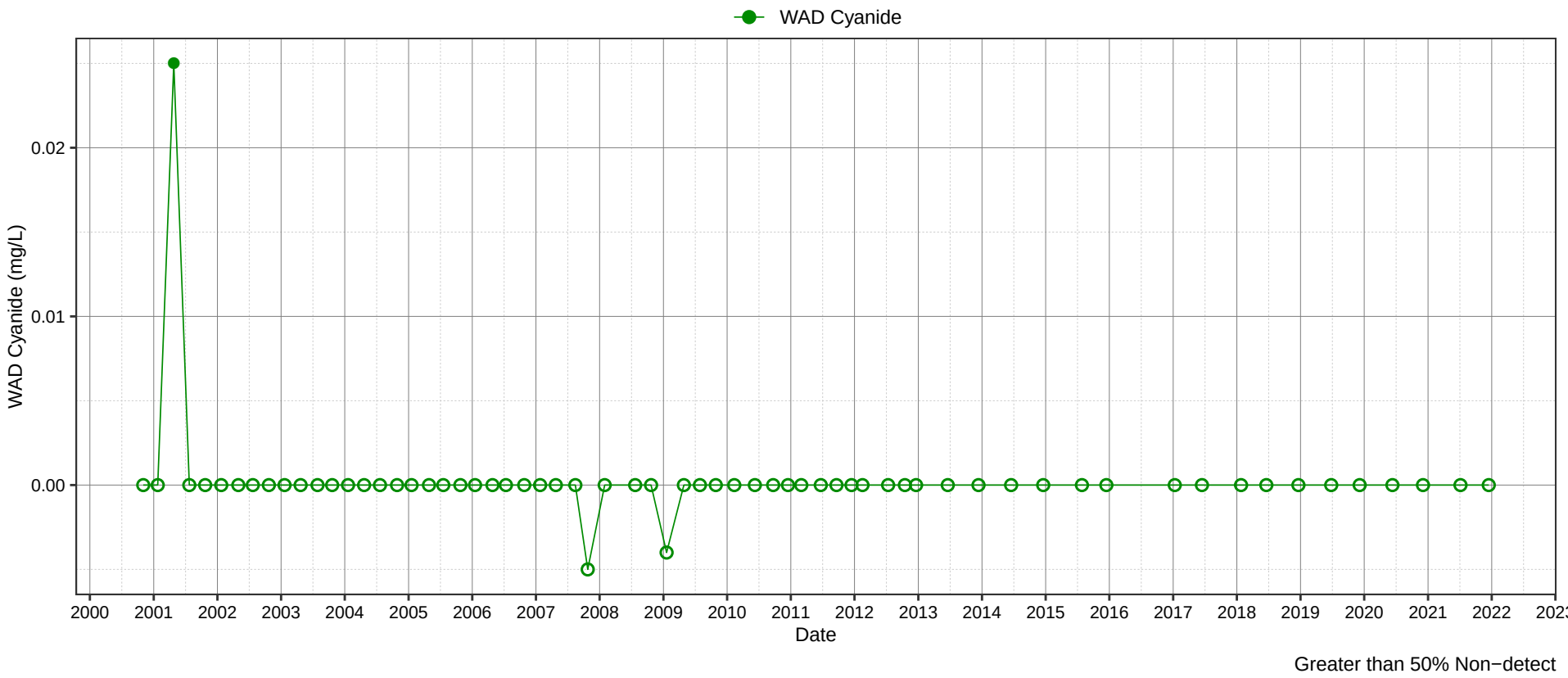


Greater than 50% Non−detect

Well MW−35SR
Former Potliner Storage Pad
Samples from Post−September 1999 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

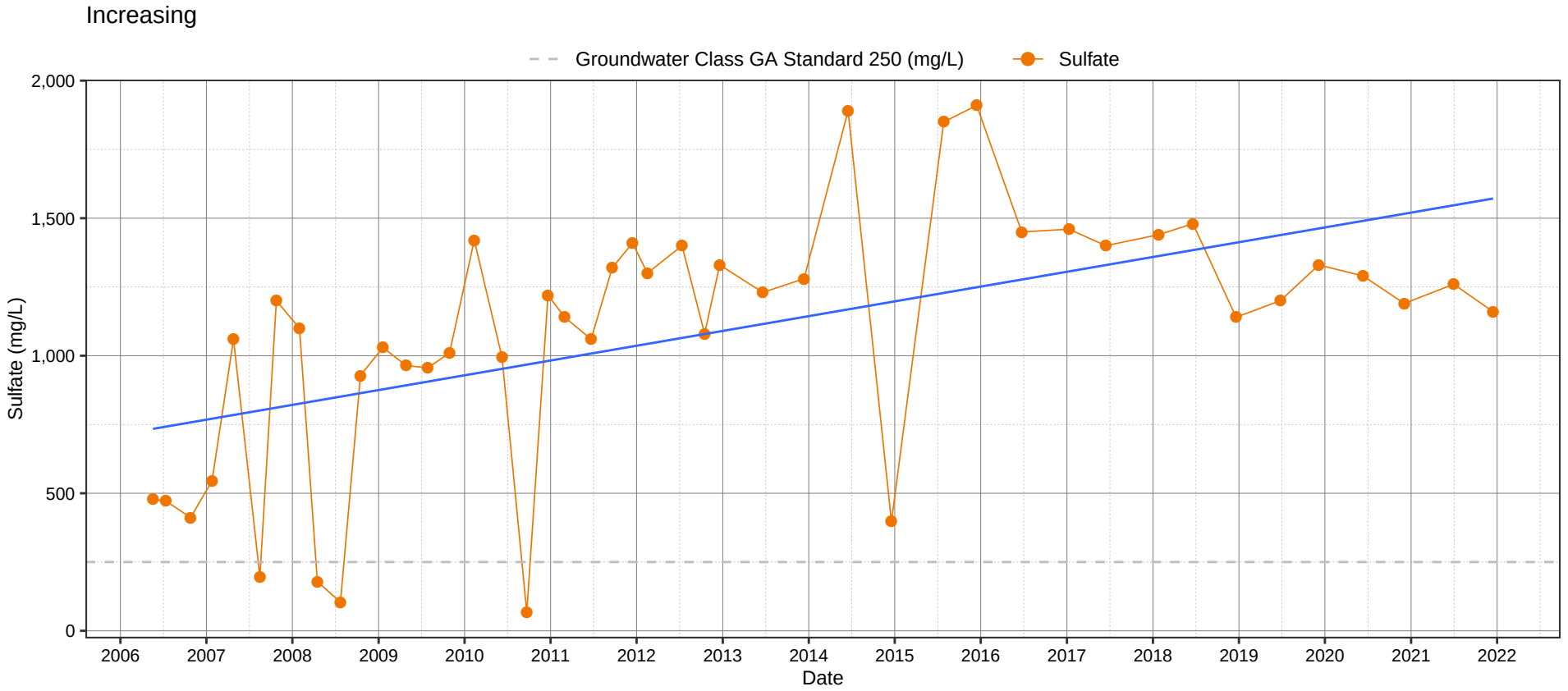
MW−35SR

No Trend

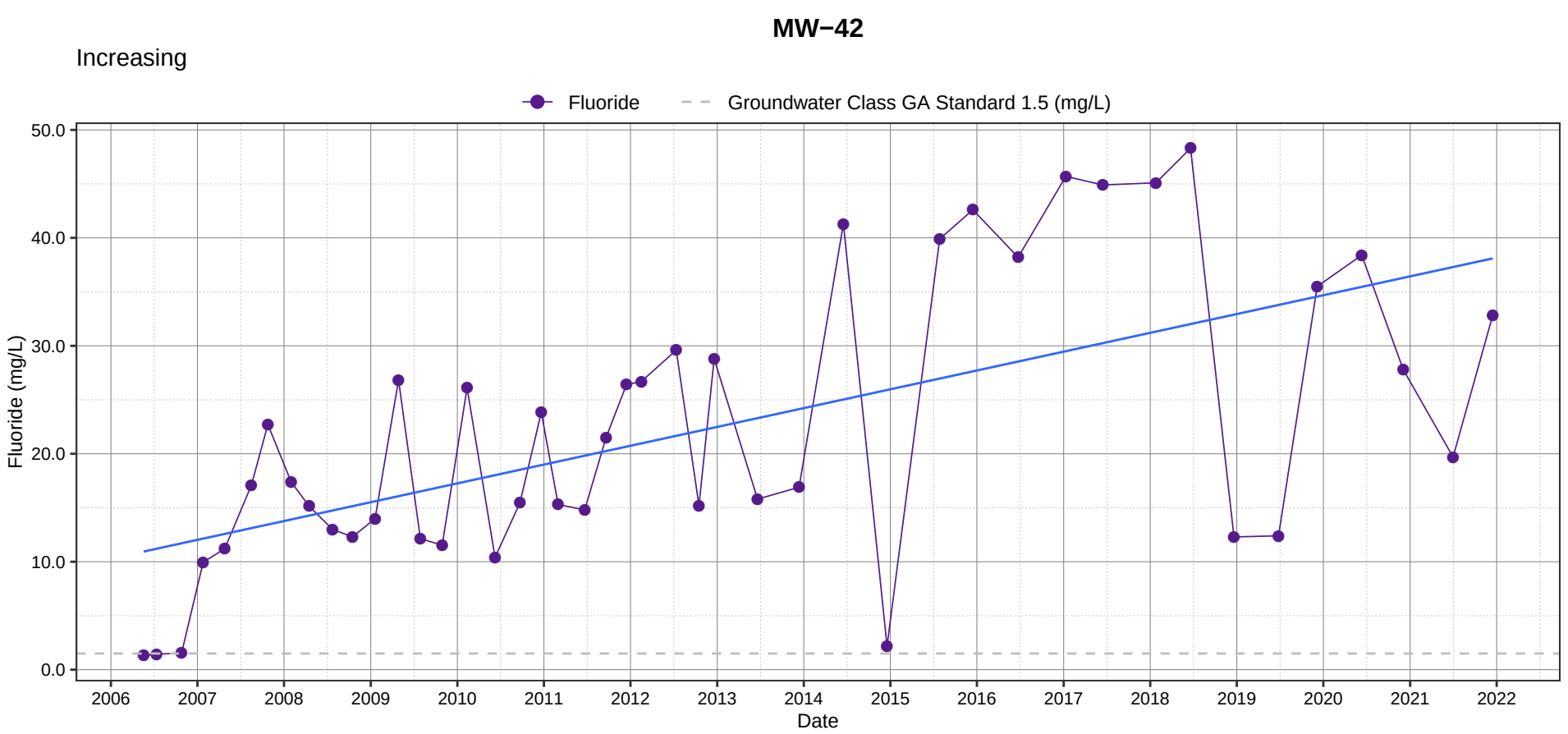


Greater than 50% Non−detect

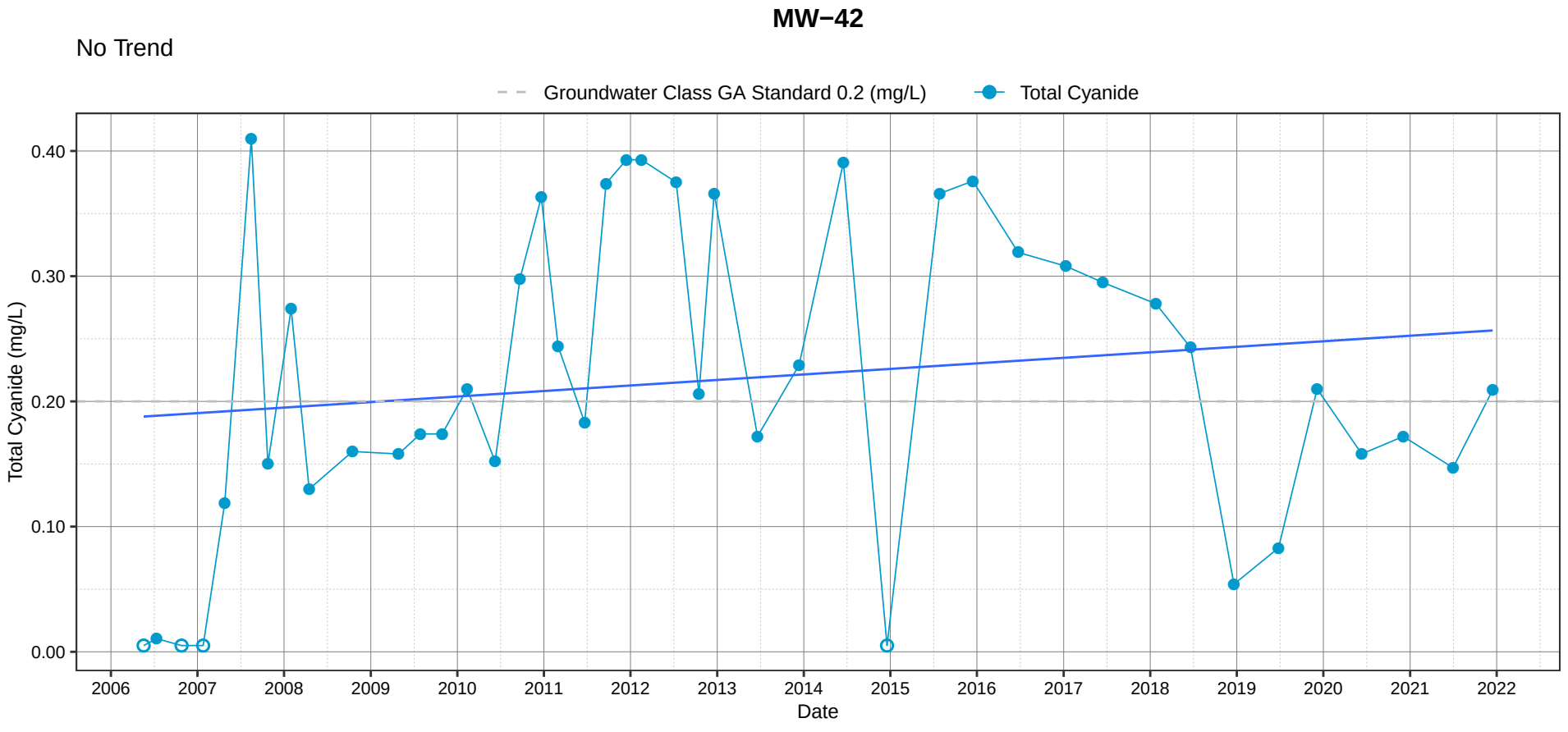
Well MW−42
Former Potliner Storage Pad
Samples from Post−September 1999 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)



Mann−Kendall p−value < 0.001



Mann−Kendall p−value < 0.001

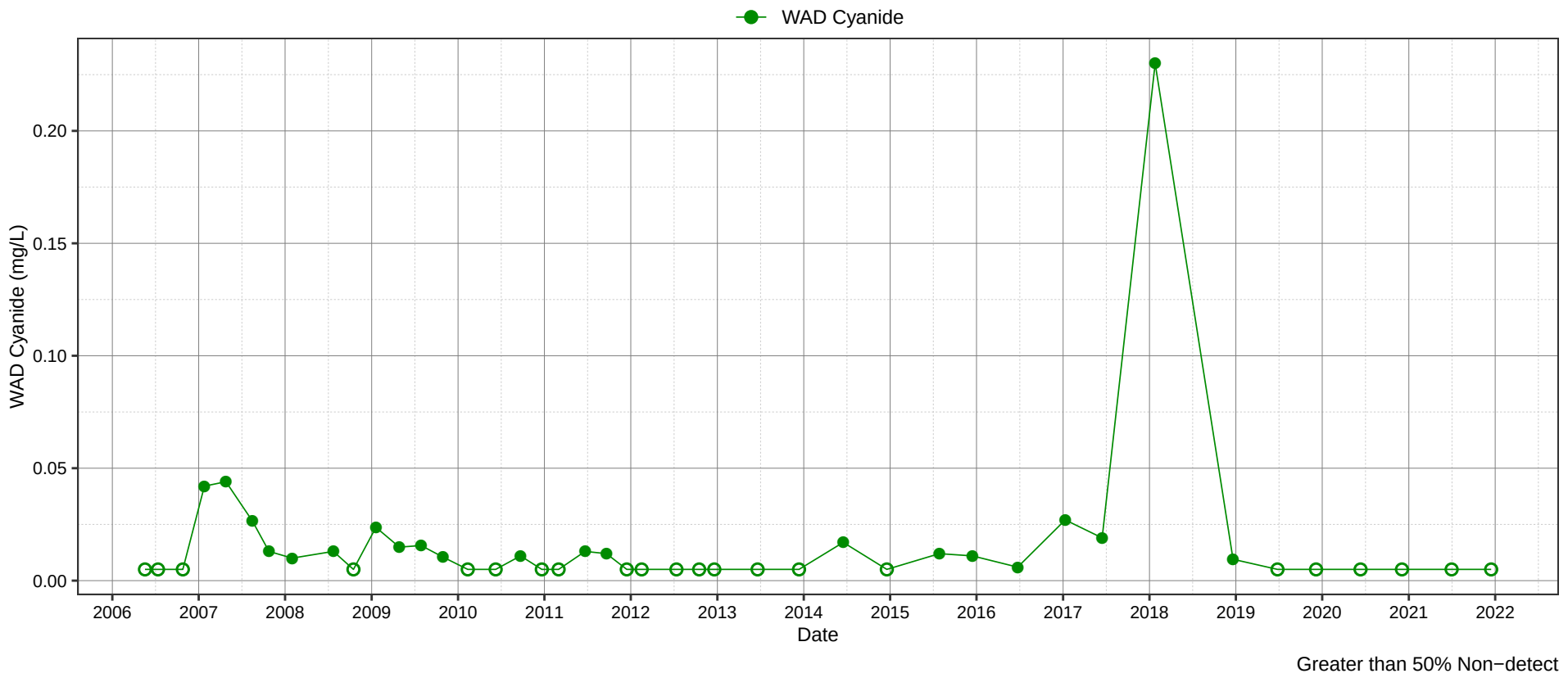


Mann−Kendall p−value =0.126

Well MW−42
Former Potliner Storage Pad
Samples from Post−September 1999 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

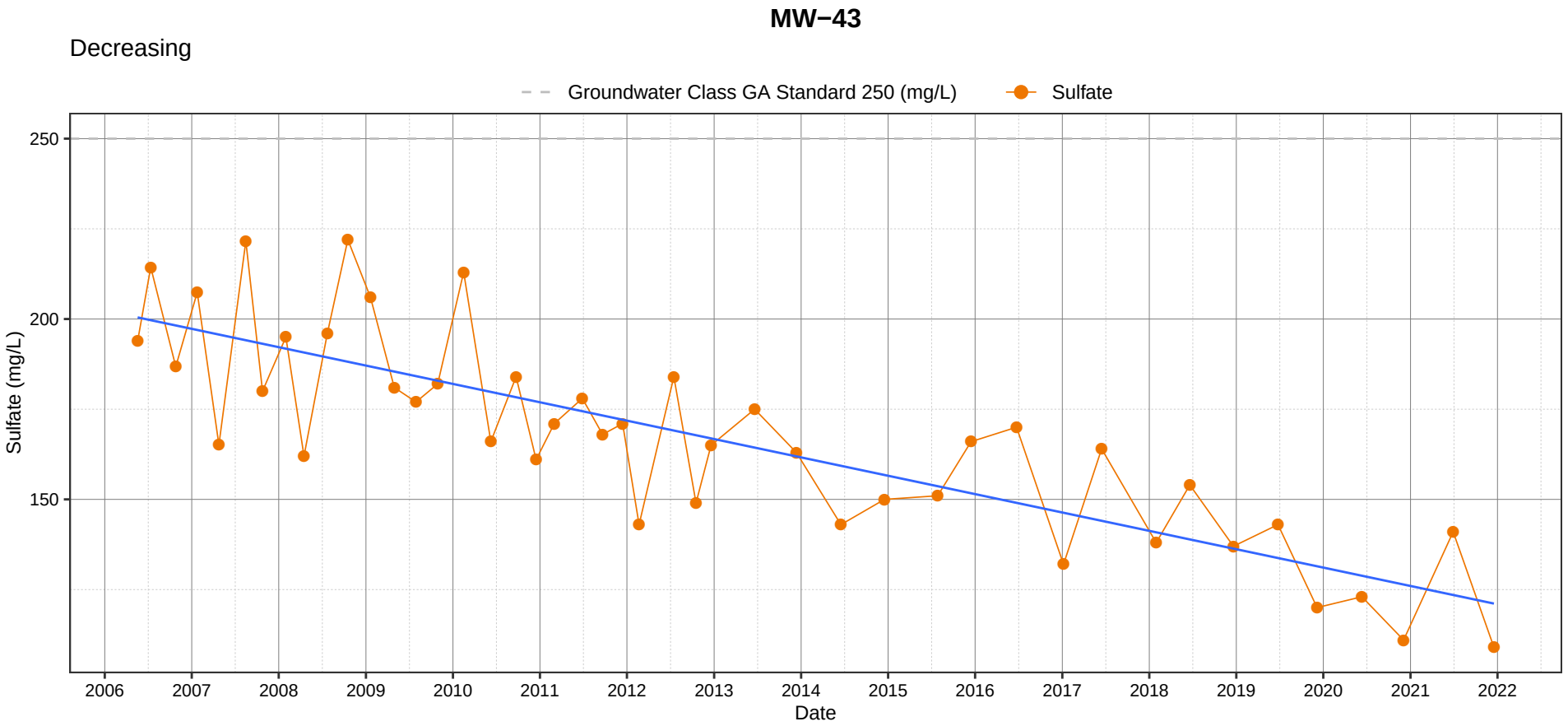
MW−42

No Trend

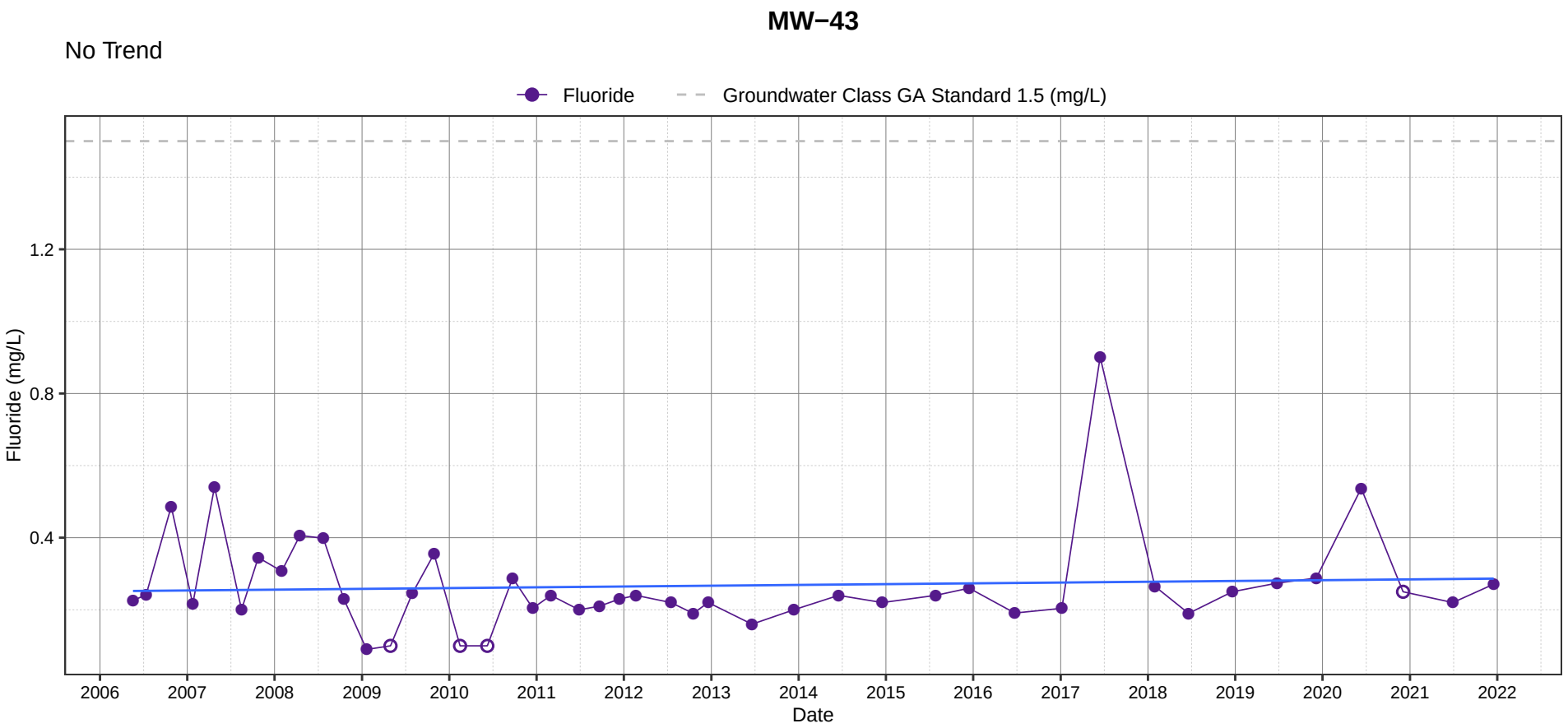


Greater than 50% Non−detect

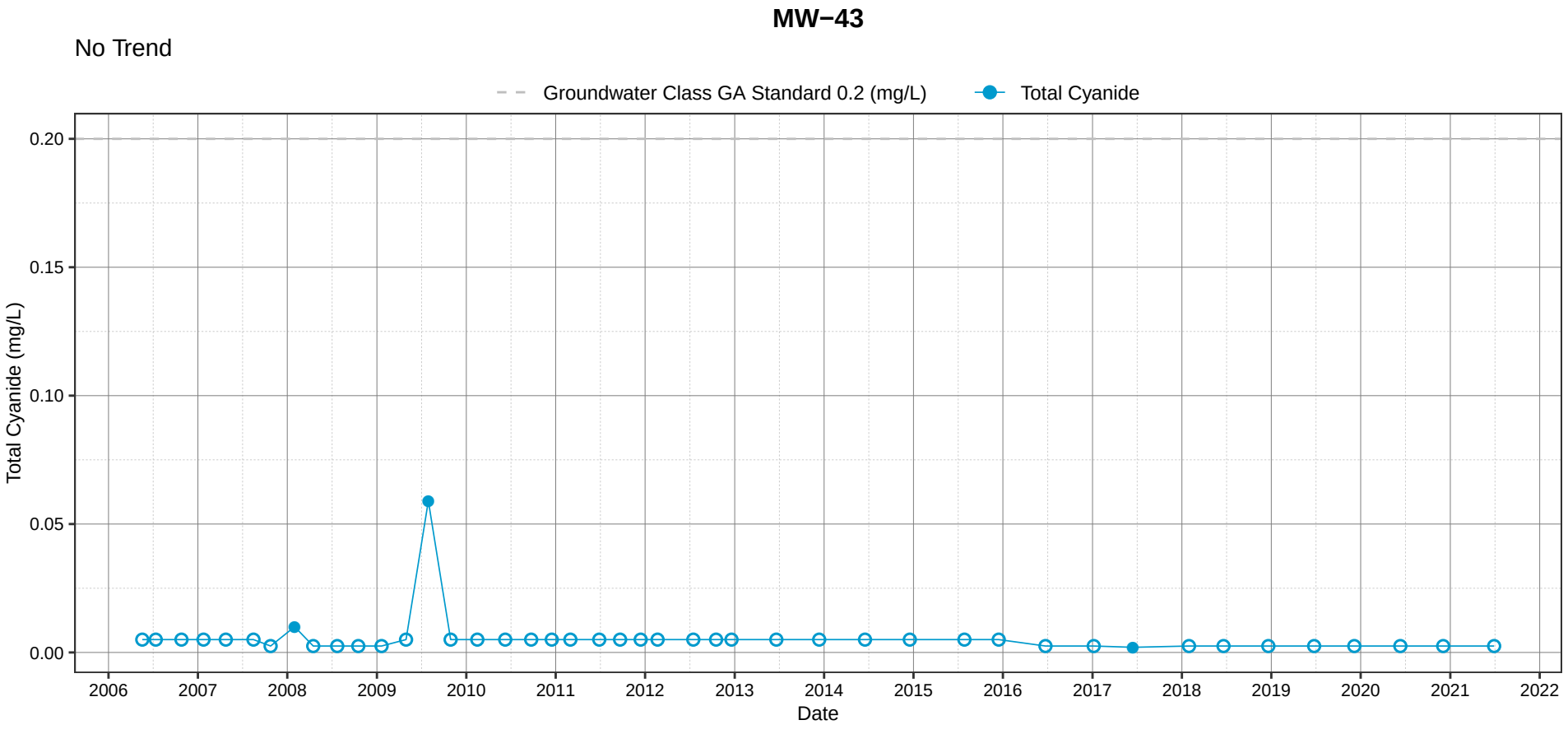
Well MW−43
Former Potliner Storage Pad
Samples from Post−September 1999 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)



Mann−Kendall p−value < 0.001



Mann−Kendall p−value =0.852

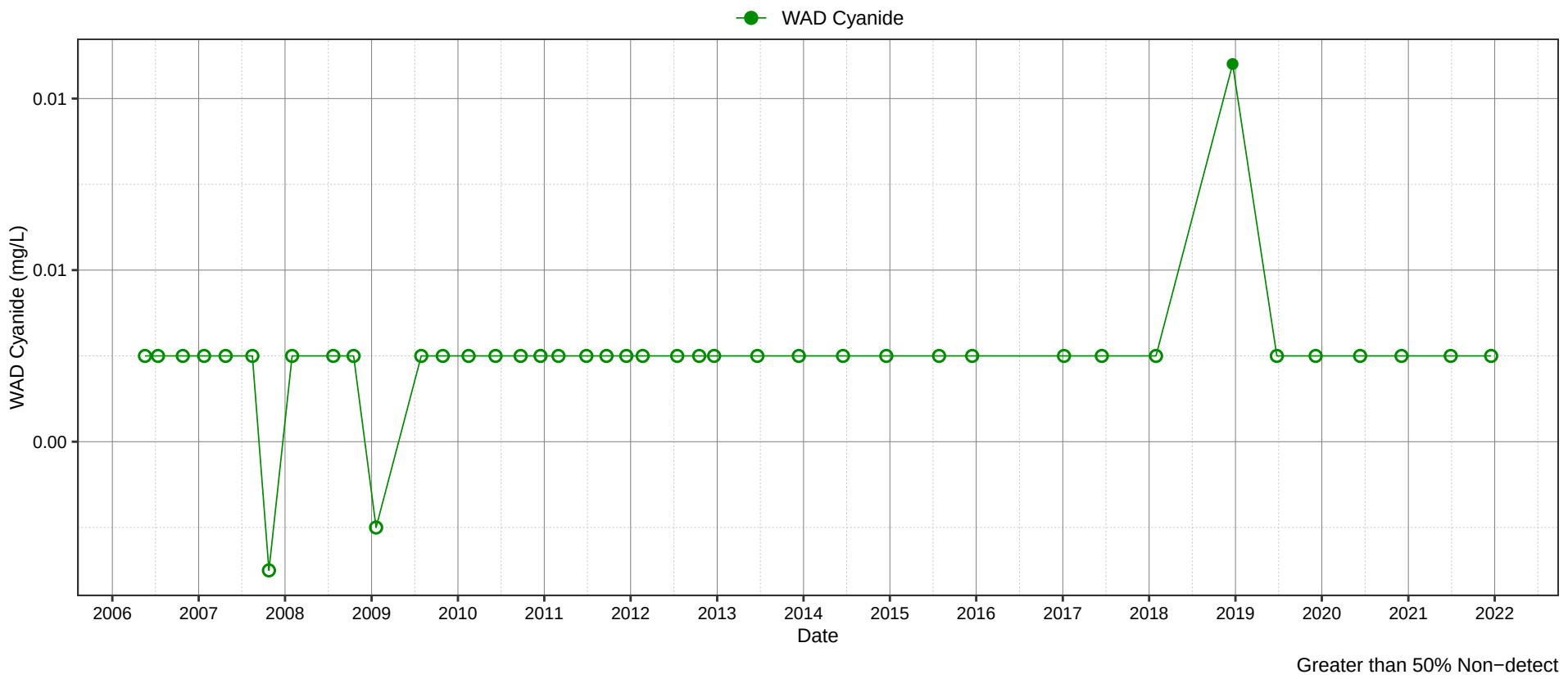


Greater than 50% Non−detect

Well MW−43
Former Potliner Storage Pad
Samples from Post−September 1999 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−43

No Trend

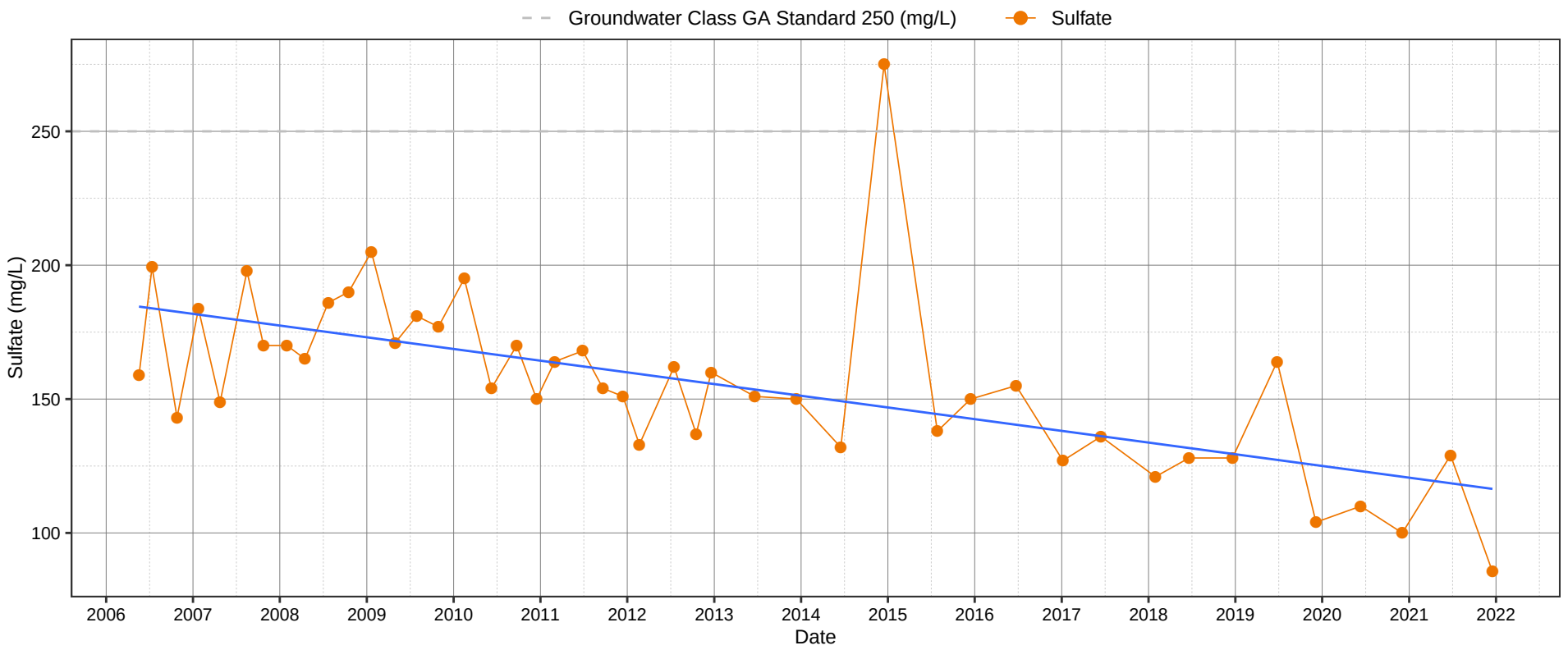


Greater than 50% Non−detect

Well MW−44
Former Potliner Storage Pad
Samples from Post−September 1999 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−44

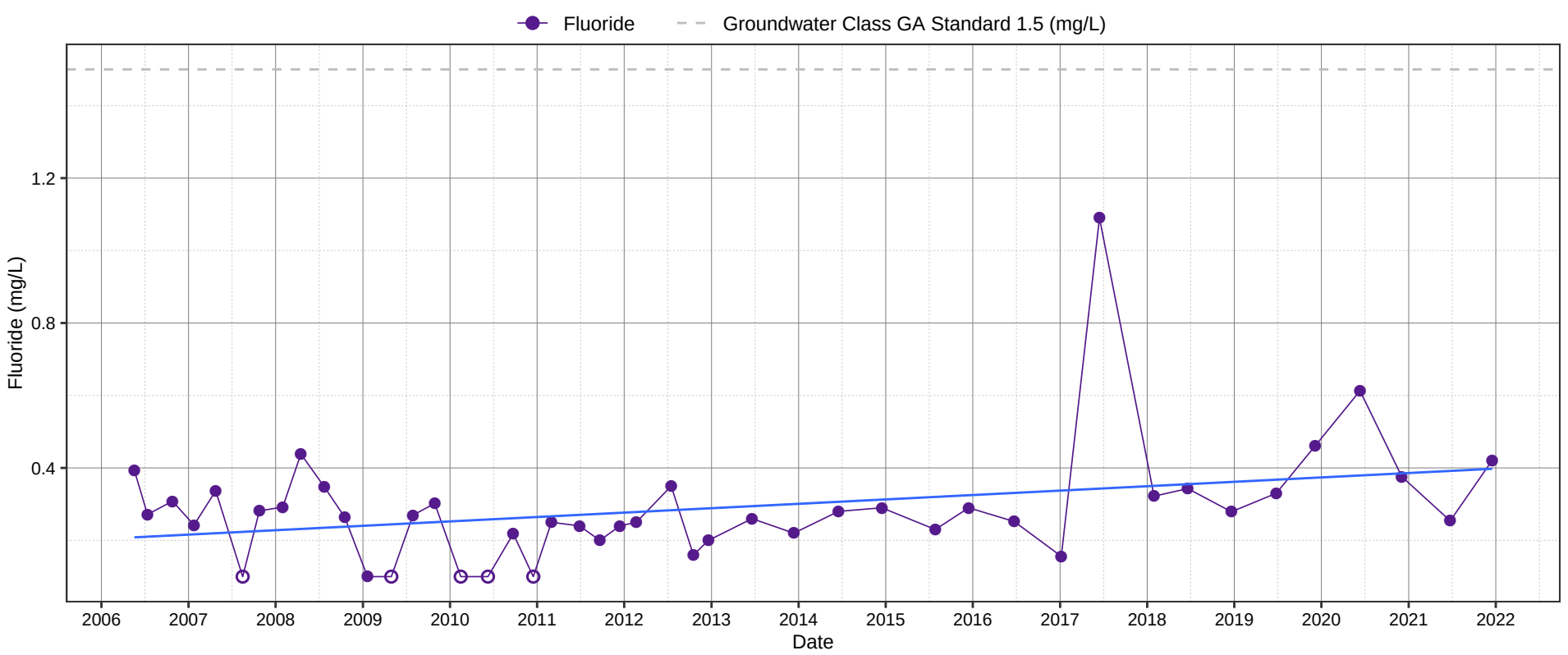
Decreasing



Mann−Kendall p−value < 0.001

MW−44

No Trend



Mann−Kendall p−value =0.088

MW−44

No Trend

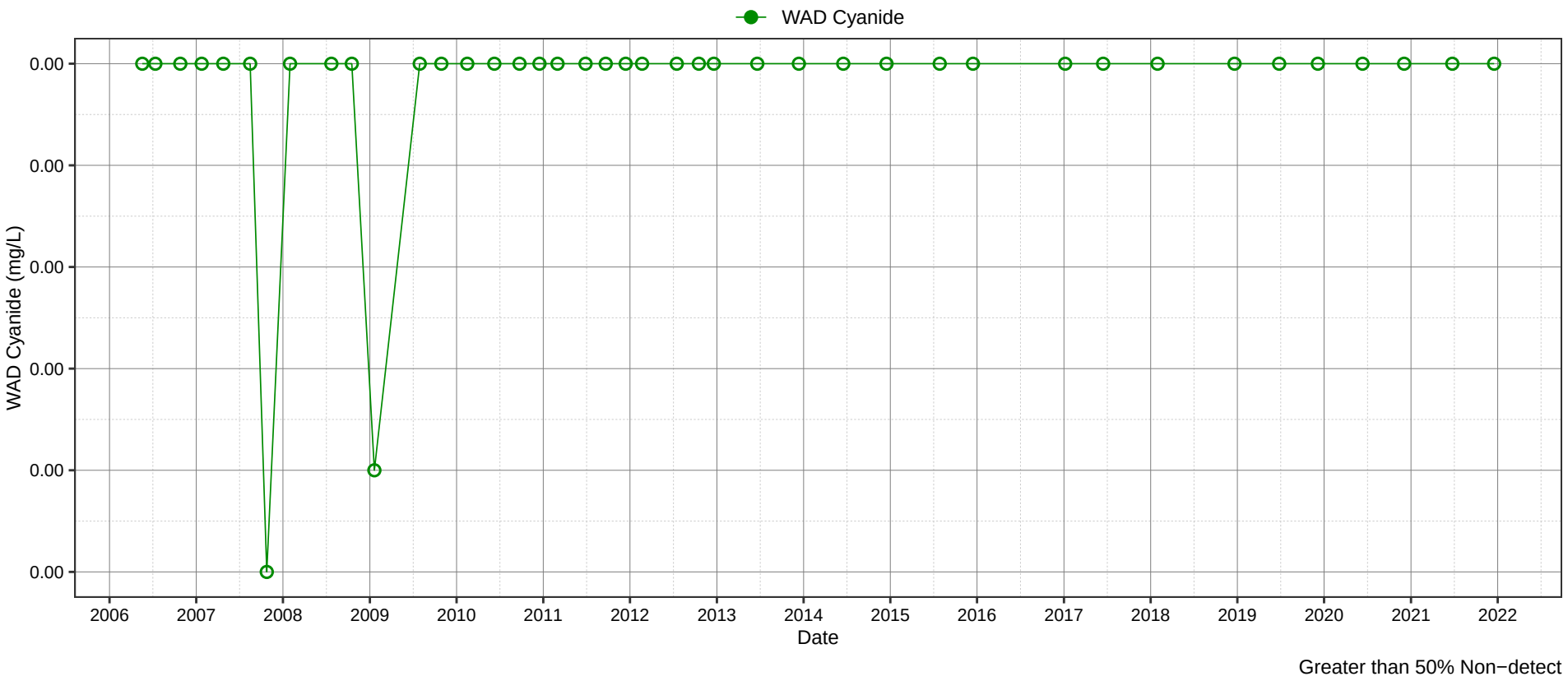


Greater than 50% Non−detect

Well MW−44
Former Potliner Storage Pad
Samples from Post−September 1999 Soil Excavation
(non−detects plotted as open symbols at half the method detection limit)

MW−44

No Trend



Greater than 50% Non−detect

Appendix D3 Comparison

Appendix D
Statistical Analysis - Mann-Kendall Analysis
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East, Massena, New York
Alcoa Corporation

Location	Parameter	Unit	Number of Samples	Number of Detections	Number of Non-detects	p-value	Trend	Number of Samples	Number of Detections	Number of Non-detects	p-value
BMP											
Sample Date Cut-off			**Since 2004**					**Historical**			
MW-11SR	Cyanide	mg/L	52	4	48	--	Greater than 50% ND	74	5	69	--
MW-11SR	Fluoride	mg/L	51	50	1	0.236	No Trend	73	70	3	0.517
MW-11SR	Sulfate (As SO4)	mg/L	52	52	0	< 0.001	Decreasing	74	74	0	< 0.001
MW-11SR	Weak Acid Dissociable Cyanide	mg/L	51	2	49	--	Greater than 50% ND	66	2	64	--
MW-12S	Cyanide	mg/L	49	49	0	< 0.001	Decreasing	70	69	1	< 0.001
MW-12S	Fluoride	mg/L	51	51	0	0.871	No Trend	72	72	0	< 0.001
MW-12S	Sulfate (As SO4)	mg/L	52	52	0	< 0.001	Increasing	73	73	0	< 0.001
MW-12S	Weak Acid Dissociable Cyanide	mg/L	52	19	33	--	Greater than 50% ND	67	27	40	--
MW-13S	Cyanide	mg/L	50	49	1	< 0.001	Decreasing	72	71	1	< 0.001
MW-13S	Fluoride	mg/L	52	51	1	0.975	No Trend	74	73	1	0.856
MW-13S	Sulfate (As SO4)	mg/L	52	52	0	0.659	No Trend	74	74	0	0.885
MW-13S	Weak Acid Dissociable Cyanide	mg/L	51	21	30	--	Greater than 50% ND	73	42	31	0.080
MW-14S	Cyanide	mg/L	42	2	40	--	Greater than 50% ND	42	2	40	--
MW-14S	Fluoride	mg/L	43	43	0	< 0.001	Decreasing	43	43	0	< 0.001
MW-14S	Sulfate (As SO4)	mg/L	43	43	0	0.005	Decreasing	43	43	0	0.005
MW-14S	Weak Acid Dissociable Cyanide	mg/L	42	0	42	--	Greater than 50% ND	42	0	42	--
MW-15S-87	Cyanide	mg/L	50	3	47	--	Greater than 50% ND	72	4	68	--
MW-15S-87	Fluoride	mg/L	50	50	0	< 0.001	Increasing	72	72	0	< 0.001
MW-15S-87	Sulfate (As SO4)	mg/L	50	50	0	0.002	Decreasing	72	72	0	< 0.001
MW-15S-87	Weak Acid Dissociable Cyanide	mg/L	50	0	50	--	Greater than 50% ND	72	7	65	--
MW-20-85-S	Cyanide	mg/L	37	2	35	--	Greater than 50% ND	37	2	35	--
MW-20-85-S	Fluoride	mg/L	38	34	4	0.004	Decreasing	38	34	4	0.004
MW-20-85-S	Sulfate (As SO4)	mg/L	38	38	0	0.291	No Trend	38	38	0	0.291
MW-20-85-S	Weak Acid Dissociable Cyanide	mg/L	37	0	37	--	Greater than 50% ND	37	0	37	--
MW-22-85-S	Cyanide	mg/L	33	3	30	--	Greater than 50% ND	33	3	30	--
MW-22-85-S	Fluoride	mg/L	35	29	6	0.168	No Trend	35	29	6	0.168
MW-22-85-S	Sulfate (As SO4)	mg/L	35	35	0	0.001	Decreasing	35	35	0	0.001
MW-22-85-S	Weak Acid Dissociable Cyanide	mg/L	33	0	33	--	Greater than 50% ND	33	0	33	--
MW-23-85-S	Cyanide	mg/L	39	1	38	--	Greater than 50% ND	39	1	38	--
MW-23-85-S	Fluoride	mg/L	39	37	2	0.578	No Trend	39	37	2	0.578
MW-23-85-S	Sulfate (As SO4)	mg/L	39	39	0	0.187	No Trend	39	39	0	0.187
MW-23-85-S	Weak Acid Dissociable Cyanide	mg/L	38	0	38	--	Greater than 50% ND	38	0	38	--
MW-30S	Cyanide	mg/L	42	3	39	--	Greater than 50% ND	42	3	39	--
MW-30S	Fluoride	mg/L	42	42	0	0.102	No Trend	42	42	0	0.102
MW-30S	Sulfate (As SO4)	mg/L	42	42	0	0.854	No Trend	42	42	0	0.854
MW-30S	Weak Acid Dissociable Cyanide	mg/L	41	2	39	--	Greater than 50% ND	41	2	39	--
MW-31SR	Cyanide	mg/L	52	23	29	--	Greater than 50% ND	73	35	38	--
MW-31SR	Fluoride	mg/L	52	52	0	0.528	No Trend	73	73	0	0.782
MW-31SR	Sulfate (As SO4)	mg/L	52	52	0	0.430	No Trend	73	73	0	0.117

Appendix D
Statistical Analysis - Mann-Kendall Analysis
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East, Massena, New York
Alcoa Corporation

Location	Parameter	Unit	Number of Samples	Number of Detections	Number of Non-detects	p-value	Trend	Number of Samples	Number of Detections	Number of Non-detects	p-value
MW-31SR	Weak Acid Dissociable Cyanide	mg/L	52	9	43	--	Greater than 50% ND	67	11	56	--
PZ-44	Cyanide	mg/L	32	2	30	--	Greater than 50% ND	32	2	30	--
PZ-44	Fluoride	mg/L	32	32	0	0.062	Decreasing	32	32	0	0.062
PZ-44	Sulfate (As SO4)	mg/L	31	31	0	0.027	Increasing	31	31	0	0.027
PZ-44	Weak Acid Dissociable Cyanide	mg/L	31	1	30	--	Greater than 50% ND	31	1	30	--
PZ-45	Cyanide	mg/L	24	3	21	--	Greater than 50% ND	24	3	21	--
PZ-45	Fluoride	mg/L	28	28	0	0.050	Increasing	28	28	0	0.050
PZ-45	Sulfate (As SO4)	mg/L	26	26	0	< 0.001	Increasing	26	26	0	< 0.001
PZ-45	Weak Acid Dissociable Cyanide	mg/L	24	3	21	--	Greater than 50% ND	24	3	21	--
PZ-46	Cyanide	mg/L	9	1	8	--	Greater than 50% ND	--	--	--	--
PZ-46	Fluoride	mg/L	11	11	0	0.035	Increasing	--	--	--	--
PZ-46	Sulfate (As SO4)	mg/L	8	8	0	0.174	No Trend	--	--	--	--
PZ-46	Weak Acid Dissociable Cyanide	mg/L	6	0	6	--	Greater than 50% ND	--	--	--	--
ILF											
Sample Date Cut-off			**2003**					**Historical**			
MW-10S	Cyanide	mg/L	74	5	69	--	Greater than 50% ND	98	9	89	--
MW-10S	Fluoride	mg/L	75	68	7	< 0.001	Decreasing	99	76	23	0.372
MW-10S	Sulfate (As SO4)	mg/L	75	75	0	0.006	Decreasing	99	99	0	0.110
MW-10S	Weak Acid Dissociable Cyanide	mg/L	72	3	69	--	Greater than 50% ND	96	18	78	--
MW-39S	Cyanide	mg/L	74	72	2	< 0.001	Decreasing	89	87	2	< 0.001
MW-39S	Fluoride	mg/L	77	77	0	0.632	No Trend	92	92	0	0.003
MW-39S	Sulfate (As SO4)	mg/L	76	76	0	< 0.001	Increasing	91	91	0	< 0.001
MW-39S	Weak Acid Dissociable Cyanide	mg/L	74	32	42	--	Greater than 50% ND	89	46	43	< 0.001
MW-40S	Cyanide	mg/L	73	73	0	< 0.001	Decreasing	87	87	0	< 0.001
MW-40S	Fluoride	mg/L	75	71	4	< 0.001	Decreasing	89	84	5	< 0.001
MW-40S	Sulfate (As SO4)	mg/L	75	75	0	< 0.001	Decreasing	89	89	0	< 0.001
MW-40S	Weak Acid Dissociable Cyanide	mg/L	72	37	35	< 0.001	Decreasing	86	51	35	0.001
MW-45	Cyanide	mg/L	61	61	0	< 0.001	Decreasing	61	61	0	< 0.001
MW-45	Fluoride	mg/L	63	61	2	< 0.001	Decreasing	63	61	2	< 0.001
MW-45	Sulfate (As SO4)	mg/L	63	63	0	< 0.001	Increasing	63	63	0	< 0.001
MW-45	Weak Acid Dissociable Cyanide	mg/L	61	55	6	0.033	Decreasing	61	55	6	0.033
SLPWETE	Cyanide	mg/L	27	4	23	--	Greater than 50% ND	27	4	23	--
SLPWETE	Fluoride	mg/L	29	28	1	0.339	No Trend	29	28	1	0.339
SLPWETE	Sulfate (As SO4)	mg/L	27	23	4	0.243	No Trend	27	23	4	0.243
SLPWETE	Weak Acid Dissociable Cyanide	mg/L	27	2	25	--	Greater than 50% ND	27	2	25	--
SLPWETW	Cyanide	mg/L	27	6	21	--	Greater than 50% ND	27	6	21	--
SLPWETW	Fluoride	mg/L	28	28	0	0.244	No Trend	28	28	0	0.244
SLPWETW	Sulfate (As SO4)	mg/L	26	22	4	0.965	No Trend	26	22	4	0.965
SLPWETW	Weak Acid Dissociable Cyanide	mg/L	26	0	26	--	Greater than 50% ND	26	0	26	--

Appendix D
Statistical Analysis - Mann-Kendall Analysis
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East, Massena, New York
Alcoa Corporation

Location	Parameter	Unit	Number of Samples	Number of Detections	Number of Non-detects	p-value	Trend	Number of Samples	Number of Detections	Number of Non-detects	p-value
PSP											
Sample Date Cut-off			1999					Historical			
MW-03S	Cyanide	mg/L	56	56	0	< 0.001	Decreasing	63	63	0	< 0.001
MW-03S	Fluoride	mg/L	57	57	0	0.615	No Trend	64	64	0	0.084
MW-03S	Sulfate (As SO4)	mg/L	57	57	0	< 0.001	Decreasing	64	64	0	< 0.001
MW-03S	Weak Acid Dissociable Cyanide	mg/L	52	52	0	0.005	Decreasing	52	52	0	0.005
MW-26S	Cyanide	mg/L	71	9	62	--	Greater than 50% ND	78	16	62	--
MW-26S	Fluoride	mg/L	71	71	0	< 0.001	Increasing	78	78	0	< 0.001
MW-26S	Sulfate (As SO4)	mg/L	71	71	0	< 0.001	Decreasing	78	78	0	< 0.001
MW-26S	Weak Acid Dissociable Cyanide	mg/L	65	2	63	--	Greater than 50% ND	65	2	63	--
MW-27S	Cyanide	mg/L	69	68	1	< 0.001	Decreasing	72	71	1	< 0.001
MW-27S	Fluoride	mg/L	71	71	0	< 0.001	Decreasing	74	74	0	< 0.001
MW-27S	Sulfate (As SO4)	mg/L	71	71	0	0.356	No Trend	74	74	0	0.419
MW-27S	Weak Acid Dissociable Cyanide	mg/L	71	20	51	--	Greater than 50% ND	74	23	51	--
MW-28S	Cyanide	mg/L	69	69	0	< 0.001	Decreasing	72	72	0	< 0.001
MW-28S	Fluoride	mg/L	72	72	0	< 0.001	Decreasing	75	75	0	< 0.001
MW-28S	Sulfate (As SO4)	mg/L	72	72	0	< 0.001	Decreasing	75	75	0	< 0.001
MW-28S	Weak Acid Dissociable Cyanide	mg/L	65	62	3	0.014	Increasing	65	62	3	0.014
MW-33S	Cyanide	mg/L	69	3	66	--	Greater than 50% ND	84	4	80	--
MW-33S	Weak Acid Dissociable Cyanide	mg/L	65	0	65	--	Greater than 50% ND	65	0	65	--
MW-34S	Cyanide	mg/L	68	62	6	< 0.001	Increasing	83	62	21	< 0.001
MW-34S	Weak Acid Dissociable Cyanide	mg/L	64	21	43	--	Greater than 50% ND	64	21	43	--
MW-35SR	Cyanide	mg/L	69	3	66	--	Greater than 50% ND	83	12	71	--
MW-35SR	Fluoride	mg/L	37	37	0	< 0.001	Increasing	37	37	0	< 0.001
MW-35SR	Sulfate (As SO4)	mg/L	37	37	0	0.283	No Trend	37	37	0	0.283
MW-35SR	Weak Acid Dissociable Cyanide	mg/L	65	1	64	--	Greater than 50% ND	65	1	64	--
MW-42	Cyanide	mg/L	43	39	4	0.126	No Trend	43	39	4	0.126
MW-42	Fluoride	mg/L	45	45	0	< 0.001	Increasing	45	45	0	< 0.001
MW-42	Sulfate (As SO4)	mg/L	45	45	0	< 0.001	Increasing	45	45	0	< 0.001
MW-42	Weak Acid Dissociable Cyanide	mg/L	43	21	22	--	Greater than 50% ND	43	21	22	--
MW-43	Cyanide	mg/L	44	3	41	--	Greater than 50% ND	44	3	41	--
MW-43	Fluoride	mg/L	45	41	4	0.852	No Trend	45	41	4	0.852
MW-43	Sulfate (As SO4)	mg/L	45	45	0	< 0.001	Decreasing	45	45	0	< 0.001
MW-43	Weak Acid Dissociable Cyanide	mg/L	41	1	40	--	Greater than 50% ND	41	1	40	--
MW-44	Cyanide	mg/L	45	1	44	--	Greater than 50% ND	45	1	44	--
MW-44	Fluoride	mg/L	45	40	5	0.088	Increasing	45	40	5	0.088
MW-44	Sulfate (As SO4)	mg/L	45	45	0	< 0.001	Decreasing	45	45	0	< 0.001
MW-44	Weak Acid Dissociable Cyanide	mg/L	41	0	41	--	Greater than 50% ND	41	0	41	--

Appendix D
Statistical Analysis - Mann-Kendall Analysis
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East, Massena, New York
Alcoa Corporation

Location	Parameter	Unit	Number of Samples	Number of Detections	Number of Non-detects	p-value	Trend	Number of Samples	Number of Detections	Number of Non-detects	p-value
NY											
Sample Date Cut-off			2001					Historical			
FDRAIN1	Cyanide	mg/L	41	40	1	0.007	Decreasing	41	40	1	0.007
FDRAIN1	Fluoride	mg/L	45	45	0	< 0.001	Decreasing	45	45	0	< 0.001
FDRAIN1	Sulfate (As SO4)	mg/L	43	43	0	0.013	Decreasing	43	43	0	0.013
FDRAIN1	Weak Acid Dissociable Cyanide	mg/L	43	36	7	0.193	No Trend	43	36	7	0.193
MW-16S	Cyanide	mg/L	60	22	38	--	Greater than 50% ND	72	34	38	--
MW-16S	Fluoride	mg/L	62	62	0	< 0.001	Decreasing	74	74	0	< 0.001
MW-16S	Sulfate (As SO4)	mg/L	62	62	0	< 0.001	Decreasing	74	74	0	< 0.001
MW-16S	Weak Acid Dissociable Cyanide	mg/L	59	1	58	--	Greater than 50% ND	71	8	63	--
MW-17S	Cyanide	mg/L	61	3	58	--	Greater than 50% ND	73	7	66	--
MW-17S	Fluoride	mg/L	61	60	1	0.140	No Trend	73	72	1	< 0.001
MW-17S	Sulfate (As SO4)	mg/L	61	61	0	< 0.001	Decreasing	73	73	0	< 0.001
MW-17S	Weak Acid Dissociable Cyanide	mg/L	60	1	59	--	Greater than 50% ND	72	8	64	--
MW-18S	Cyanide	mg/L	61	60	1	< 0.001	Decreasing	73	72	1	< 0.001
MW-18S	Fluoride	mg/L	63	63	0	< 0.001	Decreasing	75	75	0	< 0.001
MW-18S	Sulfate (As SO4)	mg/L	63	63	0	< 0.001	Decreasing	75	75	0	< 0.001
MW-18S	Weak Acid Dissociable Cyanide	mg/L	60	5	55	--	Greater than 50% ND	72	14	58	--
MW-19S	Cyanide	mg/L	62	3	59	--	Greater than 50% ND	74	3	71	--
MW-19S	Fluoride	mg/L	62	62	0	< 0.001	Decreasing	74	74	0	0.654
MW-19S	Sulfate (As SO4)	mg/L	62	62	0	< 0.001	Decreasing	74	74	0	< 0.001
MW-19S	Weak Acid Dissociable Cyanide	mg/L	61	1	60	--	Greater than 50% ND	73	8	65	--
MW-36	Cyanide	mg/L	62	3	59	--	Greater than 50% ND	74	5	69	--
MW-36	Fluoride	mg/L	62	62	0	< 0.001	Decreasing	74	74	0	< 0.001
MW-36	Sulfate (As SO4)	mg/L	62	62	0	< 0.001	Decreasing	74	74	0	< 0.001
MW-36	Weak Acid Dissociable Cyanide	mg/L	61	0	61	--	Greater than 50% ND	73	7	66	--
MW-37	Cyanide	mg/L	62	2	60	--	Greater than 50% ND	74	2	72	--
MW-37	Fluoride	mg/L	62	61	1	< 0.001	Decreasing	74	73	1	< 0.001
MW-37	Sulfate (As SO4)	mg/L	62	62	0	< 0.001	Increasing	74	74	0	< 0.001
MW-37	Weak Acid Dissociable Cyanide	mg/L	61	0	61	--	Greater than 50% ND	73	7	66	--
MW-38	Cyanide	mg/L	62	2	60	--	Greater than 50% ND	74	2	72	--
MW-38	Fluoride	mg/L	62	62	0	< 0.001	Decreasing	74	74	0	< 0.001
MW-38	Sulfate (As SO4)	mg/L	62	62	0	0.274	No Trend	74	74	0	0.591
MW-38	Weak Acid Dissociable Cyanide	mg/L	61	0	61	--	Greater than 50% ND	73	7	66	--
MW-41	Cyanide	mg/L	44	2	42	--	Greater than 50% ND	44	2	42	--
MW-41	Fluoride	mg/L	45	44	1	< 0.001	Decreasing	45	44	1	< 0.001
MW-41	Sulfate (As SO4)	mg/L	45	45	0	0.003	Increasing	45	45	0	0.003
MW-41	Weak Acid Dissociable Cyanide	mg/L	43	2	41	--	Greater than 50% ND	43	2	41	--

Notes:
-- = No trend is calculated.
mg/L = Milligrams per liter
Sig = Significant

BMP = Black Mud Pond
ILF = Industrial Landfill
NY = North Yard
PSP = Potliner Storage Pad

Monitoring data from PZ-46 was not collected in 2021 therefore no trend was calculated.

Appendix D
Statistical Analysis - Mann-Kendall Analysis
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East, Massena, New York
Alcoa Corporation

Trend
Greater than 50% ND
No Trend
Decreasing
Greater than 50% ND
Decreasing
Increasing
Increasing
Greater than 50% ND
Decreasing
No Trend
No Trend
Decreasing
Greater than 50% ND
Decreasing
Decreasing
Greater than 50% ND
Greater than 50% ND
Increasing
Greater than 50% ND
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Decreasing
Greater than 50% ND
Greater than 50% ND
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No Trend
Greater than 50% ND
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No Trend
No Trend
Greater than 50% ND
Greater than 50% ND
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No Trend

Appendix D
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Massena East, Massena, New York
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Trend
Greater than 50% ND
Greater than 50% ND
Decreasing
Increasing
Greater than 50% ND
Greater than 50% ND
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Increasing
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Greater than 50% ND
No Trend
No Trend
Greater than 50% ND
Decreasing
Greater than 50% ND
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Decreasing
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Decreasing
Decreasing
Decreasing
Decreasing
Increasing
Decreasing
Greater than 50% ND
No Trend
No Trend
Greater than 50% ND
Greater than 50% ND
No Trend
No Trend
Greater than 50% ND

Appendix D
Statistical Analysis - Mann-Kendall Analysis
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East, Massena, New York
Alcoa Corporation

Trend
Decreasing
Increasing
Decreasing
Decreasing
Greater than 50% ND
Increasing
Decreasing
Greater than 50% ND
Decreasing
Decreasing
No Trend
Greater than 50% ND
Decreasing
Decreasing
Decreasing
Increasing
Greater than 50% ND
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No Trend
Greater than 50% ND
No Trend
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Increasing
Greater than 50% ND
Greater than 50% ND
No Trend
Decreasing
Greater than 50% ND
Greater than 50% ND
Increasing
Decreasing
Greater than 50% ND

Appendix D
Statistical Analysis - Mann-Kendall Analysis
2021 Periodic Review Report for the Reynolds Metals Company, LLC
Massena East, Massena, New York
Alcoa Corporation

Trend
Decreasing
Decreasing
Decreasing
No Trend
Greater than 50% ND
Decreasing
Decreasing
Greater than 50% ND
Greater than 50% ND
Decreasing
Decreasing
Greater than 50% ND
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Greater than 50% ND
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Greater than 50% ND
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Greater than 50% ND
Decreasing
No Trend
Greater than 50% ND
Greater than 50% ND
Decreasing
Increasing
Greater than 50% ND

Appendix E Data Quality Assessments

Memorandum

To: *Robyn Gross*

From: *Paul Rodrigue*

Date: *June 30, 2021*

Subject: *Reynolds Metals Company, LLC. – NYSDEC Site Code #645009*
Data Quality Assessment – March 2021

This memorandum presents the data quality assessment for the March 2021 quarterly sampling round for the Massena East Plant. Samples were collected on March 25, 2021 and analyzed for polychlorinated biphenyls (PCBs), conventional inorganics (total cyanide, weak acid dissociable (WAD) cyanide, fluoride and sulfate) and metals (total aluminum and dissolved aluminum).

Laboratory quality control data associated with these samples were reviewed in accordance with the *Quality Assurance Project Plan* (QAPP) (CDM, March 2008) and United States Environmental Protection Agency (USEPA) Region II Contract Laboratory Program (CLP) data validation criteria as referenced in *Validating PCB Compounds PCBs by Gas Chromatography SW-846 Method 8082A* (SOP No. HW-45, Revision No. 1, October 2006) and in *Validation of Metals for the (CLP) Based on SOW ILMO5.3* (SOP No. HW-2. Revision No. 13, September 2006). All analyses were performed by Alpha Analytical in Westborough, Massachusetts except WAD cyanide which was subcontracted by Alpha Analytical to ALS Environmental in Rochester, New York.

The intent of this review is to provide a general assessment of the overall quality of the data packages based on the review of the following information:

- field and laboratory method blanks;
- surrogate spike recovery;
- field duplicate precision;
- matrix spike/matrix spike duplicate (MS/MSD) samples;
- laboratory control sample/laboratory control sample duplicates (LCS/LCSD);
- sample holding time data; and
- sample receipt conditions.

All applicable data were evaluated and are summarized below. Field quality assurance sample results (field blanks and duplicate samples) were also evaluated. Analytical results hold times and field quality assurance data are summarized in Tables 1 through 4.

PCB Analysis

A field blank sample was collected on the day of sampling (MW-1201-0321FBW). PCB Aroclors were not detected in the field blank sample. In addition, the laboratory blank sample analyzed with the field samples was non-detect for Aroclors. No qualification is required.

PCB analysis surrogate spike recovery data were reviewed. Tetrachloro-m-xylene (TCX) and decachlorobiphenyl (DCB) were the compounds used for the surrogate spike standards. The QAPP specifies that at least one surrogate is recovered within range (30 to 150 percent), with both surrogate recoveries greater than 10 percent. All surrogate recoveries were within the acceptable range; no qualification is required.

A field duplicate sample was collected at MW-45 (MW-1200-0321BD). All Aroclors were non-detect in both the parent and duplicate samples. No qualification is required.

Sample MW-10S-0321 was analyzed as a MS/MSD sample. The QAPP specifies that MS/MSD recoveries be within the range of 29 to 135 percent, with a relative percent difference (RPD) of less than 30 percent between the spiked pair. The MS and MSD samples were spiked with Aroclor 1260. Recoveries and precision between the spiked pairs were acceptable. No qualification is required.

The QAPP specifies a recovery range of 50 to 150 percent for compounds in a LCS/LCSD. Recovery and precision for Aroclor 1260 was within the acceptable range in the LCS/LCSD sample; no qualification is required.

USEPA Region II guidance specifies a holding time of up to 365 days beyond the verified time of sample receipt (VTSR) for sample extraction and 40 days from the time of sample extraction to analysis. In addition, VTSR must be within 48 hours of sample collection. Table 2 presents a compilation of the relevant information regarding PCB analysis holding times. No qualification is required.

The condition of the samples upon receipt at the laboratory was reviewed. All samples were delivered at temperatures below 10°C. No qualification is required.

Based on the results of this assessment, the PCB results for the March 2021 quarterly sampling event can be used without qualification.

Conventional Inorganics Analysis

Samples were analyzed for total cyanide, WAD cyanide, fluoride and sulfate. All associated conventional inorganics quality control data were reviewed.

A field blank sample was collected on the day of sampling (MW-1201-0321FBW) and analyzed for conventional inorganics. All results were non-detect in the field blank. Additionally,

laboratory method blanks were analyzed with the field samples. All method blanks were non-detect; no qualification is required.

A field duplicate was collected at MW-45 (MW-1200-0321BD). The RPD quantified between the parent and duplicate sample collected at the monitoring well was acceptable for all conventional inorganic parameters. No qualification is required.

MS/MSD analysis was requested on MW-10S-0321. The QAPP specifies acceptable MS/MSD recovery limits as 75 to 125 percent for total and WAD cyanide and 80 to 120 percent for fluoride and sulfate. Recoveries and precision between the spiked pairs were acceptable for all conventional inorganics with one exception. The MS recovery for fluoride was below laboratory limits and slightly below the QAPP limit at 79 percent; the MSD recovery was acceptable at 91 percent. Due to the under-recovery, the fluoride results for all field samples are qualified as estimated ("J"). The WAD cyanide recoveries were low at 58 and 57 percent, however, were within the laboratory limits. No qualification is necessary.

All LCS recoveries for conventional inorganics were acceptable. No qualification is required.

The QAPP specifies holding times for conventional inorganic parameters beyond the VTSR. The VTSR must be within 48 hours of sample collection. Table 2 presents a compilation of the relevant information regarding conventional inorganic parameter analysis holding times. All hold time requirements were met. No qualification is required.

Sample receipt conditions were reviewed. All samples were received within the QAPP-specified temperature limits. No qualification is required.

Conventional results for the March 2021 quarterly sampling round can be used as reported by the laboratory with the qualifications noted above.

Metals Analysis

Samples were analyzed for total aluminum and dissolved aluminum. All associated metals quality control data were reviewed.

Laboratory and field blank samples were reviewed for metals analysis. The field blank and laboratory blank sample was non-detect for total and aluminum. Dissolved aluminum was detected above the method detection limit (MDL) but below the reporting limit at 0.00378J mg/l in the field blank. Additionally, dissolved aluminum was detected above the MDL but below the reporting limit in the method blank at 0.00512J mg/l. In the case of a method blank detection above the MDL and below reporting limit, any associated sample results above MDL and below reporting limit are revised to non-detect at the reporting limit. Consequently, the following samples have dissolved aluminum results revised to 0.01U mg/l: MW-10S-0321, MW-39S-0321, MW-40S-0321, MW-45-0321D and SLPWETE-0321.

A field duplicate sample was collected at MW-45 (MW-1200-0321BD). The calculated RPD between the pair for total aluminum was acceptable at 2.2 percent. Dissolved aluminum was non-

detect in the parent sample, and the result of the duplicate sample was revised to non-detect due to the method blank. No qualification is required.

Sample MW-10S-0321 was requested to be analyzed as a MS/MSD sample. Recoveries and precision between the spiked pair collected from MW-10S were acceptable for both total and dissolved aluminum. No qualification is required.

The LCS had acceptable recoveries for total and dissolved aluminum. No qualification is required.

The QAPP specifies a holding time of up to 180 days beyond the VTSR for sample analysis. In addition, VTSR must be within 48 hours of sample collection. Table 2 presents a compilation of the relevant information regarding metals analysis holding times. All holding times were within acceptance limits. No qualification is required.

All samples were delivered to the laboratory within the QAPP-specific temperature limits.

Metals results for the March 2021 quarterly sampling round can be used as reported by the laboratory with the modifications noted above.

AR:tmp

Attachments

cc: Richard Towne, Alcoa
pw:\\1902\80599\02 Project Information\03 Data\40 Field Data\2020 Database\March 2021\21062.docx

Sample ID Sample Date Parameter ID	Unit	MW-10S-0321 3/25/21	MW-39S-0321 3/25/21	MW-40S-0321 3/25/21	MW-45-0321 3/25/21	MW-45-0321D 3/25/21	SLPWETE-0321 3/25/21	SLPWETW-0321 3/25/21
Field Parameters								
pH	SU	7.7	7.43	7.3	7.36	---	7.14	7.7
Temperature	deg C	10.1	10.4	12.3	10	---	5.1	5.3
Specific Conductance	mS/cm	0.64	0.727	1.121	1.568	---	0.0364	0.0617
Turbidity	NTU	17.1	315	2.75	38.9	---	12.4	16
Redox Potential	mVolt	---	---	---	---	---	---	---
Inorganics								
Aluminum	mg/l	0.0579	3.15	0.00454J	0.564	0.552	0.0447	0.303
Dissolved Aluminum	mg/l	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U	0.0468
Conventionals								
Total Cyanide	mg/l	0.005U	0.012	0.097	0.363	0.338	0.005U	0.003J
Cyanide, Weak Acid Dissociable	mg/l	0.01U	0.01U	0.01U	0.021	0.022	0.01U	0.01U
Fluoride	mg/l	0.142J	1.85J	0.192J	0.393J	0.403J	0.087J	0.212J
Sulfate	mg/l	71.5	138	59.8	612	624	1.08	1.54
PCBs								
Aroclor 1242	µg/l	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1248	µg/l	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1254	µg/l	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1260	µg/l	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U

Key:
U = Nondetect
J = Estimated

Table 1
East Plant
Summary of Analytical Results

Sample ID	Sample Date	VTSR[1]	Days	Total Cyanide		Weak Acid Dissociable Cyanide		Fluoride		Sulfate	
				Target - 12 Days VTSR to Analysis	Days	Target - 12 Days VTSR to Analysis	Days	Target - 26 Days VTSR to Analysis	Days	Target - 26 Days VTSR to Analysis	Days
MW-10S-0321	3/25/21	3/26/21	1	4/6/21	11	4/1/21	6	3/30/21	4	3/30/21	4
MW-1201-0321FBW	3/25/21	3/26/21	1	4/5/21	10	4/1/21	6	3/31/21	5	3/31/21	5
MW-39S-0321	3/25/21	3/26/21	1	4/5/21	10	4/1/21	6	3/31/21	5	3/31/21	5
MW-40S-0321	3/25/21	3/26/21	1	4/5/21	10	4/1/21	6	3/31/21	5	3/31/21	5
MW-45-0321	3/25/21	3/26/21	1	4/5/21	10	4/1/21	6	3/31/21	5	3/31/21	5
MW-45-0321D	3/25/21	3/26/21	1	4/5/21	10	4/1/21	6	3/31/21	5	3/31/21	5
SLPWETE-0321	3/25/21	3/26/21	1	4/6/21	11	4/1/21	6	3/31/21	5	3/31/21	5
SLPWETW-0321	3/25/21	3/26/21	1	4/6/21	11	4/1/21	6	3/31/21	5	3/31/21	5

Sample ID	Sample Date	VTSR[1]	Days	Aluminum		Dissolved Aluminum		PCBs			
				Target - 180 Days VTSR to Analysis	Days	Target - 180 Days VTSR to Analysis	Days	Target - 365 Days from VTSR to Extraction	Days	Target - 40 Days from Extraction to Analysis	Days
MW-10S-0321	3/25/21	3/26/21	1	3/29/21	3	3/30/21	4	3/30/21	4	4/1/21	2
MW-1201-0321FBW	3/25/21	3/26/21	1	3/29/21	3	3/30/21	4	3/30/21	4	4/1/21	2
MW-39S-0321	3/25/21	3/26/21	1	3/29/21	3	3/30/21	4	3/30/21	4	4/1/21	2
MW-40S-0321	3/25/21	3/26/21	1	3/29/21	3	3/30/21	4	3/30/21	4	4/1/21	2
MW-45-0321	3/25/21	3/26/21	1	3/29/21	3	3/30/21	4	3/30/21	4	4/1/21	2
MW-45-0321D	3/25/21	3/26/21	1	3/29/21	3	3/30/21	4	3/30/21	4	4/1/21	2
SLPWETE-0321	3/25/21	3/26/21	1	3/29/21	3	3/30/21	4	3/30/21	4	4/1/21	2
SLPWETW-0321	3/25/21	3/26/21	1	3/29/21	3	3/30/21	4	3/30/21	4	4/1/21	2

Key:

1. VTSR = Verified time of sample receipt; date shown is the VTSR at Alpha Analytical

Table 2
East Plant
Summary of Sample Hold Times

Sample ID Sample Date Parameter ID	Unit	MW-1201-0321FBW 3/25/21
Inorganics		
Aluminum	mg/l	0.1U
Dissolved Aluminum	mg/l	0.00378J
Conventionals		
Total Cyanide	mg/l	0.005U
Cyanide, Weak Acid Dissociable	mg/l	0.01U
Fluoride	mg/l	0.05U
Sulfate	mg/l	1U
PCBs		
Aroclor 1242	µg/l	0.065U
Aroclor 1248	µg/l	0.065U
Aroclor 1254	µg/l	0.065U
Aroclor 1260	µg/l	0.065U

Key:
U = Nondetect
J = Estimated

Sample ID Sample Location Sample Date Parameter ID	Unit	Original Sample MW-45-0321 MW-45 3/25/20	Duplicate Sample MW-1200-0321BD MW-45 3/25/21	Relative Percent Difference[1,2] %
Inorganics				
Aluminum	mg/l	0.564	0.552	2.2
Dissolved Aluminum	mg/l	0.01U	0.01U	---
Conventionals				
Total Cyanide	mg/l	0.363	0.338	7.1
Cyanide, Weak Acid Dissociable	mg/l	0.021	0.022	4.7
Fluoride	mg/l	0.393J	0.403J	2.5
Sulfate	mg/l	612	624	1.9
PCBs				
Aroclor 1242	µg/l	0.065U	0.065U	---
Aroclor 1248	µg/l	0.065U	0.065U	---
Aroclor 1254	µg/l	0.065U	0.065U	---
Aroclor 1260	µg/l	0.065U	0.065U	---

Notes:

1. Precision is evaluated by calculating the relative percent difference (RPD) using the following formula:

$$| 2 * (X1 - X2) / (X1 + X2) * 100 |$$

where X1 is the original sample value and X2 is the duplicate sample value.

2. --- = RPD not calculated for nondetected parameters.

Key:

U = Nondetect

J = Estimated

Memorandum

To: *Robyn Gross*

From: *Paul Rodrigue*

Date: *January 12, 2022*

Subject: *Reynolds Metals Company, LLC. – NYSDEC Site Code #645009*
Data Quality Assessment – June 2021

This memorandum presents the data quality assessment for the June 2021 quarterly sampling round for the Massena East Plant. Samples were collected between June 24 and July 6, 2021, and analyzed for polychlorinated biphenyls (PCBs), conventional inorganics (total cyanide, weak acid dissociable (WAD) cyanide, fluoride and sulfate) and metals (total aluminum and dissolved aluminum). At the request of the client, select samples were analyzed for additional parameters including alkalinity, total suspended solids (TSS), chloride, nitrate, phosphate, total organic carbon (TOC), dissolved organic carbon (DOC), dissolved iron, calcium, magnesium, potassium and sodium.

Laboratory quality control data associated with these samples were reviewed in accordance with the *Quality Assurance Project Plan* (QAPP) (CDM, March 2008) and United States Environmental Protection Agency (USEPA) Region II Contract Laboratory Program (CLP) data validation criteria as referenced in *Validating PCB Compounds PCBs by Gas Chromatography SW-846 Method 8082A* (SOP No. HW-45, Revision No. 1, October 2006) and in *Validation of Metals for the (CLP) Based on SOW ILMO5.3* (SOP No. HW-2. Revision No. 13, September 2006). All analyses were performed by Alpha Analytical in Westborough, Massachusetts except WAD cyanide which was subcontracted by Alpha Analytical to ALS Environmental in Rochester, New York.

The intent of this review is to provide a general assessment of the overall quality of the data packages based on the review of the following information:

- field and laboratory method blanks;
- surrogate spike recovery;
- field duplicate precision;
- matrix spike/matrix spike duplicate (MS/MSD) samples;
- laboratory control sample/laboratory control sample duplicates (LCS/LCSD);
- sample holding time data; and

- sample receipt conditions.

All applicable data were evaluated and are summarized below. Field quality assurance sample results (field blanks and duplicate samples) were also evaluated. Analytical results, hold times and field quality assurance data are summarized in Tables 1 through 4.

PCB Analysis

A field blank sample was collected on each day of sampling (MW-1204-0621FBW, MW-1205-0621, MW-1206-0621 and MW-1207-0621). PCB Aroclors were not detected in the field blank samples. In addition, the laboratory blank samples analyzed with the field samples were non-detect for Aroclors. No qualification is required.

PCB analysis surrogate spike recovery data were reviewed. Tetrachloro-m-xylene (TCX) and decachlorobiphenyl (DCB) were the compounds used for the surrogate spike standards. The QAPP specifies that at least one surrogate is recovered within range (30 to 150 percent), with both surrogate recoveries greater than 10 percent. TCX was under-recovered at 28 percent in the MS/MSD analysis for sample MW-35SR-0621, however DCB was in range. All other surrogate recoveries were within the acceptable range; no qualification is required.

A field duplicate sample was collected at MW-18S (MW-1203-0621BD) and MW-43 (MW-1202-0621BD). All Aroclors were non-detect in both the parent and duplicate samples. No qualification is required.

Samples MW-10S-0621 and MW-35SR-0621 were analyzed as a MS/MSD sample. The QAPP specifies that MS/MSD recoveries be within the range of 29 to 135 percent, with a relative percent difference (RPD) of less than 30 percent between the spiked pair. The MS and MSD samples were spiked with Aroclor 1260. Recoveries and precision between the spiked pairs were acceptable. No qualification is required.

The QAPP specifies a recovery range of 50 to 150 percent for compounds in a LCS/LCSD. Recovery and precision for Aroclor 1260 was within the acceptable range in the LCS/LCSD sample; no qualification is required.

USEPA Region II guidance specifies a holding time of up to 365 days beyond the verified time of sample receipt (VTSR) for sample extraction and 40 days from the time of sample extraction to analysis. In addition, VTSR must be within 48 hours of sample collection. Table 2 presents a compilation of the relevant information regarding PCB analysis holding times. No qualification is required.

The condition of the samples upon receipt at the laboratory was reviewed. All samples were delivered at temperatures below 10°C. No qualification is required.

Based on the results of this assessment, the PCB results for the June 2021 quarterly sampling event can be used without qualification.

Conventional Analysis

Samples were analyzed for total cyanide, WAD cyanide, fluoride and sulfate. Additionally, fourteen samples were analyzed for alkalinity, TSS, chloride, nitrate, phosphate, TOC and DOC. All associated conventional inorganics quality control data were reviewed.

It should be noted that a discrepancy was noted in the TOC and DOC results. It is expected that the DOC concentration will be lower than the TOC when the samples are obtained from the same monitoring well. The only difference between the two samples is the DOC sample is filtered in the field. The laboratory results indicated a consistently higher DOC concentration compared to TOC for all samples. The laboratory noted this disparity in the first batch of samples analyzed for these parameters (data package L2135223) and proceeded to filter the samples that were labeled as being the DOC sample bottle, assuming the samples were not filtered in the field. The results obtained from the lab filtered analysis closely matched the concentration of the original TOC labeled bottles for those samples. This leads to the presumption that an error occurred in the process and that the filtered and non-filtered samples might have been switched, but this cannot be stated with absolute certainty. The initial DOC result obtained for samples MW-10S-0621, MW-14S-0621 and MW-26S-0621 are indicated in a footnote on Table 1. These initial results are presumed to be the TOC concentration for these samples.

A field blank sample was collected on each day of sampling (MW-1204-0621FBW, MW-1205-0621, MW-1206-0621 and MW-1207-0621) and analyzed for conventional inorganics. All results were non-detect in the field blanks with a few exceptions. Chloride was detected above the method detection limit (MDL) but below the reporting limit in MW-1204-0621FBW, MW-1205-0621FBW and MW-1207-0621FBW while sulfate was detected above the MDL and below the reporting limit in MW-1204-0621FBW. Additionally, DOC was detected in MW-1204-0621FBW and MW-1205-0621FBW at concentrations of 1.2 mg/l and 2.4 mg/l, respectively. No qualification is required for chloride and sulfate since the field blank detections were below the reporting limit. In the case of the field blank detections for DOC, any associated field results between the field blank concentration and ten times the field blank detection are qualified as estimated ("J"). As noted above, it is presumed the DOC detection in the field blank may be the TOC concentration, though this cannot be stated with certainty. Consequently, the following samples have DOC qualified as estimated ("J"): MW-15S-87-0621, MW-17S-0621, MW-26S-0621, MW-28S-0621, MW-35SR-0621, MW-36-0621, MW-37-0621, MW-41-0621, MW-42-0621, MW-45-0621 and PZ-44-0621.

All method blanks were non-detect except for detections for chloride, total cyanide and sulfate in select method blanks. All detections were above the MDL but below the reporting limit. In such case, associated field samples with results above the MDL and below the reporting limit are revised to non-detect. There are no field samples that fall in the criteria; therefore, no further action is required.

A field duplicate sample was collected at MW-18S (MW-1203-0621BD) and MW-43 (MW-1202-0621BD). The RPD quantified between the parent and duplicate sample collected at the monitoring wells were acceptable for all conventional parameters with two exceptions. The RPD between the pair collected from MW-18S for total cyanide was high at 32.3 percent. Additionally,

the RPD between the pair collected from MW-43 for TSS was high at 119 percent, attributed to the non-homogeneous nature of the sample. Consequently, the total cyanide results for MW-18S-0621 and MW-1203-0621BD and the TSS results for MW-43-0621 and MW-1202-0621BD are qualified as estimated ("J").

A laboratory duplicate performed on sample MW-43-0621 for TSS yielded a RPD of 55 percent with the initial result. This result is qualified as estimated due to lack of field duplicate and laboratory duplicate precision.

MS/MSD analysis was requested on MW-10S-0621 and MW-35SR-0621. The laboratories performed MS and or MS/MSD analyses on additional samples for various parameters. The QAPP specifies acceptable MS/MSD recovery limits as 75 to 125 percent for total and WAD cyanide and 80 to 120 percent for fluoride and sulfate. Laboratory-specified limits were used in evaluating recoveries of the remaining parameters. All recoveries were acceptable with some exceptions. Recoveries for sulfate were out of range in MS/MSD analyses performed on samples MW-38-0621, MW-35SR-0621, MW-40S-0621 and MW-42-0621. In each of these cases, the native sample concentration was more than four times the spike amount, therefore the out-of-range recoveries are disregarded. No qualification is required.

All LCS recoveries for conventional were acceptable. No qualification is required.

The QAPP specifies holding times for conventional inorganic parameters beyond the VTSR. The VTSR must be within 48 hours of sample collection. Table 2 presents a compilation of the relevant information regarding conventional parameter analysis holding times. All hold time requirements were met. No qualification is required.

Sample receipt conditions were reviewed. All samples were received within the QAPP-specified temperature limits. No qualification is required.

Conventional results for the June 2021 quarterly sampling round can be used as reported by the laboratory with the qualifications noted above.

Metals Analysis

Samples were analyzed for total aluminum and dissolved aluminum. Additionally, select samples were analyzed for calcium, magnesium, potassium, sodium and dissolved iron. All associated metals quality control data were reviewed.

Laboratory and field blank samples were reviewed for metals analysis. The field blank and laboratory blank samples were non-detect for metals with one exception. Total aluminum was detected in field blank MW-1206-0621FBW at a concentration above the MDL but below the reporting limit at 0.0063J mg/l. No qualification is required since the field blank detection was below the reporting limit.

A field duplicate sample was collected at MW-18S (MW-1203-0621BD) and MW-43 (MW-1202-0621BD) for total and dissolved aluminum. All other metals were analyzed in only the MW-43 pair. The calculated RPD between the pair was acceptable for all metals except total aluminum in

the MW-18S pair which yielded a RPD of 30.8 percent. Consequently, the total aluminum result for MW-18S-0621 and MW-1203-0621BD are qualified as estimated ("J").

Samples MW-10S-0621 and MW-35SR-0621 were requested to be analyzed as MS/MSD samples. The laboratory also performed MS analyses on sample MW-11SR-0621. Recoveries and precision between the spiked pairs were acceptable with two exceptions. In MW-10S-0621 sodium was under-recovered in the MS and MSD at 59 and 60 percent, respectively. In MW-35SR, total aluminum was over-recovered in the MS and MSD at 190 and 205 percent, respectively. In both cases, the native sample concentration was more than four times the spike amount. Therefore, the out-of-range recoveries are disregarded. No qualification is required.

The LCS had acceptable recoveries for all metals. No qualification is required.

The QAPP specifies a holding time of up to 180 days beyond the VTSR for sample analysis. In addition, VTSR must be within 48 hours of sample collection. Table 2 presents a compilation of the relevant information regarding metals analysis holding times. All holding times were within acceptance limits. No qualification is required.

All samples were delivered to the laboratory within the QAPP-specific temperature limits.

Metals results for the June 2021 quarterly sampling round can be used as reported by the laboratory with the modifications noted above.

Summary

Based on a review of the data, the following qualifications were made to the June 2021 quarterly sampling event:

- due to a field blank detection, the following samples have DOC qualified as estimated ("J"): MW-15S-87-0621, MW-17S-0621, MW-26S-0621, MW-28S-0621, MW-35SR-0621, MW-36-0621, MW-37-0621, MW-41-0621, MW-42-0621, MW-45-0621 and PZ-44-0621;

- due to lack of precision between the field duplicate pair, the total cyanide results for MW-18S-0621 and MW-1203-0621BD and the TSS results for MW-43-0621 and MW-1202-0621BD are qualified as estimated ("J"); and

- due to lack of precision between the field duplicate pair, the total aluminum results for MW-18S-0621 and MW-1203-0621BD are qualified as estimated ("J").

PR:tmp

Attachments

cc: Richard Towne, Alcoa
pw:\\1902\80599\02 Project Information\03 Data\40 Field Data\2021 Database\June 2021\22004

Sample ID Sample Date Parameter ID	Unit	FDRAIN-0621 6/24/21	MW-03S-0621 6/24/21	MW-10S-0621 6/29/21	MW-11SR-0621 6/24/21	MW-12S-0621 6/24/21	MW-13S-0621 6/24/21	MW-14S-0621 6/29/21	MW-15S-87-0621 [3] 7/1/21
Field Parameters									
pH	SU	8.98	8.29	7.5	7.63	7.64	7.27	7.59	7.46
Temperature	deg C	12.3	16.1	13.9	11.7	12.4	13.7	13	13.3
Specific Conductance	mS/cm	0.914	1.603	0.731	1.519	3.043	5.53	1.23	0.728
Turbidity	NTU	42	39	2	32	38	48	9	202
Oxidation Reduction Potential	mVolt	201.2	232.1	153	-23.6	44.4	54.8	152.9	62.8
Inorganics									
Aluminum	mg/l	---	2.06	0.0426	0.338	0.549	0.266	0.0195	---
Dissolved Aluminum	mg/l	---	0.00613J	0.01U	0.00486J	0.00389J	0.01U	0.01U	0.0321
Iron-Dissolved	mg/l	---	---	0.05U	---	---	---	---	---
Calcium	mg/l	---	---	82	---	---	---	73.1	---
Magnesium	mg/l	---	---	42.7	---	---	---	74.4	---
Potassium	mg/l	---	---	1.44	---	---	---	5.48	---
Sodium	mg/l	---	---	45.3	---	---	---	87.8	---
Conventionals									
Alkalinity, Total	mg $CaCO_3$/L	---	---	354	---	---	---	463	317
Alkalinity, Bicarbonate	mg $CaCO_3$/L	---	---	354	---	---	---	463	317
TSS	mg/l	---	---	3.2	---	---	---	4.8	110
Total Cyanide	mg/l	0.779	1.32	0.005U	0.056	0.044	0.005U	0.005U	0.005U
WAD Cyanide	mg/l	0.261	0.419	0.01U	0.013	0.01U	0.01U	0.01U	0.01U
Fluoride	mg/l	20	11.3	0.14	2.64	11.2	1.25U	0.701	---
Sulfate	mg/l	163	258	148	2920	1010	439	393	---
Chloride	mg/l	---	---	9.66	---	---	---	15.1	2.59
Nitrate Nitrogen	mg/l	---	---	0.045J	---	---	---	0.04J	0.052J
Phosphate, Total	mg/l	---	---	0.031	---	---	---	0.04	0.878
Total Organic Carbon	mg/l	---	---	0.829 [4]	---	---	---	0.744 [5]	2.1
Dissolved Organic Carbon	mg/l	---	---	0.68J	---	---	---	0.75J	19J
PCBs									
Aroclor 1242	µg/l	---	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1248	µg/l	---	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1254	µg/l	---	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1260	µg/l	---	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U

Sample ID Sample Date Parameter ID	Unit	MW-16S-0621 6/24/21	MW-17S-0621 [3] 7/1/21	MW-18S-0621 6/24/21	MW-18S-0621D 6/24/21	MW-19S-0621 6/24/21	MW-20-85S-0621 6/24/21	MW-22-85S-0621 7/1/21	MW-23-85S-0621 6/24/21
Field Parameters									
pH	SU	8.08	7.37	8.07	---	7.78	12.3	7.43	7.59
Temperature	deg C	14.4	13.8	15	---	15.3	14.1	13	15.4
Specific Conductance	mS/cm	1.132	1.01	1.621	---	0.95	1.535	1.61	1.153
Turbidity	NTU	29	27	25	---	27	686	210	41
Oxidation Reduction Potentia	mVolt	166.5	82.5	169.3	---	170.5	-66.3	65.1	137.6
Inorganics									
Aluminum	mg/l	0.0798	0.0263	0.0629J	0.0461J	0.0165	0.0799	0.822	2.34
Dissolved Aluminum	mg/l	0.01U	0.01U	0.0447	0.0453	0.01U	0.01U	0.0052J	0.01U
Iron-Dissolved	mg/l	---	---	---	---	---	---	0.0236J	---
Calcium	mg/l	---	89.8	---	---	---	---	60.5	---
Magnesium	mg/l	---	43.4	---	---	---	---	59.6	---
Potassium	mg/l	---	3.69	---	---	---	---	4.12	---
Sodium	mg/l	---	107	---	---	---	---	238	---
Conventionals									
Alkalinity, Total	mg $CaCO_3$/L	---	452	---	---	---	---	---	---
Alkalinity, Bicarbonate	mg $CaCO_3$/L	---	452	---	---	---	---	---	---
TSS	mg/l	---	10	---	---	---	---	---	---
Total Cyanide	mg/l	0.002J	0.005U	0.018J	0.013J	0.002J	0.005U	0.005U	0.005U
WAD Cyanide	mg/l	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U
Fluoride	mg/l	7.97	0.913	26.1	25.2	3.57	0.5U	0.417J	0.5U
Sulfate	mg/l	187	177	330	314	79	289	416	376
Chloride	mg/l	---	37.7 [1]	---	---	---	---	---	---
Nitrate Nitrogen	mg/l	---	0.37 [1]	---	---	---	---	---	---
Phosphate, Total	mg/l	---	0.055	---	---	---	---	---	---
Total Organic Carbon	mg/l	---	2.03	---	---	---	---	---	---
Dissolved Organic Carbon	mg/l	---	4.5J	---	---	---	---	---	---
PCBs									
Aroclor 1242	µg/l	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.02U	0.065U
Aroclor 1248	µg/l	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.02U	0.065U
Aroclor 1254	µg/l	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.02U	0.065U
Aroclor 1260	µg/l	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.02U	0.065U

Sample ID Sample Date Parameter ID	Unit	MW-26S-0621 6/29/21	MW-27S-0621 6/24/21	MW-28S-0621 6/29/21	MW-30S-0621 6/24/21	MW-31SR-0621 6/24/21	MW-33S-0621 6/24/21	MW-34S-0621 6/24/21	MW-35SR-0621 [3] 7/1/21
Field Parameters									
pH	SU	7.52	7.47	8.45	7.7	8.11	7.74	8.69	7.19
Temperature	deg C	16.9	21.5	12.8	12.4	11.5	13.9	14.1	12.1
Specific Conductance	mS/cm	0.908	9.34	0.986	0.822	0.638	1.913	2.354	1.811
Turbidity	NTU	1000	207	7	141	46		184	892
Oxidation Reduction Potenti	mVolt	-31.1	225.4	54.2	126.5	121.8	64.3	206.8	117.9
Inorganics									
Aluminum	mg/l	23.1	4.56	0.0118	---	1.36	---	---	10
Dissolved Aluminum	mg/l	0.01U	0.01U	0.00441J	---	0.01U	---	---	0.01U
Iron-Dissolved	mg/l	---	---	---	---	---	---	---	---
Calcium	mg/l	169	---	22.8	---	---	---	---	243
Magnesium	mg/l	64.3	---	11.9	---	---	---	---	148
Potassium	mg/l	7.44	---	0.685	---	---	---	---	5.97
Sodium	mg/l	63.1	---	205	---	---	---	---	92
Conventionals									
Alkalinity, Total	mg $CaCO_3$/L	353	---	290	---	---	---	---	579
Alkalinity, Bicarbonate	mg $CaCO_3$/L	353	---	290	---	---	---	---	579
TSS	mg/l	2500	---	1U	---	---	---	---	780
Total Cyanide	mg/l	0.005U	0.016	1.88	---	0.005U	0.005U	0.063	0.005U
WAD Cyanide	mg/l	0.01U	0.01U	0.148	---	0.01U	0.01U	0.012	0.01U
Fluoride	mg/l	5.26	3.18	12.3	---	0.585	---	---	0.888
Sulfate	mg/l	186	312	182	---	199	---	---	878
Chloride	mg/l	36.2	---	59.4	---	---	---	---	33.5 [2]
Nitrate Nitrogen	mg/l	0.033J	---	0.025J	---	---	---	---	0.028J [2]
Phosphate, Total	mg/l	5.98	---	0.031U	---	---	---	---	2.97
Total Organic Carbon	mg/l	1.42 [6]	---	1.51	---	---	---	---	2.13
Dissolved Organic Carbon	mg/l	1.2J	---	1.8J	---	---	---	---	2.5J
PCBs									
Aroclor 1242	µg/l	0.065U	0.065U	0.065U	0.065U	0.065U	---	---	0.065U
Aroclor 1248	µg/l	0.065U	0.065U	0.065U	0.065U	0.065U	---	---	0.065U
Aroclor 1254	µg/l	0.065U	0.065U	0.065U	0.065U	0.065U	---	---	0.065U
Aroclor 1260	µg/l	0.065U	0.065U	0.065U	0.065U	0.065U	---	---	0.065U

Sample ID Sample Date Parameter ID	Unit	MW-36-0621 7/1/21	MW-37-0621 7/1/21	MW-38-0621 6/24/21	MW-39S-0621 6/24/21	MW-40S-0621 6/24/21	MW-41-0621 7/1/21	MW-42-0621 7/1/21	MW-43-0621 6/29/21
Field Parameters									
pH	SU	8.52	7.65	8.51	7.33	7.72	7.66	7.8	7.28
Temperature	deg C	13.5	11.9	11.9	10.1	13.8	13.4	15.9	13.9
Specific Conductance	mS/cm	2.277	0.928	0.56	0.733	0.958	1.067	2.938	0.887
Turbidity	NTU	1000	1000	1000	24	10	126	969	1000
Oxidation Reduction Potential	mVolt	85.8	118	191	129.3	108.6	76	96.2	80.7
Inorganics									
Aluminum	mg/l	93.3	33.7	44.8	0.213	0.00409J	5.82	70	16.6
Dissolved Aluminum	mg/l	0.01U	1.5	0.812	0.01U	0.01U	0.1U	0.00336J	0.01U
Iron-Dissolved	mg/l	---	---	---	---	---	---	0.0462J	---
Calcium	mg/l	413	175	---	---	---	90.7	367	171
Magnesium	mg/l	171	122	---	---	---	67.4	169	63.8
Potassium	mg/l	21.5	10	---	---	---	5.65	18.6	5.85
Sodium	mg/l	663	35.8	---	---	---	87	687	19.8
Conventionals									
Alkalinity, Total	mg $CaCO_3$/L	1130	288	---	---	---	319	1460	462
Alkalinity, Bicarbonate	mg $CaCO_3$/L	1090	288	---	---	---	319	1460	462
TSS	mg/l	7800	43000	---	---	---	520	16000	480J
Total Cyanide	mg/l	0.005U	0.005U	0.005U	0.024	0.077	0.005U	0.147	0.005U
WAD Cyanide	mg/l	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U
Fluoride	mg/l	2.27	0.32	0.48	2.11	0.173	0.201	19.7	0.22
Sulfate	mg/l	372	314	189	111	56.2	333	1260	141
Chloride	mg/l	15.6	31.6	---	---	---	43.9	230	11.4
Nitrate Nitrogen	mg/l	0.032J	0.1U	---	---	---	0.096J	0.029J	0.75
Phosphate, Total	mg/l	12.4	32	---	---	---	0.445	76.3	3.44
Total Organic Carbon	mg/l	3.27	0.56	---	---	---	1.09	1.64	1
Dissolved Organic Carbon	mg/l	21J	17J	---	---	---	17J	5.3J	1
PCBs									
Aroclor 1242	µg/l	0.02U	0.02U	0.065U	0.065U	0.065U	0.021U	0.019U	0.065U
Aroclor 1248	µg/l	0.02U	0.02U	0.065U	0.065U	0.065U	0.021U	0.019U	0.065U
Aroclor 1254	µg/l	0.02U	0.02U	0.065U	0.065U	0.065U	0.021U	0.019U	0.065U
Aroclor 1260	µg/l	0.02U	0.02U	0.065U	0.065U	0.065U	0.021U	0.019U	0.065U

Sample ID Sample Date Parameter ID	Unit	MW-43-0621D 6/29/21	MW-44-0621 6/24/21	MW-45-0621 6/29/21	PZ-44-0621 [3] 7/1/21	PZ-45-0621 6/24/21	PZ-46-0621 6/24/21	SLPWETE-0621 6/24/21	SLPWETW-0621 6/24/21
Field Parameters									
pH	SU	---	7.29	7.06	7.18	7.5	7.72	7.34	7.05
Temperature	deg C	---	11.6	13.8	18.1	17.6	17.7	13.9	14
Specific Conductance	mS/cm	---	0.81	1.739	2.557	1.19	1.703	0.374	0.252
Turbidity	NTU	---	180	30	69	307	1000	37	12.5
Oxidation Reduction Potential	mVolt	---	162.1	159.6	-56	-116.9	-99.2	99.6	118.2
Inorganics									
Aluminum	mg/l	19.1	7.82	0.114	---	---	---	0.0415	0.0102
Dissolved Aluminum	mg/l	0.01U	0.0207	0.00345J	0.01U	---	---	0.00831J	0.00732J
Iron-Dissolved	mg/l	---	---	0.195	---	---	---	---	---
Calcium	mg/l	192	---	156	---	---	---	---	---
Magnesium	mg/l	68.8	---	67.9	---	---	---	---	---
Potassium	mg/l	6.32	---	2.93	---	---	---	---	---
Sodium	mg/l	20.8	---	214	---	---	---	---	---
Conventionals									
Alkalinity, Total	mg $CaCO_3$/L	462	---	556	297	---	---	---	---
Alkalinity, Bicarbonate	mg $CaCO_3$/L	462	---	556	297	---	---	---	---
TSS	mg/l	1900J	---	7.8	290	---	---	---	---
Total Cyanide	mg/l	0.005U	0.005U	0.436	0.005U	---	---	0.005U	0.005U
WAD Cyanide	mg/l	0.01U	0.01U	0.029	0.01U	---	---	0.01U	0.01U
Fluoride	mg/l	0.225	0.254	0.415	---	1.1J	---	3.63	0.928
Sulfate	mg/l	141	129	562	---	1140	---	5.58	1.39
Chloride	mg/l	11.4	---	11.9	208	---	---	---	---
Nitrate Nitrogen	mg/l	0.76	---	0.042J	0.1U	---	---	---	---
Phosphate, Total	mg/l	3.44	---	0.071	0.335	---	---	---	---
Total Organic Carbon	mg/l	0.936	---	6.32	1.79	---	---	---	---
Dissolved Organic Carbon	mg/l	1.1	---	8.2J	3J	---	---	---	---
PCBs									
Aroclor 1242	µg/l	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1248	µg/l	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1254	µg/l	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1260	µg/l	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U

Key:
U = Nondetect
J = Estimated
--- = Not Analyzed

Notes:
1. Sample analyzed twice for chloride and nitrate-nitrogen; result shown is for sample collected 7/1/21.
Chloride and nitrate-nitrogen concentrations in second sample collected 7/6/21 are 80.9 mg/l and 0.33 mg/l, respectively.
2. Sample analyzed twice for chloride and nitrate-nitrogen; result shown is for sample collected 7/1/21.
Chloride and nitrate-nitrogen concentrations in second sample collected 7/6/21 are 35 mg/l and 0.13 mg/l, respectively.
3. Some analytes sampled on 7/6/21.
4. The initial analysis, presumed to be unfiltered and reflective of the TOC concentration, was 1.6 mg/l (see memo)
5. The initial analysis, presumed to be unfiltered and reflective of the TOC concentration, was 14 mg/l (see memo)
6. The initial analysis, presumed to be unfiltered and reflective of the TOC concentration, was 7.9 mg/l (see memo)

Sample ID	Sample Date	VTSR[1]	Days	Total Cyanide		Weak Acid Dissociable Cyanide		Fluoride		Sulfate	
				Target - 12 Days VTSR to Analysis	Days	Target - 12 Days VTSR to Analysis	Days	Target - 26 Days VTSR to Analysis	Days	Target - 26 Days VTSR to Analysis	Days
FDRAIN-0621	6/24/21	6/25/21	1	7/7/21	12	7/1/21	6	7/11/21	16	7/11/21	16
MW-03S-0621	6/24/21	6/25/21	1	7/6/21	11	7/1/21	6	7/10/21	15	7/10/21	15
MW-10S-0621	6/29/21	6/30/21	1	7/9/21	9	7/8/21	8	7/13/21	13	7/13/21	13
MW-11SR-0621	6/24/21	6/25/21	1	7/6/21	11	7/1/21	6	7/10/21	15	7/10/21	15
MW-1204-0621 FBW	6/29/21	6/30/21	1	7/9/21	9	7/8/21	8	7/13/21	13	7/13/21	13
MW-1205-0621 FBW	7/1/21	7/2/21	1	7/12/21	10	7/15/21	13	7/28/21	26	7/28/21	26
MW-1206-0621FBW	6/24/21	6/25/21	1	7/6/21	11	7/1/21	6	7/11/21	16	7/11/21	16
MW-1207-0621 FBW	7/6/21	7/7/21	1	7/13/21	6	7/15/21	8	7/31/21	24	7/31/21	24
MW-12S-0621	6/24/21	6/25/21	1	7/6/21	11	7/1/21	6	7/10/21	15	7/10/21	15
MW-13S-0621	6/24/21	6/25/21	1	7/6/21	11	7/1/21	6	7/11/21	16	7/11/21	16
MW-14S-0621	6/29/21	6/30/21	1	7/9/21	9	7/8/21	8	7/13/21	13	7/13/21	13
MW-15S-87-0621	7/6/21	7/7/21	1	7/13/21	6	7/15/21	8	---	---	---	---
MW-16S-0621	6/24/21	6/25/21	1	7/6/21	11	7/1/21	6	7/10/21	15	7/10/21	15
MW-17S-0621	7/6/21	7/7/21	1	7/13/21	6	7/15/21	8	7/31/21	24	7/31/21	24
MW-18S-0621	6/24/21	6/25/21	1	7/6/21	11	7/1/21	6	7/10/21	15	7/10/21	15
MW-18S-0621D	6/24/21	6/25/21	1	7/6/21	11	7/1/21	6	7/11/21	16	7/11/21	16
MW-19S-0621	6/24/21	6/25/21	1	7/6/21	11	7/1/21	6	7/11/21	16	7/10/21	15
MW-20-85S-0621	6/24/21	6/25/21	1	7/6/21	11	7/1/21	6	7/11/21	16	7/11/21	16
MW-22-85S-0621	7/1/21	7/2/21	1	7/12/21	10	7/15/21	13	7/28/21	26	7/28/21	26
MW-23-85S-0621	6/24/21	6/25/21	1	7/6/21	11	7/1/21	6	7/11/21	16	7/11/21	16
MW-26S-0621	6/29/21	6/30/21	1	7/9/21	9	7/8/21	8	7/13/21	13	7/13/21	13
MW-27S-0621	6/24/21	6/25/21	1	7/6/21	11	7/1/21	6	7/10/21	15	7/10/21	15
MW-28S-0621	6/29/21	6/30/21	1	7/9/21	9	7/8/21	8	7/13/21	13	7/13/21	13
MW-30S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-31SR-0621	6/24/21	6/25/21	1	7/6/21	11	7/1/21	6	7/11/21	16	7/11/21	16
MW-33S-0621	6/24/21	6/25/21	1	7/7/21	12	7/1/21	6	---	---	---	---
MW-34S-0621	6/24/21	6/25/21	1	7/7/21	12	7/1/21	6	---	---	---	---
MW-35SR-0621	7/6/21	7/7/21	1	7/13/21	6	7/15/21	8	7/31/21	24	7/31/21	24
MW-36-0621	7/1/21	7/2/21	1	7/12/21	10	7/15/21	13	7/28/21	26	7/28/21	26
MW-37-0621	7/1/21	7/2/21	1	7/12/21	10	7/15/21	13	7/28/21	26	7/28/21	26
MW-38-0621	6/24/21	6/25/21	1	7/6/21	11	7/8/21	13	7/11/21	16	7/11/21	16
MW-39S-0621	6/24/21	6/25/21	1	7/6/21	11	7/1/21	6	7/11/21	16	7/11/21	16
MW-40S-0621	6/24/21	6/25/21	1	7/6/21	11	7/1/21	6	7/11/21	16	7/11/21	16
MW-41-0621	7/1/21	7/2/21	1	7/12/21	10	7/15/21	13	7/28/21	26	7/28/21	26
MW-42-0621	7/1/21	7/2/21	1	7/12/21	10	7/15/21	13	7/28/21	26	7/28/21	26
MW-43-0621	6/29/21	6/30/21	1	7/9/21	9	7/8/21	8	7/13/21	13	7/13/21	13
MW-43-0621D	6/29/21	6/30/21	1	7/9/21	9	7/8/21	8	7/13/21	13	7/13/21	13
MW-44-0621	6/24/21	6/25/21	1	7/6/21	11	7/1/21	6	7/11/21	16	7/12/21	17
MW-45-0621	6/29/21	6/30/21	1	7/9/21	9	7/8/21	8	7/13/21	13	7/13/21	13
PZ-44-0621	7/6/21	7/7/21	1	7/12/21	5	7/15/21	8	---	---	---	---
PZ-45-0621	6/24/21	6/25/21	1	---	---	---	---	7/10/21	15	7/10/21	15
PZ-46-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
SLPWETE-0621	6/24/21	6/25/21	1	7/6/21	11	7/1/21	6	7/11/21	16	7/11/21	16
SLPWETW-0621	6/24/21	6/25/21	1	7/6/21	11	7/1/21	6	7/10/21	15	7/10/21	15

Key:

1. VTSR = Verified time of sample receipt

--- = Not sampled

				Aluminum		Dissolved Aluminum		Dissolved Iron		PCBs			
Sample ID	Sample Date	VTSR[1]	Days	Target - 180 Days VTSR to Analysis	Days	Target - 180 Days VTSR to Analysis	Days	Target - 180 Days VTSR to Analysis	Days	Target - 365 Days from VTSR to Extraction	Days	Target - 40 Days from Extraction to Analysis	Days
FDRAIN-0621	6/24/21	6/25/21	1		---	---	---	---	---	---	---	---	---
MW-03S-0621	6/24/21	6/25/21	1	7/26/21	31	7/28/21	33	---	---	7/10/21	15	7/12/21	2
MW-10S-0621	6/29/21	6/30/21	1	7/29/21	29	7/30/21	30	7/30/2021	30	7/10/21	10	7/12/21	2
MW-11SR-0621	6/24/21	6/25/21	1	7/26/21	31	7/28/21	33	---	---	7/10/21	15	7/12/21	2
MW-1204-0621 FBW	6/29/21	6/30/21	1	7/29/21	29	7/30/21	30	---	---	7/10/21	10	7/12/21	2
MW-1205-0621 FBW	7/1/21	7/2/21	1	8/3/21	32	7/29/21	27	7/29/2021	27	7/15/21	13	7/20/21	5
MW-1206-0621FBW	6/24/21	6/25/21	1	7/26/21	31	7/28/21	33	---	---	7/10/21	15	7/12/21	2
MW-1207-0621 FBW	7/6/21	7/7/21	1	8/3/21	27	---	---	---	---	7/15/21	8	7/20/21	5
MW-12S-0621	6/24/21	6/25/21	1	7/26/21	31	7/28/21	33	---	---	7/10/21	15	7/12/21	2
MW-13S-0621	6/24/21	6/25/21	1	7/27/21	32	7/28/21	33	---	---	7/10/21	15	7/12/21	2
MW-14S-0621	6/29/21	6/30/21	1	7/29/21	29	7/30/21	30	---	---	7/10/21	10	7/12/21	2
MW-15S-87-0621	7/6/21	7/7/21	1	---	---	7/29/21	22	---	---	7/15/21	8	7/20/21	5
MW-16S-0621	6/24/21	6/25/21	1	7/26/21	31	7/28/21	33	---	---	7/10/21	15	7/12/21	2
MW-17S-0621	7/6/21	7/7/21	1	8/3/21	27	7/29/21	22	---	---	7/15/21	8	7/20/21	5
MW-18S-0621	6/24/21	6/25/21	1	7/26/21	31	7/28/21	33	---	---	7/10/21	15	7/12/21	2
MW-18S-0621D	6/24/21	6/25/21	1	7/26/21	31	7/28/21	33	---	---	7/10/21	15	7/12/21	2
MW-19S-0621	6/24/21	6/25/21	1	7/26/21	31	7/28/21	33	---	---	7/10/21	15	7/12/21	2
MW-20-85S-0621	6/24/21	6/25/21	1	7/27/21	32	7/28/21	33	---	---	7/10/21	15	7/12/21	2
MW-22-85S-0621	7/1/21	7/2/21	1	8/3/21	32	7/29/21	27	7/29/2021	27	7/15/21	13	7/20/21	5
MW-23-85S-0621	6/24/21	6/25/21	1	7/27/21	32	7/28/21	33	---	---	7/10/21	15	7/12/21	2
MW-26S-0621	6/29/21	6/30/21	1	7/29/21	29	7/30/21	30	---	---	7/10/21	10	7/12/21	2
MW-27S-0621	6/24/21	6/25/21	1	7/26/21	31	7/28/21	33	---	---	7/10/21	15	7/12/21	2
MW-28S-0621	6/29/21	6/30/21	1	7/29/21	29	7/30/21	30	---	---	7/10/21	10	7/12/21	2
MW-30S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	7/10/21	15	7/12/21	2
MW-31SR-0621	6/24/21	6/25/21	1	7/26/21	31	7/28/21	33	---	---	7/10/21	15	7/12/21	2
MW-33S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---	---	---
MW-34S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---	---	---
MW-35SR-0621	7/6/21	7/7/21	1	8/3/21	27	8/3/21	27	---	---	7/15/21	8	7/20/21	5
MW-36-0621	7/1/21	7/2/21	1	8/3/21	32	7/29/21	27	---	---	7/15/21	13	7/20/21	5
MW-37-0621	7/1/21	7/2/21	1	8/3/21	32	7/29/21	27	---	---	7/15/21	13	7/20/21	5
MW-38-0621	6/24/21	6/25/21	1	7/27/21	32	7/28/21	33	---	---	7/10/21	15	7/12/21	2
MW-39S-0621	6/24/21	6/25/21	1	7/26/21	31	7/28/21	33	---	---	7/10/21	15	7/12/21	2
MW-40S-0621	6/24/21	6/25/21	1	7/26/21	31	7/28/21	33	---	---	7/10/21	15	7/12/21	2
MW-41-0621	7/1/21	7/2/21	1	8/3/21	32	7/29/21	27	---	---	7/15/21	13	7/20/21	5
MW-42-0621	7/1/21	7/2/21	1	8/3/21	32	7/29/21	27	7/29/2021	27	7/22/21	20	7/27/21	5
MW-43-0621	6/29/21	6/30/21	1	7/29/21	29	7/30/21	30	---	---	7/10/21	10	7/12/21	2
MW-43-0621D	6/29/21	6/30/21	1	7/29/21	29	7/30/21	30	---	---	7/10/21	10	7/12/21	2
MW-44-0621	6/24/21	6/25/21	1	7/27/21	32	7/28/21	33	---	---	7/10/21	15	7/12/21	2
MW-45-0621	6/29/21	6/30/21	1	7/29/21	29	7/30/21	30	7/30/2021	30	7/10/21	10	7/12/21	2
PZ-44-0621	7/6/21	7/7/21	1	---	---	7/29/21	22	---	---	7/15/21	8	7/20/21	5
PZ-45-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	7/10/21	15	7/12/21	2
PZ-46-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	7/10/21	15	7/12/21	2
SLPWETE-0621	6/24/21	6/25/21	1	7/26/21	31	7/28/21	33	---	---	7/10/21	15	7/12/21	2
SLPWETW-0621	6/24/21	6/25/21	1	7/26/21	31	7/28/21	33	---	---	7/10/21	15	7/12/21	2

Sample ID	Sample Date	VTSR[1]	Days	Nitrate-Nitrogen Target - 24 Hours to Analysis	Days	Chloride Target - 26 days from VTSR[1] to Analysis	Days	Alkalinity Target - 12 Days VTSR to Analysis	Days	Phosphate Target - 26 Days VTSR to Analysis	Days
FDRAIN-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-03S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-10S-0621	6/29/21	6/30/21	1	6/30/21	0	7/13/2021	13	7/8/2021	8	7/7/2021	7
MW-11SR-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-1204-0621 FBW	6/29/21	6/30/21	1	6/30/21	0	7/13/2021	13	7/8/2021	8	7/7/2021	7
MW-1205-0621 FBW	7/1/21	7/2/21	1	7/3/21	1	7/28/2021	26	7/9/2021	7	7/20/2021	18
MW-1206-0621FBW	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-1207-0621 FBW	7/6/21	7/7/21	1	7/7/21	0	7/31/2021	24	---	---	---	---
MW-12S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-13S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-14S-0621	6/29/21	6/30/21	1	6/30/21	0	7/13/2021	13	7/8/2021	8	7/7/2021	7
MW-15S-87-0621	7/1/21	7/2/21	1	7/3/21	1	7/28/2021	26	7/9/2021	7	7/7/2021	5
MW-16S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-17S-0621	7/6/21	7/7/21	1	7/7/21	0	7/28/2021	21	7/9/2021	2	7/7/2021	0
MW-18S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-18S-0621D	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-19S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-20-85S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-22-85S-0621	7/1/21	7/2/21	1	---	---	---	---	---	---	---	---
MW-23-85S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-26S-0621	6/29/21	6/30/21	1	6/30/21	0	7/13/2021	13	7/8/2021	8	7/7/2021	7
MW-27S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-28S-0621	6/29/21	6/30/21	1	6/30/21	0	7/13/2021	13	---	---	7/7/2021	7
MW-30S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-31SR-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-33S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-34S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-35SR-0621	7/6/21	7/7/21	1	7/7/21	0	7/28/2021	21	7/9/2021	2	7/20/2021	13
MW-36-0621	7/1/21	7/2/21	1	7/3/21	1	7/28/2021	26	7/9/2021	7	7/20/2021	18
MW-37-0621	7/1/21	7/2/21	1	7/3/21	1	7/28/2021	26	7/9/2021	7	7/20/2021	18
MW-38-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-39S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-40S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-41-0621	7/1/21	7/2/21	1	7/3/21	1	7/28/2021	26	7/9/2021	7	7/7/2021	5
MW-42-0621	7/1/21	7/2/21	1	7/3/21	1	7/28/2021	26	7/9/2021	7	7/7/2021	5
MW-43-0621	6/29/21	6/30/21	1	6/30/21	0	7/13/2021	13	7/8/2021	8	7/7/2021	7
MW-43-0621D	6/29/21	6/30/21	1	6/30/21	0	7/13/2021	13	7/8/2021	8	7/7/2021	7
MW-44-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-45-0621	6/29/21	6/30/21	1	6/30/21	0	7/13/2021	13	7/8/2021	8	7/7/2021	7
PZ-44-0621	7/1/21	7/2/21	1	7/3/21	1	7/28/2021	26	7/9/2021	7	7/7/2021	5
PZ-45-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
PZ-46-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
SLPWETE-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
SLPWETW-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---

Table 2
East Plant
Summary of Sample Hold Times

Sample ID	Sample Date	VTSR[1]	Days	Calcium		Magnesium		Potassium		Sodium	
				Target - 180 Days VTSR to Analysis	Days	Target - 180 Days VTSR to Analysis	Days	Target - 180 Days VTSR to Analysis	Days	Target - 180 Days VTSR to Analysis	Days
FDRAIN-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-03S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-10S-0621	6/29/21	6/30/21	1	7/29/21	29	7/29/21	29	7/29/21	29	7/29/21	29
MW-11SR-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-1204-0621 FBW	6/29/21	6/30/21	1	7/29/21	29	7/29/21	29	7/29/21	29	7/29/21	29
MW-1205-0621 FBW	7/1/21	7/2/21	1	8/3/21	32	8/3/21	32	8/3/21	32	8/3/21	32
MW-1206-0621FBW	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-1207-0621 FBW	7/6/21	7/7/21	1	---	---	---	---	---	---	---	---
MW-12S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-13S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-14S-0621	6/29/21	6/30/21	1	7/29/21	29	7/29/21	29	7/29/21	29	7/29/21	29
MW-15S-87-0621	7/6/21	7/7/21	1	---	---	---	---	---	---	---	---
MW-16S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-17S-0621	7/6/21	7/7/21	1	8/3/21	27	8/3/21	27	8/3/21	27	8/3/21	27
MW-18S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-18S-0621D	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-19S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-20-85S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-22-85S-0621	7/1/21	7/2/21	1	8/3/21	32	8/3/21	32	8/3/21	32	8/3/21	32
MW-23-85S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-26S-0621	6/29/21	6/30/21	1	7/29/21	29	7/29/21	29	7/29/21	29	7/29/21	29
MW-27S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-28S-0621	6/29/21	6/30/21	1	7/29/21	29	7/29/21	29	7/29/21	29	7/29/21	29
MW-30S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-31SR-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-33S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-34S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-35SR-0621	7/6/21	7/7/21	1	8/3/21	27	8/3/21	27	8/3/21	27	8/3/21	27
MW-36-0621	7/1/21	7/2/21	1	8/3/21	32	8/3/21	32	8/3/21	32	8/3/21	32
MW-37-0621	7/1/21	7/2/21	1	8/3/21	32	8/3/21	32	8/3/21	32	8/3/21	32
MW-38-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-39S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-40S-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-41-0621	7/1/21	7/2/21	1	8/3/21	32	8/3/21	32	8/3/21	32	8/3/21	32
MW-42-0621	7/1/21	7/2/21	1	8/3/21	32	8/3/21	32	8/3/21	32	8/9/21	38
MW-43-0621	6/29/21	6/30/21	1	7/29/21	29	7/29/21	29	7/29/21	29	7/29/21	29
MW-43-0621D	6/29/21	6/30/21	1	7/29/21	29	7/29/21	29	7/29/21	29	7/29/21	29
MW-44-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
MW-45-0621	6/29/21	6/30/21	1	7/29/21	29	7/29/21	29	7/29/21	29	7/29/21	29
PZ-44-0621	7/6/21	7/7/21	1	---	---	---	---	---	---	---	---
PZ-45-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
PZ-46-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
SLPWETE-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---
SLPWETW-0621	6/24/21	6/25/21	1	---	---	---	---	---	---	---	---

Table 2
East Plant
Summary of Sample Hold Times

Sample ID Sample Date Parameter ID	Unit	MW-1204-0621 FBW 6/29/21	MW-1205-0621 FBW 7/1/21	MW-1206-0621FBW 6/24/21	MW-1207-0621 FBW 7/6/21
Alkalinity, Total	mg CaCO3/L	2U	2U	---	---
Alkalinity, Bicarbonate	mg CaCO3/L	2U	2U	---	---
TSS	mg/l	1U	1U	---	---
Inorganics					
Aluminum	mg/l	0.01U	0.01U	0.0063J	0.01U
Dissolved Aluminum	mg/l	0.01U	0.01U	0.01U	---
Iron-Dissolved	mg/l	---	0.05U		
Calcium	mg/l	0.1U	0.1U		
Magnesium	mg/l	0.07U	0.07U		
Potassium	mg/l	0.1U	0.1U		
Sodium	mg/l	0.1U	0.1U		
Conventionals					
Total Cyanide	mg/l	0.005U	0.005U	0.005U	0.005U
WAD Cyanide	mg/l	0.01U	0.01U	0.01U	0.01U
Fluoride	mg/l	0.05U	0.05U	0.05U	0.05U
Sulfate	mg/l	0.658J	1U	1U	1U
Chloride	mg/l	0.242J	0.169J	---	0.18J
Nitrate Nitrogen	mg/l	0.1U	0.1U	---	0.1U
Phosphate, Total	mg/l	0.031U	0.031U	---	---
Total Organic Carbon	mg/l	0.50U	0.220J	---	---
Dissolved Organic Carbon	mg/l	1.2	2.4	---	---
PCBs					
Aroclor 1242	µg/l	0.065U	0.02U	0.065U	0.065U
Aroclor 1248	µg/l	0.065U	0.02U	0.065U	0.065U
Aroclor 1254	µg/l	0.065U	0.02U	0.065U	0.065U
Aroclor 1260	µg/l	0.065U	0.02U	0.065U	0.065U

Key:
U = Nondetect
J = Estimated
--- = Not Analyzed

Sample ID Sample Location Sample Date Parameter ID	Unit	Original Sample MW-18S-0621 MW-18S 6/24/21	Duplicate Sample MW-1203-06210BD MW-18S 6/24/21	Relative Percent Difference[1,2] %	Original Sample MW-43-0621 MW-43 6/29/21	Duplicate Sample MW-1202-0621BD MW-43 6/29/21	Relative Percent Difference[1,2] %
Inorganics							
Aluminum	mg/l	0.0629J	0.0461J	30.8	16.6	19.1	14.0
Dissolved Aluminum	mg/l	0.0447	0.0453	1.3	0.01U	0.01U	---
Iron-Dissolved	mg/l	---	---	---	---	---	---
Calcium	mg/l	---	---	---	171	192	11.6
Magnesium	mg/l	---	---	---	63.8	68.8	7.5
Potassium	mg/l	---	---	---	5.85	6.32	7.7
Sodium	mg/l	---	---	---	19.8	20.8	4.9
Conventionals							
Alkalinity, Total	mg CaCO3/L	---	---	---	462	462	0.0
Alkalinity, Bicarbonate	mg CaCO3/L	---	---	---	462	462	0.0
TSS	mg/l	---	---	---	480J	1900J	119.3
Total Cyanide	mg/l	0.018J	0.013J	32.3	0.005U	0.005U	---
WAD Cyanide	mg/l	0.01U	0.01U	---	0.01U	0.01U	---
Fluoride	mg/l	26.1	25.2	3.5	0.22	0.225	2.2
Sulfate	mg/l	330	314	5.0	141	141	0.0
Chloride	mg/l	---	---	---	11.4	11.4	0.0
Nitrate Nitrogen	mg/l	---	---	---	0.75	0.76	1.3
Phosphate, Total	mg/l	---	---	---	3.44	3.44	0.0
Total Organic Carbon	mg/l	---	---	---	1	0.936	6.6
Dissolved Organic Carbon	mg/l	---	---	---	1	1.1	9.5
PCBs							
Aroclor 1242	µg/l	0.065U	0.065U	---	0.065U	0.065U	---
Aroclor 1248	µg/l	0.065U	0.065U	---	0.065U	0.065U	---
Aroclor 1254	µg/l	0.065U	0.065U	---	0.065U	0.065U	---
Aroclor 1260	µg/l	0.065U	0.065U	---	0.065U	0.065U	---

Notes:

1. Precision is evaluated by calculating the relative percent difference (RPD) using the following formula:

$$\left| 2 * (X1 - X2) / (X1 + X2) * 100 \right|$$

where X1 is the original sample value and X2 is the duplicate sample value.

2. --- = RPD not calculated for nondetected parameters.

Key:

U = Nondetect

J = Estimated

--- = Not Analyzed

Memorandum

To: *Robyn Gross*

From: *Paul Rodrigue*

Date: *January 12, 2022*

Subject: *Reynolds Metals Company, LLC. – NYSDEC Site Code #645009*
Data Quality Assessment – September 2021

This memorandum presents the data quality assessment for the September 2021 quarterly sampling round for the Massena East Plant. Samples were collected on September 28, 2021, and analyzed for polychlorinated biphenyls (PCBs), conventional inorganics (total cyanide, weak acid dissociable (WAD) cyanide, fluoride and sulfate) and metals (total aluminum and dissolved aluminum).

Laboratory quality control data associated with these samples were reviewed in accordance with the *Quality Assurance Project Plan* (QAPP) (CDM, March 2008) and United States Environmental Protection Agency (USEPA) Region II Contract Laboratory Program (CLP) data validation criteria as referenced in *Validating PCB Compounds PCBs by Gas Chromatography SW-846 Method 8082A* (SOP No. HW-45, Revision No. 1, October 2006) and in *Validation of Metals for the (CLP) Based on SOW ILMO5.3* (SOP No. HW-2. Revision No. 13, September 2006). All analyses were performed by Alpha Analytical in Westborough, Massachusetts except WAD cyanide which was subcontracted by Alpha Analytical to ALS Environmental in Rochester, New York.

The intent of this review is to provide a general assessment of the overall quality of the data packages based on the review of the following information:

- field and laboratory method blanks;
- surrogate spike recovery;
- field duplicate precision;
- matrix spike/matrix spike duplicate (MS/MSD) samples;
- laboratory control sample/laboratory control sample duplicates (LCS/LCSD);
- sample holding time data; and
- sample receipt conditions.

All applicable data were evaluated and are summarized below. Field quality assurance sample results (field blanks and duplicate samples) were also evaluated. Analytical results, hold times and field quality assurance data are summarized in Tables 1 through 4.

PCB Analysis

A field blank sample was collected on the day of sampling (MW-1209-0921FBW). PCB Aroclors were not detected in the field blank sample. In addition, the laboratory blank sample analyzed with the field samples was non-detect for Aroclors. No qualification is required.

PCB analysis surrogate spike recovery data were reviewed. Tetrachloro-m-xylene (TCX) and decachlorobiphenyl (DCB) were the compounds used for the surrogate spike standards. The QAPP specifies that at least one surrogate is recovered within range (30 to 150 percent), with both surrogate recoveries greater than 10 percent. All surrogate recoveries were within the acceptable range; no qualification is required.

A field duplicate sample was collected at SLPWETW (MW-1208-0921BD). All Aroclors were non-detect in both the parent and duplicate samples. No qualification is required.

Sample MW-10S-0921 was analyzed as a MS/MSD sample. The QAPP specifies that MS/MSD recoveries be within the range of 29 to 135 percent, with a relative percent difference (RPD) of less than 30 percent between the spiked pair. The MS and MSD samples were spiked with Aroclor 1260. Recoveries and precision between the spiked pairs were acceptable. No qualification is required.

The QAPP specifies a recovery range of 50 to 150 percent for compounds in a LCS/LCSD. Recovery and precision for Aroclor 1260 was within the acceptable range in the LCS/LCSD sample; no qualification is required.

USEPA Region II guidance specifies a holding time of up to 365 days beyond the verified time of sample receipt (VTSR) for sample extraction and 40 days from the time of sample extraction to analysis. In addition, VTSR must be within 48 hours of sample collection. Table 2 presents a compilation of the relevant information regarding PCB analysis holding times. No qualification is required.

The condition of the samples upon receipt at the laboratory was reviewed. All samples were delivered at temperatures below 10°C. No qualification is required.

Based on the results of this assessment, the PCB results for the September 2021 quarterly sampling event can be used without qualification.

Conventional Inorganics Analysis

Samples were analyzed for total cyanide, WAD cyanide, fluoride and sulfate. All associated conventional inorganics quality control data were reviewed.

A field blank sample was collected on the day of sampling (MW-1209-0921FBW) and analyzed for conventional inorganics. All results were non-detect in the field blank. Additionally,

laboratory method blanks were analyzed with the field samples. All method blanks were non-detect; no qualification is required.

A field duplicate was collected at SLPWETW (MW-1208-0921BD). The RPD quantified between the parent and duplicate sample collected at the monitoring well was acceptable for all conventional inorganic parameters. No qualification is required.

MS/MSD analysis was requested on MW-10S-0321. The QAPP specifies acceptable MS/MSD recovery limits as 75 to 125 percent for total and WAD cyanide and 80 to 120 percent for fluoride and sulfate. Recoveries and precision between the spiked pairs were acceptable for fluoride. Sulfate was under-recovered in the MS and MSD at 45 percent, however the native concentration was more than four times the spike amount. Therefore, the out-of-range recoveries can be disregarded. Total cyanide was recovered at 0 percent in the MS and at 110 percent in the MSD. USEPA Region II guidance states that when MS recoveries are less than 30 percent, that all associated field results be considered rejected. Consequently, the following samples have total cyanide rejected ("R"): MW-10S-0921, SLP-WETW-0921, SLP-WETW-0921D, SLP-WETE-0921, MW-39S-0921, MW-45-0921 and MW-40S-0921.The WAD cyanide recoveries were low at 71 and 70 percent, however, were within the laboratory limits. No qualification is necessary.

All LCS recoveries for conventional inorganics were acceptable. No qualification is required.

The QAPP specifies a holding time of up to 12 days beyond the VTSR for total cyanide analysis and up to 26 days beyond the VTSR for fluoride and sulfate analysis The VTSR must be within 48 hours of sample collection. Table 2 presents a compilation of the relevant information regarding conventional inorganic parameter analysis holding times. All hold time requirements were met except for total cyanide. All samples were analyzed 14 days beyond the VTSR. No qualification was made since the samples were prepared within hold time.

Sample receipt conditions were reviewed. All samples were received within the QAPP-specified temperature limits. No qualification is required.

Conventional results for the September 2021 quarterly sampling round can be used as reported by the laboratory with the exceptions discussed above.

Metals Analysis

Samples were analyzed for total aluminum and dissolved aluminum. All associated metals quality control data were reviewed.

Laboratory and field blank samples were reviewed for metals analysis. The field blank and laboratory blank sample were non-detect for both total and aluminum. No qualification is required.

A field duplicate sample was collected at SLPWETW (MW-1208-0921BD). The calculated RPD between the pair for total aluminum was acceptable at 3.6 percent. Dissolved aluminum was detected in both samples at concentrations less than five times the CRQL. Since the absolute

difference was less than the contract required quantitation limit (CRQL) no further qualification is required.

Sample MW-10S-0921 was requested to be analyzed as a MS/MSD sample. Recoveries and precision between the spiked pair collected from MW-10S were acceptable for both total and dissolved aluminum. No qualification is required.

The LCS had acceptable recoveries for total and dissolved aluminum. No qualification is required.

The QAPP specifies a holding time of up to 180 days beyond the VTSR for sample analysis. In addition, VTSR must be within 48 hours of sample collection. Table 2 presents a compilation of the relevant information regarding metals analysis holding times. All holding times were within acceptance limits. No qualification is required.

All samples were delivered to the laboratory within the QAPP-specific temperature limits.

Metals results for the September 2021 quarterly sampling round can be used as reported by the laboratory.

AR:tmp

Attachments

cc: Richard Towne, Alcoa
pw:\\1902\80599\02 Project Information\03 Data\40 Field Data\2021 Database\September 2021\22005

Sample ID Sample Date Parameter ID	Unit	MW-10S-0921 9/28/21	MW-39S-0921 9/28/21	MW-40S-0921 9/28/21	MW-45-0921 9/28/21	SLPWETE-0921 9/28/21	SLPWETW-0921 9/28/21	SLPWETW-0921D 9/28/21
Field Parameters								
pH	SU	7.54	7.18	7.47	7.14	7.98	7.4	---
Temperature	deg C	14.1	11.3	13.7	12.7	15.1	13.7	---
Specific Conductance	mS/cm	0.718	0.946	1.097	1.752	0.519	0.2336	---
Turbidity	NTU	3	15	3	6	6	3	---
Redox Potential	mVolt	-36.9	7.9	18.6	39.7	55.3	111.7	---
Inorganics								
Aluminum	mg/l	0.0302	0.386	0.00498J	0.0681	0.123	0.0281	0.0271
Dissolved Aluminum	mg/l	0.01U	0.01U	0.01U	0.01U	0.0142	0.00796J	0.00846J
Conventionals								
Total Cyanide	mg/l	0.005UR	0.003R	0.002R	0.024R	0.001R	0.005R	0.002R
Cyanide, Weak Acid Dissociable	mg/l	0.01U	0.01U	0.01U	0.013	0.01U	0.01U	0.01U
Fluoride	mg/l	0.189	1.48	0.205	1.15J	3.4	0.861	0.768
Sulfate	mg/l	81.4	238	61.5	696	4.42	3.12	3.21
PCBs								
Aroclor 1242	µg/l	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1248	µg/l	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1254	µg/l	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1260	µg/l	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U

Key:
U = Nondetect
J = Estimated
R = Rejected

Sample ID	Sample Date	VTSR[1]	Days	Total Cyanide: Target - 12 Days VTSR to Analysis	Days	Weak Acid Dissociable Cyanide: Target - 12 Days VTSR to Analysis	Days	Fluoride: Target - 26 Days VTSR to Analysis	Days	Sulfate: Target - 26 Days VTSR to Analysis	Days
MW-10S-0921	9/28/21	9/29/21	1	10/13/21	14	10/7/21	8	10/10/21	11	10/10/21	11
MW-1209-0921FBW	9/28/21	9/29/21	1	10/13/21	14	10/7/21	8	10/10/21	11	10/10/21	11
MW-39S-0921	9/28/21	9/29/21	1	10/13/21	14	10/7/21	8	10/10/21	11	10/10/21	11
MW-40S-0921	9/28/21	9/29/21	1	10/13/21	14	10/7/21	8	10/10/21	11	10/10/21	11
MW-45-0921	9/28/21	9/29/21	1	10/13/21	14	10/7/21	8	10/10/21	11	10/10/21	11
SLPWETE-0921	9/28/21	9/29/21	1	10/13/21	14	10/7/21	8	10/10/21	11	10/10/21	11
SLPWETW-0921	9/28/21	9/29/21	1	10/13/21	14	10/7/21	8	10/10/21	11	10/10/21	11
SLPWETW-0921D	9/28/21	9/29/21	1	10/13/21	14	10/7/21	8	10/10/21	11	10/10/21	11

Sample ID	Sample Date	VTSR[1]	Days	Aluminum: Target - 180 Days VTSR to Analysis	Days	Dissolved Aluminum: Target - 180 Days VTSR to Analysis	Days	PCBs: Target - 365 Days from VTSR to Extraction	Days	PCBs: Target - 40 Days from Extraction to Analysis	Days
MW-10S-0921	9/28/21	9/29/21	1	10/1/21	2	10/1/21	2	10/1/21	2	10/8/21	7
MW-1209-0921FBW	9/28/21	9/29/21	1	10/1/21	2	10/1/21	2	10/1/21	2	10/8/21	7
MW-39S-0921	9/28/21	9/29/21	1	10/1/21	2	10/1/21	2	10/1/21	2	10/8/21	7
MW-40S-0921	9/28/21	9/29/21	1	10/1/21	2	10/2/21	3	10/1/21	2	10/8/21	7
MW-45-0921	9/28/21	9/29/21	1	10/1/21	2	10/2/21	3	10/1/21	2	10/8/21	7
SLPWETE-0921	9/28/21	9/29/21	1	10/1/21	2	10/2/21	3	10/1/21	2	10/8/21	7
SLPWETW-0921	9/28/21	9/29/21	1	10/1/21	2	10/1/21	2	10/1/21	2	10/8/21	7
SLPWETW-0921D	9/28/21	9/29/21	1	10/1/21	2	10/1/21	2	10/1/21	2	10/8/21	7

Key:

1. VTSR = Verified time of sample receipt; date shown is the VTSR at Alpha Analytical

Sample ID Sample Date Parameter ID	Unit	MW-1209-0921FBW 9/28/21
Inorganics		
Aluminum	mg/l	0.1U
Dissolved Aluminum	mg/l	0.1U
Conventionals		
Total Cyanide	mg/l	0.005U
Cyanide, Weak Acid Dissociable	mg/l	0.01U
Fluoride	mg/l	0.05U
Sulfate	mg/l	1U
PCBs		
Aroclor 1242	µg/l	0.065U
Aroclor 1248	µg/l	0.065U
Aroclor 1254	µg/l	0.065U
Aroclor 1260	µg/l	0.065U

Key:
U = Nondetect
J = Estimated

Sample ID Sample Location Sample Date Parameter ID	Unit	Original Sample SLPWETW-0921 SLPWETW 9/28/21	Duplicate Sample MW-1208-0921BD SLPWETW 9/28/21	Relative Percent Difference[1,2] %
Inorganics				
Aluminum	mg/l	0.0281	0.0271	3.6
Dissolved Aluminum	mg/l	0.00796J	0.00846J	---[3]
Conventionals				
Total Cyanide	mg/l	0.005UR	0.002R	---
Cyanide, Weak Acid Dissociable	mg/l	0.01U	0.01U	---
Fluoride	mg/l	0.861	0.768	11.4
Sulfate	mg/l	3.12	3.21	2.8
PCBs				
Aroclor 1242	µg/l	0.065U	0.065U	---
Aroclor 1248	µg/l	0.065U	0.065U	---
Aroclor 1254	µg/l	0.065U	0.065U	---
Aroclor 1260	µg/l	0.065U	0.065U	---

Notes:

1. Precision is evaluated by calculating the relative percent difference (RPD) using the following formula:

$$| 2 * (X1 - X2) / (X1 + X2) * 100 |$$

where X1 is the original sample value and X2 is the duplicate sample value.

2. --- = RPD not calculated for nondetected parameters.

Key:

U = Nondetect

J = Estimated

R = Rejected

Memorandum

To: *Robyn Gross*

From: *Paul Rodrigue*

Date: *March 4, 2022*

Subject: *Reynolds Metals Company, LLC. – NYSDEC Site Code #645009*
Data Quality Assessment – December 2021

This memorandum presents the data quality assessment for the December 2021 quarterly sampling round for the Massena East Plant. Samples were collected between December 14 and December 17, 2021, and analyzed for polychlorinated biphenyls (PCBs), conventional inorganics (total cyanide, weak acid dissociable (WAD) cyanide, fluoride, and sulfate) and metals (total aluminum and dissolved aluminum).

Laboratory quality control data associated with these samples were reviewed in accordance with the *Quality Assurance Project Plan* (QAPP) (CDM, March 2008) and United States Environmental Protection Agency (USEPA) Region II Contract Laboratory Program (CLP) data validation criteria as referenced in *Validating PCB Compounds PCBs by Gas Chromatography SW-846 Method 8082A* (SOP No. HW-45, Revision No. 1, October 2006) and in *Validation of Metals for the (CLP) Based on SOW ILMO5.3* (SOP No. HW-2. Revision No. 13, September 2006). All analyses were performed by Alpha Analytical in Westborough, Massachusetts except WAD cyanide which was subcontracted by Alpha Analytical to ALS Environmental in Rochester, New York. Additionally, a select set of samples were subcontracted to ALS Environmental for total cyanide analysis.

The intent of this review is to provide a general assessment of the overall quality of the data packages based on the review of the following information:

- Field and laboratory method blanks
- Surrogate spike recovery
- Field duplicate precision
- Matrix spike/matrix spike duplicate (MS/MSD) samples
- Laboratory control sample/laboratory control sample duplicates (LCS/LCSD)
- Sample holding time data
- Sample receipt conditions

All applicable data were evaluated and are summarized below. Field quality assurance sample results (field blanks and duplicate samples) were also evaluated. Analytical results, hold times and field quality assurance data are summarized in Tables 1 through 4.

PCB Analysis

A field blank sample was collected on each day of sampling (MW-1212-1221FBW, MW-1214-1221 and MW-1215-1221). PCB Aroclors were not detected in the field blank samples. In addition, the laboratory blank samples analyzed with the field samples were non-detect for Aroclors. No qualification is required.

PCB analysis surrogate spike recovery data were reviewed. Tetrachloro-m-xylene (TCX) and decachlorobiphenyl (DCB) were the compounds used for the surrogate spike standards. The QAPP specifies that at least one surrogate is recovered within range (30 to 150 percent), with both surrogate recoveries greater than 10 percent. DCB was under-recovered in the MS/MSD analysis for sample PZ-46-1221, however TCX was in range and both surrogates were recovered above 10 percent. All other surrogate recoveries were within the acceptable range; no qualification is required.

A field duplicate sample was collected at MW-18S (MW-1211-1221BD) and MW-39S (MW-1210-1221BD). All Aroclors were non-detect in both the parent and duplicate samples. No qualification is required.

Samples MW-10S-1221 and MW-43-1221 were analyzed as a MS/MSD sample. The QAPP specifies that MS/MSD recoveries be within the range of 29 to 135 percent, with a relative percent difference (RPD) of less than 30 percent between the spiked pair. The MS and MSD samples were spiked with Aroclor 1260. Recoveries and precision between the spiked pairs were acceptable. No qualification is required.

The QAPP specifies a recovery range of 50 to 150 percent for compounds in a LCS/LCSD. Recovery and precision for Aroclor 1260 was within the acceptable range in the LCS/LCSD sample; no qualification is required.

USEPA Region II guidance specifies a holding time of up to 365 days beyond the verified time of sample receipt (VTSR) for sample extraction and 40 days from the time of sample extraction to analysis. In addition, VTSR must be within 48 hours of sample collection. Table 2 presents a compilation of the relevant information regarding PCB analysis holding times. No qualification is required.

The condition of the samples upon receipt at the laboratory was reviewed. All samples were delivered at temperatures below 10°C. No qualification is required.

Based on the results of this assessment, the PCB results for the December 2021 quarterly sampling event can be used without qualification.

Conventional Analysis

Samples were analyzed for total cyanide, WAD cyanide, fluoride and sulfate.

A field blank sample was collected on each day of sampling (MW-1212-1221FBW, MW-1213-1221, MW-1214-1221 and MW-1215-1221) and analyzed for conventional inorganics. All results were non-detect in the field blanks with one exception. Sulfate was detected above the method detection limit (MDL) but below the reporting limit in MW-1212-1221FBW at 0.852J mg/L. No qualification is required since the field blank detection was below the reporting limit.

All method blanks were non-detect for conventional parameters. No qualification is required.

A field duplicate sample was collected at MW-18S (MW-1211-1221BD) and MW-39S (MW-1210-1221BD). The RPD quantified between the parent and duplicate sample collected at the monitoring wells were acceptable for all conventional parameters with one exception. The RPD between the pair collected from MW-39S for total cyanide was high at 31 percent. Consequently, the total cyanide results for MW-39S-1221 and MW-1210-1221BD are qualified as estimated ("J").

MS/MSD analysis was requested on MW-10S-1221 and MW-43-1221. The laboratories performed MS and or MS/MSD analyses on additional samples for various parameters. The QAPP specifies acceptable MS/MSD recovery limits as 75 to 125 percent for total and WAD cyanide and 80 to 120 percent for fluoride and sulfate. All recoveries were acceptable with some exceptions. Recoveries for sulfate were out of range in MS/MSD analyses performed on samples MW-15S-87-1221, MW-19S-1221, and MW-10S-1221. Additionally, fluoride was under-recovered in samples MW-15S-87-1221 and MW-19S-1221. In each of these cases, the native sample concentration was more than four times the spike amount, therefore the out-of-range recoveries are disregarded. Total cyanide was over-recovered in MW-43-1221 at 196 percent and 240 percent in the MS and MSD, respectively. USEPA Region II guidance states that when recoveries are greater than 150 percent, all associated field results above the MDL be rejected. Consequently, the total cyanide results for samples PZ-45-1221, MW-28S-1221, MW-43-1221, MW-16S-1221, and MW-33S-1221 are rejected ("R").

A laboratory duplicate performed on sample MW-16S-1221 for total cyanide yielded a RPD of 49 percent with the initial result. The laboratory case narrative attributed the high RPD to the non-homogenous nature of the sample. The total cyanide result for this sample is rejected due to high MS/MSD recoveries. No further qualification is required.

All LCS recoveries for conventional were acceptable. No qualification is required.

The QAPP specifies holding times for conventional inorganic parameters beyond the VTSR. The VTSR must be within 48 hours of sample collection. Table 2 presents a compilation of the relevant information regarding conventional parameter analysis holding times. All hold time requirements were met. No qualification is required.

Sample receipt conditions were reviewed. All samples were received within the QAPP-specified temperature limits. No qualification is required.

Conventional results for the December 2021 quarterly sampling round can be used as reported by the laboratory with the exceptions and qualifications noted above.

Metals Analysis

Samples were analyzed for total aluminum and dissolved aluminum. All associated metals quality control data were reviewed.

Laboratory and field blank samples were reviewed for metals analysis. The field blank and laboratory blank samples were non-detect for metals with one exception. Dissolved aluminum was detected in field blank MW-1212-1221FBW at a concentration above the MDL but below the reporting limit at 0.00663J mg/L. No qualification is required since the field blank detection was below the reporting limit.

A field duplicate sample was collected at MW-18S (MW-1211-1221BD) and MW-39S (MW-1210-1221BD) for total and dissolved aluminum. The calculated RPD between the pair was acceptable for both total and dissolved aluminum. No qualification is required.

Samples MW-10S-1221 and MW-43-1221 were requested to be analyzed as MS/MSD samples. The laboratory also performed MS analyses for dissolved aluminum on samples MW-27S-1221 and MW-31SR-1221. Recoveries and precision between the spiked pairs were acceptable with one exception. In MW-43-1221 total aluminum was over-recovered in the MS and MSD at 155 and 175 percent, respectively. In this case, the native sample concentration was more than four times the spike amount. Therefore, the out-of-range recoveries are disregarded. No qualification is required.

The LCS had acceptable recoveries for all metals. No qualification is required.

The QAPP specifies a holding time of up to 180 days beyond the VTSR for sample analysis. In addition, VTSR must be within 48 hours of sample collection. Table 2 presents a compilation of the relevant information regarding metals analysis holding times. All holding times were within acceptance limits. No qualification is required.

All samples were delivered to the laboratory within the QAPP-specific temperature limits.

Metals results for the December 2021 quarterly sampling round can be used as reported by the laboratory.

Summary

Based on a review of the data, the following qualifications were made to the December 2021 quarterly sampling event:

- Due to high MS/MSD recoveries, the total cyanide results for samples PZ-45-1221, MW-28S-1221, MW-43-1221, MW-16S-1221, and MW-33S-1221 are rejected (“R”)

- Due to lack of precision between the field duplicate pair, the total cyanide results for MW-39S-1221 and MW-1210-1221BD are qualified as estimated (“J”)

PR:tmp

Attachments

cc: Richard Towne, Alcoa
pw:\\1902\80599\02 Project Information\03 Data\40 Field Data\2021 Database\December 2021\22022

Sample ID Sample Date Parameter ID	Unit	FDRAIN-1221 12/15/21	MW-03S-1221 12/16/21	MW-10S-1221 12/14/21	MW-11SR-1221 12/14/21	MW-12S-1221 12/14/21	MW-13S-1221 12/14/21	MW-14S-1221 12/14/21	MW-15S-87-1221 12/14/21
Field Parameters									
pH	SU	8.31	8.48	7.17	7.81	7.55	7.29	7.54	8.05
Temperature	deg C	9.5	11.5	6.3	10.2	11.6	9.9	9.5	11.1
Specific Conductance	mS/cm	0.978	0.63	0.532	0.826	2.539	1.133	0.76	0.608
Turbidity	NTU	6	29	4	26	18	11	13	26
Redox Potential	mVolt	243.2	227.4	182.2	114.8	101.4	102.9	103.9	106.2
Inorganics									
Aluminum	mg/L	---	0.411	0.0838	0.279	0.165	0.18	0.0383	0.348
Dissolved Aluminum	mg/L	---	0.0199	0.00422J	0.00586J	0.00487J	0.0221	0.01U	0.00953J
Conventionals									
Total Cyanide	mg/L	1.18	0.635	0.005U	0.005U	0.031	0.002J	0.005U	0.005U
WAD Cyanide	mg/L	0.026	0.022	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U
Fluoride	mg/L	19.4	15.1	0.25	0.336	13.2	9.69	0.434	3.56
Sulfate	mg/L	177	64	70.3	232	865	228	287	36.7
PCBs									
Aroclor 1242	µg/L	---	0.065U	0.065U	0.065U	0.065U	0.015J	0.065U	0.065U
Aroclor 1248	µg/L	---	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1254	µg/L	---	0.065U	0.065U	0.065U	0.065U	0.019JP	0.065U	0.065U
Aroclor 1260	µg/L	---	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U

Sample ID Sample Date Parameter ID	Unit	MW-16S-1221 12/17/21	MW-17S-1221 12/16/21	MW-18S-1221 12/17/21	MW-18S-1221D 12/17/21	MW-19S-1221 12/16/21	MW-20-85S-1221 12/14/21	MW-22-85S-1221 12/17/21	MW-23-85S-1221 12/14/21
Field Parameters									
pH	SU	7.81	7.6	7.71	---	7.6	12.4	8.15	7.44
Temperature	deg C	10.4	10.1	9.5	---	11	9.8	9.8	7.9
Specific Conductance	mS/cm	2.226	0.92	1.323	---	0.756	1.583	1.448	0.865
Turbidity	NTU	3	6	2	---	15	43	63	44
Redox Potential	mVolt	99.1	228.4	57.5	---	153.8	-88.6	0.4	89.1
Inorganics									
Aluminum	mg/L	0.00422J	0.0469	0.0571	0.056	0.0274	0.0966	0.383	0.504
Dissolved Aluminum	mg/L	0.01U	0.00579J	0.0545	0.0602	0.00436J	0.01U	0.0103	0.00468J
Conventionals									
Total Cyanide	mg/L	0.068R	0.005U	0.019	0.016	0.005U	0.005U	0.005U	0.005U
Cyanide, Weak Acid Dissociable	mg/L	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U
Fluoride	mg/L	6.92	1.03	25.2	25.1	3.34	0.176	0.286	0.387
Sulfate	mg/L	196	125	296	287	74.2	249	401	356
PCBs									
Aroclor 1242	µg/L	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1248	µg/L	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1254	µg/L	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1260	µg/L	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U

Sample ID Sample Date Parameter ID	Unit	MW-26S-1221 12/17/21	MW-27S-1221 12/16/21	MW-28S-1221 12/17/21	MW-30S-1221 12/14/21	MW-31SR-1221 12/14/21	MW-33S-1221 12/17/21	MW-34S-1221 12/15/21	MW-35SR-1221 12/16/21
Field Parameters									
pH	SU	12.35	7.11	8.29	7.21	7.66	7.59	7.38	7.29
Temperature	deg C	8.1	12.4	11.2	7.9	8.6	9.9	9.6	11.4
Specific Conductance	mS/cm	2.325	7.24	0.93	0.511	0.64	1.762	2.26	1.42
Turbidity	NTU	347	52	13	16	183	33	40	958
Redox Potential	mVolt	-46.11	206.8	6	88.5	67.5	20.4	196.4	187.7
Inorganics									
8.83	mg/L	8.83	1.95	0.0095J	0.626	0.62	---	---	11.6
0.0187	mg/L	0.0187	0.00955J	0.0074J	0.0103	0.00388J	---	---	0.01
Conventionals									
Total Cyanide	mg/L	0.005U	0.0156	2.0R	0.005U	0.011	0.001JR	0.0907	0.005U
Cyanide, Weak Acid Dissociable	mg/L	0.01U	0.01U	0.062	0.01U	0.01U	0.01U	0.01U	0.01U
Fluoride	mg/L	4.05	0.132	13.4	5.72	1.42	---	---	1.17
Sulfate	mg/L	182	278	169	77.1	180	---	---	521
PCBs									
Aroclor 1242	µg/L	0.065U	0.065U	0.065U	0.065U	0.065U	---	---	0.065U
Aroclor 1248	µg/L	0.065U	0.065U	0.065U	0.065U	0.065U	---	---	0.065U
Aroclor 1254	µg/L	0.065U	0.065U	0.065U	0.065U	0.065U	---	---	0.065U
Aroclor 1260	µg/L	0.065U	0.065U	0.065U	0.065U	0.065U	---	---	0.065U

Sample ID Sample Date Parameter ID	Unit	MW-36-1221 12/16/21	MW-37-1221 12/16/21	MW-38-1221 12/16/21	MW-39S-1221 12/14/21	MW-39S-1221D 12/14/21	MW-40S-1221 12/14/21	MW-41-1221 12/16/21	MW-42-1221 12/16/21
Field Parameters									
pH	SU	8.64	7.67	8.29	7.17	---	7.26	7.37	7.93
Temperature	deg C	10.5	9.9	10.1	6.8	---	7.8	9.7	10.4
Specific Conductance	mS/cm	2.219	0.919	0.474	0.584	---	0.751	0.958	2.923
Turbidity	NTU	1000	1000	1000	36	---	9	366	1000
Redox Potential	mVolt	156.2	174.2	155.1	-27.7	---	77	202.4	183.6
Inorganics									
Aluminum	mg/L	50.2	34.3	34.6	0.798	0.737	0.00846J	2.95	69.6
Dissolved Aluminum	mg/L	0.148	0.0155	0.0916	0.00416J	0.01U	0.01U	0.00844J	0.0216
Conventionals									
Total Cyanide	mg/L	0.005U	0.005U	0.005U	0.019J	0.026J	0.097	0.005U	0.209
Cyanide, Weak Acid Dissociable	mg/L	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U
Fluoride	mg/L	2.08	0.32	0.513	2.72	2.73	0.198	0.218	32.8
Sulfate	mg/L	371	308	190	118	119	53.9	309	1160
PCBs									
Aroclor 1242	µg/L	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1248	µg/L	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1254	µg/L	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1260	µg/L	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U

Sample ID Sample Date Parameter ID	Unit	MW-43-1221 12/17/21	MW-44-1221 12/17/21	MW-45-1221 12/14/21	PZ-44-1221 12/17/21	PZ-45-1221 12/17/21	PZ-46-1221 12/17/21	SLPWETE-1221 12/14/21	SLPWETW-1221 12/14/21
Field Parameters									
pH	SU	7.04	7.16	7.05	7.13	7.1	7.42	7.67	6.71
Temperature	deg C	9.7	10.4	7	6.6	6.5	6.3	2.7	2.8
Specific Conductance	mS/cm	0.79	0.731	1.247	2.066	1.824	1.505	0.2312	0.21
Turbidity	NTU	800	18	9	46	155	1000	9	13
Redox Potential	mVolt	92	84.9	65.3	-41.5	-82	119.2	95.1	-66.5
Inorganics									
Aluminum	mg/L	28.8	0.0291	0.0704	1.13	1.38	---	0.0566	0.223
Dissolved Aluminum	mg/L	0.00417J	0.01U	0.00363J	0.00556J	0.01U	---	0.00621J	0.0208
Conventionals									
Total Cyanide	mg/L	0.007R	0.005U	0.451	0.005U	0.004JR	---	0.005U	0.005U
Cyanide, Weak Acid Dissociable	mg/L	0.01U	0.01U	0.014	0.01U	0.01U	---	0.01U	0.01U
Fluoride	mg/L	0.271	0.421	0.401	3.92	1.24	---	2.04	0.701
Sulfate	mg/L	109	85.6	548	787	1170	---	8.33	4.96
PCBs									
Aroclor 1242	µg/L	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1248	µg/L	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1254	µg/L	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U
Aroclor 1260	µg/L	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U	0.065U

Key:
U = Nondetect
J = Estimated
--- = Not Analyzed
P = The relative percent difference between the results for the two columns exceeds the method-specified criteria
R = Rejected

Sample ID	Sample Date	VTSR[1]	Days	Total Cyanide		Weak Acid Dissociable Cyanide		Fluoride		Sulfate	
				Target - 12 Days VTSR to Analysis	Days	Target - 12 Days VTSR to Analysis	Days	Target - 26 Days VTSR to Analysis	Days	Target - 26 Days VTSR to Analysis	Days
FDRAIN-1221	12/15/21	12/17/21	2	12/22/21	5	12/23/21	6	12/28/21	11	12/28/21	11
MW-1213-1221FBW	12/15/21	12/17/21	2	12/22/21	5	12/23/21	6	12/28/21	11	12/28/21	11
MW-34S-1221	12/15/21	12/17/21	2	12/22/21	5	12/23/21	6	---	---	---	---

Table 2
East Plant
Summary of Sample Hold Times

Sample ID	Sample Date	VTSR[1]	Days	Aluminum		Dissolved Aluminum		PCBs			
				Target - 180 Days VTSR to Analysis	Days	Target - 180 Days VTSR to Analysis	Days	Target - 365 Days from VTSR to Extraction	Days	Target - 40 Days from Extraction to Analysis	Days
FDRAIN-1221	12/15/21	12/17/21	2	---	---		---		---		---
MW-1213-1221FBW	12/15/21	12/17/21	2	---	---	---	---	---	---	---	---
MW-34S-1221	12/15/21	12/17/21	2	---	---	---	---	---	---	---	---

Key:
1. VTSR = Verified time of sample receipt; date shown is the VTSR at ALS Environmental
--- = Not sampled

Sample ID Sample Date Parameter ID	Unit	MW-1212-1221FBW 12/14/21	MW-1213-1221FBW 12/15/21	MW-1214-1221FBW 12/16/21	MW-1215-1221FBW 12/17/21
Inorganics					
Aluminum	mg/L	0.01U	---	0.01U	0.01U
Dissolved Aluminum	mg/L	0.00663J	---	0.01U	0.01U
Conventionals					
Total Cyanide	mg/L	0.005U	0.005U	0.005U	0.005U
Cyanide, Weak Acid Dissociable	mg/L	0.01U	0.01U	0.01U	0.01U
Fluoride	mg/L	0.05U	0.05U	0.05U	0.05U
Sulfate	mg/L	0.852J	1U	1U	1U
PCBs					
Aroclor 1242	µg/L	0.065U	---	0.065U	0.065U
Aroclor 1248	µg/L	0.065U	---	0.065U	0.065U
Aroclor 1254	µg/L	0.065U	---	0.065U	0.065U
Aroclor 1260	µg/L	0.065U	---	0.065U	0.065U

Key:
U = Nondetect
J = Estimated

Sample ID Sample Location Sample Date Parameter ID	Unit	Original Sample MW-18S-1221 MW-18S 12/17/21	Duplicate Sample MW-1211-1221BD MW-18S 12/17/21	Relative Percent Difference[1,2] %	Original Sample MW-39S-1221 MW-39S 12/14/21	Duplicate Sample MW-1210-1221BD MW-39S 12/14/21	Relative Percent Difference[1,2] %
Inorganics							
Aluminum	mg/L	0.0571	0.056	1.9	0.798	0.737	7.9
Dissolved Aluminum	mg/L	0.0545	0.0602	9.9	0.00416J	0.01U	--[3]
Conventionals							
Total Cyanide	mg/L	0.019	0.016	17.1	0.019J	0.026J	31.1
Cyanide, Weak Acid Dissociable	mg/L	0.01U	0.01U	---	0.01U	0.01U	--
Fluoride	mg/L	25.2	25.1	0.4	2.72	2.73	0.4
Sulfate	mg/L	296	287	3.1	118	119	0.8
PCBs							
Aroclor 1242	µg/L	0.065U	0.065U	--	0.065U	0.065U	--
Aroclor 1248	µg/L	0.065U	0.065U	--	0.065U	0.065U	--
Aroclor 1254	µg/L	0.065U	0.065U	--	0.065U	0.065U	--
Aroclor 1260	µg/L	0.065U	0.065U	--	0.065U	0.065U	--

Notes:

1. Precision is evaluated by calculating the relative percent difference (RPD) using the following formula:

$$| 2 * (X1 - X2) / (X1 + X2) * 100 |$$

where X1 is the original sample value and X2 is the duplicate sample value.

2. --- = RPD not calculated for nondetected parameters.

3. When one or both results are less than five times the CRQL, the absolute difference is used to determine qualification.

Key:

U = Nondetect

J = Estimated

--- = Not Analyzed

Table 4
East Plant
Summary of Field Duplicate Samples

Appendix F Institutional and Engineering Controls Certification Form

Enclosure 2

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form

Site Details **Box 1**

Site No. 645009

Site Name Reynolds Metals Company

Site Address: Route 37 Zip Code: 13662
City/Town: Massena
County: St Lawrence
Site Acreage: 112.000

Reporting Period: April 17, 2021 to April 17, 2022

	YES	NO
1. Is the information above correct?	☑	☐
If NO, include handwritten above or on a separate sheet.		
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?	☐	☑
3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?	☐	☑
4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?	☐	☑
If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.		
5. Is the site currently undergoing development?	☐	☑

Box 2

	YES	NO
6. Is the current site use consistent with the use(s) listed below? Industrial	☑	☐
7. Are all ICs in place and functioning as designed?	☑	☐

IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Signature of Owner, Remedial Party or Designated Representative Date

SITE NO. 645009 Box 3

Description of Institutional Controls

Parcel	Owner	Institutional Control
6.003-1-1	REYNOLDS METALS COMPANY	

IC/EC controls include:

RI/FS Consent order executed 9/8/1987, RD/RA Consent order Executed 3/1/1993, Decision Documents dated 1/22/1992, 6/27/1995, and 2/5/1999.

Pursuant to the orders on consent and the decision documents the following engineering controls are required at the Reynolds Metals Company Site.

Black Mud Pond: Multi layer cover system, leachate collection/groundwater containment system, surface water runoff controls, and fencing/access control.

Industrial Landfill: Multi layer cover system, leachate collection/groundwater containment system, and surface water runoff controls, and fencing/access control.

North Yard: Cover system, groundwater collection system, and surface water runoff controls.

Potliner Storage Pad: Cover system and surface water runoff controls.

Miscellaneous Areas - Surface water runoff controls.

Wetlands and site-wide: Longterm groundwater monitoring, SPDES surface water/process water discharge monitoring, and fencing/access control.

The Consultant will certify that all controls are in place and/if any changes to current conditions have been conducted. In addition, the consultant will verify that all deed restrictions are in place and no change of use of the site has occurred.

Box 4

Description of Engineering Controls

Parcel	Engineering Control
6.003-1-1	Groundwater Treatment System
	Cover System
	Groundwater Containment
	Leachate Collection
	Fencing/Access Control

Box 5

Periodic Review Report (PRR) Certification Statements

1. I certify by checking "YES" below that:

   a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the Engineering Control certification;

   b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and compete.

YES	NO
☑	☐

2. For each Engineering control listed in Box 4, I certify by checking "YES" below that all of the following statements are true:

   (a) The Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

   (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

   (c) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control;

   (d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

   (e) If a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

YES	NO
☑	☐

IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Signature of Owner, Remedial Party or Designated Representative

Date

IC CERTIFICATIONS
SITE NO. 645009

Box 6

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 1,2, and 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Robyn L. Gross (print name) at 201 Isabella Street, Pittsburgh, PA 15212 (print business address),

am certifying as Director, Asset Planning & Mgmt Americas/Owner (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Signature of Owner, Remedial Party, or Designated Representative Rendering Certification — Date: 6/8/2022

EC CERTIFICATIONS

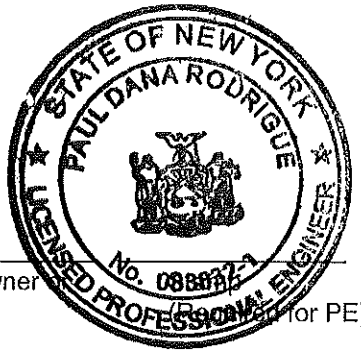
Box 7

Professional Engineer Signature

I certify that all information in Boxes 4 and 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I PAUL RODRIGUE at 4 HIGHLAND RD, MASSENA, NY 13662
print name print business address

am certifying as a Professional Engineer for the Owner.
(Owner or Remedial Party)



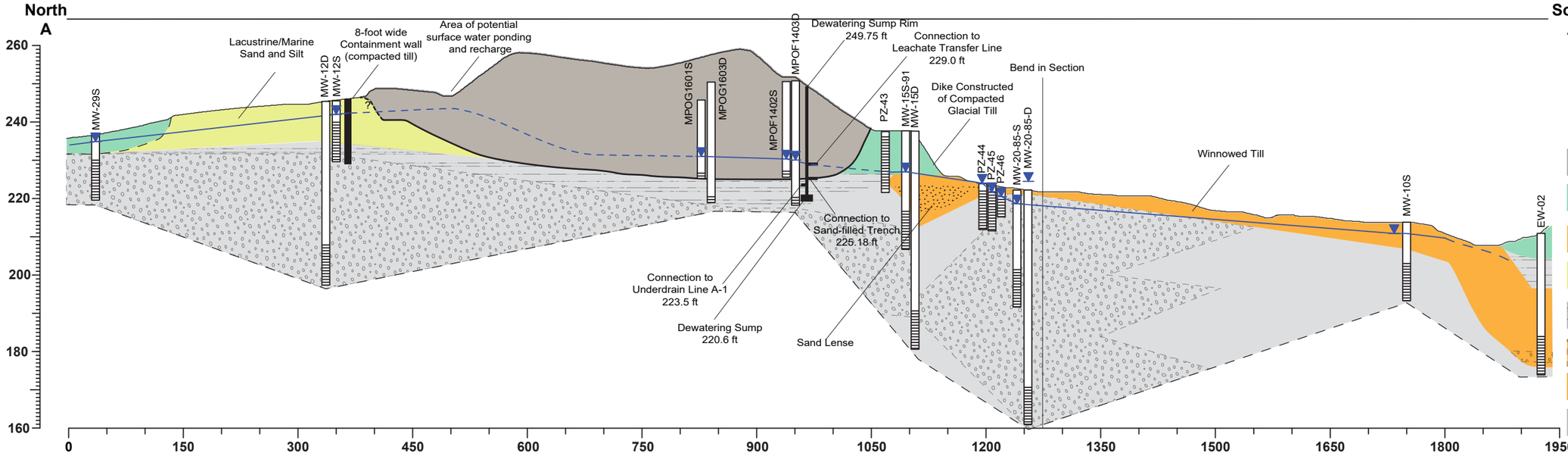
Paul Rodrigue
Signature of Professional Engineer, for the Owner or Remedial Party, Rendering Certification (Required for PE)

June 9, 2022
Date

Appendix G Hydrogeologic Cross Sections

North
A

South
A'



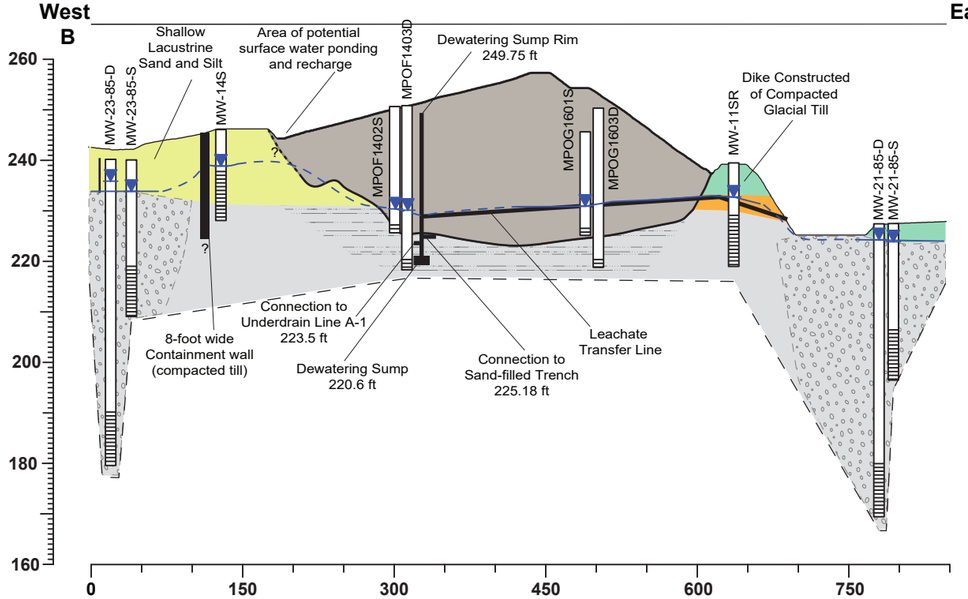
LEGEND

- Well Casing
- Screened Interval
- Static Water Level (August/ September 2019)

- Landfill Refuse.
- Fill.
- Fluvial or Lacustrine Silt & Sand - Olive gray/brown sand/ silt with minor gravel and occaisional cobbles.
- Lacustrine/Marine Silt & Sand- Brown/orange to brown sand or silt, typically clayey, occaisional sand and gravel intervals.
- Lacustrine Clay - Typically brownish gray plastic clay with trace silt and fine sand, organic material is common.
- Till - Cobbles and/or boulders encountered in specified matrix.
- Winnowed Till - Sand/Sandy, often with red staining, silt/silty in places, variable proportions of gravel, cobbles, and boulders.
- Till - Grey clay, typically silty, ± cobbles, gravel, and fine sand.

West
B

East
B'





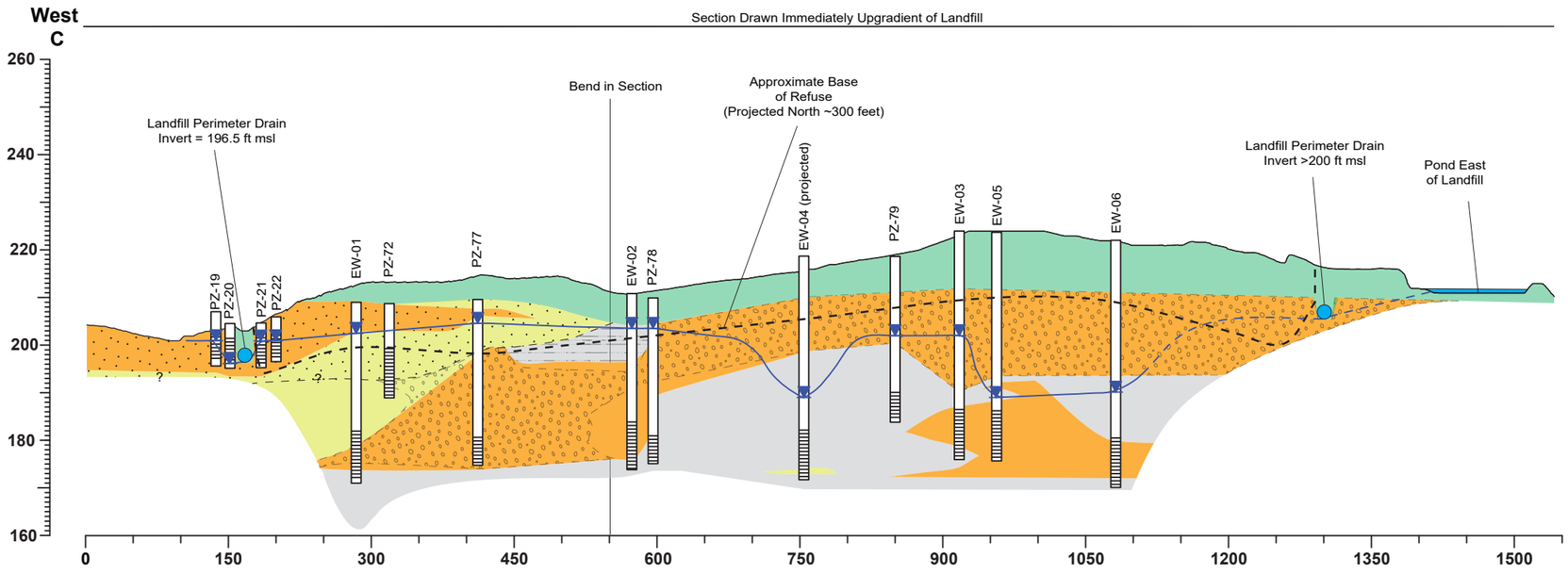
Vertical Scale
Scale in Feet
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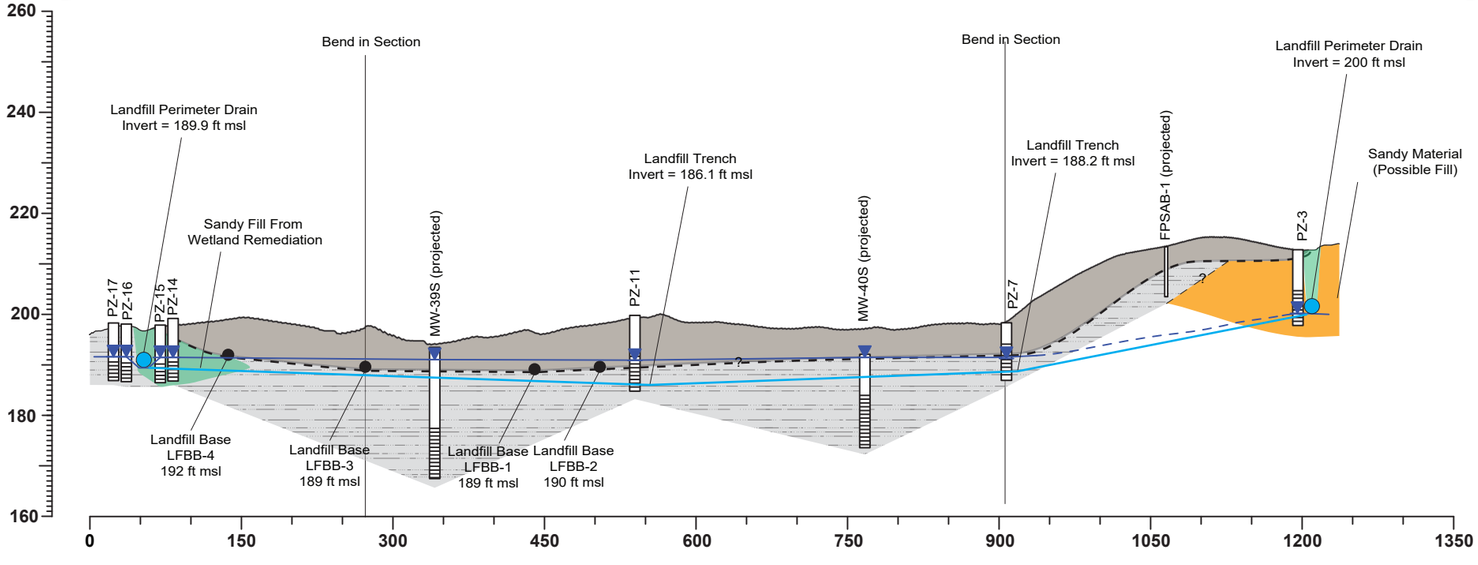
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Horizontal Scale
Scale in Feet

5X Vertical Exaggeration

EHS Support	Reynolds Metals Company LLC/St. Lawrence Reduction Plant Massena, New York	Black Mud Pond Cross Sections A-A' and B-B' CSM Update	Appendix G Figure 1

Developed by Andrew Fowler, EHS Support LLC -3 June 2021





LEGEND

- Well Casing
- Screened Interval
- Static Water Level (August/ September 2019)
- Landfill Trench Invert Elevation

See E-E' for cross section lcoations.

- Soil Boring

- Landfill Refuse.
- Fill.
- Fluvial or Lacustrine Silt & Sand - Olive gray/brown sand/ silt with minor gravel and occaisional cobbles.
- Lacustrine/Marine Silt & Sand- Brown/orange to brown sand or silt, typically clayey, occaisional sand and gravel intervals.
- Lacustrine Clay - Typically brownish gray plastic clay with trace silt and fine sand, organic material is common.
- Till - Cobbles and/or boulders encountered in specified matrix.
- Winnowed Till - Sand/Sandy, often with red staining, silt/silty in places, variable proportions of gravel, cobbles, and boulders.
- Till - Grey clay, typically silty, ± cobbles, gravel, and fine sand.

Vertical Scale
Scale in Feet
0
30

150 0 150
Horizontal Scale
Scale in Feet

5X Vertical Exaggeration

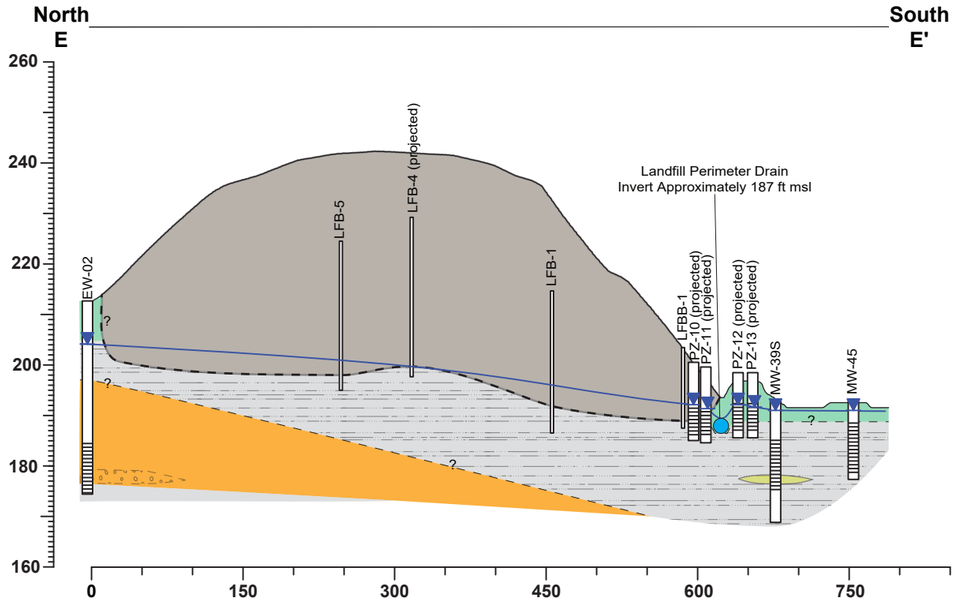
Developed by Andrew Fowler, EHS Support LLC -3 June 2021

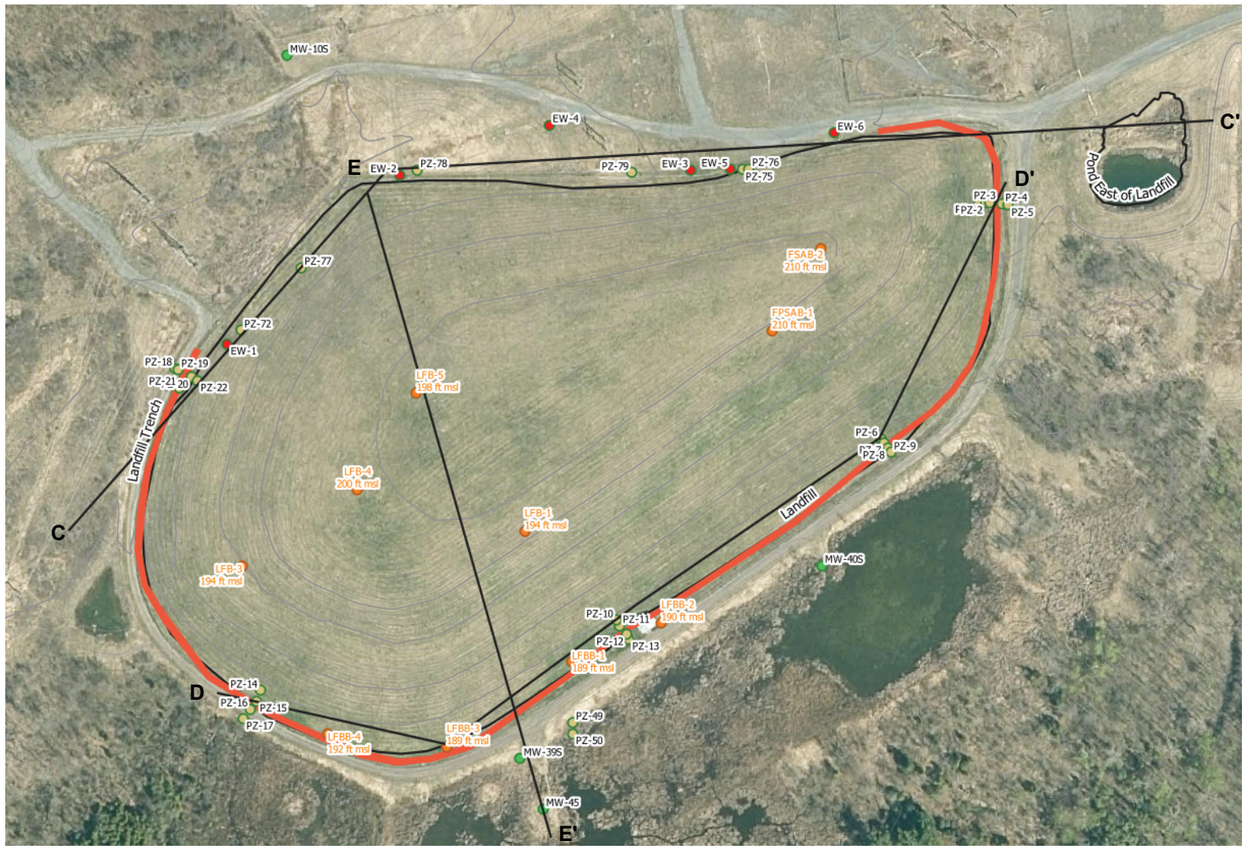
EHS Support

Reynolds Metals Company LLC/St. Lawrence Reduction Plant
Massena, New York

Industrial Landfill Cross Sections C-C' and D-D'
CSM Update

Appendix G
Figure 2





LEGEND

- Well Casing
- Screened Interval
- Static Water Level (August/ September 2019)
- Soil Boring

- Landfill Refuse.
- Fill.
- Fluvial or Lacustrine Silt & Sand - Olive gray/brown sand/ silt with minor gravel and occaisional cobbles.
- Lacustrine/Marine Silt & Sand- Brown/orange to brown sand or silt, typically clayey, occaisional sand and gravel intervals.
- Lacustrine Clay - Typically brownish gray plastic clay with trace silt and fine sand, organic material is common.
- Till - Cobbles and/or boulders encountered in specified matrix.
- Winnowed Till - Sand/Sandy, often with red staining, silt/silty in places, variable proportions of gravel, cobbles, and boulders.
- Till - Grey clay, typically silty, ± cobbles, gravel, and fine sand.

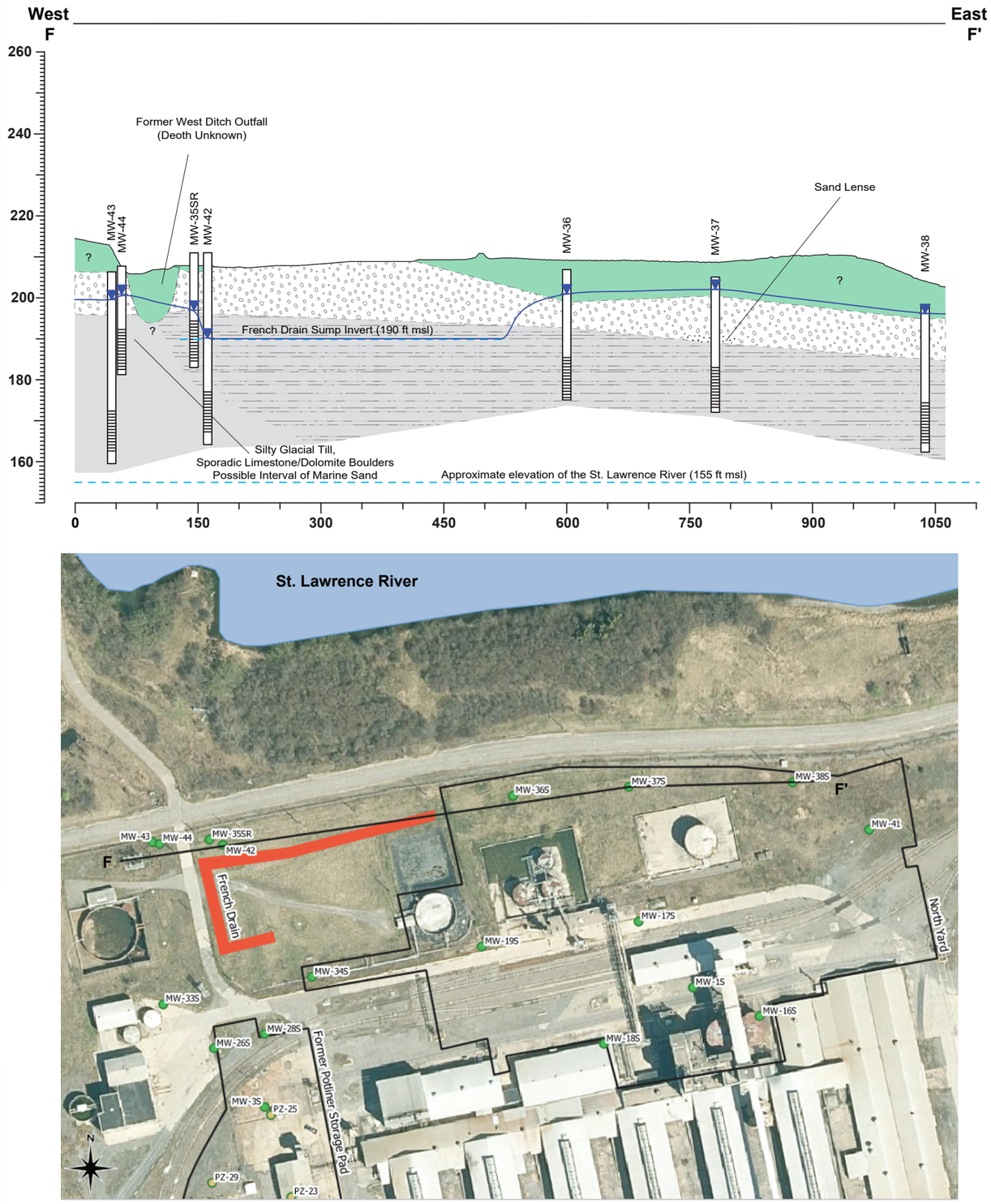
Vertical Scale
Scale in Feet
0
30

150 0 150
Horizontal Scale
Scale in Feet

5X Vertical Exaggeration

EHS Support	Reynolds Metals Company LLC/St. Lawrence Reduction Plant Massena, New York	Industrial Landfill Cross Section E-E' CSM Update	Appendix G Figure 3

Developed by Andrew Fowler, EHS Support LLC -3 June 2021



LEGEND

- Well Casing
- Screened Interval
- Static Water Level (August/ September 2019)
- Landfill Trench Invert Elevation

See E-E' for cross section lcoations.

- Soil Boring

- Landfill Refuse.
- Fill.
- Fluvial Cobbles, typically with little to trace gravell, silt, sand, clay.
- Lacustrine/Marine Silt & Sand- Brown/orange to brown sand or silt, typically clayey, occaisional sand and gravel intervals.
- Lacustrine Clay - Typically brownish gray plastic clay with trace silt and fine sand, organic material is common.
- Till - Cobbles and/or boulders encountered in specified matrix.
- Winnowed Till - Sand/Sandy, often with red staining, silt/silty in places, variable proportions of gravel, cobbles, and boulders.
- Till - Grey clay, typically silty, ± cobbles, gravel, and fine sand.

Vertical Scale
Scale in Feet
0
30

150 0 150
Horizontal Scale
Scale in Feet

5X Vertical Exaggeration

EHS Support	Reynolds Metals Company LLC/St. Lawrence Reduction Plant Massena, New York	North Yard Cross Section F-F' CSM Update	Appendix G Figure 4

Developed by Andrew Fowler, EHS Support LLC -3 June 2021

Appendix H Summary of Historical Groundwater Flow Gradients and Velocities

Apendix H
Calculated Groundwater Flow Velocities
to the 2021 Periodic Review Report for the Reynolds Metals Company LLC
Massena East, Massena, New York
Alcoa Corporation

Well Pair	Area	Unit	Groundwater Elevation December 2020 (ft msl)	Distance (feet)	Groundwater Gradient (feet/feet)	Hydraulic Conductivity (cm/sec)[1]	Flow Velocity (ft/year)[2]	Flow Time (Years)	Notes
Horizontal Flow Velocity						**Kh**			
MW-12S	BMP	Marine/Lacustrine Silty Sand	243.66	555	0.041	1.00E-03	169	3.3	NA
MW-27S	PSP		221.06						
MW-19S	NY	Fill	214.43	875	0.005	4.70E-01	9651	0.1	NA
MW-16S	NY		210.09						
MW-22-85S	BMP	Gray Glacial Till	240.56	1015	0.039	1.00E-06	0	6,322	NA
MW-43	NY		201.2						
MW-15S-87	BMP	Gray Glacial Till	237.05	670	0.038	3.20E-05	5	133	NA
MW-10S	ILF		211.53						
MW-10S	ILF	Lacustrine Clay	211.53	875	0.023	2.40E-07	0.02	39,115	NA
MW-39S	ILF		191.83						
Vertical Flow Velocity						**Kv**			
MW-12S	BMP	Marine/Lacustrine Silty Sand	NA	10	-0.168	1.00E-07	-0.07	144	Mean Glacial Till K
MW-12D		Gray Glacial Till							
MW-13S	BMP	Marine/Lacustrine Silty Sand	NA	10	-0.026	1.30E-05	-1.40	7	MW-13D K
MW-13D		Gray Glacial Till							
MW-15S-87	BMP	Gray Glacial Till	NA	10	-0.244	1.00E-07	-0.10	99	Mean Glacial Till K
MW-15D		Gray Glacial Till							
MW-15S-91	BMP	Gray Glacial Till	NA	10	-0.044	1.00E-07	-0.02	549	Mean Glacial Till K
MW-15D		Gray Glacial Till							
MW-20-85S	BMP	Gray Glacial Till	NA	10	-0.178	7.00E-08	-0.05	194	MW-20-85D K
MW-20-85D		Gray Glacial Till							
MW-21-85S	BMP	Gray Glacial Till	NA	10	-0.001	5.00E-08	0.00	48,309	MW-21-85D K
MW-21-85D		Gray Glacial Till							
MW-22-85S	BMP	Gray Glacial Till	NA	10	-0.100	1.00E-06	-0.41	24	MW-22-85D K
MW-22-85D		Gray Glacial Till							
MW-23-85S	BMP	Gray Glacial Till	NA	10	0.011	2.00E-08	0.00	10,979	MW-23-85D K
MW-23-85D		Gray Glacial Till							
MW-45	ILF	Lacustrine Clay	NA	10	-0.546	2.40E-08	-0.05	184	Median Lacustrine Clay K
MW-47		Lacustrine Clay							
MW-43	NY	Lacustrine Clay	NA	10	-0.023	2.40E-08	0.00	4,376	Median Lacustrine Clay K
MW-44		Lacustrine Clay							
MW-35SR	NY	Lacustrine Clay	NA	10	-0.401	2.40E-08	-0.04	251	Median Lacustrine Clay K
MW-42		Lacustrine Clay							

Apendix H
Calculated Groundwater Flow Velocities
to the 2021 Periodic Review Report for the Reynolds Metals Company LLC
Massena East, Massena, New York
Alcoa Corporation

Notes:

1. Hydraulic conductivity equivalent to coefficient of permeability.
2. Flow velocity = seepage velocity, calcuated from hydraulic conductivity × gradient / effective porosity of 0.25

BMP = Black Mud Pond
cm/sec = centimeters per second (multiplied by 1035000 to get ft/year)
ft = feet
ILF = Industrial Landfill
K = Hydraulic Conductivity
Kh = Horizontal hydraulic conductivity measured from slug tests
Kv = Vertical hydraulic conductivity estimated as 1/10th horizontal hydraulic conductivity
msl = mean sea level
NA= not applicable
NY = North Yard
PSP = Potliner Storage Pad

Appendix I Sequential Filtration Study Results

Supplemental Groundwater and Surface Water Analyses

Former Reynolds Metals Plant
Massena, New York

Prepared for:

Alcoa Corporation

Prepared by:

EHS Support™

June 2022

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2.2 Sequential Filtration 2
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Attachment 2 Sequential Filtration Laboratory Procedures SOP
Attachment 3 Laboratory Reports
Attachment 4 Alcoa Massena East Sequential Filtration Photograph Log
Attachment 5 Method 300.0 Determination of Inorganic Anions by Ion Chromatography

Acronyms

µg/L	micrograms per liter
µm	micron
DQO	data quality objective
GWB	Geochemists' Workbench
IC	ion chromatography
ILF	Industrial Landfill
ISE	ion selective electrode
mg/L	milligrams per liter
mL	milliliters
NTU	nephelometric turbidity units
ORP	oxidation-reduction potential
PES	polyethersulfone
ppm	parts per million
SI	saturation index
SM	Standard Method
SOP	standard operating procedure
TISAB	total ionic strength adjustment buffer
TSS	total suspended solids
USEPA	United States Environmental Protection Agency

Trademarks, trade names, company, or product names referenced herein are used for identification purposes only and are the property of their respective owners.

1 Introduction

EHS Support LLC ("EHS Support") has prepared this report to document the results and interpretations from supplemental analyses of groundwater and surface water at the former Reynolds Metals Company, LLC plant in Massena, New York ("Site").

Several unfiltered samples were collected between June 29 and July 1, 2021, for cation and anion analyses to refine the conceptual Site understanding of the groundwater flow pathways. It was recognized that suspended sediment and clay particles were elevated in several samples due to the agitative groundwater sampling practice used at the Site (i.e., use of a Waterra® pump). This result indicated the following possible biases on historical analytical results that warranted further attention:

- The total aluminum reflects aluminosilicate clay particles, which are digested by the nitric acid preservative required for the United States Environmental Protection Agency (USEPA) Method 6020B, is a sampling artifact. Historical results are not representative of the true groundwater conditions.
- Contributions and/or geochemical effects of carbonate Site lithology have biased historical fluoride results, given that carbonate ions are a direct interference with fluoride in the analytical method historically used (USEPA Method 300.0 by ion chromatography).
- Fluorapatite is supersaturated in groundwater samples, potentially reflecting a particulate fluoride source.
- Cyanide sorbed to clay particles may be a source of high bias in historical cyanide results.

Additional groundwater samples were collected between November 29 and December 2, 2021, to address these issues and opportunistically address additional data quality objectives (DQOs):

1. Understand the fractionation of groundwater aluminum and fluoride between particulate, colloidal, and "dissolved" phases through a focused sequential filtration program.
2. Identify whether high or low bias on historically reported concentrations is caused by particulate material interferences on the different analytical methods that use disparate preparation techniques.
3. Identify the fractionation of groundwater total cyanide between particulate, colloidal, and "dissolved" phases through a focused sequential filtration program.
4. Collect measurements of groundwater quality to inform the basis of dilution-attenuation arguments of key constituents in the vicinity of the French drain and obtain surface water quality measurements in stormwater ponds and wetlands in the vicinity of the Closed Industrial Landfill.
5. Sample water compositional end-members from the wetland, landfill interior, and landfill perimeter drain to inform a mass balance calculation for determining the efficacy of the existing drain.

The results of this study are provided in this *Supplemental Groundwater and Surface Water Analyses* report. The samples collected and the parameters analyzed for the sequential filtration study are listed in **Table 1**, and the comprehensive geochemical parameters are in **Table 2.** Analytical results from the sequential filtration study are listed in **Table 3**, and the comprehensive geochemical parameters are in **Table 4**. Field measured parameters are provided in **Table 5**. Discrepancies in sampling methodologies employed during the sequential filtration study and typical groundwater sampling practices are listed in **Table 6**.

2 Methods

2.1 Sampling

CDM Smith collected samples for sequential filtration between November 29 and December 2, 2021. Field Sampling sheets are provided in **Attachment 1**. June and July samples were collected contemporaneously with routine samples, and the field sampling sheets will be provided in the upcoming 2021 Annual Sampling Report. Sample locations were selected at wells that had fluoride or cyanide concentrations above regulatory criteria in December 2020 and/or were located to best address the DQOs listed in **Section 1**. Samples were provided to EHS Support in multiple 1-liter amber glass bottles. Glass bottles were sequentially filled from each location as groundwater purging progressed. When wells went dry, additional sampling volumes were collected following recovery after an unspecified period of time.

Samples for fluoride were intended to be collected in laboratory-supplied plastic 1-liter containers. However, samples were provided to EHS Support in 1-liter, amber-colored borosilicate containers. To verify if the use of amber glass affected the fluoride concentrations, an undiluted 10 parts per million (ppm) total ionic strength adjustment buffer (TISAB) standard from Thermo-Scientific was submitted to the laboratory. The standard solution was poured into clean amber glass bottles supplied by Alpha Analytical and conditioned overnight on ice before being decanted into sample bottles for ion chromatography (IC) and ion selective electrode (ISE) analysis. Samples were returned to Alpha Analytical via courier and were received by the laboratory on December 15, 2021. Alpha Analytical laboratories performed analyses by USEPA Method 300.0 (IC) and subcontracted analyses to Eurofins Lancaster to perform fluoride analyses by Standard Method (SM) 4500 F-C (ISE).

2.2 Sequential Filtration

The sample locations and filtered fractions submitted for analysis are listed in **Table 1**. Samples were transported to the George D. Aiken Forestry Laboratory at the University of Vermont, where an unfiltered sample split was retained and the rest of the sample volume was sequentially filtered by EHS Support. Samples were prepared using 0.45-micron (µm), 0.22-µm, and 0.10-µm polyethersulfone (PES) filters under vacuum induced by a hand pump. Samples collected on November 30, 2021 were filtered on December 1, 2021, and samples collected on December 1, 2021 were filtered on December 2, 2021 following the procedures outlined in the Sequential Filtration Laboratory Procedures standard operating procedure (SOP) (**Attachment 2**). Filtered samples were kept on ice in a secure location until laboratory courier pick up on December 3, 2021.

Unfiltered and filtered sample fractions were submitted to Alpha Analytical lab at Eight Walkup Drive in Westborough, Massachusetts and analyzed for the following parameters:

- Sulfate by USEPA Method 300.0
- Fluoride by USEPA Method 300.0
- Chloride by USEPA Method 300.0

Unfiltered sample fractions were also analyzed for fluoride by ISE using SM 4500 F-B (distillation) followed by SM 4500 F-C (ISE analysis). Alpha Analytical subcontracted the ISE analysis to Eurofins Lancaster Laboratories. Unfiltered fractions for SM 4500 F-C analysis with and without distillation from wells MW-28S and MW-42 were submitted directly by CDM Smith to the ALS laboratory in Rochester,

New York, which subcontracted analysis to their Kelso, Washington laboratory. The objective of the ISE analyses was to identify potential high or low bias on fluoride results due to the sample matrix following sample transport, laboratory preparation, or during analysis.

Aluminum and cyanide were also analyzed in groundwater samples. Aluminum samples were prepared using a 0.45-µm filter and analyzed by USEPA Method 6020B. A sufficient sample was available from MW-18S to allow for sequential filtration using 0.20-µm and 0.10-µm filters. Results were compared to the range of total (unfiltered) aluminum results from 2017 onward.

Cyanide was analyzed at the North Yard locations where total cyanide in groundwater exceeded surface water criteria in June and July 2021. Cyanide was analyzed by method 4500-CN-E.

Laboratory analytical results are provided in **Attachment 3.**

2.3 Comprehensive Geochemical Analysis

CDM Smith collected samples for geochemical analysis between June 29 and July 1, 2021, and between November 29 and December 2, 2021. Samples collected in June and July were unfiltered. Samples collected in November and December were filtered in the field using 0.45-µm PES filters to minimize particle entrainment into samples. Sample locations were selected to address the DQOs in **Section 1**.

Samples for comprehensive geochemical analysis were analyzed for the following parameters:

- Field parameters: pH, oxidation-reduction potential (ORP), temperature, specific conductivity, and turbidity.
- Cations by USEPA Method 200.8: (sodium, calcium, magnesium, and potassium) – 250 milliliters (mL) nitric acid preserved.
- Anions by USEPA Method 300.0: (sulfate, chloride, nitrate, phosphate, and fluoride) – 250 mL unpreserved.
- Phosphate by SM 4500 P – 250 mL sulfuric acid preserved.
- Alkalinity (total and bicarbonate) as calcium carbonate by SM 2320 B – 250 mL unpreserved and no headspace.
- Total suspended solids (TSS) by SM 2540 D – 950 mL unpreserved.

Sample locations and sample fractions submitted for analysis are listed in **Table 2**. Analytical results are presented on **Table 3**.

3 Results

3.1 Charge Balance Assessment

Sampling locations are shown on **Figure 1**. Six unfiltered cation/anion samples from June and July 2021 show high (greater than ± 10 percent) anion/cation charge imbalance, whereas one filtered sample from November 2021 had greater than ± 10 percent charge imbalance (**Table 4** and **Figure 2**). A greater than ± 10 percent charge imbalance is generally considered a flag that warrants assessment as to the cause or source of the imbalance.

As shown in **Figure 2,** charge imbalance for the June/July 2021 samples is primarily caused by a deficit of anions and excess cations (excess positive charge). Only sample MW-14S (-13.45 percent) has a negative charge imbalance that exceeds 10 percent. The positive charge imbalance indicates that clay particles (aluminosilicate minerals) were digested following sample collection by the nitric acid used to preserve the cation sample fraction, resulting in a high positive cation/anion charge imbalance (as documented herein). This assertion is confirmed by excess charge balance error corresponding to the elevated total suspended sediment measured in the samples (**Figure 3-1**).

Charge imbalance in the November/December results exceeded 10 percent for the surface water sample downgradient of the industrial landfill from Cell-3. The cause of the charge imbalance is likely due to the presence of sulfide in the suboxic wetland sample, which biased the anion results (low as it was not analyzed and accounted for. This was compounded by the overall low concentrations resulting in the results being disproportionately affected by the absence of sulfide data. This sample is deemed appropriate for the DQO of assessing mass balance calculations.

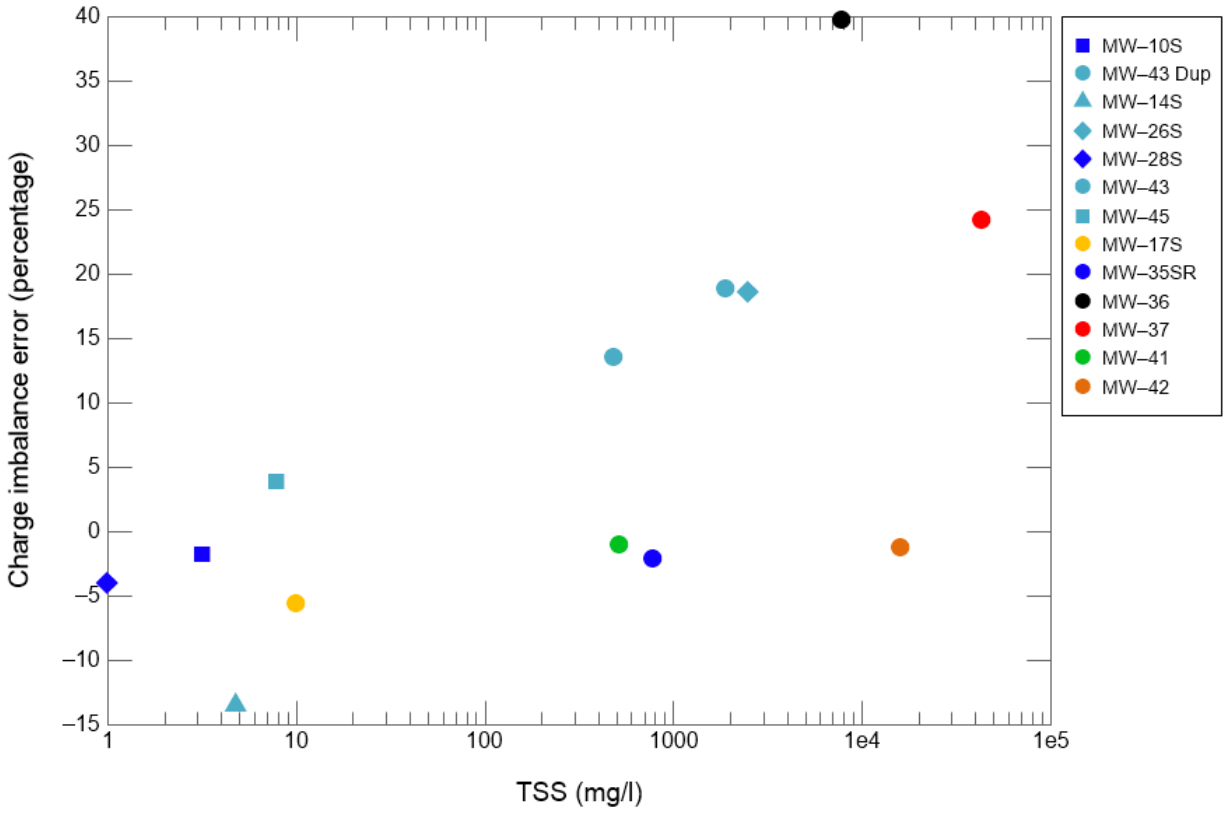


Figure 3-1 June/July 2021 charge balance error relation to total suspended sediment

3.2 Aluminum

There are no Groundwater Class GA standards for aluminum, however, there is a 100 micrograms per liter (µg/L) ionic aluminum standard for protection of aquatic life from chronic effects (fish propagation in freshwaters). A combination of unfiltered (total aluminum) and 0.45-µm filtered (dissolved aluminum) groundwater samples have historically been collected at the Site. Groundwater field parameters from the additional sampling are provided on **Table 5**.

Historical turbidity measurements from Site wells are provided in **Figure 3-2** and show elevated values over the historical record, frequently exceeding the range of most meters (typically 1000 nephelometric turbidity units [NTU]). TSS measurements in samples from June and November 2021 confirm the elevated turbidity is caused by suspended sediment particles (**Table 4** and **Figure 3-1**). Particulate aluminosilicates digested by the nitric acid preservative used for analysis by USEPA Method 6020B is the cause of the historical total aluminum detections. The following lines of evidence confirm that historical total aluminum results are not representative of ionic aluminum in groundwater:

1. Excess positive charge balance on unfiltered cation/anion results compared to excellent charge balance on filtered cation/anion results demonstrates that particulate aluminosilicates are digested by the acid preservative between the field and the laboratory (**Figure 3-1**).
2. Groundwater samples have historically elevated turbidity (**Figure 3-2**) from suspended sediment particles that provide a source of aluminum (**Table 4**).
3. Dissolved (0.45-µm filtered) aluminum results are always lower than total (unfiltered) aluminum results (**Figure 3-3**).

4. Geochemical modeling shows that historical total aluminum results are not representative of mobile (dissolved) aluminum at Site pH conditions (**Figure 3-4**).
5. Photographs of samples filtered in the November/December additional sampling event show high levels of sediment in several samples (**Attachment 4**).

Given there are no Class GA standards for aluminum in groundwater and the historical total aluminum results reflect sampling causes, aluminum concentration trends and continued monitoring in groundwater is warranted at the Site.

A detailed description of these five lines of evidence is provided in **Section 3.2.1** and **Section 3.2.2**.

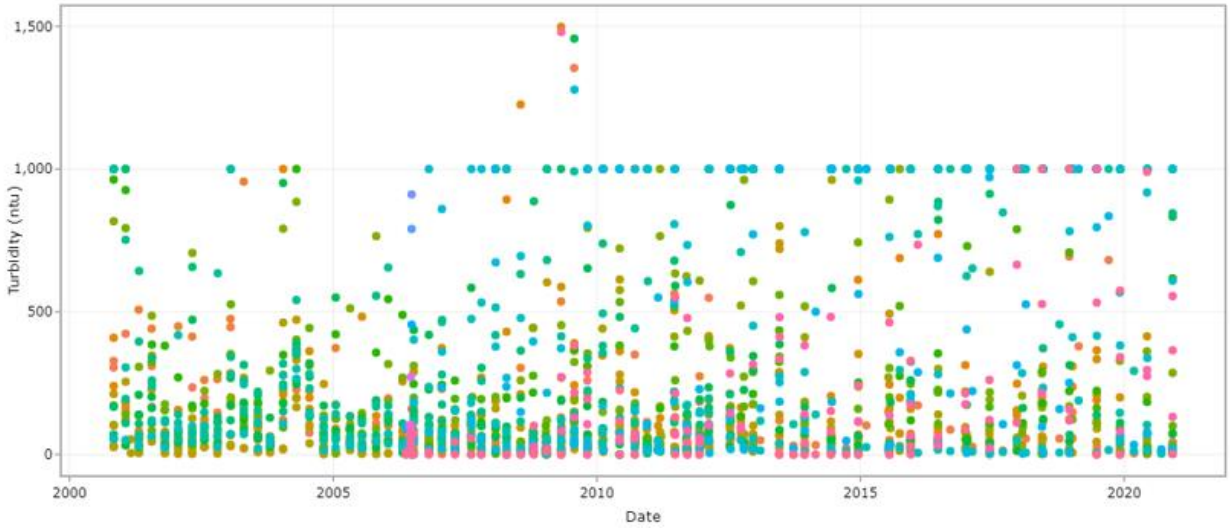


Figure 3-2 Turbidity measurements from all Site wells (November 2000 to December 2020)

3.2.1 Dissolved vs Total Results

Historical dissolved aluminum results are consistently 1 to 2 orders of magnitude lower than total aluminum results (**Figure 3-3**). This is confirmed by dissolved aluminum (filtered) results from November/December 2021 being lower than total aluminum over the previous five years (**Figure 3**). No dissolved (0.45-µm filter) sample contained more than 30 µg/L aluminum; all were below the 100 µg/L ionic aluminum standard for protection of aquatic life (which does not apply to groundwater).

A sufficient sample volume was available from MW-18S to prepare additional sample splits using 0.20-µm and 0.10-µm filters and were measured for aluminum using USEPA Method 6020B. A comparison of the results from the different filter sizes indicated similar concentrations (0.0248 to 0.028 mg/L; **Table 3**). This result indicates the 0.45-µm filter size was effective for filtering particulates, and that minimal colloidal aluminum above 0.10-µm size was present in the sample.

3.2.2 Geochemical Modeling

An aluminum solubility model was developed, and the result was compared to Site aluminum and pH data to understand aluminum solubility constraints at the Site.

For the aluminum solubility model, groundwater data for total and dissolved aluminum, along with Site-wide pH values, were assessed for the period from January 1, 1995, through January 31, 2021. Aluminum concentration and pH ranges for this time are listed below and summarized in **Figure 3-3**:

- Site-wide pH values ranged from 5.6 to 9.9, with 99 percent of the values falling between pH 6.0 and 9.0. This range excludes anomalously high values in the 9.0 to 12.15 range historically observed at MW-20-85S.
- Total aluminum ranged from less than the method detection limit (0.1 milligrams per liter [mg/L]) to 822 mg/L.
- Dissolved aluminum ranged from less than the method detection limit (generally 0.1 mg/L) to 3.5 mg/L.

The substantial difference between the magnitude of dissolved and total aluminum concentrations (**Figure 3-3**) suggests that most aluminum is particulate in the total aluminum sample fractions. To verify this, an aluminum solubility model was developed using Geochemists' Workbench® (GWB). The following describes the model configuration and results.

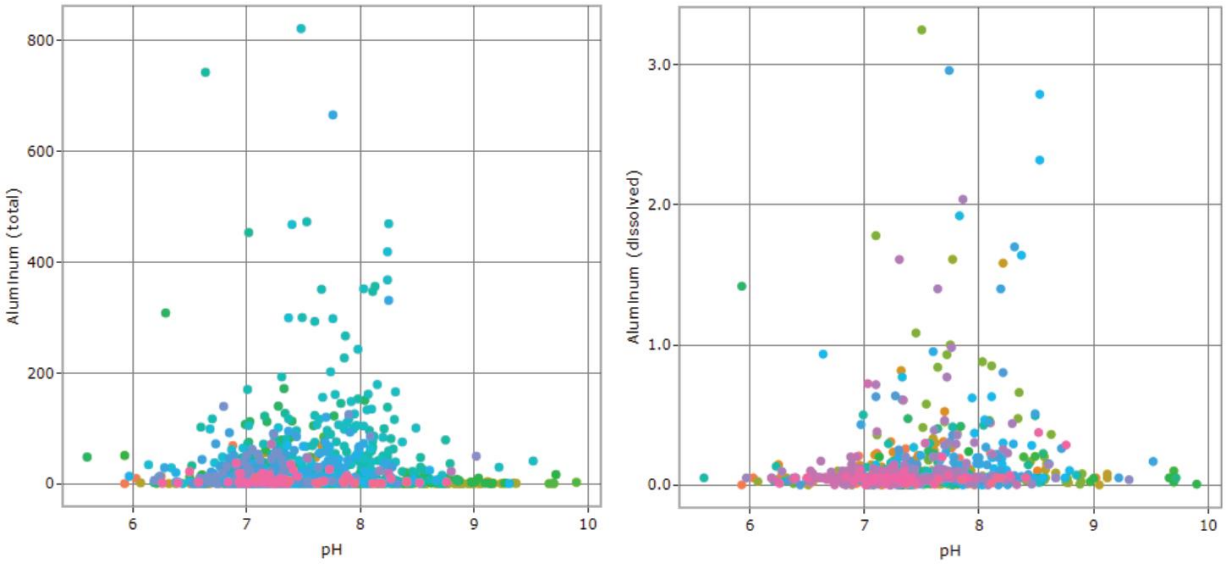


Figure 3-3 Site total and dissolved aluminum concentrations (mg/L) from 1/1/1995 through 1/31/2020

The following assumptions were used in the geochemical model:

- Aluminum concentration is constrained by the solubility of the mineral gibbsite — $Al(OH)_{3(s)}$ (proxy for clay minerals) or Al_2O_3.
- pH was adjusted across a reasonable spectrum of typical groundwater conditions (pH 4 to 10).
- Sodium was set at a concentration of 100 mg/L, to counter the charge balance from sulfate, which typically is detected at concentrations of several hundred mg/L at the Site.
- Sulfate concentration was permitted to vary in the model to satisfy charge balance constraints.
- The default GWB thermodynamic database 'thermo.tdat' was used.
- Reactions were assumed to occur at a temperature of 20 degrees Celsius.

Various combinations of temperature, sulfate, and sodium concentrations were tested in the model and were found to have limited influence on the outcome. The addition of 10 mg/L of fluoride increased the solubility noticeably only at pH values less than 7. All historical Site total aluminum and associated pH measurements were overlain on the model result. The model results are shown in **Figure 3-4.**

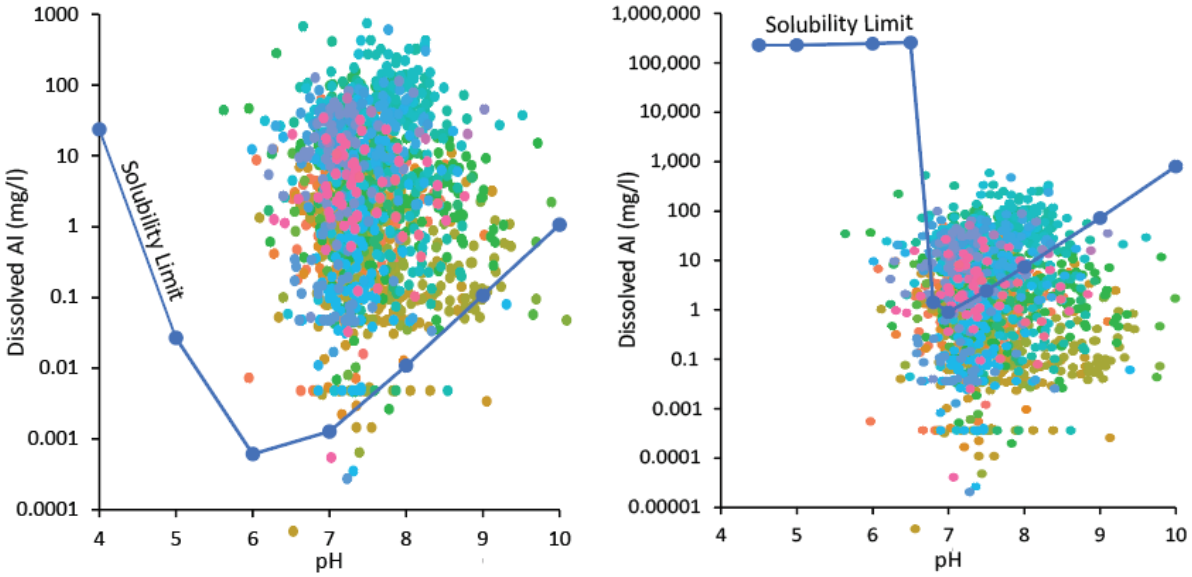


Figure 3-4 Results of simple Geochemists' Workbench® model to illustrate aluminum solubility limits at various pH values. Buffered by gibbsite (left) and Al_2O_3 (right). All Site total aluminum and pH measurements from 1995 through January 2020 are shown as colored dots for comparison.

As shown in **Figure 3-4**, most total aluminum detections exceed expected aluminum solubility at Site conditions (i.e., aluminum phases are super saturated and should precipitate). Consequently, elevated total aluminum concentrations are likely due to filtrable mineral particulates that were digested by the acid preservative or during laboratory dilution and preparation for analysis. This result explains the large disconnect between dissolved and total aluminum results at the Site. Additionally, the 'dissolved' aluminum fraction does not directly correspond to ionic aluminum concentrations – the dissolved aluminum sample fraction includes all complexed, colloidal, and particulate aluminum that passes a 0.45-µm filter and thus is distinct from ionic aluminum.

3.3 Fluoride

Fluoride is a regulated substance in New York State with groundwater Class GA standard of 1.5 mg/L. As described in **Section 3.2**, several monitoring wells routinely yield groundwater samples with elevated suspended sediment and particulates. This is particularly true of low-yielding wells screened in glacial till (e.g., MW-42). Given the elevated particulates identified in samples and the following other geochemical factors, the potential for high bias in reported fluoride concentrations analyzed by USEPA Method 300.0 was assessed. The following factors may contribute to high bias in historically reported fluoride concentrations:

- **Table 4** shows that the saturation index (SI; log Q/K) for fluorapatite is greater than 1, suggesting colloidal or particulate fluoride-bearing minerals entrained in samples may lead to bias on historical fluoride results.
- USEPA Method 300.0 analyzes fluoride using IC. The carbonate ion is a key interference on this method that can bias fluoride high, as outlined in the method description (**Attachment 5**). Carbonate ions do not interfere with fluoride results measured by ISE, however, this analytical method has not historically been used at the Site.
- Carbonate rocks (dolomite and calcium carbonate/limestone) are frequently encountered in Site soils as documented in the boring logs. Carbonate rock particles entrained in samples or agitated in stagnant well water during sampling may buffer water samples at elevated pH values where carbonate ions dominate and interfere with fluoride measurements by IC. **Table 4** shows that the SI (log Q/K) for dolomite and/or calcite is near or greater than 1 for most groundwater samples, providing evidence that carbonate reactions may have taken place. Experiments by Rauch and White (1977) show the dissolution of limestone and dolomite proceeds on the order of hours to days.
- As shown in **Figure 3-4**, the pH of historical Site groundwater samples frequently exceeds 8 to 9 standard units, values where the carbonate ions are the dominant inorganic carbon species.
- Unfiltered samples were provided to EHS Support in amber glass sampling bottles. There are conflicting opinions about boron from glassware leading to high or low bias on fluoride results (e.g., Hattab, 1981; Hozumi and Akimoto, 1971). Therefore, additional blank samples were submitted to assess the role of sample containers on fluoride results.

To address these concerns, the following evaluations were completed:

1. Sequential filtration of samples for fluoride analysis (**Section 2.1**) was performed to identify if particulates modify sample chemistry by causing elevated carbonate that biases fluoride analysis by IC.
2. Analysis of total fluoride (unfiltered) by two analytical methods (USEPA Method 300.0 [IC] and SM 4500 F-B [ISE]) was performed to determine if the presence of carbonate ions led to a systematic bias in historical fluoride IC results.
3. Evaluation of historical sampling data compared to ISE fluoride results was conducted to confirm if sampling conditions and storage containers used during the sequential filtration study were comparable to previous events. Additional samples were submitted to verify the sample storage container had a limited impact on fluoride results.

3.3.1 Sequential Filtration Results

Total fluoride samples were sequentially filtered using 0.45-µm, 0.20-µm, and 0.10-µm filters and were analyzed by IC (USEPA Method 300.0). Analytical results are shown in **Figure 3-5** and are provided in **Table 3**. Results for each filter fraction were similar for most wells, and small differences did not follow a systematic pattern, indicating that interference from colloidal or particulate phases on historical fluoride results is minor. Slight differences in results for each filter fraction are attributed to errors from different dilution factors performed on each sample size fraction by the lab. The following key exceptions are noted:

- The result for the 0.10-µm filter fraction from MW-18S is notably lower than for other fractions.
- The duplicate sample from MW-18S is notably lower than the primary sample for all filter fractions.

- The total (unfiltered) fraction for MW-42 is lower than all filtered fractions.
- ISE results differ from the IC results, notably at MW-18S and MW-42. A comparison of results from the two methods is discussed in **Section 3.3.2.**

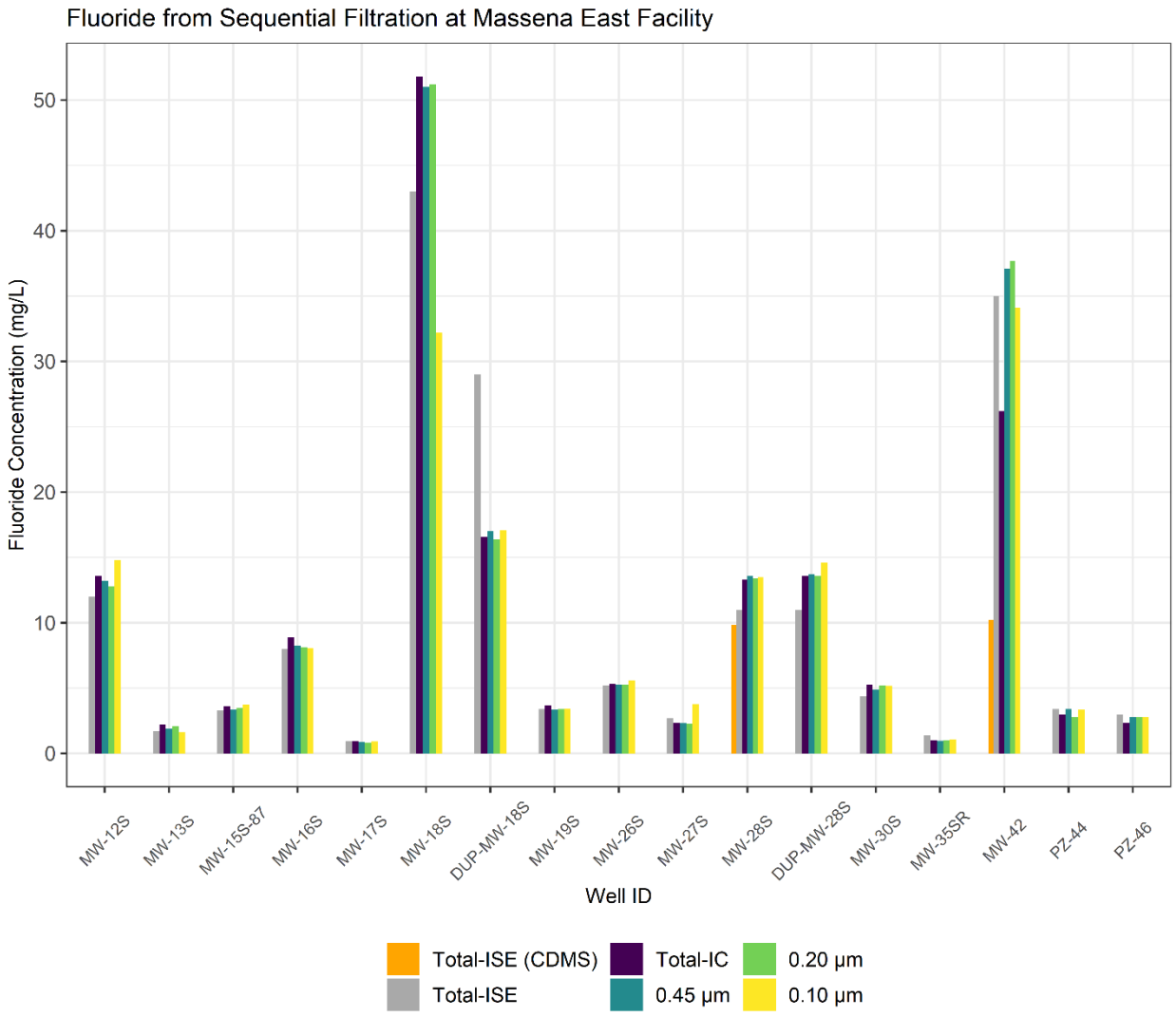


Figure 3-5 Fluoride sequential filtration results

Contributing factors to the discrepancy between primary and duplicate samples from MW-18S include sample collection and/or laboratory preparation and analysis errors. Additionally, wells screened in low permeability glacial till and lacustrine clay units typically go dry on sampling, suggesting that some samples may not be representative of aquifer conditions and may reflect stagnant water.

A review of laboratory analytical sheets indicated that dilution was not consistent between samples and may contribute to the discrepancy between primary and duplicate samples from MW-18S (**Table 3-1**). Total and filtered samples for IC-fluoride analysis from MW-18S had a dilution factor of 50 for the total, 0.45-µm, and 0.20-µm splits. The 0.10-µm split had a dilution factor of 25. However, the duplicate samples had a dilution factor of 10 for all splits measured for fluoride by IC. Samples analyzed for ISE-fluoride were not diluted for analysis. Inconsistent sample preparation practices at the lab may have

contributed to the different results for MW-18S and MW-18S-DUP. However, a review of laboratory bench sheets and consistent results for sulfate and chloride (analyzed from the same sample fractions) showed dilution factors were correctly accounted for and unlikely affected fluoride results by the magnitude indicated in **Figure 3-5**.

The most likely explanation for differences in sample results is variations in the water quality entering the well during purging and sampling, given that wells frequently go dry and stagnant water is likely present in the well and filter pack. During preparation, a portion of the 0.10-µm filter fraction for MW-18S was taken from a separate sample bottle, as were all filter fractions from the MW-18S duplicate sample. A portion of the unfiltered sample fraction for MW-42 was also taken from a separate bottle. Sample bottles were sequentially filled, and substantially more water was purged from wells than during typical sampling to obtain the groundwater volumes needed for the extensive analyses performed in the present study. Therefore, the inconsistent fluoride results likely represent differences in the chemistry of the groundwater as stagnant water localized around the well and filter pack was progressively purged and sampled.

Sampling practices were not well documented and therefore uncertainty exists in the purging rates, the order that sample bottles were sequentially filled, the time lag between sequential filling of sample bottles, and the progressive variations in pH and other field parameters during sampling. Considering these limitations, it is not possible to identify the specific geochemical process(es) that led to evolving water chemistry during progressive purging and sampling.

Table 3-1 Dilution Factors for MW-18S Fluoride Samples

Sample	Fraction	Dilution Factor
Primary MW-18S	0.10-µm	25
	0.20-µm	50
	0.45-µm	50
	Total-IC	50
	Total-ISE	1
Duplicate MW-18S	0.10-µm	10
	0.20-µm	10
	0.45-µm	10
	Total-IC	10
	Total-ISE	1

µm = micron
IC = ion chromatography
ISE = ion selective electrode

3.3.2 Total ISE vs. Total IC Results

A comparison of the total fluoride results using two analytical methods (IC — USEPA Method 300.0 and ISE – SM 4500 F-C) from December 2021 is provided in **Figure 3-5** and **Figure 3-6**, with values provided in **Table 3**. The following results are noted:

- More than half (10/17) of the total fluoride (i.e., unfiltered fluoride) concentrations measured by IC were greater than the corresponding total fluoride concentrations measured by ISE.
- Four wells had fluoride ISE concentrations that were greater than fluoride by IC. The most notable differences were for MW-18S-Dup and MW-42, which are due to the changing chemistry of the formation water during the sampling processes.
- One well (MW-17S) had the same result for both analytical methods.
- The total fluoride ISE fraction for MW-42 was submitted directly to ALS laboratory in Rochester, New York and a concentration of 10.2 mg/L was reported. The total fluoride result for the fraction analyzed by Eurofins Lancaster Laboratories by ISE was 35 mg/L. The large discrepancy in results confirms the changing composition of MW-42 water with sequential purging and agitation. The total fluoride results from MW-28S were 13.3 and 9.84 mg/L from the ALS lab and the Eurofins lab, respectively, indicating a similar occurrence at that location.
- Total fluoride analyzed by ISE at MW-28S and MW-42 was lower following preparation by distillation (9.84 and 10.4 mg/L, respectively) compared to skipping the distillation step (13.2 and 10.4 mg/L, respectively). This result indicates distillation is a critical laboratory preparation step to eliminate interfering ions from Site groundwater in the ISE analytical method.

As shown in **Figure 3-6**, regression of the total fluoride by IC compared to total fluoride by ISE yields an excellent fit with a regression coefficient (R^2) value of 0.99, when samples from MW-18S and MW-42, which clearly reflect changing groundwater conditions, are excluded. The result indicates that there is a small but high bias in total fluoride analytical results measured by IC compared to ISE. The cause is attributed to carbonate ion interference in the IC method, consistent with high pH values for most samples near and above 8.0 pH units where the carbonate ion is the most abundant form of inorganic carbon (**Attachment 1**).

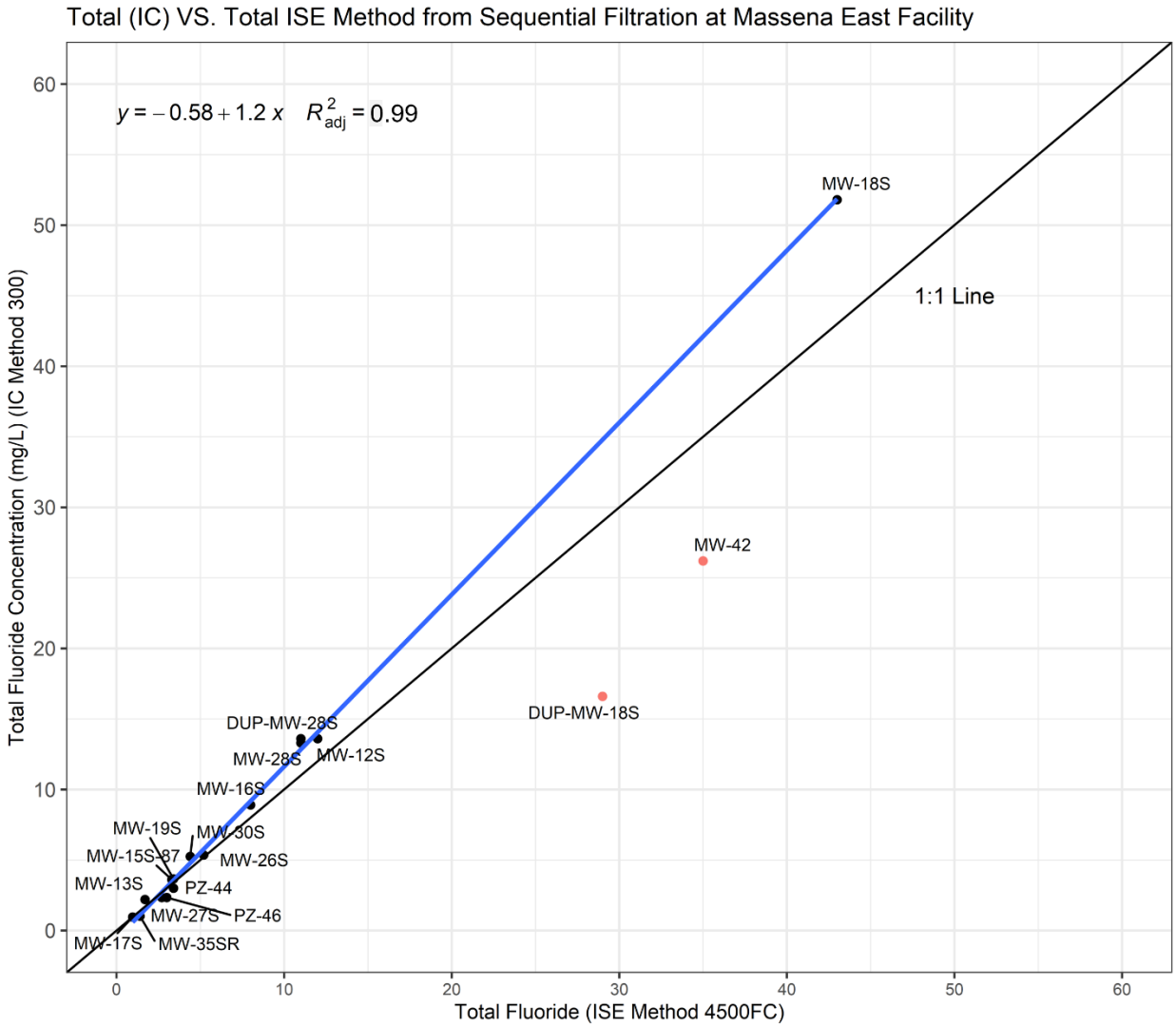


Figure 3-6 Comparison fluoride analytical methods

Total ISE fluoride samples were compared to historical sampling data obtained within five years of the December 2021 sampling event (**Figure 4**). No consistent pattern was observed between the recent and historical samples, with the following exceptions:

- The result for MW-18S was higher than the previous eight measurements, reflecting the heterogeneous nature of aquifer fluids discussed above.
- The ISE fluoride result for MW-28S was lower than all previous measurements made by IC, suggesting carbonate ion interference on historical fluoride IC results. This is consistent with pH values at MW-28S typically above pH 8 (value of 8.55 this round).
- The ISE fluoride result for MW-30S was lower than all previous measurements made by IC. MW-30S typically has a lower field pH value (7.36 this round) below the threshold where carbonate ions form and interfere with fluoride results. As discussed in **Section 3.3.4**, a non-agitative sampling technique was used at MW-30 for this study as opposed to the typically used agitative Waterra method. Historically high turbidity for samples from MW-30S, which were typically above 100 NTU, indicates a reaction between the suspended sediment in sample containers between the field and the lab leading to higher pH is possible. Alternatively, agitation during

sampling may have historically produced conditions within the well before filling sample bottles that led to elevated fluoride results.

3.3.3 Sample Container

Fluoride samples should be collected in laboratory-provided plastic containers, as there are conflicting opinions about glass containers biasing fluoride analytical results (Hattab, 1981; Hozumi and Akimoto, 1971). Fluoride samples were provided to EHS support in amber glass bottles, requiring verification that the container type did not affect the analytical results. Samples of distilled water and a 10 mg/L fluoride ISE standard were left to condition on ice overnight in amber glass bottles, to simulate the storage of samples retrieved for the sequential filtration sampling.

Results for the distilled water sample were non-detect for both the IC and ISE method, verifying the glass bottles did not adversely affect sample results. The total fluoride result for the 10 mg/L fluoride standard using the IC method was 0 ppm while the ISE method was 4.4 ppm. The standard was prepared using acetate, which interferes with both analytical methods as demonstrated in the results. Acetate causes fluoride to elute off of the IC column at a different time and interferes with the distillation step leading to low bias in the ISE result.

3.3.4 Sampling Practices

At several locations, the sampling practice (i.e., how the samples were retrieved from each well) was not consistent with historically employed methods (**Table 6**). Historically a Waterra pump is used to sample wells. Waterra pumps employ an oscillating tube with a ball valve at the terminus of the tube to retrieve water samples. The method is highly agitative – it is typically used to stir up sediment to develop wells. The change in sampling practice from a Waterra pump to a peristaltic pump was noted for six wells sampled during the December 2021 sampling event. The effect on fluoride results compared to the last several sampling events is provided in **Figure 4** and summarized as follows:

- The results from MW-12S, MW-13S MW-17S, MW-19S, and MW-27S were within the historical range.
- The total fluoride result from MW-30S was the lowest result within the five-year record.

The result for MW-30S suggests the agitative sampling technique may be the cause of high bias on historical fluoride results at this location.

3.4 Chloride and Sulfate

Chloride and sulfate were analyzed from the same sample fractions as fluoride to distinguish laboratory sample preparation errors from non-conservative fluoride behavior. Sequential filtration results for chloride are shown in **Figure 3-7** and for sulfate in **Figure 3-8**. The results for chloride and sulfate are broadly consistent across the size fractions analyzed with only minor differences in concentration reported between the different fractions. This result indicates laboratory dilution corrections or sample preparation errors cannot explain inconsistencies in the fluoride data set shown in **Figure 3-5**. The total (unfiltered) sulfate fraction is slightly higher for MW-12, MW-27S, MW-35SR, PZ-44, and PZ-46, suggesting particulates entrained in samples contribute to sulfate historically reported from these locations. Additionally, sulfate follows the same pattern as fluoride in the duplicate sample for MW-18S,

confirming a change in water quality following progressive purging to obtain the required sample volume.

Locations where relative fluoride or sulfate concentration ratios decrease/increase at a given sample provide insight into groundwater dynamics. Generally, fluoride is considered a conservative component that reflects steady source conditions. Sulfate is considered to be reactive and non-conservative and reflects processes that affect water chemistry, including mineral precipitation and adsorption to mineral surfaces.

Non-conservative fluoride or sulfate behavior at the Site is assessed in a plot of fluoride concentration versus the fluoride/sulfate concentration ratio (**Figure 3-9**). Non-conservative fluoride behavior is observed in several wells where the fluoride/sulfate concentration ratio varies with fluoride concentration (i.e., MW-12S, MW-18S, and MW-42). This result implies a variable fluoride source over the course of sampling at these locations and is consistent with the revised hydrogeologic conceptual model where more permeable geologic units overlie less permeable units. Wells that receive groundwater from both units are expected to have variable water quality over the course of purging and sampling. Purging is expected to draw disproportionately more water from the higher permeability interval with progressive time leading to a change in water quality. MW-12S and MW-18S are both screened across lower and higher permeability units. MW-42 is screened in the lower permeability till, however, water levels are consistently equal to those in the North Yard French drain indicating a hydraulic connection to the more permeable shallow aquifer.

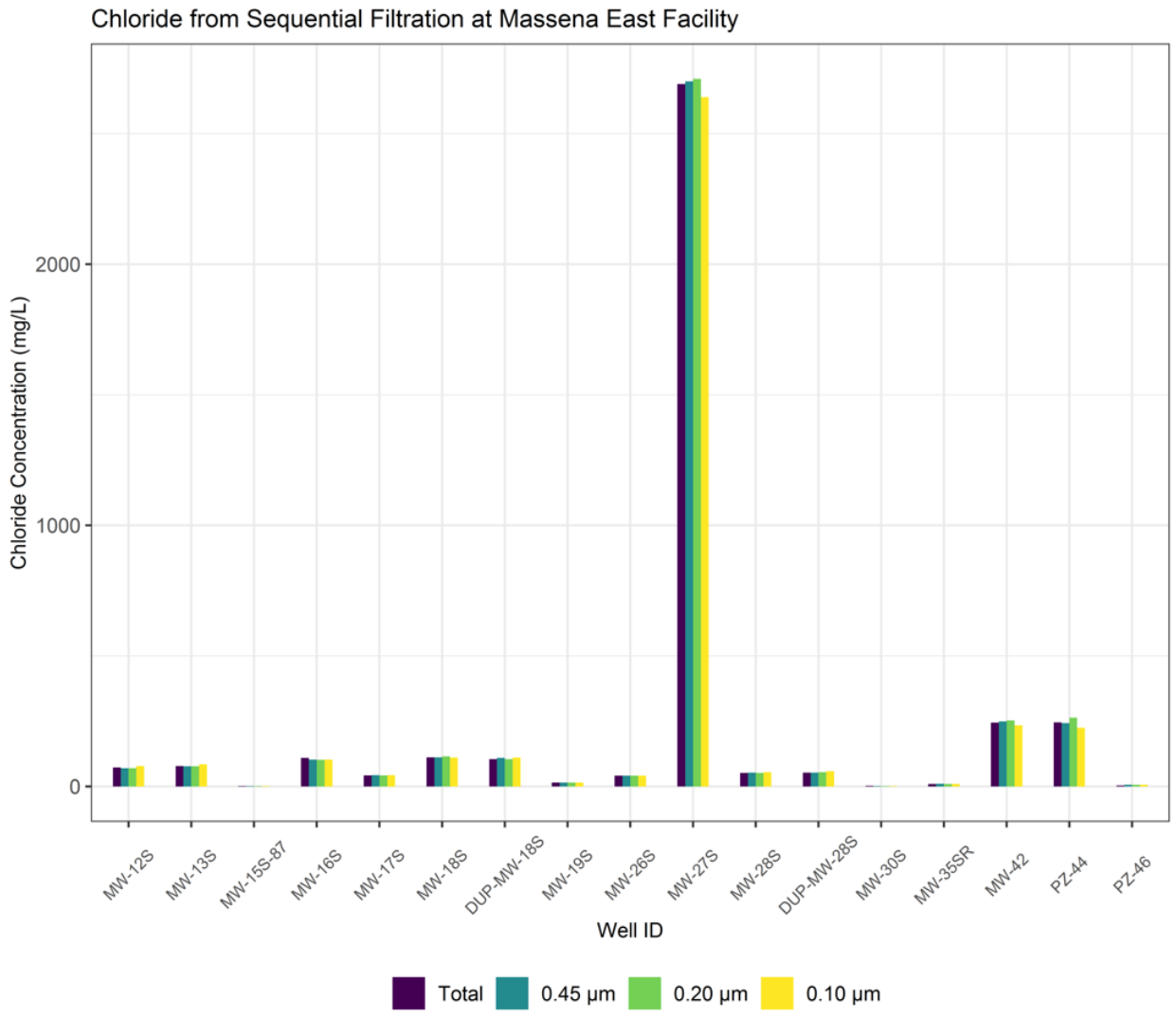


Figure 3-7 Chloride sequential filtration results

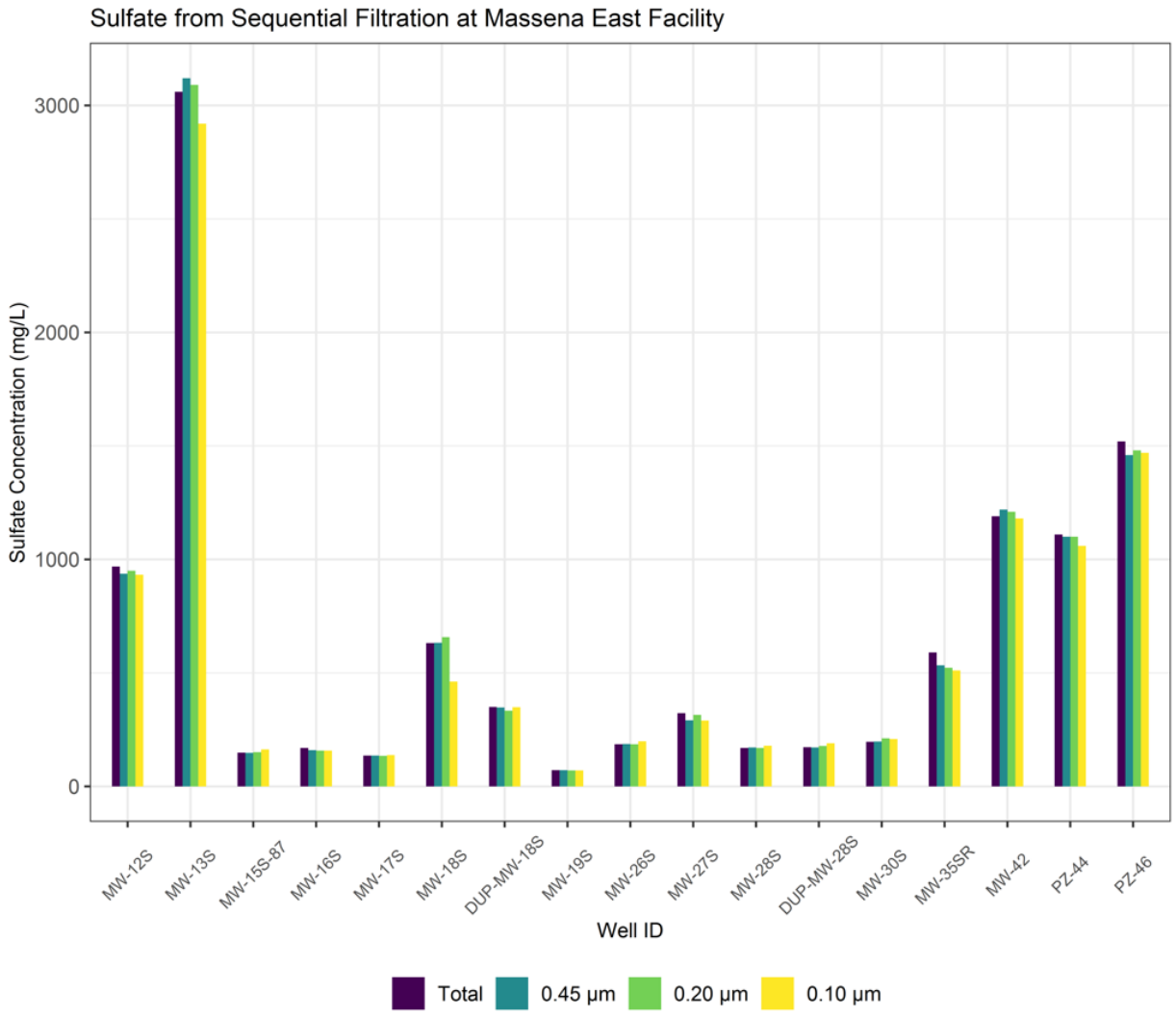


Figure 3-8 Sulfate sequential filtration results

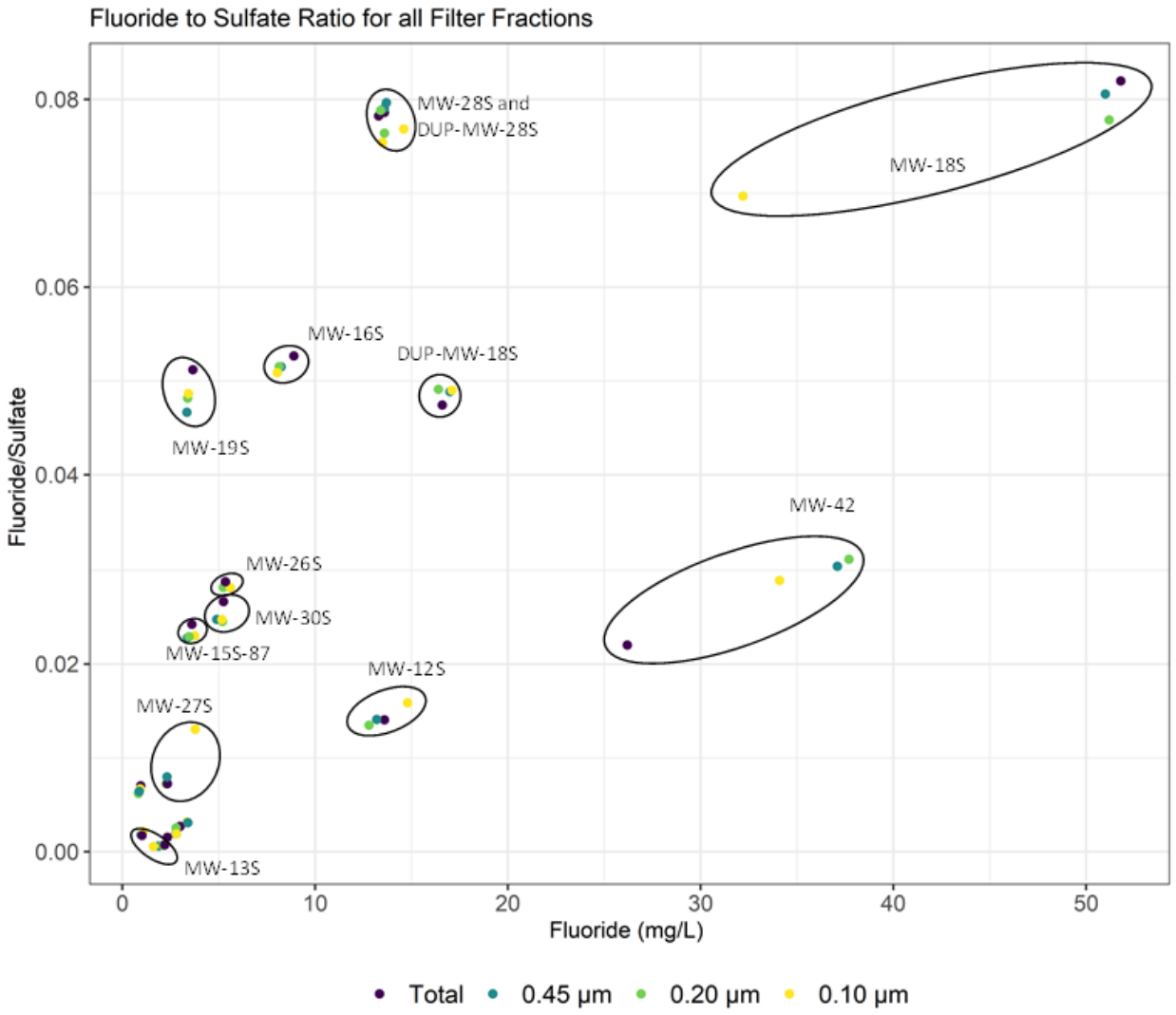


Figure 3-9 Fluoride to sulfate ratio for November/December 2021 additional sampling event

3.5 Cyanide

Cyanide results were broadly consistent for the various filter size fractions (**Figure 3-10**), indicating particulates are of minor importance except possibly at MW-18S and MW-27S to a minor degree.

Total cyanide results from the most recent sampling event were compared to historical samples from within the last five years (**Figure 5**). The comparison to historical samples highlighted the following:

- Total cyanide from the November 2021 sampling event was the highest historical result in wells MW-18S and MW-27S. Concentrations were higher than the preceding event by 0.06 mg/L and 1 mg/L for MW-18S and MW-27S, respectively.
- Total cyanide from the November 2021 sampling event in wells MW-34S and MW-42 was the lowest in the five-year period. Total cyanide in these wells was lower than the preceding event by 0.04 mg/L and 0.15 mg/L in MW-34S and MW-42, respectively.

- Two additional wells were measured for total cyanide in the November/December 2021 sampling event. MW-03S and MW-28S were within range of the historical results, however, samples from both wells were higher than the preceding event by 0.5 mg/L and 1 mg/L, respectively.

These extremes in results are attributed to differences in formation water that entered wells following higher than typical purging that was needed to obtain the required sample volume for this study.

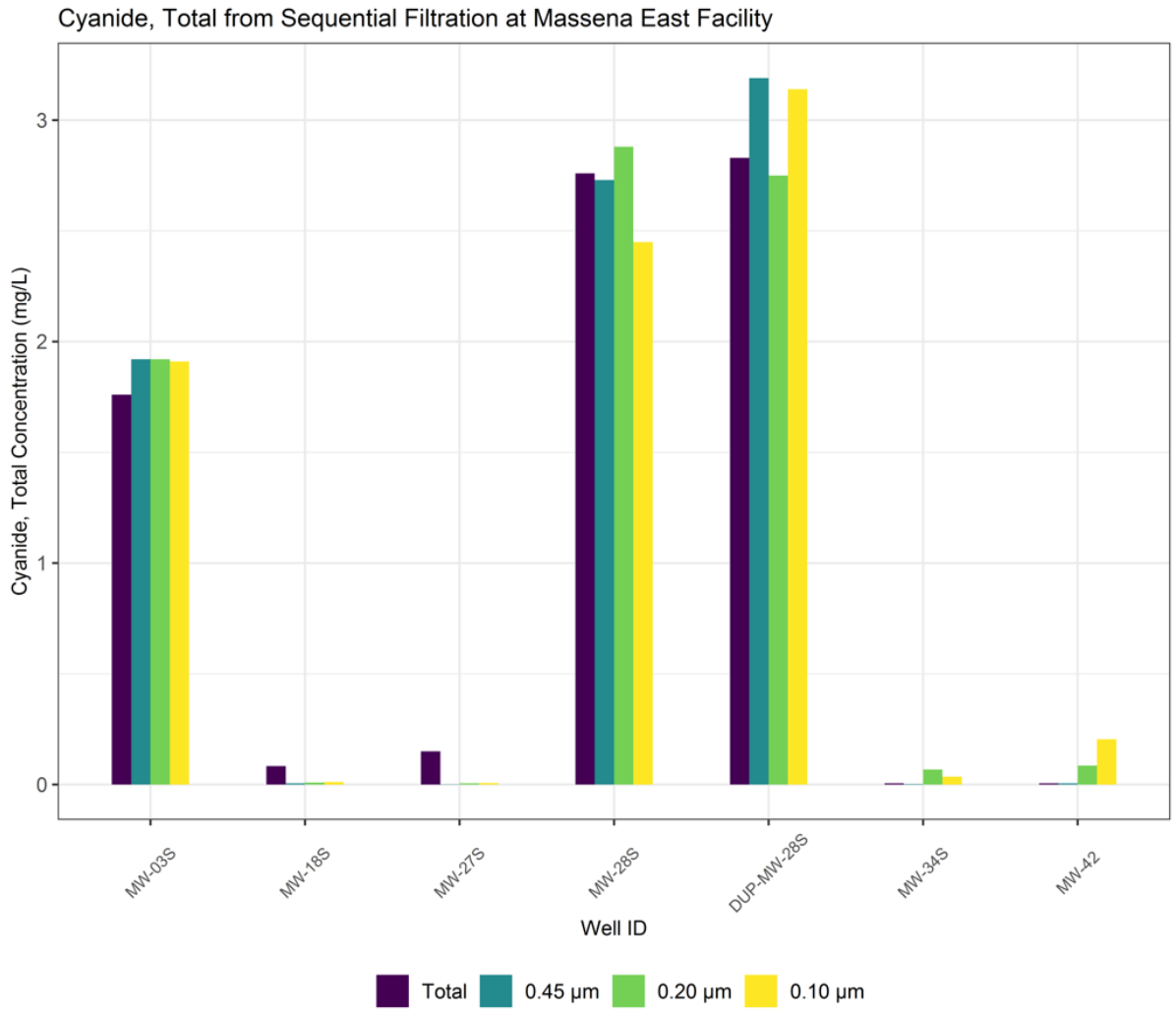


Figure 3-10 Cyanide sequential filtration results

4 Mass Balance Assessment Results

Historical annual monitoring reports have indicated the potential for groundwater to exit the southwest corner of the Industrial Landfill (ILF) beneath the perimeter drain into the adjacent wetland. Cation and anion sample results were collected and analyzed from the wetland adjacent to the southwest corner of the ILF, from the perimeter drain, and from the interior of the landfill to develop mixing models to assess the efficacy of the perimeter drain. Sample locations and pie charts depicting major ion results are provided in **Figure 4-1**.

Figure 4-1 shows the electrical conductivity (a proxy for total dissolved solids) is highest for leachate inside the landfill at PZ-6 and PZ-10. Leachate at PZ-6 has a distinct composition from PZ-10 and other samples (**Figure 4-1**).**Figure 6** includes cross plots of major ions (sodium vs. chloride, magnesium vs. calcium, and sulfate vs. bicarbonate) and a Piper diagram illustrating mixing relationships between the water samples. Based on **Figure 6**, PZ-6 cannot form a mixing end-member with other samples, and the sample from PZ-10 is the representative value of landfill leachate used in the mixing models.

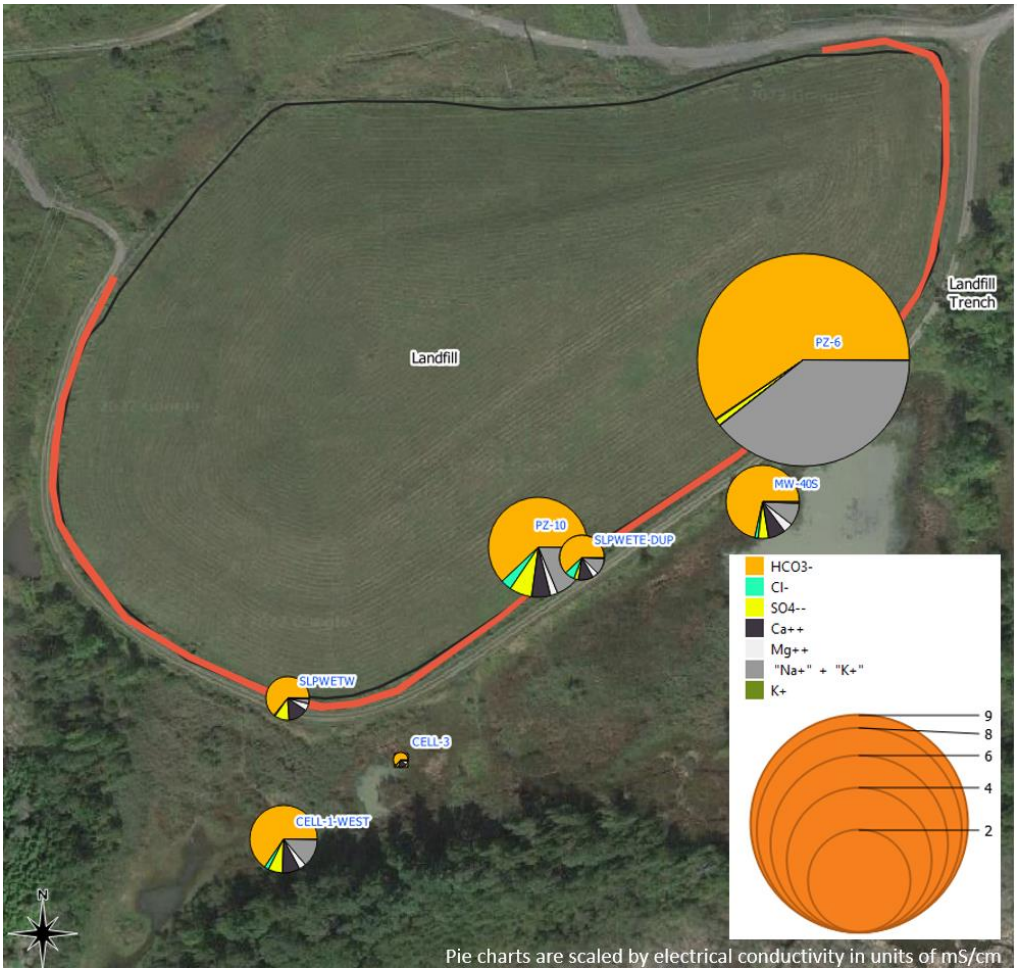


Figure 4-1 Landfill mass balance sample locations and results

Mixing models used the sodium, calcium, magnesium, sulfate, chloride, and bicarbonate concentrations listed in **Table 4** and rearranged the following equation to solve for f for each component:

$$C_{mixture} = C_A \times f + C_B \times (f - 1)$$

Where:
$C_{mixture}$ = Concentration of the component in the mixture (i.e., collection trench)
C_A = Concentration of the component in source A (i.e., landfill leachate).
C_B = Concentration of the component in source B (i.e., wetland or well).
f = the fraction of component A in the mixture (on a scale of 0 to 1).

Mixing models were completed for the fraction of leachate recovered in the eastern and western halves of the perimeter trench (**Table 4-1**), and for the fraction of leachate in surface water downgradient of the landfill and in groundwater (**Table 4-2**).

Results indicate that fluid captured in the western half of the perimeter trench as represented by a sample from the SLPWETW access point is 20 percent leachate and 80 percent surface water from the wetland (or snowmelt/precipitation runoff from the landfill cap) (**Table 4-1**). Fluid captured in the eastern half of the perimeter trench as represented by a sample from the SLPWETE access point is 14 percent leachate and 86 percent surface water from the wetland (or snowmelt/precipitation runoff from the landfill cap) (**Table 4-1**). These results are consistent with geochemical mixing relationships shown in **Figure 6**.

Results for Cell-1-West indicate similarities to the leachate, with potentially 36 percent contribution to water quality from leachate (**Table 4-2**), consistent with the fluoride detection of 9.26 mg/L at this location (**Table 4**). Results for MW-40S indicate a 47 percent contribution of water quality from leachate (**Table 4-2**), consistent with periodic low-level detections of cyanide in this location (0.1 mg/L on 12/14/2021 as given in the 2021 Annual Report). The low concentrations at MW-40S indicate that the current operation of the perimeter trench is effective. Historically however, waste impacts may have occurred in the wetland, and/or the historical operation of the perimeter drain (with smaller drawdown in the drain) may have been ineffective in the southwestern corner of the landfill.



Table 4-1 Results of landfill perimeter trench mass balance calculations

Fraction of leachate collected in western perimeter trench

Parameter	PZ-10	Cell 3	SLPWETW	Leachate Fraction	Wetland Fraction
Bicarbonate	1391	134	332	0.16	0.84
Chloride	79.7	1.82	5.52	0.05	0.95
Sulfate	164	13.2	56.3	0.29	0.71
Calcium	137	37	75.5	0.39	0.62
Magnesium	54.3	17.8	27.5	0.27	0.73
Sodium	415.8	4.532	18.11	0.03	0.97
			Average	**0.20**	**0.80**

Fraction of leachate collected in eastern perimeter trench

Parameter	PZ-10	Cell 3	SLPWETE	Leachate Fraction	Wetland Fraction
Bicarbonate	1391	134	289	0.12	0.88
Chloride	79.7	1.82	34	0.41	0.59
Sulfate	164	13.2	14.9	0.01	0.99
Calcium	137	37	49.8	0.13	0.87
Magnesium	54.3	17.8	20.1	0.06	0.94
Sodium	415.8	4.532	54.83	0.12	0.88
			Average	**0.14**	**0.86**



Table 4-2 Fraction of leachate in surface and groundwater downgradient of landfill

Fraction of leachate at Cell 1 West

Parameter	PZ-10	Cell 3	Cell-1-West	Leachate Fraction	Wetland Fraction
Bicarbonate	1391	134	636	0.40	0.60
Chloride	79.7	1.82	20.9	0.24	0.76
Sulfate	164	13.2	66.1	0.35	0.65
Calcium	137	37	82	0.45	0.55
Magnesium	54.3	17.8	32.6	0.41	0.59
Sodium	415.8	4.532	131.9	0.31	0.69
			Average	**0.36**	**0.64**

Fraction of leachate at MW-40S

Parameter	PZ-10	Cell 3	MW-40S	Leachate Fraction	Wetland Fraction
Bicarbonate	1391	134	864	0.58	0.42
Sulfate	164	13.2	55.4	0.28	0.72
Calcium	137	37	91.3	0.54	0.46
Magnesium	54.3	17.8	51.2	0.92	0.08
Sodium	415.8	4.532	120	0.28	0.72
			Average	**0.47**	**0.53**

5 Conclusions and Recommendations

As shown in **Table 6**, most wells in this study went dry after purging between 2.5 and 6 gallons of groundwater. The only wells in the additional sampling program that did not go dry were MW-16S, MW-18S, MW-19S, and MW-28S (**Table 6**) – these locations are all screened across both low permeability and overlying higher permeability units or fill (note: no log is available for MW-28S to verify, but fill is expected given the location). The sampling program described herein required several gallons of sample volume, in addition to the sample volume used for routine monitoring. As a result of the additional purging, water quality varied during sampling at several locations.

The present study documents that concentrations at specific monitoring wells vary depending on the sampling technique, the volume purged, or the amount of entrained sediment, most notably at MW-18S, MW-30, and MW-42. Historically reported elevated fluoride values at these locations are suspect and may represent stagnant water from within the filter pack. Additionally, geochemical conditions resulting from the carbonate lithology have resulted in a slight high bias on historically reported fluoride concentrations reported by Method 300.0.

Wells screened in lower permeability units (those that tend to go dry) correspond with those where fluoride and cyanide detections above criteria are generally encountered. A critical aspect of the conceptual Site model is that contaminant concentrations in the low permeability units arrived via diffusion rather than advection, and that groundwater flux within these lower permeability units is more limited. The flux of contaminants from these low permeability units is anticipated to be minimal.

Based on the results herein, the following conclusions are drawn:

1. Historical and current total aluminum results are not representative of water quality at the Site. Historical detections are due to particulates dissolved by acid used to preserve samples. Assessment of concentration trends is not warranted, and it is recommended that total aluminum be eliminated from the analytical program.
2. Dissolved aluminum results are typically low to non-detect; therefore, in most cases it is not possible to determine concentration trends over time. Based on these low concentrations following over 20 years of monitoring, it is recommended that dissolved aluminum be eliminated from the analytical program.
3. Many of the highest fluoride concentrations historically reported (e.g., wells MW-18S and MW-42) are unlikely to represent true aquifer conditions. This is due to the agitative sampling technique disturbing sediment in wells and affecting water quality, and/or sampling of partially stagnant water that is not reflective of the broader formation. A review of sampling practices and potential well maintenance is recommended.
4. Changes in the ionic ratios (fluoride to sulfate) show that the composition of groundwater (and fluoride concentrations) differ significantly between the fine, diffusion-dominated system and the coarser, advection-dominated system. Lower concentrations within the coarser units limit the magnitude of off-site flux, consistent with the conclusions of the revised hydrogeological conceptual model.
5. There is a high bias on historical fluoride results from the IC method compared to the ISE method at several wells, likely due to interference by carbonate ions. This is most apparent in groundwater samples with high pH at values near or above pH 8. It is recommended that the analytical method for fluoride be revisited following review of data after sampling methods and purging records are updated.

6. Gradients at the ILF perimeter trench piezometers indicate surface water flow toward the perimeter drain. Mass balance data confirm substantial (80 to 86% mixing of a wetland surface water component with a 15 to 20% leachate component in the perimeter trench, hence, containment is effective.

6 References

Hattab, F. 1981. Stability of fluoride solutions in glass and plastic. Acta Pharm. Suec, 18, pp.249-253.

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Tables

Appendix I - Table 1
Sequential Filtration Sampling Program
Appendix I to the 2021 Periodic Review Report for the Reynolds Metals Company LLC
New York
Alcoa Corporation

Monitoring Well	Area	Total Fluoride, Sulfate and Chloride by Ion Chromatography USEPA Method 300.0				Total Fluoride by ISE SM 4500F B followed by SM 4500F C	Total Cyanide SM 4500-CN-CE				Total Aluminum USEPA 6020B			
		Unfiltered	0.45 µm	0.20 µm	0.10 µm	Unfiltered	Unfiltered	0.45 µm	0.20 µm	0.10 µm	Unfiltered	0.45 µm	0.20 µm	0.10 µm
Groundwater Sample Volumes (mL)														
MW-03S	PSP						250	250	250	250				
MW-12S	BMP	125	125	125	125	250						250		
MW-13S	BMP	125	125	125	125	250						250		
MW-15S-87	BMP	125	125	125	125	250						250		
MW-16S	North Yard	125	125	125	125	250						250		
MW-17S	North Yard	125	125	125	125	250						250		
MW-18S	North Yard	125	125	125	125	250	250	250	250	250		250	250	250
MW-19S	North Yard	125	125	125	125	250						250		
MW-26S	PSP	125	125	125	125	250						250		
MW-27S	PSP	125	125	125	125	250	250	250	250	250		250		
MW-28S*	PSP	125	125	125	125	250	250	250	250	250		250		
MW-30S	BMP	125	125	125	125	250						250		
MW-34S	PSP						250	250	250	250				
MW-35SR	PSP	125	125	125	125	250						250		
MW-42*	PSP	125	125	125	125	250	250	250	250	250		250		
PZ-44	BMP	125	125	125	125	250						250		
PZ-46	BMP	125	125	125	125	250						250		
DUP_MW-28S	PSP	125	125	125	125	250						250		
DUP_MW-18S	North Yard	125	125	125	125	250						250		
MW-2303 (MW-28S DUP)							250	250	250	250				
DI Water Blank Sample Volumes (mL)														
IC Blank 1		125												
IC Blank 2			125											
IC Blank 3				125										
IC Blank 4					125									
ISE Blank						250								
CN Blank 1							250							
CN Blank 2								250						
CN Blank 3									250					
CN Blank 4										250				
Al Blank 1												250		

Notes:
*Unfiltered samples were submitted for analysis by SM 4500F-C and SM 4500F-B-C (fluoride without and with distillation).
µm = micron
Al = aluminum
BMP = Black Mud Pond
CN = cyanide
DI = deionized
IC = ion chromatography
ISE = ion selective electrode
mL = milliliter
PSP = Potliner Storage Pad
SM = Standard Method
USEPA = United States Environmental Protection Agency

Appendix I - Table 2
Geochemical Parameters Sampling Program
Appendix I to the 2021 Periodic Review Report for the Reynolds Metals Company LLC
New York
Alcoa Corporation

Station/ Monitoring Well	Latitude*	Longitude*	Comprehensive Geochemical Analyses Suite								Focused Fluoride Suite		Focused CN Suite				DQO
			Field Water Quality Parameters	Major Anions (SO_4, Cl, NO_3, PO_4, F)	Major Cations (Na, Ca, Mg, K, and Al)	Total Phosphate (PO_4)	Alkalinity (Total and Bicarbonate, as $CaCO_3$)	Total Suspended Solids	Lab pH	Total Fluoride & Sulfate by Ion Chromatography	Fluoride by ISE	Total Fluoride by ISE	Total Cyanide	Total Cyanide	Available Cyanide	Free Cyanide	
	(DD.dd)	*(DD.dd)*	Temp, ORP, pH, SpC, Turb	USEPA 300.0	USEPA 200.8	SM 4500P G	SM 2320 B	SM 2540 D	USEPA Method 9040C	USEPA 300.0	SM 4500F C	SM 4500F B followed by SM 4500F C	D7511-12 or SM 4500-CN-CE	Kelada-01	OIA-1677-09	D7237-10	
Groundwater Samples																	
MW-03S	NA - Site Coordinate System												1000 mL T				3
MW-12S	NA - Site Coordinate System									1000 mL T							1
MW-13S	NA - Site Coordinate System									1000 mL T							1
MW-15S-87	NA - Site Coordinate System									1000 mL T							1
MW-16S	NA - Site Coordinate System									1000 mL T							1
MW-17S	NA - Site Coordinate System									1000 mL T							1
MW-18S	NA - Site Coordinate System									1000 mL T			1000 mL T		**250 mL T, COC**		1, 3, 4
MW-19S	NA - Site Coordinate System	T	250 mL Ff	250 mL Ff	250 mL Ff	250 mL T	950 mL T	0 mL T	1000 mL T								1, 4
MW-26S	NA - Site Coordinate System									1000 mL T							1
MW-27S	NA - Site Coordinate System									1000 mL T			1000 mL T				1, 3
MW-28S	NA - Site Coordinate System	T	250 mL Ff	250 mL Ff	250 mL Ff	250 mL T	950 mL T	0 mL T	1000 mL T		**250 mL T; COC**	**250 mL T; COC**	1000 mL T				1, 2, 3
MW-30S	NA - Site Coordinate System									1000 mL T							1
MW-34S	NA - Site Coordinate System												1000 mL T				3
MW-35SR	NA - Site Coordinate System									1000 mL T							1
MW-40S	NA - Site Coordinate System	T	250 mL Ff	250 mL Ff	250 mL Ff	250 mL T	950 mL T	0 mL T									4
MW-42	NA - Site Coordinate System									1000 mL T	**250 mL T; COC**	**250 mL T; COC**	1000 mL T		**250 mL T, COC**		1, 2, 3, 4
MW-43	NA - Site Coordinate System	T	250 mL Ff	250 mL Ff	250 mL Ff	250 mL T	950 mL T	0 mL T									4
MW-44	NA - Site Coordinate System	T	250 mL Ff	250 mL Ff	250 mL Ff	250 mL T	950 mL T	0 mL T									4
PZ-6	NA - Site Coordinate System	T	250 mL Ff	250 mL Ff	250 mL Ff	250 mL T	950 mL T	0 mL T									5
PZ-10	NA - Site Coordinate System	T	250 mL Ff	250 mL Ff	250 mL Ff	250 mL T	950 mL T	0 mL T									5
PZ-44	NA - Site Coordinate System									1000 mL T							1
PZ-46	NA - Site Coordinate System									1000 mL T							1
SLPWETE	NA - Site Coordinate System	T	250 mL Ff	250 mL Ff	250 mL Ff	250 mL T	950 mL T	0 mL T									5
SLPWETW	NA - Site Coordinate System	T	250 mL Ff	250 mL Ff	250 mL Ff	250 mL T	950 mL T	0 mL T									5

Appendix I - Table 2
Geochemical Parameters Sampling Program
Appendix I to the 2021 Periodic Review Report for the Reynolds Metals Company LLC
New York
Alcoa Corporation

Station/ Monitoring Well	Latitude*	Longitude*	Comprehensive Geochemical Analyses Suite								Focused Fluoride Suite		Focused CN Suite				DQO
			Field Water Quality Parameters	Major Anions (SO_4, Cl, NO_3, PO_4, F)	Major Cations (Na, Ca, Mg, K, and Al)	Total Phosphate (PO_4)	Alkalinity (Total and Bicarbonate, as $CaCO_3$)	Total Suspended Solids	Lab pH	Total Fluoride & Sulfate by Ion Chromatography	Fluoride by ISE	Total Fluoride by ISE	Total Cyanide	Total Cyanide	Available Cyanide	Free Cyanide	
	(DD.dd)	*(DD.dd)*	Temp, ORP, pH, SpC, Turb	USEPA 300.0	USEPA 200.8	SM 4500P G	SM 2320 B	SM 2540 D	USEPA Method 9040C	USEPA 300.0	SM 4500F C	SM 4500F B followed by SM 4500F C	D7511-12 or SM 4500-CN-CE	Kelada-01	OIA-1677-09	D7237-10	
Surface Water Samples																	
StW Pond	44.977154°	-74.755150°	T	250 mL Ff	250 mL Ff	250 mL Ff	250 mL T	950 mL T	0 mL T				**250 mL T, COC**	**250 mL T, COC**			4, 5, 6
Cell 3	44.976301°	-74.754172°	T	250 mL Ff	250 mL Ff	250 mL Ff	250 mL T	950 mL T	0 mL T				**250 mL T, COC**	**250 mL T, COC**			4, 5, 6
Cell 1 (West)	44.976534°	-74.753648°	T	250 mL Ff	250 mL Ff	250 mL Ff	250 mL T	950 mL T	0 mL T				**250 mL T, COC**	**250 mL T, COC**			4, 5, 6
Cell 1 (East)	44.977331°	-74.751812°	T	250 mL Ff	250 mL Ff	250 mL Ff	250 mL T	950 mL T	0 mL T				**250 mL T, COC**	**250 mL T, COC**			4, 5, 6
Micropool	NA - Site Coordinate System		T	250 mL Ff	250 mL Ff	250 mL Ff	250 mL T	950 mL T	0 mL T								6
Raquette-DG	44.979167°	-74.733740°	T	250 mL Ff	250 mL Ff	250 mL Ff	250 mL T	950 mL T	0 mL T								6
Raquette-UG	44.961877°	-74.766769°	T	250 mL Ff	250 mL Ff	250 mL Ff	250 mL T	950 mL T	0 mL T								6
Dondero Canal	44.982744°	-74.826821°	T	250 mL Ff	250 mL Ff	250 mL Ff	250 mL T	950 mL T	0 mL T								6 - Optional
Polly Gut	44.999168°	-74.762756°	T	250 mL Ff	250 mL Ff	250 mL Ff	250 mL T	950 mL T	0 mL T								6 - Optional
St. Lawrence-DG	44.987053°	-74.741606°	T	250 mL Ff	250 mL Ff	250 mL Ff	250 mL T	950 mL T	0 mL T								6
Grasse-UG (AMVETs Dock)	44.980057°	-74.778903°	T	250 mL Ff	250 mL Ff	250 mL Ff	250 mL T	950 mL T	0 mL T								6

Notes:

*Coordinate system is World Geodetic System (WGS) 1984.

Bold = Sample submitted to lab directly by CDM Smith

Al = aluminum

Ca = calcium

$CaCO_3$ = calcium carbonate

Cl = chloride

CN = cyanide

COC = samples collected under a separate chain of custody.

DD.dd = Decimal degrees

DOC = Dissolved Organic Carbon

DQO = Data Quality Objective

Ff = Filtered in the field using a 0.45 micron polyethersulfone (PES) filter

F = fluoride

ISE = ion selective electrode

K = potassium

Mg = magnesium

mL = milliliter

NA = Not applicable

Na = sodium

NO_3 = nitrate

ORP = Oxidation-Reduction Potential

PO_4 = phosphate

SM = Standard Methods (American Public Health Association)

SO_4 = sulfate

SpC = Specific Conductance

T = Unfiltered

Turb = Turbidity

Temp = Temperature

USEPA = United States Environmental Protection Agency

Appendix I - Table 3
Sequential Filtration Results
Appendix I to the 2021 Periodic Review Report for the Reynolds Metals Company LLC
New York
Alcoa Corporation

Well Name	Sample Date and Time	Fraction	Sulfate	Chloride	Fluoride	Aluminum	Cyanide	Units
MW-03S	12/1/2021 12:02	T	--	--	--	--	1.76	mg/L
MW-03S	12/1/2021 12:02	0.45 µm	--	--	--	--	1.92	mg/L
MW-03S	12/1/2021 12:02	0.20 µm	--	--	--	--	1.92	mg/L
MW-03S	12/1/2021 12:02	0.10 µm	--	--	--	--	1.91	mg/L
MW-12S	11/30/2021 12:33	T-ISE	--	--	12	--	--	mg/L
MW-12S	11/30/2021 12:33	T	968	72.2	13.6	0.165	--	mg/L
MW-12S	11/30/2021 12:33	0.45 µm	937	69.7	13.2	0.00415	--	mg/L
MW-12S	11/30/2021 12:33	0.20 µm	950	70.1	12.8	--	--	mg/L
MW-12S	11/30/2021 12:33	0.10 µm	933	78.1	14.8	--	--	mg/L
MW-13S	11/30/2021 12:10	T-ISE	--	--	1.7	--	--	mg/L
MW-13S	11/30/2021 12:10	T	3060	78.7	2.2	--	--	mg/L
MW-13S	11/30/2021 12:10	0.45 µm	3120	77.5	1.88	0.00514	--	mg/L
MW-13S	11/30/2021 12:10	0.20 µm	3090	77.7	2.1	--	--	mg/L
MW-13S	11/30/2021 12:10	0.10 µm	2920	85.2	1.62	--	--	mg/L
MW-15S-87	11/30/2021 12:23	T-ISE	--	--	3.3	--	--	mg/L
MW-15S-87	11/30/2021 12:23	T	149	1.57	3.61	--	--	mg/L
MW-15S-87	11/30/2021 12:23	0.45 µm	148	1.58	3.37	0.0051	--	mg/L
MW-15S-87	11/30/2021 12:23	0.20 µm	151	1.57	3.46	--	--	mg/L
MW-15S-87	11/30/2021 12:23	0.10 µm	163	1.62	3.75	--	--	mg/L
MW-16S	12/1/2021 12:32	T-ISE	--	--	8	--	--	mg/L
MW-16S	12/1/2021 12:32	T	169	109	8.9	--	--	mg/L
MW-16S	12/1/2021 12:32	0.45 µm	160	103	8.24	--	--	mg/L
MW-16S	12/1/2021 12:32	0.20 µm	158	102	8.14	--	--	mg/L
MW-16S	12/1/2021 12:32	0.10 µm	158	103	8.04	--	--	mg/L
MW-17S	12/1/2021 12:45	T-ISE	--	--	0.96	--	--	mg/L
MW-17S	12/1/2021 12:45	T	136	42.8	0.955	--	--	mg/L
MW-17S	12/1/2021 12:45	0.45 µm	136	43.1	0.875	--	--	mg/L
MW-17S	12/1/2021 12:45	0.20 µm	135	42.6	0.838	--	--	mg/L
MW-17S	12/1/2021 12:45	0.10 µm	138	42.9	0.924	--	--	mg/L
MW-18S	12/1/2021 10:15	T-ISE	--	--	43	--	--	mg/L
MW-18S	12/1/2021 10:15	T	632	111	51.8	--	0.083	mg/L
MW-18S	12/1/2021 10:15	0.45 µm	633	111	51	0.0248	--	mg/L
MW-18S	12/1/2021 10:15	0.20 µm	658	115	51.2	0.028	0.009	mg/L
MW-18S	12/1/2021 10:15	0.10 µm	462	110	32.2	0.0276	0.011	mg/L
DUP-MW-18S	12/1/2021 10:15	T-ISE	--	--	29	--	--	mg/L
DUP-MW-18S	12/1/2021 10:15	T	350	105	16.6	--	--	mg/L
DUP-MW-18S	12/1/2021 10:15	0.45 µm	348	109	17	0.0189	--	mg/L
DUP-MW-18S	12/1/2021 10:15	0.20 µm	334	105	16.4	--	--	mg/L
DUP-MW-18S	12/1/2021 10:15	0.10 µm	349	110	17.1	--	--	mg/L
MW-19S	12/1/2021 12:14	T-ISE	--	--	3.4	--	--	mg/L
MW-19S	12/1/2021 12:14	T	71.5	14.7	3.66	--	--	mg/L
MW-19S	12/1/2021 12:14	0.45 µm	71.8	14.8	3.35	--	--	mg/L
MW-19S	12/1/2021 12:14	0.20 µm	70.4	14.8	3.39	--	--	mg/L
MW-19S	12/1/2021 12:14	0.10 µm	70.5	15	3.43	--	--	mg/L
MW-26S	11/30/2021 12:40	T-ISE	--	--	5.2	--	--	mg/L
MW-26S	11/30/2021 12:40	T	186	41.3	5.35	--	--	mg/L
MW-26S	11/30/2021 12:40	0.45 µm	187	41.6	5.28	0.00695	--	mg/L
MW-26S	11/30/2021 12:40	0.20 µm	186	41.5	5.24	--	--	mg/L
MW-26S	11/30/2021 12:40	0.10 µm	199	41.6	5.6	--	--	mg/L
MW-27S	12/1/2021 10:03	T-ISE	--	--	2.7	--	--	mg/L
MW-27S	12/1/2021 10:03	T	323	2690	2.34	--	0.15	mg/L
MW-27S	12/1/2021 10:03	0.45 µm	291	2700	2.32	0.00554	0.001	mg/L
MW-27S	12/1/2021 10:03	0.20 µm	315	2710	2.28	--	0.005	mg/L
MW-27S	12/1/2021 10:03	0.10 µm	290	2640	3.78	--	0.006	mg/L
MW-28S	11/30/2021 12:50	T-ISE*	--	--	13.3	--	--	mg/L
MW-28S	11/30/2021 12:50	T-ISE	--	--	9.84	--	--	mg/L
MW-28S	11/30/2021 12:50	T-ISE	--	--	11	--	--	mg/L
MW-28S	11/30/2021 12:50	T	170	52.3	13.3	--	2.76	mg/L
MW-28S	11/30/2021 12:50	0.45 µm	172	52.8	13.6	0.00758	2.73	mg/L
MW-28S	11/30/2021 12:50	0.20 µm	170	52.2	13.4	--	2.88	mg/L
MW-28S	11/30/2021 12:50	0.10 µm	179	54.2	13.5	--	2.45	mg/L
DUP-MW-28S	11/30/2021 12:50	T-ISE*	--	--	13.2	--	--	mg/L
DUP-MW-28S	11/30/2021 12:50	T-ISE	--	--	11.1	--	--	mg/L
DUP-MW-28S	11/30/2021 12:50	T-ISE	--	--	11	--	--	mg/L
DUP-MW-28S	11/30/2021 12:50	T	173	52.8	13.6	--	--	mg/L
DUP-MW-28S	11/30/2021 12:50	0.45 µm	172	52.9	13.7	0.0116	--	mg/L
DUP-MW-28S	11/30/2021 12:50	0.20 µm	178	54.6	13.6	--	--	mg/L
DUP-MW-28S	11/30/2021 12:50	0.10 µm	190	58	14.6	--	--	mg/L
DUP-MW-28S	11/30/2021 12:55	T	--	--	--	--	2.83	mg/L
DUP-MW-28S	11/30/2021 12:55	0.45 µm	--	--	--	--	3.19	mg/L
DUP-MW-28S	11/30/2021 12:55	0.20 µm	--	--	--	--	2.75	mg/L
DUP-MW-28S	11/30/2021 12:55	0.10 µm	--	--	--	--	3.14	mg/L
MW-30S	11/30/2021 12:05	T-ISE	--	--	4.4	--	--	mg/L

Appendix I - Table 3
Sequential Filtration Results
Appendix I to the 2021 Periodic Review Report for the Reynolds Metals Company LLC
New York
Alcoa Corporation

Well Name	Sample Date and Time	Fraction	Sulfate	Chloride	Fluoride	Aluminum	Cyanide	Units
MW-30S	11/30/2021 12:05	T	197	3.19	5.25	--	--	mg/L
MW-30S	11/30/2021 12:05	0.45 µm	198	2.06	4.9	0.00559	--	mg/L
MW-30S	11/30/2021 12:05	0.20 µm	212	2.1	5.2	--	--	mg/L
MW-30S	11/30/2021 12:05	0.10 µm	209	2.12	5.17	--	--	mg/L
MW-34S	12/1/2021 11:30	T	--	--	--	--	--	mg/L
MW-34S	12/1/2021 11:30	0.45 µm	--	--	--	--	0.002	mg/L
MW-34S	12/1/2021 11:30	0.20 µm	--	--	--	--	0.068	mg/L
MW-34S	12/1/2021 11:30	0.10 µm	--	--	--	--	0.036	mg/L
MW-35SR	12/1/2021 11:40	T-ISE	--	--	1.4	--	--	mg/L
MW-35SR	12/1/2021 11:40	T	590	9.04	1.02	--	--	mg/L
MW-35SR	12/1/2021 11:40	0.45 µm	534	10.2	0.97	0.0034	--	mg/L
MW-35SR	12/1/2021 11:40	0.20 µm	523	9.77	1.02	--	--	mg/L
MW-35SR	12/1/2021 11:40	0.10 µm	511	9.1	1.09	--	--	mg/L
MW-42	12/1/2021 11:47	T-ISE*	--	--	11.0	--	--	mg/L
MW-42	12/1/2021 11:47	T-ISE	--	--	10.4	--	--	mg/L
MW-42	12/1/2021 11:47	T-ISE	--	--	35	--	--	mg/L
MW-42	12/1/2021 11:47	T	1190	244	26.2	--	--	mg/L
MW-42	12/1/2021 11:47	0.45 µm	1220	249	37.1	0.00928	--	mg/L
MW-42	12/1/2021 11:47	0.20 µm	1210	253	37.7	--	0.085	mg/L
MW-42	12/1/2021 11:47	0.10 µm	1180	234	34.1	--	0.204	mg/L
PZ-44	12/1/2021 13:00	T-ISE	--	--	3.4	--	--	mg/L
PZ-44	12/1/2021 13:00	T	1110	245	3	--	--	mg/L
PZ-44	12/1/2021 13:00	0.45 µm	1100	243	3.4	0.00341	--	mg/L
PZ-44	12/1/2021 13:00	0.20 µm	1100	263	2.79	--	--	mg/L
PZ-44	12/1/2021 13:00	0.10 µm	1060	225	3.35	--	--	mg/L
PZ-46	12/1/2021 12:54	T-ISE	--	--	3	--	--	mg/L
PZ-46	12/1/2021 12:54	T	1520	3.37	2.34	--	--	mg/L
PZ-46	12/1/2021 12:54	0.45 µm	1460	6.92	2.77	0.00735	--	mg/L
PZ-46	12/1/2021 12:54	0.20 µm	1480	6.6	2.81	--	--	mg/L
PZ-46	12/1/2021 12:54	0.10 µm	1470	6.82	2.8	--	--	mg/L

Notes:
* Samples identified by T-ISE were measured using SM 4500FC. Samples identified by T, 0.45 µm, 0.20 µm, 0.10 µm were measured by USEPA Method 300.0.
'--' = not sampled
µm = micron
DUP = duplicate
ISE = ion selective electrode
mg/L = milligram per liter
MW = monitoring well
PZ = piezometer
SM = Standard Method
T = total
T-ISE = total fraction measured using ISE Method 4500 F-C.
T-ISE* = total fraction measured using ISE Method 4500 F-C - without distillation step.
USEPA = United States Environmental Protection Agency

Appendix I - Table 4
Geochemical Parameters
Appendix I to the 2021 Periodic Review Report for the Reynolds Metals Company LLC
New York
Alcoa Corporation

Sample ID	Units	MW-10S	MW-43 Dup	MW-14S	MW-26S	MW-28S	MW-43	MW-45	MW-17S	MW-35SR	MW-36	MW-37	MW-41	MW-42	CELL-1-WEST	CELL-3
Date		6/29/2021	6/29/2021	6/29/2021	6/29/2021	6/29/2021	6/29/2021	6/29/2021	7/6/2021	7/1/2021	7/1/2021	7/1/2021	7/1/2021	7/1/2021	12/2/2021	11/30/2021
Filtered or unfiltered		unfiltered	unfiltered	unfiltered	unfiltered	unfiltered	unfiltered	unfiltered	unfiltered	unfiltered	unfiltered	unfiltered	unfiltered	unfiltered	filtered	filtered
Laboratory-Analyzed Parameters																
Bicarbonate	mg/L	431.9	563.6	564.9	430.7	353.8	563.6	678.3	551.4	706.4	1330	351.4	389.2	1781	636	134
Chloride	mg/L	9.66	11.4	15.1	36.2	59.4	11.4	11.9	80.9	35	15.6	31.6	43.9	230	20.9	1.82
Fluoride	mg/L	0.14	0.225	0.701	5.26	12.3	0.22	0.415	0.913	0.888	2.27	0.32	0.201	19.7	9.26	0.598
Sulfate (as SO_4)	mg/L	148	141	393	186	182	141	562	177	878	372	314	333	1260	66.1	13.2
Nitrate (as NO_3)	mg/L	0.045	0.76	0.04	0.033	0.025	0.75	0.042	0.33	0.028	0.032	< 0.1	0.096	0.029	0.909	< 0.05
Phosphate (as HPO_4)	mg/L	0.03133	3.477	0.04042	6.043	< 0.03133	3.477	0.07175	0.05558	3.002	12.53	32.34	0.4497	77.11	0.028	0.043
Calcium	mg/L	82	192	73.1	169	22.8	171	156	89.8	243	413	175	90.7	367	82	37
Magnesium	mg/L	42.7	68.8	74.4	64.3	11.9	63.8	67.9	43.4	148	171	122	67.4	169	32.6	17.8
Potassium	mg/L	1.44	6.32	5.48	7.44	0.685	5.85	2.93	3.69	5.97	21.5	10	5.65	18.6	1.676	2.435
Sodium	mg/L	45.3	20.8	87.8	63.1	205	19.8	214	107	92	663	35.8	87	687	131.9	4.532
Total Suspended Solids	mg/L	3.2	1900	4.8	2500	< 1	480	7.8	10	780	7800	43000	520	16000	2.2	13
Field-Measured Parameters																
Turbidity	NTU	2	>1000	9	>1000	2	>1000	30	27	892	>1000	>1000	126	969	58	6
Electrical conductivity	µS/cm	731	887	1230	908	986	887	1739	1010	1811	2277	928	1067	2938	881	44
pH	s.u.	7.5	7.28	7.59	7.52	8.45	7.28	7.06	7.37	7.19	8.52	7.65	7.66	7.8	7.52	7.25
Temperature	°C	13.9	13.9	13	16.9	12.8	13.9	13.8	13.8	12.1	13.5	11.9	13.4	15.9	8.5	3.2
Calculated Parameters																
Charge imbalance error	percent	-1.98%	18.70%	-13.45%	18.48%	-4.14%	13.43%	3.68%	-5.79%	-2.29%	39.64%	24.08%	-1.18%	-1.40%	1.73%	23.57%
Water type		$Ca\text{-}HCO_3$	$Ca\text{-}HCO_3$	$Mg\text{-}HCO_3$	$Ca\text{-}HCO_3$	$Na\text{-}HCO_3$	$Ca\text{-}HCO_3$	$Na\text{-}SO_4$	$Na\text{-}HCO_3$	$Mg\text{-}SO_4$	$Na\text{-}HCO_3$	$Mg\text{-}HCO_3$	$Mg\text{-}HCO_3$	$Na\text{-}HCO_3$	$Na\text{-}HCO_3$	$Ca\text{-}HCO_3$
Fluorapatite SI	log Q/K	14.69	18	15.19	18	17.18	18	15.11	15.79	18	18	18	18	18	16.44	13.92
Fluorite SI	log Q/K	-2.26	-1.56	-1.02	1.08	1.10	-1.62	-1.21	-0.63	-0.45	0.49	-1.35	-1.99	2.20	1.46	-1.01
Gypsum SI	log Q/K	-1.60	-1.37	-1.34	-1.31	-2.03	-1.40	-0.95	-1.53	-0.69	-0.95	-1.13	-1.30	-0.56	-1.94	-2.73
Gibbsite SI	log Q/K	0.82	1.00	0.78	0.57	-0.38	1.01	0.71	0.93	1.16	-0.18	2.98	1.69	-0.19	1.17	2.47
Dolomite-disordered	log Q/K	0.05	0.30	0.45	0.61	0.62	0.23	-0.34	-0.04	0.34	3.85	0.71	0.39	2.55	0.07	-2.45
Calcite	log Q/K	0.44	0.64	0.50	0.77	0.73	0.60	0.28	0.41	0.55	2.38	0.72	0.53	1.69	0.55	-0.71

Appendix I - Table 4
Geochemical Parameters
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New York
Alcoa Corporation

Sample ID	Units	DONDERO-CANAL	GRASSE-UG	MICRO-POOL	MW-19S	SLPWETE-DUP	MW-28S-DUP	MW-28S	MW-40S	MW-43	MW-44	POLLY-GUT	PZ-10	PZ-6	RAQUETTE-DG	RAQUETTE-UG	SLPWETE	SLPWETW	ST-LAWRENCE-DG	STW-POND
Date		11/29/2021	11/29/2021	11/30/2021	12/1/2021	11/29/2021	11/30/2021	11/30/2021	11/30/2021	12/2/2021	12/2/2021	11/29/2021	11/30/2021	12/2/2021	11/29/2021	11/30/2021	11/29/2021	11/29/2021	11/30/2021	11/29/2021
Filtered or unfiltered		filtered	filtered	filtered	filtered	filtered	filtered	filtered	filtered	filtered	filtered	filtered	filtered	filtered	filtered	filtered	filtered	filtered	filtered	filtered
Laboratory-Analyzed Parameters																				
Bicarbonate	mg/L	116	68	327	473	290	357	371	864	583	544	112	1391	5246	49	40	289	332	106	359
Chloride	mg/L	24.1	16.5	34.7	24.3	34.2	52.4	50.6	18.8	5.73	5.71	23.3	79.7	16.4	16.6	11.5	34	5.52	23	7.22
Fluoride	mg/L	0.14	0.136	3.12	3.12	4.08	13.7	14.6	0.258	0.271	0.409	0.11	3.5	128	0.072	0.1	4.06	3.05	0.13	4.22
Sulfate (as SO_4)	mg/L	22.5	10.4	44.2	90.1	15.1	169	161	55.4	109	94.1	22.3	164	82.7	5.36	4.48	14.9	56.3	21.9	77.3
Nitrate (as NO_3)	mg/L	0.292	0.441	0.173	< 0.05	< 0.05	< 0.05	1.19	0.132	1.65	1.59	0.349	< 0.05	< 2.5	0.177	0.19	< 0.05	< 0.05	0.351	< 0.05
Phosphate (as HPO_4)	mg/L	0.012	0.028	0.022	0.015	0.015	< 0.031	< 0.031	0.384	0.012	< 0.031	< 0.031	0.089	0.749	< 0.031	< 0.031	0.043	0.015	< 0.031	0.577
Calcium	mg/L	33.8	18	71.1	59.7	49	26	26.6	91.3	132	120	33.2	137	3.6	10.6	9.58	49.8	75.5	32.1	83.6
Magnesium	mg/L	8.57	6.27	26	14.6	20.2	12.7	13.1	51.2	42.8	38	8.5	54.3	2.87	3.6	3.18	20.1	27.5	8.14	30.1
Potassium	mg/L	1.648	0.9634	2.388	8.786	3.249	0.869	0.9636	7.135	2.629	2.436	1.664	1.742	3.254	0.5584	0.5007	3.184	2.446	1.542	1.851
Sodium	mg/L	14.06	9.932	47.98	140.9	55.16	230.4	227.9	120	23.52	31.82	14.04	415.8	3475	10.17	6.598	54.83	18.11	13.54	27.16
Total Suspended Solids	mg/L	1.2	1.9	< 1	120	3	1.2	2	5.8	580	57	< 1	120	280	1.9	2.1	3.1	2.3	< 1	7
Field-Measured Parameters																				
Turbidity	NTU	1.87	4.58	1	4	0	32	32	1	>1000	38	0.85	250	308	1.65	2	---	---	3	---
Electrical conductivity	µS/cm	211	124.3	420	703	397.8	903	903	1054	774	827	203.2	1920	8700	103.5	74	397.8	374.9	210.2	425.4
pH	s.u.	8.01	7.77	7.51	7.62	7.97	8.55	8.55	7.44	7.12	7.18	7.79	7.15	10.06	7.51	7.53	7.97	7.75	8.34	8.14
Temperature	°C	4.2	2.8	2.6	9.5	4.3	10.5	10.5	9.4	8.7	9.6	4.7	9.4	9.7	3.8	3.9	4.3	0.9	5.1	1.7
Calculated Parameters																				
Charge imbalance error	percent	0.54%	3.32%	6.00%	2.46%	3.69%	3.15%	2.68%	-1.99%	3.73%	4.09%	2.16%	7.94%	5.80%	-1.46%	0.65%	4.04%	1.65%	0.93%	0.07%
Water type		Ca-HCO_3	Ca-HCO_3	Ca-HCO_3	Na-HCO_3	Na-HCO_3	Na-HCO_3	Na-HCO_3	Na-HCO_3	Ca-HCO_3	Ca-HCO_3	Ca-HCO_3	Na-HCO_3	Na-CO3	Ca-HCO_3	Ca-HCO_3	Na-HCO_3	Ca-HCO_3	Ca-HCO_3	Ca-HCO_3
Fluorapatite SI	log Q/K	14.31	13.55	15.62	15.12	16.24	17.74	17.82	18.01	13.18	14.73	14.7	16.49	17.28	11.5	11.57	17.64	16.06	16.46	22.27
Fluorite SI	log Q/K	-2.30	-2.52	0.63	0.41	0.71	1.28	1.35	-1.65	-1.41	-1.09	-2.52	0.68	1.26	-3.29	-3.04	0.71	0.67	-2.40	0.96
Gypsum SI	log Q/K	-2.53	-3.06	-2.06	-1.89	-2.65	-2.01	-2.02	-2.02	-1.54	-1.63	-2.54	-1.51	-4.49	-3.53	-3.64	-2.65	-1.92	-2.56	-1.78
Gibbsite SI	log Q/K	0.72	2.21	1.53	0.99	0.77	0.19	0.26	0.69	1.47	1.37	0.89	0.64	-0.29	2.35	2.34	0.83	1.24	0.42	1.20
Dolomite-disordered	log Q/K	-1.26	-2.62	-0.84	-0.38	-0.13	0.81	0.86	0.40	-0.56	-0.52	-1.73	0.19	2.15	-3.83	-4.04	-0.12	-0.34	-0.67	0.61
Calcite	log Q/K	0.02	-0.71	0.16	0.42	0.48	0.85	0.88	0.63	0.27	0.30	-0.22	0.59	1.31	-1.33	-1.42	0.48	0.42	0.31	0.89

Appendix I - Table 4
Geochemical Parameters
Appendix I to the 2021 Periodic Review Report for the Reynolds Metals Company LLC
New York
Alcoa Corporation

Notes

Bicarbonate is calculated as the total alkalinity multiplied by a factor of 1.22.

Analyzed phosphate concetration recalcualted as HPO_4 ion for geochemcial calcualtions.

Red values indicate charge balance exceeds 10 percent.

< = indicates value is below laboratory reporting limit.

°C = degrees Celsius

µS/cm = microsiemens per centimeter

Ca-HCO_3 = calcium bicarbonate

Na-CO3 = sodium carbonate

HPO_4 = hydrogen phosphate

log Q/K =

mg/L = milligrams per liter

Mg-HCO_3 = magnesium bicarbonate

Mg-SO_4 = magnesium sulfate

Na-HCO_3 = sodium bicarbonate

Na-SO_4 = sodium sulfonate

NTU = nephelometric turbidity unit

SI = saturation index

SI = mineral saturation index

s.u. = standard units

Appendix I - Table 5
Field Parameters
Appendix I to the 2021 Periodic Review Report for the Reynolds Metals Company LLC
New York
Alcoa Corporation

Surface Water													
Parameter	Locations												
	STW-POND	Cell 1 West	Cell 1 East	Micropool	St Lawrence	SLPWETE	Cell 3	Polly Gut	Dondero canal	Grasse UG	Raquette DG	Raquette UG	SLPWETW
Turbidity (NTU)	---	58	---	1	3	---	6	0.85	1.87	4.58	1.65	2	---
Conductivity (mS/cm)	0.4254	0.881	---	0.42	0.2102	0.3978	0.044	0.2032	0.211	0.1243	0.1035	0.074	0.3749
pH (SU)	8.14	7.52	---	7.51	8.34	7.97	7.25	7.79	8.01	7.77	7.51	7.53	7.75
Temp (°C)	1.7	8.5	---	2.6	5.1	4.3	3.2	4.7	4.2	2.8	3.8	3.9	0.9
Eh (mV)	43.6	69.7	---	70.5	76.3	35.6	83.3	53.3	33	25.3	26.5	81.3	53.2

Ground Water													
Parameter	Locations												
	MW-03	MW-12S	MW-13S	MW-15S	MW-16S	MW-17S	MW-18S	MW-19S	MW-26S	MW-27S	MW-28S	MW-30S	MW-34S
Turbidity	22.4	29	27	7	37	8	16	4	11	87	32	76	140
Conductivity	1.028	2.631	4.728	0.803	0.846	1.129	1.364	0.703	0.743	6.84	0.903	0.823	2.307
pH	8.14	7.68	7.22	7.72	8	7.5	-60.7	7.62	7.63	7.52	8.55	7.36	7.97
Temp	10.1	8.7	9.1	8.3	6.3	7.6	7.2	9.5	5.7	10.4	10.5	9.9	8.5
Eh	2225.5	99.3	104.8	103.2	119.1	137.6	114.5	146.2	105.5	112	65.1	84.9	44.3

Ground Water									
Parameter	Locations								
	MW-35SR	MW-40S	MW-42	MW-43	MW-44	PZ-6	PZ-10	PZ-44	PZ-48
Turbidity	873	1	>1000	>1000	38	308	250	81	>1000
Conductivity	1.382	1.054	2.9	0.774	0.827	8.7	1.92	2.163	1.772
pH	7.22	7.44	7.9	7.12	7.18	10.06	7.15	7.16	7.4
Temp	9	9.4	8.8	8.7	9.6	9.7	9.4	6	5.4
Eh	100.9	60.9	128.3	120.1	94.3	-144.9	124.7	-36.2	45.5

Notes:

> = greater than
--- = not sampled
DG = down gradient
Eh = redox potential
STW = stormwater
UG = upgradient

°C = degrees Celsius
µS/cm = microsiemens per centimeter
mV = millivolts
NTU = nephelometric turbidity units
SU = standard units
Temp = temperature
Yellow shading indicates an erroneous measurement was recorded.

Appendix I - Table 6
Sample Methodology
Appendix I to the 2021 Periodic Review Report for the Reynolds Metals Company LLC
New York
Alcoa Corporation - Reynolds Metals Company, LLC

Monitoring Well	Sequential Filtration Parameters	June 2021 Pump Type	November 2021 Sequential Filtration Pump Type	Target 3 Well Volumes for Purging November 2021 (Gallons)	Actual Volume Purged November 2021 (Gallons)	Notes
MW-03S	CN	Peristaltic	Peristaltic	8.2	Dry after 6	In June, change in total depth from 17.9 to 22.58 ft BTOC was noted on field sampling sheet. June DTW 6.66 ft, Nov. DTW 11.7 ft and no change in TD noted. Historic data always greater than 8 ft and generally around 9 or 10.
MW-12S	F, SO_4, Cl, Al	Waterra	Peristaltic	6	Dry after 4	
MW-13S	F, SO_4, Cl, Al	Waterra	Peristaltic	6	Dry after 4	
MW-15S-87	F, SO_4, Cl, Al	Waterra	Waterra	9.6	Dry after 5.75	In June, 15S-87 required an additional sampling event due to lack of water (sampled 7/1/2021 and 7/6/2021). June static water 14.43 feet; Nov 5.48 feet. Note in June that total depth changed from 24.85 to 25.40; no similar note on Nov sampling sheets. Also, June notes indicate 2 sampling events. Historical data show 15S-87 DTW always > 15 ft bgs.
MW-16S	F, SO_4, Cl, Al	Waterra	Waterra	2.5	2.5	
MW-17S	F, SO_4, Cl, Al	Waterra	Peristaltic	5.5	Dry after 4.5	
MW-18S	F, SO_4, Cl, Al, CN	Waterra	Waterra	4.1	4.1	
MW-19S	F, SO_4, Cl, Al	Waterra/Peristaltic	Peristaltic	2.7	2.7	In June, 19S "This well required a change from waterra to peristaltic". Not clear if entire purging or partial purging completed with peristaltic pump.
MW-26S	F, SO_4, Cl, Al	Waterra	Waterra	10.5	Dry after 5.25	
MW-27S	F, SO_4, Cl, Al, CN	Waterra	Peristaltic	7	Dry after 5.0	
MW-28S	F, SO_4, Cl, Al, CN	Waterra	Waterra	6.6	6.6	
MW-30S	F, SO_4, Cl, Al	Waterra	Peristaltic	6	Dry after 6.0	
MW-34S	CN	Waterra	Waterra	10.71	Dry after 4.75	
MW-35SR	F, SO_4, Cl, Al	Waterra	Waterra	8.6	Notes Unclear	
MW-42	F, SO_4, Cl, Al, CN	Waterra	Waterra	13.4	Dry after 4.5	
PZ-44	F, SO_4, Cl, Al	Peristaltic	Peristaltic	Not Recorded	Not Recorded	In June, PZ-44 required an additional sampling event due to lack of water (Sampled 7/1/2021 and 7/6/2021).
PZ-46	F, SO_4, Cl, Al	Peristaltic	Peristaltic	10.2	Not Recorded	

Notes:

Al = Aluminum	bgs = below ground surface
Cl = Chloride	DTW = depth to water
CN = Cyanide	ft = feet
F = Fluoride	TD = total depth
SO_4 = Sulfate	BTOC = below top of casing

Figures

St. Lawrence River

French Drain

North Yard

Former Potliner Storage Pad

Containment Wall

Black Mud Pond

Landfill

Landfill Trench

Raquette River

MW-35SR
MW-43
MW-44
MW-43 Dup
MW-42
MW-36
MW-37
MW-41
MW-19S
MW-17S
MW-34S
MW-28S
MW-26S
MW-28S-DUP
MW-18S
MW-16S
MW-03S
MW-27S
MW-12S
MW-13S
MW-14S
MW-15S(87)
PZ-44
PZ-46
MW-30S
MW-10S
PZ-6
MW-40S
PZ-10
SLPWETE
SLPWETE-DUP
SLPWETW
CELL-3
MW-45
CELL-1-WEST
MICRO-POOL

POLLY-GUT
ST-LAWRENCE-DG
DONDERO-CANAL
GRASSE-UG
RAQUETTE-DG
PZ-10
MW-40S
SLPWETW
CELL-3
MICRO-POOL
PZ-6
CELL-1-WEST
STW-POND
RAQUETTE-UG

0 1 2 mi

0 250 500 ft

Nov-Dec 2021 Geochemistry

June-July 2021 Geochemistry

Nov-Dec 2021 Sequential Filtration

Cyanide (SM 4500-CN-CE)

Fluoride, sulfate, chloride (USEPA 300.0); Filtered aluminum (USEPA 6020B)

Fluoride, sulfate, chloride (USEPA 300.0); Filtered aluminum (USEPA 6020B); Cyanide (SM 4500-CN-CE)

EHS Support

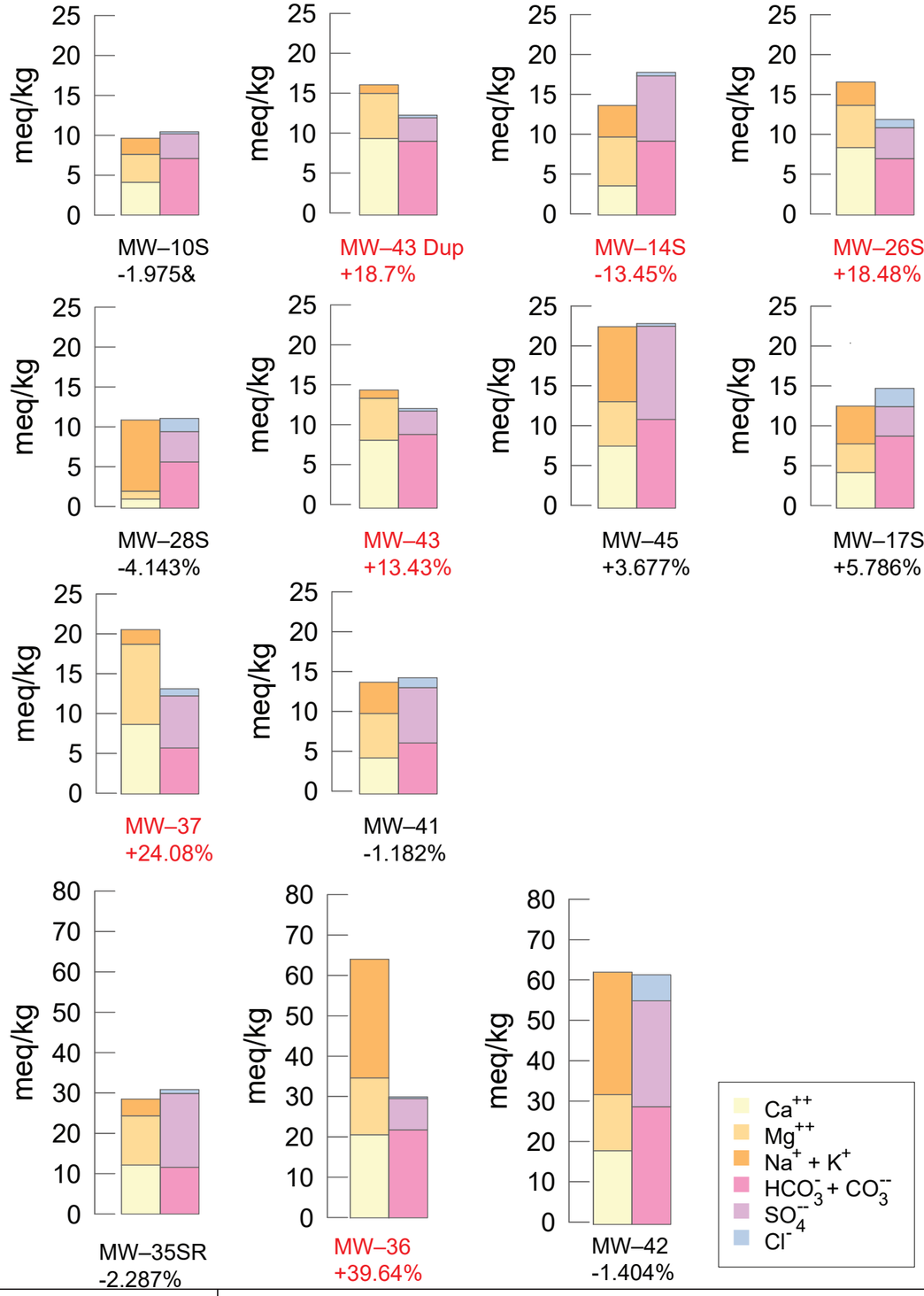
Reynolds Metals Company LLC/St. Lawrence Reduction Plant
Massena, New York

Sampling Locations
Supplemental Groundwater and Surface Water Analyses

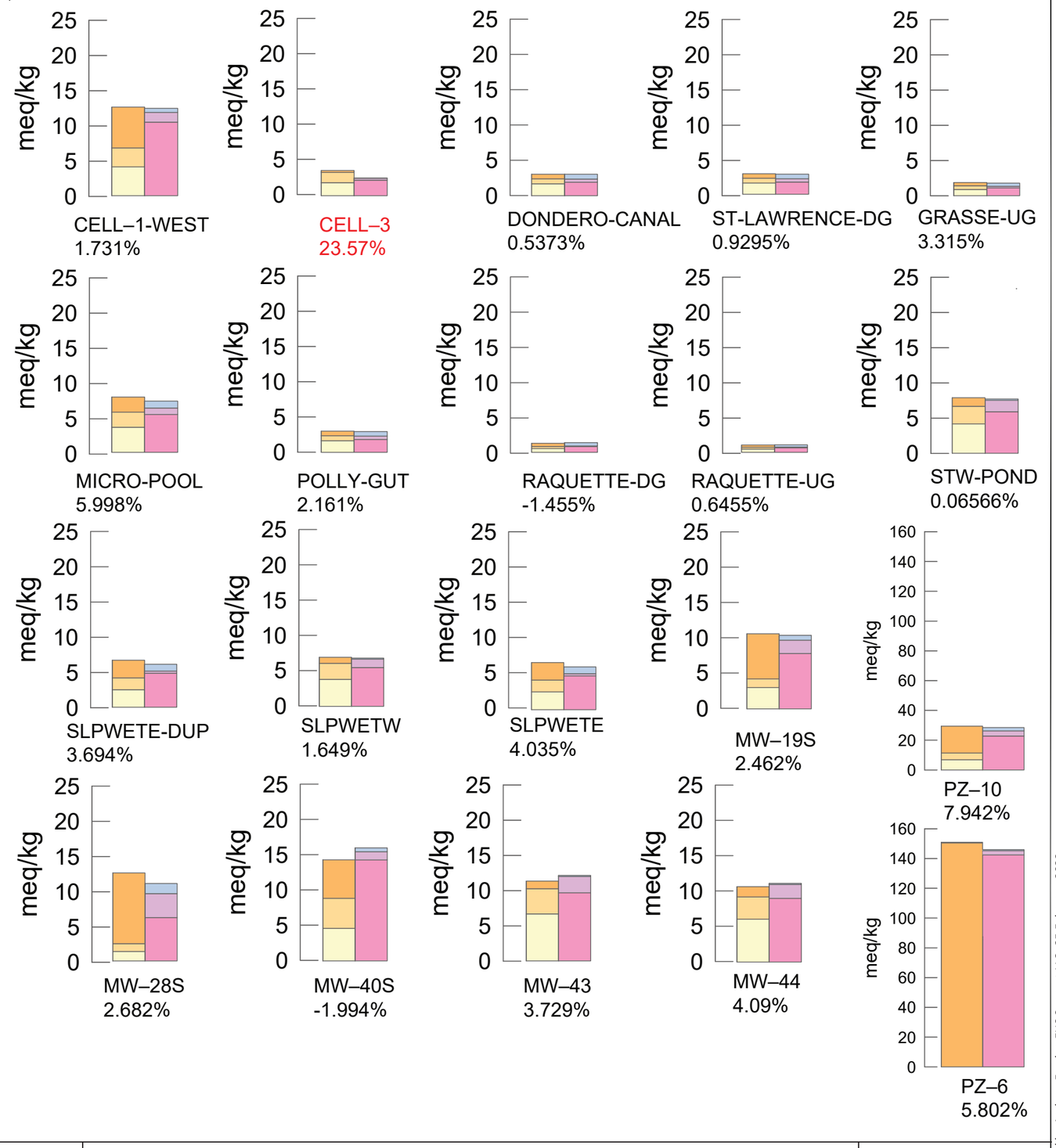
Figure 1

Developed by Andrew Fowler, EHS Support, 1 March 2022

June/July 2021 Results

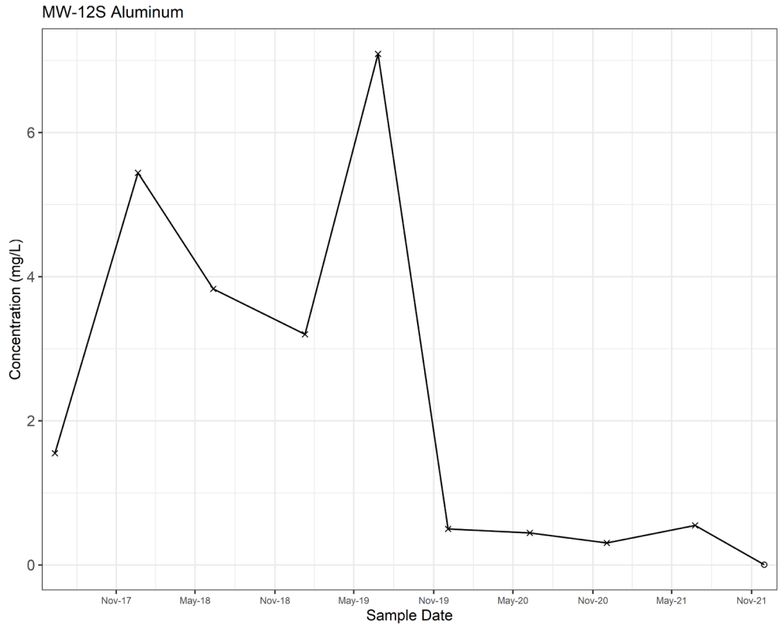


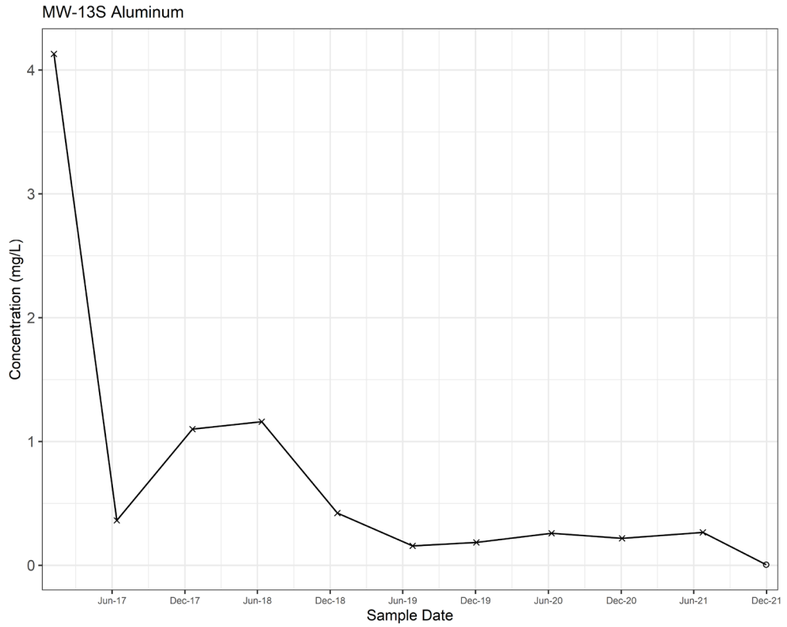
November/December 2021 Results

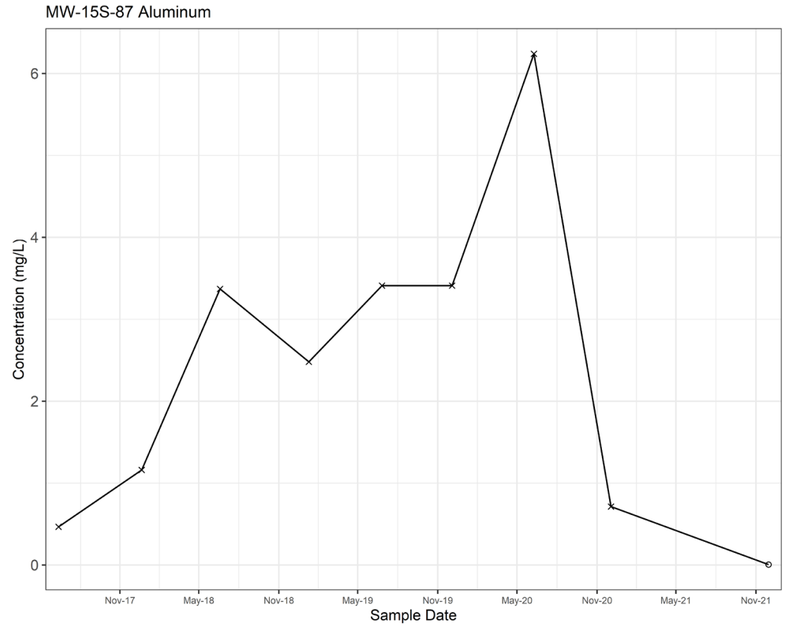


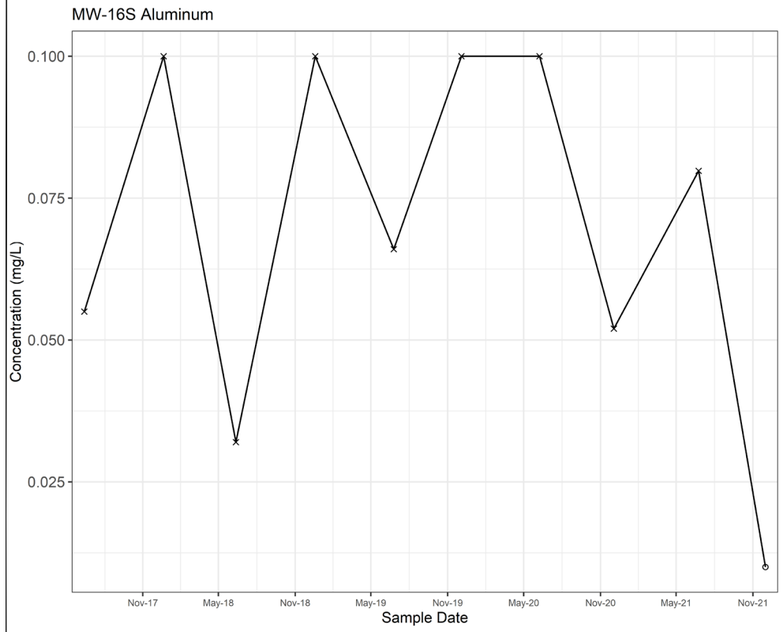
EHS Support	Reynolds Metals Company LLC/St. Lawrence Reduction Plant Massena, New York	Charge Balance Assessment Supplemental Groundwater and Surface Water Analyses	Figure 2

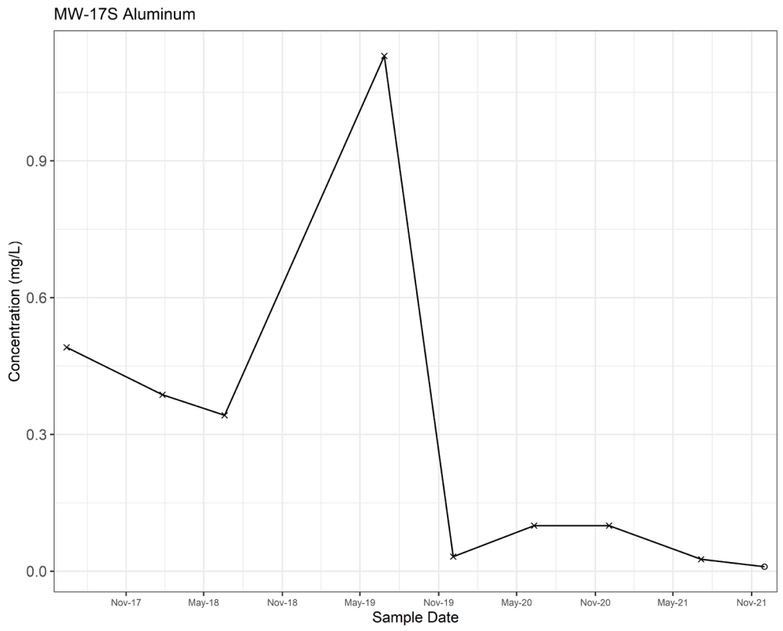
Developed by Andrew Fowler, EHS Support LLC - 25 February 2022

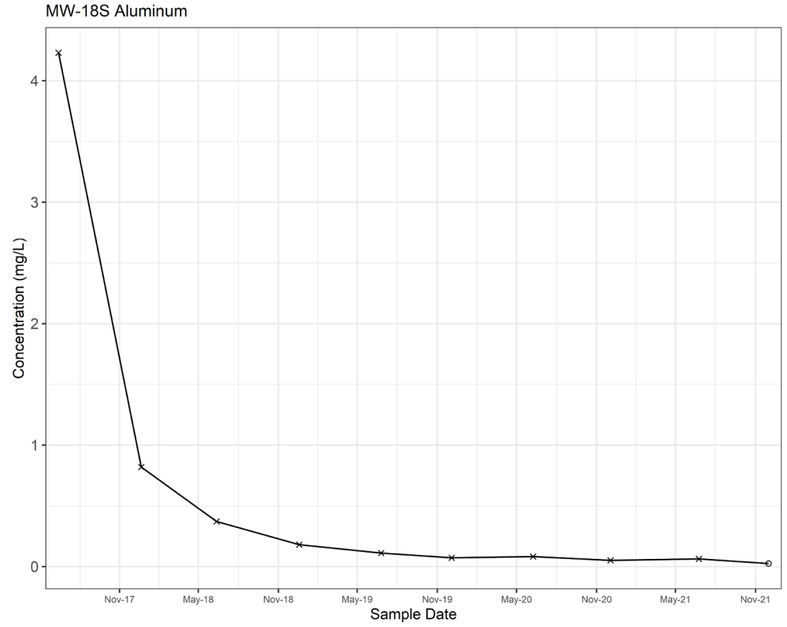












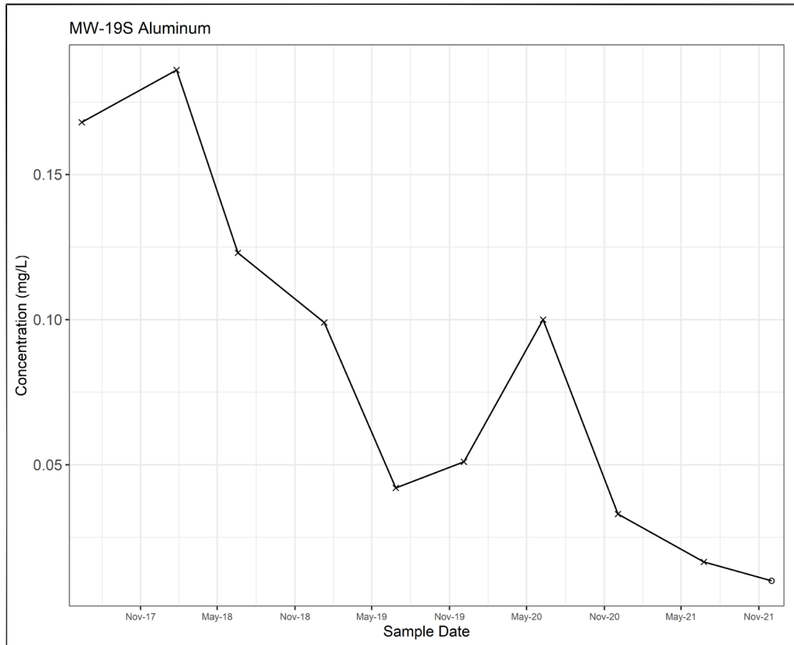
EHS Support

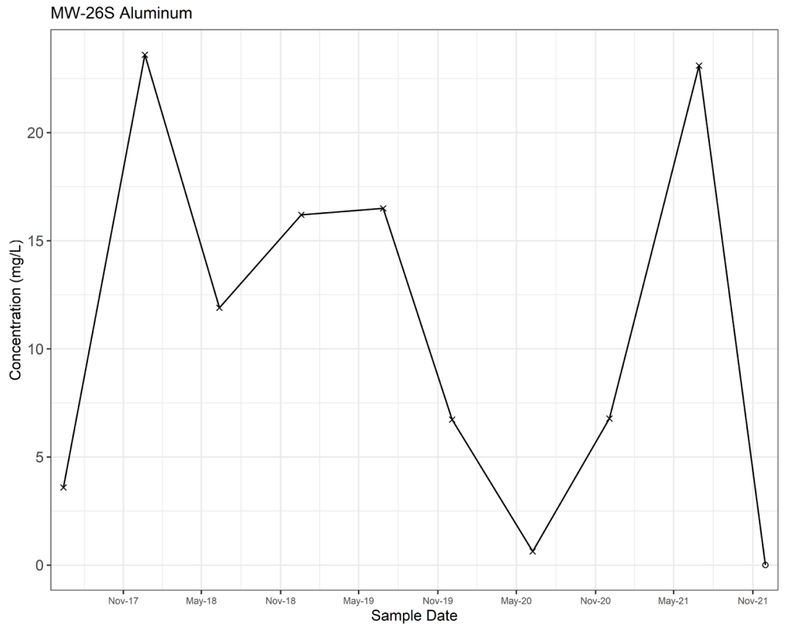
Reynolds Metals Company LLC/St. Lawrence Reduction Plant
Massena, New York

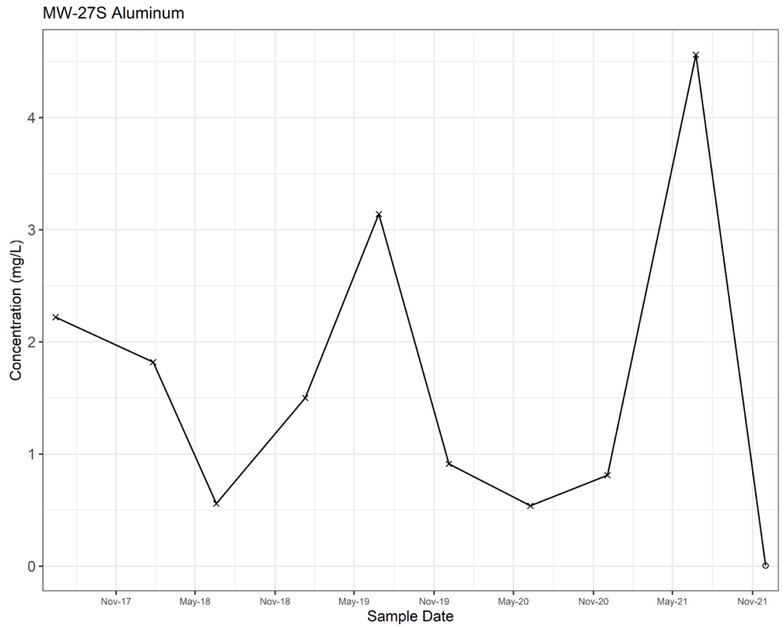
Historical Total Aluminum Compared to November 2021 Dissolved Aluminum Results
Supplemental Groundwater and Surface Water Analysis

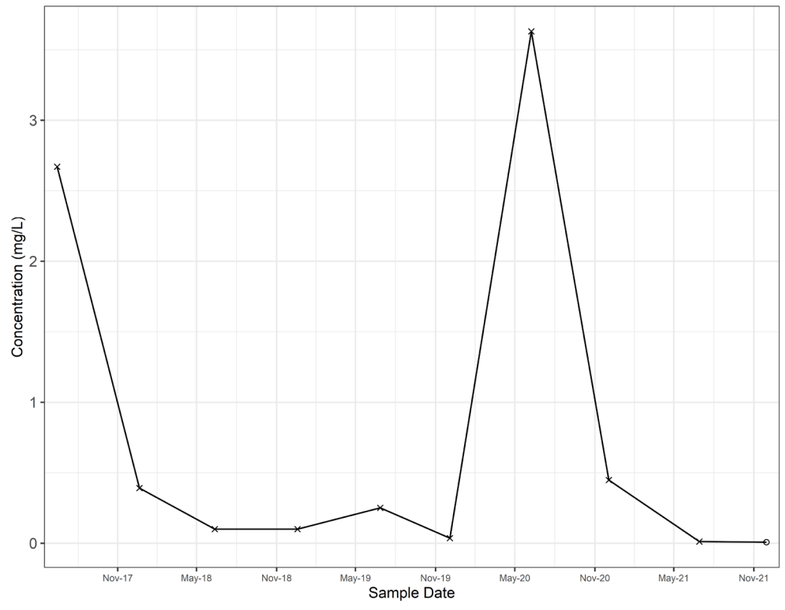
Figure 3

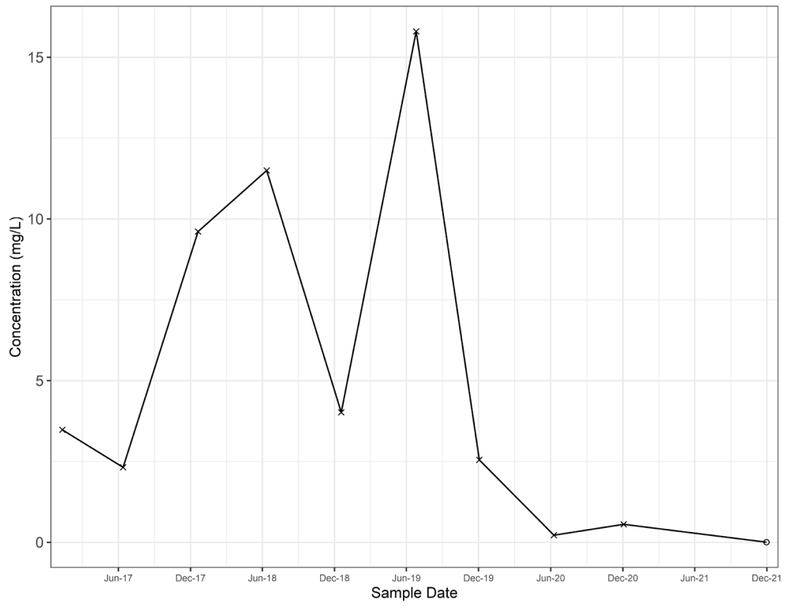
Developed by Andrew Fowler, EHS Support LLC., 25 February 2022

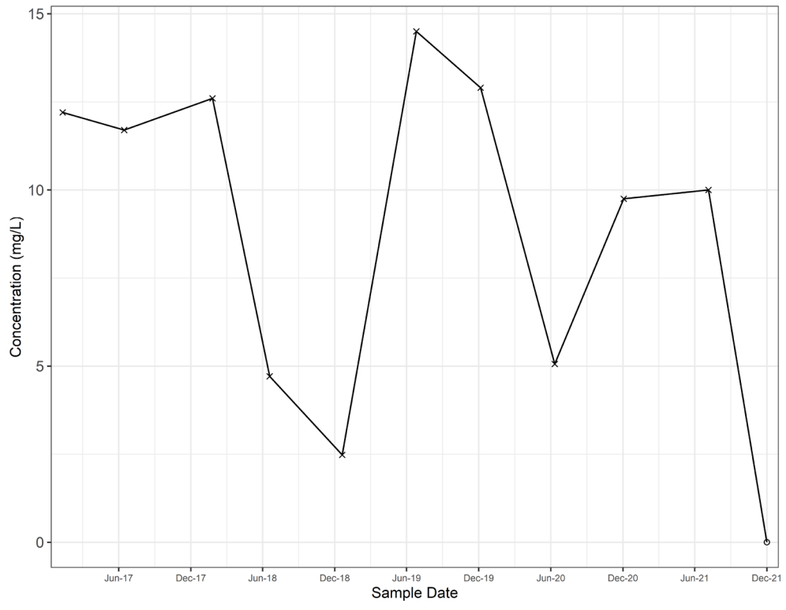












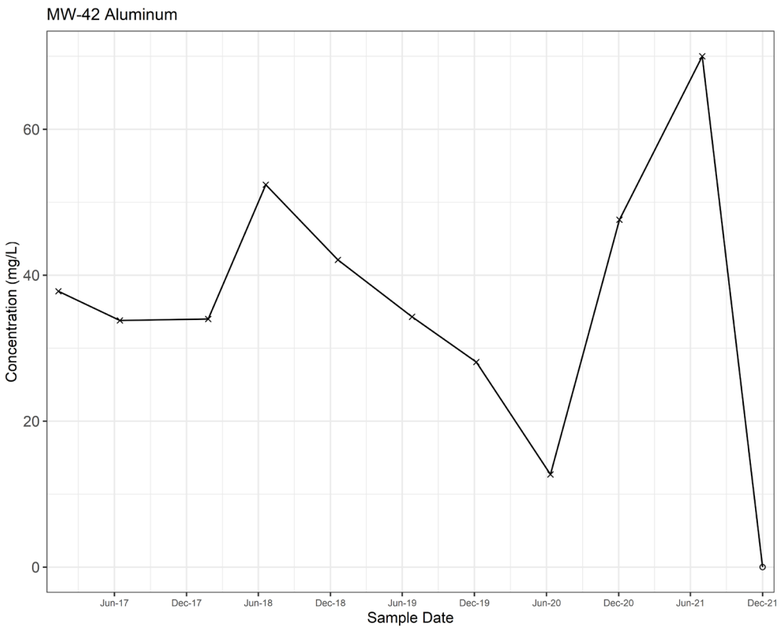
EHS Support

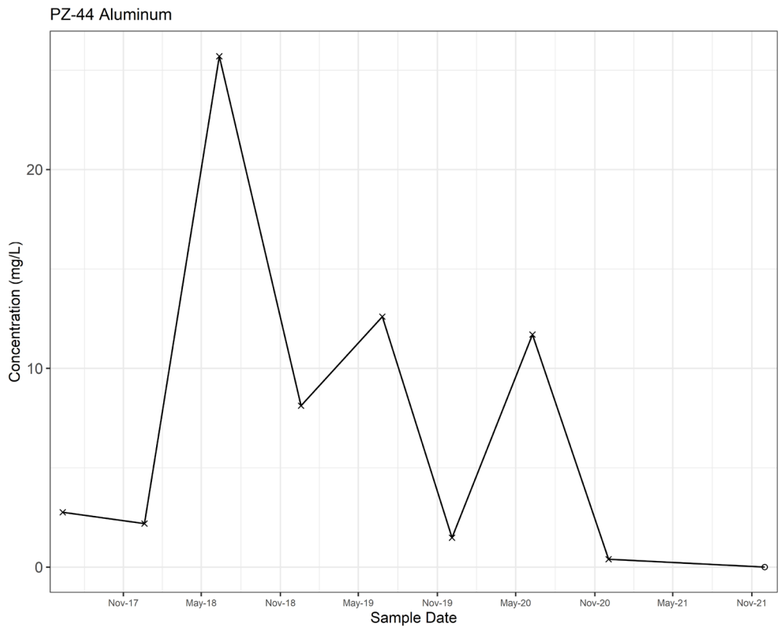
Reynolds Metals Company LLC/St. Lawrence Reduction Plant
Massena, New York

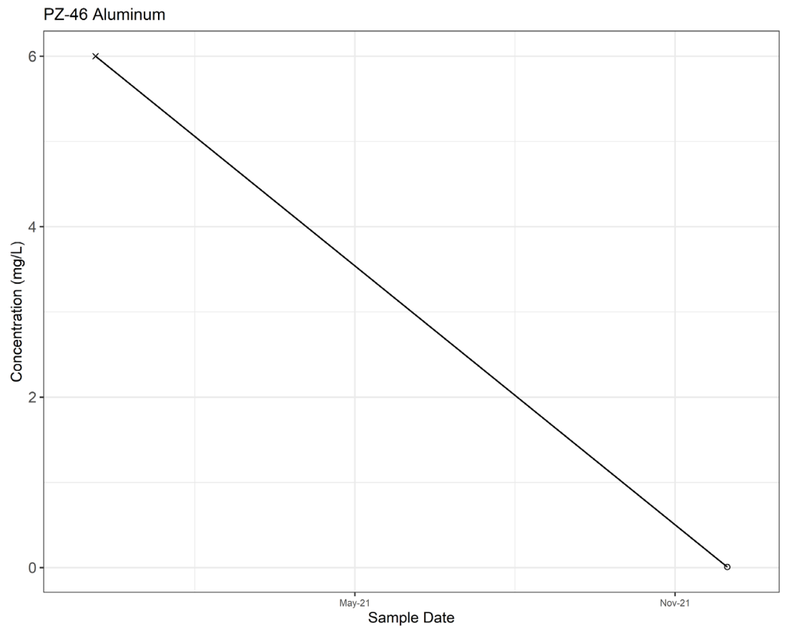
Historical Total Aluminum Compared to November 2021 Dissolved Aluminum Results
Supplemental Groundwater and Surface Water Analysis

Figure 3

Developed by Andrew Fowler, EHS Support LLC., 25 February 2022

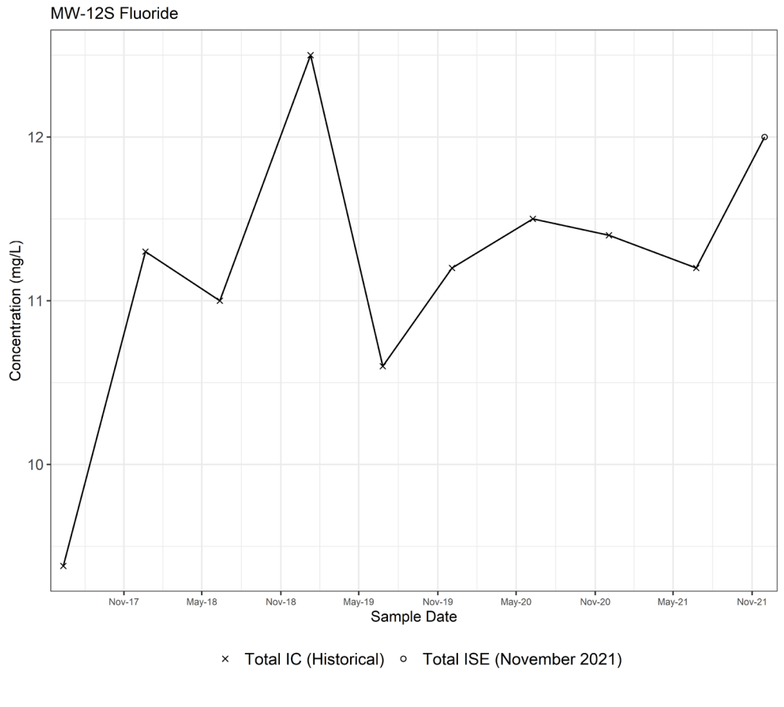


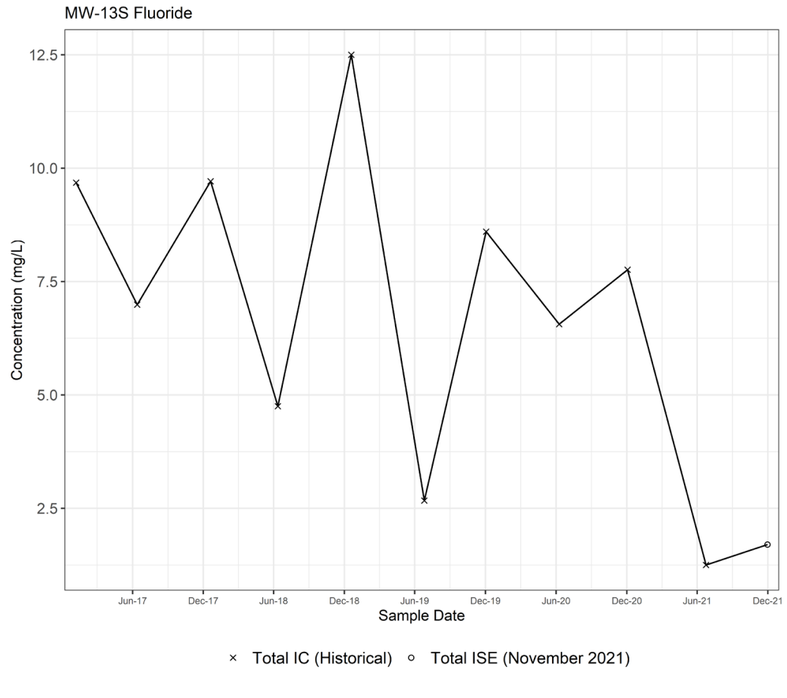


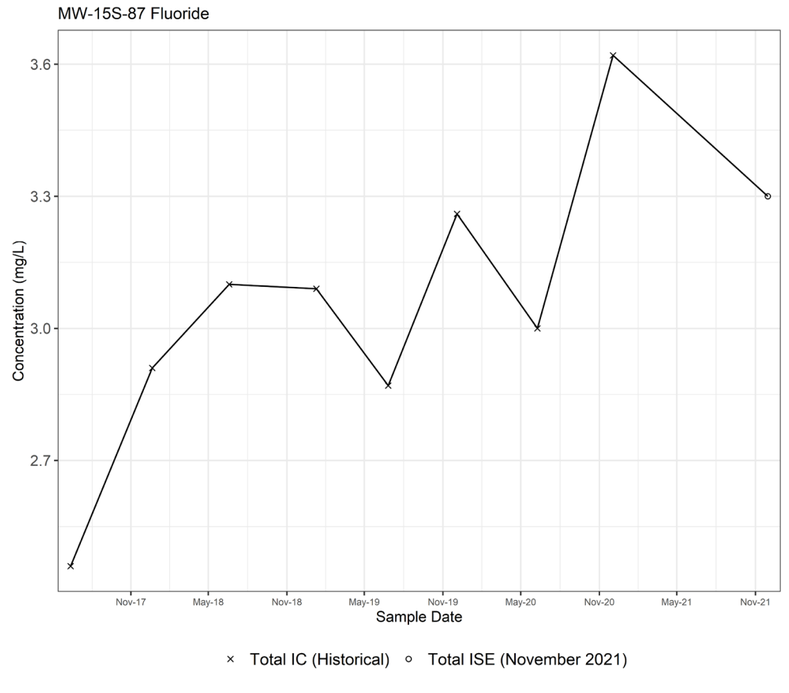


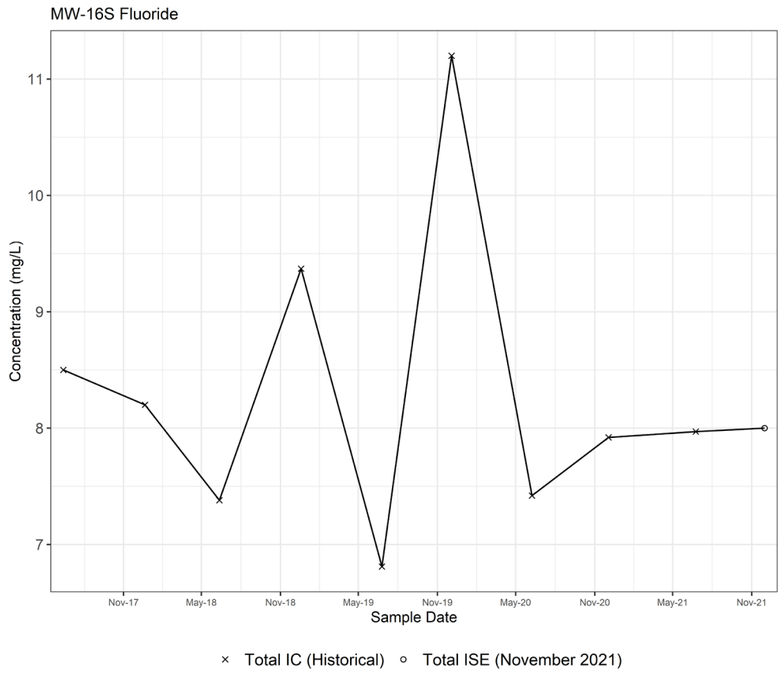
EHS Support	Reynolds Metals Company LLC/St. Lawrence Reduction Plant Massena, New York	Historical Total Aluminum Compared to November 2021 Dissolved Aluminum Results Supplemental Groundwater and Surface Water Analysis	Figure 3

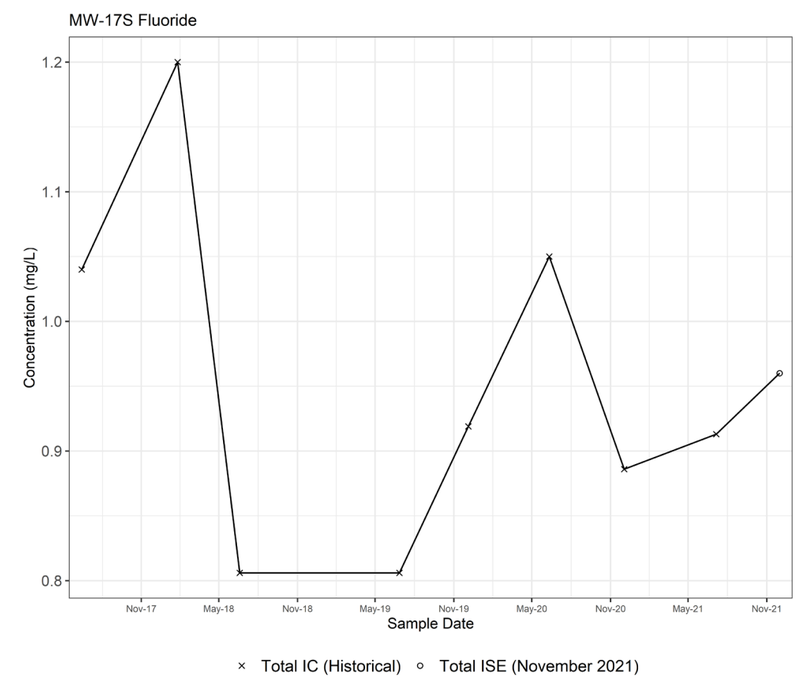
Developed by Andrew Fowler, EHS Support LLC., 25 February 2022

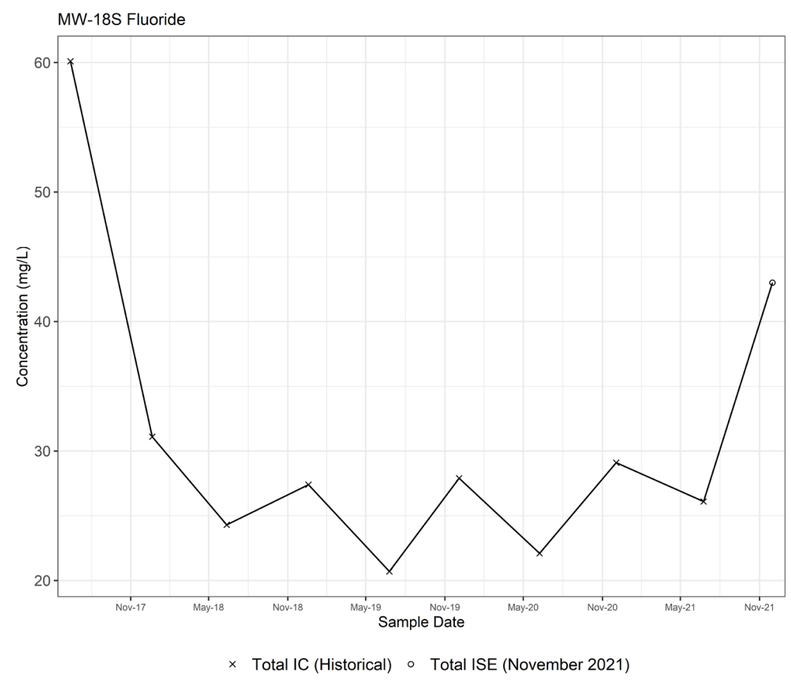












EHS Support

Reynolds Metals Company LLC/St. Lawrence Reduction Plant
Massena, New York

Historical Fluoride ISE Results Compared to November/December 2021 Fluoride IC Results
Supplemental Groundwater and Surface Water Analysis

Figure 4

Developed by Andrew Fowler, EHS Support LLC, 25 February 2022

Attachment 1 Field Sampling Sheets

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # STW-POND-AS-0921 **SITE:SLP** **DATE** 11/29/21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JG/AV

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME _____ **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
11/29/21	3:45	-	0.4254	8.14	1.7	43.6

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

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Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # ~~SLPWETW-AS-0921~~ Cell-2-West | SITE:SLP | DATE 12-2-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X | SAMPLED BY SC/SG

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME _____ GALLONS

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-2	0935	55	0.937	7.52	8.5	6.97

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
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Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-42-AS-0921 **SITE:SLP** **DATE** 11.17.21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** JL

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**		GALLONS
TOTAL DEPTH	47.15	FEET	**#2 VOLUME**		GALLONS
STATIC LEVEL	20.85	FEET	**#3 VOLUME**	13.4	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 4.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-1	1147	>1000	2.902	7.90	8.15	122.3

STATIC AT SAMPLING 23.5 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
MS/MSD

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
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Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-16S-AS-0921 | SITE:SLP | DATE 11.22.21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY SC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	#1 VOLUME	GALLONS
TOTAL DEPTH	23.5	FEET	#2 VOLUME	GALLONS
STATIC LEVEL	19.63	FEET	#3 VOLUME	2.5 GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-1	1232	37	0.846	5.40	6.13	112.1

STATIC AT SAMPLING 19.63 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

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Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-03-AS-0921 **SITE:SLP** **DATE** 11-21-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** SC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	17.9	FEET
STATIC LEVEL	11.7	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 5.2 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 6 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-1	1202	22.4	1.028	8.14	10.1	225.5

STATIC AT SAMPLING 12.07 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
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Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # RAQUETTE-UG-AS-0921 **SITE:SLP** **DATE** 11/30/21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JCT/AW

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME _____ **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
11/30/21	8:35	2.0	0.0740	7.53	3.9	81.3

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # SLPWETW-AS-0921 **SITE:** SLP **DATE** 11/29/21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JG/AW

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME _____ **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
11/29/21	4:00	-	0.3949	7.75	0.9	53.2

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-40S-AS-0921 | SITE: SLP | DATE 11-29-21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	#1 VOLUME		GALLONS
TOTAL DEPTH	17.50	FEET	#2 VOLUME		GALLONS
STATIC LEVEL	1.98	FEET	#3 VOLUME	2.9	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 5.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
11-30	1144	1	1.054	7.14	9.4	60.9

STATIC AT SAMPLING 2.05 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-19S-AS-0921 **SITE:SLP** **DATE** 11-29-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	18.00	FEET
STATIC LEVEL	12.3	FEET

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	2.4	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-1	1214	4	0.109	7.62	9.5	146.2

STATIC AT SAMPLING 13.65 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-27S-AS-0921 | SITE:SLP | DATE 11-29-21

PURGE METHOD: WATERRA | BAILER | GRUNDFOS | PERISTALTIC X | SAMPLED BY JK

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	23.00	FEET
STATIC LEVEL	9.15	FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	7.0	GALLONS

AMOUNT PURGED IF < 3 VOLUMES 5" GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12.1	1003	8.7	6.84	7.52	10.4	112.0

STATIC AT SAMPLING 8?.8? Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-18S-AS-0921 **SITE:SLP** **DATE** 11-29-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	26.50	FEET
STATIC LEVEL	15.13	FEET

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	7.1	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
11-1-21	1015	16	1.364	6.07	7.42	114.5

STATIC AT SAMPLING 15.55 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-34S-AS-0921 **SITE:SLP** **DATE** 11-29-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	32.90	FEET
STATIC LEVEL	11.9	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 10.71 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 4.75 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12.1	1130	140	2.307	7.97	8.5	44.3

STATIC AT SAMPLING 15.19 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-35SR-AS-0921 | SITE:SLP | DATE 11-24-21

PURGE METHOD: WATERRA X | BAILER | GRUNDFOS | PERISTALTIC | SAMPLED BY JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	28.55	FEET
STATIC LEVEL	~~11.7~~	FEET 11.55

AMOUNT PURGED IF < 3 VOLUMES ~~4.75~~ GALLONS

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME ~~4.7~~ 8.6 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-1	1140	8.23	1.352	7.32	9.10	100.4

STATIC AT SAMPLING 19.23 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
Weather Clear

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # RAQUETTE-DG-AS-0921 **SITE:SLP** **DATE** 11/29/21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JG/AW

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME _____ **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
11/29/21	1:05	1.65	0.1035	7.51	3.8	26.5

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # GRASSE-UG-AS-0921 **SITE:SLP** **DATE** 11/29/21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JG/AW

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME _____ **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
11/29/21	11:30	4.58	0.143	7.77	2.8	25.3

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # DONDERO-CANAL-AS-0921 **SITE:SLP** **DATE** 11/29/21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JG/AW

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES	**#1 VOLUME**	**GALLONS**
TOTAL DEPTH	NA	FEET	**#2 VOLUME**	**GALLONS**
STATIC LEVEL	NA	FEET	**#3 VOLUME**	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
11/29/21	9:55	1.87	0.211	8.01	4.2	33

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # POLLY-GUT-AS-0921 **SITE:SLP** **DATE** 11/29/21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JG/AV

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME _____ **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
11/29/21	8:50	0.85	0.2032	7.79	4.7	53.3

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-44-AS-0921 **SITE:SLP** **DATE** 11-29-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** SC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**	**GALLONS**
TOTAL DEPTH	28.55	FEET	**#2 VOLUME**	**GALLONS**
STATIC LEVEL	7.68	FEET	**#3 VOLUME** 10.16	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-2	0800	35	0.827	7.18	9.6	94.3

STATIC AT SAMPLING 7.94 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-43-AS-0921 **SITE:SLP** **DATE** 11-24-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** KK

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	47.80	FEET
STATIC LEVEL	8.01	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 20.2 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-2-	0750	>1000	0.774	7.12	8.7	120.1

STATIC AT SAMPLING 8.33 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL #: ~~SLPWETE-AS-0921~~ cell 2 - East | SITE: SLP | DATE 12-1-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X | SAMPLED BY BC/SG

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ GALLONS
#2 VOLUME _____ GALLONS
#3 VOLUME _____ GALLONS

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh

No Sample

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL #	PZ-6-AS-0921	**SITE:SLP**	**DATE** 11-30-21
PURGE METHOD:	WATERRA BAILER GRUNDFOS PERISTALTIC X		**SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	1	INCHES	**#1 VOLUME**		**GALLONS**
TOTAL DEPTH	15.43	FEET	**#2 VOLUME**		**GALLONS**
STATIC LEVEL	11.21	FEET	**#3 VOLUME**	2.1	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 1.75 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-2	1000	30.8	8.70	10.06	9.7	-144.9

STATIC AT SAMPLING 11.2 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # PZ-10-AS-0921 **SITE:SLP** **DATE** 11-30-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** CC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	1	INCHES
TOTAL DEPTH	17.83	FEET
STATIC LEVEL	13.5	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 2.2 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-1	0930	250	1,920	7.15	9.4	124.7

STATIC AT SAMPLING 13.89 Feet

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # PZ-44-AS-0921 **SITE:SLP** **DATE** 12-1-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BC/JG

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	1	INCHES	**#1 VOLUME**	**GALLONS**
TOTAL DEPTH	15.40	FEET	**#2 VOLUME**	**GALLONS**
STATIC LEVEL		FEET	**#3 VOLUME**	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-1	1320	S1	2.163	7.16	6.0	56.2

STATIC AT SAMPLING 4.75' **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # PZ-46-AS-0921	SITE:SLP	DATE 12-1-21
PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X		SAMPLED BY SC/JG

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	1	INCHES
TOTAL DEPTH	11.20	FEET
STATIC LEVEL		FEET

#1 VOLUME		GALLONS
#2 VOLUME		GALLONS
#3 VOLUME	2.11	GALLONS

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-1	1254	>1000	1,772	7.40	5.4	43.5
				x		

STATIC AT SAMPLING 6.05 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-17S-AS-0921 | SITE:SLP | DATE 11/29-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X | SAMPLED BY JL

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	#1 VOLUME	GALLONS
TOTAL DEPTH	19.90	FEET	#2 VOLUME	GALLONS
STATIC LEVEL	9.05	FEET	#3 VOLUME	5.5 GALLONS

AMOUNT PURGED IF < 3 VOLUMES 1.5 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
12-1	12:45	52	1,129	7.50	7.6	137.6

STATIC AT SAMPLING 11.16 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-28S-AS-0921 **SITE:SLP** **DATE** 11-29-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	25.00	FEET
STATIC LEVEL	11.83	FEET

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	6.6	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
~~11-29~~ 11-30	1250	32	0.905	8.33	10.5	65.1

J.C.G

STATIC AT SAMPLING 11.85 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

MS/MSD

MW-230S-AS-0921-SD-1250

BD

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-26S-AS-0921 **SITE:SLP** **DATE** 11.29.21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	30.50	FEET
STATIC LEVEL	9.54	FEET

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	10.5	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 5.25 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
11-30-21	1240	11	0.143	7.63	5.7	105.3

STATIC AT SAMPLING 9.74 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-12S-AS-0921 **SITE:SLP** **DATE** 11-29-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JC

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	16.5	FEET
STATIC LEVEL	4.7	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 6.0 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 4 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
11-30	1233	39	2.631	7.68	84.7	99.3

STATIC AT SAMPLING 5.04 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
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Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-15S-87-AS-0921 **SITE:** SLP **DATE** 11-29-21

PURGE METHOD: WATERRA X BAILER GRUNDFOS PERISTALTIC **SAMPLED BY** BL

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	24.85	FEET
STATIC LEVEL	5.48	FEET

AMOUNT PURGED IF < 3 VOLUMES 5.75 GALLONS

#1 VOLUME		**GALLONS**
#2 VOLUME		**GALLONS**
#3 VOLUME	9.6	**GALLONS**

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
11.30.21	1223	7	0.803	7.72	8.3	105.2

STATIC AT SAMPLING 89 - 6.07 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

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Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-13S-AS-0921 **SITE:SLP** **DATE** 11/2?/21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC x **SAMPLED BY** MK

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES	**#1 VOLUME**	**GALLONS**
TOTAL DEPTH	17.5	FEET	**#2 VOLUME**	**GALLONS**
STATIC LEVEL	3.64	FEET	**#3 VOLUME** 4	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES 4 GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
11-30	1210	27	4,728	7.22	9.1	104.8

STATIC AT SAMPLING 5.94 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

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Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MW-30S-AS-0921 **SITE:SLP** **DATE** 11-29-21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** BL

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	2	INCHES
TOTAL DEPTH	17.55	FEET
STATIC LEVEL	5.7	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME 6.0 **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
11.30	1205	74	0.823	7.36	9.9	84.4

STATIC AT SAMPLING 5.69 **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
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Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # CELL-3-AS-0921 **SITE:SLP** **DATE** 11/30/21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** AW/JG

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES	**#1 VOLUME**	**GALLONS**
TOTAL DEPTH	NA	FEET	**#2 VOLUME**	**GALLONS**
STATIC LEVEL	NA	FEET	**#3 VOLUME**	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
11/30/21	11:15	6.0	0.0444	7.25	3.2	63.3

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP
MS/MSD

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

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Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # MICRO-POOL-AS-0921 **SITE:SLP** **DATE** 11/30/21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JG/AW

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES	**#1 VOLUME**	**GALLONS**
TOTAL DEPTH	NA	FEET	**#2 VOLUME**	**GALLONS**
STATIC LEVEL	NA	FEET	**#3 VOLUME**	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
11/30/21	10:20	1.0	0.420	7.51	2.6	70.5

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

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Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # ST-LAWRENCE-AS-0921 **SITE:SLP** **DATE** 11/30/21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JG/AW

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES
TOTAL DEPTH	NA	FEET
STATIC LEVEL	NA	FEET

#1 VOLUME _____ **GALLONS**
#2 VOLUME _____ **GALLONS**
#3 VOLUME _____ **GALLONS**

AMOUNT PURGED IF < 3 VOLUMES _____ GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
11/30/21	9:40	3-0	0.2102	8.34	5.1	76.3

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS
BATTERY POWER PUMP

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

CDM Smith
listen. think. deliver.

Form Revision Date: 12/15/2015

MONITORING WELL SAMPLING SHEET

MONITOR WELL # SLPWETE-AS-0921 **SITE:SLP** **DATE** 11/29/21

PURGE METHOD: WATERRA BAILER GRUNDFOS PERISTALTIC X **SAMPLED BY** JG/AW

STATIC WATER LEVEL & PURGE VOLUMES

DIAMETER	NA	INCHES	**#1 VOLUME**	**GALLONS**
TOTAL DEPTH	NA	FEET	**#2 VOLUME**	**GALLONS**
STATIC LEVEL	NA	FEET	**#3 VOLUME**	**GALLONS**

AMOUNT PURGED IF < 3 VOLUMES_____GALLONS

FIELD PARAMETERS

DATE	TIME	TURBIDITY	CONDUCTIVITY	pH	TEMP	Eh
11/29/21	2:30	-	0.3978	7.97	4.3	35.6

STATIC AT SAMPLING _____ **Feet**

WELL CONDITION

	GOOD	NEEDS REPAIR
COVER		
LOCK		
CASING		
GROUT		
PAINT		

COMMENTS

BATTERY POWER PUMP

MW-2301-AS-0921 BD

C.F.	PIPE SIZE
0.08	1.25"
0.17	2"
0.66	4"
1.5	6"

1 VOLUME = (TOTAL DEPTH - STATIC LEVEL) X C.F.

Attachment 2 Sequential Filtration Laboratory Procedures SOP

Sequential Filtration Laboratory Procedure

1 General

The following describes procedures for preparing samples collected in November and December 2021 from Reynolds Metals Company, LLC facility in Massena, New York for supplemental analyses.

1.1 Samples

Groundwater collected from 15 wells at the Reynolds Metals Company, LLC facility in Massena, New York will arrive at the laboratory, unfiltered, in 1-liter (L) bottles. These samples will be run through a series of sequential filtrations, resulting in three splits per sample, as follows:

- 500 milliliters (mL) filtered through 0.45-micron (µm) polyethersulfone (PES) filter only
- 250 mL filtered through 0.45-µm PES filter followed by 0.2-µm PES filter
- 250 mL filtered through 0.45-µm PES filter, followed by 0.2-µm PES filter and 0.1-µm PES filter

Bottleware will be labeled in advance so that samples can be filtered directly into pre-labeled bottles, whenever possible.

In addition to the volumes of filtered sample water, there will be particulate-bearing filters associated with each sample that will need to be preserved for potential X-ray diffraction (XRD) and/or scanning electron microscope (SEM) analysis in the future. It is expected that multiple filters of the same size fraction will be required to filter the full volume of groundwater for each sample. These filters will be placed in separate Petri dishes per sample and size fraction, labeled, and preserved until they can be oven-dried. The following filters are expected for each groundwater sample:

- 0.45-µm filters
- 0.2-µm filters
- 0.1-µm filters

Note that the smallest size fraction may end up being filtered using polycarbonate syringes and sealed Luer-lock-type filters. In this case, the whole filter disc will be saved (in a Petri dish or plastic bag) and cut open to extract the filter element at the time of oven drying.

1.2 Waste

The only wastes that are expected to be generated from this process are the 1-L bottles that the groundwater samples arrive in, the filter cups that pre-filtered samples are poured into, and any syringes that are used for filtration of the smallest size fraction. If syringes are used, then the Luer-lock filter discs that encapsulate the filter elements will also be waste after filtration is complete and they are cut open to extract the filter element. All solid waste will be bagged and removed from the laboratory where sequential filtrations are being performed. This includes used nitrile gloves, Kimwipes, and any other solid waste that is generated in the filtering process.

No liquid waste is expected to be generated, as the entire 1-L sample is expected to be filtered into bottles that will be sent to the analytical laboratory for analysis. Any liquid waste that is incidentally generated in the filtration process will be containerized, labeled, and removed from the laboratory where the filtering is being performed. If liquid waste is generated incidentally, it will be sent to the analytical laboratory, along with the filtered samples, for disposal.

1.3 Durables

The only equipment being used for sequential filtrations that will be saved for future use are hand pumps and associated vacuum lines that will be used to apply vacuum to the filter towers. Hand pumps and vacuum lines will be bagged and removed from the laboratory after completing the filtering process.

2 Materials

A total of 15 groundwater samples are assumed to be filtered. **Table 1** lists the materials needed for the filtration. If field duplicates or blanks need to be filtered, they will be added to the quantities listed in **Table 1**.

Table 1 Required Materials

Equipment	Quantity per Pack	Number to Order	Quantity to Receive	Fischer Scientific Catalog No.
1000-mL vacuum filtration system with 0.45-µm filter	12	5	60	09-740-63C
500-mL vacuum filtration system with 0.2-µm filter	12	3	36	09-741-02
250-mL vacuum filtration system with 0.1-µm filter	12	3	36	09-741-201
Vacuum hand pumps with required tubing	1	15	15	S12932
100-mm Petri dishes	12	5	60	S29423
Nitrile gloves, size large	100	1	100	19-149-863C
Kimwipes	280	1	280	06-666A

µm = micron
mL = milliliter
mm = millimeter

Additional materials required:

- Sharpies for bottle labeling
- Spreadsheet for recording sample masses (example provided in **Table 2**)
- Mass balance

Optional materials (for use only if vacuum filtration will not be used on the 0.1 µm fraction):

- 15 polycarbonate 60-mL syringes
- Pack of 60 or more 0.1-µm Luer-lock disc filters
- 15 polycarbonate bottles (250-mL) for filtered sample collection
- Press or caulk gun to apply pressure to syringes

Figure 1 illustrates the vacuum filtration system setup. Steps for setting up the vacuum filtration system are provided in **Section 3.2**.



Figure 1 Vacuum Filtration System

3 Procedure

This section outlines the sequential filtration procedure. See **Figure 1**for an illustration of the vacuum filtration system. See **Table 2** for an example of the sample mass spreadsheet.

3.1 Check Bottleware and Petri Dishes

1. Ensure that all bottleware is correctly labeled so that there are three containers per sample:
    a. One 1000-mL bottle for the 0.45-µm fraction
    b. One 500-mL bottle for the 0.2-µm fraction
    c. One 250-mL bottle for the 0.1-µm fraction
2. Ensure that there is at least one Petri dish or other sealable container, correctly labeled, per size fraction and sample to preserve particulate bearing filters following filtration.

3.2 Set Up Filter Apparatuses

3. Don a clean, new pair of nitrile gloves, a lab coat, and safety glasses.
4. Working in the fume hood, set up the filter apparatuses for the 0.45-µm, 0.2-µm, and 0.1-µm fractions of the first sample.
    a. For the 0.45-µm fraction, connect the base of the filter tower (the piece containing the filter) to the pre-labeled collection bottle for the current sample and size fraction.
    b. Carefully attach the filter cup to the filter base by screwing it on. Make sure that the filter cup is not cross-threaded and that the filter is not disturbed during this process.
    c. Connect a hand pump to a vacuum line and connect the other end of the vacuum line to the nipple on the side of the filter tower base.
    d. Repeat steps 4a through 4c for the 0.2-µm filter and the 0.1-µm filter. There should now be three fully assembled filter apparatuses:
        i. One labeled as, and containing, a 0.45-µm filter
        ii. One labeled as, and containing, a 0.2-µm filter
        iii. One labeled as, and containing, a 0.1-µm filter
5. Set up the filter apparatus for the smallest size fraction.
    a. If using a vacuum filtration system for the smallest size fraction, disregard this step and proceed to Step 6.
    b. If using a syringe, pull the plunger all the way out of a clean new syringe and then gently push it back in just far enough so that it stays connected.
    c. Screw the appropriately-sized filter onto the syringe tip until it is snug, being careful not to touch the tip of the syringe or the tip of the filter.
    d. Place a correctly labeled bottle next to the syringe that will be used to collect the smallest size fraction of filtered sample.

3.3 Filtering (0.45-µm, 0.2-µm, 0.1-µm) – Vacuum Filtration Method

6. Invert or shake the 1-L unfiltered sample bottle before performing the 0.45-µm filtering. This will ensure each sample is well mixed.
    a. The 1000-mL bottle of the 0.45-µm filtered sample can and should be shaken before being passed through the 0.2-µm filter.
    b. The 500-mL bottle of 0.2-µm filtered sample can and should be shaken before being passed through the 0.1-µm filter.

7. Tare the mass balance and then weigh the 1-L bottle containing the sample with the cap on.
8. Record the mass of the full as-received sample bottle in Column A of the spreadsheet.
9. Uncap the 1-L bottle for the first sample and pour a small volume (approximately 20 mL) into the filter cup for the 0.45-µm fraction.
10. Squeeze the hand pump to create a vacuum and draw the sample water through the filter into the collection container. Check for leaks where the filter cup is attached to the filter tower base. Check for leaks where the filter tower base is attached to the collection bottle.
    a. If leaks are identified at the connection of the filter cup and filter tower base, wipe all plastic components dry and reassemble the filter apparatus donning clean new nitrile gloves. Make a note of this in the spreadsheet and approximately how much volume was lost. Go back to step 6 and repeat steps 6 through 10.
    b. If leaks are identified at the connection between the filter tower base and the collection bottle only, fix the connection, wipe all plastic components dry and make a note of approximately how much volume was lost in the spreadsheet. Continue with the next step.
11. After verifying that no leaks are present in the system, pour another small aliquot (approximately 50 mL) of sample into the filter cup, squeeze the hand pump to create vacuum, and filter the sample.
12. Continue to add sample water to the filter cup ensuring that the filter paper does not dry out while under vacuum. Air being pulled through the filter can tear the filter and compromise the sample.
13. Be careful not to add too much water at once, as the filter may eventually become clogged and have to be changed out for a new filter to finish filtering the sample.
    a. If the filter starts to become clogged at any point during filtering, skip to steps 16 and 17. Then set up a new filter (steps 4a and 4b) attached to the existing collection bottle and resume the filtering procedure at step 6. For very turbid samples, multiple filters may be required to get through the full 1-L volume.
    b. If filtering an unfiltered sample through the 0.45-µm filter, continue with the next step.
    c. If filtering a pre-filtered sample through the 0.2-µm or 0.1-µm filter, proceed to step 16.
14. When roughly 100 mL of sample remains in the original 1-L bottle, cap the bottle and shake it to suspend any particulates.
15. Quickly and carefully pour the remaining 100 mL of turbid sample into the filter cup and maintain the vacuum until the sample has completely passed the filter.
    a. Note that this last volume may be slow to filter.
16. Once filtered water stops dripping into the collection bottle and the particulate-bearing filter paper no longer appears submerged, carefully unscrew the filter cup from the filter tower base. Set the filter cup aside.
17. Without touching the filter element, remove the filter tower base containing the filter, and place into a correctly labeled Petri dish or container; cap and place in a cooler on ice.
18. Cap and weigh the (now empty) 1-L sample bottle. Record the mass in Column B of the spreadsheet for the current sample.
    a. Note that when performing this step following the 0.2-µm filtration and 0.1-µm filtration, the bottle will be approximately half full.
19. Take the collection bottle that contains the filtered sample and repeat steps 6 through 13 and 16 through 18 using this pre-filtered water and the 0.2-µm filter apparatus and record before and after masses in Columns C and D, respectively.



   a. As a portion of the 0.45-µm filtered water will be saved for analysis, be careful to only filter the amount necessary through the 0.2-µm filter. Cap and set the labeled bottle containing the remaining 0.45-µm filtered water in a cooler on ice.

20. If syringe filtration methods are used for the 0.1-µm fraction, continue with the next step. If vacuum filtration will be used, repeat steps 6 through 13 and 16 through 18 using the 0.2-µm filtered water and the 0.1-µm filter apparatus and record the before and after masses in Columns E and F, respectively. If syringe filtration is not performed, proceed to step 34.

3.4 Filtering (0.1-µm) – Syringe Filtration Method

21. Tare the mass balance and then weigh the 500-mL bottle containing the 0.2-µm filtered sample with the cap on.
22. Record the mass of the pre-filtered sample bottle in Column E of the spreadsheet.
23. Remove the plunger from the syringe that already has the 0.1-µm filter securely attached to the tip.
24. Uncap and carefully pour the desired volume of sample from the 0.2-µm filtered collection bottle into the syringe body.
25. Push the plunger back into the syringe body until it “clicks.”
26. Invert the syringe and carefully unscrew the filter from the Luer-lock tip.
27. Evacuate the air from the syringe body by slowly pushing the plunger until the sample water is up to the tip of the syringe.
28. Screw the filter back onto the syringe tip until it is snug.
29. Filter the sample into the correctly labeled sample bottle.
30. If the filter starts to become clogged and will no longer pass water, invert the syringe and unscrew the filter while gently pulling back on the plunger so that unfiltered water does not escape the syringe.
    a. Place the used filter into a labeled Petri dish or plastic bag.
    b. Screw a new filter onto the syringe tip until it is snug.
    c. Continue filtering the sample.
    d. Repeat steps 30a through 30c as many times as necessary until completion.
31. When the final volume of sample water in the syringe has been filtered, securely cap the collection bottle and place into a cooler on ice.
32. Remove the filter from the syringe and place into a labeled Petri dish or plastic bag. If multiple 0.1-µm filters were used, they can go in the same Petri dish or plastic bag.
33. Cap and weigh the 500-mL sample bottle that should now be approximately half full. Record the mass in Column F of the spreadsheet for the current sample.

3.5 Clean-Up

34. Place all single use plastics into a separate bag that will be disposed of off-site. This includes filter cups, filter tower bases, and syringes. Used nitrile gloves and Kimwipes can also go in this same bag.
35. Ensure that six masses have been recorded in the spreadsheet for a sample before proceeding to filter the next sample.
    a. The before and after mass of the 1-L unfiltered bottle before 0.45-µm filtering.
    b. The before and after mass of the 1000-mL 0.45-µm filtered bottle before 0.2-µm filtering.
    c. The before and after mass of the 500-mL 0.2-µm filtered bottle before 0.1-µm filtering.

36. Repeat steps 3 through 18 (or 3 through 33 if using syringe filtration for the 0.1-µm fraction) until all groundwater samples have been successfully filtered into three splits.

Table 2 Example Spreadsheet for Sample Masses

Sample ID	1-L Unfiltered Mass (g)		1000-mL 0.45-µm Filtered Mass (g)		500-mL 0.2-µm Filtered Mass (g)	
	Before 0.45-µm filtration **(Column A)**	**After** 0.45-µm filtration **(Column B)**	**Before** 0.2-µm filtration **(Column C)**	**After** 0.2-µm filtration **(Column D)**	**Before** 0.1-µm filtration **(Column E)**	**After** 0.1-µm filtration **(Column F)**

µm = micron
g = grams
L = liter
mL = milliliter

Attachment 3 Laboratory Reports

ANALYTICAL REPORT

Lab Number:	L2135223
Client:	CDM Smith, Inc. 4 Highland Road Suite 1 Massena, NY 13662
ATTN:	Ryan Kingsley
Phone:	(315) 296-9000
Project Name:	REYNOLDS
Project Number:	99566
Report Date:	08/12/21

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2135223-01	MW-10S-0621	WATER	NY	06/29/21 07:25	06/29/21
L2135223-02	MW-14S-0621	WATER	NY	06/29/21 08:10	06/29/21
L2135223-03	MW-45-0621	WATER	NY	06/29/21 08:35	06/29/21
L2135223-04	MW-26S-0621	WATER	NY	06/29/21 10:45	06/29/21
L2135223-05	MW-28S-0621	WATER	NY	06/29/21 09:32	06/29/21
L2135223-06	MW-43-0621	WATER	NY	06/29/21 10:15	06/29/21
L2135223-07	MW-1202-0621 BD	WATER	NY	06/29/21 10:20	06/29/21
L2135223-08	MW-1204-0621 FBD	WATER	NY	06/29/21 09:15	06/29/21

Project Name:	REYNOLDS	**Lab Number:**	L2135223
Project Number:	99566	**Report Date:**	08/12/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: REYNOLDS **Lab Number:** L2135223
Project Number: 99566 **Report Date:** 08/12/21

Case Narrative (continued)

Report Revision

August 12, 2021: The Total Metals analyte list has been amended on L2135223-01 through -08.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

The analysis of Cyanide, Weak Acid Dissociable (WAD) was subcontracted. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

Sample Receipt

L2135223-06: The sample identified as "MW-43-0621" on the chain of custody was identified as "MW-43S-0621" on the container label. At the client's request, the sample is reported as "MW-43-0621".
L2135223-08: The sample was received without the container for theTotal Cyanide - SM 4500. An aliquot was taken from an unpreserved container and preserved appropriately with NaOH.

Total Metals

The WG1523087-3 MS recovery for sodium (59%), performed on L2135223-01, does not apply because the sample concentration is greater than four times the spike amount added.
The WG1523087-4 MSD recoveries for calcium (127%) and sodium (60%), performed on L2135223-01, do not apply because the sample concentrations are greater than four times the spike amounts added.

Solids, Total Suspended

The WG1520185-3 Laboratory Duplicate RPD for solids, total suspended (55%), performed on L2135223-06, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

Project Name:	REYNOLDS	**Lab Number:**	L2135223
Project Number:	99566	**Report Date:**	08/12/21

Case Narrative (continued)

Dissolved Organic Carbon

The samples were field filtered; a filter blank was not received.

L2135223-01, -02, and -04: Due to data disparity, the samples were filtered in the laboratory through a 0.45 micron filter prior to analysis; filtration was beyond the 24 hour holding time for filtration.

L2135223-03 and -08: The DOC result is greater than the TOC result due to the filtering procedure required by the DOC method.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich

Title: Technical Director/Representative Date: 08/12/21

ORGANICS

PCBS

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-01
Client ID: MW-10S-0621
Sample Location: NY

Date Collected: 06/29/21 07:25
Date Received: 06/29/21
Field Prep: None

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 07/12/21 18:23
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/10/21 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1242	ND		ug/l	0.065	0.009	1	A
Aroclor 1248	ND		ug/l	0.065	0.009	1	A
Aroclor 1254	ND		ug/l	0.065	0.007	1	A
Aroclor 1260	ND		ug/l	0.065	0.009	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	57		30-150	A
DCB - Surrogate	54		30-150	A
Tetrachloro-meta-Xylene	72		30-150	B
DCB - Surrogate	56		30-150	B

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-02
Client ID: MW-14S-0621
Sample Location: NY

Date Collected: 06/29/21 08:10
Date Received: 06/29/21
Field Prep: None

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 07/12/21 19:00
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/10/21 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1242	ND		ug/l	0.065	0.009	1	A
Aroclor 1248	ND		ug/l	0.065	0.009	1	A
Aroclor 1254	ND		ug/l	0.065	0.007	1	A
Aroclor 1260	ND		ug/l	0.065	0.009	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	62		30-150	A
DCB - Surrogate	63		30-150	A
Tetrachloro-meta-Xylene	82		30-150	B
DCB - Surrogate	54		30-150	B

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-03
Client ID: MW-45-0621
Sample Location: NY

Date Collected: 06/29/21 08:35
Date Received: 06/29/21
Field Prep: None

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 07/12/21 19:12
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/10/21 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1242	ND		ug/l	0.065	0.009	1	A
Aroclor 1248	ND		ug/l	0.065	0.009	1	A
Aroclor 1254	ND		ug/l	0.065	0.007	1	A
Aroclor 1260	ND		ug/l	0.065	0.009	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	65		30-150	A
DCB - Surrogate	52		30-150	A
Tetrachloro-meta-Xylene	84		30-150	B
DCB - Surrogate	52		30-150	B

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-04
Client ID: MW-26S-0621
Sample Location: NY

Date Collected: 06/29/21 10:45
Date Received: 06/29/21
Field Prep: None

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 07/12/21 19:24
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/10/21 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1242	ND		ug/l	0.065	0.009	1	A
Aroclor 1248	ND		ug/l	0.065	0.009	1	A
Aroclor 1254	ND		ug/l	0.065	0.007	1	A
Aroclor 1260	ND		ug/l	0.065	0.009	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	47		30-150	A
DCB - Surrogate	33		30-150	A
Tetrachloro-meta-Xylene	42		30-150	B
DCB - Surrogate	34		30-150	B

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-05
Client ID: MW-28S-0621
Sample Location: NY

Date Collected: 06/29/21 09:32
Date Received: 06/29/21
Field Prep: None

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 07/12/21 19:37
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/10/21 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1242	ND		ug/l	0.065	0.009	1	A
Aroclor 1248	ND		ug/l	0.065	0.009	1	A
Aroclor 1254	ND		ug/l	0.065	0.007	1	A
Aroclor 1260	ND		ug/l	0.065	0.009	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	62		30-150	A
DCB - Surrogate	52		30-150	A
Tetrachloro-meta-Xylene	77		30-150	B
DCB - Surrogate	53		30-150	B

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-06
Client ID: MW-43-0621
Sample Location: NY

Date Collected: 06/29/21 10:15
Date Received: 06/29/21
Field Prep: None

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 07/12/21 19:49
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/10/21 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1242	ND		ug/l	0.065	0.009	1	A
Aroclor 1248	ND		ug/l	0.065	0.009	1	A
Aroclor 1254	ND		ug/l	0.065	0.007	1	A
Aroclor 1260	ND		ug/l	0.065	0.009	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	53		30-150	A
DCB - Surrogate	44		30-150	A
Tetrachloro-meta-Xylene	51		30-150	B
DCB - Surrogate	47		30-150	B

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-07
Client ID: MW-1202-0621 BD
Sample Location: NY

Date Collected: 06/29/21 10:20
Date Received: 06/29/21
Field Prep: None

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 07/12/21 20:01
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/10/21 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1242	ND		ug/l	0.065	0.009	1	A
Aroclor 1248	ND		ug/l	0.065	0.009	1	A
Aroclor 1254	ND		ug/l	0.065	0.007	1	A
Aroclor 1260	ND		ug/l	0.065	0.009	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	58		30-150	A
DCB - Surrogate	45		30-150	A
Tetrachloro-meta-Xylene	55		30-150	B
DCB - Surrogate	47		30-150	B

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-08
Client ID: MW-1204-0621 FBD
Sample Location: NY

Date Collected: 06/29/21 09:15
Date Received: 06/29/21
Field Prep: None

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 07/12/21 20:13
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/10/21 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1242	ND		ug/l	0.065	0.009	1	A
Aroclor 1248	ND		ug/l	0.065	0.009	1	A
Aroclor 1254	ND		ug/l	0.065	0.007	1	A
Aroclor 1260	ND		ug/l	0.065	0.009	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	60		30-150	A
DCB - Surrogate	48		30-150	A
Tetrachloro-meta-Xylene	56		30-150	B
DCB - Surrogate	51		30-150	B

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135223
Report Date: 08/12/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8082A
Analytical Date: 07/12/21 17:47
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/10/21 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Mansfield Lab for sample(s): 01-08 Batch: WG1522466-1						
Aroclor 1242	ND		ug/l	0.065	0.009	A
Aroclor 1248	ND		ug/l	0.065	0.009	A
Aroclor 1254	ND		ug/l	0.065	0.007	A
Aroclor 1260	ND		ug/l	0.065	0.009	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	53		30-150	A
DCB - Surrogate	69		30-150	A
Tetrachloro-meta-Xylene	50		30-150	B
DCB - Surrogate	72		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: REYNOLDS

Project Number: 99566

Lab Number: L2135223

Report Date: 08/12/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Mansfield Lab Associated sample(s): 01-08 Batch: WG1522466-2 WG1522466-3									
Aroclor 1016	54		62		40-140	14		50	A
Aroclor 1260	55		66		40-140	18		50	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	53		65		30-150	A
DCB - Surrogate	64		76		30-150	A
Tetrachloro-meta-Xylene	47		58		30-150	B
DCB - Surrogate	65		77		30-150	B

Matrix Spike Analysis

Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135223
Report Date: 08/12/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Mansfield Lab Associated sample(s): 01-08 QC Batch ID: WG1522466-4 WG1522466-5 QC Sample: L2135223-01 Client ID: MW-10S-0621													
Aroclor 1016	ND	1.01	0.672	66		0.647	65		40-140	4		50	A
Aroclor 1260	ND	1.01	0.607	60		0.593	60		40-140	2		50	A

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria	Column
DCB - Surrogate	53		56		30-150	A
Tetrachloro-meta-Xylene	63		59		30-150	A
DCB - Surrogate	55		57		30-150	B
Tetrachloro-meta-Xylene	71		66		30-150	B

METALS

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-01
Client ID: MW-10S-0621
Sample Location: NY
Sample Depth:
Matrix: Water

Date Collected: 06/29/21 07:25
Date Received: 06/29/21
Field Prep: None

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0426		mg/l	0.0100	0.00327	1	07/13/21 02:24	07/29/21 20:55	EPA 3005A	1,6020B	WP
Calcium, Total	82.0		mg/l	0.100	0.0394	1	07/13/21 02:24	07/29/21 20:55	EPA 3005A	1,6020B	WP
Magnesium, Total	42.7		mg/l	0.0700	0.0242	1	07/13/21 02:24	07/29/21 20:55	EPA 3005A	1,6020B	WP
Potassium, Total	1.44		mg/l	0.100	0.0309	1	07/13/21 02:24	07/29/21 20:55	EPA 3005A	1,6020B	WP
Sodium, Total	45.3		mg/l	0.100	0.0293	1	07/13/21 02:24	07/29/21 20:55	EPA 3005A	1,6020B	WP
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	07/13/21 03:10	07/30/21 10:34	NA	1,6020B	WP
Iron, Dissolved	ND		mg/l	0.0500	0.0191	1	07/13/21 03:10	07/30/21 10:34	NA	1,6020B	WP

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-02
Client ID: MW-14S-0621
Sample Location: NY
Sample Depth:
Matrix: Water

Date Collected: 06/29/21 08:10
Date Received: 06/29/21
Field Prep: None

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0195		mg/l	0.0100	0.00327	1	07/13/21 02:24	07/29/21 21:00	EPA 3005A	1,6020B	WP
Calcium, Total	73.1		mg/l	0.100	0.0394	1	07/13/21 02:24	07/29/21 21:00	EPA 3005A	1,6020B	WP
Magnesium, Total	74.4		mg/l	0.0700	0.0242	1	07/13/21 02:24	07/29/21 21:00	EPA 3005A	1,6020B	WP
Potassium, Total	5.48		mg/l	0.100	0.0309	1	07/13/21 02:24	07/29/21 21:00	EPA 3005A	1,6020B	WP
Sodium, Total	87.8		mg/l	0.100	0.0293	1	07/13/21 02:24	07/29/21 21:00	EPA 3005A	1,6020B	WP
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	07/13/21 03:10	07/30/21 10:39	NA	1,6020B	WP

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-03
Client ID: MW-45-0621
Sample Location: NY
Sample Depth:
Matrix: Water

Date Collected: 06/29/21 08:35
Date Received: 06/29/21
Field Prep: None

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.114		mg/l	0.0100	0.00327	1	07/13/21 02:24	07/29/21 21:05	EPA 3005A	1,6020B	WP
Calcium, Total	156.		mg/l	0.100	0.0394	1	07/13/21 02:24	07/29/21 21:05	EPA 3005A	1,6020B	WP
Magnesium, Total	67.9		mg/l	0.0700	0.0242	1	07/13/21 02:24	07/29/21 21:05	EPA 3005A	1,6020B	WP
Potassium, Total	2.93		mg/l	0.100	0.0309	1	07/13/21 02:24	07/29/21 21:05	EPA 3005A	1,6020B	WP
Sodium, Total	214.		mg/l	0.100	0.0293	1	07/13/21 02:24	07/29/21 21:05	EPA 3005A	1,6020B	WP
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	0.00345	J	mg/l	0.0100	0.00327	1	07/13/21 03:10	07/30/21 10:44	NA	1,6020B	WP
Iron, Dissolved	0.195		mg/l	0.0500	0.0191	1	07/13/21 03:10	07/30/21 10:44	NA	1,6020B	WP

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-04
Client ID: MW-26S-0621
Sample Location: NY
Sample Depth:
Matrix: Water

Date Collected: 06/29/21 10:45
Date Received: 06/29/21
Field Prep: None

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	23.1		mg/l	0.100	0.0327	10	07/13/21 02:24	07/29/21 21:10	EPA 3005A	1,6020B	WP
Calcium, Total	169.		mg/l	1.00	0.394	10	07/13/21 02:24	07/29/21 21:10	EPA 3005A	1,6020B	WP
Magnesium, Total	64.3		mg/l	0.700	0.242	10	07/13/21 02:24	07/29/21 21:10	EPA 3005A	1,6020B	WP
Potassium, Total	7.44		mg/l	1.00	0.309	10	07/13/21 02:24	07/29/21 21:10	EPA 3005A	1,6020B	WP
Sodium, Total	63.1		mg/l	1.00	0.293	10	07/13/21 02:24	07/29/21 21:10	EPA 3005A	1,6020B	WP
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	07/13/21 03:10	07/30/21 10:49	NA	1,6020B	WP

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-05
Client ID: MW-28S-0621
Sample Location: NY
Sample Depth:
Matrix: Water

Date Collected: 06/29/21 09:32
Date Received: 06/29/21
Field Prep: None

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0118		mg/l	0.0100	0.00327	1	07/13/21 02:24	07/29/21 21:24	EPA 3005A	1,6020B	WP
Calcium, Total	22.8		mg/l	0.100	0.0394	1	07/13/21 02:24	07/29/21 21:24	EPA 3005A	1,6020B	WP
Magnesium, Total	11.9		mg/l	0.0700	0.0242	1	07/13/21 02:24	07/29/21 21:24	EPA 3005A	1,6020B	WP
Potassium, Total	0.685		mg/l	0.100	0.0309	1	07/13/21 02:24	07/29/21 21:24	EPA 3005A	1,6020B	WP
Sodium, Total	205.		mg/l	0.100	0.0293	1	07/13/21 02:24	07/29/21 21:24	EPA 3005A	1,6020B	WP
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	0.00441	J	mg/l	0.0100	0.00327	1	07/13/21 03:10	07/30/21 11:11	NA	1,6020B	WP

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-06
Client ID: MW-43-0621
Sample Location: NY
Sample Depth:
Matrix: Water

Date Collected: 06/29/21 10:15
Date Received: 06/29/21
Field Prep: None

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	16.6		mg/l	0.100	0.0327	10	07/13/21 02:24	07/29/21 21:29	EPA 3005A	1,6020B	WP
Calcium, Total	171.		mg/l	1.00	0.394	10	07/13/21 02:24	07/29/21 21:29	EPA 3005A	1,6020B	WP
Magnesium, Total	63.8		mg/l	0.700	0.242	10	07/13/21 02:24	07/29/21 21:29	EPA 3005A	1,6020B	WP
Potassium, Total	5.85		mg/l	1.00	0.309	10	07/13/21 02:24	07/29/21 21:29	EPA 3005A	1,6020B	WP
Sodium, Total	19.8		mg/l	1.00	0.293	10	07/13/21 02:24	07/29/21 21:29	EPA 3005A	1,6020B	WP
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	07/13/21 03:10	07/30/21 11:16	NA	1,6020B	WP

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-07
Client ID: MW-1202-0621 BD
Sample Location: NY
Sample Depth:
Matrix: Water

Date Collected: 06/29/21 10:20
Date Received: 06/29/21
Field Prep: None

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	19.1		mg/l	0.100	0.0327	10	07/13/21 02:24	07/29/21 22:08	EPA 3005A	1,6020B	WP
Calcium, Total	192.		mg/l	1.00	0.394	10	07/13/21 02:24	07/29/21 22:08	EPA 3005A	1,6020B	WP
Magnesium, Total	68.8		mg/l	0.700	0.242	10	07/13/21 02:24	07/29/21 22:08	EPA 3005A	1,6020B	WP
Potassium, Total	6.32		mg/l	1.00	0.309	10	07/13/21 02:24	07/29/21 22:08	EPA 3005A	1,6020B	WP
Sodium, Total	20.8		mg/l	1.00	0.293	10	07/13/21 02:24	07/29/21 22:08	EPA 3005A	1,6020B	WP
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	07/13/21 03:10	07/30/21 11:21	NA	1,6020B	WP

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-08
Client ID: MW-1204-0621 FBD
Sample Location: NY
Sample Depth:
Matrix: Water

Date Collected: 06/29/21 09:15
Date Received: 06/29/21
Field Prep: None

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	07/13/21 02:24	07/29/21 21:34	EPA 3005A	1,6020B	WP
Calcium, Total	ND		mg/l	0.100	0.0394	1	07/13/21 02:24	07/29/21 21:34	EPA 3005A	1,6020B	WP
Magnesium, Total	ND		mg/l	0.0700	0.0242	1	07/13/21 02:24	07/29/21 21:34	EPA 3005A	1,6020B	WP
Potassium, Total	ND		mg/l	0.100	0.0309	1	07/13/21 02:24	07/29/21 21:34	EPA 3005A	1,6020B	WP
Sodium, Total	ND		mg/l	0.100	0.0293	1	07/13/21 02:24	07/29/21 21:34	EPA 3005A	1,6020B	WP
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	07/13/21 03:10	07/30/21 11:25	NA	1,6020B	WP

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135223
Report Date: 08/12/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-08 Batch: WG1523087-1										
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	07/13/21 02:24	07/29/21 20:27	1,6020B	WP
Calcium, Total	ND		mg/l	0.100	0.0394	1	07/13/21 02:24	07/29/21 20:27	1,6020B	WP
Magnesium, Total	ND		mg/l	0.0700	0.0242	1	07/13/21 02:24	07/29/21 20:27	1,6020B	WP
Potassium, Total	ND		mg/l	0.100	0.0309	1	07/13/21 02:24	07/29/21 20:27	1,6020B	WP
Sodium, Total	ND		mg/l	0.100	0.0293	1	07/13/21 02:24	07/29/21 20:27	1,6020B	WP

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01-08 Batch: WG1523134-1										
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	07/13/21 03:10	07/30/21 10:10	1,6020B	WP
Iron, Dissolved	ND		mg/l	0.0500	0.0191	1	07/13/21 03:10	07/30/21 10:10	1,6020B	WP

Prep Information

Digestion Method: NA

Lab Control Sample Analysis

Batch Quality Control

Project Name: REYNOLDS

Project Number: 99566

Lab Number: L2135223

Report Date: 08/12/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-08 Batch: WG1523087-2								
Aluminum, Total	101		-		80-120	-		
Calcium, Total	89		-		80-120	-		
Magnesium, Total	103		-		80-120	-		
Potassium, Total	103		-		80-120	-		
Sodium, Total	102		-		80-120	-		
Dissolved Metals - Mansfield Lab Associated sample(s): 01-08 Batch: WG1523134-2								
Aluminum, Dissolved	98		-		80-120	-		
Iron, Dissolved	95		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-08 QC Batch ID: WG1523087-3 WG1523087-4 QC Sample: L2135223-01 Client ID: MW-10S-0621												
Aluminum, Total	0.0426	2	2.08	102		2.03	99		75-125	2		20
Calcium, Total	82.0	10	92.2	102		94.7	**127**	Q	75-125	3		20
Magnesium, Total	42.7	10	51.0	83		50.5	78		75-125	1		20
Potassium, Total	1.44	10	11.6	102		11.8	104		75-125	2		20
Sodium, Total	45.3	10	51.2	**59**	Q	51.3	**60**	Q	75-125	0		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01-08 QC Batch ID: WG1523134-3 WG1523134-4 QC Sample: L2135223-01 Client ID: MW-10S-0621												
Aluminum, Dissolved	ND	2	1.94	97		1.90	95		75-125	2		20
Iron, Dissolved	ND	1	0.981	98		0.963	96		75-125	2		20

Project Name: REYNOLDS
Project Number: 99566

Lab Serial Dilution Analysis
Batch Quality Control

Lab Number: L2135223
Report Date: 08/12/21

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-08 QC Batch ID: WG1523087-6 QC Sample: L2135223-01 Client ID: MW-10S-0621						
Calcium, Total	82.0	82.2	mg/l	0		20
Magnesium, Total	42.7	42.6	mg/l	0		20
Sodium, Total	45.3	43.1	mg/l	5		20

INORGANICS
&
MISCELLANEOUS

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-01
Client ID: MW-10S-0621
Sample Location: NY

Date Collected: 06/29/21 07:25
Date Received: 06/29/21
Field Prep: None

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	354.		mg CaCO3/L	2.00	NA	1	-	07/08/21 03:22	121,2320B	MR
Alkalinity, Bicarbonate	354.		mg CaCO3/L	2.00	NA	1	-	07/08/21 03:22	121,2320B	MR
Solids, Total Suspended	3.2		mg/l	1.0	NA	1	-	07/04/21 16:33	121,2540D	SH
Cyanide, Total	ND		mg/l	0.005	0.001	1	07/08/21 21:25	07/09/21 10:59	121,4500CN-CE	CR
Nitrogen, Nitrate	0.045	J	mg/l	0.10	0.023	1	-	06/30/21 08:02	44,353.2	MR
Phosphate, Total	0.031		mg/l	0.031	0.012	1	07/06/21 11:00	07/07/21 08:53	121,4500P-E(M)	SD
Total Organic Carbon	0.829		mg/l	0.500	0.114	1	-	07/15/21 10:30	121,5310C	DW
Dissolved Organic Carbon	0.68	J	mg/l	1.0	0.12	1	07/19/21 08:00	07/19/21 08:36	121,5310C	DW
Anions by Ion Chromatography - Westborough Lab										
Chloride	9.66		mg/l	0.500	0.083	1	-	07/13/21 12:11	44,300.0	JT
Fluoride	0.140		mg/l	0.050	0.037	1	-	07/13/21 12:11	44,300.0	JT
Sulfate	148.		mg/l	10.0	4.54	10	-	07/13/21 12:23	44,300.0	JT

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-02
Client ID: MW-14S-0621
Sample Location: NY

Date Collected: 06/29/21 08:10
Date Received: 06/29/21
Field Prep: None

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	463.		mg CaCO3/L	2.00	NA	1	-	07/08/21 03:22	121,2320B	MR
Alkalinity, Bicarbonate	463.		mg CaCO3/L	2.00	NA	1	-	07/08/21 03:22	121,2320B	MR
Solids, Total Suspended	4.8		mg/l	1.0	NA	1	-	07/04/21 16:33	121,2540D	SH
Cyanide, Total	ND		mg/l	0.005	0.001	1	07/08/21 21:25	07/09/21 11:02	121,4500CN-CE	CR
Nitrogen, Nitrate	0.040	J	mg/l	0.10	0.023	1	-	06/30/21 08:06	44,353.2	MR
Phosphate, Total	0.040		mg/l	0.031	0.012	1	07/06/21 11:00	07/07/21 08:59	121,4500P-E(M)	SD
Total Organic Carbon	0.744		mg/l	0.500	0.114	1	-	07/15/21 13:19	121,5310C	DW
Dissolved Organic Carbon	0.75	J	mg/l	1.0	0.12	1	07/19/21 08:00	07/19/21 08:52	121,5310C	DW
Anions by Ion Chromatography - Westborough Lab										
Chloride	15.1		mg/l	5.00	0.839	10	-	07/13/21 13:36	44,300.0	JT
Fluoride	0.701		mg/l	0.500	0.370	10	-	07/13/21 13:36	44,300.0	JT
Sulfate	393.		mg/l	10.0	4.54	10	-	07/13/21 13:36	44,300.0	JT

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-03
Client ID: MW-45-0621
Sample Location: NY

Date Collected: 06/29/21 08:35
Date Received: 06/29/21
Field Prep: None

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	556.		mg CaCO3/L	10.0	NA	5	-	07/08/21 03:22	121,2320B	MR
Alkalinity, Bicarbonate	556.		mg CaCO3/L	10.0	NA	5	-	07/08/21 03:22	121,2320B	MR
Solids, Total Suspended	7.8		mg/l	1.0	NA	1	-	07/04/21 16:33	121,2540D	SH
Cyanide, Total	0.436		mg/l	0.005	0.001	1	07/08/21 21:25	07/09/21 11:03	121,4500CN-CE	CR
Nitrogen, Nitrate	0.042	J	mg/l	0.10	0.023	1	-	06/30/21 08:07	44,353.2	MR
Phosphate, Total	0.071		mg/l	0.031	0.012	1	07/06/21 11:00	07/07/21 09:00	121,4500P-E(M)	SD
Total Organic Carbon	6.32		mg/l	1.00	0.228	2	-	07/15/21 11:02	121,5310C	DW
Dissolved Organic Carbon	8.2		mg/l	1.0	0.12	1	-	07/15/21 07:33	121,5310C	DW
Anions by Ion Chromatography - Westborough Lab										
Chloride	11.9		mg/l	0.500	0.083	1	-	07/13/21 12:35	44,300.0	JT
Fluoride	0.415		mg/l	0.050	0.037	1	-	07/13/21 12:35	44,300.0	JT
Sulfate	562.		mg/l	10.0	4.54	10	-	07/13/21 12:47	44,300.0	JT

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-04
Client ID: MW-26S-0621
Sample Location: NY

Date Collected: 06/29/21 10:45
Date Received: 06/29/21
Field Prep: None

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	353.		mg CaCO3/L	2.00	NA	1	-	07/08/21 03:22	121,2320B	MR
Alkalinity, Bicarbonate	353.		mg CaCO3/L	2.00	NA	1	-	07/08/21 03:22	121,2320B	MR
Solids, Total Suspended	2500		mg/l	20	NA	20	-	07/06/21 12:50	121,2540D	AC
Cyanide, Total	ND		mg/l	0.005	0.001	1	07/08/21 23:50	07/09/21 11:34	121,4500CN-CE	CR
Nitrogen, Nitrate	0.033	J	mg/l	0.10	0.023	1	-	06/30/21 08:08	44,353.2	MR
Phosphate, Total	5.98		mg/l	0.307	0.123	10	07/06/21 11:00	07/07/21 09:01	121,4500P-E(M)	SD
Total Organic Carbon	1.42		mg/l	0.500	0.114	1	-	07/15/21 13:37	121,5310C	DW
Dissolved Organic Carbon	1.2		mg/l	1.0	0.12	1	07/19/21 08:00	07/19/21 09:08	121,5310C	DW
Anions by Ion Chromatography - Westborough Lab										
Chloride	36.2		mg/l	5.00	0.839	10	-	07/13/21 13:48	44,300.0	JT
Fluoride	5.26		mg/l	0.500	0.370	10	-	07/13/21 13:48	44,300.0	JT
Sulfate	186.		mg/l	10.0	4.54	10	-	07/13/21 13:48	44,300.0	JT

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-05
Client ID: MW-28S-0621
Sample Location: NY

Date Collected: 06/29/21 09:32
Date Received: 06/29/21
Field Prep: None

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	290.		mg CaCO3/L	2.00	NA	1	-	07/08/21 03:22	121,2320B	MR
Alkalinity, Bicarbonate	290.		mg CaCO3/L	2.00	NA	1	-	07/08/21 03:22	121,2320B	MR
Solids, Total Suspended	ND		mg/l	1.0	NA	1	-	07/04/21 16:33	121,2540D	SH
Cyanide, Total	1.88		mg/l	0.050	0.018	10	07/08/21 23:50	07/09/21 12:01	121,4500CN-CE	CR
Nitrogen, Nitrate	0.025	J	mg/l	0.10	0.023	1	-	06/30/21 08:09	44,353.2	MR
Phosphate, Total	ND		mg/l	0.031	0.012	1	07/06/21 11:00	07/07/21 09:02	121,4500P-E(M)	SD
Total Organic Carbon	1.51		mg/l	0.500	0.114	1	-	07/15/21 11:38	121,5310C	DW
Dissolved Organic Carbon	1.8		mg/l	1.0	0.12	1	-	07/15/21 08:12	121,5310C	DW
Anions by Ion Chromatography - Westborough Lab										
Chloride	59.4		mg/l	12.5	2.10	25	-	07/13/21 14:00	44,300.0	JT
Fluoride	12.3		mg/l	1.25	0.925	25	-	07/13/21 14:00	44,300.0	JT
Sulfate	182.		mg/l	25.0	11.4	25	-	07/13/21 14:00	44,300.0	JT

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-06
Client ID: MW-43-0621
Sample Location: NY

Date Collected: 06/29/21 10:15
Date Received: 06/29/21
Field Prep: None

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	462.		mg CaCO3/L	2.00	NA	1	-	07/08/21 03:22	121,2320B	MR
Alkalinity, Bicarbonate	462.		mg CaCO3/L	2.00	NA	1	-	07/08/21 03:22	121,2320B	MR
Solids, Total Suspended	480		mg/l	4.0	NA	4	-	07/04/21 16:33	121,2540D	SH
Cyanide, Total	ND		mg/l	0.005	0.001	1	07/08/21 23:50	07/09/21 12:00	121,4500CN-CE	CR
Nitrogen, Nitrate	0.75		mg/l	0.10	0.023	1	-	06/30/21 09:09	44,353.2	MR
Phosphate, Total	3.44		mg/l	0.307	0.123	10	07/06/21 11:00	07/07/21 09:03	121,4500P-E(M)	SD
Total Organic Carbon	1.00		mg/l	0.500	0.114	1	-	07/15/21 11:54	121,5310C	DW
Dissolved Organic Carbon	1.0		mg/l	1.0	0.12	1	-	07/15/21 08:28	121,5310C	DW
Anions by Ion Chromatography - Westborough Lab										
Chloride	11.4		mg/l	0.500	0.083	1	-	07/13/21 14:12	44,300.0	JT
Fluoride	0.220		mg/l	0.050	0.037	1	-	07/13/21 14:12	44,300.0	JT
Sulfate	141.		mg/l	10.0	4.54	10	-	07/13/21 14:24	44,300.0	JT

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-07
Client ID: MW-1202-0621 BD
Sample Location: NY

Date Collected: 06/29/21 10:20
Date Received: 06/29/21
Field Prep: None

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	462.		mg CaCO3/L	2.00	NA	1	-	07/08/21 03:22	121,2320B	MR
Alkalinity, Bicarbonate	462.		mg CaCO3/L	2.00	NA	1	-	07/08/21 03:22	121,2320B	MR
Solids, Total Suspended	1900		mg/l	20	NA	20	-	07/06/21 12:50	121,2540D	AC
Cyanide, Total	ND		mg/l	0.005	0.001	1	07/08/21 23:50	07/09/21 11:39	121,4500CN-CE	CR
Nitrogen, Nitrate	0.76		mg/l	0.10	0.023	1	-	06/30/21 09:10	44,353.2	MR
Phosphate, Total	3.44		mg/l	0.307	0.123	10	07/06/21 11:00	07/07/21 09:04	121,4500P-E(M)	SD
Total Organic Carbon	0.936		mg/l	0.500	0.114	1	-	07/15/21 12:10	121,5310C	DW
Dissolved Organic Carbon	1.1		mg/l	1.0	0.12	1	-	07/15/21 08:44	121,5310C	DW
Anions by Ion Chromatography - Westborough Lab										
Chloride	11.4		mg/l	0.500	0.083	1	-	07/13/21 17:01	44,300.0	JT
Fluoride	0.225		mg/l	0.050	0.037	1	-	07/13/21 17:01	44,300.0	JT
Sulfate	141.		mg/l	10.0	4.54	10	-	07/13/21 14:36	44,300.0	JT

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135223-08
Client ID: MW-1204-0621 FBD
Sample Location: NY

Date Collected: 06/29/21 09:15
Date Received: 06/29/21
Field Prep: None

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	07/08/21 03:22	121,2320B	MR
Alkalinity, Bicarbonate	ND		mg CaCO3/L	2.00	NA	1	-	07/08/21 03:22	121,2320B	MR
Solids, Total Suspended	ND		mg/l	1.0	NA	1	-	07/04/21 16:33	121,2540D	SH
Cyanide, Total	ND		mg/l	0.005	0.001	1	07/08/21 23:50	07/09/21 11:40	121,4500CN-CE	CR
Nitrogen, Nitrate	ND		mg/l	0.10	0.023	1	-	06/30/21 09:11	44,353.2	MR
Phosphate, Total	ND		mg/l	0.031	0.012	1	07/06/21 11:00	07/07/21 09:06	121,4500P-E(M)	SD
Total Organic Carbon	ND		mg/l	0.500	0.114	1	-	07/15/21 12:26	121,5310C	DW
Dissolved Organic Carbon	1.2		mg/l	1.0	0.12	1	-	07/15/21 09:00	121,5310C	DW
Anions by Ion Chromatography - Westborough Lab										
Chloride	0.242	J	mg/l	0.500	0.083	1	-	07/13/21 14:48	44,300.0	JT
Fluoride	ND		mg/l	0.050	0.037	1	-	07/13/21 14:48	44,300.0	JT
Sulfate	0.658	J	mg/l	1.00	0.454	1	-	07/13/21 14:48	44,300.0	JT

Project Name: REYNOLDS **Lab Number:** L2135223

Project Number: 99566 **Report Date:** 08/12/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01-08 Batch: WG1518609-1										
Nitrogen, Nitrate	ND		mg/l	0.10	0.023	1	-	06/30/21 07:59	44,353.2	MR
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1520184-1										
Solids, Total Suspended	ND		mg/l	1.0	NA	1	-	07/04/21 16:33	121,2540D	SH
General Chemistry - Westborough Lab for sample(s): 03,05-06,08 Batch: WG1520185-1										
Solids, Total Suspended	ND		mg/l	1.0	NA	1	-	07/04/21 16:33	121,2540D	SH
General Chemistry - Westborough Lab for sample(s): 01-08 Batch: WG1520713-1										
Phosphate, Total	ND		mg/l	0.031	0.012	1	07/06/21 11:00	07/07/21 08:49	121,4500P-E(M)	SD
General Chemistry - Westborough Lab for sample(s): 04,07 Batch: WG1520745-1										
Solids, Total Suspended	ND		mg/l	1.0	NA	1	-	07/06/21 12:50	121,2540D	AC
General Chemistry - Westborough Lab for sample(s): 01-03,08 Batch: WG1521506-1										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	07/08/21 03:22	121,2320B	MR
General Chemistry - Westborough Lab for sample(s): 04-07 Batch: WG1521507-1										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	07/08/21 03:22	121,2320B	MR
General Chemistry - Westborough Lab for sample(s): 01-08 Batch: WG1521552-1										
Alkalinity, Bicarbonate	ND		mg CaCO3/L	2.00	NA	1	-	07/08/21 03:22	121,2320B	MR
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG1521891-1										
Cyanide, Total	0.004	J	mg/l	0.005	0.001	1	07/08/21 21:25	07/09/21 10:33	121,4500CN-CE	CR
General Chemistry - Westborough Lab for sample(s): 04-08 Batch: WG1521982-1										
Cyanide, Total	ND		mg/l	0.005	0.001	1	07/08/21 23:50	07/09/21 11:31	121,4500CN-CE	CR
General Chemistry - Westborough Lab for sample(s): 03,05-08 Batch: WG1523338-1										
Dissolved Organic Carbon	ND		mg/l	1.0	0.12	1	-	07/15/21 05:52	121,5310C	DW
General Chemistry - Westborough Lab for sample(s): 01-08 Batch: WG1523340-1										
Total Organic Carbon	ND		mg/l	0.500	0.114	1	-	07/15/21 05:52	121,5310C	DW
Anions by Ion Chromatography - Westborough Lab for sample(s): 01-08 Batch: WG1523710-1										
Chloride	0.242	J	mg/l	0.500	0.083	1	-	07/13/21 09:34	44,300.0	JT
Fluoride	ND		mg/l	0.050	0.037	1	-	07/13/21 09:34	44,300.0	JT
Sulfate	0.653	J	mg/l	1.00	0.454	1	-	07/13/21 09:34	44,300.0	JT
General Chemistry - Westborough Lab for sample(s): 01-02,04 Batch: WG1525370-1										
Dissolved Organic Carbon	ND		mg/l	1.0	0.12	1	07/19/21 08:00	07/19/21 08:21	121,5310C	DW

Lab Control Sample Analysis

Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-08 Batch: WG1518609-2								
Nitrogen, Nitrate	96		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1520184-2								
Solids, Total Suspended	99		-		80-120	-		
General Chemistry - Westborough Lab Associated sample(s): 03,05-06,08 Batch: WG1520185-2								
Solids, Total Suspended	99		-		80-120	-		
General Chemistry - Westborough Lab Associated sample(s): 01-08 Batch: WG1520713-2								
Phosphate, Total	102		-		84-118	-		
General Chemistry - Westborough Lab Associated sample(s): 04,07 Batch: WG1520745-2								
Solids, Total Suspended	96		-		80-120	-		
General Chemistry - Westborough Lab Associated sample(s): 01-03,08 Batch: WG1521506-2								
Alkalinity, Total	102		-		90-110	-		10
General Chemistry - Westborough Lab Associated sample(s): 04-07 Batch: WG1521507-2								
Alkalinity, Total	103		-		90-110	-		10

Lab Control Sample Analysis

Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1521891-2					
Cyanide, Total	96	-	90-110	-	
General Chemistry - Westborough Lab Associated sample(s): 04-08 Batch: WG1521982-2					
Cyanide, Total	92	-	90-110	-	
General Chemistry - Westborough Lab Associated sample(s): 03,05-08 Batch: WG1523338-2					
Dissolved Organic Carbon	95	-	90-110	-	
General Chemistry - Westborough Lab Associated sample(s): 01-08 Batch: WG1523340-2					
Total Organic Carbon	96	-	90-110	-	
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-08 Batch: WG1523710-2					
Chloride	101	-	90-110	-	
Fluoride	92	-	90-110	-	
Sulfate	93	-	90-110	-	
General Chemistry - Westborough Lab Associated sample(s): 01-02,04 Batch: WG1525370-2					
Dissolved Organic Carbon	100	-	90-110	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG1518609-4 QC Sample: L2135223-01 Client ID: MW-10S-0621												
Nitrogen, Nitrate	0.045J	4	3.9	98		-	-		83-113	-		6
General Chemistry - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG1520713-4 WG1520713-5 QC Sample: L2135223-01 Client ID: MW-10S-0621												
Phosphate, Total	0.031	1.53	1.69	110		1.60	104		80-120	5		15
General Chemistry - Westborough Lab Associated sample(s): 01-03,08 QC Batch ID: WG1521506-4 QC Sample: L2135223-01 Client ID: MW-10S-0621												
Alkalinity, Total	354.	100	449	95		-	-		86-116	-		10
General Chemistry - Westborough Lab Associated sample(s): 04-07 QC Batch ID: WG1521507-4 QC Sample: L2135400-01 Client ID: MS Sample												
Alkalinity, Total	54.8	100	169	114		-	-		86-116	-		10
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1521891-3 WG1521891-4 QC Sample: L2135223-01 Client ID: MW-10S-0621												
Cyanide, Total	ND	0.2	0.197	98		0.197	98		90-110	0		30
General Chemistry - Westborough Lab Associated sample(s): 04-08 QC Batch ID: WG1521982-4 QC Sample: L2135223-06 Client ID: MW-43-0621												
Cyanide, Total	ND	0.2	0.182	91		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG1523340-4 QC Sample: L2135223-01 Client ID: MW-10S-0621												
Total Organic Carbon	0.829	4	5.10	107		-	-		80-120	-		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG1523710-3 WG1523710-4 QC Sample: L2135223-01 Client ID: MW-10S-0621												
Chloride	9.66	4	13.6	99		13.6	100		90-110	1		18
Fluoride	0.140	0.4	0.515	94		0.526	97		90-110	3		15
Sulfate	148.	80	221	91		221	92		90-110	0		20

Matrix Spike Analysis
Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02,04 QC Batch ID: WG1525370-4 QC Sample: L2135223-01 Client ID: MW-10S-0621									
Dissolved Organic Carbon	0.68J	4	4.8	120	-	-	80-120	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG1518609-3 QC Sample: L2135223-01 Client ID: MW-10S-0621						
Nitrogen, Nitrate	0.045J	0.038J	mg/l	NC		6
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1520184-3 QC Sample: L2135223-01 Client ID: MW-10S-0621						
Solids, Total Suspended	3.2	2.8	mg/l	13		29
General Chemistry - Westborough Lab Associated sample(s): 03,05-06,08 QC Batch ID: WG1520185-3 QC Sample: L2135223-06 Client ID: MW-43-0621						
Solids, Total Suspended	480	840	mg/l	**55**	Q	29
General Chemistry - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG1520713-3 QC Sample: L2135149-01 Client ID: DUP Sample						
Phosphate, Total	1.99	1.82	mg/l	9		15
General Chemistry - Westborough Lab Associated sample(s): 04,07 QC Batch ID: WG1520745-3 QC Sample: L2135362-01 Client ID: DUP Sample						
Solids, Total Suspended	53.	54	mg/l	2		29
General Chemistry - Westborough Lab Associated sample(s): 01-03,08 QC Batch ID: WG1521506-3 QC Sample: L2135223-01 Client ID: MW-10S-0621						
Alkalinity, Total	354.	358	mg CaCO3/L	1		10
General Chemistry - Westborough Lab Associated sample(s): 04-07 QC Batch ID: WG1521507-3 QC Sample: L2135400-01 Client ID: DUP Sample						
Alkalinity, Total	54.8	54.0	mg CaCO3/L	1		10
General Chemistry - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG1521552-2 QC Sample: L2135223-01 Client ID: MW-10S-0621						
Alkalinity, Bicarbonate	354.	358	mg CaCO3/L	1		9
General Chemistry - Westborough Lab Associated sample(s): 04-08 QC Batch ID: WG1521982-3 QC Sample: L2135223-06 Client ID: MW-43-0621						
Cyanide, Total	ND	ND	mg/l	NC		30

Lab Duplicate Analysis

Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG1523340-3 QC Sample: L2135223-01 Client ID: MW-10S-0621					
Total Organic Carbon	0.829	0.771	mg/l	7	20
General Chemistry - Westborough Lab Associated sample(s): 01-02,04 QC Batch ID: WG1525370-3 QC Sample: L2135223-01 Client ID: MW-10S-0621					
Dissolved Organic Carbon	0.68J	0.67J	mg/l	NC	20

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent
D	Absent
E	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2135223-01A	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		TOC-5310(28)
L2135223-01A1	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		TOC-5310(28)
L2135223-01A2	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		TOC-5310(28)
L2135223-01B	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		TOC-5310(28)
L2135223-01B1	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		TOC-5310(28)
L2135223-01B2	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		TOC-5310(28)
L2135223-01C	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		DOC-5310(28)
L2135223-01C1	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		DOC-5310(28)
L2135223-01C2	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		DOC-5310(28)
L2135223-01D	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		DOC-5310(28)
L2135223-01D1	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		DOC-5310(28)
L2135223-01D2	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		DOC-5310(28)
L2135223-01E	Plastic 250ml unpreserved/No Headspace	B	NA		4.6	Y	Absent		ALK-T-2320(14),ALK-HCO3-2320(14)
L2135223-01E1	Plastic 250ml unpreserved/No Headspace	B	NA		4.6	Y	Absent		ALK-T-2320(14),ALK-HCO3-2320(14)
L2135223-01E2	Plastic 250ml unpreserved/No Headspace	B	NA		4.6	Y	Absent		ALK-T-2320(14),ALK-HCO3-2320(14)
L2135223-01F	Plastic 250ml NaOH preserved	B	>12	>12	4.6	Y	Absent		TCN-4500(14)
L2135223-01F1	Plastic 250ml NaOH preserved	B	>12	>12	4.6	Y	Absent		TCN-4500(14)
L2135223-01F2	Plastic 250ml NaOH preserved	B	>12	>12	4.6	Y	Absent		TCN-4500(14)
L2135223-01G	Plastic 250ml H2SO4 preserved	C	<2	<2	2.9	Y	Absent		TPO4-4500(28)

*Values in parentheses indicate holding time in days

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2135223-01G1	Plastic 250ml H2SO4 preserved	C	<2	<2	2.9	Y	Absent		TPO4-4500(28)
L2135223-01G2	Plastic 250ml H2SO4 preserved	C	<2	<2	2.9	Y	Absent		TPO4-4500(28)
L2135223-01H	Plastic 250ml HNO3 preserved	C	<2	<2	2.9	Y	Absent		K-6020T(180),CA-6020T(180),NA-6020T(180),AL-6020T(180),MG-6020T(180)
L2135223-01H1	Plastic 250ml HNO3 preserved	C	<2	<2	2.9	Y	Absent		K-6020T(180),CA-6020T(180),NA-6020T(180),AL-6020T(180),MG-6020T(180)
L2135223-01H2	Plastic 250ml HNO3 preserved	C	<2	<2	2.9	Y	Absent		K-6020T(180),CA-6020T(180),NA-6020T(180),AL-6020T(180),MG-6020T(180)
L2135223-01I	Plastic 250ml unpreserved	E	7	7	2.7	Y	Absent		-
L2135223-01I1	Plastic 250ml unpreserved	E	7	7	2.7	Y	Absent		-
L2135223-01I2	Plastic 250ml unpreserved	E	7	7	2.7	Y	Absent		-
L2135223-01J	Plastic 250ml unpreserved	E	7	7	2.7	Y	Absent		SO4-300(28),CL-300(28),F-300(28),NO3-353(2)
L2135223-01J1	Plastic 250ml unpreserved	E	7	7	2.7	Y	Absent		SO4-300(28),CL-300(28),F-300(28),NO3-353(2)
L2135223-01J2	Plastic 250ml unpreserved	E	7	7	2.7	Y	Absent		SO4-300(28),CL-300(28),F-300(28),NO3-353(2)
L2135223-01K	Plastic 950ml unpreserved	D	7	7	3.2	Y	Absent		TSS-2540-LOW(7)
L2135223-01K1	Plastic 950ml unpreserved	D	7	7	3.2	Y	Absent		TSS-2540-LOW(7)
L2135223-01K2	Plastic 950ml unpreserved	D	7	7	3.2	Y	Absent		TSS-2540-LOW(7)
L2135223-01L	Amber 1000ml unpreserved	A	7	7	2.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135223-01L1	Amber 1000ml unpreserved	A	7	7	2.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135223-01L2	Amber 1000ml unpreserved	A	7	7	2.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135223-01M	Amber 1000ml unpreserved	A	7	7	2.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135223-01M1	Amber 1000ml unpreserved	A	7	7	2.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135223-01M2	Amber 1000ml unpreserved	A	7	7	2.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135223-01X	Plastic 250ml HNO3 preserved Filtrates	E	NA		2.7	Y	Absent		FE-6020S(180),AL-6020S(180)
L2135223-02A	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		TOC-5310(28)
L2135223-02B	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		TOC-5310(28)
L2135223-02C	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		DOC-5310(28)
L2135223-02D	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		DOC-5310(28)
L2135223-02E	Plastic 250ml unpreserved/No Headspace	B	NA		4.6	Y	Absent		ALK-T-2320(14),ALK-HCO3-2320(14)

*Values in parentheses indicate holding time in days

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2135223-02F	Plastic 250ml NaOH preserved	B	>12	>12	4.6	Y	Absent		TCN-4500(14)
L2135223-02G	Plastic 250ml H2SO4 preserved	C	<2	<2	2.9	Y	Absent		TPO4-4500(28)
L2135223-02H	Plastic 250ml HNO3 preserved	C	<2	<2	2.9	Y	Absent		K-6020T(180),CA-6020T(180),NA-6020T(180),MG-6020T(180),AL-6020T(180)
L2135223-02I	Plastic 250ml unpreserved	E	7	7	2.7	Y	Absent		-
L2135223-02J	Plastic 250ml unpreserved	E	7	7	2.7	Y	Absent		SO4-300(28),F-300(28),CL-300(28),NO3-353(2)
L2135223-02K	Plastic 950ml unpreserved	D	7	7	3.2	Y	Absent		TSS-2540-LOW(7)
L2135223-02L	Amber 1000ml unpreserved	D	7	7	3.2	Y	Absent		A2-PCB-8082-LOW(365)
L2135223-02M	Amber 1000ml unpreserved	D	7	7	3.2	Y	Absent		A2-PCB-8082-LOW(365)
L2135223-02X	Plastic 120ml HNO3 preserved Filtrates	E	NA		2.7	Y	Absent		AL-6020S(180)
L2135223-03A	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		TOC-5310(28)
L2135223-03B	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		TOC-5310(28)
L2135223-03C	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		DOC-5310(28)
L2135223-03D	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		DOC-5310(28)
L2135223-03E	Plastic 250ml unpreserved/No Headspace	B	NA		4.6	Y	Absent		ALK-T-2320(14),ALK-HCO3-2320(14)
L2135223-03F	Plastic 250ml NaOH preserved	B	>12	>12	4.6	Y	Absent		TCN-4500(14)
L2135223-03G	Plastic 250ml H2SO4 preserved	C	<2	<2	2.9	Y	Absent		TPO4-4500(28)
L2135223-03H	Plastic 250ml HNO3 preserved	C	<2	<2	2.9	Y	Absent		K-6020T(180),CA-6020T(180),NA-6020T(180),MG-6020T(180),AL-6020T(180)
L2135223-03I	Plastic 250ml unpreserved	E	7	7	2.7	Y	Absent		-
L2135223-03J	Plastic 250ml unpreserved	E	7	7	2.7	Y	Absent		SO4-300(28),CL-300(28),F-300(28),NO3-353(2)
L2135223-03K	Plastic 950ml unpreserved	D	7	7	3.2	Y	Absent		TSS-2540-LOW(7)
L2135223-03L	Amber 1000ml unpreserved	D	7	7	3.2	Y	Absent		A2-PCB-8082-LOW(365)
L2135223-03M	Amber 1000ml unpreserved	D	7	7	3.2	Y	Absent		A2-PCB-8082-LOW(365)
L2135223-03N	Plastic 250ml NaOH preserved	B	>12	>12	4.6	Y	Absent		SUB-WAD CYANIDE()
L2135223-03X	Plastic 120ml HNO3 preserved Filtrates	E	NA		2.7	Y	Absent		FE-6020S(180),AL-6020S(180)
L2135223-04A	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		TOC-5310(28)
L2135223-04B	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		TOC-5310(28)
L2135223-04C	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		DOC-5310(28)

*Values in parentheses indicate holding time in days

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2135223-04D	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		DOC-5310(28)
L2135223-04E	Plastic 250ml unpreserved/No Headspace	B	NA		4.6	Y	Absent		ALK-T-2320(14),ALK-HCO3-2320(14)
L2135223-04F	Plastic 250ml NaOH preserved	B	>12	>12	4.6	Y	Absent		TCN-4500(14)
L2135223-04G	Plastic 250ml H2SO4 preserved	C	<2	<2	2.9	Y	Absent		TPO4-4500(28)
L2135223-04H	Plastic 250ml HNO3 preserved	C	<2	<2	2.9	Y	Absent		CA-6020T(180),K-6020T(180),NA-6020T(180),MG-6020T(180),AL-6020T(180)
L2135223-04I	Plastic 250ml unpreserved	E	7	7	2.7	Y	Absent		-
L2135223-04J	Plastic 250ml unpreserved	E	7	7	2.7	Y	Absent		SO4-300(28),F-300(28),CL-300(28),NO3-353(2)
L2135223-04K	Plastic 950ml unpreserved	D	7	7	3.2	Y	Absent		TSS-2540-LOW(7)
L2135223-04L	Amber 1000ml unpreserved	D	7	7	3.2	Y	Absent		A2-PCB-8082-LOW(365)
L2135223-04M	Amber 1000ml unpreserved	D	7	7	3.2	Y	Absent		A2-PCB-8082-LOW(365)
L2135223-04X	Plastic 120ml HNO3 preserved Filtrates	E	NA		2.7	Y	Absent		AL-6020S(180)
L2135223-05A	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		TOC-5310(28)
L2135223-05B	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		TOC-5310(28)
L2135223-05C	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		DOC-5310(28)
L2135223-05D	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		DOC-5310(28)
L2135223-05E	Plastic 250ml unpreserved/No Headspace	B	NA		4.6	Y	Absent		ALK-T-2320(14),ALK-HCO3-2320(14)
L2135223-05F	Plastic 250ml NaOH preserved	B	>12	>12	4.6	Y	Absent		TCN-4500(14)
L2135223-05G	Plastic 250ml H2SO4 preserved	C	<2	<2	2.9	Y	Absent		TPO4-4500(28)
L2135223-05H	Plastic 250ml HNO3 preserved	C	<2	<2	2.9	Y	Absent		CA-6020T(180),K-6020T(180),NA-6020T(180),AL-6020T(180),MG-6020T(180)
L2135223-05I	Plastic 250ml unpreserved	E	7	7	2.7	Y	Absent		-
L2135223-05J	Plastic 250ml unpreserved	E	7	7	2.7	Y	Absent		SO4-300(28),CL-300(28),F-300(28),NO3-353(2)
L2135223-05K	Plastic 950ml unpreserved	D	7	7	3.2	Y	Absent		TSS-2540-LOW(7)
L2135223-05L	Amber 1000ml unpreserved	D	7	7	3.2	Y	Absent		A2-PCB-8082-LOW(365)
L2135223-05M	Amber 1000ml unpreserved	D	7	7	3.2	Y	Absent		A2-PCB-8082-LOW(365)
L2135223-05X	Plastic 120ml HNO3 preserved Filtrates	E	NA		2.7	Y	Absent		AL-6020S(180)
L2135223-06A	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		TOC-5310(28)
L2135223-06B	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		TOC-5310(28)

*Values in parentheses indicate holding time in days

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2135223-06C	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		DOC-5310(28)
L2135223-06D	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		DOC-5310(28)
L2135223-06E	Plastic 250ml unpreserved/No Headspace	B	NA		4.6	Y	Absent		ALK-T-2320(14),ALK-HCO3-2320(14)
L2135223-06F	Plastic 250ml NaOH preserved	B	>12	>12	4.6	Y	Absent		TCN-4500(14)
L2135223-06G	Plastic 250ml H2SO4 preserved	C	<2	<2	2.9	Y	Absent		TPO4-4500(28)
L2135223-06H	Plastic 250ml HNO3 preserved	C	<2	<2	2.9	Y	Absent		CA-6020T(180),K-6020T(180),NA-6020T(180),AL-6020T(180),MG-6020T(180)
L2135223-06I	Plastic 250ml unpreserved	E	7	7	2.7	Y	Absent		-
L2135223-06J	Plastic 250ml unpreserved	E	7	7	2.7	Y	Absent		SO4-300(28),F-300(28),CL-300(28),NO3-353(2)
L2135223-06K	Plastic 950ml unpreserved	D	7	7	3.2	Y	Absent		TSS-2540-LOW(7)
L2135223-06L	Amber 1000ml unpreserved	A	7	7	2.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135223-06M	Amber 1000ml unpreserved	A	7	7	2.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135223-06X	Plastic 120ml HNO3 preserved Filtrates	E	NA		2.7	Y	Absent		AL-6020S(180)
L2135223-07A	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		TOC-5310(28)
L2135223-07B	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		TOC-5310(28)
L2135223-07C	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		DOC-5310(28)
L2135223-07D	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		DOC-5310(28)
L2135223-07E	Plastic 250ml unpreserved/No Headspace	B	NA		4.6	Y	Absent		ALK-T-2320(14),ALK-HCO3-2320(14)
L2135223-07F	Plastic 250ml NaOH preserved	B	>12	>12	4.6	Y	Absent		TCN-4500(14)
L2135223-07G	Plastic 250ml H2SO4 preserved	C	<2	<2	2.9	Y	Absent		TPO4-4500(28)
L2135223-07H	Plastic 250ml HNO3 preserved	C	<2	<2	2.9	Y	Absent		CA-6020T(180),K-6020T(180),NA-6020T(180),MG-6020T(180),AL-6020T(180)
L2135223-07I	Plastic 250ml unpreserved	E	7	7	2.7	Y	Absent		-
L2135223-07J	Plastic 250ml unpreserved	E	7	7	2.7	Y	Absent		SO4-300(28),F-300(28),CL-300(28),NO3-353(2)
L2135223-07K	Plastic 950ml unpreserved	D	7	7	3.2	Y	Absent		TSS-2540-LOW(7)
L2135223-07L	Amber 1000ml unpreserved	A	7	7	2.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135223-07M	Amber 1000ml unpreserved	A	7	7	2.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135223-07X	Plastic 120ml HNO3 preserved Filtrates	E	NA		2.7	Y	Absent		AL-6020S(180)
L2135223-08A	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		TOC-5310(28)

*Values in parentheses indicate holding time in days

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135223
Report Date: 08/12/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2135223-08B	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		TOC-5310(28)
L2135223-08C	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		DOC-5310(28)
L2135223-08D	Vial H2SO4 preserved	C	NA		2.9	Y	Absent		DOC-5310(28)
L2135223-08E	Plastic 250ml unpreserved/No Headspace	B	NA		4.6	Y	Absent		ALK-T-2320(14),ALK-HCO3-2320(14)
L2135223-08G	Plastic 250ml H2SO4 preserved	C	<2	<2	2.9	Y	Absent		TPO4-4500(28)
L2135223-08H	Plastic 250ml HNO3 preserved	C	<2	<2	2.9	Y	Absent		CA-6020T(180),K-6020T(180),NA-6020T(180),MG-6020T(180),AL-6020T(180)
L2135223-08I	Plastic 250ml unpreserved	E	7	7	2.7	Y	Absent		-
L2135223-08J	Plastic 250ml unpreserved	E	7	7	2.7	Y	Absent		SO4-300(28),F-300(28),CL-300(28),NO3-353(2)
L2135223-08K	Plastic 950ml unpreserved	D	7	7	3.2	Y	Absent		TSS-2540-LOW(7)
L2135223-08L	Amber 1000ml unpreserved	A	7	7	2.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135223-08M	Amber 1000ml unpreserved	A	7	7	2.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135223-08W	Plastic 120ml NAOH preserved split	A	7	>12	2.3	N	Absent		TCN-4500(14)
L2135223-08X	Plastic 120ml HNO3 preserved Filtrates	E	NA		2.7	Y	Absent		AL-6020S(180)

*Values in parentheses indicate holding time in days

Project Name: REYNOLDS **Lab Number:** L2135223

Project Number: 99566 **Report Date:** 08/12/21

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name:	REYNOLDS	**Lab Number:**	L2135223
Project Number:	99566	**Report Date:**	08/12/21

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	REYNOLDS	**Lab Number:**	L2135223
Project Number:	99566	**Report Date:**	08/12/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Project Name:	REYNOLDS	**Lab Number:**	L2135223
Project Number:	99566	**Report Date:**	08/12/21

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
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Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab: 6/30/21

ALPHA Job #: L2135223

Client Information
Client: CDM Smith
Address: 4 Highland Rd
Massena NY 13662
Phone: 315-296-9012
Fax:
Email: Kingsley RL@cdmsmith

Project Information
Project Name: Reynolds
Project Location: NY
Project #: 995666
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time
Standard ☐ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TOC	DOC	Alk, Cl, Hard-2320	2320 Alk	TPH-4500	TSS	Cl, NO3	Dissolved Iron	Sample Specific Comments	Total Bottle
35223-01	MW-105-0621	6-29-21	0725	water	BC	X	X	X	X	X	X	X	X		
01	MW-105-0621 MS	6-29-21	0725	water	BC	X	X	X	X	X	X	X	X		
01	MW-105-0621 MSD	6-29-21	0725	water	BC	X	X	X	X	X	X	X	X		
02	MW-145-0621	6-29-21	0810	water	BC	X	X	X	X	X	X	X			
03	MW-45-0621	6-29-21	0835	water	BC	X	X	X	X	X	X	X	X		
04	MW-265-0621	6-29-21	1045	water	BC	X	X	X	X	X	X	X			
05	MW-285-0621	6-29-21	0932	water	BC	X	X	X	X	X	X	X			
06	MW-43-0621	6-29-21	1015	water	BC	X	X	X	X	X	X	X			
07	MW-1202-0621 BD	6-29-21	1020	water	BC	X	X	X	X	X	X	X			
08	MW-1204-0621 FBW	6-29-21	0915	water	BC	X	X	X	X	X	X	X			

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type									
Preservative									

Relinquished By:	Date/Time	Received By:	Date/Time
Basil Cox	6-29-21 1400	AHL	6/30/21 1525
	6/29/21 1525		6/30/21 0130

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab: 6/30/21

ALPHA Job #: L2135223

Client Information
Client: CDMSmith
Address: 4 Highland Rd
Massena NY 13662
Phone: 315-296-9012
Fax:
Email: Kingsley RL@cdmsmith

Project Information
Project Name: Reynolds
Project Location: NY
Project #: 99566
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time
Standard ☐ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Aluminum	Diss Aluminum	Fluoride	Sulfate	TCN	WAD CN	Total Bottle	Sample Specific Comments
25223-01	MW-105-0621	6-29-21	0725	water	BC	X	X	X	X	X	X	X		
01	MW-105-0621 MS	6-29-21	0725	water	BC	X	X	X	X	X	X	X		
01	MW-105-0621 MSD	6-29-21	0725	water	BC	X	X	X	X	X	X	X		
02	MW-145-0621	6-29-21	0810	water	BC	X	X	X	X	X	X	X		
03	MW-45-0621	6-29-21	0835	water	BC	X	X	X	X	X	X	X		
04	MW-265-0621	6-29-21	1045	water	BC	X	X	X	X	X	X	X		
05	MW-285-0621	6-29-21	0932	water	BC	X	X	X	X	X	X	X		
06	MW-43-0621	6-29-21	1015	water	BC	X	X	X	X	X	X	X		
07	MW-1202-0621 FD	6-29-21	1020	water	BC	X	X	X	X	X	X	X		
08	MW-1204-0621 FBW	6-29-21	0915	water	BC	X	X	X	X	X	X	X		

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type													
Preservative													

Relinquished By:	Date/Time	Received By:	Date/Time
Basil Cox	6-29-21 1400	AAL	6/29/21 1525
	6/29/21 1525		6/30/21 0900

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

ALPHA ANALYTICAL
World Class Chemistry

Subcontract Chain of Custody

ALS Rochester
1565 Jefferson Road
Rochester, NY 14623

Alpha Job Number
L2135223

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 716.427.5229
Email: mdeyo@alphalab.com

Project Information

Project Location: NY
Project Manager: Melissa Deyo

Turnaround & Deliverables Information

Due Date:
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2135223

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	MW-10S-0621	06-29-21 07:25	WATER	WAD CYANIDE	MS;MSD
	MW-14S-0621	06-29-21 08:10	WATER	WAD CYANIDE	
	MW-45-0621	06-29-21 08:35	WATER	WAD CYANIDE	
	MW-26S-0621	06-29-21 10:45	WATER	WAD CYANIDE	
	MW-26S-0621	06-29-21 09:32	WATER	WAD CYANIDE	
	MW-43-0621	06-29-21 10:15	WATER	WAD CYANIDE	
	MW-1202-0621 BD	06-29-21 10:20	WATER	WAD CYANIDE	
	MW-1204-0621-FBD	06-29-21 09:15	WATER	WAD CYANIDE	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		6/30/21		
Form No: AL_subcoc				

July 12, 2021 Service Request No:R2106547

Melissa Deyo
Alpha Analytical Inc. (Westbourough, MA)
8 Walkup Dr
Westborough, MA 01581

Laboratory Results for: L2135223

Dear Melissa,

Enclosed are the results of the sample(s) submitted to our laboratory June 30, 2021
For your reference, these analyses have been assigned our service request number **R2106547.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Janice Jaeger
Project Manager

CC: Reporting

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

1565 Jefferson Rd, Building 300, Rochester, NY 14623 | 585-288-5380 | www.alsglobal.com

ALS Environmental

Client: Alpha Analytical Inc. (Westborough, MA)
Service Request: R2106547
Project: L2135223
Date Received: 06/30/2021 - 07/01/2021
Sample Matrix: Water

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Eight water samples were received for analysis at ALS Environmental on 06/30/2021 - 07/01/2021. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by _____ Date 07/12/2021

SAMPLE DETECTION SUMMARY

CLIENT ID: MW-45-0621			Lab ID: R2106547-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Cyanide, Weak Acid Dissociable (WAD)	0.029			0.010	mg/L	SM 4500-CN- E

CLIENT ID: MW-28S-0621			Lab ID: R2106547-005			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Cyanide, Weak Acid Dissociable (WAD)	0.148			0.010	mg/L	SM 4500-CN- E

Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: Alpha Analytical Inc. (Westborough, MA) **Service Request:**R2106547
Project: L2135223

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R2106547-001	MW-10S-0621	6/29/2021	0725
R2106547-002	MW-14S-0621	6/29/2021	0725
R2106547-003	MW-45-0621	6/29/2021	0835
R2106547-004	MW-26S-0621	6/29/2021	0725
R2106547-005	MW-28S-0621	6/29/2021	0725
R2106547-006	MW-43-0621	6/29/2021	0725
R2106547-007	MW-1202-0621 BD	6/29/2021	0725
R2106547-008	MW-1204-0621 FBD	6/29/2021	0725

Subcontract Chain of Custody

ALS Rochester
1565 Jefferson Road
Rochester, NY 14623

Alpha Job Number
L2135223

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 716.427.5229 Email: mdeyo@alphalab.com	Project Location: NY Project Manager: Melissa Deyo **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2135223

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	MW-10S-0621	06-29-21 07:25	WATER	WAD CYANIDE	MS;MSD
	MW-14S-0621	06-29-21 07:25	WATER	WAD CYANIDE	
	MW-45-0621	06-29-21 07:25	WATER	WAD CYANIDE	
	MW-26S-0621	06-29-21 07:25	WATER	WAD CYANIDE	
	MW-28S-0621	06-29-21 07:25	WATER	WAD CYANIDE	
	MW-43-0621	06-29-21 07:25	WATER	WAD CYANIDE	
	MW-1202-0621 BD	06-29-21 07:25	WATER	WAD CYANIDE	
	MW-1204-0621 FBD	06-29-21 07:25	WATER	WAD CYANIDE	

Relinquished By:	Date/Time:	Received By:	Date/Time:
		ALS	6/30/21 1340

Form No: AL_subcoc

R2106547 5
Alpha Analytical Lab
L2135223

Serial_No:08122115:44

R2106547 5
Alpha Analytical Lab
L2136223

Cooler Receipt and Preservation Check Form

Project/Client Alpha Analytical Folder Number .

Cooler received on 6/30/21 by: dlw

COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y ~~N~~	5a	**Perchlorate** samples have required headspace?	Y N ~~NA~~
2	**Custody papers** properly completed (ink, signed)?	~~Y~~ N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N ~~NA~~
3	Did all bottles arrive in good **condition** (unbroken)?	~~Y~~ N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: ~~Wet Ice~~ **Dry Ice Gel packs** present?	~~Y~~ N	7	Soil VOA received as: Bulk Encore 5035set	~~NA~~

8. Temperature Readings Date: 6/30/21 Time: 1345 ID: IR#7 ~~IR#11~~ From: ~~Temp Blank~~ ~~Sample Bottle~~ dlw 6/30/21

Observed Temp (°C)	0.6						
Within 0-6°C?	~~Y~~ N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: Standing Approval Client aware at drop-off Client notified by:

All samples held in storage location: R-002 by dlw on 6/30/21 at 1345
5035 samples placed in storage location: by on at within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 6/30/21 Time: 1520 by:

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
10. Did all bottle labels and tags agree with custody papers? YES NO
11. Were correct containers used for the tests indicated? YES NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO N/A
13. Air Samples: Cassettes / Tubes Intact Y / N with MS Y / N Canisters Pressurized Tedlar® Bags Inflated N/A

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12	223419	NaOH	✓		Client					
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN Phenol, 625, 608pest, 522	✓		If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-						
		HCl	**	**						

**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).

Bottle lot numbers: Client

Explain all Discrepancies/ Other Comments:

did ~~not~~ receive
MW-4/5-0621

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by:
PC Secondary Review: 7/1/21

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

P:\INTRANET\QAQC\Forms Controlled\Cooler Receipt r19.doc 03/02/2021

Subcontract Chain of Custody

ALS Rochester
1565 Jefferson Road
Rochester, NY 14623

Alpha Job Number
L2135223

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 716.427.5229 Email: mdeyo@alphalab.com	Project Location: NY Project Manager: Melissa Deyo **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2135223

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	~~MW-10S-0621~~	~~06-29-21 07:25~~	WATER	WAD CYANIDE	MS;MSD
	~~MW-14S-0621~~	~~06-29-21 08:10~~	~~WATER~~	~~WAD CYANIDE~~	
	MW-45-0621	06-29-21 08:35	WATER	WAD CYANIDE	
	~~MW-20S-0621~~	~~06-29-21 10:45~~	~~WATER~~	~~WAD CYANIDE~~	
	~~MW-26S-0621~~	~~06-29-21 09:32~~	~~WATER~~	~~WAD CYANIDE~~	
	~~MW-43-0621~~	~~06-29-21 10:15~~	~~WATER~~	~~WAD CYANIDE~~	
	~~MW-1202-0621 BD~~	~~06-29-21 10:20~~	~~WATER~~	~~WAD CYANIDE~~	
	~~MW-1204-0621 FBD~~	~~06-30-21 00:15~~	~~WATER~~	~~WAD CYANIDE~~	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		6/30/21	Matthew Mahy	7/1/21 10:00
Form No: AL_subcoc				

R2106547 5
Alpha Analytical Lab
L2135223

Serial_No:08122115:44

R2106547 5
Alpha Analytical Lab
L2136223

Cooler Receipt and Preservation Check Form

Project/Client Alpha Analytical Labs Folder Number _____.

Cooler received on 7/1/21 by: MM COURIER: ALS (UPS) FEDEX VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y (N)	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	Y (N)	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N (NA)
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate?	ALS/ROC (CLIENT)
4	Circle: (Wet Ice) **Dry Ice Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 7/1/21 Time: 10:13 ID: IR#7 (IR#11) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	3.7						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R002 by MM on 7/1/21 at 10:20
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 7/1/21 Time: 1328 by: _____

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact Y / N with MS Y / N Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12	203419	NaOH	✓		Client					
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For (CN), Phenol, 625, 608pest, 522	✓		If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: Client
Explain all Discrepancies/ Other Comments:

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: _____
PC Secondary Review: _____ 7/2/21

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

P:\INTRANET\QAQC\Forms Controlled\Cooler Receipt r19.doc 03/02/2021

Miscellaneous Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.
MRL LOQ	Method Reporting Limit. Also known as: Limit of Quantitation (LOQ) The lowest concentration at which the method analyte may be reliably quantified under the method conditions.
MDL	Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).
LOD	Limit of Detection. A value at or above the MDL which has been verified to be detectable.
ND	Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

ALS Laboratory Group

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Alpha Analytical Inc. (Westborough, MA) **Service Request:** R2106547
Project: L2135223/

Sample Name: MW-10S-0621 **Date Collected:** 06/29/21
Lab Code: R2106547-001 **Date Received:** 06/30/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-CN- E	MROGERSON	GNITAJOUPPI

Sample Name: MW-14S-0621 **Date Collected:** 06/29/21
Lab Code: R2106547-002 **Date Received:** 06/30/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-CN- E	MROGERSON	GNITAJOUPPI

Sample Name: MW-45-0621 **Date Collected:** 06/29/21
Lab Code: R2106547-003 **Date Received:** 07/1/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-CN- E	MROGERSON	GNITAJOUPPI

Sample Name: MW-26S-0621 **Date Collected:** 06/29/21
Lab Code: R2106547-004 **Date Received:** 06/30/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-CN- E	MROGERSON	GNITAJOUPPI

Sample Name: MW-28S-0621 **Date Collected:** 06/29/21
Lab Code: R2106547-005 **Date Received:** 06/30/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-CN- E	MROGERSON	GNITAJOUPPI

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Alpha Analytical Inc. (Westborough, MA) **Service Request:** R2106547
Project: L2135223/

Sample Name: MW-43-0621 **Date Collected:** 06/29/21
Lab Code: R2106547-006 **Date Received:** 06/30/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-CN- E	MROGERSON	GNITAJOUPPI

Sample Name: MW-1202-0621 BD **Date Collected:** 06/29/21
Lab Code: R2106547-007 **Date Received:** 06/30/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-CN- E	MROGERSON	GNITAJOUPPI

Sample Name: MW-1204-0621 FBD **Date Collected:** 06/29/21
Lab Code: R2106547-008 **Date Received:** 06/30/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-CN- E	MROGERSON	GNITAJOUPPI

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	

Sample Results

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General Chemistry

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106547
Project:	L2135223	**Date Collected:**	06/29/21 07:25
Sample Matrix:	Water	**Date Received:**	06/30/21 13:40
Sample Name:	MW-10S-0621	**Basis:**	NA
Lab Code:	R2106547-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.010 U	mg/L	0.010	1	07/08/21 10:10	07/07/21	

ALS Group USA, Corp.
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Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106547
Project:	L2135223	**Date Collected:**	06/29/21 07:25
Sample Matrix:	Water	**Date Received:**	06/30/21 13:40
Sample Name:	MW-14S-0621	**Basis:**	NA
Lab Code:	R2106547-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.010 U	mg/L	0.010	1	07/08/21 10:12	07/07/21	

ALS Group USA, Corp.
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Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106547
Project:	L2135223	**Date Collected:**	06/29/21 08:35
Sample Matrix:	Water	**Date Received:**	07/01/21 10:00
Sample Name:	MW-45-0621	**Basis:**	NA
Lab Code:	R2106547-003		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	**0.029**	mg/L	0.010	1	07/08/21 10:13	07/07/21	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106547
Project:	L2135223	**Date Collected:**	06/29/21 07:25
Sample Matrix:	Water	**Date Received:**	06/30/21 13:40
Sample Name:	MW-26S-0621	**Basis:**	NA
Lab Code:	R2106547-004		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.010 U	mg/L	0.010	1	07/08/21 10:14	07/07/21	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106547
Project:	L2135223	**Date Collected:**	06/29/21 07:25
Sample Matrix:	Water	**Date Received:**	06/30/21 13:40
Sample Name:	MW-28S-0621	**Basis:**	NA
Lab Code:	R2106547-005		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	**0.148**	mg/L	0.010	1	07/08/21 10:15	07/07/21	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106547
Project:	L2135223	**Date Collected:**	06/29/21 07:25
Sample Matrix:	Water	**Date Received:**	06/30/21 13:40
Sample Name:	MW-43-0621	**Basis:**	NA
Lab Code:	R2106547-006		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.010 U	mg/L	0.010	1	07/08/21 10:17	07/07/21	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106547
Project:	L2135223	**Date Collected:**	06/29/21 07:25
Sample Matrix:	Water	**Date Received:**	06/30/21 13:40
Sample Name:	MW-1202-0621 BD	**Basis:**	NA
Lab Code:	R2106547-007		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.010 U	mg/L	0.010	1	07/08/21 10:18	07/07/21	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106547
Project:	L2135223	**Date Collected:**	06/29/21 07:25
Sample Matrix:	Water	**Date Received:**	06/30/21 13:40
Sample Name:	MW-1204-0621 FBD	**Basis:**	NA
Lab Code:	R2106547-008		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.010 U	mg/L	0.010	1	07/08/21 10:18	07/07/21	

QC Summary Forms

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General Chemistry

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www.alsglobal.com

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dba ALS Environmental

Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106547
Project:	L2135223	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	R2106547-MB		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.010 U	mg/L	0.010	1	07/08/21 10:05	07/07/21	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106547
Project:	L2135223	**Date Collected:**	06/29/21
Sample Matrix:	Water	**Date Received:**	06/30/21
		Date Analyzed:	07/8/21
		Date Extracted:	07/7/21

Duplicate Matrix Spike Summary
Cyanide, Weak Acid Dissociable (WAD)

Sample Name:	MW-10S-0621	**Units:**	mg/L
Lab Code:	R2106547-001	**Basis:**	NA
Analysis Method:	SM 4500-CN- E		
Prep Method:	SM 4500-CN-I		

		Matrix Spike R2106547-001MS			**Duplicate Matrix Spike** R2106547-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Cyanide, Weak Acid Dissociable (WAD)	0.010 U	0.068	0.100	68	0.070	0.100	70	57-111	3	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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QA/QC Report

Client: Alpha Analytical Inc. (Westborough, MA)
Project: L2135223
Sample Matrix: Water

Service Request: R2106547
Date Analyzed: 07/08/21

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2106547-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.106	0.100	106	85-115

ANALYTICAL REPORT

Lab Number:	L2135820
Client:	CDM Smith, Inc. 4 Highland Road Suite 1 Massena, NY 13662
ATTN:	Ryan Kingsley
Phone:	(315) 296-9000
Project Name:	REYNOLDS
Project Number:	99566
Report Date:	08/12/21

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2135820-01	PZ-44-0621	WATER	NY	07/01/21 07:20	07/01/21
L2135820-02	MW-41-0621	WATER	NY	07/01/21 07:55	07/01/21
L2135820-03	MW-17S-0621	WATER	NY	07/01/21 08:15	07/01/21
L2135820-04	MW-42-0621	WATER	NY	07/01/21 08:33	07/01/21
L2135820-05	MW-36-0621	WATER	NY	07/01/21 09:20	07/01/21
L2135820-06	MW-37-0621	WATER	NY	07/01/21 09:45	07/01/21
L2135820-07	MW-22-85S-0621	WATER	NY	07/01/21 10:15	07/01/21
L2135820-08	MW-15S-87-0621	WATER	NY	07/01/21 07:40	07/01/21
L2135820-09	MW-35SR-0621	WATER	NY	07/01/21 08:50	07/01/21
L2135820-10	MW-1205-0621 FBW	WATER	NY	07/01/21 09:35	07/01/21

Project Name:	REYNOLDS	**Lab Number:**	L2135820
Project Number:	99566	**Report Date:**	08/12/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: REYNOLDS **Lab Number:** L2135820
Project Number: 99566 **Report Date:** 08/12/21

Case Narrative (continued)

Report Revision

August 12, 2021: The Total Metals analyte list has been amended on L2135820-02, -04, -05, -06, -07 and -10.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

The analysis of Cyanide, Weak Acid Dissociable (WAD) was subcontracted. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

Sample Receipt

L2135820-04: The sample was received above the appropriate pH for the Total Phosphate - SM 4500P-E(M) analysis. The laboratory added additional H2SO4 to a pH <2.

Total Metals

L2135820-05: The sample has elevated detection limits for all elements due to the prep dilution required by the sample matrix.

Dissolved Metals

L2135820-02: The sample has an elevated detection limit due to the prep dilution required by the limited sample volume.

Dissolved Organic Carbon

The samples were field filtered; a filter blank was not received.

L2135820-01, -02, -03, -04, -05, -06, -08, and -10: The DOC result is greater than the TOC result due to

Project Name: REYNOLDS **Lab Number:** L2135820
Project Number: 99566 **Report Date:** 08/12/21

Case Narrative (continued)

the filtering procedure required by the DOC method.

Anions by Ion Chromatography
L2135820-07: The sample has an elevated detection limit for Fluoride due to the dilution required by the sample matrix.
The WG1527443-3 MS recoveries, performed on L2135820-04, are outside the acceptance criteria for sulfate (63%) and fluoride (88%); however, the associated LCS recoveries are within criteria. No further action was taken.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich

Title: Technical Director/Representative Date: 08/12/21

ORGANICS

PCBS

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-02
Client ID: MW-41-0621
Sample Location: NY

Date Collected: 07/01/21 07:55
Date Received: 07/01/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 07/20/21 12:37
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/15/21 16:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1242	ND		ug/l	0.021	0.010	1	A
Aroclor 1248	ND		ug/l	0.021	0.010	1	A
Aroclor 1254	ND		ug/l	0.021	0.007	1	A
Aroclor 1260	ND		ug/l	0.021	0.009	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	45		30-150	A
DCB - Surrogate	34		30-150	A
Tetrachloro-meta-Xylene	41		30-150	B
DCB - Surrogate	34		30-150	B

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-04
Client ID: MW-42-0621
Sample Location: NY

Date Collected: 07/01/21 08:33
Date Received: 07/01/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 07/27/21 12:20
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/22/21 10:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1242	ND		ug/l	0.019	0.009	1	A
Aroclor 1248	ND		ug/l	0.019	0.009	1	A
Aroclor 1254	ND		ug/l	0.019	0.007	1	A
Aroclor 1260	ND		ug/l	0.019	0.009	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	52		30-150	A
DCB - Surrogate	31		30-150	A
Tetrachloro-meta-Xylene	48		30-150	B
DCB - Surrogate	32		30-150	B

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-05
Client ID: MW-36-0621
Sample Location: NY

Date Collected: 07/01/21 09:20
Date Received: 07/01/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 07/20/21 13:02
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/15/21 16:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1242	ND		ug/l	0.020	0.010	1	A
Aroclor 1248	ND		ug/l	0.020	0.010	1	A
Aroclor 1254	ND		ug/l	0.020	0.007	1	A
Aroclor 1260	ND		ug/l	0.020	0.009	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	53		30-150	A
DCB - Surrogate	30		30-150	A
Tetrachloro-meta-Xylene	51		30-150	B
DCB - Surrogate	32		30-150	B

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-06
Client ID: MW-37-0621
Sample Location: NY

Date Collected: 07/01/21 09:45
Date Received: 07/01/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 07/20/21 13:14
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/15/21 16:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1242	ND		ug/l	0.020	0.010	1	A
Aroclor 1248	ND		ug/l	0.020	0.010	1	A
Aroclor 1254	ND		ug/l	0.020	0.007	1	A
Aroclor 1260	ND		ug/l	0.020	0.009	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	63		30-150	A
DCB - Surrogate	36		30-150	A
Tetrachloro-meta-Xylene	57		30-150	B
DCB - Surrogate	35		30-150	B

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-07
Client ID: MW-22-85S-0621
Sample Location: NY

Date Collected: 07/01/21 10:15
Date Received: 07/01/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 07/20/21 13:26
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/15/21 16:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1242	ND		ug/l	0.020	0.010	1	A
Aroclor 1248	ND		ug/l	0.020	0.009	1	A
Aroclor 1254	ND		ug/l	0.020	0.007	1	A
Aroclor 1260	ND		ug/l	0.020	0.009	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	61		30-150	A
DCB - Surrogate	40		30-150	A
Tetrachloro-meta-Xylene	57		30-150	B
DCB - Surrogate	41		30-150	B

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-10
Client ID: MW-1205-0621 FBW
Sample Location: NY

Date Collected: 07/01/21 09:35
Date Received: 07/01/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 07/20/21 13:38
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/15/21 16:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1242	ND		ug/l	0.020	0.010	1	A
Aroclor 1248	ND		ug/l	0.020	0.009	1	A
Aroclor 1254	ND		ug/l	0.020	0.007	1	A
Aroclor 1260	ND		ug/l	0.020	0.009	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	67		30-150	A
DCB - Surrogate	49		30-150	A
Tetrachloro-meta-Xylene	64		30-150	B
DCB - Surrogate	56		30-150	B

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135820
Report Date: 08/12/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8082A
Analytical Date: 07/20/21 10:23
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/15/21 16:50

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Mansfield Lab for sample(s): 02,05-07,10 Batch: WG1524356-1						
Aroclor 1242	ND		ug/l	0.020	0.009	A
Aroclor 1248	ND		ug/l	0.020	0.009	A
Aroclor 1254	ND		ug/l	0.020	0.007	A
Aroclor 1260	ND		ug/l	0.020	0.009	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	58		30-150	A
DCB - Surrogate	65		30-150	A
Tetrachloro-meta-Xylene	55		30-150	B
DCB - Surrogate	71		30-150	B

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135820
Report Date: 08/12/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8082A
Analytical Date: 07/27/21 11:44
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/22/21 10:00

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Mansfield Lab for sample(s): 04 Batch: WG1526695-1						
Aroclor 1242	ND		ug/l	0.020	0.009	A
Aroclor 1248	ND		ug/l	0.020	0.009	A
Aroclor 1254	ND		ug/l	0.020	0.007	A
Aroclor 1260	ND		ug/l	0.020	0.009	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	65		30-150	A
DCB - Surrogate	63		30-150	A
Tetrachloro-meta-Xylene	62		30-150	B
DCB - Surrogate	69		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: REYNOLDS

Project Number: 99566

Lab Number: L2135820

Report Date: 08/12/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Mansfield Lab Associated sample(s): 02,05-07,10 Batch: WG1524356-2 WG1524356-3									
Aroclor 1016	57		58		40-140	3		50	A
Aroclor 1260	76		76		40-140	0		50	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	56		57		30-150	A
DCB - Surrogate	66		65		30-150	A
Tetrachloro-meta-Xylene	53		53		30-150	B
DCB - Surrogate	71		71		30-150	B

Lab Control Sample Analysis
Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Mansfield Lab Associated sample(s): 04 Batch: WG1526695-2 WG1526695-3									
Aroclor 1016	56		61		40-140	9		50	A
Aroclor 1260	56		59		40-140	6		50	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	61		66		30-150	A
DCB - Surrogate	61		63		30-150	A
Tetrachloro-meta-Xylene	58		63		30-150	B
DCB - Surrogate	68		69		30-150	B

METALS

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-01
Client ID: PZ-44-0621
Sample Location: NY
Sample Depth:
Matrix: Water

Date Collected: 07/01/21 07:20
Date Received: 07/01/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	07/13/21 03:00	07/29/21 11:22	NA	1,6020B	WP

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-02
Client ID: MW-41-0621
Sample Location: NY
Sample Depth:
Matrix: Water

Date Collected: 07/01/21 07:55
Date Received: 07/01/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	5.82		mg/l	0.0100	0.00327	1	07/17/21 05:38	08/03/21 10:50	EPA 3005A	1,6020B	CD
Calcium, Total	90.7		mg/l	0.100	0.0394	1	07/17/21 05:38	08/03/21 10:50	EPA 3005A	1,6020B	CD
Magnesium, Total	67.4		mg/l	0.0700	0.0242	1	07/17/21 05:38	08/03/21 10:50	EPA 3005A	1,6020B	CD
Potassium, Total	5.65		mg/l	0.100	0.0309	1	07/17/21 05:38	08/03/21 10:50	EPA 3005A	1,6020B	CD
Sodium, Total	87.0		mg/l	0.100	0.0293	1	07/17/21 05:38	08/03/21 10:50	EPA 3005A	1,6020B	CD
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	ND		mg/l	0.100	0.0327	1	07/13/21 03:00	07/29/21 11:27	NA	1,6020B	WP

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-03
Client ID: MW-17S-0621
Sample Location: NY
Sample Depth:
Matrix: Water

Date Collected: 07/01/21 08:15
Date Received: 07/01/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	07/13/21 03:00	07/29/21 11:31	NA	1,6020B	WP

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-04
Client ID: MW-42-0621
Sample Location: NY
Sample Depth:
Matrix: Water

Date Collected: 07/01/21 08:33
Date Received: 07/01/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	70.0		mg/l	0.0100	0.00327	1	07/17/21 05:38	08/03/21 10:55	EPA 3005A	1,6020B	CD
Calcium, Total	367.		mg/l	0.100	0.0394	1	07/17/21 05:38	08/03/21 10:55	EPA 3005A	1,6020B	CD
Magnesium, Total	169.		mg/l	0.0700	0.0242	1	07/17/21 05:38	08/03/21 10:55	EPA 3005A	1,6020B	CD
Potassium, Total	18.6		mg/l	0.100	0.0309	1	07/17/21 05:38	08/03/21 10:55	EPA 3005A	1,6020B	CD
Sodium, Total	687.		mg/l	1.00	0.293	10	07/17/21 05:38	08/09/21 14:40	EPA 3005A	1,6020B	CD
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	0.00336	J	mg/l	0.0100	0.00327	1	07/13/21 03:00	07/29/21 11:36	NA	1,6020B	WP
Iron, Dissolved	0.0462	J	mg/l	0.0500	0.0191	1	07/13/21 03:00	07/29/21 11:36	NA	1,6020B	WP

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-05
Client ID: MW-36-0621
Sample Location: NY
Sample Depth:
Matrix: Water

Date Collected: 07/01/21 09:20
Date Received: 07/01/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	93.3		mg/l	0.0200	0.00654	1	07/17/21 05:38	08/03/21 11:00	EPA 3005A	1,6020B	CD
Calcium, Total	413.		mg/l	0.200	0.0788	1	07/17/21 05:38	08/03/21 11:00	EPA 3005A	1,6020B	CD
Magnesium, Total	171.		mg/l	0.140	0.0484	1	07/17/21 05:38	08/03/21 11:00	EPA 3005A	1,6020B	CD
Potassium, Total	21.5		mg/l	0.200	0.0618	1	07/17/21 05:38	08/03/21 11:00	EPA 3005A	1,6020B	CD
Sodium, Total	663.		mg/l	0.200	0.0586	1	07/17/21 05:38	08/03/21 11:00	EPA 3005A	1,6020B	CD
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	07/13/21 03:00	07/29/21 11:41	NA	1,6020B	WP

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-06
Client ID: MW-37-0621
Sample Location: NY
Sample Depth:
Matrix: Water

Date Collected: 07/01/21 09:45
Date Received: 07/01/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	33.7		mg/l	0.0100	0.00327	1	07/17/21 05:38	08/03/21 11:31	EPA 3005A	1,6020B	CD
Calcium, Total	175.		mg/l	0.100	0.0394	1	07/17/21 05:38	08/03/21 11:31	EPA 3005A	1,6020B	CD
Magnesium, Total	122.		mg/l	0.0700	0.0242	1	07/17/21 05:38	08/03/21 11:31	EPA 3005A	1,6020B	CD
Potassium, Total	10.0		mg/l	0.100	0.0309	1	07/17/21 05:38	08/03/21 11:31	EPA 3005A	1,6020B	CD
Sodium, Total	35.8		mg/l	0.100	0.0293	1	07/17/21 05:38	08/03/21 11:31	EPA 3005A	1,6020B	CD
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	1.50		mg/l	0.0100	0.00327	1	07/13/21 03:00	07/29/21 11:46	NA	1,6020B	WP

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-07
Client ID: MW-22-85S-0621
Sample Location: NY
Sample Depth:
Matrix: Water
Date Collected: 07/01/21 10:15
Date Received: 07/01/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.822		mg/l	0.0100	0.00327	1	07/17/21 05:38	08/03/21 11:36	EPA 3005A	1,6020B	CD
Calcium, Total	60.5		mg/l	0.100	0.0394	1	07/17/21 05:38	08/03/21 11:36	EPA 3005A	1,6020B	CD
Magnesium, Total	59.6		mg/l	0.0700	0.0242	1	07/17/21 05:38	08/03/21 11:36	EPA 3005A	1,6020B	CD
Potassium, Total	4.12		mg/l	0.100	0.0309	1	07/17/21 05:38	08/03/21 11:36	EPA 3005A	1,6020B	CD
Sodium, Total	238.		mg/l	0.100	0.0293	1	07/17/21 05:38	08/03/21 11:36	EPA 3005A	1,6020B	CD
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	0.00520	J	mg/l	0.0100	0.00327	1	07/13/21 03:00	07/29/21 11:51	NA	1,6020B	WP
Iron, Dissolved	0.0236	J	mg/l	0.0500	0.0191	1	07/13/21 03:00	07/29/21 11:51	NA	1,6020B	WP

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-08
Client ID: MW-15S-87-0621
Sample Location: NY
Sample Depth:
Matrix: Water

Date Collected: 07/01/21 07:40
Date Received: 07/01/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	0.0321		mg/l	0.0100	0.00327	1	07/13/21 03:00	07/29/21 11:55	NA	1,6020B	WP

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-09
Client ID: MW-35SR-0621
Sample Location: NY
Sample Depth:
Matrix: Water

Date Collected: 07/01/21 08:50
Date Received: 07/01/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	07/26/21 12:40	08/03/21 11:06	EPA 3005A	1,6020B	CD

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-10
Client ID: MW-1205-0621 FBW
Sample Location: NY
Sample Depth:
Matrix: Water

Date Collected: 07/01/21 09:35
Date Received: 07/01/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	07/17/21 05:38	08/03/21 11:22	EPA 3005A	1,6020B	CD
Calcium, Total	ND		mg/l	0.100	0.0394	1	07/17/21 05:38	08/03/21 11:22	EPA 3005A	1,6020B	CD
Magnesium, Total	ND		mg/l	0.0700	0.0242	1	07/17/21 05:38	08/03/21 11:22	EPA 3005A	1,6020B	CD
Potassium, Total	ND		mg/l	0.100	0.0309	1	07/17/21 05:38	08/03/21 11:22	EPA 3005A	1,6020B	CD
Sodium, Total	ND		mg/l	0.100	0.0293	1	07/17/21 05:38	08/03/21 11:22	EPA 3005A	1,6020B	CD
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	07/13/21 03:00	07/29/21 12:21	NA	1,6020B	WP
Iron, Dissolved	ND		mg/l	0.0500	0.0191	1	07/13/21 03:00	07/29/21 12:21	NA	1,6020B	WP

Project Name: REYNOLDS **Lab Number:** L2135820

Project Number: 99566 **Report Date:** 08/12/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01-08,10 Batch: WG1522869-1										
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	07/13/21 03:00	07/25/21 15:50	1,6020B	CD
Iron, Dissolved	ND		mg/l	0.0500	0.0191	1	07/13/21 03:00	07/25/21 15:50	1,6020B	CD

Prep Information

Digestion Method: NA

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 02,04-07,10 Batch: WG1523731-1										
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	07/17/21 05:38	08/03/21 10:21	1,6020B	CD
Calcium, Total	ND		mg/l	0.100	0.0394	1	07/17/21 05:38	08/03/21 10:21	1,6020B	CD
Magnesium, Total	ND		mg/l	0.0700	0.0242	1	07/17/21 05:38	08/03/21 10:21	1,6020B	CD
Potassium, Total	ND		mg/l	0.100	0.0309	1	07/17/21 05:38	08/03/21 10:21	1,6020B	CD
Sodium, Total	ND		mg/l	0.100	0.0293	1	07/17/21 05:38	08/03/21 10:21	1,6020B	CD

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 09 Batch: WG1527882-1										
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	07/26/21 12:40	08/03/21 10:31	1,6020B	CD

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: REYNOLDS

Project Number: 99566

Lab Number: L2135820

Report Date: 08/12/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-08,10 Batch: WG1522869-2								
Aluminum, Dissolved	103		-		80-120	-		
Iron, Dissolved	97		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 02,04-07,10 Batch: WG1523731-2								
Aluminum, Total	110		-		80-120	-		
Calcium, Total	105		-		80-120	-		
Magnesium, Total	112		-		80-120	-		
Potassium, Total	109		-		80-120	-		
Sodium, Total	110		-		80-120	-		
Dissolved Metals - Mansfield Lab Associated sample(s): 09 Batch: WG1527882-2								
Aluminum, Dissolved	97		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-08,10 QC Batch ID: WG1522869-3 QC Sample: L2136450-01 Client ID: MS Sample												
Aluminum, Dissolved	0.144	2	2.31	108		-	-		75-125	-		20
Iron, Dissolved	0.283	1	1.37	109		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 02,04-07,10 QC Batch ID: WG1523731-3 QC Sample: L2100009-345 Client ID: MS Sample												
Aluminum, Total	0.0369	2	2.09	103		-	-		75-125	-		20
Calcium, Total	75.5	10	78.5	**30**	Q	-	-		75-125	-		20
Magnesium, Total	7.56	10	17.6	100		-	-		75-125	-		20
Potassium, Total	9.69	10	18.5	88		-	-		75-125	-		20
Sodium, Total	38.5	10	44.7	**62**	Q	-	-		75-125	-		20
Dissolved Metals - Mansfield Lab Associated sample(s): 09 QC Batch ID: WG1527882-3 WG1527882-4 QC Sample: L2135820-09 Client ID: MW-35SR-0621												
Aluminum, Dissolved	ND	2	2.02	101		2.00	100		75-125	1		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-08,10 QC Batch ID: WG1522869-4 QC Sample: L2136450-01 Client ID: DUP Sample						
Aluminum, Dissolved	0.144	0.154	mg/l	7		20
Iron, Dissolved	0.283	0.298	mg/l	5		20
Total Metals - Mansfield Lab Associated sample(s): 02,04-07,10 QC Batch ID: WG1523731-4 QC Sample: L2100009-345 Client ID: DUP Sample						
Aluminum, Total	0.0369	0.0372	mg/l	1		20

INORGANICS
&
MISCELLANEOUS

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-01
Client ID: PZ-44-0621
Sample Location: NY

Date Collected: 07/01/21 07:20
Date Received: 07/01/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	297.		mg CaCO3/L	2.00	NA	1	-	07/09/21 02:37	121,2320B	MR
Alkalinity, Bicarbonate	297.		mg CaCO3/L	2.00	NA	1	-	07/09/21 02:37	121,2320B	MR
Solids, Total Suspended	290		mg/l	4.0	NA	4	-	07/08/21 13:00	121,2540D	AC
Cyanide, Total	ND		mg/l	0.005	0.001	1	07/09/21 20:20	07/12/21 11:16	121,4500CN-CE	CR
Nitrogen, Nitrate	ND		mg/l	0.10	0.023	1	-	07/03/21 05:31	44,353.2	MR
Phosphate, Total	0.335		mg/l	0.031	0.012	1	07/06/21 11:00	07/07/21 09:08	121,4500P-E(M)	SD
Total Organic Carbon	1.79		mg/l	0.500	0.114	1	-	07/29/21 07:16	121,5310C	DW
Dissolved Organic Carbon	3.0		mg/l	1.0	0.12	1	-	07/29/21 07:16	121,5310C	DW
Anions by Ion Chromatography - Westborough Lab										
Chloride	208.		mg/l	5.00	0.839	10	-	07/28/21 10:08	44,300.0	JT

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-02
Client ID: MW-41-0621
Sample Location: NY

Date Collected: 07/01/21 07:55
Date Received: 07/01/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	319.		mg CaCO3/L	2.00	NA	1	-	07/09/21 02:37	121,2320B	MR
Alkalinity, Bicarbonate	319.		mg CaCO3/L	2.00	NA	1	-	07/09/21 02:37	121,2320B	MR
Solids, Total Suspended	520		mg/l	4.0	NA	4	-	07/08/21 13:00	121,2540D	AC
Cyanide, Total	ND		mg/l	0.005	0.001	1	07/09/21 20:20	07/12/21 11:17	121,4500CN-CE	CR
Nitrogen, Nitrate	0.096	J	mg/l	0.10	0.023	1	-	07/03/21 05:32	44,353.2	MR
Phosphate, Total	0.445		mg/l	0.061	0.025	2	07/06/21 11:00	07/07/21 09:09	121,4500P-E(M)	SD
Total Organic Carbon	1.09		mg/l	0.500	0.114	1	-	07/29/21 07:16	121,5310C	DW
Dissolved Organic Carbon	17.		mg/l	10	1.2	10	-	07/29/21 07:16	121,5310C	DW
Anions by Ion Chromatography - Westborough Lab										
Chloride	43.9		mg/l	0.500	0.083	1	-	07/28/21 11:45	44,300.0	JT
Fluoride	0.201		mg/l	0.050	0.037	1	-	07/28/21 11:45	44,300.0	JT
Sulfate	333.		mg/l	10.0	4.54	10	-	07/28/21 10:44	44,300.0	JT

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-03
Client ID: MW-17S-0621
Sample Location: NY

Date Collected: 07/01/21 08:15
Date Received: 07/01/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	452.		mg CaCO3/L	2.00	NA	1	-	07/09/21 02:37	121,2320B	MR
Alkalinity, Bicarbonate	452.		mg CaCO3/L	2.00	NA	1	-	07/09/21 02:37	121,2320B	MR
Solids, Total Suspended	10.		mg/l	1.0	NA	1	-	07/08/21 13:00	121,2540D	AC
Nitrogen, Nitrate	0.37		mg/l	0.10	0.023	1	-	07/03/21 05:33	44,353.2	MR
Phosphate, Total	0.055		mg/l	0.031	0.012	1	07/06/21 11:00	07/07/21 09:12	121,4500P-E(M)	SD
Total Organic Carbon	2.03		mg/l	0.500	0.114	1	-	07/29/21 07:16	121,5310C	DW
Dissolved Organic Carbon	4.5		mg/l	1.0	0.12	1	-	07/29/21 07:16	121,5310C	DW
Anions by Ion Chromatography - Westborough Lab										
Chloride	37.7		mg/l	0.500	0.083	1	-	07/28/21 10:56	44,300.0	JT

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-04
Client ID: MW-42-0621
Sample Location: NY

Date Collected: 07/01/21 08:33
Date Received: 07/01/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	1460		mg CaCO3/L	10.0	NA	5	-	07/09/21 02:37	121,2320B	MR
Alkalinity, Bicarbonate	1460		mg CaCO3/L	10.0	NA	5	-	07/09/21 02:37	121,2320B	MR
Solids, Total Suspended	16000		mg/l	200	NA	200	-	07/08/21 13:00	121,2540D	AC
Cyanide, Total	0.147		mg/l	0.005	0.001	1	07/09/21 20:20	07/12/21 11:18	121,4500CN-CE	CR
Nitrogen, Nitrate	0.029	J	mg/l	0.10	0.023	1	-	07/03/21 05:34	44,353.2	MR
Phosphate, Total	76.3		mg/l	3.07	1.23	100	07/06/21 11:00	07/07/21 09:33	121,4500P-E(M)	SD
Total Organic Carbon	1.64		mg/l	0.500	0.114	1	-	07/29/21 07:16	121,5310C	DW
Dissolved Organic Carbon	5.3		mg/l	1.0	0.12	1	-	07/29/21 07:16	121,5310C	DW
Anions by Ion Chromatography - Westborough Lab										
Chloride	230.		mg/l	12.5	2.10	25	-	07/28/21 14:22	44,300.0	JT
Fluoride	19.7		mg/l	1.25	0.925	25	-	07/28/21 14:22	44,300.0	JT
Sulfate	1260		mg/l	25.0	11.4	25	-	07/28/21 14:22	44,300.0	JT

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-05
Client ID: MW-36-0621
Sample Location: NY

Date Collected: 07/01/21 09:20
Date Received: 07/01/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	1130		mg CaCO3/L	10.0	NA	5	-	07/09/21 02:37	121,2320B	MR
Alkalinity, Bicarbonate	1090		mg CaCO3/L	10.0	NA	5	-	07/09/21 02:37	121,2320B	MR
Solids, Total Suspended	7800		mg/l	40	NA	40	-	07/08/21 13:00	121,2540D	AC
Cyanide, Total	ND		mg/l	0.005	0.001	1	07/10/21 15:15	07/12/21 11:46	121,4500CN-CE	CR
Nitrogen, Nitrate	0.032	J	mg/l	0.10	0.023	1	-	07/03/21 05:36	44,353.2	MR
Phosphate, Total	12.4		mg/l	0.614	0.246	20	07/19/21 09:50	07/20/21 09:50	121,4500P-E(M)	SD
Total Organic Carbon	3.27		mg/l	0.500	0.114	1	-	07/29/21 07:16	121,5310C	DW
Dissolved Organic Carbon	21.		mg/l	10	1.2	10	-	07/29/21 07:16	121,5310C	DW
Anions by Ion Chromatography - Westborough Lab										
Chloride	15.6		mg/l	5.00	0.839	10	-	07/28/21 12:33	44,300.0	JT
Fluoride	2.27		mg/l	0.500	0.370	10	-	07/28/21 12:33	44,300.0	JT
Sulfate	372.		mg/l	10.0	4.54	10	-	07/28/21 12:33	44,300.0	JT

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-06
Client ID: MW-37-0621
Sample Location: NY

Date Collected: 07/01/21 09:45
Date Received: 07/01/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	288.		mg CaCO3/L	2.00	NA	1	-	07/09/21 02:37	121,2320B	MR
Alkalinity, Bicarbonate	288.		mg CaCO3/L	2.00	NA	1	-	07/09/21 02:37	121,2320B	MR
Solids, Total Suspended	43000		mg/l	100	NA	100	-	07/08/21 13:00	121,2540D	AC
Cyanide, Total	ND		mg/l	0.005	0.001	1	07/10/21 15:15	07/12/21 11:47	121,4500CN-CE	CR
Nitrogen, Nitrate	ND		mg/l	0.10	0.023	1	-	07/03/21 05:37	44,353.2	MR
Phosphate, Total	32.0		mg/l	0.614	0.246	20	07/19/21 09:50	07/20/21 09:51	121,4500P-E(M)	SD
Total Organic Carbon	0.560		mg/l	0.500	0.114	1	-	07/29/21 07:16	121,5310C	DW
Dissolved Organic Carbon	17.		mg/l	10	1.2	10	-	07/29/21 07:16	121,5310C	DW
Anions by Ion Chromatography - Westborough Lab										
Chloride	31.6		mg/l	0.500	0.083	1	-	07/28/21 12:09	44,300.0	JT
Fluoride	0.320		mg/l	0.050	0.037	1	-	07/28/21 12:09	44,300.0	JT
Sulfate	314.		mg/l	10.0	4.54	10	-	07/28/21 12:21	44,300.0	JT

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-07
Client ID: MW-22-85S-0621
Sample Location: NY

Date Collected: 07/01/21 10:15
Date Received: 07/01/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/l	0.005	0.001	1	07/10/21 15:15	07/12/21 11:48	121,4500CN-CE	CR
Anions by Ion Chromatography - Westborough Lab										
Fluoride	0.417	J	mg/l	0.500	0.370	10	-	07/28/21 12:45	44,300.0	JT
Sulfate	416.		mg/l	10.0	4.54	10	-	07/28/21 12:45	44,300.0	JT

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-08
Client ID: MW-15S-87-0621
Sample Location: NY

Date Collected: 07/01/21 07:40
Date Received: 07/01/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	317.		mg CaCO3/L	2.00	NA	1	-	07/09/21 02:37	121,2320B	MR
Alkalinity, Bicarbonate	317.		mg CaCO3/L	2.00	NA	1	-	07/09/21 02:37	121,2320B	MR
Solids, Total Suspended	110		mg/l	1.0	NA	1	-	07/08/21 13:00	121,2540D	AC
Nitrogen, Nitrate	0.052	J	mg/l	0.10	0.023	1	-	07/03/21 05:38	44,353.2	MR
Phosphate, Total	0.878		mg/l	0.061	0.025	2	07/06/21 11:00	07/07/21 09:13	121,4500P-E(M)	SD
Total Organic Carbon	2.10		mg/l	0.500	0.114	1	-	07/29/21 07:16	121,5310C	DW
Dissolved Organic Carbon	19.		mg/l	10	1.2	10	-	07/29/21 07:16	121,5310C	DW
Anions by Ion Chromatography - Westborough Lab										
Chloride	2.59		mg/l	0.500	0.083	1	-	07/28/21 11:57	44,300.0	JT

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-09
Client ID: MW-35SR-0621
Sample Location: NY

Date Collected: 07/01/21 08:50
Date Received: 07/01/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	579.		mg CaCO3/L	10.0	NA	5	-	07/09/21 02:37	121,2320B	MR
Alkalinity, Bicarbonate	579.		mg CaCO3/L	10.0	NA	5	-	07/09/21 02:37	121,2320B	MR
Solids, Total Suspended	780		mg/l	10	NA	10	-	07/08/21 13:00	121,2540D	AC
Nitrogen, Nitrate	0.028	J	mg/l	0.10	0.023	1	-	07/03/21 05:40	44,353.2	MR
Phosphate, Total	2.97		mg/l	0.307	0.123	10	07/19/21 09:50	07/20/21 09:52	121,4500P-E(M)	SD
Total Organic Carbon	2.13		mg/l	0.500	0.114	1	-	07/29/21 07:16	121,5310C	DW
Dissolved Organic Carbon	2.5		mg/l	1.0	0.12	1	-	07/29/21 07:16	121,5310C	DW
Anions by Ion Chromatography - Westborough Lab										
Chloride	33.5		mg/l	2.50	0.420	5	-	07/28/21 13:21	44,300.0	JT

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

SAMPLE RESULTS

Lab ID: L2135820-10
Client ID: MW-1205-0621 FBW
Sample Location: NY

Date Collected: 07/01/21 09:35
Date Received: 07/01/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	07/09/21 02:37	121,2320B	MR
Alkalinity, Bicarbonate	ND		mg CaCO3/L	2.00	NA	1	-	07/09/21 02:37	121,2320B	MR
Solids, Total Suspended	ND		mg/l	1.0	NA	1	-	07/08/21 13:00	121,2540D	AC
Cyanide, Total	ND		mg/l	0.005	0.001	1	07/10/21 15:15	07/12/21 11:49	121,4500CN-CE	CR
Nitrogen, Nitrate	ND		mg/l	0.10	0.023	1	-	07/03/21 05:47	44,353.2	MR
Phosphate, Total	ND		mg/l	0.031	0.012	1	07/19/21 09:50	07/20/21 09:54	121,4500P-E(M)	SD
Total Organic Carbon	0.220	J	mg/l	0.500	0.114	1	-	07/29/21 07:16	121,5310C	DW
Dissolved Organic Carbon	2.4		mg/l	1.0	0.12	1	-	07/29/21 07:16	121,5310C	DW
Anions by Ion Chromatography - Westborough Lab										
Chloride	0.169	J	mg/l	0.500	0.083	1	-	07/28/21 11:09	44,300.0	JT
Fluoride	ND		mg/l	0.050	0.037	1	-	07/28/21 11:09	44,300.0	JT
Sulfate	ND		mg/l	1.00	0.454	1	-	07/28/21 11:09	44,300.0	JT

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2135820
Report Date: 08/12/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01-06,08-10 Batch: WG1520036-1										
Nitrogen, Nitrate	ND		mg/l	0.10	0.023	1	-	07/03/21 05:28	44,353.2	MR
General Chemistry - Westborough Lab for sample(s): 01-04,08 Batch: WG1520713-1										
Phosphate, Total	ND		mg/l	0.031	0.012	1	07/06/21 11:00	07/07/21 08:49	121,4500P-E(M)	SD
General Chemistry - Westborough Lab for sample(s): 01-06,08-10 Batch: WG1521817-1										
Solids, Total Suspended	ND		mg/l	1.0	NA	1	-	07/08/21 13:00	121,2540D	AC
General Chemistry - Westborough Lab for sample(s): 01-06,08-10 Batch: WG1522006-1										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	07/09/21 02:37	121,2320B	MR
General Chemistry - Westborough Lab for sample(s): 01-06,08-10 Batch: WG1522013-1										
Alkalinity, Bicarbonate	ND		mg CaCO3/L	2.00	NA	1	-	07/09/21 02:37	121,2320B	MR
General Chemistry - Westborough Lab for sample(s): 01-02,04 Batch: WG1522377-1										
Cyanide, Total	ND		mg/l	0.005	0.001	1	07/09/21 20:20	07/12/21 10:45	121,4500CN-CE	CR
General Chemistry - Westborough Lab for sample(s): 05-07,10 Batch: WG1522539-1										
Cyanide, Total	ND		mg/l	0.005	0.001	1	07/10/21 15:15	07/12/21 11:41	121,4500CN-CE	CR
General Chemistry - Westborough Lab for sample(s): 05-06,09-10 Batch: WG1525282-1										
Phosphate, Total	ND		mg/l	0.031	0.012	1	07/19/21 09:50	07/20/21 09:44	121,4500P-E(M)	SD
Anions by Ion Chromatography - Westborough Lab for sample(s): 01-08,10 Batch: WG1527443-1										
Chloride	0.169	J	mg/l	0.500	0.083	1	-	07/28/21 09:44	44,300.0	JT
Fluoride	ND		mg/l	0.050	0.037	1	-	07/28/21 09:44	44,300.0	JT
Sulfate	ND		mg/l	1.00	0.454	1	-	07/28/21 09:44	44,300.0	JT
Anions by Ion Chromatography - Westborough Lab for sample(s): 09 Batch: WG1529031-1										
Chloride	0.169	J	mg/l	0.500	0.083	1	-	07/28/21 09:44	44,300.0	JT
General Chemistry - Westborough Lab for sample(s): 01-06,08-10 Batch: WG1529190-1										
Total Organic Carbon	ND		mg/l	0.500	0.114	1	-	07/29/21 07:16	121,5310C	DW
General Chemistry - Westborough Lab for sample(s): 01-06,08-10 Batch: WG1529191-1										
Dissolved Organic Carbon	ND		mg/l	1.0	0.12	1	-	07/29/21 07:16	121,5310C	DW

Lab Control Sample Analysis

Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-06,08-10 Batch: WG1520036-2								
Nitrogen, Nitrate	96		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01-04,08 Batch: WG1520713-2								
Phosphate, Total	102		-		84-118	-		
General Chemistry - Westborough Lab Associated sample(s): 01-06,08-10 Batch: WG1521817-2								
Solids, Total Suspended	98		-		80-120	-		
General Chemistry - Westborough Lab Associated sample(s): 01-06,08-10 Batch: WG1522006-2								
Alkalinity, Total	102		-		90-110	-		10
General Chemistry - Westborough Lab Associated sample(s): 01-02,04 Batch: WG1522377-2								
Cyanide, Total	105		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 05-07,10 Batch: WG1522539-2								
Cyanide, Total	107		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 05-06,09-10 Batch: WG1525282-2								
Phosphate, Total	110		-		84-118	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-08,10 Batch: WG1527443-2					
Chloride	100	-	90-110	-	
Fluoride	96	-	90-110	-	
Sulfate	98	-	90-110	-	
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 09 Batch: WG1529031-2					
Chloride	100	-	90-110	-	
General Chemistry - Westborough Lab Associated sample(s): 01-06,08-10 Batch: WG1529190-2					
Total Organic Carbon	94	-	90-110	-	
General Chemistry - Westborough Lab Associated sample(s): 01-06,08-10 Batch: WG1529191-2					
Dissolved Organic Carbon	94	-	90-110	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-06,08-10 QC Batch ID: WG1520036-4 QC Sample: L2135820-09 Client ID: MW-35SR-0621												
Nitrogen, Nitrate	0.028J	4	3.7	92		-	-		83-113	-		6
General Chemistry - Westborough Lab Associated sample(s): 01-04,08 QC Batch ID: WG1520713-4 WG1520713-5 QC Sample: L2135223-01 Client ID: MS Sample												
Phosphate, Total	0.031	1.53	1.69	110		1.60	104		80-120	5		15
General Chemistry - Westborough Lab Associated sample(s): 01-06,08-10 QC Batch ID: WG1522006-4 QC Sample: L2135820-09 Client ID: MW-35SR-0621												
Alkalinity, Total	579.	500	1080	101		-	-		86-116	-		10
General Chemistry - Westborough Lab Associated sample(s): 01-02,04 QC Batch ID: WG1522377-4 QC Sample: L2135815-01 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.188	94		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 05-07,10 QC Batch ID: WG1522539-4 QC Sample: L2135912-02 Client ID: MS Sample												
Cyanide, Total	0.013	0.2	0.229	108		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 05-06,09-10 QC Batch ID: WG1525282-4 QC Sample: L2135820-09 Client ID: MW-35SR-0621												
Phosphate, Total	2.97	15.3	20.3	113		-	-		80-120	-		15
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-08,10 QC Batch ID: WG1527443-3 QC Sample: L2135820-04 Client ID: MW-42-0621												
Chloride	230.	100	322	92		-	-		90-110	-		18
Fluoride	19.7	10	28.4	**88**	Q	-	-		90-110	-		15
Sulfate	1260	200	1390	**63**	Q	-	-		90-110	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 09 QC Batch ID: WG1529031-3 WG1529031-4 QC Sample: L2135820-09 Client ID: MW-35SR-0621									
Chloride	33.5	20	52.8	97	52.8	97	90-110	0	18
General Chemistry - Westborough Lab Associated sample(s): 01-06,08-10 QC Batch ID: WG1529190-4 QC Sample: L2135820-09 Client ID: MW-35SR-0621									
Total Organic Carbon	2.13	8	11.5	117	-	-	80-120	-	20
General Chemistry - Westborough Lab Associated sample(s): 01-06,08-10 QC Batch ID: WG1529191-4 QC Sample: L2135820-09 Client ID: MW-35SR-0621									
Dissolved Organic Carbon	2.5	4	6.3	96	-	-	80-120	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-06,08-10 QC Batch ID: WG1520036-3 QC Sample: L2135820-09 Client ID: MW-35SR-0621						
Nitrogen, Nitrate	0.028J	ND	mg/l	NC		6
General Chemistry - Westborough Lab Associated sample(s): 01-04,08 QC Batch ID: WG1520713-3 QC Sample: L2135149-01 Client ID: DUP Sample						
Phosphate, Total	1.99	1.82	mg/l	9		15
General Chemistry - Westborough Lab Associated sample(s): 01-06,08-10 QC Batch ID: WG1521817-3 QC Sample: L2135820-09 Client ID: MW-35SR-0621						
Solids, Total Suspended	780	760	mg/l	3		29
General Chemistry - Westborough Lab Associated sample(s): 01-06,08-10 QC Batch ID: WG1522006-3 QC Sample: L2135820-09 Client ID: MW-35SR-0621						
Alkalinity, Total	579.	556	mg CaCO3/L	4		10
General Chemistry - Westborough Lab Associated sample(s): 01-06,08-10 QC Batch ID: WG1522013-3 QC Sample: L2135820-09 Client ID: MW-35SR-0621						
Alkalinity, Bicarbonate	579.	556	mg CaCO3/L	4		9
General Chemistry - Westborough Lab Associated sample(s): 01-02,04 QC Batch ID: WG1522377-3 QC Sample: L2135815-01 Client ID: DUP Sample						
Cyanide, Total	ND	ND	mg/l	NC		30
General Chemistry - Westborough Lab Associated sample(s): 05-07,10 QC Batch ID: WG1522539-3 QC Sample: L2135912-02 Client ID: DUP Sample						
Cyanide, Total	0.013	0.013	mg/l	4		30
General Chemistry - Westborough Lab Associated sample(s): 05-06,09-10 QC Batch ID: WG1525282-3 QC Sample: L2135820-09 Client ID: MW-35SR-0621						
Phosphate, Total	2.97	2.82	mg/l	5		15

Lab Duplicate Analysis

Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-08,10 QC Batch ID: WG1527443-4 QC Sample: L2135820-04 Client ID: MW-42-0621					
Chloride	230.	230	mg/l	0	18
Fluoride	19.7	19.6	mg/l	1	15
Sulfate	1260	1210	mg/l	4	20
General Chemistry - Westborough Lab Associated sample(s): 01-06,08-10 QC Batch ID: WG1529190-3 QC Sample: L2135820-09 Client ID: MW-35SR-0621					
Total Organic Carbon	2.13	2.14	mg/l	0	20
General Chemistry - Westborough Lab Associated sample(s): 01-06,08-10 QC Batch ID: WG1529191-3 QC Sample: L2135820-09 Client ID: MW-35SR-0621					
Dissolved Organic Carbon	2.5	2.9	mg/l	15	20

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent
D	Absent
E	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2135820-01A	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-01B	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-01C	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-01D	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-01E	Plastic 250ml unpreserved/No Headspace	E	NA		2.8	Y	Absent		ALK-T-2320(14),CL-300(28),ALK-HCO3-2320(14)
L2135820-01F	Plastic 250ml NaOH preserved	D	>12	>12	4.1	Y	Absent		TCN-4500(14)
L2135820-01G	Plastic 250ml NaOH preserved	C	>12	>12	2.4	Y	Absent		SUB-WAD CYANIDE()
L2135820-01H	Plastic 250ml unpreserved	D	7	7	4.1	Y	Absent		-
L2135820-01J	Plastic 250ml H2SO4 preserved	E	<2	<2	2.8	Y	Absent		TPO4-4500(28)
L2135820-01K	Plastic 950ml unpreserved	B	7	7	3.9	Y	Absent		TSS-2540-LOW(7),NO3-353(2)
L2135820-01X	Plastic 120ml HNO3 preserved Filtrates	A	NA		3.3	Y	Absent		AL-6020S(180)
L2135820-02A	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-02B	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-02C	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-02D	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-02E	Plastic 250ml unpreserved/No Headspace	E	NA		2.8	Y	Absent		ALK-T-2320(14),ALK-HCO3-2320(14)
L2135820-02F	Plastic 250ml unpreserved	D	7	7	4.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28),NO3-353(2)
L2135820-02G	Plastic 250ml NaOH preserved	D	>12	>12	4.1	Y	Absent		TCN-4500(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2135820-02H	Plastic 250ml H2SO4 preserved	E	<2	<2	2.8	Y	Absent		TPO4-4500(28)
L2135820-02I	Plastic 250ml NaOH preserved	C	>12	>12	2.4	Y	Absent		SUB-WAD CYANIDE()
L2135820-02J	Plastic 250ml unpreserved	E	7	7	2.8	Y	Absent		-
L2135820-02K	Plastic 250ml HNO3 preserved	B	<2	<2	3.9	Y	Absent		CA-6020T(180),K-6020T(180),NA-6020T(180),MG-6020T(180),AL-6020T(180)
L2135820-02L	Plastic 950ml unpreserved	B	7	7	3.9	Y	Absent		TSS-2540-LOW(7)
L2135820-02M	Amber 1000ml unpreserved	A	7	7	3.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135820-02N	Amber 1000ml unpreserved	A	7	7	3.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135820-02X	Plastic 120ml HNO3 preserved Filtrates	A	NA		3.3	Y	Absent		AL-6020S(180)
L2135820-03A	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-03B	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-03C	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-03D	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-03E	Plastic 250ml unpreserved/No Headspace	E	NA		2.8	Y	Absent		ALK-T-2320(14),CL-300(28),ALK-HCO3-2320(14)
L2135820-03F	Plastic 250ml H2SO4 preserved	E	<2	<2	2.8	Y	Absent		TPO4-4500(28)
L2135820-03G	Plastic 250ml unpreserved	E	7	7	2.8	Y	Absent		-
L2135820-03G1	Plastic 120ml unpreserved split	B	NA		3.9	Y	Absent		-
L2135820-03H	Plastic 950ml unpreserved	B	7	7	3.9	Y	Absent		TSS-2540-LOW(7),NO3-353(2)
L2135820-03X	Plastic 120ml HNO3 preserved Filtrates	A	NA		3.3	Y	Absent		AL-6020S(180)
L2135820-03X1	Plastic 120ml HNO3 preserved Filtrates	B	NA		3.9	Y	Absent		AL-6020S(180)
L2135820-04A	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-04B	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-04C	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-04D	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-04E	Plastic 250ml unpreserved/No Headspace	E	NA		2.8	Y	Absent		ALK-T-2320(14),ALK-HCO3-2320(14)
L2135820-04F	Plastic 250ml unpreserved	D	7	7	4.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28),NO3-353(2)
L2135820-04G	Plastic 250ml NaOH preserved	D	>12	>12	4.1	Y	Absent		TCN-4500(14)
L2135820-04H	Plastic 250ml H2SO4 preserved	E	5	<2	2.8	N	Absent		TPO4-4500(28)

*Values in parentheses indicate holding time in days

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2135820-04I	Plastic 250ml NaOH preserved	C	>12	>12	2.4	Y	Absent		SUB-WAD CYANIDE()
L2135820-04J	Plastic 250ml unpreserved	E	7	7	2.8	Y	Absent		-
L2135820-04K	Plastic 250ml HNO3 preserved	B	<2	<2	3.9	Y	Absent		CA-6020T(180),K-6020T(180),NA-6020T(180),AL-6020T(180),MG-6020T(180)
L2135820-04L	Plastic 950ml unpreserved	B	7	7	3.9	Y	Absent		TSS-2540-LOW(7)
L2135820-04M	Amber 1000ml unpreserved	A	7	7	3.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135820-04N	Amber 1000ml unpreserved	A	7	7	3.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135820-04X	Plastic 120ml HNO3 preserved Filtrates	A	NA		3.3	Y	Absent		FE-6020S(180),AL-6020S(180)
L2135820-05A	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-05B	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-05C	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-05D	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-05E	Plastic 250ml unpreserved/No Headspace	E	NA		2.8	Y	Absent		ALK-T-2320(14),ALK-HCO3-2320(14)
L2135820-05F	Plastic 250ml unpreserved	D	7	7	4.1	Y	Absent		SO4-300(28),F-300(28),CL-300(28),NO3-353(2)
L2135820-05G	Plastic 250ml NaOH preserved	D	>12	>12	4.1	Y	Absent		TCN-4500(14)
L2135820-05H	Plastic 250ml H2SO4 preserved	E	<2	<2	2.8	Y	Absent		TPO4-4500(28)
L2135820-05I	Plastic 250ml NaOH preserved	C	>12	>12	2.4	Y	Absent		SUB-WAD CYANIDE()
L2135820-05J	Plastic 250ml unpreserved	E	7	7	2.8	Y	Absent		-
L2135820-05K	Plastic 250ml HNO3 preserved	B	<2	<2	3.9	Y	Absent		K-6020T(180),CA-6020T(180),NA-6020T(180),AL-6020T(180),MG-6020T(180)
L2135820-05L	Plastic 950ml unpreserved	B	7	7	3.9	Y	Absent		TSS-2540-LOW(7)
L2135820-05M	Amber 1000ml unpreserved	A	7	7	3.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135820-05N	Amber 1000ml unpreserved	A	7	7	3.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135820-05X	Plastic 120ml HNO3 preserved Filtrates	A	NA		3.3	Y	Absent		AL-6020S(180)
L2135820-06A	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-06B	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-06C	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-06D	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-06E	Plastic 250ml unpreserved/No Headspace	E	NA		2.8	Y	Absent		ALK-T-2320(14),ALK-HCO3-2320(14)

*Values in parentheses indicate holding time in days

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2135820-06F	Plastic 250ml unpreserved	D	7	7	4.1	Y	Absent		SO4-300(28),F-300(28),CL-300(28),NO3-353(2)
L2135820-06G	Plastic 250ml NaOH preserved	A	>12	>12	3.3	Y	Absent		TCN-4500(14)
L2135820-06H	Plastic 250ml H2SO4 preserved	E	<2	<2	2.8	Y	Absent		TPO4-4500(28)
L2135820-06I	Plastic 250ml NaOH preserved	C	>12	>12	2.4	Y	Absent		SUB-WAD CYANIDE()
L2135820-06J	Plastic 250ml unpreserved	E	7	7	2.8	Y	Absent		-
L2135820-06J1	Plastic 120ml unpreserved split	B	NA		3.9	Y	Absent		-
L2135820-06K	Plastic 250ml HNO3 preserved	B	<2	<2	3.9	Y	Absent		CA-6020T(180),K-6020T(180),NA-6020T(180),AL-6020T(180),MG-6020T(180)
L2135820-06L	Plastic 950ml unpreserved	B	7	7	3.9	Y	Absent		TSS-2540-LOW(7)
L2135820-06M	Amber 1000ml unpreserved	A	7	7	3.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135820-06N	Amber 1000ml unpreserved	A	7	7	3.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135820-06X	Plastic 120ml HNO3 preserved Filtrates	A	NA		3.3	Y	Absent		AL-6020S(180)
L2135820-06X1	Plastic 120ml HNO3 preserved Filtrates	B	NA		3.9	Y	Absent		AL-6020S(180)
L2135820-07A	Plastic 120ml unpreserved	D	7	7	4.1	Y	Absent		SO4-300(28),F-300(28)
L2135820-07B	Plastic 250ml NaOH preserved	D	>12	>12	4.1	Y	Absent		TCN-4500(14)
L2135820-07C	Plastic 250ml unpreserved/No Headspace	E	NA		2.8	Y	Absent		SUB-WAD CYANIDE()
L2135820-07D	Plastic 250ml unpreserved	E	7	7	2.8	Y	Absent		-
L2135820-07E	Plastic 250ml HNO3 preserved	B	<2	<2	3.9	Y	Absent		AL-6020T(180)
L2135820-07F	Amber 1000ml unpreserved	A	7	7	3.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135820-07G	Amber 1000ml unpreserved	A	7	7	3.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135820-07K	Plastic 500ml HNO3 preserved	NA	NA			Y	Absent		CA-6020T(180),K-6020T(180),NA-6020T(180),MG-6020T(180)
L2135820-07X	Plastic 120ml HNO3 preserved Filtrates	A	NA		3.3	Y	Absent		FE-6020S(180),AL-6020S(180)
L2135820-08A	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-08B	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-08C	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-08D	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-08E	Plastic 250ml unpreserved	E	NA		2.8	Y	Absent		ALK-T-2320(14),CL-300(28),ALK-HCO3-2320(14)
L2135820-08F	Plastic 500ml H2SO4 preserved	E	<2	<2	2.8	Y	Absent		TPO4-4500(28)

*Values in parentheses indicate holding time in days

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2135820-08G	Plastic 250ml unpreserved	E	7	7	2.8	Y	Absent		-
L2135820-08G1	Plastic 120ml unpreserved split	B	NA		3.9	Y	Absent		-
L2135820-08H	Plastic 950ml unpreserved	B	7	7	3.9	Y	Absent		TSS-2540-LOW(7),NO3-353(2)
L2135820-08X	Plastic 120ml HNO3 preserved Filtrates	A	NA		3.3	Y	Absent		AL-6020S(180)
L2135820-08X1	Plastic 120ml HNO3 preserved Filtrates	B	NA		3.9	Y	Absent		AL-6020S(180)
L2135820-09A	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-09A1	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-09A2	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-09B	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-09B1	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-09B2	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-09C	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-09C1	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-09C2	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-09D	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-09D1	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-09D2	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-09E	Plastic 250ml unpreserved/No Headspace	E	NA		2.8	Y	Absent		ALK-T-2320(14),CL-300(28),ALK-HCO3-2320(14)
L2135820-09E1	Plastic 250ml unpreserved/No Headspace	E	NA		2.8	Y	Absent		ALK-T-2320(14),CL-300(28),ALK-HCO3-2320(14)
L2135820-09E2	Plastic 250ml unpreserved/No Headspace	E	NA		2.8	Y	Absent		ALK-T-2320(14),CL-300(28),ALK-HCO3-2320(14)
L2135820-09F	Plastic 250ml H2SO4 preserved	E	<2	<2	2.8	Y	Absent		TPO4-4500(28)
L2135820-09F1	Plastic 250ml H2SO4 preserved	E	<2	<2	2.8	Y	Absent		TPO4-4500(28)
L2135820-09F2	Plastic 250ml H2SO4 preserved	E	<2	<2	2.8	Y	Absent		TPO4-4500(28)
L2135820-09G	Plastic 250ml unpreserved	E	7	7	2.8	Y	Absent		-
L2135820-09G1	Plastic 250ml unpreserved	E	7	7	2.8	Y	Absent		-
L2135820-09G2	Plastic 250ml unpreserved	E	7	7	2.8	Y	Absent		-
L2135820-09H	Plastic 950ml unpreserved	B	7	7	3.9	Y	Absent		TSS-2540-LOW(7),NO3-353(2)

*Values in parentheses indicate holding time in days

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2135820
Report Date: 08/12/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2135820-09H1	Plastic 950ml unpreserved	B	7	7	3.9	Y	Absent		TSS-2540-LOW(7),NO3-353(2)
L2135820-09H2	Plastic 950ml unpreserved	B	7	7	3.9	Y	Absent		TSS-2540-LOW(7),NO3-353(2)
L2135820-09X	Plastic 120ml HNO3 preserved Filtrates	A	NA		3.3	Y	Absent		AL-6020S(180)
L2135820-09X1	Plastic 120ml HNO3 preserved Filtrates	A	NA		3.3	Y	Absent		AL-6020S(180)
L2135820-09X2	Plastic 120ml HNO3 preserved Filtrates	A	NA		3.3	Y	Absent		AL-6020S(180)
L2135820-10A	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-10B	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		DOC-5310(28)
L2135820-10C	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-10D	Vial H2SO4 preserved	D	NA		4.1	Y	Absent		TOC-5310(28)
L2135820-10E	Plastic 250ml unpreserved/No Headspace	E	NA		2.8	Y	Absent		ALK-T-2320(14),ALK-HCO3-2320(14)
L2135820-10F	Plastic 250ml unpreserved	D	7	7	4.1	Y	Absent		SO4-300(28),F-300(28),CL-300(28),NO3-353(2)
L2135820-10G	Plastic 250ml NaOH preserved	D	>12	>12	4.1	Y	Absent		TCN-4500(14)
L2135820-10H	Plastic 250ml H2SO4 preserved	E	<2	<2	2.8	Y	Absent		TPO4-4500(28)
L2135820-10I	Plastic 250ml NaOH preserved	C	>12	>12	2.4	Y	Absent		SUB-WAD CYANIDE()
L2135820-10J	Plastic 250ml unpreserved	E	7	7	2.8	Y	Absent		-
L2135820-10K	Plastic 250ml HNO3 preserved	B	<2	<2	3.9	Y	Absent		CA-6020T(180),K-6020T(180),NA-6020T(180),MG-6020T(180),AL-6020T(180)
L2135820-10L	Plastic 950ml unpreserved	B	7	7	3.9	Y	Absent		TSS-2540-LOW(7)
L2135820-10M	Amber 1000ml unpreserved	A	7	7	3.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135820-10N	Amber 1000ml unpreserved	A	7	7	3.3	Y	Absent		A2-PCB-8082-LOW(365)
L2135820-10X	Plastic 120ml HNO3 preserved Filtrates	A	NA		3.3	Y	Absent		FE-6020S(180),AL-6020S(180)

*Values in parentheses indicate holding time in days

Project Name:	REYNOLDS	**Lab Number:**	L2135820
Project Number:	99566	**Report Date:**	08/12/21

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name:	REYNOLDS	**Lab Number:**	L2135820
Project Number:	99566	**Report Date:**	08/12/21

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	REYNOLDS	**Lab Number:**	L2135820
Project Number:	99566	**Report Date:**	08/12/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Project Name:	REYNOLDS	**Lab Number:**	L2135820
Project Number:	99566	**Report Date:**	08/12/21

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab 7/2/21

ALPHA Job # L2135820

Client Information
Client: CDM Smith
Address: 4 Highland Rd
Massena NY 13662
Phone: 315-296-9012
Fax:
Email: Kingsley RL@cdmsmith

Project Information
Project Name: Reynolds
Project Location: NY
Project # 99564
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TOC	DOC	1AIK, Cl31, 1403-2320	2320 Alk	TP04-4500	TSS	Cl, NO3	Diss. Iron	Sample Specific Comments	Total Bottle
35820-01	PZ-44-0621	7-1-21	0720	water	BC	X	X	X	X	X	X	X			
-02	MW-41-0621	7-1-21	0755	water	BC	X	X	X	X	X	X	X			
-03	MW-17S-0621	7-1-21	0815	water	BC	X	X	X	X	X	X	X			
-04	MW-42-0621	7-1-21	0833	water	BC	X	X	X	X	X	X	X	X		
-05	MW-36-0621	7-1-21	0920	water	BC	X	X	X	X	X	X	X			
-06	MW-37-0621	7-1-21	0945	water	BC	X	X	X	X	X	X	X			
-07	MW-22-85S-0621	7-1-21	1015	water	BC								X		
-08	MW-15S-87-0621	7-1-21	0740	water	BC	X	X	X	X	X	X	X			
-09	MW-35SR-0621	7-1-21	0850	water	BC	X	X	X	X	X	X	X			
↓	MW-35SR-0621 MS	7-1-21	0850	water	BC	X	X	X	X	X	X	X			
	Container Type														
	Preservative														

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Brad Cox	7-1-21 1400		7/1/21 1600
	7/1/21 1620		7/2/21 0645

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page of

Date Rec'd in Lab: 7/2/21

ALPHA Job #: L2135820

Client Information
Client: CDM Smith
Address: 4 Highland Rd
Massena NY 13662
Phone: 315-294-9012
Fax:
Email: KingslerAL@cdmsmith.com

Project Information
Project Name: Reynolds
Project Location: NY
Project #: 99566
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID		Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Al	Diss. Al	Fluoride	Sulfate	TCN	WAD CN	Total Bottle	Sample Specific Comments
35820-01	PZ-44-0621	/	7-1-21	0720	water	BC			X			X	X		
-02	MW-41-0621	/	7-1-21	0755	water	BC	X	X	X	X	X	X	X		
-04	MW-42-0621	/	7-1-21	0833	water	BC	X	X	X	X	X	X	X		
-05	MW-36-0621	/	7-1-21	0920	water	BC	X	X	X	X	X	X	X		
-06	MW-37-0621	/	7-1-21	0945	water	BC	X	X	X	X	X	X	X		
-07	MW-22855-0621	/	7-1-21	1015	water	BC	X	X	X	X	X	X	X		
~~-08~~	~~MW-35SR-0621~~	~~/~~	~~7-1-21~~	~~0940~~	~~water~~	~~BC~~	X								
-10	MW-1205-0621 FBW	/	7-1-21	0935	water	BC	X	X	X	X	X	X	X		
-09	MW-35SR-0621	/	7-1-21	0850	water	BC			X						
↓	MW-35SR-0621 MS	/	7-1-21	0850	water	BC			X						

Container Type
Preservative

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Basil Cox	7-1-21 1400	AAL	7/1/21 1620
	7/1/21 1620		7/2/21 01:15

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

OHIO CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581 — 8 Walkup Dr. — TEL: 508-898-9220 — FAX: 508-898-9193
Mansfield, MA 02048 — 320 Forbes Blvd — TEL: 508-822-9300 — FAX: 508-822-3288

Service Centers
Columbus, OH: (614) 357-3321
OHServiceCenter@alphalab.com

Page 1 of

Date Rec'd in Lab: 7/2/21

ALPHA Job #: L2135820

Client Information
Client: COMSmith
Address: 4 Highland Rd
Massena NY 13662
Phone: 315-296-9012
Fax:
Email: Kingsley RL@edmsmith

Project Information
Project Name: Reynolds
Project Location: NY
Project #: 995604
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ BUSTR QA/QC Form
☐ VAP Affidavit ☐ Other
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ OH VAP
☐ OH BUSTR
☐ Other:
☐ Other:
☐ Other:

Billing Information
☐ Same as Client Info
PO #

Site Information
Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For TPH, selection is REQUIRED:
☐ GRO (C6-C12)
☐ DRO/ORO (C10-C20/C20-C34)
☐ Other:

Other project specific requirements/comments:

Please specify Metals, i.e. RCRA8, PP13, TAL, etc.

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TOC	DOC	AHK, 8131, 1603-2320	2320 AHK	TP04-4500	TSS	Cl, NO3	Diss. Iron	Total Bottles
35820-09	MW-35SR-0621 MSD	7-1-21	0550	water	BC	X	X	X	X	X	X	X		
-10	MW-1205-0621 FBW	7-1-21	0935	water	BC	X	X	X	X	X	X	X	X	

Container Type
Preservative

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Brad Cox	7-1-21 1400	AAL	7/1/21 1620
	7/1/21 1620		7/2/21 0815

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Form No: 39490 (rev. 19-Mar-2021)

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page of

Date Rec'd in Lab: 7/2/21

ALPHA Job #: L2135820

Client Information
Client: CDMSmith
Address: 4 Highland Rd
Massena NY 13662
Phone: 315 296 9012
Fax:
Email: Kingsley RLE cdmsmith

Project Information
Project Name: Reynolds
Project Location: NY
Project #: 99566
(Use Project name as Project #) ☐
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total Al	Dissolved Al	Fluoride	Sulfate	TCN	WAD CN	Total Bottle	Sample Specific Comments
35820-09	MW-35SR-0621 MSD	7-1-21	0850	water	BC			X						
-03	MW-17S-0621	7-1-21	0815	water	BC			X						
-08	MW-15S-87-0621	7-1-21	0740	water	BC			X						

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type								
Preservative								

Relinquished By:	Date/Time	Received By:	Date/Time
Brad Cox	7-1-21 1700	AAL	7/1/21 1620
	7/1/21 1620		7/2/21 0615

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

ALPHA ANALYTICAL
World Class Chemistry

Subcontract Chain of Custody

ALS Rochester
1565 Jefferson Road
Rochester, NY 14623

Alpha Job Number
L2135820

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 716-427-5223
Email: cfox@alphalab.com

Project Information

Project Location: NY
Project Manager: Candace Fox

Turnaround & Deliverables Information

Due Date:
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2135820

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	PZ-44-0621	07-01-21 07:20	WATER	WAD CYANIDE	
	MW-41-0621	07-01-21 07:55	WATER	WAD CYANIDE	
	MW-42-0621	07-01-21 08:33	WATER	WAD CYANIDE	
	MW-36-0621	07-01-21 09:20	WATER	WAD CYANIDE	
	MW-37-0621	07-01-21 09:45	WATER	WAD CYANIDE	
	MW-22-85S-0621	07-01-21 10:15	WATER	WAD CYANIDE	
	MW-1205-0621 FBW	07-01-21 09:35	WATER	WAD CYANIDE	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		7/6/21		
Form No: AL_subcoc				

July 15, 2021 Service Request No:R2106724

Ms. Candace Fox
Alpha Analytical Inc.
8 Walkup Drive
Westborough, MA 01581

Laboratory Results for: L2135820

Dear Ms.Fox,

Enclosed are the results of the sample(s) submitted to our laboratory July 07, 2021
For your reference, these analyses have been assigned our service request number **R2106724.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Janice Jaeger
Project Manager

CC: Reporting

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

1565 Jefferson Rd, Building 300, Rochester, NY 14623 | 585-288-5380 | www.alsglobal.com

Client: Alpha Analytical Inc. (Westborough, MA)
Service Request: R2106724
Project: L2135820
Date Received: 07/07/2021
Sample Matrix: Water

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Seven water samples were received for analysis at ALS Environmental on 07/07/2021. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by _____ Date 07/15/2021

Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: Alpha Analytical Inc. (Westborough, MA) **Service Request:**R2106724
Project: L2135820

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R2106724-001	PZ-44-0621	7/1/2021	0720
R2106724-002	MW-41-0621	7/1/2021	0755
R2106724-003	MW-42-0621	7/1/2021	0833
R2106724-004	MW-36-0621	7/1/2021	0920
R2106724-005	MW-37-0621	7/1/2021	0945
R2106724-006	MW-22-85S-0621	7/1/2021	1015
R2106724-007	MW-1205-0621 FBW	7/1/2021	0935

ALPHA ANALYTICAL
World Class Chemistry

Subcontract Chain of Custody

ALS Rochester
1565 Jefferson Road
Rochester, NY 14623

Alpha Job Number
L2135820

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 716-427-5223 Email: cfox@alphalab.com	Project Location: NY Project Manager: Candace Fox **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2135820

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	PZ-44-0621	07-01-21 07:20	WATER	WAD CYANIDE	
	MW-41-0621	07-01-21 07:55	WATER	WAD CYANIDE	
	MW-42-0621	07-01-21 08:33	WATER	WAD CYANIDE	
	MW-36-0621	07-01-21 09:20	WATER	WAD CYANIDE	
	MW-37-0621	07-01-21 09:45	WATER	WAD CYANIDE	
	MW-22-85S-0621	07-01-21 10:15	WATER	WAD CYANIDE	
	MW-1205-0621 FBW	07-01-21 09:35	WATER	WAD CYANIDE	

Relinquished By:	Date/Time:	Received By:	Date/Time:
	7/6/21		7/7/21 1000

Form No: AL_subcoc

R2106724 5
Alpha Analytical Lab
L2135820

R2106724 5
Alpha Analytical Lab
L2135820

Cooler Receipt and Preservation Check Form

Project/Client Alpha Folder Number

Cooler received on 7/7/21 by: @ COURIER: ALS (UPS) FEDEX VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y (N)	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(X) (N)	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N (NA)
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate?	ALS/ROC (CLIENT)
4	Circle: (**Wet Ice**) **Dry Ice Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 7/7/21 Time: 1053 ID: IR#7 (IR#11) From: Temp Blank (Sample Bottle)

Observed Temp (°C)	0.6						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: Room by @ on 7/7/21 at 1055
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 7/7/21 Time: 1529 by: @

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact Y / N with MS Y / N Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12	203419	NaOH	✓		Client					
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For ~~608pest~~			No=Notify for 3day					
Residual Chlorine (-)		For ~~CN~~, Phenol, 625, 608pest, 522	✓		If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-						
		HCl	**	**						

**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).

Bottle lot numbers: Client
Explain all Discrepancies/ Other Comments:

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: @
PC Secondary Review: MS 7/7/21

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

P:\INTRANET\QAQC\Forms Controlled\Cooler Receipt r19.doc 03/02/2021

Miscellaneous Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the ñNotesò column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an ñimmediateò hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (Ó100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratoryôs NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

ALS Laboratory Group

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Alpha Analytical Inc. (Westborough, MA) **Service Request:** R2106724
Project: L2135820/

Sample Name: PZ-44-0621 **Date Collected:** 07/1/21
Lab Code: R2106724-001 **Date Received:** 07/7/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-CN- E	MROGERSON	GNITAJOUPPI

Sample Name: MW-41-0621 **Date Collected:** 07/1/21
Lab Code: R2106724-002 **Date Received:** 07/7/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-CN- E	MROGERSON	GNITAJOUPPI

Sample Name: MW-42-0621 **Date Collected:** 07/1/21
Lab Code: R2106724-003 **Date Received:** 07/7/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-CN- E	MROGERSON	GNITAJOUPPI

Sample Name: MW-36-0621 **Date Collected:** 07/1/21
Lab Code: R2106724-004 **Date Received:** 07/7/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-CN- E	MROGERSON	GNITAJOUPPI

Sample Name: MW-37-0621 **Date Collected:** 07/1/21
Lab Code: R2106724-005 **Date Received:** 07/7/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-CN- E	MROGERSON	GNITAJOUPPI

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Alpha Analytical Inc. (Westborough, MA) **Service Request:** R2106724
Project: L2135820/

Sample Name: MW-22-85S-0621 **Date Collected:** 07/1/21
Lab Code: R2106724-006 **Date Received:** 07/7/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-CN- E	MROGERSON	GNITAJOUPPI

Sample Name: MW-1205-0621 FBW **Date Collected:** 07/1/21
Lab Code: R2106724-007 **Date Received:** 07/7/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-CN- E	MROGERSON	GNITAJOUPPI

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	

Sample Results

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

General Chemistry

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106724
Project:	L2135820	**Date Collected:**	07/01/21 07:20
Sample Matrix:	Water	**Date Received:**	07/07/21 10:00
Sample Name:	PZ-44-0621	**Basis:**	NA
Lab Code:	R2106724-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.010 U	mg/L	0.010	1	07/15/21 10:37	07/14/21	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106724
Project:	L2135820	**Date Collected:**	07/01/21 07:55
Sample Matrix:	Water	**Date Received:**	07/07/21 10:00
Sample Name:	MW-41-0621	**Basis:**	NA
Lab Code:	R2106724-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.010 U	mg/L	0.010	1	07/15/21 10:37	07/14/21	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106724
Project:	L2135820	**Date Collected:**	07/01/21 08:33
Sample Matrix:	Water	**Date Received:**	07/07/21 10:00
Sample Name:	MW-42-0621	**Basis:**	NA
Lab Code:	R2106724-003		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.010 U	mg/L	0.010	1	07/15/21 10:38	07/14/21	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106724
Project:	L2135820	**Date Collected:**	07/01/21 09:20
Sample Matrix:	Water	**Date Received:**	07/07/21 10:00
Sample Name:	MW-36-0621	**Basis:**	NA
Lab Code:	R2106724-004		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.010 U	mg/L	0.010	1	07/15/21 10:39	07/14/21	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106724
Project:	L2135820	**Date Collected:**	07/01/21 09:45
Sample Matrix:	Water	**Date Received:**	07/07/21 10:00
Sample Name:	MW-37-0621	**Basis:**	NA
Lab Code:	R2106724-005		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.010 U	mg/L	0.010	1	07/15/21 10:41	07/14/21	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106724
Project:	L2135820	**Date Collected:**	07/01/21 10:15
Sample Matrix:	Water	**Date Received:**	07/07/21 10:00
Sample Name:	MW-22-85S-0621	**Basis:**	NA
Lab Code:	R2106724-006		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.010 U	mg/L	0.010	1	07/15/21 10:42	07/14/21	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106724
Project:	L2135820	**Date Collected:**	07/01/21 09:35
Sample Matrix:	Water	**Date Received:**	07/07/21 10:00
Sample Name:	MW-1205-0621 FBW	**Basis:**	NA
Lab Code:	R2106724-007		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.010 U	mg/L	0.010	1	07/15/21 10:43	07/14/21	

QC Summary Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

General Chemistry

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106724
Project:	L2135820	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	R2106724-MB		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.010 U	mg/L	0.010	1	07/15/21 10:35	07/14/21	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106724
Project:	L2135820	**Date Collected:**	07/01/21
Sample Matrix:	Water	**Date Received:**	07/07/21
		Date Analyzed:	07/15/21
		Date Extracted:	07/14/21

Duplicate Matrix Spike Summary
Cyanide, Weak Acid Dissociable (WAD)

Sample Name:	MW-1205-0621 FBW	**Units:**	mg/L
Lab Code:	R2106724-007	**Basis:**	NA
Analysis Method:	SM 4500-CN- E		
Prep Method:	SM 4500-CN-I		

		Matrix Spike			R2106724-007MS	**Duplicate Matrix Spike**			R2106724-007DMS		
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Cyanide, Weak Acid Dissociable (WAD)	0.010 U	0.082	0.100	82	0.083	0.100	83	57-111	2	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Alpha Analytical Inc. (Westborough, MA)
Project: L2135820
Sample Matrix: Water

Service Request: R2106724
Date Analyzed: 07/15/21

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2106724-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.101	0.100	101	85-115

ANALYTICAL REPORT

Lab Number:	L2136249
Client:	CDM Smith, Inc. 4 Highland Road Suite 1 Massena, NY 13662
ATTN:	Ryan Kingsley
Phone:	(315) 296-9000
Project Name:	REYNOLDS
Project Number:	99566
Report Date:	08/31/21

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2136249
Report Date: 08/31/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2136249-01	PZ-44-0621	WATER	NY	07/06/21 07:10	07/06/21
L2136249-02	MW-15S-0621	WATER	NY	07/06/21 07:10	07/06/21
L2136249-03	MW-17S-0621	WATER	NY	07/06/21 07:10	07/06/21
L2136249-04	MW-35SR-0621	WATER	NY	07/06/21 07:10	07/06/21
L2136249-05	MW-1207-0621 FBW	WATER	NY	07/06/21 07:10	07/06/21

Project Name:	REYNOLDS	**Lab Number:**	L2136249
Project Number:	99566	**Report Date:**	08/31/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	REYNOLDS	**Lab Number:**	L2136249
Project Number:	99566	**Report Date:**	08/31/21

Case Narrative (continued)

Report Revision

August 31, 2021: The Metals analyte list has been amended on L2136249-03 and -04.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

The analysis of Cyanide, Weak Acid Dissociable (WAD) was subcontracted. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

PCBs

WG1524356-5: The surrogate recovery is outside the individual acceptance criteria for tetrachloro-meta-xylene (28%), but within the overall method allowances.

Total Metals

The WG1530892-3 MS recoveries for aluminum (190%/205%), calcium (450%/530%), magnesium (270%/290%) and sodium (210%/220%), performed on L2136249-04, do not apply because the sample concentrations are greater than four times the spike amounts added.

Anions by Ion Chromatography

The WG1530197-3/-4 MS/MSD recoveries, performed on L2136249-04, are outside the acceptance criteria for fluoride (81%/89%); however, the associated LCS recovery is within criteria. No further action was taken.

The WG1530197-3/-4 MS/MSD recoveries for sulfate (16%/19%), performed on L2136249-04, do not apply because the sample concentration is greater than four times the spike amount added.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cristin Walker

Title: Technical Director/Representative Date: 08/31/21

ORGANICS

PCBS

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2136249
Report Date: 08/31/21

SAMPLE RESULTS

Lab ID: L2136249-01
Client ID: PZ-44-0621
Sample Location: NY

Date Collected: 07/06/21 07:10
Date Received: 07/06/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 07/20/21 11:00
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/15/21 16:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1242	ND		ug/l	0.065	0.014	1	A
Aroclor 1248	ND		ug/l	0.065	0.013	1	A
Aroclor 1254	ND		ug/l	0.065	0.010	1	A
Aroclor 1260	ND		ug/l	0.065	0.013	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	62		30-150	A
DCB - Surrogate	36		30-150	A
Tetrachloro-meta-Xylene	59		30-150	B
DCB - Surrogate	38		30-150	B

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2136249
Report Date: 08/31/21

SAMPLE RESULTS

Lab ID: L2136249-02
Client ID: MW-15S-0621
Sample Location: NY

Date Collected: 07/06/21 07:10
Date Received: 07/06/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 07/20/21 11:12
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/15/21 16:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1242	ND		ug/l	0.065	0.010	1	A
Aroclor 1248	ND		ug/l	0.065	0.010	1	A
Aroclor 1254	ND		ug/l	0.065	0.007	1	A
Aroclor 1260	ND		ug/l	0.065	0.009	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	58		30-150	A
DCB - Surrogate	43		30-150	A
Tetrachloro-meta-Xylene	58		30-150	B
DCB - Surrogate	51		30-150	B

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2136249
Report Date: 08/31/21

SAMPLE RESULTS

Lab ID: L2136249-03
Client ID: MW-17S-0621
Sample Location: NY

Date Collected: 07/06/21 07:10
Date Received: 07/06/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 07/20/21 11:24
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/15/21 16:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1242	ND		ug/l	0.065	0.010	1	A
Aroclor 1248	ND		ug/l	0.065	0.010	1	A
Aroclor 1254	ND		ug/l	0.065	0.007	1	A
Aroclor 1260	ND		ug/l	0.065	0.009	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	66		30-150	A
DCB - Surrogate	56		30-150	A
Tetrachloro-meta-Xylene	62		30-150	B
DCB - Surrogate	61		30-150	B

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2136249
Report Date: 08/31/21

SAMPLE RESULTS

Lab ID: L2136249-04
Client ID: MW-35SR-0621
Sample Location: NY

Date Collected: 07/06/21 07:10
Date Received: 07/06/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 07/20/21 11:36
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/15/21 16:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1242	ND		ug/l	0.065	0.010	1	A
Aroclor 1248	ND		ug/l	0.065	0.010	1	A
Aroclor 1254	ND		ug/l	0.065	0.007	1	A
Aroclor 1260	ND		ug/l	0.065	0.009	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	47		30-150	A
DCB - Surrogate	39		30-150	A
Tetrachloro-meta-Xylene	44		30-150	B
DCB - Surrogate	39		30-150	B

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2136249
Report Date: 08/31/21

SAMPLE RESULTS

Lab ID: L2136249-05
Client ID: MW-1207-0621 FBW
Sample Location: NY

Date Collected: 07/06/21 07:10
Date Received: 07/06/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 07/20/21 11:48
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/15/21 16:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1242	ND		ug/l	0.065	0.009	1	A
Aroclor 1248	ND		ug/l	0.065	0.009	1	A
Aroclor 1254	ND		ug/l	0.065	0.007	1	A
Aroclor 1260	ND		ug/l	0.065	0.009	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	61		30-150	A
DCB - Surrogate	60		30-150	A
Tetrachloro-meta-Xylene	57		30-150	B
DCB - Surrogate	63		30-150	B

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2136249
Report Date: 08/31/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8082A
Analytical Date: 07/20/21 10:23
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 07/15/21 16:50

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Mansfield Lab for sample(s): 01-05 Batch: WG1524356-1						
Aroclor 1242	ND		ug/l	0.065	0.009	A
Aroclor 1248	ND		ug/l	0.065	0.009	A
Aroclor 1254	ND		ug/l	0.065	0.007	A
Aroclor 1260	ND		ug/l	0.065	0.009	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	58		30-150	A
DCB - Surrogate	65		30-150	A
Tetrachloro-meta-Xylene	55		30-150	B
DCB - Surrogate	71		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: REYNOLDS

Project Number: 99566

Lab Number: L2136249

Report Date: 08/31/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Mansfield Lab Associated sample(s): 01-05 Batch: WG1524356-2 WG1524356-3									
Aroclor 1016	57		58		40-140	3		50	A
Aroclor 1260	76		76		40-140	0		50	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	56		57		30-150	A
DCB - Surrogate	66		65		30-150	A
Tetrachloro-meta-Xylene	53		53		30-150	B
DCB - Surrogate	71		71		30-150	B

Matrix Spike Analysis

Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2136249
Report Date: 08/31/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1524356-4 WG1524356-5 QC Sample: L2136249-04 Client ID: MW-35SR-0621													
Aroclor 1016	ND	1.03	0.843	82		0.606	58		40-140	33		50	A
Aroclor 1260	ND	1.03	0.756	73		0.602	57		40-140	23		50	A

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria	Column
DCB - Surrogate	34		39		30-150	A
Tetrachloro-meta-Xylene	60		30		30-150	A
DCB - Surrogate	33		41		30-150	B
Tetrachloro-meta-Xylene	56		**28**	Q	30-150	B

METALS

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2136249
Report Date: 08/31/21

SAMPLE RESULTS

Lab ID: L2136249-03
Client ID: MW-17S-0621
Sample Location: NY
Sample Depth:
Matrix: Water

Date Collected: 07/06/21 07:10
Date Received: 07/06/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0263		mg/l	0.0100	0.00327	1	08/03/21 10:18	08/03/21 15:42	EPA 3005A	1,6020B	CD
Calcium, Total	89.8		mg/l	0.100	0.0394	1	08/03/21 10:18	08/03/21 15:42	EPA 3005A	1,6020B	CD
Magnesium, Total	43.4		mg/l	0.0700	0.0242	1	08/03/21 10:18	08/03/21 15:42	EPA 3005A	1,6020B	CD
Potassium, Total	3.69		mg/l	0.100	0.0309	1	08/03/21 10:18	08/03/21 15:42	EPA 3005A	1,6020B	CD
Sodium, Total	107.		mg/l	0.100	0.0293	1	08/03/21 10:18	08/03/21 15:42	EPA 3005A	1,6020B	CD

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2136249
Report Date: 08/31/21

SAMPLE RESULTS

Lab ID: L2136249-04
Client ID: MW-35SR-0621
Sample Location: NY
Sample Depth:
Matrix: Water

Date Collected: 07/06/21 07:10
Date Received: 07/06/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	10.0		mg/l	0.0100	0.00327	1	08/03/21 10:18	08/03/21 15:20	EPA 3005A	1,6020B	CD
Calcium, Total	243.		mg/l	0.100	0.0394	1	08/03/21 10:18	08/03/21 15:20	EPA 3005A	1,6020B	CD
Magnesium, Total	148.		mg/l	0.0700	0.0242	1	08/03/21 10:18	08/03/21 15:20	EPA 3005A	1,6020B	CD
Potassium, Total	5.97		mg/l	0.100	0.0309	1	08/03/21 10:18	08/03/21 15:20	EPA 3005A	1,6020B	CD
Sodium, Total	92.0		mg/l	0.100	0.0293	1	08/03/21 10:18	08/03/21 15:20	EPA 3005A	1,6020B	CD

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2136249
Report Date: 08/31/21

SAMPLE RESULTS

Lab ID: L2136249-05
Client ID: MW-1207-0621 FBW
Sample Location: NY
Sample Depth:
Matrix: Water

Date Collected: 07/06/21 07:10
Date Received: 07/06/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	08/03/21 10:18	08/03/21 15:46	EPA 3005A	1,6020B	CD

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2136249
Report Date: 08/31/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 03-05 Batch: WG1530892-1										
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	08/03/21 10:18	08/03/21 16:05	1,6020B	CD
Calcium, Total	0.0861	J	mg/l	0.100	0.0394	1	08/03/21 10:18	08/03/21 16:05	1,6020B	CD
Magnesium, Total	ND		mg/l	0.0700	0.0242	1	08/03/21 10:18	08/03/21 16:05	1,6020B	CD
Potassium, Total	ND		mg/l	0.100	0.0309	1	08/03/21 10:18	08/03/21 16:05	1,6020B	CD
Sodium, Total	ND		mg/l	0.100	0.0293	1	08/03/21 10:18	08/03/21 16:05	1,6020B	CD

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: REYNOLDS

Project Number: 99566

Lab Number: L2136249

Report Date: 08/31/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-05 Batch: WG1530892-2								
Aluminum, Total	107		-		80-120	-		
Calcium, Total	86		-		80-120	-		
Magnesium, Total	108		-		80-120	-		
Potassium, Total	106		-		80-120	-		
Sodium, Total	107		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2136249
Report Date: 08/31/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-05 QC Batch ID: WG1530892-3 WG1530892-4 QC Sample: L2136249-04 Client ID: MW-35SR-0621												
Aluminum, Total	10.0	2	13.8	**190**	Q	14.1	**205**	Q	75-125	2		20
Calcium, Total	243.	10	288	**450**	Q	296	**530**	Q	75-125	3		20
Magnesium, Total	148.	10	175	**270**	Q	177	**290**	Q	75-125	1		20
Potassium, Total	5.97	10	17.6	116		18.0	120		75-125	2		20
Sodium, Total	92.0	10	113	**210**	Q	114	**220**	Q	75-125	1		20

INORGANICS
&
MISCELLANEOUS

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2136249
Report Date: 08/31/21

SAMPLE RESULTS

Lab ID: L2136249-02
Client ID: MW-15S-0621
Sample Location: NY

Date Collected: 07/06/21 07:10
Date Received: 07/06/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/l	0.005	0.001	1	07/13/21 10:50	07/13/21 16:03	121,4500CN-CE	CR

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2136249
Report Date: 08/31/21

SAMPLE RESULTS

Lab ID: L2136249-03
Client ID: MW-17S-0621
Sample Location: NY

Date Collected: 07/06/21 07:10
Date Received: 07/06/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/l	0.005	0.001	1	07/13/21 10:50	07/13/21 16:04	121,4500CN-CE	CR
Nitrogen, Nitrate	0.33		mg/l	0.10	0.023	1	-	07/07/21 07:45	44,353.2	MR
Anions by Ion Chromatography - Westborough Lab										
Chloride	80.9		mg/l	5.00	0.839	10	-	07/31/21 09:09	44,300.0	JT
Fluoride	0.913		mg/l	0.500	0.370	10	-	07/31/21 09:08	44,300.0	JT
Sulfate	177.		mg/l	10.0	4.54	10	-	07/31/21 09:09	44,300.0	JT

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2136249
Report Date: 08/31/21

SAMPLE RESULTS

Lab ID: L2136249-04
Client ID: MW-35SR-0621
Sample Location: NY

Date Collected: 07/06/21 07:10
Date Received: 07/06/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/l	0.005	0.001	1	07/13/21 10:50	07/13/21 16:05	121,4500CN-CE	CR
Nitrogen, Nitrate	0.13		mg/l	0.10	0.023	1	-	07/07/21 07:48	44,353.2	MR
Anions by Ion Chromatography - Westborough Lab										
Chloride	35.0		mg/l	5.00	0.839	10	-	07/31/21 10:32	44,300.0	JT
Fluoride	0.888		mg/l	0.500	0.370	10	-	07/31/21 10:31	44,300.0	JT
Sulfate	878.		mg/l	10.0	4.54	10	-	07/31/21 10:32	44,300.0	JT

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2136249
Report Date: 08/31/21

SAMPLE RESULTS

Lab ID: L2136249-05
Client ID: MW-1207-0621 FBW
Sample Location: NY

Date Collected: 07/06/21 07:10
Date Received: 07/06/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/l	0.005	0.001	1	07/13/21 10:50	07/13/21 16:09	121,4500CN-CE	CR
Nitrogen, Nitrate	ND		mg/l	0.10	0.023	1	-	07/07/21 07:50	44,353.2	MR
Anions by Ion Chromatography - Westborough Lab										
Chloride	0.180	J	mg/l	0.500	0.083	1	-	07/31/21 16:48	44,300.0	JT
Fluoride	ND		mg/l	0.050	0.037	1	-	07/31/21 16:47	44,300.0	JT
Sulfate	ND		mg/l	1.00	0.454	1	-	07/31/21 16:48	44,300.0	JT

Project Name: REYNOLDS
Project Number: 99566
Lab Number: L2136249
Report Date: 08/31/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 03-05 Batch: WG1521026-1										
Nitrogen, Nitrate	ND		mg/l	0.10	0.023	1	-	07/07/21 07:28	44,353.2	MR
General Chemistry - Westborough Lab for sample(s): 02-05 Batch: WG1523257-1										
Cyanide, Total	ND		mg/l	0.005	0.001	1	07/13/21 10:50	07/13/21 15:51	121,4500CN-CE	CR
Anions by Ion Chromatography - Westborough Lab for sample(s): 03-05 Batch: WG1530197-1										
Sulfate	ND		mg/l	1.00	0.454	1	-	07/31/21 08:09	44,300.0	JT
Anions by Ion Chromatography - Westborough Lab for sample(s): 03-05 Batch: WG1530197-1										
Chloride	0.168	J	mg/l	0.500	0.083	1	-	07/31/21 08:09	44,300.0	JT
Fluoride	ND		mg/l	0.050	0.037	1	-	07/31/21 08:08	44,300.0	JT

Lab Control Sample Analysis

Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2136249
Report Date: 08/31/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 03-05 Batch: WG1521026-2								
Nitrogen, Nitrate	108		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 02-05 Batch: WG1523257-2								
Cyanide, Total	102		-		90-110	-		
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 03-05 Batch: WG1530197-2								
Chloride	96		-		90-110	-		
Fluoride	100		-		90-110	-		
Sulfate	92		-		90-110	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2136249
Report Date: 08/31/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 03-05 QC Batch ID: WG1521026-4 QC Sample: L2136249-03 Client ID: MW-17S-0621												
Nitrogen, Nitrate	0.33	4	4.5	104		-	-		83-113	-		6
General Chemistry - Westborough Lab Associated sample(s): 02-05 QC Batch ID: WG1523257-3 WG1523257-4 QC Sample: L2136249-04 Client ID: MW-35SR-0621												
Cyanide, Total	ND	0.2	0.220	110		0.211	106		90-110	4		30
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 03-05 QC Batch ID: WG1530197-3 WG1530197-4 QC Sample: L2136249-04 Client ID: MW-35SR-0621												
Chloride	35.0	40	72.2	93		73.0	95		90-110	1		18
Fluoride	0.888	4	4.12	**81**	Q	4.45	**89**	Q	90-110	8		15
Sulfate	878.	80	892	**16**	Q	893	**19**	Q	90-110	0		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2136249
Report Date: 08/31/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 03-05 QC Batch ID: WG1521026-3 QC Sample: L2136249-03 Client ID: MW-17S-0621						
Nitrogen, Nitrate	0.33	0.33	mg/l	0		6

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2136249
Report Date: 08/31/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2136249-01A	Amber 1000ml unpreserved	A	7	7	4.3	Y	Absent		A2-PCB-8082-LOW(365)
L2136249-02A	Plastic 250ml NaOH preserved	B	>12	>12	3.2	Y	Absent		TCN-4500(14)
L2136249-02B	Amber 1000ml unpreserved	A	7	7	4.3	Y	Absent		A2-PCB-8082-LOW(365)
L2136249-03A	Plastic 250ml unpreserved	B	7	7	3.2	Y	Absent		SO4-300(28),CL-300(28),F-300(28),NO3-353(2)
L2136249-03B	Plastic 250ml NaOH preserved	B	>12	>12	3.2	Y	Absent		TCN-4500(14)
L2136249-03C	Plastic 250ml HNO3 preserved	B	<2	<2	3.2	Y	Absent		CA-6020T(180),K-6020T(180),NA-6020T(180),AL-6020T(180),MG-6020T(180)
L2136249-03D	Amber 1000ml unpreserved	A	7	7	4.3	Y	Absent		A2-PCB-8082-LOW(365)
L2136249-03E	Amber 1000ml unpreserved	A	7	7	4.3	Y	Absent		A2-PCB-8082-LOW(365)
L2136249-04A	Plastic 250ml unpreserved	B	7	7	3.2	Y	Absent		SO4-300(28),F-300(28),CL-300(28),NO3-353(2)
L2136249-04A1	Plastic 250ml unpreserved	B	7	7	3.2	Y	Absent		SO4-300(28),F-300(28),CL-300(28),NO3-353(2)
L2136249-04A2	Plastic 250ml unpreserved	B	7	7	3.2	Y	Absent		SO4-300(28),F-300(28),CL-300(28),NO3-353(2)
L2136249-04B	Plastic 250ml NaOH preserved	B	>12	>12	3.2	Y	Absent		TCN-4500(14)
L2136249-04B1	Plastic 250ml NaOH preserved	B	>12	>12	3.2	Y	Absent		TCN-4500(14)
L2136249-04B2	Plastic 250ml NaOH preserved	B	>12	>12	3.2	Y	Absent		TCN-4500(14)
L2136249-04C	Plastic 250ml HNO3 preserved	B	<2	<2	3.2	Y	Absent		K-6020T(180),CA-6020T(180),NA-6020T(180),AL-6020T(180),MG-6020T(180)
L2136249-04C1	Plastic 250ml HNO3 preserved	B	<2	<2	3.2	Y	Absent		K-6020T(180),CA-6020T(180),NA-6020T(180),AL-6020T(180),MG-6020T(180)
L2136249-04C2	Plastic 250ml HNO3 preserved	B	<2	<2	3.2	Y	Absent		K-6020T(180),CA-6020T(180),NA-6020T(180),AL-6020T(180),MG-6020T(180)
L2136249-04D	Amber 1000ml unpreserved	A	7	7	4.3	Y	Absent		A2-PCB-8082-LOW(365)
L2136249-04D1	Amber 1000ml unpreserved	A	7	7	4.3	Y	Absent		A2-PCB-8082-LOW(365)

*Values in parentheses indicate holding time in days

Project Name: REYNOLDS
Project Number: 99566

Lab Number: L2136249
Report Date: 08/31/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2136249-04D2	Amber 1000ml unpreserved	A	7	7	4.3	Y	Absent		A2-PCB-8082-LOW(365)
L2136249-04E	Amber 1000ml unpreserved	A	7	7	4.3	Y	Absent		A2-PCB-8082-LOW(365)
L2136249-04E1	Amber 1000ml unpreserved	A	7	7	4.3	Y	Absent		A2-PCB-8082-LOW(365)
L2136249-04E2	Amber 1000ml unpreserved	A	7	7	4.3	Y	Absent		A2-PCB-8082-LOW(365)
L2136249-05A	Plastic 250ml unpreserved	B	7	7	3.2	Y	Absent		SO4-300(28),CL-300(28),F-300(28),NO3-353(2)
L2136249-05B	Plastic 250ml NaOH preserved	B	>12	>12	3.2	Y	Absent		TCN-4500(14)
L2136249-05C	Plastic 250ml HNO3 preserved	B	<2	<2	3.2	Y	Absent		AL-6020T(180)
L2136249-05D	Amber 1000ml unpreserved	A	7	7	4.3	Y	Absent		A2-PCB-8082-LOW(365)
L2136249-05E	Amber 1000ml unpreserved	A	7	7	4.3	Y	Absent		A2-PCB-8082-LOW(365)

*Values in parentheses indicate holding time in days

Project Name:	REYNOLDS	**Lab Number:**	L2136249
Project Number:	99566	**Report Date:**	08/31/21

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name:	REYNOLDS	**Lab Number:**	L2136249
Project Number:	99566	**Report Date:**	08/31/21

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	REYNOLDS	**Lab Number:**	L2136249
Project Number:	99566	**Report Date:**	08/31/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Project Name:	REYNOLDS	**Lab Number:**	L2136249
Project Number:	99566	**Report Date:**	08/31/21

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page of

Date Rec'd in Lab: 7/7/21

ALPHA Job #: L2136249

Client Information
Client: CDM Smith
Address: 4 Highland Rd
Massena NY
Phone: 315 296 9012
Fax:
Email: KingsleyRL@cdmsmith

Project Information
Project Name: Reynolds
Project Location: NY
Project #: 99566
(Use Project name as Project #)
Project Manager: Candace Fox
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB	Total TAL	Fl	SO4	NO3	TCN	WAD CN	Cl	Total Bottle	Sample Specific Comments
36249-01	PZ-44-0621	7-6-21	0710	water	BC	X									1/2L only
02	MW-15S-0621	7-6-21	0720	water	BC	X					X	X			1L PCB only
03	MW-17S-0621	7-6-21	0735	water	BC	X	X	X	X	X	X	X	X		0735
04	MW-35SR-0621	7-6-21	0740	water	BC	X	X	X	X	X	X	X	X		
04	MW-35SR-0621 MS	7-6-21	0740	water	BC	X	X	X	X	X	X	X	X		
04	MW-35SR-0621 MSD	7-6-21	0740	water	BC	X	X	X	X	X	X	X	X		
05	MW-1207-0621 FBW	7-6-21	0735	water	BC	X	X	X	X	X	X	X	X		

Container Type
Preservative

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Basil Cost	7-6-21 1400	AHL	7/6/21 1540
	7/6/21 1540		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

July 15, 2021 Service Request No:R2106750

Ms. Candace Fox
Alpha Analytical Inc.
8 Walkup Drive
Westborough, MA 01581

Laboratory Results for: L2136249

Dear Ms.Fox,

Enclosed are the results of the sample(s) submitted to our laboratory July 07, 2021
For your reference, these analyses have been assigned our service request number **R2106750.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Janice Jaeger
Project Manager

CC: Reporting

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

1565 Jefferson Rd, Building 300, Rochester, NY 14623 | 585-288-5380 | www.alsglobal.com

Client: Alpha Analytical Inc. (Westborough, MA)
Service Request: R2106750
Project: L2136249
Date Received: 07/07/2021
Sample Matrix: Water

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Four water samples were received for analysis at ALS Environmental on 07/07/2021. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by _____ Date 07/15/2021

Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: Alpha Analytical Inc. (Westborough, MA) **Service Request:**R2106750
Project: L2136249

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R2106750-001	MW-15S-0621	7/6/2021	0710
R2106750-002	MW-17S-0621	7/6/2021	0710
R2106750-003	MW-35SR-0621	7/6/2021	0710
R2106750-004	MW-1207-0621 FBW	7/6/2021	0710

Subcontract Chain of Custody

ALS Rochester
1565 Jefferson Road
Rochester, NY 14623

Alpha Job Number
L2136249

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 716-427-5223
Email: cfox@alphalab.com

Project Information

Project Location: NY
Project Manager: Candace Fox

Turnaround & Deliverables Information

Due Date:
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2136249

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com MS/MSD

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	MW-15S-0621	07-06-21 07:10	WATER	WAD CYANIDE	MS;MSD
	MW-17S-0621	07-06-21 07:10	WATER	WAD CYANIDE	
	MW-35SR-0621	07-06-21 07:10	WATER	WAD CYANIDE	
	MW-1207-0621 FBW	07-06-21 07:10	WATER	WAD CYANIDE	

Relinquished By:	Date/Time:	Received By:	Date/Time:
		[signature]	7/7/21 1232

Form No: AL_subcoc

R2106750 5
Alpha Analytical Lab
L2136249

Cooler Receipt and Preservation Check Form

R2106750 5
Alpha Analytical Lab
L2136249

Project/Client Alpha Folder Number

Cooler received on 7/7/21 by: @ **COURIER:** ALS UPS FEDEX VELOCITY (CLIENT)

1	Were **Custody seals** on outside of cooler?	Y (N)	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N (NA)
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate?	ALS/ROC (CLIENT)
4	Circle: (**Wet Ice**) **Dry Ice** **Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 7/7/21 Time: 1234 ID: IR#7 (IR#11) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	0.4						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by @ on 7/7/21 at 1235
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 7/8/21 Time: 0015 by: dw

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO N/A
13. Air Samples: Cassettes / Tubes Intact Y / N with MS Y / N Canisters Pressurized Tedlar® Bags Inflated N/A

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12	223494	NaOH	✓		Client label					
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522	✓		If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: client

Explain all Discrepancies/ Other Comments:

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: dw
PC Secondary Review: JMS 7/12/21

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Miscellaneous Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the ñNotesò column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an ñimmediateò hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (Ó100% Difference between two GC columns).
X	See Case Narrative for discussion.
MRL LOQ	Method Reporting Limit. Also known as: Limit of Quantitation (LOQ) The lowest concentration at which the method analyte may be reliably quantified under the method conditions.
MDL	Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).
LOD	Limit of Detection. A value at or above the MDL which has been verified to be detectable.
ND	Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratoryôs NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

ALS Laboratory Group

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Alpha Analytical Inc. (Westborough, MA) **Service Request:** R2106750
Project: L2136249/

Sample Name: MW-15S-0621 **Date Collected:** 07/6/21
Lab Code: R2106750-001 **Date Received:** 07/7/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-CN- E	MROGERSON	GNITAJOUPPI

Sample Name: MW-17S-0621 **Date Collected:** 07/6/21
Lab Code: R2106750-002 **Date Received:** 07/7/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-CN- E	MROGERSON	GNITAJOUPPI

Sample Name: MW-35SR-0621 **Date Collected:** 07/6/21
Lab Code: R2106750-003 **Date Received:** 07/7/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-CN- E	MROGERSON	GNITAJOUPPI

Sample Name: MW-1207-0621 FBW **Date Collected:** 07/6/21
Lab Code: R2106750-004 **Date Received:** 07/7/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-CN- E	MROGERSON	GNITAJOUPPI

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	

Sample Results

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

General Chemistry

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106750
Project:	L2136249	**Date Collected:**	07/06/21 07:10
Sample Matrix:	Water	**Date Received:**	07/07/21 12:32
Sample Name:	MW-15S-0621	**Basis:**	NA
Lab Code:	R2106750-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.010 U	mg/L	0.010	1	07/15/21 10:45	07/14/21	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106750
Project:	L2136249	**Date Collected:**	07/06/21 07:10
Sample Matrix:	Water	**Date Received:**	07/07/21 12:32
Sample Name:	MW-17S-0621	**Basis:**	NA
Lab Code:	R2106750-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.010 U	mg/L	0.010	1	07/15/21 10:46	07/14/21	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106750
Project:	L2136249	**Date Collected:**	07/06/21 07:10
Sample Matrix:	Water	**Date Received:**	07/07/21 12:32
Sample Name:	MW-35SR-0621	**Basis:**	NA
Lab Code:	R2106750-003		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.010 U	mg/L	0.010	1	07/15/21 10:47	07/14/21	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106750
Project:	L2136249	**Date Collected:**	07/06/21 07:10
Sample Matrix:	Water	**Date Received:**	07/07/21 12:32
Sample Name:	MW-1207-0621 FBW	**Basis:**	NA
Lab Code:	R2106750-004		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.010 U	mg/L	0.010	1	07/15/21 10:51	07/14/21	

QC Summary Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

General Chemistry

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106750
Project:	L2136249	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	R2106750-MB		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.010 U	mg/L	0.010	1	07/15/21 10:35	07/14/21	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Alpha Analytical Inc. (Westborough, MA)	**Service Request:**	R2106750
Project:	L2136249	**Date Collected:**	07/06/21
Sample Matrix:	Water	**Date Received:**	07/07/21
		Date Analyzed:	07/15/21
		Date Extracted:	07/14/21

Duplicate Matrix Spike Summary
Cyanide, Weak Acid Dissociable (WAD)

Sample Name:	MW-35SR-0621	**Units:**	mg/L
Lab Code:	R2106750-003	**Basis:**	NA
Analysis Method:	SM 4500-CN- E		
Prep Method:	SM 4500-CN-I		

		Matrix Spike				Duplicate Matrix Spike					
		R2106750-003MS				R2106750-003DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Cyanide, Weak Acid Dissociable (WAD)	0.010 U	0.071	0.100	71	0.072	0.100	72	57-111	2	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Alpha Analytical Inc. (Westborough, MA)
Project: L2136249
Sample Matrix: Water

Service Request: R2106750
Date Analyzed: 07/15/21

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2106750-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Cyanide, Weak Acid Dissociable (WAD)	SM 4500-CN- E	0.101	0.100	101	85-115

ANALYTICAL REPORT

Lab Number:	L2166695
Client:	EHS Support LLC
	Waterbury, VT 05676
ATTN:	Sam Parker
Phone:	(802) 497-8749
Project Name:	ALCOA MASSENA EAST
Project Number:	Not Specified
Report Date:	12/23/21

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2166695-01	MW-12S_TOTAL_20211130	WATER	MASSENA, NY	11/30/21 12:33	12/03/21
L2166695-02	MW-13S_TOTAL_20211130	WATER	MASSENA, NY	11/30/21 12:10	12/03/21
L2166695-03	MW-15S-87_TOTAL_20211130	WATER	MASSENA, NY	11/30/21 12:23	12/03/21
L2166695-04	MW-26S_TOTAL_20211130	WATER	MASSENA, NY	11/30/21 12:40	12/03/21
L2166695-05	MW-28S_TOTAL_20211130	WATER	MASSENA, NY	11/30/21 12:50	12/03/21
L2166695-06	DUP_MW-28S_TOTAL_20211130	WATER	MASSENA, NY	11/30/21 12:50	12/03/21
L2166695-07	MW-30S_TOTAL_20211130	WATER	MASSENA, NY	11/30/21 12:05	12/03/21
L2166695-08	MW-2303_TOTAL_20211130	WATER	MASSENA, NY	11/30/21 12:55	12/03/21
L2166695-09	ISE_BLANK_TOTAL_20211201	WATER	MASSENA, NY	12/01/21 09:00	12/03/21
L2166695-10	MW-12S_0.45_20211130	WATER	MASSENA, NY	11/30/21 12:33	12/03/21
L2166695-11	MW-13S_0.45_20211130	WATER	MASSENA, NY	11/30/21 12:10	12/03/21
L2166695-12	MW-15S-87_0.45_20211130	WATER	MASSENA, NY	11/30/21 12:23	12/03/21
L2166695-13	MW-26S_0.45_20211130	WATER	MASSENA, NY	11/30/21 12:40	12/03/21
L2166695-14	MW-28S_0.45_20211130	WATER	MASSENA, NY	11/30/21 12:50	12/03/21
L2166695-15	DUP_MW-28S_0.45_20211130	WATER	MASSENA, NY	11/30/21 12:50	12/03/21
L2166695-16	MW-30S_0.45_20211130	WATER	MASSENA, NY	11/30/21 12:05	12/03/21
L2166695-17	MW-2303_0.45_20211130	WATER	MASSENA, NY	11/30/21 12:55	12/03/21
L2166695-18	IC_BLANK_0.45_20211201	WATER	MASSENA, NY	12/01/21 08:00	12/03/21
L2166695-19	AL_BLANK_0.45_20211201	WATER	MASSENA, NY	12/01/21 08:30	12/03/21
L2166695-20	MW-12S_0.20_20211130	WATER	MASSENA, NY	11/30/21 12:33	12/03/21
L2166695-21	MW-13S_0.20_20211130	WATER	MASSENA, NY	11/30/21 12:10	12/03/21
L2166695-22	MW-15S-87_0.20_20211130	WATER	MASSENA, NY	11/30/21 12:23	12/03/21
L2166695-23	MW-26S_0.20_20211130	WATER	MASSENA, NY	11/30/21 12:40	12/03/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2166695-24	MW-28S_0.20_20211130	WATER	MASSENA, NY	11/30/21 12:50	12/03/21
L2166695-25	DUP_MW-28S_0.20_20211130	WATER	MASSENA, NY	11/30/21 12:50	12/03/21
L2166695-26	MW-30S_0.20_20211130	WATER	MASSENA, NY	11/30/21 12:05	12/03/21
L2166695-27	MW-2303_0.20_20211130	WATER	MASSENA, NY	11/30/21 12:55	12/03/21
L2166695-28	IC_BLANK_0.20_20211201	WATER	MASSENA, NY	12/01/21 08:00	12/03/21
L2166695-29	TCN_BLANK_0.20_20211201	WATER	MASSENA, NY	12/01/21 08:45	12/03/21
L2166695-30	MW-12S_0.10_20211130	WATER	MASSENA, NY	11/30/21 12:33	12/03/21
L2166695-31	MW-13S_0.10_20211130	WATER	MASSENA, NY	11/30/21 12:10	12/03/21
L2166695-32	MW-15S-87_0.10_20211130	WATER	MASSENA, NY	11/30/21 12:23	12/03/21
L2166695-33	MW-26S_0.10_20211130	WATER	MASSENA, NY	11/30/21 12:40	12/03/21
L2166695-34	MW-28S_0.10_20211130	WATER	MASSENA, NY	11/30/21 12:50	12/03/21
L2166695-35	DUP_MW-28S_0.10_20211130	WATER	MASSENA, NY	11/30/21 12:50	12/03/21
L2166695-36	MW-30S_0.10_20211130	WATER	MASSENA, NY	11/30/21 12:05	12/03/21
L2166695-37	MW-2303_0.10_20211130	WATER	MASSENA, NY	11/30/21 12:55	12/03/21
L2166695-38	IC_BLANK_0.10_20211130	WATER	MASSENA, NY	12/01/21 08:00	12/03/21
L2166695-39	TCN_BLANK_0.10_20211130	WATER	MASSENA, NY	12/01/21 08:45	12/03/21
L2166695-40	MW-35SR_TOTAL_20211201	WATER	MASSENA, NY	12/01/21 11:40	12/03/21
L2166695-41	MW-42_TOTAL_20211201	WATER	MASSENA, NY	12/01/21 11:47	12/03/21
L2166695-42	MW-16S_TOTAL_20211201	WATER	MASSENA, NY	12/01/21 12:32	12/03/21
L2166695-43	MW-19S_TOTAL_20211201	WATER	MASSENA, NY	12/01/21 12:14	12/03/21
L2166695-44	MW-34S_TOTAL_20211201	WATER	MASSENA, NY	12/01/21 11:30	12/03/21
L2166695-45	MW-03S_TOTAL_20211201	WATER	MASSENA, NY	12/01/21 12:02	12/03/21
L2166695-46	MW-27S_TOTAL_20211201	WATER	MASSENA, NY	12/01/21 10:03	12/03/21
L2166695-47	MW-17S_TOTAL_20211201	WATER	MASSENA, NY	12/01/21 12:45	12/03/21
L2166695-48	PZ-46_TOTAL_20211201	WATER	MASSENA, NY	12/01/21 12:54	12/03/21
L2166695-49	PZ-44_TOTAL_20211201	WATER	MASSENA, NY	12/01/21 13:00	12/03/21
L2166695-50	MW-18S_TOTAL_20211201	WATER	MASSENA, NY	12/01/21 10:15	12/03/21
L2166695-51	MW-03S_0.45_20211201	WATER	MASSENA, NY	12/01/21 12:02	12/03/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2166695-52	MW-16S_0.45_20211201	WATER	MASSENA, NY	12/01/21 12:32	12/03/21
L2166695-53	MW-17S_0.45_20211201	WATER	MASSENA, NY	12/01/21 12:45	12/03/21
L2166695-54	MW-18S_0.45_20211201	WATER	MASSENA, NY	12/01/21 10:15	12/03/21
L2166695-55	MW-19S_0.45_20211201	WATER	MASSENA, NY	12/01/21 12:14	12/03/21
L2166695-56	MW-27S_0.45_20211201	WATER	MASSENA, NY	12/01/21 10:03	12/03/21
L2166695-57	MW-34S_0.45_20211201	WATER	MASSENA, NY	12/01/21 11:30	12/03/21
L2166695-58	MW-35SR_0.45_20211201	WATER	MASSENA, NY	12/01/21 11:40	12/03/21
L2166695-59	MW-42_0.45_20211201	WATER	MASSENA, NY	12/01/21 11:47	12/03/21
L2166695-60	PZ-44_0.45_20211201	WATER	MASSENA, NY	12/01/21 13:00	12/03/21
L2166695-61	MW-03S_0.20_20211201	WATER	MASSENA, NY	12/01/21 12:02	12/03/21
L2166695-62	MW-16S_0.20_20211201	WATER	MASSENA, NY	12/01/21 12:32	12/03/21
L2166695-63	MW-17S_0.20_20211201	WATER	MASSENA, NY	12/01/21 12:45	12/03/21
L2166695-64	MW-18S_0.20_20211201	WATER	MASSENA, NY	12/01/21 10:15	12/03/21
L2166695-65	MW-19S_0.20_20211201	WATER	MASSENA, NY	12/01/21 12:14	12/03/21
L2166695-66	MW-27S_0.20_20211201	WATER	MASSENA, NY	12/01/21 10:03	12/03/21
L2166695-67	MW-34S_0.20_20211201	WATER	MASSENA, NY	12/01/21 11:30	12/03/21
L2166695-68	MW-35SR_0.20_20211201	WATER	MASSENA, NY	12/01/21 11:40	12/03/21
L2166695-69	MW-42_0.20_20211201	WATER	MASSENA, NY	12/01/21 11:47	12/03/21
L2166695-70	PZ-44_0.20_20211201	WATER	MASSENA, NY	12/01/21 13:00	12/03/21
L2166695-71	MW-03S_0.10_20211201	WATER	MASSENA, NY	12/01/21 12:02	12/03/21
L2166695-72	MW-16S_0.10_20211201	WATER	MASSENA, NY	12/01/21 12:32	12/03/21
L2166695-73	MW-17S_0.10_20211201	WATER	MASSENA, NY	12/01/21 12:45	12/03/21
L2166695-74	MW-18S_0.10_20211201	WATER	MASSENA, NY	12/01/21 10:15	12/03/21
L2166695-75	MW-19S_0.10_20211201	WATER	MASSENA, NY	12/01/21 12:14	12/03/21
L2166695-76	MW-27S_0.10_20211201	WATER	MASSENA, NY	12/01/21 10:03	12/03/21
L2166695-77	MW-34S_0.10_20211201	WATER	MASSENA, NY	12/01/21 11:30	12/03/21
L2166695-78	MW-35SR_0.10_20211201	WATER	MASSENA, NY	12/01/21 11:40	12/03/21
L2166695-79	MW-42_0.10_20211201	WATER	MASSENA, NY	12/01/21 11:47	12/03/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2166695-80	PZ-44_0.10_20211201	WATER	MASSENA, NY	12/01/21 13:00	12/03/21
L2166695-81	PZ-46_0.45_20211201	WATER	MASSENA, NY	12/01/21 12:54	12/03/21
L2166695-82	PZ-46_0.20_20211201	WATER	MASSENA, NY	12/01/21 12:54	12/03/21
L2166695-83	PZ-46_0.10_20211201	WATER	MASSENA, NY	12/01/21 12:54	12/03/21
L2166695-84	IC_BLANK_TOTAL_20211201	WATER	MASSENA, NY	12/01/21 08:00	12/03/21
L2166695-85	TCN_BLANK_TOTAL_20211201	WATER	MASSENA, NY	12/01/21 08:45	12/03/21
L2166695-86	TCN_BLANK_0.45_20211201	WATER	MASSENA, NY	12/01/21 08:45	12/03/21
L2166695-87	DUP_MW-18S_TOTAL_20211201	WATER	MASSENA, NY	12/01/21 10:15	12/03/21
L2166695-88	DUP_MW-18S_0.45_20211201	WATER	MASSENA, NY	12/01/21 10:15	12/03/21
L2166695-89	DUP_MW-18S_0.20_20211201	WATER	MASSENA, NY	12/01/21 10:15	12/03/21
L2166695-90	DUP_MW-18S_0.10_20211201	WATER	MASSENA, NY	12/01/21 10:15	12/03/21

Project Name:	ALCOA MASSENA EAST	**Lab Number:**	L2166695
Project Number:	Not Specified	**Report Date:**	12/23/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	ALCOA MASSENA EAST	**Lab Number:**	L2166695
Project Number:	Not Specified	**Report Date:**	12/23/21

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

The analysis of Fluoride by Method 4500 was subcontracted. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

Anions by Ion Chromatography

L2166695-07, -81, -82 and -83: The sample has an elevated detection limit for chloride due to the dilution required by the sample matrix.

The WG1583365-3 MS recovery, performed on L2166695-05, is outside the acceptance criteria for fluoride (111%); however, the associated LCS recovery is within criteria. No further action was taken.

The WG1584353-3 MS recoveries, performed on L2166695-25, are outside the acceptance criteria for sulfate (78%), chloride (77%) and fluoride (89%); however, the associated LCS recoveries are within criteria. No further action was taken.

The WG1584354-3 MS recoveries, performed on L2166695-35, are outside the acceptance criteria for sulfate (66%), chloride (82%) and fluoride (57%); however, the associated LCS recoveries are within criteria. No further action was taken.

The WG1584357-3 MS recoveries, performed on L2166695-34, are outside the acceptance criteria for sulfate (74%), chloride (88%) and fluoride (73%); however, the associated LCS recoveries are within criteria. No further action was taken.

The WG1584815-3 MS recoveries, performed on L2166695-65, are outside the acceptance criteria for sulfate (60%), chloride (88%) and fluoride (45%); however, the associated LCS recoveries within criteria. No further action was taken.

The WG1585269-3 MS recoveries, performed on L2166695-75, are outside the acceptance criteria for sulfate (64%), chloride (86%) and fluoride (73%); however, the associated LCS recoveries are within criteria. No further action was taken.

Project Name:	ALCOA MASSENA EAST	**Lab Number:**	L2166695
Project Number:	Not Specified	**Report Date:**	12/23/21

Case Narrative (continued)

The WG1585270-3 MS recovery, performed on L2166695-87, is outside the acceptance criteria for fluoride (114%); however, the associated LCS recovery is within criteria. No further action was taken.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative Date: 12/23/21

METALS

Project Name: ALCOA MASSENA EAST
Lab Number: L2166695
Project Number: Not Specified
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-10
Client ID: MW-12S_0.45_20211130
Sample Location: MASSENA, NY
Date Collected: 11/30/21 12:33
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00415	J	mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 18:28	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Lab Number: L2166695
Project Number: Not Specified
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-11
Client ID: MW-13S_0.45_20211130
Sample Location: MASSENA, NY
Date Collected: 11/30/21 12:10
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00514	J	mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 17:34	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Lab Number: L2166695
Project Number: Not Specified
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-12
Client ID: MW-15S-87_0.45_20211130
Sample Location: MASSENA, NY
Date Collected: 11/30/21 12:23
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00510	J	mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 17:39	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Lab Number: L2166695
Project Number: Not Specified
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-13
Client ID: MW-26S_0.45_20211130
Sample Location: MASSENA, NY
Date Collected: 11/30/21 12:40
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00695	J	mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 17:43	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Lab Number: L2166695
Project Number: Not Specified
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-14
Client ID: MW-28S_0.45_20211130
Sample Location: MASSENA, NY
Date Collected: 11/30/21 12:50
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00758	J	mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 18:33	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Lab Number: L2166695
Project Number: Not Specified
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-15
Client ID: DUP_MW-28S_0.45_20211130
Sample Location: MASSENA, NY
Date Collected: 11/30/21 12:50
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0116		mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 18:38	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Lab Number: L2166695
Project Number: Not Specified
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-16
Client ID: MW-30S_0.45_20211130
Sample Location: MASSENA, NY
Date Collected: 11/30/21 12:05
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00559	J	mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 18:42	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Lab Number: L2166695
Project Number: Not Specified
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-19
Client ID: AL_BLANK_0.45_20211201
Sample Location: MASSENA, NY
Date Collected: 12/01/21 08:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 19:01	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Lab Number: L2166695
Project Number: Not Specified
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-52
Client ID: MW-16S_0.45_20211201
Sample Location: MASSENA, NY
Date Collected: 12/01/21 12:32
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 19:06	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Lab Number: L2166695
Project Number: Not Specified
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-53
Client ID: MW-17S_0.45_20211201
Sample Location: MASSENA, NY
Date Collected: 12/01/21 12:45
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 19:11	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Lab Number: L2166695
Project Number: Not Specified
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-54
Client ID: MW-18S_0.45_20211201
Sample Location: MASSENA, NY
Date Collected: 12/01/21 10:15
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0248		mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 19:16	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Lab Number: L2166695
Project Number: Not Specified
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-55
Client ID: MW-19S_0.45_20211201
Sample Location: MASSENA, NY
Date Collected: 12/01/21 12:14
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 19:20	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Lab Number: L2166695
Project Number: Not Specified
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-56
Client ID: MW-27S_0.45_20211201
Sample Location: MASSENA, NY
Date Collected: 12/01/21 10:03
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00554	J	mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 19:25	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Lab Number: L2166695
Project Number: Not Specified
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-58
Client ID: MW-35SR_0.45_20211201
Sample Location: MASSENA, NY
Date Collected: 12/01/21 11:40
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00340	J	mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 19:30	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Lab Number: L2166695
Project Number: Not Specified
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-59
Client ID: MW-42_0.45_20211201
Sample Location: MASSENA, NY
Date Collected: 12/01/21 11:47
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00928	J	mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 19:34	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Lab Number: L2166695
Project Number: Not Specified
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-60
Client ID: PZ-44_0.45_20211201
Sample Location: MASSENA, NY
Date Collected: 12/01/21 13:00
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00341	J	mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 19:39	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Lab Number: L2166695
Project Number: Not Specified
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-64
Client ID: MW-18S_0.20_20211201
Sample Location: MASSENA, NY
Date Collected: 12/01/21 10:15
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0280		mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 19:44	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Lab Number: L2166695
Project Number: Not Specified
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-74
Client ID: MW-18S_0.10_20211201
Sample Location: MASSENA, NY
Date Collected: 12/01/21 10:15
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0276		mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 20:39	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Lab Number: L2166695
Project Number: Not Specified
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-81
Client ID: PZ-46_0.45_20211201
Sample Location: MASSENA, NY
Date Collected: 12/01/21 12:54
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00735	J	mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 20:44	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Lab Number: L2166695
Project Number: Not Specified
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-88
Client ID: DUP_MW-18S_0.45_20211201
Sample Location: MASSENA, NY
Date Collected: 12/01/21 10:15
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0189		mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 20:49	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified
Lab Number: L2166695
Report Date: 12/23/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 10-16,19,52-56,58-60,64,74,81,88 Batch: WG1580007-1										
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	12/10/21 17:15	12/16/21 18:05	1,6020B	SV

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: ALCOA MASSENA EAST

Project Number: Not Specified

Lab Number: L2166695

Report Date: 12/23/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10-16,19,52-56,58-60,64,74,81,88 Batch: WG1580007-2								
Aluminum, Total	99		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10-16,19,52-56,58-60,64,74,81,88 QC Batch ID: WG1580007-3 QC Sample: L2166695-10 Client ID: MW-12S_0.45_20211130												
Aluminum, Total	0.00415J	2	1.92	96		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: ALCOA MASSENA EAST

Project Number: Not Specified

Lab Number: L2166695

Report Date: 12/23/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10-16,19,52-56,58-60,64,74,81,88 QC Batch ID: WG1580007-4 QC Sample: L2166695-10 Client ID: MW-12S_0.45_20211130						
Aluminum, Total	0.00415J	0.00602J	mg/l	NC		20

INORGANICS
&
MISCELLANEOUS

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-01
Client ID: MW-12S_TOTAL_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:33
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	72.2		mg/l	12.5	2.10	25	-	12/14/21 17:26	44,300.0	SH
Fluoride	13.6		mg/l	1.25	0.925	25	-	12/14/21 17:26	44,300.0	SH
Sulfate	968.		mg/l	25.0	11.4	25	-	12/14/21 17:26	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-02
Client ID: MW-13S_TOTAL_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:10
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	78.7		mg/l	12.5	2.10	25	-	12/14/21 17:37	44,300.0	SH
Fluoride	2.20		mg/l	1.25	0.925	25	-	12/14/21 17:37	44,300.0	SH
Sulfate	3060		mg/l	100	45.4	100	-	12/14/21 22:21	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-03
Client ID: MW-15S-87_TOTAL_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:23
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	1.57		mg/l	0.500	0.083	1	-	12/14/21 22:55	44,300.0	SH
Fluoride	3.61		mg/l	0.500	0.370	10	-	12/14/21 23:06	44,300.0	SH
Sulfate	149.		mg/l	10.0	4.54	10	-	12/14/21 23:06	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-04
Client ID: MW-26S_TOTAL_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:40
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	41.3		mg/l	0.500	0.083	1	-	12/14/21 23:17	44,300.0	SH
Fluoride	5.35		mg/l	0.500	0.370	10	-	12/14/21 23:28	44,300.0	SH
Sulfate	186.		mg/l	10.0	4.54	10	-	12/14/21 23:28	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-05
Client ID: MW-28S_TOTAL_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:50
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	2.76		mg/l	0.075	0.027	15	12/10/21 14:40	12/13/21 09:59	121,4500CN-CE	CS
Anions by Ion Chromatography - Westborough Lab										
Chloride	52.3		mg/l	5.00	0.839	10	-	12/14/21 22:11	44,300.0	SH
Fluoride	13.3		mg/l	0.500	0.370	10	-	12/14/21 22:11	44,300.0	SH
Sulfate	170.		mg/l	10.0	4.54	10	-	12/14/21 22:11	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified
Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-06
Client ID: DUP_MW-28S_TOTAL_20211130
Sample Location: MASSENA, NY
Sample Depth:
Matrix: Water
Date Collected: 11/30/21 12:50
Date Received: 12/03/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	52.8		mg/l	5.00	0.839	10	-	12/14/21 23:38	44,300.0	SH
Fluoride	13.6		mg/l	0.500	0.370	10	-	12/14/21 23:38	44,300.0	SH
Sulfate	173.		mg/l	10.0	4.54	10	-	12/14/21 23:38	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-07
Client ID: MW-30S_TOTAL_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:05
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	3.19	J	mg/l	5.00	0.839	10	-	12/14/21 23:49	44,300.0	SH
Fluoride	5.25		mg/l	0.500	0.370	10	-	12/14/21 23:49	44,300.0	SH
Sulfate	197.		mg/l	10.0	4.54	10	-	12/14/21 23:49	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-08
Client ID: MW-2303_TOTAL_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:55
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	2.83		mg/l	0.075	0.027	15	12/10/21 14:40	12/13/21 10:00	121,4500CN-CE	CS

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-10
Client ID: MW-12S_0.45_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:33
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	69.7		mg/l	12.5	2.10	25	-	12/14/21 19:38	44,300.0	SH
Fluoride	13.2		mg/l	1.25	0.925	25	-	12/14/21 19:38	44,300.0	SH
Sulfate	937.		mg/l	25.0	11.4	25	-	12/14/21 19:38	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-11
Client ID: MW-13S_0.45_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:10
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	77.5		mg/l	12.5	2.10	25	-	12/14/21 19:48	44,300.0	SH
Fluoride	1.88		mg/l	1.25	0.925	25	-	12/14/21 19:48	44,300.0	SH
Sulfate	3120		mg/l	100	45.4	100	-	12/15/21 00:00	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-12
Client ID: MW-15S-87_0.45_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:23
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	1.58		mg/l	0.500	0.083	1	-	12/15/21 00:11	44,300.0	SH
Fluoride	3.37		mg/l	0.500	0.370	10	-	12/15/21 00:22	44,300.0	SH
Sulfate	148.		mg/l	10.0	4.54	10	-	12/15/21 00:22	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-13
Client ID: MW-26S_0.45_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:40
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	41.6		mg/l	0.500	0.083	1	-	12/15/21 01:28	44,300.0	SH
Fluoride	5.28		mg/l	0.500	0.370	10	-	12/15/21 01:39	44,300.0	SH
Sulfate	187.		mg/l	10.0	4.54	10	-	12/15/21 01:39	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-14
Client ID: MW-28S_0.45_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:50
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	2.73		mg/l	0.075	0.027	15	12/10/21 14:40	12/13/21 10:02	121,4500CN-CE	CS
Anions by Ion Chromatography - Westborough Lab										
Chloride	52.8		mg/l	5.00	0.839	10	-	12/15/21 01:49	44,300.0	SH
Fluoride	13.6		mg/l	0.500	0.370	10	-	12/15/21 01:49	44,300.0	SH
Sulfate	172.		mg/l	10.0	4.54	10	-	12/15/21 01:49	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-15
Client ID: DUP_MW-28S_0.45_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:50
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	52.9		mg/l	5.00	0.839	10	-	12/15/21 01:17	44,300.0	SH
Fluoride	13.7		mg/l	0.500	0.370	10	-	12/15/21 01:17	44,300.0	SH
Sulfate	172.		mg/l	10.0	4.54	10	-	12/15/21 01:17	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-16
Client ID: MW-30S_0.45_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:05
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	2.06		mg/l	0.500	0.083	1	-	12/15/21 02:00	44,300.0	SH
Fluoride	4.90		mg/l	0.500	0.370	10	-	12/15/21 02:11	44,300.0	SH
Sulfate	198.		mg/l	10.0	4.54	10	-	12/15/21 02:11	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-17
Client ID: MW-2303_0.45_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:55
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	3.19		mg/l	0.075	0.027	15	12/10/21 14:40	12/13/21 10:03	121,4500CN-CE	CS

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-18
Client ID: IC_BLANK_0.45_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 08:00
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	0.184	J	mg/l	0.500	0.083	1	-	12/15/21 02:22	44,300.0	SH
Fluoride	ND		mg/l	0.050	0.037	1	-	12/15/21 02:22	44,300.0	SH
Sulfate	ND		mg/l	1.00	0.454	1	-	12/15/21 02:22	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-20
Client ID: MW-12S_0.20_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:33
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	70.1		mg/l	12.5	2.10	25	-	12/14/21 20:54	44,300.0	SH
Fluoride	12.8		mg/l	1.25	0.925	25	-	12/14/21 20:54	44,300.0	SH
Sulfate	950.		mg/l	25.0	11.4	25	-	12/14/21 20:54	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-21
Client ID: MW-13S_0.20_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:10
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	77.7		mg/l	12.5	2.10	25	-	12/14/21 21:05	44,300.0	SH
Fluoride	2.10		mg/l	1.25	0.925	25	-	12/14/21 21:05	44,300.0	SH
Sulfate	3090		mg/l	100	45.4	100	-	12/15/21 02:55	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-22
Client ID: MW-15S-87_0.20_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:23
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	1.57		mg/l	0.500	0.083	1	-	12/15/21 03:06	44,300.0	SH
Fluoride	3.46		mg/l	0.500	0.370	10	-	12/15/21 03:17	44,300.0	SH
Sulfate	151.		mg/l	10.0	4.54	10	-	12/15/21 03:17	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-23
Client ID: MW-26S_0.20_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:40
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	41.5		mg/l	0.500	0.083	1	-	12/15/21 03:28	44,300.0	SH
Fluoride	5.24		mg/l	0.500	0.370	10	-	12/15/21 03:39	44,300.0	SH
Sulfate	186.		mg/l	10.0	4.54	10	-	12/15/21 03:39	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-24
Client ID: MW-28S_0.20_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:50
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	2.88		mg/l	0.075	0.027	15	12/10/21 14:40	12/13/21 10:04	121,4500CN-CE	CS
Anions by Ion Chromatography - Westborough Lab										
Chloride	52.2		mg/l	5.00	0.839	10	-	12/15/21 03:50	44,300.0	SH
Fluoride	13.4		mg/l	0.500	0.370	10	-	12/15/21 03:50	44,300.0	SH
Sulfate	170.		mg/l	10.0	4.54	10	-	12/15/21 03:50	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-25
Client ID: DUP_MW-28S_0.20_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:50
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	54.6		mg/l	5.00	0.839	10	-	12/15/21 18:09	44,300.0	AT
Fluoride	13.6		mg/l	0.500	0.370	10	-	12/15/21 18:09	44,300.0	AT
Sulfate	178.		mg/l	10.0	4.54	10	-	12/15/21 18:09	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-26
Client ID: MW-30S_0.20_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:05
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	2.10		mg/l	0.500	0.083	1	-	12/15/21 18:20	44,300.0	AT
Fluoride	5.20		mg/l	0.500	0.370	10	-	12/15/21 18:31	44,300.0	AT
Sulfate	212.		mg/l	10.0	4.54	10	-	12/15/21 18:31	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-27
Client ID: MW-2303_0.20_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:55
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	2.75		mg/l	0.075	0.027	15	12/10/21 14:40	12/13/21 10:06	121,4500CN-CE	CS

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-28
Client ID: IC_BLANK_0.20_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 08:00
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	0.180	J	mg/l	0.500	0.083	1	-	12/15/21 19:04	44,300.0	AT
Fluoride	ND		mg/l	0.050	0.037	1	-	12/15/21 19:04	44,300.0	AT
Sulfate	ND		mg/l	1.00	0.454	1	-	12/15/21 19:04	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-29
Client ID: TCN_BLANK_0.20_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 08:45
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	0.050		mg/l	0.005	0.001	1	12/14/21 03:40	12/14/21 11:19	121,4500CN-CE	CS

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-30
Client ID: MW-12S_0.10_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:33
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	78.1		mg/l	5.00	0.839	10	-	12/15/21 19:37	44,300.0	AT
Fluoride	14.8		mg/l	0.500	0.370	10	-	12/15/21 19:37	44,300.0	AT
Sulfate	933.		mg/l	50.0	22.7	50	-	12/16/21 02:44	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-31
Client ID: MW-13S_0.10_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:10
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	85.2		mg/l	5.00	0.839	10	-	12/15/21 19:58	44,300.0	AT
Fluoride	1.62		mg/l	0.050	0.037	1	-	12/15/21 19:47	44,300.0	AT
Sulfate	2920		mg/l	100	45.4	100	-	12/16/21 02:55	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-32
Client ID: MW-15S-87_0.10_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:23
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	1.62		mg/l	0.500	0.083	1	-	12/15/21 20:09	44,300.0	AT
Fluoride	3.75		mg/l	0.500	0.370	10	-	12/15/21 20:20	44,300.0	AT
Sulfate	163.		mg/l	10.0	4.54	10	-	12/15/21 20:20	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-33
Client ID: MW-26S_0.10_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:40
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	41.6		mg/l	0.500	0.083	1	-	12/15/21 20:31	44,300.0	AT
Fluoride	5.60		mg/l	0.500	0.370	10	-	12/15/21 20:42	44,300.0	AT
Sulfate	199.		mg/l	10.0	4.54	10	-	12/15/21 20:42	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-34
Client ID: MW-28S_0.10_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:50
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	2.45		mg/l	0.075	0.027	15	12/10/21 14:40	12/13/21 10:07	121,4500CN-CE	CS
Anions by Ion Chromatography - Westborough Lab										
Chloride	54.2		mg/l	5.00	0.839	10	-	12/15/21 21:26	44,300.0	AT
Fluoride	13.5		mg/l	0.500	0.370	10	-	12/15/21 21:26	44,300.0	AT
Sulfate	179.		mg/l	10.0	4.54	10	-	12/15/21 21:26	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-35
Client ID: DUP_MW-28S_0.10_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:50
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	58.0		mg/l	5.00	0.839	10	-	12/15/21 21:48	44,300.0	AT
Fluoride	14.6		mg/l	0.500	0.370	10	-	12/15/21 21:48	44,300.0	AT
Sulfate	190.		mg/l	10.0	4.54	10	-	12/15/21 21:48	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-36
Client ID: MW-30S_0.10_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:05
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	2.12		mg/l	0.500	0.083	1	-	12/15/21 21:59	44,300.0	AT
Fluoride	5.17		mg/l	0.500	0.370	10	-	12/15/21 22:09	44,300.0	AT
Sulfate	209.		mg/l	10.0	4.54	10	-	12/15/21 22:09	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-37
Client ID: MW-2303_0.10_20211130
Sample Location: MASSENA, NY

Date Collected: 11/30/21 12:55
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	3.14		mg/l	0.075	0.027	15	12/10/21 14:40	12/13/21 10:08	121,4500CN-CE	CS

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-38
Client ID: IC_BLANK_0.10_20211130
Sample Location: MASSENA, NY

Date Collected: 12/01/21 08:00
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	0.192	J	mg/l	0.500	0.083	1	-	12/15/21 22:20	44,300.0	AT
Fluoride	ND		mg/l	0.050	0.037	1	-	12/15/21 22:20	44,300.0	AT
Sulfate	0.455	J	mg/l	1.00	0.454	1	-	12/15/21 22:20	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-39
Client ID: TCN_BLANK_0.10_20211130
Sample Location: MASSENA, NY

Date Collected: 12/01/21 08:45
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	0.179		mg/l	0.005	0.001	1	12/14/21 03:40	12/14/21 11:22	121,4500CN-CE	CS

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-40
Client ID: MW-35SR_TOTAL_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 11:40
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	9.04		mg/l	0.500	0.083	1	-	12/15/21 22:42	44,300.0	AT
Fluoride	1.02		mg/l	0.050	0.037	1	-	12/15/21 22:42	44,300.0	AT
Sulfate	590.		mg/l	100	45.4	100	-	12/15/21 22:54	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-41
Client ID: MW-42_TOTAL_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 11:47
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/l	0.005	0.001	1	12/14/21 03:40	12/14/21 11:23	121,4500CN-CE	CS
Anions by Ion Chromatography - Westborough Lab										
Chloride	244.		mg/l	5.00	0.839	10	-	12/15/21 23:38	44,300.0	AT
Fluoride	26.2		mg/l	0.500	0.370	10	-	12/15/21 23:38	44,300.0	AT
Sulfate	1190		mg/l	100	45.4	100	-	12/16/21 03:06	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-42
Client ID: MW-16S_TOTAL_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 12:32
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	109.		mg/l	5.00	0.839	10	-	12/16/21 00:00	44,300.0	AT
Fluoride	8.90		mg/l	0.500	0.370	10	-	12/16/21 00:00	44,300.0	AT
Sulfate	169.		mg/l	10.0	4.54	10	-	12/16/21 00:00	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-43
Client ID: MW-19S_TOTAL_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 12:14
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	14.7		mg/l	0.500	0.083	1	-	12/16/21 00:11	44,300.0	AT
Fluoride	3.66		mg/l	0.500	0.370	10	-	12/16/21 00:22	44,300.0	AT
Sulfate	71.5		mg/l	1.00	0.454	1	-	12/16/21 00:11	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-44
Client ID: MW-34S_TOTAL_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 11:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/l	0.005	0.001	1	12/14/21 03:40	12/14/21 11:24	121,4500CN-CE	CS

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-45
Client ID: MW-03S_TOTAL_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 12:02
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	1.76		mg/l	0.050	0.018	10	12/14/21 09:25	12/14/21 14:21	121,4500CN-CE	CS

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-46
Client ID: MW-27S_TOTAL_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 10:03
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	0.150		mg/l	0.005	0.001	1	12/14/21 03:40	12/14/21 11:25	121,4500CN-CE	CS
Anions by Ion Chromatography - Westborough Lab										
Chloride	2690		mg/l	50.0	8.39	100	-	12/16/21 18:30	44,300.0	AT
Fluoride	2.34		mg/l	0.050	0.037	1	-	12/16/21 00:33	44,300.0	AT
Sulfate	323.		mg/l	10.0	4.54	10	-	12/16/21 00:44	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-47
Client ID: MW-17S_TOTAL_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 12:45
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	42.8		mg/l	0.500	0.083	1	-	12/16/21 05:06	44,300.0	AT
Fluoride	0.955		mg/l	0.050	0.037	1	-	12/16/21 05:06	44,300.0	AT
Sulfate	136.		mg/l	10.0	4.54	10	-	12/16/21 05:17	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-48
Client ID: PZ-46_TOTAL_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 12:54
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	3.37		mg/l	0.500	0.083	1	-	12/16/21 05:28	44,300.0	AT
Fluoride	2.34		mg/l	0.050	0.037	1	-	12/16/21 05:28	44,300.0	AT
Sulfate	1520		mg/l	100	45.4	100	-	12/16/21 20:30	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-49
Client ID: PZ-44_TOTAL_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 13:00
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	245.		mg/l	5.00	0.839	10	-	12/16/21 06:00	44,300.0	AT
Fluoride	3.00		mg/l	0.050	0.037	1	-	12/16/21 05:49	44,300.0	AT
Sulfate	1110		mg/l	100	45.4	100	-	12/16/21 20:41	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-50
Client ID: MW-18S_TOTAL_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 10:15
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	0.083		mg/l	0.005	0.001	1	12/14/21 03:40	12/14/21 11:26	121,4500CN-CE	CS
Anions by Ion Chromatography - Westborough Lab										
Chloride	111.		mg/l	5.00	0.839	10	-	12/16/21 06:22	44,300.0	AT
Fluoride	51.8		mg/l	2.50	1.85	50	-	12/16/21 22:41	44,300.0	AT
Sulfate	632.		mg/l	10.0	4.54	10	-	12/16/21 06:22	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-51
Client ID: MW-03S_0.45_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 12:02
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	1.92		mg/l	0.050	0.018	10	12/14/21 09:25	12/14/21 14:22	121,4500CN-CE	CS

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-52
Client ID: MW-16S_0.45_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 12:32
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	103.		mg/l	5.00	0.839	10	-	12/16/21 06:44	44,300.0	AT
Fluoride	8.24		mg/l	0.500	0.370	10	-	12/16/21 06:44	44,300.0	AT
Sulfate	160.		mg/l	10.0	4.54	10	-	12/16/21 06:44	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-53
Client ID: MW-17S_0.45_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 12:45
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	43.1		mg/l	0.500	0.083	1	-	12/16/21 07:17	44,300.0	AT
Fluoride	0.875		mg/l	0.050	0.037	1	-	12/16/21 07:17	44,300.0	AT
Sulfate	136.		mg/l	10.0	4.54	10	-	12/16/21 07:28	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-54
Client ID: MW-18S_0.45_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 10:15
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/l	0.005	0.001	1	12/14/21 03:40	12/14/21 11:27	121,4500CN-CE	CS
Anions by Ion Chromatography - Westborough Lab										
Chloride	111.		mg/l	5.00	0.839	10	-	12/16/21 07:50	44,300.0	AT
Fluoride	51.0		mg/l	2.50	1.85	50	-	12/16/21 22:52	44,300.0	AT
Sulfate	633.		mg/l	10.0	4.54	10	-	12/16/21 07:50	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-55
Client ID: MW-19S_0.45_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 12:14
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	14.8		mg/l	0.500	0.083	1	-	12/16/21 18:08	44,300.0	AT
Fluoride	3.35		mg/l	0.050	0.037	1	-	12/16/21 18:08	44,300.0	AT
Sulfate	71.8		mg/l	1.00	0.454	1	-	12/16/21 18:08	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-56
Client ID: MW-27S_0.45_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 10:03
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	0.001	J	mg/l	0.005	0.001	1	12/14/21 03:40	12/14/21 11:28	121,4500CN-CE	CS
Anions by Ion Chromatography - Westborough Lab										
Chloride	2700		mg/l	50.0	8.39	100	-	12/17/21 00:52	44,300.0	AT
Fluoride	2.32		mg/l	0.050	0.037	1	-	12/16/21 19:03	44,300.0	AT
Sulfate	291.		mg/l	10.0	4.54	10	-	12/16/21 19:14	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-57
Client ID: MW-34S_0.45_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 11:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	0.002	J	mg/l	0.005	0.001	1	12/14/21 03:40	12/14/21 11:29	121,4500CN-CE	CS

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-58
Client ID: MW-35SR_0.45_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 11:40
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	10.2		mg/l	0.500	0.083	1	-	12/16/21 19:24	44,300.0	AT
Fluoride	0.970		mg/l	0.050	0.037	1	-	12/16/21 19:24	44,300.0	AT
Sulfate	534.		mg/l	10.0	4.54	10	-	12/16/21 19:35	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-59
Client ID: MW-42_0.45_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 11:47
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/l	0.005	0.001	1	12/14/21 03:40	12/14/21 11:30	121,4500CN-CE	CS
Anions by Ion Chromatography - Westborough Lab										
Chloride	249.		mg/l	5.00	0.839	10	-	12/16/21 19:57	44,300.0	AT
Fluoride	37.1		mg/l	0.500	0.370	10	-	12/16/21 19:57	44,300.0	AT
Sulfate	1220		mg/l	100	45.4	100	-	12/17/21 01:03	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-60
Client ID: PZ-44_0.45_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 13:00
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	243.		mg/l	5.00	0.839	10	-	12/16/21 20:19	44,300.0	AT
Fluoride	3.40		mg/l	0.500	0.370	10	-	12/16/21 20:19	44,300.0	AT
Sulfate	1100		mg/l	100	45.4	100	-	12/17/21 02:52	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-61
Client ID: MW-03S_0.20_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 12:02
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	1.92		mg/l	0.050	0.018	10	12/14/21 09:25	12/14/21 14:23	121,4500CN-CE	CS

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-62
Client ID: MW-16S_0.20_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 12:32
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	102.		mg/l	5.00	0.839	10	-	12/16/21 21:25	44,300.0	AT
Fluoride	8.14		mg/l	0.500	0.370	10	-	12/16/21 21:25	44,300.0	AT
Sulfate	158.		mg/l	10.0	4.54	10	-	12/16/21 21:25	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-63
Client ID: MW-17S_0.20_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 12:45
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	42.6		mg/l	0.500	0.083	1	-	12/16/21 21:36	44,300.0	AT
Fluoride	0.838		mg/l	0.050	0.037	1	-	12/16/21 21:36	44,300.0	AT
Sulfate	135.		mg/l	10.0	4.54	10	-	12/16/21 21:46	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-64
Client ID: MW-18S_0.20_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 10:15
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	0.009		mg/l	0.005	0.001	1	12/14/21 03:40	12/14/21 11:34	121,4500CN-CE	CS
Anions by Ion Chromatography - Westborough Lab										
Chloride	115.		mg/l	5.00	0.839	10	-	12/16/21 22:08	44,300.0	AT
Fluoride	51.2		mg/l	2.50	1.85	50	-	12/17/21 03:03	44,300.0	AT
Sulfate	658.		mg/l	10.0	4.54	10	-	12/16/21 22:08	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-65
Client ID: MW-19S_0.20_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 12:14
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	14.8		mg/l	0.500	0.083	1	-	12/16/21 22:19	44,300.0	AT
Fluoride	3.39		mg/l	0.050	0.037	1	-	12/16/21 22:19	44,300.0	AT
Sulfate	70.4		mg/l	1.00	0.454	1	-	12/16/21 22:19	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-66
Client ID: MW-27S_0.20_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 10:03
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	0.005		mg/l	0.005	0.001	1	12/14/21 03:40	12/14/21 11:35	121,4500CN-CE	CS
Anions by Ion Chromatography - Westborough Lab										
Chloride	2710		mg/l	50.0	8.39	100	-	12/17/21 02:20	44,300.0	AT
Fluoride	2.28		mg/l	0.050	0.037	1	-	12/16/21 23:25	44,300.0	AT
Sulfate	315.		mg/l	10.0	4.54	10	-	12/16/21 23:36	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-67
Client ID: MW-34S_0.20_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 11:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	0.068		mg/l	0.005	0.001	1	12/14/21 03:40	12/14/21 11:36	121,4500CN-CE	CS

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-68
Client ID: MW-35SR_0.20_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 11:40
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	9.77		mg/l	0.500	0.083	1	-	12/16/21 23:47	44,300.0	AT
Fluoride	1.02		mg/l	0.050	0.037	1	-	12/16/21 23:47	44,300.0	AT
Sulfate	523.		mg/l	10.0	4.54	10	-	12/16/21 23:58	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-69
Client ID: MW-42_0.20_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 11:47
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	0.085		mg/l	0.005	0.001	1	12/14/21 03:40	12/14/21 11:37	121,4500CN-CE	CS
Anions by Ion Chromatography - Westborough Lab										
Chloride	253.		mg/l	5.00	0.839	10	-	12/17/21 00:20	44,300.0	AT
Fluoride	37.7		mg/l	0.500	0.370	10	-	12/17/21 00:20	44,300.0	AT
Sulfate	1210		mg/l	100	45.4	100	-	12/17/21 22:12	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-70
Client ID: PZ-44_0.20_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 13:00
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	263.		mg/l	5.00	0.839	10	-	12/17/21 00:41	44,300.0	AT
Fluoride	2.79		mg/l	0.050	0.037	1	-	12/17/21 00:30	44,300.0	AT
Sulfate	1100		mg/l	100	45.4	100	-	12/17/21 22:23	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-71
Client ID: MW-03S_0.10_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 12:02
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	1.91		mg/l	0.050	0.018	10	12/14/21 09:25	12/14/21 14:24	121,4500CN-CE	CS

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-72
Client ID: MW-16S_0.10_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 12:32
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	103.		mg/l	5.00	0.839	10	-	12/17/21 03:47	44,300.0	AT
Fluoride	8.04		mg/l	0.500	0.370	10	-	12/17/21 03:47	44,300.0	AT
Sulfate	158.		mg/l	10.0	4.54	10	-	12/17/21 03:47	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-73
Client ID: MW-17S_0.10_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 12:45
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	42.9		mg/l	0.500	0.083	1	-	12/19/21 18:12	44,300.0	SH
Fluoride	0.924		mg/l	0.050	0.037	1	-	12/19/21 18:12	44,300.0	SH
Sulfate	138.		mg/l	10.0	4.54	10	-	12/19/21 18:23	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-74
Client ID: MW-18S_0.10_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 10:15
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	0.011		mg/l	0.005	0.001	1	12/14/21 03:40	12/14/21 11:39	121,4500CN-CE	CS
Anions by Ion Chromatography - Westborough Lab										
Chloride	110.		mg/l	12.5	2.10	25	-	12/19/21 13:50	44,300.0	SH
Fluoride	32.2		mg/l	1.25	0.925	25	-	12/19/21 13:50	44,300.0	SH
Sulfate	462.		mg/l	25.0	11.4	25	-	12/19/21 13:50	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-75
Client ID: MW-19S_0.10_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 12:14
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	15.0		mg/l	0.500	0.083	1	-	12/19/21 18:01	44,300.0	SH
Fluoride	3.43		mg/l	0.050	0.037	1	-	12/19/21 18:01	44,300.0	SH
Sulfate	70.5		mg/l	1.00	0.454	1	-	12/19/21 18:01	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-76
Client ID: MW-27S_0.10_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 10:03
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	0.006		mg/l	0.005	0.001	1	12/14/21 03:40	12/14/21 11:40	121,4500CN-CE	CS
Anions by Ion Chromatography - Westborough Lab										
Chloride	2640		mg/l	50.0	8.39	100	-	12/20/21 16:56	44,300.0	SH
Fluoride	3.78		mg/l	2.50	1.85	50	-	12/19/21 18:34	44,300.0	SH
Sulfate	290.		mg/l	50.0	22.7	50	-	12/19/21 18:34	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-77
Client ID: MW-34S_0.10_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 11:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	0.036		mg/l	0.005	0.001	1	12/14/21 03:40	12/14/21 11:41	121,4500CN-CE	CS

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-78
Client ID: MW-35SR_0.10_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 11:40
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	9.10		mg/l	0.500	0.083	1	-	12/19/21 19:39	44,300.0	SH
Fluoride	1.09		mg/l	0.050	0.037	1	-	12/19/21 19:39	44,300.0	SH
Sulfate	511.		mg/l	10.0	4.54	10	-	12/19/21 19:50	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-79
Client ID: MW-42_0.10_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 11:47
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	0.204		mg/l	0.005	0.001	1	12/14/21 09:25	12/14/21 14:27	121,4500CN-CE	CS
Anions by Ion Chromatography - Westborough Lab										
Chloride	234.		mg/l	12.5	2.10	25	-	12/19/21 14:34	44,300.0	SH
Fluoride	34.1		mg/l	1.25	0.925	25	-	12/19/21 14:34	44,300.0	SH
Sulfate	1180		mg/l	25.0	11.4	25	-	12/19/21 14:34	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-80
Client ID: PZ-44_0.10_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 13:00
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	225.		mg/l	12.5	2.10	25	-	12/19/21 15:06	44,300.0	SH
Fluoride	3.35		mg/l	1.25	0.925	25	-	12/19/21 15:06	44,300.0	SH
Sulfate	1060		mg/l	25.0	11.4	25	-	12/19/21 15:06	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-81
Client ID: PZ-46_0.45_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 12:54
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	6.92	J	mg/l	12.5	2.10	25	-	12/19/21 15:17	44,300.0	SH
Fluoride	2.77		mg/l	1.25	0.925	25	-	12/19/21 15:17	44,300.0	SH
Sulfate	1460		mg/l	25.0	11.4	25	-	12/19/21 15:17	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-82
Client ID: PZ-46_0.20_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 12:54
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	6.60	J	mg/l	12.5	2.10	25	-	12/19/21 15:28	44,300.0	SH
Fluoride	2.81		mg/l	1.25	0.925	25	-	12/19/21 15:28	44,300.0	SH
Sulfate	1480		mg/l	25.0	11.4	25	-	12/19/21 15:28	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-83
Client ID: PZ-46_0.10_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 12:54
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	6.82	J	mg/l	12.5	2.10	25	-	12/19/21 15:39	44,300.0	SH
Fluoride	2.80		mg/l	1.25	0.925	25	-	12/19/21 15:39	44,300.0	SH
Sulfate	1470		mg/l	25.0	11.4	25	-	12/19/21 15:39	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified
Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-84
Client ID: IC_BLANK_TOTAL_20211201
Sample Location: MASSENA, NY
Sample Depth:
Matrix: Water
Date Collected: 12/01/21 08:00
Date Received: 12/03/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	0.218	J	mg/l	0.500	0.083	1	-	12/19/21 20:45	44,300.0	SH
Fluoride	ND		mg/l	0.050	0.037	1	-	12/19/21 20:45	44,300.0	SH
Sulfate	ND		mg/l	1.00	0.454	1	-	12/19/21 20:45	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-85
Client ID: TCN_BLANK_TOTAL_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 08:45
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/l	0.005	0.001	1	12/14/21 03:40	12/14/21 11:42	121,4500CN-CE	CS

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-86
Client ID: TCN_BLANK_0.45_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 08:45
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/l	0.005	0.001	1	12/14/21 03:40	12/14/21 11:44	121,4500CN-CE	CS

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified
Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-87
Client ID: DUP_MW-18S_TOTAL_20211201
Sample Location: MASSENA, NY
Sample Depth:
Matrix: Water
Date Collected: 12/01/21 10:15
Date Received: 12/03/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	105.		mg/l	5.00	0.839	10	-	12/19/21 19:28	44,300.0	SH
Fluoride	16.6		mg/l	0.500	0.370	10	-	12/19/21 19:28	44,300.0	SH
Sulfate	350.		mg/l	10.0	4.54	10	-	12/19/21 19:28	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-88
Client ID: DUP_MW-18S_0.45_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 10:15
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	109.		mg/l	5.00	0.839	10	-	12/19/21 20:01	44,300.0	SH
Fluoride	17.0		mg/l	0.500	0.370	10	-	12/19/21 20:01	44,300.0	SH
Sulfate	348.		mg/l	10.0	4.54	10	-	12/19/21 20:01	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-89
Client ID: DUP_MW-18S_0.20_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 10:15
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	105.		mg/l	5.00	0.839	10	-	12/19/21 20:12	44,300.0	SH
Fluoride	16.4		mg/l	0.500	0.370	10	-	12/19/21 20:12	44,300.0	SH
Sulfate	334.		mg/l	10.0	4.54	10	-	12/19/21 20:12	44,300.0	SH

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

SAMPLE RESULTS

Lab ID: L2166695-90
Client ID: DUP_MW-18S_0.10_20211201
Sample Location: MASSENA, NY

Date Collected: 12/01/21 10:15
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	110.		mg/l	5.00	0.839	10	-	12/19/21 20:23	44,300.0	SH
Fluoride	17.1		mg/l	0.500	0.370	10	-	12/19/21 20:23	44,300.0	SH
Sulfate	349.		mg/l	10.0	4.54	10	-	12/19/21 20:23	44,300.0	SH

Project Name: ALCOA MASSENA EAST **Lab Number:** L2166695

Project Number: Not Specified **Report Date:** 12/23/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 05,08,14,17,24,27,34,37 Batch: WG1581644-1										
Cyanide, Total	ND		mg/l	0.005	0.001	1	12/10/21 14:40	12/13/21 09:56	121,4500CN-CE	CS
General Chemistry - Westborough Lab for sample(s): 29,39,41,44,46,50,54,56-57,59,64,66-67,69,74,76-77,85-86 Batch: WG1582813-1										
Cyanide, Total	ND		mg/l	0.005	0.001	1	12/14/21 13:15	12/14/21 16:10	121,4500CN-CE	CS
General Chemistry - Westborough Lab for sample(s): 45,51,61,71,79 Batch: WG1582860-1										
Cyanide, Total	ND		mg/l	0.005	0.001	1	12/14/21 09:25	12/14/21 13:27	121,4500CN-CE	CS
Anions by Ion Chromatography - Westborough Lab for sample(s): 01-07,10-12 Batch: WG1583365-1										
Chloride	0.181	J	mg/l	0.500	0.083	1	-	12/14/21 17:05	44,300.0	SH
Fluoride	ND		mg/l	0.050	0.037	1	-	12/14/21 17:05	44,300.0	SH
Sulfate	ND		mg/l	1.00	0.454	1	-	12/14/21 17:05	44,300.0	SH
Anions by Ion Chromatography - Westborough Lab for sample(s): 13-16,18,20-24 Batch: WG1583366-1										
Chloride	0.181	J	mg/l	0.500	0.083	1	-	12/14/21 17:05	44,300.0	SH
Fluoride	ND		mg/l	0.050	0.037	1	-	12/14/21 17:05	44,300.0	SH
Sulfate	ND		mg/l	1.00	0.454	1	-	12/14/21 17:05	44,300.0	SH
Anions by Ion Chromatography - Westborough Lab for sample(s): 25-26,28,30-33 Batch: WG1584353-1										
Chloride	0.193	J	mg/l	0.500	0.083	1	-	12/15/21 17:14	44,300.0	AT
Fluoride	ND		mg/l	0.050	0.037	1	-	12/15/21 17:14	44,300.0	AT
Sulfate	ND		mg/l	1.00	0.454	1	-	12/15/21 17:14	44,300.0	AT
Anions by Ion Chromatography - Westborough Lab for sample(s): 35-36,38,40-43,46-48 Batch: WG1584354-1										
Chloride	0.193	J	mg/l	0.500	0.083	1	-	12/15/21 17:14	44,300.0	AT
Fluoride	ND		mg/l	0.050	0.037	1	-	12/15/21 17:14	44,300.0	AT
Sulfate	ND		mg/l	1.00	0.454	1	-	12/15/21 17:14	44,300.0	AT
Anions by Ion Chromatography - Westborough Lab for sample(s): 34,49-50,52-54 Batch: WG1584357-1										
Chloride	0.199	J	mg/l	0.500	0.083	1	-	12/15/21 17:36	44,300.0	AT
Fluoride	ND		mg/l	0.050	0.037	1	-	12/15/21 17:36	44,300.0	AT
Sulfate	ND		mg/l	1.00	0.454	1	-	12/15/21 17:36	44,300.0	AT
Anions by Ion Chromatography - Westborough Lab for sample(s): 46,48-50,54,60,62-64 Batch: WG1584814-1										
Chloride	0.200	J	mg/l	0.500	0.083	1	-	12/16/21 17:35	44,300.0	AT
Fluoride	ND		mg/l	0.050	0.037	1	-	12/16/21 17:35	44,300.0	AT
Sulfate	ND		mg/l	1.00	0.454	1	-	12/16/21 17:35	44,300.0	AT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified
Lab Number: L2166695
Report Date: 12/23/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab for sample(s): 55-56,58-59,65-66,68-70,72 Batch: WG1584815-1										
Chloride	0.175	J	mg/l	0.500	0.083	1	-	12/16/21 17:13	44,300.0	AT
Fluoride	ND		mg/l	0.050	0.037	1	-	12/16/21 17:13	44,300.0	AT
Sulfate	ND		mg/l	1.00	0.454	1	-	12/16/21 17:13	44,300.0	AT
Anions by Ion Chromatography - Westborough Lab for sample(s): 69-70 Batch: WG1584862-1										
Chloride	0.182	J	mg/l	0.500	0.083	1	-	12/17/21 18:02	44,300.0	AT
Sulfate	ND		mg/l	1.00	0.454	1	-	12/17/21 18:02	44,300.0	AT
Anions by Ion Chromatography - Westborough Lab for sample(s): 73-76,78-83 Batch: WG1585269-1										
Chloride	0.201	J	mg/l	0.500	0.083	1	-	12/19/21 13:17	44,300.0	SH
Fluoride	ND		mg/l	0.050	0.037	1	-	12/19/21 13:17	44,300.0	SH
Sulfate	ND		mg/l	1.00	0.454	1	-	12/19/21 13:17	44,300.0	SH
Anions by Ion Chromatography - Westborough Lab for sample(s): 84,87-90 Batch: WG1585270-1										
Chloride	0.201	J	mg/l	0.500	0.083	1	-	12/19/21 13:17	44,300.0	SH
Fluoride	ND		mg/l	0.050	0.037	1	-	12/19/21 13:17	44,300.0	SH
Sulfate	ND		mg/l	1.00	0.454	1	-	12/19/21 13:17	44,300.0	SH
Anions by Ion Chromatography - Westborough Lab for sample(s): 76 Batch: WG1585741-1										
Chloride	0.203	J	mg/l	0.500	0.083	1	-	12/20/21 16:12	44,300.0	SH

Lab Control Sample Analysis

Batch Quality Control

Project Name: ALCOA MASSENA EAST

Project Number: Not Specified

Lab Number: L2166695

Report Date: 12/23/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 05,08,14,17,24,27,34,37 Batch: WG1581644-2								
Cyanide, Total	96		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 29,39,41,44,46,50,54,56-57,59,64,66-67,69,74,76-77,85-86 Batch: WG1582813-2								
Cyanide, Total	90		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 45,51,61,71,79 Batch: WG1582860-2								
Cyanide, Total	95		-		90-110	-		
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-07,10-12 Batch: WG1583365-2								
Chloride	99		-		90-110	-		
Fluoride	106		-		90-110	-		
Sulfate	96		-		90-110	-		
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 13-16,18,20-24 Batch: WG1583366-2								
Chloride	99		-		90-110	-		
Fluoride	106		-		90-110	-		
Sulfate	96		-		90-110	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: ALCOA MASSENA EAST

Project Number: Not Specified

Lab Number: L2166695

Report Date: 12/23/21

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 25-26,28,30-33 Batch: WG1584353-2					
Chloride	101	-	90-110	-	
Fluoride	108	-	90-110	-	
Sulfate	97	-	90-110	-	
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 35-36,38,40-43,46-48 Batch: WG1584354-2					
Chloride	101	-	90-110	-	
Fluoride	108	-	90-110	-	
Sulfate	97	-	90-110	-	
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 34,49-50,52-54 Batch: WG1584357-2					
Chloride	102	-	90-110	-	
Fluoride	110	-	90-110	-	
Sulfate	97	-	90-110	-	
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 46,48-50,54,60,62-64 Batch: WG1584814-2					
Chloride	102	-	90-110	-	
Fluoride	109	-	90-110	-	
Sulfate	98	-	90-110	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: ALCOA MASSENA EAST

Project Number: Not Specified

Lab Number: L2166695

Report Date: 12/23/21

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 55-56,58-59,65-66,68-70,72 Batch: WG1584815-2					
Chloride	101	-	90-110	-	
Fluoride	109	-	90-110	-	
Sulfate	97	-	90-110	-	
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 69-70 Batch: WG1584862-2					
Chloride	103	-	90-110	-	
Sulfate	98	-	90-110	-	
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 73-76,78-83 Batch: WG1585269-2					
Chloride	102	-	90-110	-	
Fluoride	110	-	90-110	-	
Sulfate	98	-	90-110	-	
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 84,87-90 Batch: WG1585270-2					
Chloride	102	-	90-110	-	
Fluoride	110	-	90-110	-	
Sulfate	98	-	90-110	-	
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 76 Batch: WG1585741-2					
Chloride	102	-	90-110	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 05,08,14,17,24,27,34,37 QC Batch ID: WG1581644-3 QC Sample: L2166395-18 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.207	104		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 29,39,41,44,46,50,54,56-57,59,64,66-67,69,74,76-77,85-86 QC Batch ID: WG1582813-4 QC Sample: L2166695-69 Client ID: MW-42_0.20_20211201												
Cyanide, Total	0.085	0.2	0.292	103		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 45,51,61,71,79 QC Batch ID: WG1582860-4 QC Sample: L2168423-01 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.105	**52**	Q	-	-		90-110	-		30
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-07,10-12 QC Batch ID: WG1583365-3 QC Sample: L2166695-05 Client ID: MW-28S_TOTAL_20211130												
Chloride	52.3	40	94.1	105		-	-		90-110	-		18
Fluoride	13.3	4	17.7	**111**	Q	-	-		90-110	-		15
Sulfate	170.	80	250	101		-	-		90-110	-		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 13-16,18,20-24 QC Batch ID: WG1583366-3 QC Sample: L2166695-15 Client ID: DUP_MW-28S_0.45_20211130												
Chloride	52.9	40	94.0	103		-	-		90-110	-		18
Fluoride	13.7	4	18.0	107		-	-		90-110	-		15
Sulfate	172.	80	251	98		-	-		90-110	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 25-26,28,30-33 QC Batch ID: WG1584353-3 QC Sample: L2166695-25 Client ID: DUP_MW-28S_0.20_20211130										
Chloride	54.6	40	90.3	**77**	Q	-	-	90-110	-	18
Fluoride	13.6	4	16.7	**89**	Q	-	-	90-110	-	15
Sulfate	178.	80	240	**78**	Q	-	-	90-110	-	20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 35-36,38,40-43,46-48 QC Batch ID: WG1584354-3 QC Sample: L2166695-35 Client ID: DUP_MW-28S_0.10_20211130										
Chloride	58.0	40	90.8	**82**	Q	-	-	90-110	-	18
Fluoride	14.6	4	16.8	**57**	Q	-	-	90-110	-	15
Sulfate	190.	80	242	**66**	Q	-	-	90-110	-	20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 34,49-50,52-54 QC Batch ID: WG1584357-3 QC Sample: L2166695-34 Client ID: MW-28S_0.10_20211130										
Chloride	54.2	40	89.3	**88**	Q	-	-	90-110	-	18
Fluoride	13.5	4	16.4	**73**	Q	-	-	90-110	-	15
Sulfate	179.	80	238	**74**	Q	-	-	90-110	-	20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 46,48-50,54,60,62-64 QC Batch ID: WG1584814-3 QC Sample: L2166695-62 Client ID: MW-16S_0.20_20211201										
Chloride	102.	40	142	101		-	-	90-110	-	18
Fluoride	8.14	4	12.1	99		-	-	90-110	-	15
Sulfate	158.	80	236	97		-	-	90-110	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 55-56,58-59,65-66,68-70,72 QC Batch ID: WG1584815-3 QC Sample: L2166695-65 Client ID: MW-19S_0.20_20211201										
Chloride	14.8	4	18.3	**88**	Q	-	-	90-110	-	18
Fluoride	3.39	0.4	3.57	**45**	Q	-	-	90-110	-	15
Sulfate	70.4	8	75.2	**60**	Q	-	-	90-110	-	20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 69-70 QC Batch ID: WG1584862-3 QC Sample: L2169348-02 Client ID: MS Sample										
Chloride	25.2	4	28.2	**77**	Q	-	-	90-110	-	18
Sulfate	24.2	8	31.0	**85**	Q	-	-	90-110	-	20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 73-76,78-83 QC Batch ID: WG1585269-3 QC Sample: L2166695-75 Client ID: MW-19S_0.10_20211201										
Chloride	15.0	4	18.5	**86**	Q	-	-	90-110	-	18
Fluoride	3.43	0.4	3.72	**73**	Q	-	-	90-110	-	15
Sulfate	70.5	8	75.7	**64**	Q	-	-	90-110	-	20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 84,87-90 QC Batch ID: WG1585270-3 QC Sample: L2166695-87 Client ID: DUP_MW-18S_TOTAL_20211201										
Chloride	105.	40	148	108		-	-	90-110	-	18
Fluoride	16.6	4	21.2	**114**	Q	-	-	90-110	-	15
Sulfate	350.	80	436	108		-	-	90-110	-	20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 76 QC Batch ID: WG1585741-3 QC Sample: L2166695-76 Client ID: MW-27S_0.10_20211201										
Chloride	2640	400	3070	107		-	-	90-110	-	18

Lab Duplicate Analysis
Batch Quality Control

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 05,08,14,17,24,27,34,37 QC Batch ID: WG1581644-4 QC Sample: L2166695-08 Client ID: MW-2303_TOTAL_20211130						
Cyanide, Total	2.83	3.11	mg/l	9		30
General Chemistry - Westborough Lab Associated sample(s): 29,39,41,44,46,50,54,56-57,59,64,66-67,69,74,76-77,85-86 QC Batch ID: WG1582813-3 QC Sample: L2166695-59 Client ID: MW-42_0.45_20211201						
Cyanide, Total	ND	0.003J	mg/l	NC		30
General Chemistry - Westborough Lab Associated sample(s): 45,51,61,71,79 QC Batch ID: WG1582860-3 QC Sample: L2168421-01 Client ID: DUP Sample						
Cyanide, Total	0.156	0.187	mg/l	18		30
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-07,10-12 QC Batch ID: WG1583365-4 QC Sample: L2166695-05 Client ID: MW-28S_TOTAL_20211130						
Chloride	52.3	53.5	mg/l	2		18
Fluoride	13.3	13.6	mg/l	2		15
Sulfate	170.	174	mg/l	2		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 13-16,18,20-24 QC Batch ID: WG1583366-4 QC Sample: L2166695-15 Client ID: DUP_MW-28S_0.45_20211130						
Chloride	52.9	52.7	mg/l	0		18
Fluoride	13.7	13.7	mg/l	0		15
Sulfate	172.	172	mg/l	0		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: ALCOA MASSENA EAST

Project Number: Not Specified

Lab Number: L2166695

Report Date: 12/23/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 25-26,28,30-33 QC Batch ID: WG1584353-4 QC Sample: L2166695-25 Client ID: DUP_MW-28S_0.20_20211130					
Chloride	54.6	52.9	mg/l	3	18
Fluoride	13.6	13.2	mg/l	3	15
Sulfate	178.	173	mg/l	3	20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 35-36,38,40-43,46-48 QC Batch ID: WG1584354-4 QC Sample: L2166695-35 Client ID: DUP_MW-28S_0.10_20211130					
Chloride	58.0	53.3	mg/l	8	18
Fluoride	14.6	13.3	mg/l	9	15
Sulfate	190.	171	mg/l	11	20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 34,49-50,52-54 QC Batch ID: WG1584357-4 QC Sample: L2166695-34 Client ID: MW-28S_0.10_20211130					
Chloride	54.2	49.9	mg/l	8	18
Fluoride	13.5	12.4	mg/l	8	15
Sulfate	179.	163	mg/l	9	20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 46,48-50,54,60,62-64 QC Batch ID: WG1584814-4 QC Sample: L2166695-62 Client ID: MW-16S_0.20_20211201					
Chloride	102.	103	mg/l	1	18
Fluoride	8.14	8.04	mg/l	1	15
Sulfate	158.	159	mg/l	1	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: ALCOA MASSENA EAST

Project Number: Not Specified

Lab Number: L2166695

Report Date: 12/23/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 55-56,58-59,65-66,68-70,72 QC Batch ID: WG1584815-4 QC Sample: L2166695-65 Client ID: MW-19S_0.20_20211201					
Chloride	14.8	14.7	mg/l	1	18
Fluoride	3.39	3.32	mg/l	2	15
Sulfate	70.4	70.3	mg/l	0	20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 69-70 QC Batch ID: WG1584862-4 QC Sample: L2169348-02 Client ID: DUP Sample					
Chloride	25.2	25.2	mg/l	0	18
Sulfate	24.2	24.2	mg/l	0	20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 73-76,78-83 QC Batch ID: WG1585269-4 QC Sample: L2166695-75 Client ID: MW-19S_0.10_20211201					
Chloride	15.0	14.7	mg/l	2	18
Fluoride	3.43	3.43	mg/l	0	15
Sulfate	70.5	70.4	mg/l	0	20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 84,87-90 QC Batch ID: WG1585270-4 QC Sample: L2166695-87 Client ID: DUP_MW-18S_TOTAL_20211201					
Chloride	105.	105	mg/l	0	18
Fluoride	16.6	16.6	mg/l	0	15
Sulfate	350.	348	mg/l	1	20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 76 QC Batch ID: WG1585741-4 QC Sample: L2166695-76 Client ID: MW-27S_0.10_20211201					
Chloride	2640	2630	mg/l	0	18

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent
D	Absent
E	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2166695-01A	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SUB-FLUORIDE(28)
L2166695-01B	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-02A	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SUB-FLUORIDE(28)
L2166695-02B	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-03A	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SUB-FLUORIDE(28)
L2166695-03B	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-04A	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SUB-FLUORIDE(28)
L2166695-04B	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-05A	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SUB-FLUORIDE(28)
L2166695-05B	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-05C	Plastic 250ml NaOH preserved	D	>12	>12	4.9	Y	Absent		TCN-4500(14)
L2166695-06A	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SUB-FLUORIDE(28)
L2166695-06B	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-07A	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SUB-FLUORIDE(28)
L2166695-07B	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-08A	Plastic 250ml NaOH preserved	D	>12	>12	4.9	Y	Absent		TCN-4500(14)
L2166695-09A	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SUB-FLUORIDE(28)
L2166695-10A	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-10B	Plastic 250ml HNO3 preserved	E	<2	<2	4.2	Y	Absent		AL-6020T(180)

*Values in parentheses indicate holding time in days

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2166695-11A	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-11B	Plastic 250ml HNO3 preserved	B	<2	<2	4.1	Y	Absent		AL-6020T(180)
L2166695-12A	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-12B	Plastic 250ml HNO3 preserved	B	<2	<2	4.1	Y	Absent		AL-6020T(180)
L2166695-13A	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-13B	Plastic 250ml HNO3 preserved	B	<2	<2	4.1	Y	Absent		AL-6020T(180)
L2166695-14A	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-14B	Plastic 250ml NaOH preserved	D	>12	>12	4.9	Y	Absent		TCN-4500(14)
L2166695-14C	Plastic 250ml HNO3 preserved	D	<2	<2	4.9	Y	Absent		AL-6020T(180)
L2166695-15A	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-15B	Plastic 250ml HNO3 preserved	C	<2	<2	5.1	Y	Absent		AL-6020T(180)
L2166695-16A	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-16B	Plastic 250ml HNO3 preserved	D	<2	<2	4.9	Y	Absent		AL-6020T(180)
L2166695-17A	Plastic 250ml NaOH preserved	D	>12	>12	4.9	Y	Absent		TCN-4500(14)
L2166695-18A	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-19A	Plastic 250ml HNO3 preserved	D	<2	<2	4.9	Y	Absent		AL-6020T(180)
L2166695-20A	Plastic 250ml unpreserved	C	7	7	5.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-21A	Plastic 250ml unpreserved	C	7	7	5.1	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-22A	Plastic 250ml unpreserved	C	7	7	5.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-23A	Plastic 250ml unpreserved	C	7	7	5.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-24A	Plastic 250ml unpreserved	C	7	7	5.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-24B	Plastic 250ml NaOH preserved	C	>12	>12	5.1	Y	Absent		TCN-4500(14)
L2166695-25A	Plastic 250ml unpreserved	C	7	7	5.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-26A	Plastic 250ml unpreserved	C	7	7	5.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-27A	Plastic 250ml NaOH preserved	C	>12	>12	5.1	Y	Absent		TCN-4500(14)
L2166695-28A	Plastic 250ml unpreserved	C	7	7	5.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-29A	Plastic 250ml NaOH preserved	C	>12	>12	5.1	Y	Absent		TCN-4500(14)
L2166695-30A	Plastic 250ml unpreserved	C	7	7	5.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28)

*Values in parentheses indicate holding time in days

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2166695-31A	Plastic 250ml unpreserved	C	7	7	5.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-32A	Plastic 250ml unpreserved	C	7	7	5.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-33A	Plastic 250ml unpreserved	C	7	7	5.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-34A	Plastic 250ml unpreserved	C	7	7	5.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-34B	Plastic 250ml NaOH preserved	C	>12	>12	5.1	Y	Absent		TCN-4500(14)
L2166695-35A	Plastic 250ml unpreserved	C	7	7	5.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-36A	Plastic 250ml unpreserved	C	7	7	5.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-37A	Plastic 250ml NaOH preserved	C	>12	>12	5.1	Y	Absent		TCN-4500(14)
L2166695-38A	Plastic 250ml unpreserved	C	7	7	5.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-39A	Plastic 250ml NaOH preserved	C	>12	>12	5.1	Y	Absent		TCN-4500(14)
L2166695-40A	Plastic 250ml unpreserved	B	7	7	4.1	Y	Absent		SUB-FLUORIDE(28)
L2166695-40B	Plastic 250ml unpreserved	A	7	7	4.4	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-41A	Plastic 250ml unpreserved	B	7	7	4.1	Y	Absent		SUB-FLUORIDE(28)
L2166695-41B	Plastic 250ml unpreserved	B	7	7	4.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-41C	Plastic 250ml NaOH preserved	B	>12	>12	4.1	Y	Absent		TCN-4500(14)
L2166695-42A	Plastic 250ml unpreserved	B	7	7	4.1	Y	Absent		SUB-FLUORIDE(28)
L2166695-42B	Plastic 250ml unpreserved	A	7	7	4.4	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-43A	Plastic 250ml unpreserved	B	7	7	4.1	Y	Absent		SUB-FLUORIDE(28)
L2166695-43B	Plastic 250ml unpreserved	B	7	7	4.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-44A	Plastic 250ml NaOH preserved	B	>12	>12	4.1	Y	Absent		TCN-4500(14)
L2166695-45A	Plastic 250ml NaOH preserved	B	>12	>12	4.1	Y	Absent		TCN-4500(14)
L2166695-46A	Plastic 250ml unpreserved	B	7	7	4.1	Y	Absent		SUB-FLUORIDE(28)
L2166695-46B	Plastic 250ml unpreserved	A	7	7	4.4	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-46C	Plastic 250ml NaOH preserved	B	>12	>12	4.1	Y	Absent		TCN-4500(14)
L2166695-47A	Plastic 250ml unpreserved	B	7	7	4.1	Y	Absent		SUB-FLUORIDE(28)
L2166695-47B	Plastic 250ml unpreserved	A	7	7	4.4	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-48A	Plastic 250ml unpreserved	B	7	7	4.1	Y	Absent		SUB-FLUORIDE(28)
L2166695-48B	Plastic 250ml unpreserved	B	7	7	4.1	Y	Absent		SO4-300(28),F-300(28),CL-300(28)

*Values in parentheses indicate holding time in days

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2166695-49A	Plastic 250ml unpreserved	B	7	7	4.1	Y	Absent		SUB-FLUORIDE(28)
L2166695-49B	Plastic 250ml unpreserved	B	7	7	4.1	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-50A	Plastic 250ml unpreserved	B	7	7	4.1	Y	Absent		SUB-FLUORIDE(28)
L2166695-50B	Plastic 250ml unpreserved	A	7	7	4.4	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-50C	Plastic 250ml NaOH preserved	B	>12	>12	4.1	Y	Absent		TCN-4500(14)
L2166695-51A	Plastic 250ml NaOH preserved	D	>12	>12	4.9	Y	Absent		TCN-4500(14)
L2166695-52A	Plastic 250ml unpreserved	A	7	7	4.4	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-52B	Plastic 250ml HNO3 preserved	B	<2	<2	4.1	Y	Absent		AL-6020T(180)
L2166695-53A	Plastic 250ml unpreserved	A	7	7	4.4	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-53B	Plastic 250ml HNO3 preserved	B	<2	<2	4.1	Y	Absent		AL-6020T(180)
L2166695-54A	Plastic 250ml unpreserved	A	7	7	4.4	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-54B	Plastic 250ml NaOH preserved	B	>12	>12	4.1	Y	Absent		TCN-4500(14)
L2166695-54C	Plastic 250ml HNO3 preserved	B	<2	<2	4.1	Y	Absent		AL-6020T(180)
L2166695-55A	Plastic 250ml unpreserved	C	7	7	5.1	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-55B	Plastic 250ml HNO3 preserved	A	<2	<2	4.4	Y	Absent		AL-6020T(180)
L2166695-56A	Plastic 250ml unpreserved	B	7	7	4.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-56B	Plastic 250ml NaOH preserved	B	>12	>12	4.1	Y	Absent		TCN-4500(14)
L2166695-56C	Plastic 250ml HNO3 preserved	C	<2	<2	5.1	Y	Absent		AL-6020T(180)
L2166695-57A	Plastic 250ml NaOH preserved	B	>12	>12	4.1	Y	Absent		TCN-4500(14)
L2166695-58A	Plastic 250ml unpreserved	A	7	7	4.4	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-58B	Plastic 250ml HNO3 preserved	B	<2	<2	4.1	Y	Absent		AL-6020T(180)
L2166695-59A	Plastic 250ml unpreserved	A	7	7	4.4	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-59B	Plastic 250ml NaOH preserved	B	>12	>12	4.1	Y	Absent		TCN-4500(14)
L2166695-59C	Plastic 250ml HNO3 preserved	B	<2	<2	4.1	Y	Absent		AL-6020T(180)
L2166695-60A	Plastic 250ml unpreserved	A	7	7	4.4	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-60B	Plastic 250ml HNO3 preserved	B	<2	<2	4.1	Y	Absent		AL-6020T(180)
L2166695-61A	Plastic 250ml NaOH preserved	E	>12	>12	4.2	Y	Absent		TCN-4500(14)
L2166695-62A	Plastic 250ml unpreserved	E	7	7	4.2	Y	Absent		SO4-300(28),CL-300(28),F-300(28)

*Values in parentheses indicate holding time in days

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2166695-63A	Plastic 250ml unpreserved	E	7	7	4.2	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-64A	Plastic 250ml unpreserved	E	7	7	4.2	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-64B	Plastic 250ml NaOH preserved	E	>12	>12	4.2	Y	Absent		TCN-4500(14)
L2166695-64C	Plastic 250ml HNO3 preserved	E	<2	<2	4.2	Y	Absent		AL-6020T(180)
L2166695-65A	Plastic 250ml unpreserved	E	7	7	4.2	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-66A	Plastic 250ml unpreserved	E	7	7	4.2	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-66B	Plastic 250ml NaOH preserved	E	>12	>12	4.2	Y	Absent		TCN-4500(14)
L2166695-67A	Plastic 250ml NaOH preserved	E	>12	>12	4.2	Y	Absent		TCN-4500(14)
L2166695-68A	Plastic 250ml unpreserved	E	7	7	4.2	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-69A	Plastic 250ml unpreserved	E	7	7	4.2	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-69B	Plastic 250ml NaOH preserved	E	>12	>12	4.2	Y	Absent		TCN-4500(14)
L2166695-70A	Plastic 250ml unpreserved	E	7	7	4.2	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-71A	Plastic 250ml NaOH preserved	E	>12	>12	4.2	Y	Absent		TCN-4500(14)
L2166695-72A	Plastic 250ml unpreserved	E	7	7	4.2	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-73A	Plastic 250ml unpreserved	E	7	7	4.2	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-74A	Plastic 250ml unpreserved	E	7	7	4.2	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-74B	Plastic 250ml NaOH preserved	E	>12	>12	4.2	Y	Absent		TCN-4500(14)
L2166695-74C	Plastic 250ml HNO3 preserved	E	<2	<2	4.2	Y	Absent		AL-6020T(180)
L2166695-75A	Plastic 250ml unpreserved	E	7	7	4.2	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-76A	Plastic 250ml unpreserved	E	7	7	4.2	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-76B	Plastic 250ml NaOH preserved	E	>12	>12	4.2	Y	Absent		TCN-4500(14)
L2166695-77A	Plastic 250ml NaOH preserved	E	>12	>12	4.2	Y	Absent		TCN-4500(14)
L2166695-78A	Plastic 250ml unpreserved	E	7	7	4.2	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-79A	Plastic 250ml unpreserved	E	7	7	4.2	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-79B	Plastic 250ml NaOH preserved	E	>12	>12	4.2	Y	Absent		TCN-4500(14)
L2166695-80A	Plastic 250ml unpreserved	A	7	7	4.4	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-81A	Plastic 250ml unpreserved	A	7	7	4.4	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-81B	Plastic 250ml HNO3 preserved	B	<2	<2	4.1	Y	Absent		AL-6020T(180)

*Values in parentheses indicate holding time in days

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2166695
Report Date: 12/23/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2166695-82A	Plastic 250ml unpreserved	E	7	7	4.2	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-83A	Plastic 250ml unpreserved	E	7	7	4.2	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-84A	Plastic 250ml unpreserved	D	7	7	4.9	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-85A	Plastic 250ml NaOH preserved	D	>12	>12	4.9	Y	Absent		TCN-4500(14)
L2166695-86A	Plastic 250ml NaOH preserved	D	>12	>12	4.9	Y	Absent		TCN-4500(14)
L2166695-87A	Plastic 250ml unpreserved	B	7	7	4.1	Y	Absent		SUB-FLUORIDE(28)
L2166695-87B	Plastic 250ml unpreserved	B	7	7	4.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28)
L2166695-88A	Plastic 250ml unpreserved	A	7	7	4.4	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-88B	Plastic 250ml HNO3 preserved	B	<2	<2	4.1	Y	Absent		AL-6020T(180)
L2166695-89A	Plastic 250ml unpreserved	E	7	7	4.2	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2166695-90A	Plastic 250ml unpreserved	E	7	7	4.2	Y	Absent		SO4-300(28),F-300(28),CL-300(28)

*Values in parentheses indicate holding time in days

Project Name:	ALCOA MASSENA EAST	**Lab Number:**	L2166695
Project Number:	Not Specified	**Report Date:**	12/23/21

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name:	ALCOA MASSENA EAST	**Lab Number:**	L2166695
Project Number:	Not Specified	**Report Date:**	12/23/21

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	ALCOA MASSENA EAST	**Lab Number:**	L2166695
Project Number:	Not Specified	**Report Date:**	12/23/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name:	ALCOA MASSENA EAST	**Lab Number:**	L2166695
Project Number:	Not Specified	**Report Date:**	12/23/21

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 10

Date Rec'd in Lab: 12/4/21

ALPHA Job #: L2166195

Client Information
Client: EHS Support LLC
Address: 4885 McKnight Rd
Pittsburgh, PA 15237
Phone: 908-967-1083
Fax:
Email: As per contract

Project Information
Project Name: Alcoa Massena East
Project Location: Massena, NY
Project #: REM-C03330-2021
(Use Project name as Project #) ☐
Project Manager: Samuel Parker
ALPHAQuote #:

Turn-Around Time
Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☑ ASP-B
☐ EQuIS (1 File) ☑ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO #: See Contract

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:
Please add austin.wilkes@ehs-support.com in addition to emails specified in contract

Please specify Metals or TAL.
Aluminum only for EPA6020

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	EPA 300 (F,Cl,SO4)	SM4500CN-CE	EPA6020 (Al)	SM4500F-BC					Sample Specific Comments	Total Bottle
66695-01	MW-12S_Total_20211130	11/30/2021	12 33	WG	RK	X			X						2
-02	MW-13S_Total_20211130	11/30/2021	12 10	WG	RK	X			X						2
-03	MW-15S-87_Total_20211130	11/30/2021	12 23	WG	RK	X			X						2
-04	MW-26S_Total_20211130	11/30/2021	12 40	WG	RK	X			X						2
-05	MW-28S_Total_20211130	11/30/2021	12 50	WG	RK	X	X		X						3
	~~DUP-28S-Total-2021 ME~~														
-06	DUP_MW-29S_Total_20211130	11/30/2021	12 50	WG	RK	X			X						2
-07	MW-30S_Total_20211130	11/30/2021	12 05	WG	RK	X			X						2
-08	MW-2303_Total_20211130	11/30/2021	12 55	WG	RK		X								1
-09	ISE_Blank_Total_20211201	12/01/2021	9 00	WG	AW	X	X		X					4500F-BC ONLY	1
	Container Type					P	P		P						
	Preservative					A	E		A						

Sample Filtration
☑ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Ryan Kingsley	11/30/21 4:40	Max Gerjoi	11/30/21 4:40
		RWilley	12/3/21 1500
			12/4/21 0100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 2 of 10

Date Rec'd in Lab: 12/4/21

ALPHA Job #: L2166695

Client Information
Client: EHS Support LLC
Address: 4885 McKnight Rd
Pittsburgh, PA 15237
Phone: 908-967-1083
Fax:
Email: As per Contract

Project Information
Project Name: Alcoa Massena East
Project Location: Massena, NY
Project #: REM_C033330_2021
(Use Project name as Project #)
Project Manager: Samuel Parker
ALPHAQuote #:

Turn-Around Time
Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☑ ASP-B
☐ EQuIS (1 File) ☑ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO # See Contract

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.
Aluminum only for EPA6020

ANALYSIS

Sample Filtration
☑ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	EPA300(F,Cl,SO4)	SM4500CN-CE	EPA6020 (Al)	SM4500F-BC	Sample Specific Comments	Total Bottle
06695-10	MW-12S_0.45_20211130	11/30/21	12:33	WG	AW	X		X			2
-11	MW-13S_0.45_20211130	11/30/21	12:10	WG	AW	X		X			2
-12	MW-15S-87_0.45_20211130	11/30/21	12:23	WG	AW	X		X			2
-13	MW-26S_0.45_20211130	11/30/21	12:40	WG	AW	X		X			2
-14	MW-28S_0.45_20211130	11/30/21	12:50	WG	AW	X	X	X			3
-15	DUP-MW-28S_0.45_20211130	11/30/21	12:50	WG	AW	X		X			2
-16	MW-30S_0.45_20211130	11/30/21	12:05	WG	AW	X		X			2
-17	MW-2303_0.45_20211130	11/30/21	12:55	WG	AW		X				1
-18	IC-Blank_0.45_20211201	12/01/21	8:00	WG	AW	X					1
-19	Al-Blank_0.45_20211201	12/01/21	8:30	WG	AW			X			1

Container Type	P	P	P	P				
Preservative	A	E	C	A				

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
AW	12/3		12/3/21 1300
			12/4/21 0100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

NEW YORK CHAIN OF CUSTODY

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 3 of 10

Date Rec'd in Lab: 12/4/21

ALPHA Job #: L2166695

Client Information
Client: EHS Support LLC
Address: 4885 McKnight Rd
Pittsburgh, PA 15237
Phone: 908-967-1083
Fax:
Email: As per contract

Project Information
Project Name: Alcoa Massena East
Project Location: Massena, NY
Project #: REM_C03336_2021
(Use Project name as Project #)
Project Manager: Samuel Parker
ALPHAQuote #:

Turn-Around Time
Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☑ ASP-B
☐ EQuIS (1 File) ☑ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO # See Contract

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.
Aluminum only for EPA6020

ANALYSIS
EPA3320 (F,Cl,SO4)
SM4500C,N-CE

Sample Filtration
☑ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	EPA3320 (F,Cl,SO4)	SM4500C,N-CE	Sample Specific Comments	Total Bottle
66695-20	MW-123_0.20_20211130	11/30/21	12:33	WG	AW	X			1
-21	MW-133_0.20_20211130	11/30/21	12:10	WG	AW	X			1
-22	MW-155-87_0.20_20211130	11/30/21	12:23	WG	AW	X			1
-23	MW-263_0.20_20211130	11/30/21	12:40	WG	AW	X			1
-24	MW-285_0.20_20211130	11/30/21	12:50	WG	AW	X	X		2
-25	DUP_MW-288_0.20_20211130	11/30/21	12:50	WG	AW	X			1
-26	MW-308_0.20_20211130	11/30/21	12:05	WG	AW	X			1
-27	MW-2303_0.20_20211130	11/30/21	12:55	WG	AW		X		1
-28	TC-Blank_0.20_20211201	12/01/21	8:00	WG	AW	X			1
-29	TCN-Blank_0.20_20211201	12/01/21	8:45	WG	AW		X		1

Container Type: P P
Preservative: A E

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
AW	1215		12/3/21 1800
			12/4/21 0100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

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FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page: 4 of 10

Date Rec'd in Lab: 12/4/21

ALPHA Job #: L2166695

Client Information
Client: EHS Support LLC
Address: 4385 McKnight Rd
Pittsburgh, PA 15237
Phone: 908-967-1083
Fax:
Email: As per Contract

Project Information
Project Name: Alcoa Massena East
Project Location: Massena, NY
Project #: REM_C03330-2021
(Use Project name as Project #) ☐
Project Manager: Samuel Parker
ALPHAQuote #:

Turn-Around Time
Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☑ ASP-B
☐ EQuIS (1 File) ☑ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO #: See Contract

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.
Aluminum only for EPA6020

ANALYSIS
EPA300(5,CL,SO4)
SM5310C-TOC-12

Sample Filtration
☑ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	EPA300	SM5310C-TOC-12	Sample Specific Comments	Total Bottle
66695-30	MW-12S_0.10_20211130	11/30/21	12:33	WG	AW	X			1
-31	MW-13S_0.10_20211130	11/30/21	12:10	WG	AW	X			1
-32	MW-15S-87_0.10_20211130	11/30/21	12:23	WG	AW	X			1
-33	MW-26S_0.10_20211130	11/30/21	12:40	WG	AW	X			1
-34	MW-28S_0.10_20211130	11/30/21	12:50	WG	AW	X	X		2
-35	DUP_MW-28S_0.10_20211130	11/30/21	12:50	WG	AW	X			1
-36	MW-30S_0.10_20211130	11/30/21	12:05	WG	AW	X			1
-37	MW-2303-0.10_20211130	11/30/21	12:55	WG	AW		X		1
-38	IC_Blank_0.10_20211130	12/01/21	8:00	WG	AW	X			1
-39	TCN_Blank_0.10_20211130	12/01/21	8:45	WG	AW		X		1

Container Type: P P
Preservative: A E

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
AW	12/3/21	R Wetter	12/3/21 1300
			12/4/21 0100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

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NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

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Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 5 of 10 (AW / AW)

Date Rec'd in Lab: 12/1/21

ALPHA Job #: L2166695

Project Information
Project Name: Alcoa Massena East
Project Location: Massena, NY
Project #: REM-C03330-2021
(Use Project name as Project #) ☐
Project Manager: Samuel Parker
ALPHAQuote #:

Client Information
Client: EHS Support LLC
Address: 4385 McKnight Rd
Pittsburgh, PA 15237
Phone: 908-967-1083
Fax:
Email: As per contract

Turn-Around Time
Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☑ ASP-B
☐ EQuIS (1 File) ☑ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO # See Contract

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☑ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	EPA 300 (F,Cl,SO4)	SM4500CN-CE	EPA 6020 (Al)	SM4500F-BC	Sample Specific Comments	Total Bottle
66695-40	MW-35SR_Total_20211201	12/01/2021	11:40	WG	JG	X			X		2
-41	MW-42_Total_20211201		11:47			X	X		X		3
-42	MW-16S_Total_20211201		12:32			X			X		2
-43	MW-19S_Total_20211201		12:14			X			X		2
-44	MW-34S_Total_20211201		11:30				X				1
-45	MW-03S_Total_20211201		12:02				X				1
-46	MW-27S_Total_20211201		10:03			X	X		X		3
-47	MW-17S_Total_20211201		12:45			X			X		2
-48	PZ-46_Total_20211201		12:54			X			X		2
-49	PZ-44_Total_20211201		13:00			X			X		2
	Container Type					P	P		P		
	Preservative					A	E		A		

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Ryan P. Kenny	12/1/21 6:00pm		12/1/21 6:00pm
		RWatts	12/2/21 1300
			12/4/21 0100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

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Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 6 of 10

Date Rec'd in Lab: 12/1/21

ALPHA Job #: L2166695

Client Information

Client: EHS Support LLC
Address: 4385 McKnight Rd
Pittsburgh, PA 15237
Phone: 908-967-1083
Fax:
Email: As per contract

Project Information

Project Name: Alcoa Massena East
Project Location: Massena, NY
Project #: REM-C03330-2021
(Use Project name as Project #) ☐
Project Manager: Samuel Parker
ALPHAQuote #:

Turn-Around Time

Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☑ ASP-B
☐ EQuIS (1 File) ☑ EQuIS (4 File)
☐ Other

Billing Information

☐ Same as Client Info
PO #: See Contract

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☑ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	EPA 300 (F,Cl,SO4)	SM4500CN-CE	EPA 9012 (Air)	SM4500F-BC					Sample Specific Comments	Total Bottle
66695-50	MW-185-Total-20211201	12/01/21	10:15	WG	JG	X	X		X						3

Container Type: P P P
Preservative: A E A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	12/1/21 6:00	[signature]	12/1/21 6:00pm
		[signature]	12/3/21 1300
			12/4/21 0100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

NEW YORK CHAIN OF CUSTODY

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 7 of 10

Date Rec'd in Lab: 12/7/21

ALPHA Job #: L2166695

Client Information
Client: EHS Support LLC
Address: 4885 Mcknight Rd
Pittsburgh, PA 15237
Phone: 903-967-1083
Fax:
Email: See Contract

Project Information
Project Name: Alcoa Massena East
Project Location: Massena, NY
Project #: REM-C03330-2021
(Use Project name as Project #)
Project Manager: Samuel Parker
ALPHAQuote #:

Turn-Around Time
Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☑ ASP-B
☐ EQuIS (1 File) ☑ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO #: See Contract

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.
Aluminum only for EPA6020

ANALYSIS

Sample Filtration
☑ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	EPA300 (F,Cl,SO4)	SM4500CN-CE	EPA6020 (Al)						Sample Specific Comments	Total Bottle
66695-51	MW-03S_0.45_20211201	12/01/21	12:02	WG	AW		X								1
-52	MW-16S_0.45_20211201	12/01/21	12:32	WG	AW	X		X							2
-53	MW-17S_0.45_20211201	12/01/21	12:45	WG	AW	X		X							2
-54	MW-18S_0.45_20211201	12/01/21	10:15	WG	AW	X	X	X							3
-55	MW-19S_0.45_20211201	12/01/21	12:14	WG	AW	X		X							2
-56	MW-27S_0.45_20211201	12/01/21	10:03	WG	AW	X	X	X							3
-57	MW-34S_0.45_20211201	12/01/21	11:30	WG	AW		X	X	AW					4500CN-CE only	1
-58	MW-35SR_0.45_20211201	12/01/21	11:40	WG	AW	X		X							2
-59	MW-42_0.45_20211201	12/01/21	11:47	WG	AW	X	X	X							3
-60	PZ-44_0.45_20211201	12/01/21	13:00	WG	AW	X		X							2
	Container Type					P	P	P							
	Preservative					A	E	C							

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
AW	12/3/21		12/3/21 1300
			12/4/21 0100

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Form No: 01-25 HC (rev. 30-Sept-2013)

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 8 of 10

Date Rec'd in Lab: 12/4/21

ALPHA Job #: L2166695

Client Information
Client: EHS Support LLC
Address: 4885 McKnight Rd
Pittsburgh, PA 15237
Phone: 908-967-1083
Fax:
Email: See Contract

Project Information
Project Name: Alcoa Massena East
Project Location: Massena, NY
Project #: REM_C033330_2021
(Use Project name as Project #)
Project Manager: Samuel Parker
ALPHAQuote #:

Turn-Around Time
Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☑ ASP-B
☐ EQuIS (1 File) ☑ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO # See Contract

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.
Aluminum only for EPA 6020

ANALYSIS

Sample Filtration
☑ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	EPA 300 (F,Cl,SO4)	SM 4500CN-CE	EPA 6020 (Al)						Sample Specific Comments	Total Bottle
66695-61	MW-03S_0.20-20211201	12/01/21	12:02	WG	AW		X								1
-62	MW-16S_0.20_20211201	12/01/21	12:32	WG	AW	X									1
-63	MW-17S_0.20-20211201	12/01/21	12:45	WG	AW	X									1
-64	MW-18S_0.20_20211201	12/01/21	10:15	WG	AW	X	X	X							3
-65	MW-19S_0.20_20211201	12/01/21	12:14	WG	AW	X									1
-66	MW-27S_0.20_20211201	12/01/21	10:03	WG	AW	X	X								2
-67	MW-34S_0.20_20211201	12/01/21	11:30	WG	AW		X								1
-68	MW-35SR_0.20_20211201	12/01/21	11:40	WG	AW	X									1
-69	MW-42_0.20_20211201	12/01/21	11:47	WG	AW	X	X								2
-70	PZ-44_0.20_20211201	12/01/21	13:00	WG	AW	X									1
	Container Type					P	P	P							
	Preservative					A	E	C							

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
AW	12/3/21		12/3/21 1300
			12/4/21 0100

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Form No: 01-25 HC (rev. 30-Sept-2013)

ALPHA ANALYTICAL

NEW YORK CHAIN OF CUSTODY

Westborough, MA 01581 — 8 Walkup Dr. — TEL: 508-898-9220 — FAX: 508-898-9193

Mansfield, MA 02048 — 320 Forbes Blvd — TEL: 508-822-9300 — FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page: 9 of 10

Date Rec'd in Lab: 12/4/21

ALPHA Job #: L2166095

Client Information
Client: EHS Support LLC
Address: 4885 McKnight Rd
Pittsburgh, PA 15237
Phone: 908-967-1083
Fax:
Email: See Contract

Project Information
Project Name: Alcoa Massena East
Project Location: Massena, NY
Project #: REM_C03330_2021
(Use Project name as Project #): ☐
Project Manager: Samuel Parker
ALPHAQuote #:

Turn-Around Time
Standard: ☑ Due Date:
Rush (only if pre approved): ☐ # of Days:

Deliverables
☐ ASP-A ☑ ASP-B
☐ EQuIS (1 File) ☑ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO #: See Contract

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.
Aluminum Only for EPA6020

ANALYSIS

Sample Filtration
☑ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	EPA300(F,Cl,SO4)	SM4500C2-CE	EPA6020 (Al)	Sample Specific Comments	Total Bottle
066095-71	MW-08S_0.10_20211201	12/01/21	12:02	WG	AW		X			1
-72	MW-16S_0.10_20211201	12/01/21	12:32	WG	AW	X				1
-73	MW-17S_0.10_20211201	12/01/21	12:45	WG	AW	X				1
-74	MW-18S_0.10_20211201	12/01/21	10:15	WG	AW	X	X	X		3
-75	MW-19S_0.10_20211201	12/01/21	12:14	WG	AW	X				1
-76	MW-27S_0.10_20211201	12/01/21	10:03	WG	AW	X	X			2
-77	MW-34S_0.10_20211201	12/01/21	11:30	WG	AW		X			1
-78	MW-35SR_0.10_20211201	12/01/21	11:40	WG	AW	X				1
-79	MW-42_0.10_20211201	12/01/21	11:47	WG	AW	X	X			2
-80	PZ-44_0.10_20211201	12/01/21	13:00	WG	AW	X				1
	Container Type					P	P	P		
	Preservative					A	E	C		

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
AW	12/3/21		12/3/21 1300
			12/4/21 0100

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NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

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FAX: 508-898-9193

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320 Forbes Blvd
TEL: 508-822-9300
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Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 10 of 10

Date Rec'd in Lab: 12/4/21

ALPHA Job #: L2166695

Client Information
Client: EHSSupport LLC
Address: 4895 McKnight Rd
Pittsburgh, PA 15237
Phone: 908-967-1083
Fax:
Email: See Contract

Project Information
Project Name: Alcoa Massena East
Project Location: Massena, NY
Project # REM-C03330-2021
(Use Project name as Project #)
Project Manager: Samuel Parker
ALPHAQuote #:

Turn-Around Time
Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☑ ASP-B
☐ EQuIS (1 File) ☑ EQuIS (4 File)
☐ Other

Billing Information
☐ Same as Client Info
PO # See Contract

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

☐ These samples have been previously analyzed by Alpha

Other project specific requirements/comments:

Please specify Metals or TAL.

Aluminum only for EPA6020

Sample Filtration
☑ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	EPA300 (F,Cl,SO4)	SM4500CN-CE	EPA6020 (Al)	SM4500F-BC					Sample Specific Comments	Total Bottle
66695-81	PZ-46_0.45_20211201	12/01/21	12:54	WG	AW	X		X							2
-82	PZ-46_0.20_20211201	12/01/21	12:54	WG	AW	X									1
-83	PZ-46_0.10_20211201	12/01/21	12:54	WG	AW	X									1
-84	IC_Blank_Total_20211201	12/01/21	8:00	WG	AW	X									1
-85	TCN_Blank_Total_20211201	12/01/21	8:45	WG	AW		X								1
-86	TCN_Blank_0.45_20211201	12/01/21	8:45	WG	AW		X								1
-87	DUP_MW-18S_Total_20211201	12/01/21	10:15	WG	AW	X			X						2
-88	DUP_MW-18S_0.45_20211201	12/01/21	10:15	WG	AW	X		X							2
-89	DUP_MW-18S_0.20_20211201	12/01/21	10:15	WG	AW	X									1
-90	DUP_MW-18S_0.10_20211201	12/01/21	10:15	WG	AW	X									1
	Container Type					P	P	P	P						
	Preservative					A	E	C	A						

ANALYSIS

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; K/E = Zn Ac/NaOH; O = Other

Container Code: P = Plastic; A = Amber Glass; V = Vial; G = Glass; B = Bacteria Cup; C = Cube; O = Other; E = Encore; D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
RW	12/3/21	[signature]	12/3/21 1300
			12/4/21 0100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins Lancaster Laboratories Env, LLC
2425 New Holland Pike
Lancaster, PA 17601
Tel: (717)656-2300

Laboratory Job ID: 410-66345-1
Client Project/Site: L2166695
Revision: 1

For:
Alpha Analytical Inc
8 Walkup Drive
Westboro, Massachusetts 01581

Attn: Candace Fox

Authorized for release by:
12/16/2021 9:41:01 AM
Nicole Brown, Project Manager
(717)471-3265
nicole.brown@eurofinset.com

Designee for

Marrissa Williams, Project Manager
(717)556-7246
Marrissa.Williams@eurofinset.com

LINKS

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.



Nicole Brown
Project Manager
12/16/2021 9:41:01 AM

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Definitions/Glossary

Client: Alpha Analytical Inc
Project/Site: L2166695

Job ID: 410-66345-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Alpha Analytical Inc
Project/Site: L2166695

Job ID: 410-66345-1

Job ID: 410-66345-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

Narrative

Job Narrative
410-66345-1

REVISION
The report being provided is a revision of the original report sent on 12/15/2021. The report (revision 1) is being revised to correct sample collection date for samples:
ISE_BLANK_TOTAL_20211130 (410-66345-17) and MW-35SR_TOTAL_20211201 (410-66345-18) to 12/01/21.

Receipt
The samples were received on 12/10/2021 11:47 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was -0.1°C

General Chemistry
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Alpha Analytical Inc
Project/Site: L2166695

Job ID: 410-66345-1

Client Sample ID: DUP_MW-18S_TOTAL_20211201 — Lab Sample ID: 410-66345-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Fluoride	29		5.7		mg/L	1		4500 F C-2011	Total/NA

Client Sample ID: MW-42_TOTAL_20211201 — Lab Sample ID: 410-66345-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Fluoride	35		9.5		mg/L	1		4500 F C-2011	Total/NA

Client Sample ID: MW-16S_TOTAL_20211201 — Lab Sample ID: 410-66345-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Fluoride	8.0		2.9		mg/L	1		4500 F C-2011	Total/NA

Client Sample ID: MW-19S_TOTAL_20211201 — Lab Sample ID: 410-66345-4

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Fluoride	3.4		1.1		mg/L	1		4500 F C-2011	Total/NA

Client Sample ID: MW-27S_TOTAL_20211201 — Lab Sample ID: 410-66345-5

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Fluoride	2.7		0.93		mg/L	1		4500 F C-2011	Total/NA

Client Sample ID: MW-17S_TOTAL_20211201 — Lab Sample ID: 410-66345-6

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.96		0.28		mg/L	1		4500 F C-2011	Total/NA

Client Sample ID: PZ-46_TOTAL_20211201 — Lab Sample ID: 410-66345-7

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Fluoride	3.0		0.95		mg/L	1		4500 F C-2011	Total/NA

Client Sample ID: PZ-44_TOTAL_20211201 — Lab Sample ID: 410-66345-8

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Fluoride	3.4		1.2		mg/L	1		4500 F C-2011	Total/NA

Client Sample ID: MW-18S_TOTAL_20211201 — Lab Sample ID: 410-66345-9

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Fluoride	43		14		mg/L	1		4500 F C-2011	Total/NA

Client Sample ID: MW-12S_TOTAL_20211130 — Lab Sample ID: 410-66345-10

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Fluoride	12		4.7		mg/L	1		4500 F C-2011	Total/NA

Client Sample ID: MW-13S_TOTAL_20211130 — Lab Sample ID: 410-66345-11

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Fluoride	1.7		0.57		mg/L	1		4500 F C-2011	Total/NA

Client Sample ID: MW-15S-87_TOTAL_20211130 — Lab Sample ID: 410-66345-12

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Fluoride	3.3		0.93		mg/L	1		4500 F C-2011	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Env, LLC

Detection Summary

Client: Alpha Analytical Inc
Project/Site: L2166695

Job ID: 410-66345-1

Client Sample ID: MW-26S_TOTAL_20211130 — Lab Sample ID: 410-66345-13

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Fluoride	5.2		1.4		mg/L	1		4500 F C-2011	Total/NA

Client Sample ID: MW-28S_TOTAL_20211130 — Lab Sample ID: 410-66345-14

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Fluoride	11		4.7		mg/L	1		4500 F C-2011	Total/NA

Client Sample ID: DUP_MW-28S_TOTAL_20211130 — Lab Sample ID: 410-66345-15

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Fluoride	11		3.4		mg/L	1		4500 F C-2011	Total/NA

Client Sample ID: MW-30S_TOTAL_20211130 — Lab Sample ID: 410-66345-16

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Fluoride	4.4		1.4		mg/L	1		4500 F C-2011	Total/NA

Client Sample ID: ISE_BLANK_TOTAL_20211130 — Lab Sample ID: 410-66345-17

No Detections.

Client Sample ID: MW-35SR_TOTAL_20211201 — Lab Sample ID: 410-66345-18

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Fluoride	1.4		0.29		mg/L	1		4500 F C-2011	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Alpha Analytical Inc
Project/Site: L2166695

Job ID: 410-66345-1

Client Sample ID: DUP_MW-18S_TOTAL_20211201
Lab Sample ID: 410-66345-1
Date Collected: 12/01/21 10:15
Matrix: Water
Date Received: 12/10/21 11:47

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	29		5.7		mg/L		12/14/21 05:35	12/15/21 08:33	1

Client Sample ID: MW-42_TOTAL_20211201
Lab Sample ID: 410-66345-2
Date Collected: 12/01/21 11:47
Matrix: Water
Date Received: 12/10/21 11:47

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	35		9.5		mg/L		12/14/21 05:35	12/15/21 08:52	1

Client Sample ID: MW-16S_TOTAL_20211201
Lab Sample ID: 410-66345-3
Date Collected: 12/01/21 12:32
Matrix: Water
Date Received: 12/10/21 11:47

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	8.0		2.9		mg/L		12/14/21 05:35	12/15/21 09:00	1

Client Sample ID: MW-19S_TOTAL_20211201
Lab Sample ID: 410-66345-4
Date Collected: 12/01/21 12:14
Matrix: Water
Date Received: 12/10/21 11:47

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	3.4		1.1		mg/L		12/14/21 05:35	12/15/21 08:00	1

Client Sample ID: MW-27S_TOTAL_20211201
Lab Sample ID: 410-66345-5
Date Collected: 12/01/21 10:03
Matrix: Water
Date Received: 12/10/21 11:47

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	2.7		0.93		mg/L		12/14/21 05:35	12/15/21 08:15	1

Client Sample ID: MW-17S_TOTAL_20211201
Lab Sample ID: 410-66345-6
Date Collected: 12/01/21 12:45
Matrix: Water
Date Received: 12/10/21 11:47

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.96		0.28		mg/L		12/14/21 05:35	12/15/21 07:47	1

Client Sample ID: PZ-46_TOTAL_20211201
Lab Sample ID: 410-66345-7
Date Collected: 12/01/21 12:54
Matrix: Water
Date Received: 12/10/21 11:47

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	3.0		0.95		mg/L		12/14/21 05:35	12/15/21 07:50	1

Client Sample Results

Client: Alpha Analytical Inc
Project/Site: L2166695

Job ID: 410-66345-1

Client Sample ID: PZ-44_TOTAL_20211201
Lab Sample ID: 410-66345-8
Date Collected: 12/01/21 13:00
Matrix: Water
Date Received: 12/10/21 11:47

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	3.4		1.2		mg/L		12/14/21 05:35	12/15/21 08:35	1

Client Sample ID: MW-18S_TOTAL_20211201
Lab Sample ID: 410-66345-9
Date Collected: 12/01/21 10:15
Matrix: Water
Date Received: 12/10/21 11:47

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	43		14		mg/L		12/14/21 05:35	12/15/21 08:28	1

Client Sample ID: MW-12S_TOTAL_20211130
Lab Sample ID: 410-66345-10
Date Collected: 11/30/21 12:33
Matrix: Water
Date Received: 12/10/21 11:47

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	12		4.7		mg/L		12/14/21 05:35	12/15/21 07:52	1

Client Sample ID: MW-13S_TOTAL_20211130
Lab Sample ID: 410-66345-11
Date Collected: 11/30/21 12:10
Matrix: Water
Date Received: 12/10/21 11:47

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	1.7		0.57		mg/L		12/14/21 05:35	12/15/21 08:18	1

Client Sample ID: MW-15S-87_TOTAL_20211130
Lab Sample ID: 410-66345-12
Date Collected: 11/30/21 12:23
Matrix: Water
Date Received: 12/10/21 11:47

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	3.3		0.93		mg/L		12/14/21 05:35	12/15/21 08:55	1

Client Sample ID: MW-26S_TOTAL_20211130
Lab Sample ID: 410-66345-13
Date Collected: 11/30/21 12:40
Matrix: Water
Date Received: 12/10/21 11:47

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	5.2		1.4		mg/L		12/14/21 05:35	12/15/21 08:57	1

Client Sample ID: MW-28S_TOTAL_20211130
Lab Sample ID: 410-66345-14
Date Collected: 11/30/21 12:50
Matrix: Water
Date Received: 12/10/21 11:47

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	11		4.7		mg/L		12/14/21 05:35	12/15/21 07:57	1

Client Sample Results

Client: Alpha Analytical Inc
Project/Site: L2166695

Job ID: 410-66345-1

Client Sample ID: DUP_MW-28S_TOTAL_20211130
Lab Sample ID: 410-66345-15
Date Collected: 11/30/21 12:50
Matrix: Water
Date Received: 12/10/21 11:47

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	11		3.4		mg/L		12/14/21 05:35	12/15/21 08:30	1

Client Sample ID: MW-30S_TOTAL_20211130
Lab Sample ID: 410-66345-16
Date Collected: 11/30/21 12:05
Matrix: Water
Date Received: 12/10/21 11:47

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	4.4		1.4		mg/L		12/14/21 05:35	12/15/21 08:25	1

Client Sample ID: ISE_BLANK_TOTAL_20211130
Lab Sample ID: 410-66345-17
Date Collected: 12/01/21 09:00
Matrix: Water
Date Received: 12/10/21 11:47

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.11		0.11		mg/L		12/14/21 05:35	12/15/21 07:42	1

Client Sample ID: MW-35SR_TOTAL_20211201
Lab Sample ID: 410-66345-18
Date Collected: 12/01/21 11:40
Matrix: Water
Date Received: 12/10/21 11:47

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	1.4		0.29		mg/L		12/14/21 05:35	12/15/21 07:45	1

QC Sample Results

Client: Alpha Analytical Inc
Project/Site: L2166695

Job ID: 410-66345-1

Method: 4500 F C-2011 - Fluoride (Ion-selective Electrode)

Lab Sample ID: MB 410-204930/1-A
Matrix: Water
Analysis Batch: 205566

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 204930

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.093		0.093		mg/L		12/14/21 05:35	12/15/21 07:39	1

Lab Sample ID: LCS 410-204930/25-A
Matrix: Water
Analysis Batch: 205566

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 204930

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride			0.998	0.989		mg/L		99	88 - 108		

Lab Sample ID: 410-66345-8 MS
Matrix: Water
Analysis Batch: 205566

Client Sample ID: PZ-44_TOTAL_20211201
Prep Type: Total/NA
Prep Batch: 204930

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride	3.4		12.0	14.4		mg/L		93	88 - 108		

Lab Sample ID: 410-66345-8 MSD
Matrix: Water
Analysis Batch: 205566

Client Sample ID: PZ-44_TOTAL_20211201
Prep Type: Total/NA
Prep Batch: 204930

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	3.4		12.0	14.6		mg/L		94	88 - 108	1	7

Lab Sample ID: 410-66345-8 DU
Matrix: Water
Analysis Batch: 205566

Client Sample ID: PZ-44_TOTAL_20211201
Prep Type: Total/NA
Prep Batch: 204930

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Fluoride	3.4			3.41		mg/L				1	9

QC Association Summary

Client: Alpha Analytical Inc
Project/Site: L2166695

Job ID: 410-66345-1

General Chemistry

Prep Batch: 204930

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-66345-1	DUP_MW-18S_TOTAL_20211201	Total/NA	Water	4500 F B-2011	
410-66345-2	MW-42_TOTAL_20211201	Total/NA	Water	4500 F B-2011	
410-66345-3	MW-16S_TOTAL_20211201	Total/NA	Water	4500 F B-2011	
410-66345-4	MW-19S_TOTAL_20211201	Total/NA	Water	4500 F B-2011	
410-66345-5	MW-27S_TOTAL_20211201	Total/NA	Water	4500 F B-2011	
410-66345-6	MW-17S_TOTAL_20211201	Total/NA	Water	4500 F B-2011	
410-66345-7	PZ-46_TOTAL_20211201	Total/NA	Water	4500 F B-2011	
410-66345-8	PZ-44_TOTAL_20211201	Total/NA	Water	4500 F B-2011	
410-66345-9	MW-18S_TOTAL_20211201	Total/NA	Water	4500 F B-2011	
410-66345-10	MW-12S_TOTAL_20211130	Total/NA	Water	4500 F B-2011	
410-66345-11	MW-13S_TOTAL_20211130	Total/NA	Water	4500 F B-2011	
410-66345-12	MW-15S-87_TOTAL_20211130	Total/NA	Water	4500 F B-2011	
410-66345-13	MW-26S_TOTAL_20211130	Total/NA	Water	4500 F B-2011	
410-66345-14	MW-28S_TOTAL_20211130	Total/NA	Water	4500 F B-2011	
410-66345-15	DUP_MW-28S_TOTAL_20211130	Total/NA	Water	4500 F B-2011	
410-66345-16	MW-30S_TOTAL_20211130	Total/NA	Water	4500 F B-2011	
410-66345-17	ISE_BLANK_TOTAL_20211130	Total/NA	Water	4500 F B-2011	
410-66345-18	MW-35SR_TOTAL_20211201	Total/NA	Water	4500 F B-2011	
MB 410-204930/1-A	Method Blank	Total/NA	Water	4500 F B-2011	
LCS 410-204930/25-A	Lab Control Sample	Total/NA	Water	4500 F B-2011	
410-66345-8 MS	PZ-44_TOTAL_20211201	Total/NA	Water	4500 F B-2011	
410-66345-8 MSD	PZ-44_TOTAL_20211201	Total/NA	Water	4500 F B-2011	
410-66345-8 DU	PZ-44_TOTAL_20211201	Total/NA	Water	4500 F B-2011	

Analysis Batch: 205566

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-66345-1	DUP_MW-18S_TOTAL_20211201	Total/NA	Water	4500 F C-2011	204930
410-66345-2	MW-42_TOTAL_20211201	Total/NA	Water	4500 F C-2011	204930
410-66345-3	MW-16S_TOTAL_20211201	Total/NA	Water	4500 F C-2011	204930
410-66345-4	MW-19S_TOTAL_20211201	Total/NA	Water	4500 F C-2011	204930
410-66345-5	MW-27S_TOTAL_20211201	Total/NA	Water	4500 F C-2011	204930
410-66345-6	MW-17S_TOTAL_20211201	Total/NA	Water	4500 F C-2011	204930
410-66345-7	PZ-46_TOTAL_20211201	Total/NA	Water	4500 F C-2011	204930
410-66345-8	PZ-44_TOTAL_20211201	Total/NA	Water	4500 F C-2011	204930
410-66345-9	MW-18S_TOTAL_20211201	Total/NA	Water	4500 F C-2011	204930
410-66345-10	MW-12S_TOTAL_20211130	Total/NA	Water	4500 F C-2011	204930
410-66345-11	MW-13S_TOTAL_20211130	Total/NA	Water	4500 F C-2011	204930
410-66345-12	MW-15S-87_TOTAL_20211130	Total/NA	Water	4500 F C-2011	204930
410-66345-13	MW-26S_TOTAL_20211130	Total/NA	Water	4500 F C-2011	204930
410-66345-14	MW-28S_TOTAL_20211130	Total/NA	Water	4500 F C-2011	204930
410-66345-15	DUP_MW-28S_TOTAL_20211130	Total/NA	Water	4500 F C-2011	204930
410-66345-16	MW-30S_TOTAL_20211130	Total/NA	Water	4500 F C-2011	204930
410-66345-17	ISE_BLANK_TOTAL_20211130	Total/NA	Water	4500 F C-2011	204930
410-66345-18	MW-35SR_TOTAL_20211201	Total/NA	Water	4500 F C-2011	204930
MB 410-204930/1-A	Method Blank	Total/NA	Water	4500 F C-2011	204930
LCS 410-204930/25-A	Lab Control Sample	Total/NA	Water	4500 F C-2011	204930
410-66345-8 MS	PZ-44_TOTAL_20211201	Total/NA	Water	4500 F C-2011	204930
410-66345-8 MSD	PZ-44_TOTAL_20211201	Total/NA	Water	4500 F C-2011	204930
410-66345-8 DU	PZ-44_TOTAL_20211201	Total/NA	Water	4500 F C-2011	204930

Lab Chronicle

Client: Alpha Analytical Inc
Project/Site: L2166695

Job ID: 410-66345-1

Client Sample ID: DUP_MW-18S_TOTAL_20211201 — Lab Sample ID: 410-66345-1

Date Collected: 12/01/21 10:15 — **Matrix: Water**
Date Received: 12/10/21 11:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	4500 F B-2011			204930	12/14/21 05:35	USAE	ELLE
Total/NA	Analysis	4500 F C-2011		1	205566	12/15/21 08:33	USAE	ELLE

Client Sample ID: MW-42_TOTAL_20211201 — Lab Sample ID: 410-66345-2

Date Collected: 12/01/21 11:47 — **Matrix: Water**
Date Received: 12/10/21 11:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	4500 F B-2011			204930	12/14/21 05:35	USAE	ELLE
Total/NA	Analysis	4500 F C-2011		1	205566	12/15/21 08:52	USAE	ELLE

Client Sample ID: MW-16S_TOTAL_20211201 — Lab Sample ID: 410-66345-3

Date Collected: 12/01/21 12:32 — **Matrix: Water**
Date Received: 12/10/21 11:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	4500 F B-2011			204930	12/14/21 05:35	USAE	ELLE
Total/NA	Analysis	4500 F C-2011		1	205566	12/15/21 09:00	USAE	ELLE

Client Sample ID: MW-19S_TOTAL_20211201 — Lab Sample ID: 410-66345-4

Date Collected: 12/01/21 12:14 — **Matrix: Water**
Date Received: 12/10/21 11:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	4500 F B-2011			204930	12/14/21 05:35	USAE	ELLE
Total/NA	Analysis	4500 F C-2011		1	205566	12/15/21 08:00	USAE	ELLE

Client Sample ID: MW-27S_TOTAL_20211201 — Lab Sample ID: 410-66345-5

Date Collected: 12/01/21 10:03 — **Matrix: Water**
Date Received: 12/10/21 11:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	4500 F B-2011			204930	12/14/21 05:35	USAE	ELLE
Total/NA	Analysis	4500 F C-2011		1	205566	12/15/21 08:15	USAE	ELLE

Client Sample ID: MW-17S_TOTAL_20211201 — Lab Sample ID: 410-66345-6

Date Collected: 12/01/21 12:45 — **Matrix: Water**
Date Received: 12/10/21 11:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	4500 F B-2011			204930	12/14/21 05:35	USAE	ELLE
Total/NA	Analysis	4500 F C-2011		1	205566	12/15/21 07:47	USAE	ELLE

Lab Chronicle

Client: Alpha Analytical Inc
Project/Site: L2166695

Job ID: 410-66345-1

Client Sample ID: PZ-46_TOTAL_20211201 — Lab Sample ID: 410-66345-7

Date Collected: 12/01/21 12:54 — **Matrix: Water**
Date Received: 12/10/21 11:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	4500 F B-2011			204930	12/14/21 05:35	USAE	ELLE
Total/NA	Analysis	4500 F C-2011		1	205566	12/15/21 07:50	USAE	ELLE

Client Sample ID: PZ-44_TOTAL_20211201 — Lab Sample ID: 410-66345-8

Date Collected: 12/01/21 13:00 — **Matrix: Water**
Date Received: 12/10/21 11:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	4500 F B-2011			204930	12/14/21 05:35	USAE	ELLE
Total/NA	Analysis	4500 F C-2011		1	205566	12/15/21 08:35	USAE	ELLE

Client Sample ID: MW-18S_TOTAL_20211201 — Lab Sample ID: 410-66345-9

Date Collected: 12/01/21 10:15 — **Matrix: Water**
Date Received: 12/10/21 11:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	4500 F B-2011			204930	12/14/21 05:35	USAE	ELLE
Total/NA	Analysis	4500 F C-2011		1	205566	12/15/21 08:28	USAE	ELLE

Client Sample ID: MW-12S_TOTAL_20211130 — Lab Sample ID: 410-66345-10

Date Collected: 11/30/21 12:33 — **Matrix: Water**
Date Received: 12/10/21 11:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	4500 F B-2011			204930	12/14/21 05:35	USAE	ELLE
Total/NA	Analysis	4500 F C-2011		1	205566	12/15/21 07:52	USAE	ELLE

Client Sample ID: MW-13S_TOTAL_20211130 — Lab Sample ID: 410-66345-11

Date Collected: 11/30/21 12:10 — **Matrix: Water**
Date Received: 12/10/21 11:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	4500 F B-2011			204930	12/14/21 05:35	USAE	ELLE
Total/NA	Analysis	4500 F C-2011		1	205566	12/15/21 08:18	USAE	ELLE

Client Sample ID: MW-15S-87_TOTAL_20211130 — Lab Sample ID: 410-66345-12

Date Collected: 11/30/21 12:23 — **Matrix: Water**
Date Received: 12/10/21 11:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	4500 F B-2011			204930	12/14/21 05:35	USAE	ELLE
Total/NA	Analysis	4500 F C-2011		1	205566	12/15/21 08:55	USAE	ELLE

Lab Chronicle

Client: Alpha Analytical Inc
Project/Site: L2166695

Job ID: 410-66345-1

Client Sample ID: MW-26S_TOTAL_20211130 — Lab Sample ID: 410-66345-13

Date Collected: 11/30/21 12:40 — **Matrix: Water**
Date Received: 12/10/21 11:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	4500 F B-2011			204930	12/14/21 05:35	USAE	ELLE
Total/NA	Analysis	4500 F C-2011		1	205566	12/15/21 08:57	USAE	ELLE

Client Sample ID: MW-28S_TOTAL_20211130 — Lab Sample ID: 410-66345-14

Date Collected: 11/30/21 12:50 — **Matrix: Water**
Date Received: 12/10/21 11:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	4500 F B-2011			204930	12/14/21 05:35	USAE	ELLE
Total/NA	Analysis	4500 F C-2011		1	205566	12/15/21 07:57	USAE	ELLE

Client Sample ID: DUP_MW-28S_TOTAL_20211130 — Lab Sample ID: 410-66345-15

Date Collected: 11/30/21 12:50 — **Matrix: Water**
Date Received: 12/10/21 11:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	4500 F B-2011			204930	12/14/21 05:35	USAE	ELLE
Total/NA	Analysis	4500 F C-2011		1	205566	12/15/21 08:30	USAE	ELLE

Client Sample ID: MW-30S_TOTAL_20211130 — Lab Sample ID: 410-66345-16

Date Collected: 11/30/21 12:05 — **Matrix: Water**
Date Received: 12/10/21 11:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	4500 F B-2011			204930	12/14/21 05:35	USAE	ELLE
Total/NA	Analysis	4500 F C-2011		1	205566	12/15/21 08:25	USAE	ELLE

Client Sample ID: ISE_BLANK_TOTAL_20211130 — Lab Sample ID: 410-66345-17

Date Collected: 12/01/21 09:00 — **Matrix: Water**
Date Received: 12/10/21 11:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	4500 F B-2011			204930	12/14/21 05:35	USAE	ELLE
Total/NA	Analysis	4500 F C-2011		1	205566	12/15/21 07:42	USAE	ELLE

Client Sample ID: MW-35SR_TOTAL_20211201 — Lab Sample ID: 410-66345-18

Date Collected: 12/01/21 11:40 — **Matrix: Water**
Date Received: 12/10/21 11:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	4500 F B-2011			204930	12/14/21 05:35	USAE	ELLE
Total/NA	Analysis	4500 F C-2011		1	205566	12/15/21 07:45	USAE	ELLE

Laboratory References:
ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Alpha Analytical Inc
Project/Site: L2166695

Job ID: 410-66345-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	10670	04-01-22

Method Summary

Client: Alpha Analytical Inc
Project/Site: L2166695

Job ID: 410-66345-1

Method	Method Description	Protocol	Laboratory
4500 F C-2011	Fluoride (Ion-selective Electrode)	SM	ELLE
4500 F B-2011	Fluoride Distillation	SM	ELLE

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Alpha Analytical Inc
Project/Site: L2166695

Job ID: 410-66345-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-66345-1	DUP_MW-18S_TOTAL_20211201	Water	12/01/21 10:15	12/10/21 11:47
410-66345-2	MW-42_TOTAL_20211201	Water	12/01/21 11:47	12/10/21 11:47
410-66345-3	MW-16S_TOTAL_20211201	Water	12/01/21 12:32	12/10/21 11:47
410-66345-4	MW-19S_TOTAL_20211201	Water	12/01/21 12:14	12/10/21 11:47
410-66345-5	MW-27S_TOTAL_20211201	Water	12/01/21 10:03	12/10/21 11:47
410-66345-6	MW-17S_TOTAL_20211201	Water	12/01/21 12:45	12/10/21 11:47
410-66345-7	PZ-46_TOTAL_20211201	Water	12/01/21 12:54	12/10/21 11:47
410-66345-8	PZ-44_TOTAL_20211201	Water	12/01/21 13:00	12/10/21 11:47
410-66345-9	MW-18S_TOTAL_20211201	Water	12/01/21 10:15	12/10/21 11:47
410-66345-10	MW-12S_TOTAL_20211130	Water	11/30/21 12:33	12/10/21 11:47
410-66345-11	MW-13S_TOTAL_20211130	Water	11/30/21 12:10	12/10/21 11:47
410-66345-12	MW-15S-87_TOTAL_20211130	Water	11/30/21 12:23	12/10/21 11:47
410-66345-13	MW-26S_TOTAL_20211130	Water	11/30/21 12:40	12/10/21 11:47
410-66345-14	MW-28S_TOTAL_20211130	Water	11/30/21 12:50	12/10/21 11:47
410-66345-15	DUP_MW-28S_TOTAL_20211130	Water	11/30/21 12:50	12/10/21 11:47
410-66345-16	MW-30S_TOTAL_20211130	Water	11/30/21 12:05	12/10/21 11:47
410-66345-17	ISE_BLANK_TOTAL_20211130	Water	12/01/21 09:00	12/10/21 11:47
410-66345-18	MW-35SR_TOTAL_20211201	Water	12/01/21 11:40	12/10/21 11:47

ALPHA ANALYTICAL

Subcontract Chain of

Eurofins US
2425 New Holland Pike
Lancaster, PA 17601

410-66345 Chain of Custody

Alpha Job Number
L2166695

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 716-427-5223 Email: cfox@alphalab.com	Project Location: NY Project Manager: Candace Fox **Turnaround & Deliverables Information** Due Date: 12/22/21 Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2166695

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com NYS ASP Category B and Equ_EQedd_QcY_EhsSupport (UDS) required. Analyze via SM4500F B and C

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	DUP_MW-18S_TOTAL_20211201	12-01-21 10:15	WATER	Fluoride	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		12/8/21		12/8/21 1500
		12/8/21 1629		12/8/2021
Form No: AL_subcoc		12/8/21 2302		12/9/21 1250
		12/9/21 12:50		

Subcontract Chain of Custody

Eurofins US
2425 New Holland Pike
Lancaster, PA 17601

Alpha Job Number
L2166695

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 716-427-5223 Email: cfox@alphalab.com	Project Location: NY Project Manager: Candace Fox **Turnaround & Deliverables Information** Due Date: 12/22/21 Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2166695

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com NYS ASP Category B and Equ_EQedd_QcY_EhsSupport (UDS) required. Analyze via SM4500F B and C

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	MW-42_TOTAL_20211201	12-01-21 11:47	WATER	Fluoride	
	MW-16S_TOTAL_20211201	12-01-21 12:32	WATER	Fluoride	
	MW-19S_TOTAL_20211201	12-01-21 12:14	WATER	Fluoride	
	MW-27S_TOTAL_20211201	12-01-21 10:03	WATER	Fluoride	
	MW-17S_TOTAL_20211201	12-01-21 12:45	WATER	Fluoride	
	PZ-46_TOTAL_20211201	12-01-21 12:54	WATER	Fluoride	
	PZ-44_TOTAL_20211201	12-01-21 13:00	WATER	Fluoride	
	MW-18S_TOTAL_20211201	12-01-21 10:15	WATER	Fluoride	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		12/6/21		12/8/21 1500
		12/8/21 1629		
		12/8/21 2302		12/8/21 2525
Form No: AL_subcoc		12/9/21 1250		12/9/21 1250
		12/6/21 1250		

Subcontract Chain of Custody

Eurofins US
2425 New Holland Pike
Lancaster, PA 17601

Alpha Job Number
L2166695

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 716-427-5223
Email: cfox@alphalab.com

Project Information

Project Location: NY
Project Manager: Candace Fox

Turnaround & Deliverables Information

Due Date: 12/22/21
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:

Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2166695

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com NYS ASP Category B and Equ_EQedd_QcY_EhsSupport (UDS) required. Analyze via SM4500F B and C

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	MW-12S_TOTAL_20211130	11-30-21 12:33	WATER	Fluoride	
	MW-13S_TOTAL_20211130	11-30-21 12:10	WATER	Fluoride	
	MW-15S-87_TOTAL_20211130	11-30-21 12:23	WATER	Fluoride	
	MW-26S_TOTAL_20211130	11-30-21 12:40	WATER	Fluoride	
	MW-28S_TOTAL_20211130	11-30-21 12:50	WATER	Fluoride	
	DUP_MW-28S_TOTAL_20211130	11-30-21 12:50	WATER	Fluoride	
	MW-30S_TOTAL_20211130	11-30-21 12:05	WATER	Fluoride	
	ISE_BLANK_TOTAL_20211201	12-01-21 09:00	WATER	Fluoride	
	MW-35SR_TOTAL_20211201	12-01-21 11:40	WATER	Fluoride	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		12/8/21		12/8/21 1500
		12/8/21 1629		
		12/8/21 2302		12/9/21 0025
Form No: AL_subcoc		12/9/21 1254		12/9/21 1250

Login Sample Receipt Checklist

Client: Alpha Analytical Inc

Job Number: 410-66345-1

Login Number: 66345
List Number: 1
Creator: Cunningham, Abigail

List Source: Eurofins Lancaster Laboratories Env, LLC

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable (</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	

ANALYTICAL REPORT

Lab Number:	L2168996
Client:	EHS Support LLC
	Waterbury, VT 05676
ATTN:	Sam Parker
Phone:	(802) 497-8749
Project Name:	ALCOA MASSENA EAST
Project Number:	Not Specified
Report Date:	01/18/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2168996
Report Date: 01/18/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2168996-01	AMBER-DI-20211213	WATER	MASSENA, NY	12/13/21 12:05	12/15/21
L2168996-02	AMBER-FSTD-20211213	WATER	MASSENA, NY	12/13/21 12:10	12/15/21

Project Name:	ALCOA MASSENA EAST	**Lab Number:**	L2168996
Project Number:	Not Specified	**Report Date:**	01/18/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	ALCOA MASSENA EAST	**Lab Number:**	L2168996
Project Number:	Not Specified	**Report Date:**	01/18/22

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

The analysis of Fluoride was subcontracted. A copy of the laboratory report is included as an addendum.

Please note: This data is only available in PDF format and is not available on Data Merger.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 01/18/22

METALS

Project Name: ALCOA MASSENA EAST
Lab Number: L2168996
Project Number: Not Specified
Report Date: 01/18/22

SAMPLE RESULTS

Lab ID: L2168996-01
Client ID: AMBER-DI-20211213
Sample Location: MASSENA, NY
Date Collected: 12/13/21 12:05
Date Received: 12/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	12/23/21 16:01	12/28/21 16:15	EPA 3005A	1,6020B	SV

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified
Lab Number: L2168996
Report Date: 01/18/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1586898-1										
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	12/23/21 16:01	12/28/21 14:27	1,6020B	SV

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: ALCOA MASSENA EAST

Project Number: Not Specified

Lab Number: L2168996

Report Date: 01/18/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1586898-2								
Aluminum, Total	102		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2168996
Report Date: 01/18/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1586898-3 QC Sample: L2168368-01 Client ID: MS Sample												
Aluminum, Total	0.166	2	2.14	99		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: ALCOA MASSENA EAST

Project Number: Not Specified

Lab Number: L2168996

Report Date: 01/18/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1586898-4 QC Sample: L2168368-01 Client ID: DUP Sample						
Aluminum, Total	0.166	0.158	mg/l	5		20

INORGANICS
&
MISCELLANEOUS

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2168996
Report Date: 01/18/22

SAMPLE RESULTS

Lab ID: L2168996-01
Client ID: AMBER-DI-20211213
Sample Location: MASSENA, NY

Date Collected: 12/13/21 12:05
Date Received: 12/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	0.239	J	mg/l	0.500	0.083	1	-	12/28/21 23:54	44,300.0	JT
Fluoride	ND		mg/l	0.050	0.037	1	-	12/28/21 23:54	44,300.0	JT
Sulfate	0.641	J	mg/l	1.00	0.454	1	-	12/28/21 23:54	44,300.0	JT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2168996
Report Date: 01/18/22

SAMPLE RESULTS

Lab ID: L2168996-02
Client ID: AMBER-FSTD-20211213
Sample Location: MASSENA, NY

Date Collected: 12/13/21 12:10
Date Received: 12/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	18600		mg/l	250	42.0	500	-	12/28/21 23:30	44,300.0	JT
Fluoride	ND		mg/l	0.050	0.037	1	-	12/28/21 18:52	44,300.0	JT
Sulfate	2.46		mg/l	1.00	0.454	1	-	12/28/21 18:52	44,300.0	JT

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified
Lab Number: L2168996
Report Date: 01/18/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab for sample(s): 01-02 Batch: WG1588385-1										
Fluoride	ND		mg/l	0.050	0.037	1	-	12/28/21 12:37	44,300.0	JT
Sulfate	0.644	J	mg/l	1.00	0.454	1	-	12/28/21 12:37	44,300.0	JT
Anions by Ion Chromatography - Westborough Lab for sample(s): 01-02 Batch: WG1588385-1										
Chloride	0.234	J	mg/l	0.500	0.083	1	-	12/28/21 12:37	44,300.0	JT

Lab Control Sample Analysis

Batch Quality Control

Project Name: ALCOA MASSENA EAST

Project Number: Not Specified

Lab Number: L2168996

Report Date: 01/18/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 Batch: WG1588385-2								
Chloride	98		-		90-110	-		
Fluoride	98		-		90-110	-		
Sulfate	94		-		90-110	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2168996
Report Date: 01/18/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1588385-3 QC Sample: L2168978-01 Client ID: MS Sample												
Chloride	159.	40	198	100		-	-		90-110	-		18
Fluoride	0.039J	0.4	0.344	**86**	Q	-	-		90-110	-		15
Sulfate	11.9	8	18.9	**88**	Q	-	-		90-110	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: ALCOA MASSENA EAST

Project Number: Not Specified

Lab Number: L2168996

Report Date: 01/18/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1588385-4 QC Sample: L2168978-01 Client ID: DUP Sample						
Fluoride	0.039J	0.037J	mg/l	NC		15
Sulfate	11.9	11.9	mg/l	0		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1588385-4 QC Sample: L2168978-01 Client ID: DUP Sample						
Chloride	159.	159	mg/l	0		18

Project Name: ALCOA MASSENA EAST
Project Number: Not Specified

Lab Number: L2168996
Report Date: 01/18/22

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2168996-01A	Plastic 250ml unpreserved	A	7	7	2.4	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2168996-01B	Plastic 250ml unpreserved	A	7	7	2.4	Y	Absent		SUB-FLUORIDE(28)
L2168996-01C	Plastic 500ml HNO3 preserved	A	<2	<2	2.4	Y	Absent		AL-6020T(180)
L2168996-02A	Plastic 250ml unpreserved	A	5	5	2.4	Y	Absent		SO4-300(28),F-300(28),CL-300(28)
L2168996-02B	Plastic 250ml unpreserved	A	5	5	2.4	Y	Absent		SUB-FLUORIDE(28)

*Values in parentheses indicate holding time in days

Project Name:	ALCOA MASSENA EAST	**Lab Number:**	L2168996
Project Number:	Not Specified	**Report Date:**	01/18/22

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name:	ALCOA MASSENA EAST	**Lab Number:**	L2168996
Project Number:	Not Specified	**Report Date:**	01/18/22

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	ALCOA MASSENA EAST	**Lab Number:**	L2168996
Project Number:	Not Specified	**Report Date:**	01/18/22

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

Project Name:	ALCOA MASSENA EAST	**Lab Number:**	L2168996
Project Number:	Not Specified	**Report Date:**	01/18/22

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab: 12/16/21

ALPHA Job #: L2168996

Client Information
Client: EHS Support LLC
Address: 4885 McKnight Rd
Pittsburgh, PA 15237
Phone: 908-967-1088
Fax:
Email: See Contract

Project Information
Project Name: Alcoa Massena East
Project Location: Massena, NY
Project #: REM-C033330-2021
(Use Project name as Project #) ☐
Project Manager: Samuel Parker
ALPHAQuote #:

Turn-Around Time
Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☑ ASP-B
☐ EQuIS (1 File) ☑ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO # See Contract

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:
- please add austin.wilkes@ehs-support.com to list of emails specified in contract.
- please forward SM4500F-BC samples to Eurofins Lancaster lab

Please specify Metals or TAL.
Aluminum only for EPA 6020

ANALYSIS
EPA300(F,Cl,SO4) | SM4500F-BC | EPA6020 (Al)

Sample Filtration
☑ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	EPA300(F,Cl,SO4)	SM4500F-BC	EPA6020 (Al)	Sample Specific Comments	Total Bottle
68996 -01	Amber-DS-20211213	12/13/21	12:05	WG	AW	X	X	X	Al only for 6020	3
-02	Amber-FSD-20211213	12/13/21	12:10	WG	AW	X	X			2

Container Type: P P P
Preservative: A A C

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
AW	12/15/21 13:30	B. Lyons 12-15-21	15:30
B. Lyons 12-15-21	17:41		12/16/21 0100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

ALPHA ANALYTICAL
World Class Chemistry

Subcontract Chain of Custody

Eurofins US
2425 New Holland Pike
Lancaster, PA 17601

Alpha Job Number
L2168996

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 716-427-5223
Email: cfox@alphalab.com

Project Information

Project Location: NY
Project Manager: Candace Fox

Turnaround & Deliverables Information

Due Date:
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2168996

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	AMBER-DI-20211213	12-13-21 12:05	WATER	Fluoride	
	AMBER-FSTD-20211213	12-13-21 12:10	WATER	Fluoride	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		12/20/21		
Form No: AL_subcoc				

Subcontract Chain of Custody

Eurofins US
2425 New Holland Pike
Lancaster, PA 17601

Alpha Job Number
L2168996

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 716-427-5223
Email: cfox@alphalab.com

Project Information

Project Location: NY
Project Manager: Candace Fox

Turnaround & Deliverables Information

Due Date:
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2168996

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	AMBER-DI-20211213	12-13-21 12:05	WATER	Fluoride	
	~~AMBER-FSTD-20211213~~	~~12-13-21 12:10~~	~~WATER~~	~~Fluoride~~	

Relinquished By:	Date/Time:	Received By:	Date/Time:
	1/10/22		

Form No: AL_subcoc

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins Lancaster Laboratories Env, LLC
2425 New Holland Pike
Lancaster, PA 17601
Tel: (717)656-2300

Laboratory Job ID: 410-67739-1
Client Project/Site: L2168996

For:
Alpha Analytical Inc
8 Walkup Drive
Westboro, Massachusetts 01581

Attn: Candace Fox

Authorized for release by:
1/18/2022 10:27:10 AM
Nicole Brown, Project Manager
(717)471-3265
nicole.brown@eurofinset.com

Designee for

Marrissa Williams, Project Manager
(717)556-7246
Marrissa.Williams@eurofinset.com

LINKS

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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Nicole Brown
Project Manager
1/18/2022 10:27:10 AM

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Definitions/Glossary

Client: Alpha Analytical Inc
Project/Site: L2168996

Job ID: 410-67739-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
F1	MS and/or MSD recovery exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Alpha Analytical Inc
Project/Site: L2168996

Job ID: 410-67739-1

Job ID: 410-67739-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

Narrative

Job Narrative
410-67739-1

Receipt
The samples were received on 12/21/2021 11:40 AM and 1/11/2022 9:52 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.4°C and 1.4°C

General Chemistry
Method 4500_F_C: Reanalysis of the following sample was performed outside of the analytical holding time due to laboratory error: AMBER-DI-20211213 (410-69246-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Alpha Analytical Inc
Project/Site: L2168996

Job ID: 410-67739-1

Client Sample ID: AMBER-FSTD-20211213 — Lab Sample ID: 410-67739-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	4.40	F1	1.38	0.413	mg/L	1		4500 F C-2011	Total/NA

Client Sample ID: AMBER-DI-20211213 — Lab Sample ID: 410-69246-1

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Env, LLC

Client Sample Results

Client: Alpha Analytical Inc
Project/Site: L2168996

Job ID: 410-67739-1

Client Sample ID: AMBER-FSTD-20211213

Lab Sample ID: 410-67739-2
Date Collected: 12/13/21 12:10
Matrix: Water
Date Received: 12/21/21 11:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	4.40	F1	1.38	0.413	mg/L		12/30/21 05:30	12/31/21 09:49	1

Client Sample ID: AMBER-DI-20211213

Lab Sample ID: 410-69246-1
Date Collected: 12/13/21 12:05
Matrix: Water
Date Received: 01/11/22 09:52

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.0413	H cn	0.138	0.0413	mg/L		01/14/22 08:04	01/17/22 11:23	1

QC Sample Results

Client: Alpha Analytical Inc
Project/Site: L2168996

Job ID: 410-67739-1

Method: 4500 F C-2011 - Fluoride (Ion-selective Electrode)

Lab Sample ID: MB 410-210495/1-A
Matrix: Water
Analysis Batch: 210853

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 210495

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.0280		0.0933	0.0280	mg/L		12/30/21 05:30	12/31/21 09:36	1

Lab Sample ID: LCS 410-210495/9-A
Matrix: Water
Analysis Batch: 210853

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 210495

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.998	0.9808		mg/L		98	88 - 108

Lab Sample ID: 410-67739-2 MS
Matrix: Water
Analysis Batch: 210853

Client Sample ID: AMBER-FSTD-20211213
Prep Type: Total/NA
Prep Batch: 210495

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	4.40	F1	15.0	18.10		mg/L		91	88 - 108

Lab Sample ID: 410-67739-2 MSD
Matrix: Water
Analysis Batch: 210853

Client Sample ID: AMBER-FSTD-20211213
Prep Type: Total/NA
Prep Batch: 210495

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	4.40	F1	15.0	16.91	F1	mg/L		84	88 - 108	7	7

Lab Sample ID: 410-67739-2 DU
Matrix: Water
Analysis Batch: 210853

Client Sample ID: AMBER-FSTD-20211213
Prep Type: Total/NA
Prep Batch: 210495

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Fluoride	4.40	F1	4.418		mg/L		0.4	9

Lab Sample ID: MB 410-214608/1-A
Matrix: Water
Analysis Batch: 215147

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 214608

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.0270		0.0900	0.0270	mg/L		01/14/22 08:04	01/17/22 11:09	1

Lab Sample ID: LCS 410-214608/13-A
Matrix: Water
Analysis Batch: 215147

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 214608

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.999	0.9533		mg/L		95	88 - 108

QC Association Summary

Client: Alpha Analytical Inc
Project/Site: L2168996

Job ID: 410-67739-1

General Chemistry

Prep Batch: 210495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-67739-2	AMBER-FSTD-20211213	Total/NA	Water	4500 F B-2011	
MB 410-210495/1-A	Method Blank	Total/NA	Water	4500 F B-2011	
LCS 410-210495/9-A	Lab Control Sample	Total/NA	Water	4500 F B-2011	
410-67739-2 MS	AMBER-FSTD-20211213	Total/NA	Water	4500 F B-2011	
410-67739-2 MSD	AMBER-FSTD-20211213	Total/NA	Water	4500 F B-2011	
410-67739-2 DU	AMBER-FSTD-20211213	Total/NA	Water	4500 F B-2011	

Analysis Batch: 210853

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-67739-2	AMBER-FSTD-20211213	Total/NA	Water	4500 F C-2011	210495
MB 410-210495/1-A	Method Blank	Total/NA	Water	4500 F C-2011	210495
LCS 410-210495/9-A	Lab Control Sample	Total/NA	Water	4500 F C-2011	210495
410-67739-2 MS	AMBER-FSTD-20211213	Total/NA	Water	4500 F C-2011	210495
410-67739-2 MSD	AMBER-FSTD-20211213	Total/NA	Water	4500 F C-2011	210495
410-67739-2 DU	AMBER-FSTD-20211213	Total/NA	Water	4500 F C-2011	210495

Prep Batch: 214608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-69246-1	AMBER-DI-20211213	Total/NA	Water	4500 F B-2011	
MB 410-214608/1-A	Method Blank	Total/NA	Water	4500 F B-2011	
LCS 410-214608/13-A	Lab Control Sample	Total/NA	Water	4500 F B-2011	

Analysis Batch: 215147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-69246-1	AMBER-DI-20211213	Total/NA	Water	4500 F C-2011	214608
MB 410-214608/1-A	Method Blank	Total/NA	Water	4500 F C-2011	214608
LCS 410-214608/13-A	Lab Control Sample	Total/NA	Water	4500 F C-2011	214608

Lab Chronicle

Client: Alpha Analytical Inc
Project/Site: L2168996

Job ID: 410-67739-1

Client Sample ID: AMBER-FSTD-20211213

Lab Sample ID: 410-67739-2

Date Collected: 12/13/21 12:10

Matrix: Water

Date Received: 12/21/21 11:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	4500 F B-2011			210495	12/30/21 05:30	USAE	ELLE
Total/NA	Analysis	4500 F C-2011		1	210853	12/31/21 09:49	USAE	ELLE

Client Sample ID: AMBER-DI-20211213

Lab Sample ID: 410-69246-1

Date Collected: 12/13/21 12:05

Matrix: Water

Date Received: 01/11/22 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	4500 F B-2011			214608	01/14/22 08:04	USE1	ELLE
Total/NA	Analysis	4500 F C-2011		1	215147	01/17/22 11:23	USE1	ELLE

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Alpha Analytical Inc
Project/Site: L2168996

Job ID: 410-67739-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	10670	04-01-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

Method Summary

Client: Alpha Analytical Inc
Project/Site: L2168996

Job ID: 410-67739-1

Method	Method Description	Protocol	Laboratory
4500 F C-2011	Fluoride (Ion-selective Electrode)	SM	ELLE
4500 F B-2011	Fluoride Distillation	SM	ELLE

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Alpha Analytical Inc
Project/Site: L2168996

Job ID: 410-67739-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-67739-2	AMBER-FSTD-20211213	Water	12/13/21 12:10	12/21/21 11:40
410-69246-1	AMBER-DI-20211213	Water	12/13/21 12:05	01/11/22 09:52

ALPHA ANALYTICAL — World Class Chemistry

410-67739 Chain of Custody

Subcontract Chain of Custody

Eurofins US
2425 New Holland Pike
Lancaster, PA 17601

Alpha Job Number
L2168996

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 716-427-5223 Email: cfox@alphalab.com	Project Location: NY Project Manager: Candace Fox Turnaround & Deliverables Information Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2168996

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	AMBER-DI-20211213	12-13-21 12:05	WATER	Fluoride	
	AMBER-FSTD-20211213	12-13-21 12:10	WATER	Fluoride	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		12/20/21		
Form No: AL_subcoc				12/21/21 1140

ALPHA ANALYTICAL

Subcontract Chain of C

Eurofins US
2425 New Holland Pike
Lancaster, PA 17601

410-69246 Chain of Custody

Alpha Job Number
L2168996

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 716-427-5223 Email: cfox@alphalab.com	Project Location: NY Project Manager: Candace Fox **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2168996

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	AMBER-DI-20211213 ~~AMBER-FSTD-20211213~~	12-13-21 12:05 12-13-21 12:10	WATER ~~WATER~~	Fluoride ~~Fluoride~~	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		1/10/22		
Form No: AL_subcoc				1/11/22 0952

Login Sample Receipt Checklist

Client: Alpha Analytical Inc

Job Number: 410-6773

Login Number: 67739
List Number: 1
Creator: Jeremiah, Cory T

List Source: Eurofins Lancaster Laboratories Env, LI

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable (</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	

Login Sample Receipt Checklist

Client: Alpha Analytical Inc

Job Number: 410-6773

Login Number: 69246
List Number: 1
Creator: Reiff, Nicole L

List Source: Eurofins Lancaster Laboratories Env, LI

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable (</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	

December 22, 2021 Service Request No:R2112723

Mr. Ryan Kingsley
CDM Smith, Inc.
4 Highland Road
Suite #1
Massena, NY 13662

Laboratory Results for: Reynolds Add Sampling

Dear Mr.Kingsley,

Enclosed are the results of the sample(s) submitted to our laboratory December 03, 2021
For your reference, these analyses have been assigned our service request number **R2112723.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7475. You may also contact me via email at Meghan.Pedro@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Meghan Pedro
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: CDM Smith, Inc.
Project: Reynolds Add Sampling
Sample Matrix: Water

Service Request: R2112723
Date Received: 12/03/2021

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Seven water samples were received for analysis at ALS Environmental on 12/03/2021. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Subcontracted Analytical Parameters:

One or more samples were subcontracted to another laboratory for testing. The certified analytical report from the subcontractor has been included in its entirety at the end of this report and includes the name and address of the subcontracted laboratory.

Approved by _____ Date 12/22/2021

SAMPLE DETECTION SUMMARY

CLIENT ID: MW-42-AS-0921			Lab ID: R2112723-002			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Cyanide, Total	0.125			0.0050	mg/L	Kelada-01

CLIENT ID: CELL-1-AS-0921			Lab ID: R2112723-006			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Cyanide, Total	0.0719			0.0050	mg/L	Kelada-01

CLIENT ID: STW-POND-AS-0921			Lab ID: R2112723-007			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Cyanide, Total	0.0091			0.0050	mg/L	Kelada-01

Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R2112723-001	MW-28S-AS-0921	11/30/2021	1250
R2112723-002	MW-42-AS-0921	12/1/2021	1147
R2112723-003	MW-2302-AS-0921	12/1/2021	1000
R2112723-004	MW-2303-AS-0921	11/30/2021	1255
R2112723-005	MW-2304-AS-0921	12/2/2021	1000
R2112723-006	CELL-1-AS-0921	12/2/2021	0935
R2112723-007	STW-POND-AS-0921	11/30/2021	0345

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 061443

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE _____ OF _____

Project Name: Reynolds Add Sampling	Project Number:
Project Manager: Ryan Kingsley	Report CC:
Company/Address: 4 highland Road, Suite 1, Massena NY 13662	
Phone #: (315) 296-9012	Email:
Sampler's Signature:	Sampler's Printed Name:

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE

NUMBER OF CONTAINERS

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	GC/MS VOAs • 8260 • 624 • CLP	GC/MS SVOAs • 8270 • 625	GC VOAs • 8021 • 601/602	PESTICIDES • 8081 • 608	PCBs • 8082 • 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	SM 4500 F C	SM 4500 F B - 4500 F C	Kelada-01	OIA-1677-09	D7237-10			REMARKS/ ALTERNATE DESCRIPTION
MW-28s-AS-0921		11/30/21	12:50	WG								X							
MW-42-AS-0921		12/1/21	11:47	WG								X	X	X	X	X			
MW-2301-AS-0921		11/29/21	2:30	WG								X	X	X	X	X			
MW-2302-AS-0921		12/2/21	10:00	WG								X	X	X	X	X			
MW-2303-AS-0921		11/29/21	12:55	WG								X	X						
MW-2304-AS-0921		12/2/21	10:20	WG								X	X	X	X	X			
Cell-1-AS-0921		12/2/21	9:35	WG										X	X	X			
Stw-Pond-AS-0921		11/29/21	3:45	WG										X	X	X			

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED

TURNAROUND REQUIREMENTS
_____ RUSH (SURCHARGES APPLY)
_____ 1 day _____ 2 day _____ 3 day
_____ 4 day _____ 5 day
_____ Standard (10 business days-No Surcharge)
REQUESTED REPORT DATE
_____

REPORT REQUIREMENTS
_____ I. Results Only
_____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
_____ III. Results + QC and Calibration Summaries
_____ IV. Data Validation Report with Raw Data
Edata _____Yes _____No

INVOICE INFORMATION
PO #
BILL TO:

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature:	Signature:	Signature:	Signature:	Signature:	
Printed Name: Josh Gloscenger	Printed Name:	Printed Name:	Printed Name:	Printed Name:	
Firm: CDM Smith	Firm: ALS	Firm:	Firm:	Firm:	
Date/Time: 12/2/21 3:50	Date/Time: 12/3/21 1030	Date/Time:	Date/Time:	Date/Time:	

R2112723 5
CDM Smith, Inc.
Reynolds Add Sampling

Distribution: White - Lab Copy; Yellow - Return to Originator

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CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 061443

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: Reynolds Add Sampling	Project Number:
Project Manager: Ryan Kingsley	Report CC:
Company/Address: 4 Highland Road, Suite 1, Massena NY 13662	
Phone #: (315) 296-9012	Email:
Sampler's Signature:	Sampler's Printed Name:

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE

NUMBER OF CONTAINERS

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAS ID	SAMPLING DATE	SAMPLING TIME	MATRIX	GC/MS VOAs ◦ 8260 ◦ 624 ◦ CLP	GC/MS SVOAs ◦ 8270 ◦ 625	GC VOAs ◦ 8021 ◦ 601/602	PESTICIDES ◦ 8081 ◦ 608	PCBs ◦ 8082 ◦ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	SM 4500 F C	SM 4500 F B - 4500 F C	Kelada - 01	Cl2 - 1688 - 09	D7239-10			REMARKS/ ALTERNATE DESCRIPTION
MW-28S-AS-0921		11/30/21	12:50	WG								X	X						
MW-42-AS-0921		12/1/21	11:47	WG								X	X	X	X	X			
~~MW-2301-AS-0921~~		~~11/29/21~~	~~2:30~~	~~WG~~								~~X~~	~~X~~	~~X~~	~~X~~	~~X~~			Please Cancel
MW-2302-AS-0921	R/1/21	12/1/21	10:00	WG								X	X	X	X	X			
MW-2303-AS-0921		11/30/21	12:55	WG								X	X						
MW-2304-AS-0921		12/2/21	10:00	WG						Cancel →		~~X~~	~~X~~	X	X	X			
Cell-1-AS-0921		12/2/21	9:35	WG										X	X	X			
SW-Pond-AS-0921		11/29/21	3:45	WG										X	X	X			

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS
Metals

11/30/21

Modifications Ryan Kingsley 12/2/21

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
____ Standard (10 business days-No Surcharge)
REQUESTED REPORT DATE
_____

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
Edata ____ Yes ____ No

INVOICE INFORMATION
PO #
BILL TO:

STATE WHERE SAMPLES WERE COLLECTED

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Josh Gloscenger	Signature:	Signature:	Signature:	Signature:	Signature:
Printed Name: Josh Gloscenger	Printed Name:	Printed Name:	Printed Name:	Printed Name:	Printed Name:
Firm: CDM Smith	Firm:	Firm:	Firm:	Firm:	Firm:
Date/Time: 12/2/21 3:50	Date/Time:	Date/Time:	Date/Time:	Date/Time:	Date/Time:

Distribution: White - Lab Copy; Yellow - Return to Originator

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R2112723 5
CDM Smith, Inc.
Reynolds Add Sampling

Cooler Receipt and Preservation Check Form

Project/Client CDM Folder Number

Cooler received on 12/3/21 by: Q

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y (N)	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N (NA)
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate?	(ALS/ROC) CLIENT
4	Circle: (Wet Ice) **Dry Ice Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 12/3/21 Time: 1045 ID: IR#7 (IR#11) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	2.9						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: Standing Approval Client aware at drop-off Client notified by:

All samples held in storage location: R002 by Q on 12/3/21 at 1046
5035 samples placed in storage location: by on at within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 12/6/21 Time: 1235 by: Q

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES (NO)
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact Y / N with MS Y / N Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12	005320	NaOH	✓		214719	4/22				
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN Phenol, 625, 608pest, 522	✓		If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: 080921-3A40
Explain all Discrepancies/ Other Comments:

HPROD	BULK
HTR	FLDT
(SUB)	HGFB
ALS	LL3541

Labels secondary reviewed by: Q
PC Secondary Review:

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Miscellaneous Forms

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Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

REPORT QUALIFIERS AND DEFINITIONS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).
X	See Case Narrative for discussion.
MRL LOQ	Method Reporting Limit. Also known as: Limit of Quantitation (LOQ) The lowest concentration at which the method analyte may be reliably quantified under the method conditions.
MDL	Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).
LOD	Limit of Detection. A value at or above the MDL which has been verified to be detectable.
ND	Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

Rochester Lab ID # for State Accreditations[1]

NELAP States
Florida ID # E87674
New Hampshire ID # 2941
New York ID # 10145
Pennsylvania ID# 68-786
Virginia #460167

Non-NELAP States
Connecticut ID #PH0556
Delaware Approved
Maine ID #NY01587
North Carolina #36701
North Carolina #676
Rhode Island LAO00333

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

ALS Laboratory Group

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: CDM Smith, Inc. **Service Request:** R2112723
Project: Reynolds Add Sampling/

Sample Name: MW-28S-AS-0921 **Date Collected:** 11/30/21
Lab Code: R2112723-001 **Date Received:** 12/3/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-F- C	ACHEATLEY	ACHEATLEY
SM 4500-F- C Modified		ACHEATLEY

Sample Name: MW-42-AS-0921 **Date Collected:** 12/1/21
Lab Code: R2112723-002 **Date Received:** 12/3/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
Kelada-01		CWOODS
SM 4500-F- C	ACHEATLEY	ACHEATLEY
SM 4500-F- C Modified		ACHEATLEY

Sample Name: MW-2302-AS-0921 **Date Collected:** 12/1/21
Lab Code: R2112723-003 **Date Received:** 12/3/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
Kelada-01		CWOODS
SM 4500-F- C	ACHEATLEY	ACHEATLEY
SM 4500-F- C Modified		ACHEATLEY

Sample Name: MW-2303-AS-0921 **Date Collected:** 11/30/21
Lab Code: R2112723-004 **Date Received:** 12/3/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-F- C	ACHEATLEY	ACHEATLEY
SM 4500-F- C Modified		ACHEATLEY

Client:	CDM Smith, Inc.	**Service Request:**	R2112723
Project:	Reynolds Add Sampling/		

Sample Name:	MW-2304-AS-0921	**Date Collected:**	12/2/21
Lab Code:	R2112723-005	**Date Received:**	12/3/21
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
Kelada-01		CWOODS

Sample Name:	CELL-1-AS-0921	**Date Collected:**	12/2/21
Lab Code:	R2112723-006	**Date Received:**	12/3/21
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
Kelada-01		CWOODS

Sample Name:	STW-POND-AS-0921	**Date Collected:**	11/30/21
Lab Code:	R2112723-007	**Date Received:**	12/3/21
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
Kelada-01		CWOODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	

Sample Results

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General Chemistry

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Analytical Report

Client:	CDM Smith, Inc.	**Service Request:**	R2112723
Project:	Reynolds Add Sampling	**Date Collected:**	12/01/21 11:47
Sample Matrix:	Water	**Date Received:**	12/03/21 10:30
Sample Name:	MW-42-AS-0921	**Basis:**	NA
Lab Code:	R2112723-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Cyanide, Total	Kelada-01	**0.125**	mg/L	0.0050	1	12/14/21 14:27	

Analytical Report

Client:	CDM Smith, Inc.	**Service Request:**	R2112723
Project:	Reynolds Add Sampling	**Date Collected:**	12/01/21 10:00
Sample Matrix:	Water	**Date Received:**	12/03/21 10:30
Sample Name:	MW-2302-AS-0921	**Basis:**	NA
Lab Code:	R2112723-003		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Cyanide, Total	Kelada-01	0.0050 U	mg/L	0.0050	1	12/14/21 14:31	

Analytical Report

Client:	CDM Smith, Inc.	**Service Request:**	R2112723
Project:	Reynolds Add Sampling	**Date Collected:**	12/02/21 10:00
Sample Matrix:	Water	**Date Received:**	12/03/21 10:30
Sample Name:	MW-2304-AS-0921	**Basis:**	NA
Lab Code:	R2112723-005		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Cyanide, Total	Kelada-01	0.0050 U	mg/L	0.0050	1	12/14/21 13:55	

Analytical Report

Client:	CDM Smith, Inc.	**Service Request:**	R2112723
Project:	Reynolds Add Sampling	**Date Collected:**	12/02/21 09:35
Sample Matrix:	Water	**Date Received:**	12/03/21 10:30
Sample Name:	CELL-1-AS-0921	**Basis:**	NA
Lab Code:	R2112723-006		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Cyanide, Total	Kelada-01	**0.0719**	mg/L	0.0050	1	12/14/21 15:49	

Analytical Report

Client:	CDM Smith, Inc.	**Service Request:**	R2112723
Project:	Reynolds Add Sampling	**Date Collected:**	11/30/21 03:45
Sample Matrix:	Water	**Date Received:**	12/03/21 10:30
Sample Name:	STW-POND-AS-0921	**Basis:**	NA
Lab Code:	R2112723-007		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Cyanide, Total	Kelada-01	**0.0091**	mg/L	0.0050	1	12/12/21 18:44	

QC Summary Forms

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General Chemistry

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Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Analytical Report

Client:	CDM Smith, Inc.	**Service Request:**	R2112723
Project:	Reynolds Add Sampling	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	R2112723-MB1		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Cyanide, Total	Kelada-01	0.0050 U	mg/L	0.0050	1	12/12/21 16:38	

Analytical Report

Client:	CDM Smith, Inc.	**Service Request:**	R2112723
Project:	Reynolds Add Sampling	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	R2112723-MB2		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Cyanide, Total	Kelada-01	0.0050 U	mg/L	0.0050	1	12/14/21 13:06	

Analytical Report

Client:	CDM Smith, Inc.	**Service Request:**	R2112723
Project:	Reynolds Add Sampling	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	R2112723-MB3		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Cyanide, Total	Kelada-01	0.0050 U	mg/L	0.0050	1	12/14/21 15:00	

Client: CDM Smith, Inc.
Project: Reynolds Add Sampling
Sample Matrix: Water

Service Request: R2112723
Date Analyzed: 12/12/21

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2112723-LCS1

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Cyanide, Total	Kelada-01	0.0932	0.100	93	90-110

Client: CDM Smith, Inc.
Project: Reynolds Add Sampling
Sample Matrix: Water

Service Request: R2112723
Date Analyzed: 12/14/21

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2112723-LCS2

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Cyanide, Total	Kelada-01	0.0997	0.100	100	90-110

Client: CDM Smith, Inc.
Project: Reynolds Add Sampling
Sample Matrix: Water

Service Request: R2112723
Date Analyzed: 12/14/21

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2112723-LCS3

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Cyanide, Total	Kelada-01	0.101	0.100	101	90-110

Subcontracted Analytical Parameters

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Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Date: 12/13/2021

CLIENT: ALS-New York
Project: R21112723
Lab Order: S2112142

CASE NARRATIVE

Report ID: S2112142001

Samples CELL-1-AS-0921, MW-2302-AS-0921, MW-2304-AS-0921, MW-42-AS-0921 and STW-POND-AS-0921 were received on December 9, 2021.

All samples were received and analyzed within recommended holding times, except those noted below in this case narrative. Samples were analyzed using methods outlined in the following references:

Standard Methods for the Examination of Water and Wastewater, approved method versions
EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, online versions
EPA methods 40 CFR Parts 136 and 141EPA 600/2-78-054 methods
NDEP Mining Methods
40 CFR Part 50, Appendices B, J, L, O and FEM EQL-0310-189
IO Compendium Methods
Clean Water Act Methods Update Rule for the Analysis of Effluent, current version.
ASTM approved and recognized standards
ISO approved and recognized standards
USDA Handbook 60
Soil Survey Laboratory Manual Ver 4.0
ASA/SSSA 9 Methods of Analysis Part 2, 1982
ASA/SSSA Methods of Analysis Book 5 Part 3, 1996
Other industry approved methods

All Quality Control parameters met the acceptance criteria defined by EPA and Pace Analytical except as indicated in this case narrative:

Reviewed by: John M. Jacobs
John Jacobs, Project Manager

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Sample Analysis Report

CLIENT: ALS-New York
1565 Jefferson Rd BLDG 300
Rochester, NY 14623

Date Reported: 12/13/2021
Report ID: S2112142001

Work Order: S2112142
Collection Date: 12/1/2021 11:47:00 AM
Date Received: 12/9/2021 11:31:00 AM
Sampler:
Matrix: Water
COC:

Project: R21112723
Lab ID: S2112142-001
Client Sample ID: MW-42-AS-0921

Analyses	Result	RL	Qual	Units	Date Analyzed/Init	Method
General Parameters						
Cyanide, Aquatic Free	ND	0.02		mg/L	12/13/2021 09:54 AMB	ASTM D7237
Cyanide, Available	ND	0.01		mg/L	12/10/2021 10:39 AMB	OIA-1677

These results apply only to the samples tested.

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit

RL - Reporting Limit

C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by: John M. Jacobs
John Jacobs, Project Manager

Sample Analysis Report

CLIENT: ALS-New York
1565 Jefferson Rd BLDG 300
Rochester, NY 14623

Date Reported: 12/13/2021
Report ID: S2112142001

Work Order: S2112142
Collection Date: 12/1/2021 10:00:00 AM
Date Received: 12/9/2021 11:31:00 AM
Sampler:
Matrix: Water
COC:

Project: R21112723
Lab ID: S2112142-002
Client Sample ID: MW-2302-AS-0921

Analyses	Result	RL	Qual	Units	Date Analyzed/Init	Method
General Parameters						
Cyanide, Aquatic Free	ND	0.02		mg/L	12/13/2021 09:55 AMB	ASTM D7237
Cyanide, Available	ND	0.01		mg/L	12/10/2021 10:40 AMB	OIA-1677

These results apply only to the samples tested.

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit

RL - Reporting Limit

C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by: John M. Jacobs
John Jacobs, Project Manager

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Sample Analysis Report

CLIENT: ALS-New York
1565 Jefferson Rd BLDG 300
Rochester, NY 14623

Date Reported: 12/13/2021
Report ID: S2112142001

Work Order: S2112142
Collection Date: 12/2/2021 10:00:00 AM
Project: R21112723
Date Received: 12/9/2021 11:31:00 AM
Lab ID: S2112142-003
Sampler:
Client Sample ID: MW-2304-AS-0921
Matrix: Water
COC:

Analyses	Result	RL	Qual	Units	Date Analyzed/Init	Method
General Parameters						
Cyanide, Aquatic Free	ND	0.02		mg/L	12/13/2021 09:57 AMB	ASTM D7237
Cyanide, Available	ND	0.01		mg/L	12/10/2021 10:42 AMB	OIA-1677

These results apply only to the samples tested.

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit

RL - Reporting Limit

C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by: John M. Jacobs
John Jacobs, Project Manager

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Sample Analysis Report

CLIENT: ALS-New York
1565 Jefferson Rd BLDG 300
Rochester, NY 14623

Date Reported: 12/13/2021
Report ID: S2112142001

Work Order: S2112142
Collection Date: 12/2/2021 9:35:00 AM
Date Received: 12/9/2021 11:31:00 AM
Sampler:
Matrix: Water
COC:

Project: R21112723
Lab ID: S2112142-004
Client Sample ID: CELL-1-AS-0921

Analyses	Result	RL	Qual	Units	Date Analyzed/Init	Method
General Parameters						
Cyanide, Aquatic Free	ND	0.02		mg/L	12/13/2021 09:58 AMB	ASTM D7237
Cyanide, Available	ND	0.01		mg/L	12/10/2021 10:43 AMB	OIA-1677

These results apply only to the samples tested.

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit

RL - Reporting Limit

C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by: John M. Jacobs
John Jacobs, Project Manager

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Sample Analysis Report

CLIENT: ALS-New York
1565 Jefferson Rd BLDG 300
Rochester, NY 14623

Date Reported: 12/13/2021
Report ID: S2112142001

Work Order: S2112142
Collection Date: 11/30/2021 3:45:00 AM
Date Received: 12/9/2021 11:31:00 AM
Sampler:
Matrix: Water
COC:

Project: R21112723
Lab ID: S2112142-005
Client Sample ID: STW-POND-AS-0921

Analyses	Result	RL	Qual	Units	Date Analyzed/Init	Method
General Parameters						
Cyanide, Aquatic Free	ND	0.02		mg/L	12/13/2021 09:52 AMB	ASTM D7237
Cyanide, Available	ND	0.01		mg/L	12/10/2021 10:37 AMB	OIA-1677

These results apply only to the samples tested.

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit

RL - Reporting Limit

C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by: John M. Jacobs
John Jacobs, Project Manager

Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

ANALYTICAL QC SUMMARY REPORT

CLIENT: ALS-New York **Date:** 12/13/2021
Work Order: S2112142 **Report ID:** S2112142001
Project: R21112723

Aquatic Free Cyanide Sample Type **MBLK** Units: mg/L

BLANK (12/13/21 09:42) RunNo: 195728

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Cyanide, Aquatic Free	ND	0.02					

Aquatic Free Cyanide Sample Type **LCS** Units: mg/L

QC (12/13/21 09:46) RunNo: 195728

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Cyanide, Aquatic Free	0.11	0.02	0.128		83.3	82 - 132	

Aquatic Free Cyanide Sample Type **MS** Units: mg/L

S2112165-001A (12/13/21 10:04) RunNo: 195728

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Cyanide, Aquatic Free	0.54	0.02	0.5	ND	108	80 - 120	

Aquatic Free Cyanide Sample Type **MSD** Units: mg/L

S2112165-001A (12/13/21 10:06) RunNo: 195728

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Cyanide, Aquatic Free	0.53	0.02	0.54	2.61	105	20	

Aquatic Free Cyanide Sample Type **DUP** Units: mg/L

S2112165-001A (12/13/21 10:03) RunNo: 195728

Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Cyanide, Aquatic Free	ND	0.02	ND			20	

OIA-1677 WAD Cyanide Sample Type **MBLK** Units: mg/L

DI BLANK (12/10/21 10:25) RunNo: 195699

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Cyanide, Available	ND	0.01					

OIA-1677 WAD Cyanide Sample Type **LCS** Units: mg/L

QC (12/10/21 10:33) RunNo: 195699

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Cyanide, Available	0.11	0.01	0.128		86.6	82 - 132	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Report limit raised due to dilution
E	Value above quantitation range	G	Analyzed at IML Gillette laboratory
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by another laboratory	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits	X	Matrix Effect

ALS Environmental Chain of Custody

1565 Jefferson Rd, Building 300 • Rochester, NY 14623 • 585-288-5380 • FAX 585-288-8475

ALS Contact: Meghan Pedro

Project Number: R2112723
Project Manager: Meghan Pedro
QAP: LAB QAP

52112142

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	CN Avail SubLab	CN Free ASTM D7237-10
~~R2112723-002~~	MW-42-AS-0921 001	2	Water	12/1/21	1147	Inter-Mountain	X	X
~~R2112723-003~~	MW-2302-AS-0921 002		Water	12/1/21	1000	Inter-Mountain	X	X
~~R2112723-005~~	MW-2304-AS-0921 003		Water	12/2/21	1000	Inter-Mountain	X	X
~~R2112723-006~~	CELL-1-AS-0921 004		Water	12/2/21	0935	Inter-Mountain	X	X
~~R2112723-007~~	STW-POND-AS-0921 005		Water	11/30/21	0345	Inter-Mountain	X	X

Test Comments

CN Free - ASTM D7237-10	R2112723-002,3,5,6,7	ASTM D7237-10
CN Avail - SubLab	R2112723-002,3,5,6,7	OIA-1677

Special Instructions/Comments

NPDES

H - Test is On Hold P - Test is Authorized for Prep Only

Turnaround Requirements

____ **RUSH** (Surcharges Apply)

PLEASE CIRCLE WORK DAYS

1 2 3 4 5

X **STANDARD**

Requested FAX Date: _____

Requested Report Date: 12/20/21

Report Requirements

____ I. Results Only

X II. Results + QC Summaries

____ III. Results + QC and Calibration Summaries

____ IV. Data Validation Report with Raw Data

PQL/MDL/J N

EDD (Y)

Invoice Information

PO# 58R2112723

Bill to

Relinquished By: [signature] 12/6/21 1540

Received By: Pace Kathy Boyle 12.9.21 11:31

1.8 °C

Airbill Number: _____

R2112723

____ **Ship To: Inter-Mountain**
Inter-Mountain Labs
1673 Terra Avenue
Sheridan, WY 82801

PC _____ Date _____

SMO _____ Date _____

Instructions:

Ice _____

Dry Ice _____

No Ice _____

Shipping:

Overnight _____

2nd Day _____

Ground _____

Bill to Client Account _____

Comments:

INTER-MOUNTAIN LABS

Survey Meter # Model 2241-2; SN 182115
pH strip lot # HC904495
Thermometer SN# 27130475

Condition Upon Receipt (Attach to COC)

Sample Receipt

1 Number of ice chests/packages received: 1 ROI? (Yes) No
*Note as "**OTC**" if samples are received over the counter, unpackaged*

2 Temperature of cooler/samples. *(If more than 8 coolers, please write on back)*

Temps Observed (°C):	1.8							
Temps Corrected (°C):	2.3							

***Acceptable is: 0.1° to 10°C** for Bacteria; and 0.1° to 6°C for most other water parameters. Samples may not have had adequate time to cool following collection. Indicate ROI (Received on Ice) for iced samples received on the same day as sampled, in addition to temperature at receipt.*

Client contact for temperatures outside method criteria must be documented below.

3 Emission rate of samples for radiochemical analyses < 0.5mR/hr?	Yes	No	(N/A)
4 COC Number (If applicable):			
5 Do the number of bottles agree with the COC?	(Yes)	No	N/A
6 Were the samples received intact? *(no broken bottles, leaks, etc.)*	(Yes)	No	N/A
7 Were the sample custody seals intact?	Yes	No	(N/A)
8 Is the COC properly completed, legible, and signed?	(Yes)	No	

Sample Verification, Labeling & Distribution

1 Were all requested analyses understood and appropriate?	(Yes)	No	
2 Did the bottle labels correspond with the COC information?	(Yes)	No	
3 Samples collected in method-prescribed containers?	(Yes)	No	

4 Sample Preservation:

pH at Receipt:	Final pH (if added in lab):	Preservative/Lot#	Date/Time Added:
_____ Total Metals	_____ Total Metals	HNO_3 _____	_____
_____ Diss Metals	_____ Diss Metals	*Filtered and preserved in metals*	*Filtered and preserved in metals*
_____ Nutrient	_____ Nutrient	H_2SO_4 _____	
11 Cyanide	_____ Cyanide	NaOH _____	
_____ Sulfide	_____ Sulfide	ZnAcet _____	
_____ Phenol	_____ Phenol	H_2SO_4 _____	
_____ SDWA Rads	_____ SDWA Rads	HNO_3 _____	_____

Preserved samples for Rad analysis accompanied by Field Blank?	Yes	No	
5 VOA vials have <6mm headspace?	Yes	No	(N/A)
6 Were all analyses within holding time at the time of receipt?	(Yes)	No	
7 Specially requested detection limits (RLs) assigned?	Yes	No	(N/A)
8 Have rush or project due dates been checked and accepted?	Yes	No	(N/A)
9 Do samples require subcontracted analyses?	Yes	(No)	
If "Yes", which type of subcontracting is required?	**General**	**Customer-Specified**	**Certified**

Sample Receipt, Verification, Login, Labeling & Distribution completed by *(initials)*: KB

Set ID: S2112142

Discrepancy Documentation ***(use back of sheet for notes on discrepancies)***

Any items listed above with a response of "No" or do not meet specifications must be resolved.

Person Contacted: _____ Method of Contact: __ Phone: _____

Initiated By: _____ Date/Time: _____ __ Email: _____

Problem:

Resolution:

December 22, 2021 Service Request No:R2112723

Mr. Ryan Kingsley
CDM Smith, Inc.
4 Highland Road
Suite #1
Massena, NY 13662

Laboratory Results for: Reynolds Add Sampling

Dear Mr.Kingsley,

Enclosed are the results of the sample(s) submitted to our laboratory December 03, 2021
For your reference, these analyses have been assigned our service request number **R2112723.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3260. You may also contact me via email at Luke.Rahn@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Luke Rahn
Project Manager

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

Client: CDM Smith, Inc.
Project: Reynolds Add Sampling
Sample Matrix: Water

Service Request: R2112723
Date Received: 12/03/2021

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Four water samples were received for analysis at ALS Environmental on 12/03/2021. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by _____ Date 12/22/2021

SAMPLE DETECTION SUMMARY

CLIENT ID: MW-28S-AS-0921			Lab ID: R2112723-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Fluoride	9.84			0.92	mg/L	SM 4500-F- C
Fluoride	13.3			0.20	mg/L	SM 4500-F- C Modified

CLIENT ID: MW-42-AS-0921			Lab ID: R2112723-002			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Fluoride	11.0			0.20	mg/L	SM 4500-F- C Modified
Fluoride	10.2			0.86	mg/L	SM 4500-F- C

CLIENT ID: MW-2302-AS-0921			Lab ID: R2112723-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Fluoride	2.34			0.86	mg/L	SM 4500-F- C

CLIENT ID: MW-2303-AS-0921			Lab ID: R2112723-004			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Fluoride	13.2			0.20	mg/L	SM 4500-F- C Modified
Fluoride	11.1			0.86	mg/L	SM 4500-F- C

Sample Receipt Information

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: CDM Smith, Inc. **Service Request:**R2112723

Project: Reynolds Add Sampling

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R2112723-001	MW-28S-AS-0921	11/30/2021	1250
R2112723-002	MW-42-AS-0921	12/1/2021	1147
R2112723-003	MW-2302-AS-0921	12/1/2021	1000
R2112723-004	MW-2303-AS-0921	11/30/2021	1255
R2112723-005	MW-2304-AS-0921	12/2/2021	1000
R2112723-006	CELL-1-AS-0921	12/2/2021	0935
R2112723-007	STW-POND-AS-0921	11/30/2021	0345

Intra-Network Chain of Custody

1565 Jefferson Rd, Building 300 • Rochester, NY 14623 • 585-288-5380 • FAX 585-288-8475

ALS Contact: Meghan Pedro

Project Name: Reynolds Add Sampling
Project Number:
Project Manager: Ryan Kingsley
Company: CDM Smith, Inc.
QAP: LAB QAP

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Date Received	Send To	F Dist SM 4500-F- C	F SM 4500-F- C Modified
R2112723-001	MW-28S-AS-0921	2	Water	11/30/21	1250	12/3/21	KELSO	II	II
R2112723-002	MW-42-AS-0921	↓	Water	12/1/21	1147	12/3/21	KELSO	II	II
R2112723-003	MW-2302-AS-0921	↓	Water	12/1/21	1000	12/3/21	KELSO	II	II
R2112723-004	MW-2303-AS-0921	↓	Water	11/30/21	1255	12/3/21	KELSO	II	II

Special Instructions/Comments

* Fluoride with & without distillation

NPDES

pH Checked _____

Turnaround Requirements

____ **RUSH** (Surcharges Apply)

PLEASE CIRCLE WORK DAYS

1 2 3 4 5

X **STANDARD**

Requested FAX Date: _____

Requested Report Date: 12/20/21

Report Requirements

____ I. Results Only

X II. Results + QC Summaries

____ III. Results + QC and Calibration Summaries

____ IV. Data Validation Report with Raw Data

PQL/MDL/J N

EDD Y

Invoice Information

PO# 58R2112723

Bill to

Relinquished By: [signature] 12/7/21 1400

Received By: [signature] 12/8/21 1045

Airbill Number: _____

R2112723

____ **Ship To: KELSO**
ALS Environmental
1317 South 13th Avenue
Kelso, WA 98626

PC KMO Date 12/3/24

SMO _____ Date _____

Instructions:

Ice _____

Dry Ice _____

No Ice _____

Shipping:

Overnight _____

2nd Day _____

Ground _____

Bill to Client Account _____

Comments:

PM LR

Cooler Receipt and Preservation Form

Client AIS Rochester Service Request K21 R2112723

Received: 12/8/21 Opened: 12/8/21 By: mm Unloaded: 12/8/21 By: mm

1. Samples were received via? *USPS* *~~Fed Ex~~* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other*_____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? 1 Front Each cooler
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N
4. Was a Temperature Blank present in cooler? NA Y N If yes, notate the temperature in the appropriate column below:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA Y N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. NA Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp Indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
	2.4	IR01	1 OF 3			9889 5097 8850	
	2.6	1	2 OF 3			9889 5097 8861	
	2.4	IR01	3 OF 3			9889 5097 8872	

15. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
16. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
17. Were samples received in good condition (unbroken) NA Y N
18. Were all sample labels complete (ie, analysis, preservation, etc.)? NA Y N
19. Did all sample labels and tags agree with custody papers? NA Y N
20. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
21. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
22. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
23. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

Miscellaneous Forms

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: CDM Smith, Inc. **Service Request:** R2112723
Project: Reynolds Add Sampling/

Sample Name: MW-28S-AS-0921 **Date Collected:** 11/30/21
Lab Code: R2112723-001 **Date Received:** 12/3/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-F- C	ACHEATLEY	ACHEATLEY
SM 4500-F- C Modified		ACHEATLEY

Sample Name: MW-42-AS-0921 **Date Collected:** 12/1/21
Lab Code: R2112723-002 **Date Received:** 12/3/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
Kelada-01		CWOODS
SM 4500-F- C	ACHEATLEY	ACHEATLEY
SM 4500-F- C Modified		ACHEATLEY

Sample Name: MW-2302-AS-0921 **Date Collected:** 12/1/21
Lab Code: R2112723-003 **Date Received:** 12/3/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
Kelada-01		CWOODS
SM 4500-F- C	ACHEATLEY	ACHEATLEY
SM 4500-F- C Modified		ACHEATLEY

Sample Name: MW-2303-AS-0921 **Date Collected:** 11/30/21
Lab Code: R2112723-004 **Date Received:** 12/3/21
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
SM 4500-F- C	ACHEATLEY	ACHEATLEY
SM 4500-F- C Modified		ACHEATLEY

Client:	CDM Smith, Inc.	**Service Request:**	R2112723
Project:	Reynolds Add Sampling/		

Sample Name:	MW-2304-AS-0921	**Date Collected:**	12/2/21
Lab Code:	R2112723-005	**Date Received:**	12/3/21
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
Kelada-01		CWOODS

Sample Name:	CELL-1-AS-0921	**Date Collected:**	12/2/21
Lab Code:	R2112723-006	**Date Received:**	12/3/21
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
Kelada-01		CWOODS

Sample Name:	STW-POND-AS-0921	**Date Collected:**	11/30/21
Lab Code:	R2112723-007	**Date Received:**	12/3/21
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
Kelada-01		CWOODS

Sample Results

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General Chemistry

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Analytical Report

Client:	CDM Smith, Inc.	**Service Request:**	R2112723
Project:	Reynolds Add Sampling	**Date Collected:**	11/30/21 12:50
Sample Matrix:	Water	**Date Received:**	12/03/21 10:30
Sample Name:	MW-28S-AS-0921	**Basis:**	NA
Lab Code:	R2112723-001		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Fluoride	SM 4500-F- C Modified	**13.3**	mg/L	0.20	1	12/17/21 09:15	NA	
Fluoride	SM 4500-F- C	**9.84**	mg/L	0.92	1	12/17/21 09:15	12/13/21	

Analytical Report

Client:	CDM Smith, Inc.	**Service Request:**	R2112723
Project:	Reynolds Add Sampling	**Date Collected:**	12/01/21 11:47
Sample Matrix:	Water	**Date Received:**	12/03/21 10:30
Sample Name:	MW-42-AS-0921	**Basis:**	NA
Lab Code:	R2112723-002		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Fluoride	SM 4500-F- C Modified	**11.0**	mg/L	0.20	1	12/17/21 09:15	NA	
Fluoride	SM 4500-F- C	**10.2**	mg/L	0.86	1	12/17/21 09:15	12/13/21	

Analytical Report

Client:	CDM Smith, Inc.	**Service Request:**	R2112723
Project:	Reynolds Add Sampling	**Date Collected:**	12/01/21 10:00
Sample Matrix:	Water	**Date Received:**	12/03/21 10:30
Sample Name:	MW-2302-AS-0921	**Basis:**	NA
Lab Code:	R2112723-003		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Fluoride	SM 4500-F- C Modified	ND U	mg/L	0.20	1	12/17/21 09:15	NA	
Fluoride	SM 4500-F- C	**2.34**	mg/L	0.86	1	12/17/21 09:15	12/13/21	

Analytical Report

Client:	CDM Smith, Inc.	**Service Request:**	R2112723
Project:	Reynolds Add Sampling	**Date Collected:**	11/30/21 12:55
Sample Matrix:	Water	**Date Received:**	12/03/21 10:30
Sample Name:	MW-2303-AS-0921	**Basis:**	NA
Lab Code:	R2112723-004		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Fluoride	SM 4500-F- C Modified	**13.2**	mg/L	0.20	1	12/17/21 09:15	NA	
Fluoride	SM 4500-F- C	**11.1**	mg/L	0.86	1	12/17/21 09:15	12/13/21	

QC Summary Forms

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Analytical Report

Client:	CDM Smith, Inc.	**Service Request:**	R2112723
Project:	Reynolds Add Sampling	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	R2112723-MB1		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Fluoride	SM 4500-F- C Modified	ND U	mg/L	0.20	1	12/17/21 09:15	NA	
Fluoride	SM 4500-F- C	ND U	mg/L	0.90	1	12/17/21 09:15	12/13/21	

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QA/QC Report

Client: CDM Smith, Inc.
Project: Reynolds Add Sampling
Sample Matrix: Water

Service Request:R2112723
Date Collected:11/30/21
Date Received:12/03/21
Date Analyzed:12/17/21

Duplicate Matrix Spike Summary
General Chemistry Parameters

Sample Name: MW-28S-AS-0921
Lab Code: R2112723-001

Units:mg/L
Basis:NA

			Matrix Spike			Duplicate Matrix Spike					
			R2112723-001MS			R2112723-001DMS					
Analyte Name	**Method**	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Fluoride	SM 4500-F- C Modified	13.3	37.7	25.0	98	37.5	25.0	97	74-128	1	20
Fluoride	SM 4500-F- C	9.84	19.0	10.0	91	19.4	10.0	95	56-130	4	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.

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QA/QC Report

Client:	CDM Smith, Inc.	**Service Request:**	R2112723
Project	Reynolds Add Sampling	**Date Collected:**	11/30/21
Sample Matrix:	Water	**Date Received:**	12/03/21
		Date Analyzed:	12/17/21

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	MW-28S-AS-0921	**Units:**	mg/L
Lab Code:	R2112723-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample R2112723-001DUP Result	Average	RPD	RPD Limit
Fluoride	SM 4500-F- C Modified	0.20	13.3	13.3	13.3	<1	20
Fluoride	SM 4500-F- C	0.82	9.84	9.27	9.56	6	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client: CDM Smith, Inc.
Project: Reynolds Add Sampling
Sample Matrix: Water

Service Request: R2112723
Date Analyzed: 12/17/21

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2112723-LCS1

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Fluoride	SM 4500-F- C Modified	11.1	11.1	100	87-117
Fluoride	SM 4500-F- C	9.68	11.1	87	85-115

Attachment 4 Alcoa Massena East Sequential Filtration Photograph Log

Attachment 4 Alcoa Massena East Sequential Filtration Photograph Log

Photo No.	***1.***
Description: *Sequential Filtration* Taken By: Maxwell Landsman-Gerjoi (MLG) MW-42 filter tower in the fume hood.	

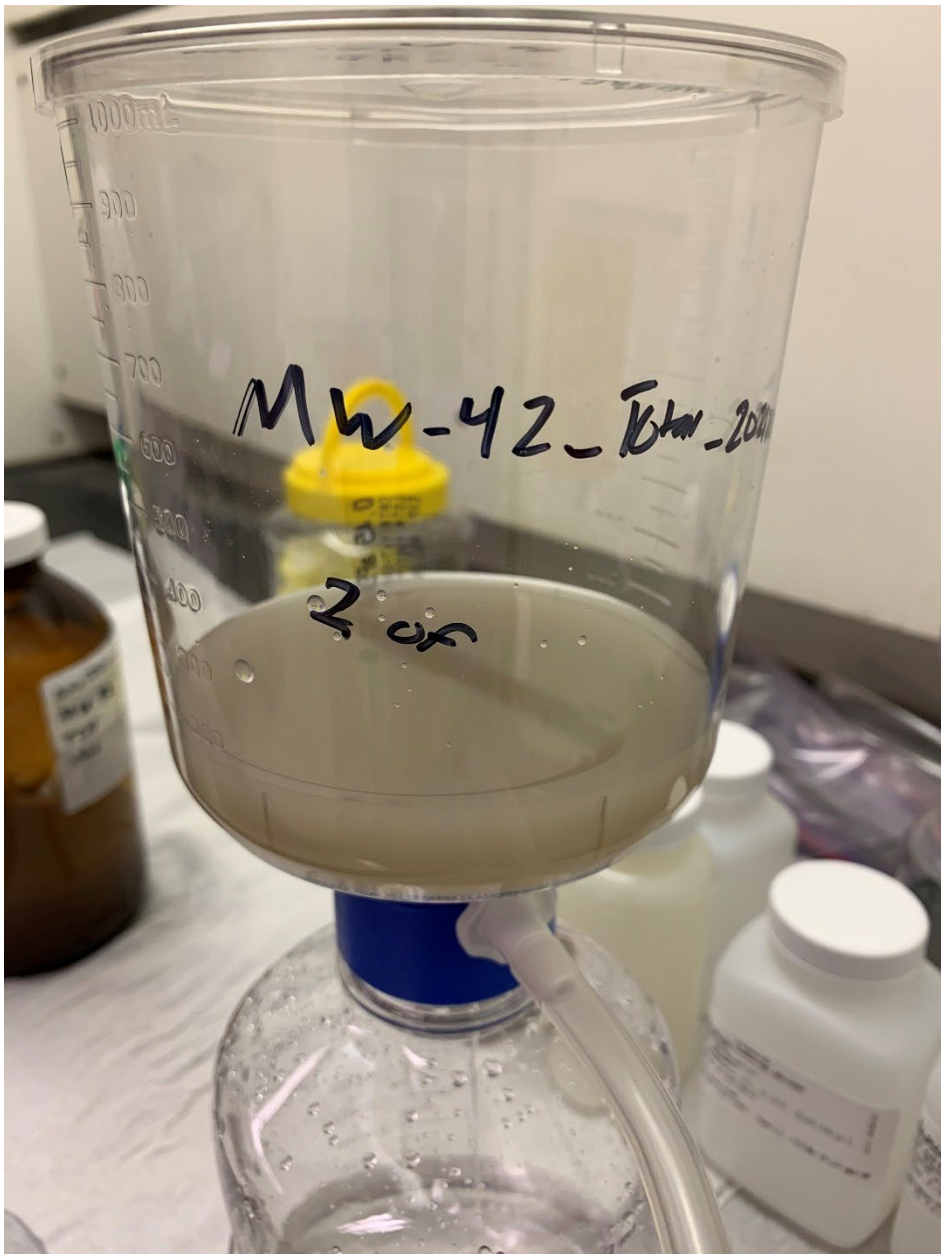
Photo No.	***2.***
Description: Sequential Filtration Taken By: MLG MW-42 Total sample on the 0.45-µm filter tower. Filter tower 1 of 3.	

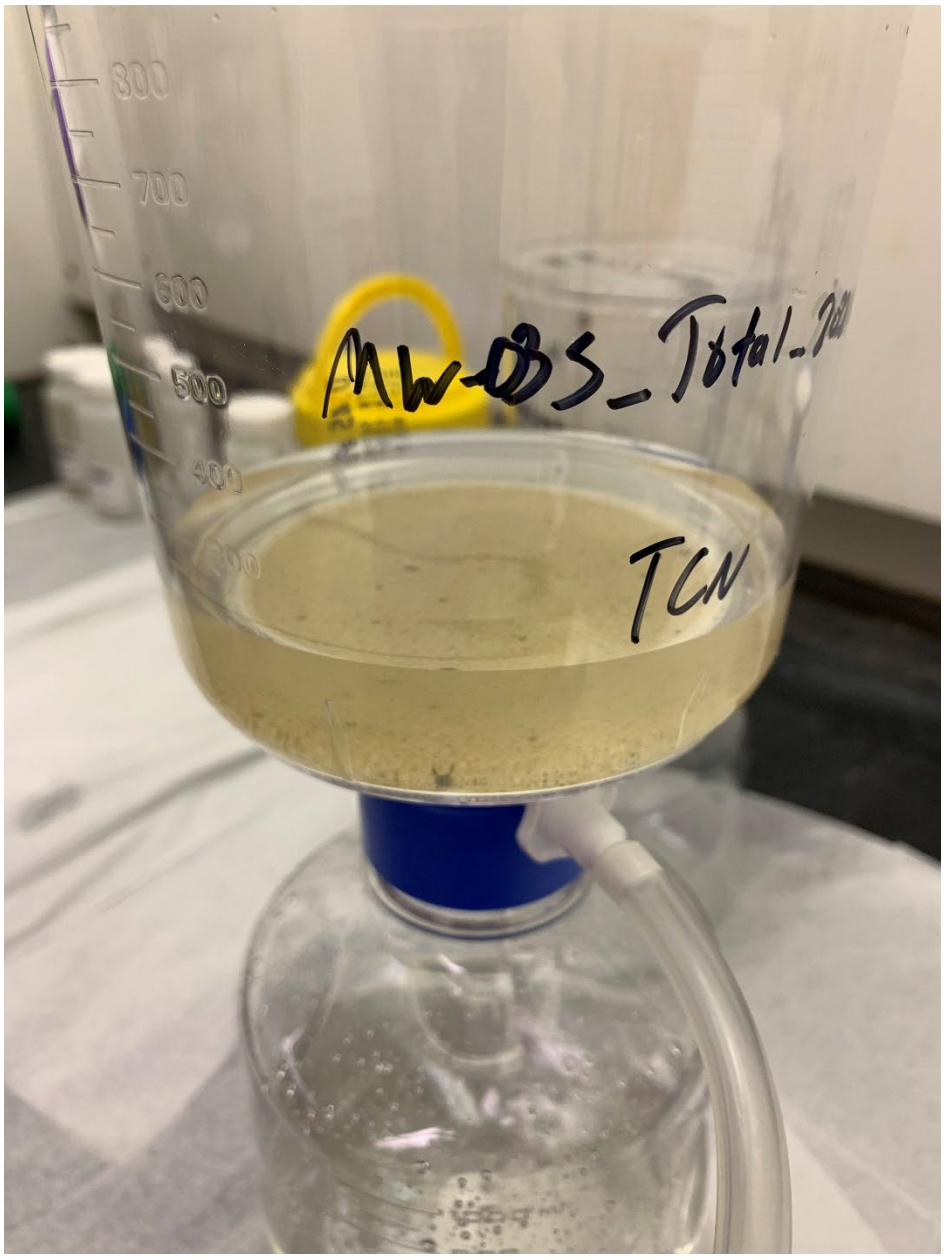
Photo No.	***3.***
Description: Sequential Filtration Taken By: MLG MW-03S Sample for total cyanide (TCN) filter tower.	

Photo No.	***4.***
Description: Sequential Filtration Taken By: MLG MW-03S Total sample for TCN filter tower.	

Photo No.	***5.***
Description: Sequential Filtration Taken By: MLG MW-03S Total sample for TCN particulates on 0.45-µm filter.	

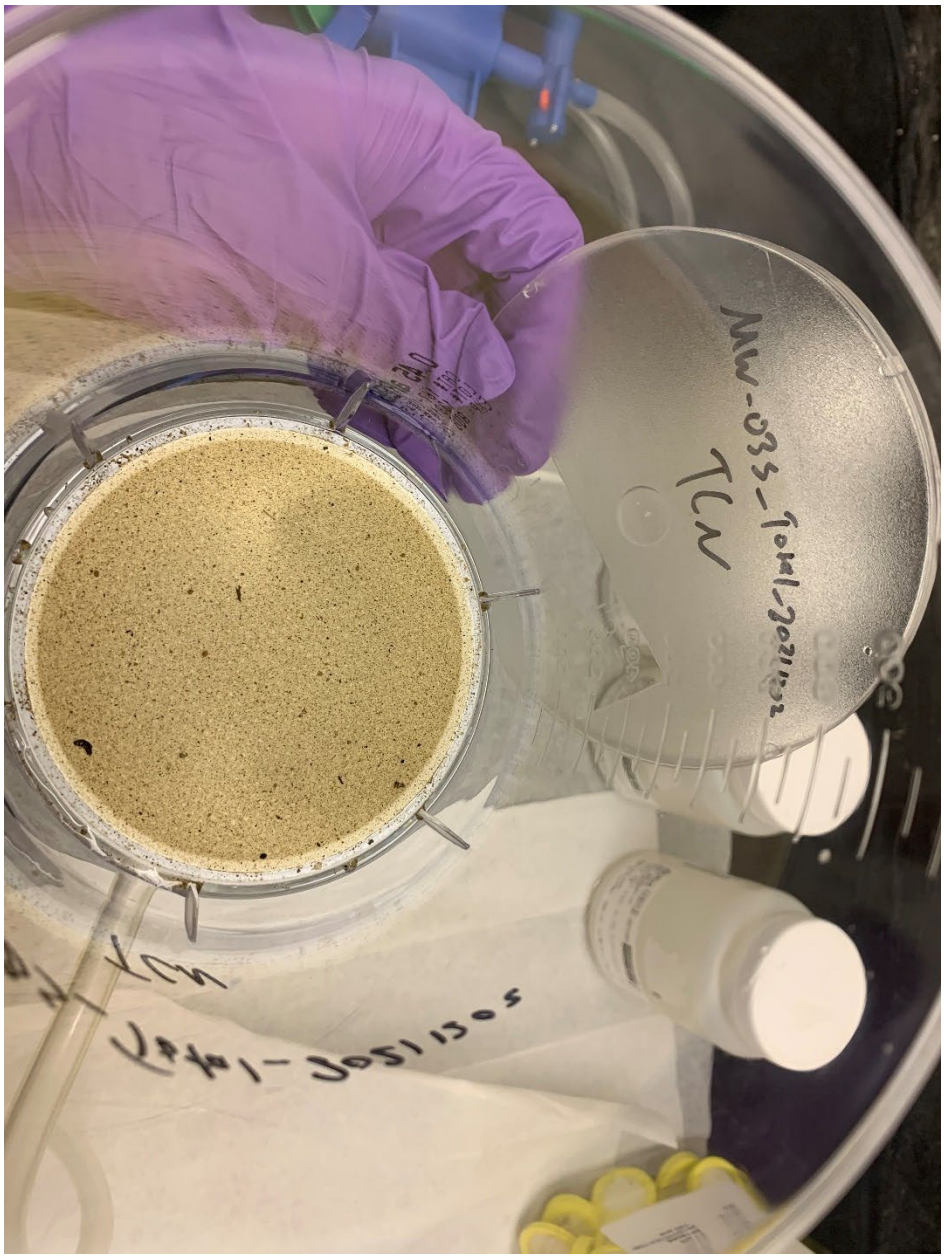
Photo No.	***6.***
Description: Sequential Filtration Taken By: MLG MW-03S Total sample for TCN particulates on 0.45-µm filter.	

Photo No.	***7.***
Description: Sequential Filtration Taken By: MLG MW-03S 0.45-µm split being filtered through 0.20-µm filter.	

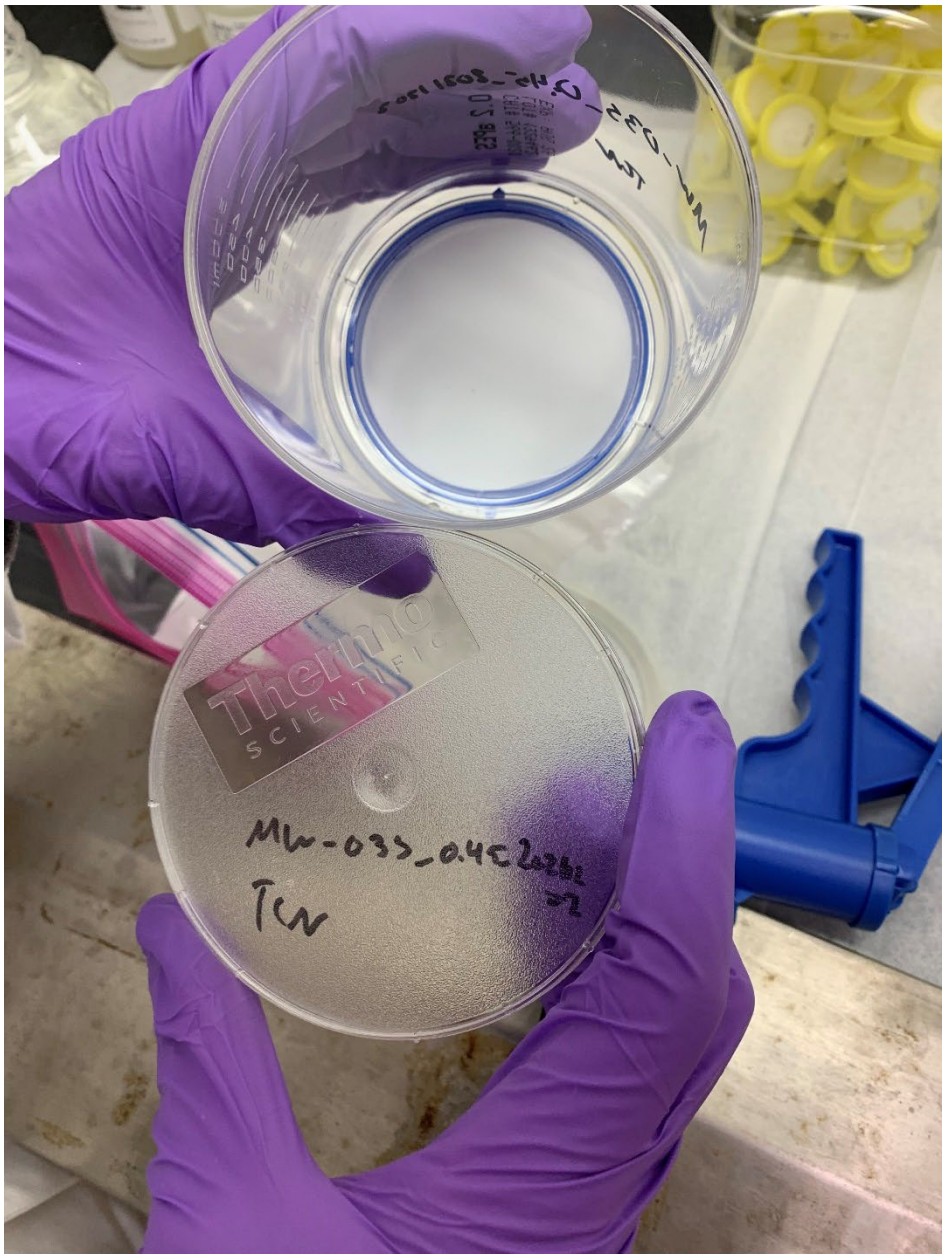
Photo No.	***8.***
Description: Sequential Filtration Taken By: MLG 0.20-µm filter after MW-03S 0.45-µm split was passed through it.	

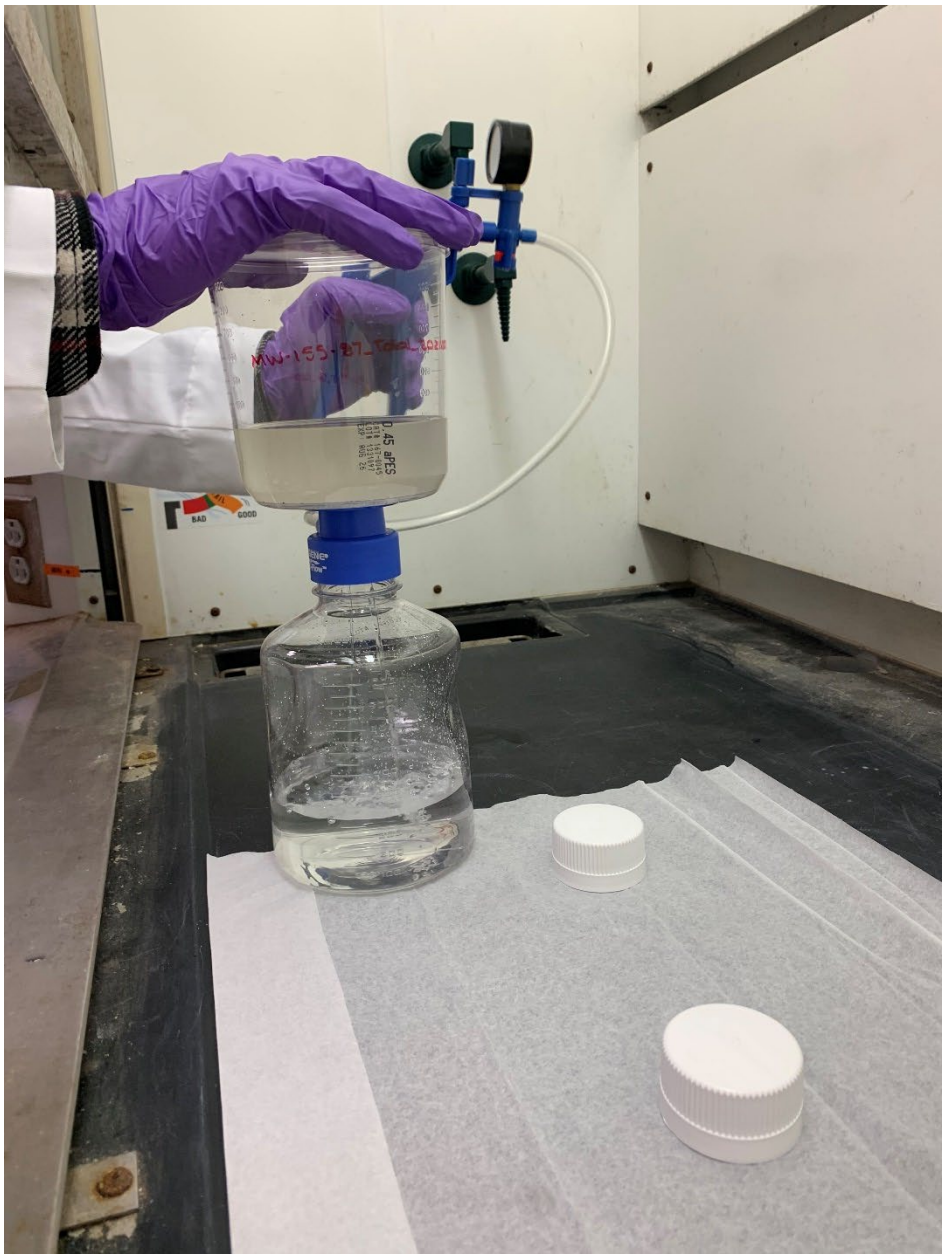
Photo No.	***9.***
Description: Sequential Filtration Taken By: MLG MW-15S-87 Total sample in 0.45-µm filtration tower.	

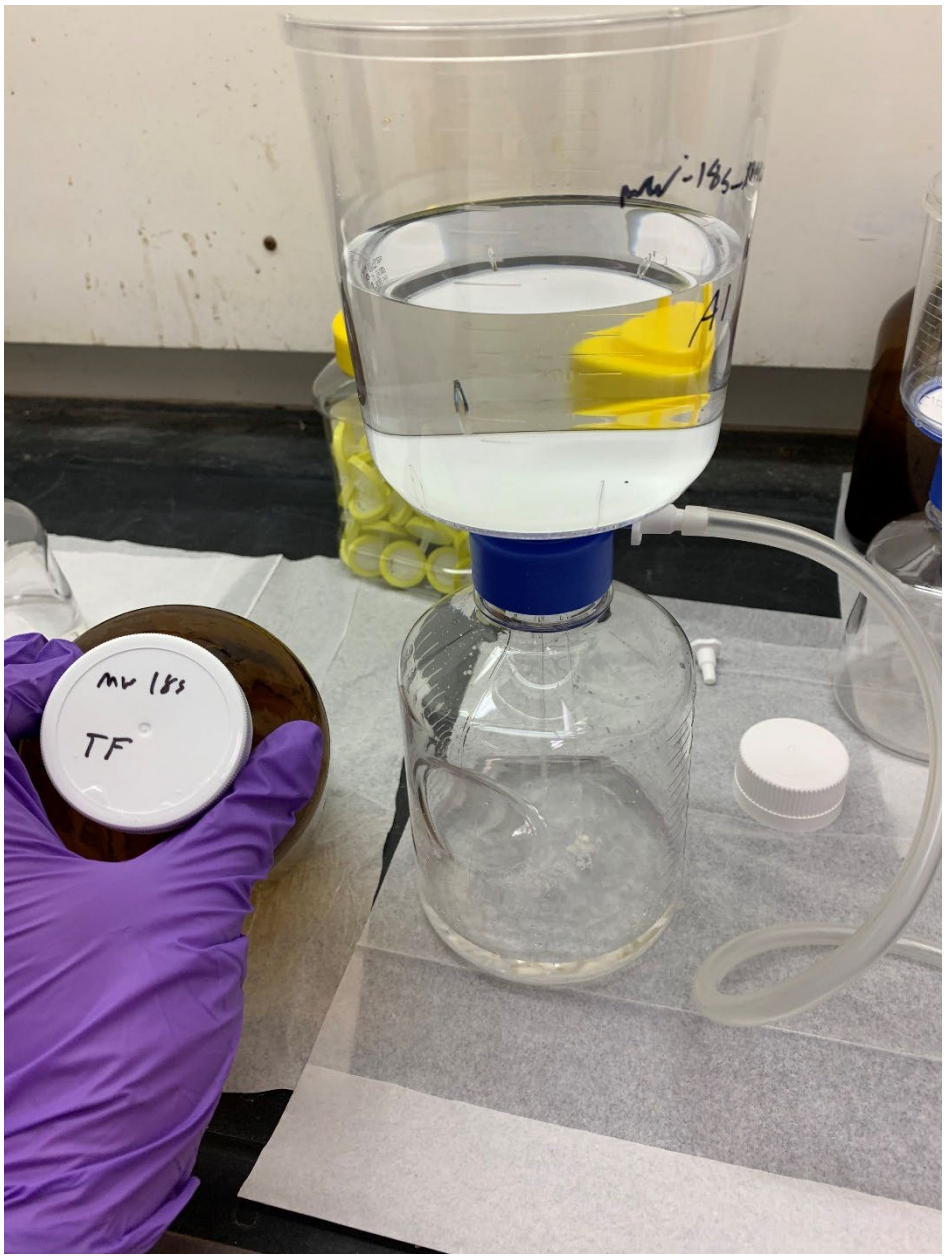
Photo No.	***10.***
Description: Sequential Filtration Taken By: MLG MW-18S Total sample being passed through 0.45-µm filtration tower.	

Photo No.	***11.***
Description: Sequential Filtration Taken By: MLG MW-18S Total sample being passed through 0.45-µm filtration tower with sequential filtration tower behind. MW-42 Total sample going through 0.45-µm filtration tower in the corner.	

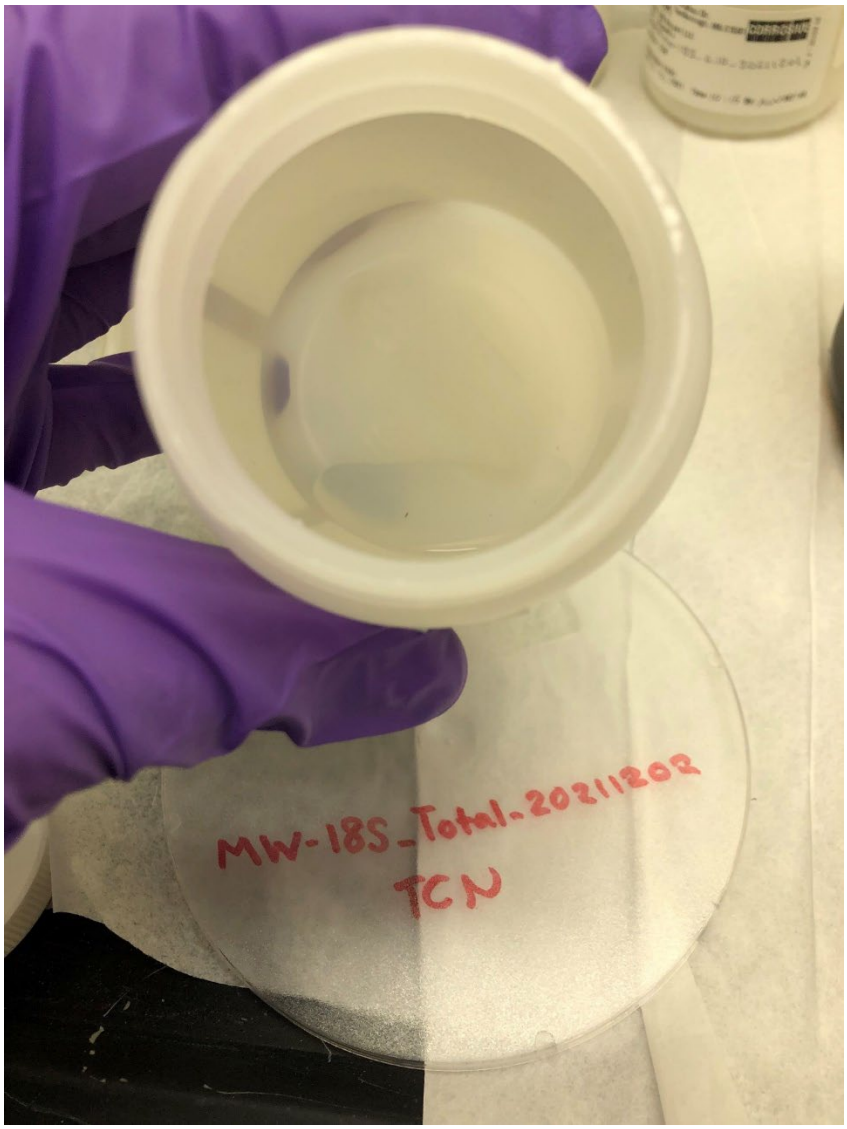
Photo No.	***12.***
Description: Sequential Filtration Taken By: MLG MW-18S Total sample for TCN in sample bottle.	

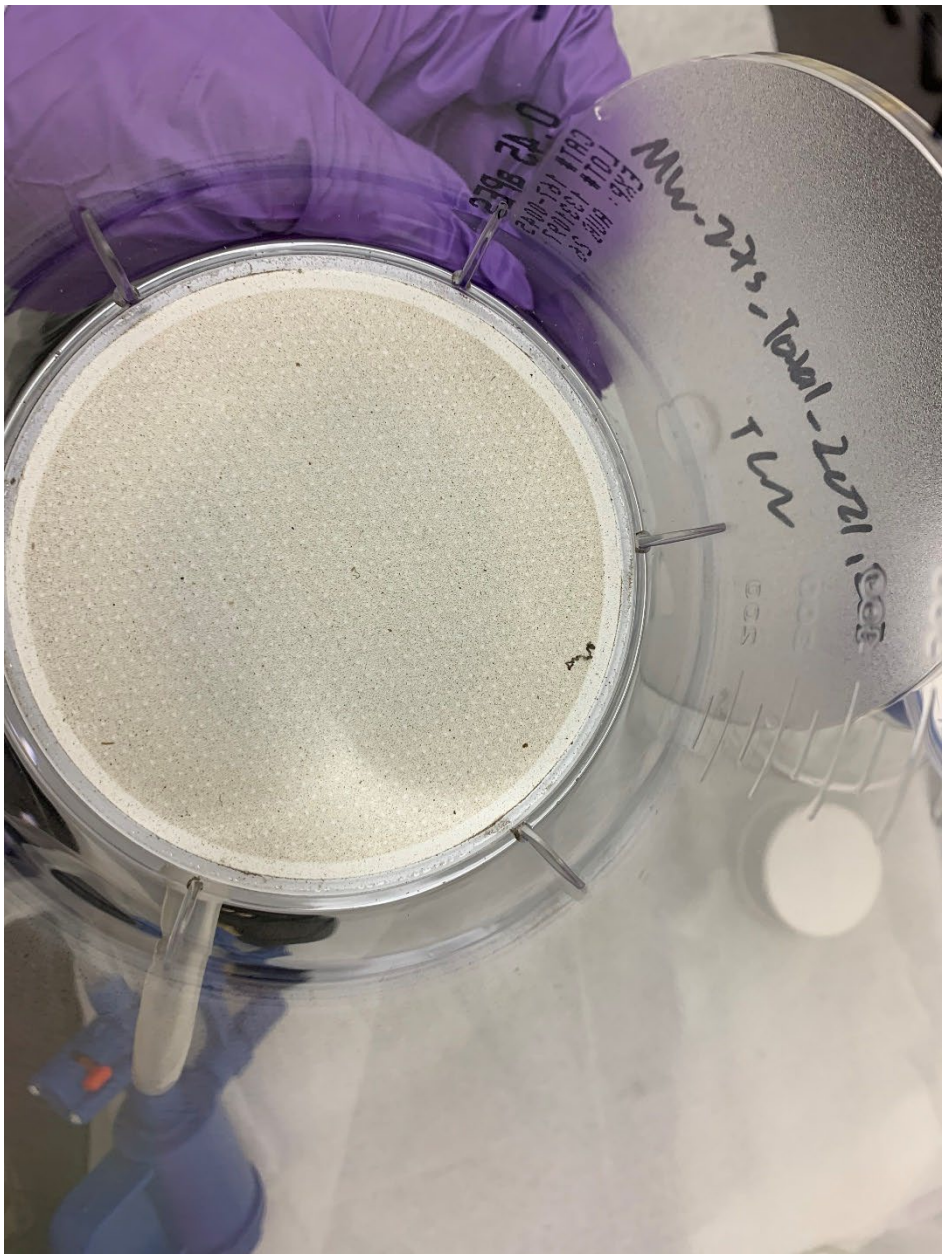
Photo No.	***13.***
Description: Sequential Filtration Taken By: MLG MW-27S 0.45-µm filter after total sample was passed through it.	

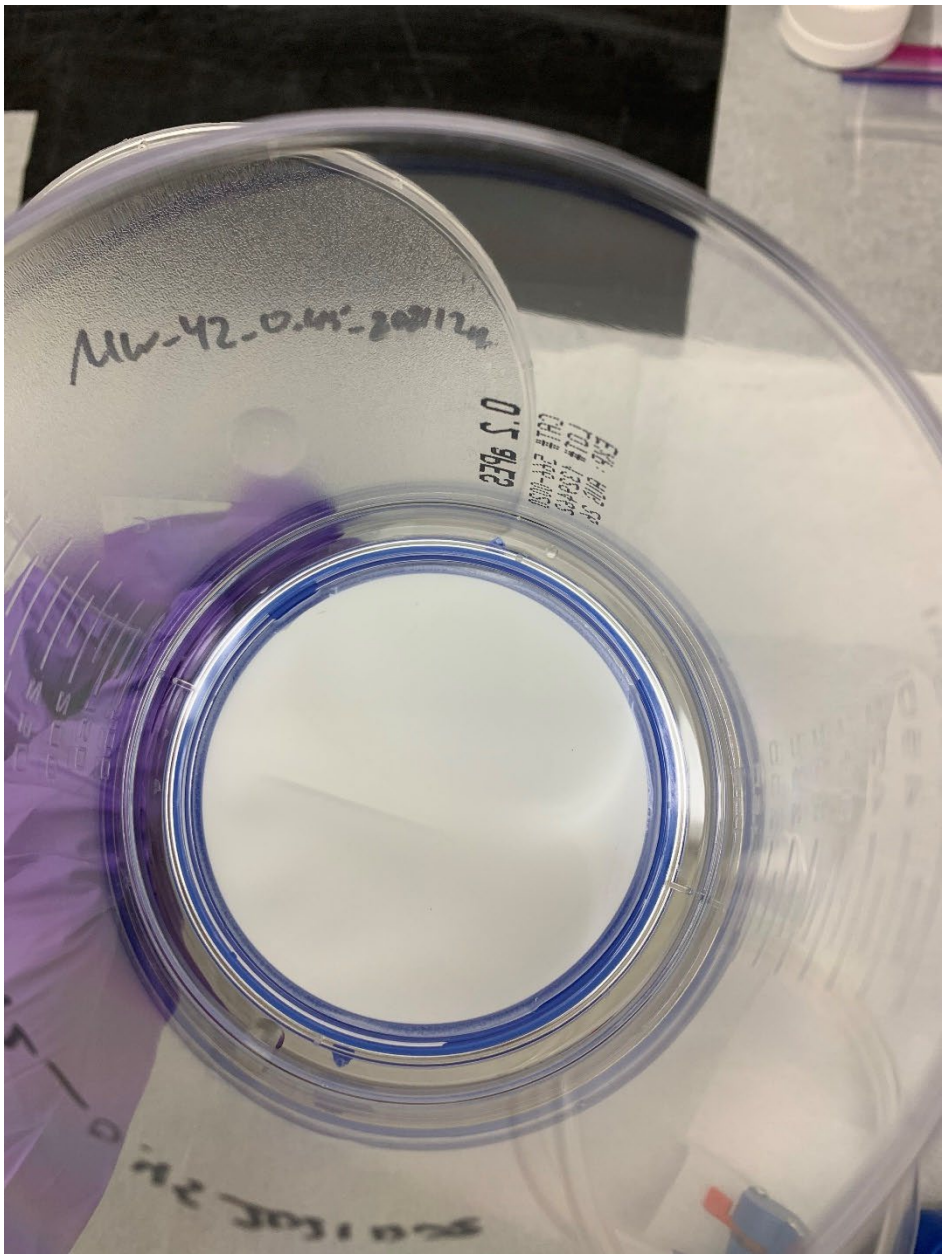
Photo No.	***14.***
Description: Sequential Filtration Taken By: MLG MW-42 0.20-µm filter after the 0.45-µm split was passed through it.	

Photo No.	***15.***
Description: Sequential Filtration Taken By: MLG MW-42 amber glass raw sample bottle from CDM Smith.	

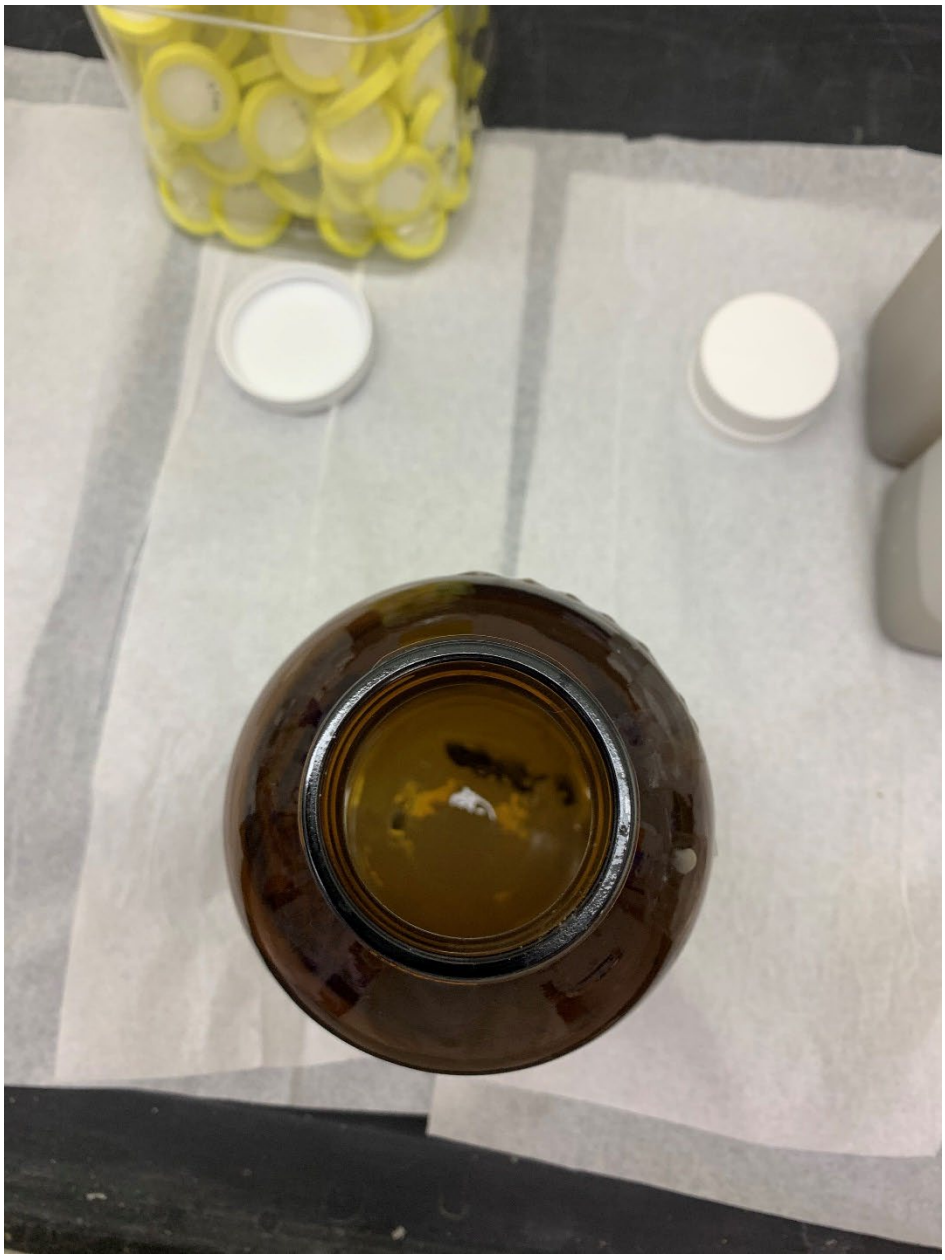
Photo No.	***16.***
Description: Sequential Filtration Taken By: MLG Sludge at the bottom of MW-42 raw sample bottle.	

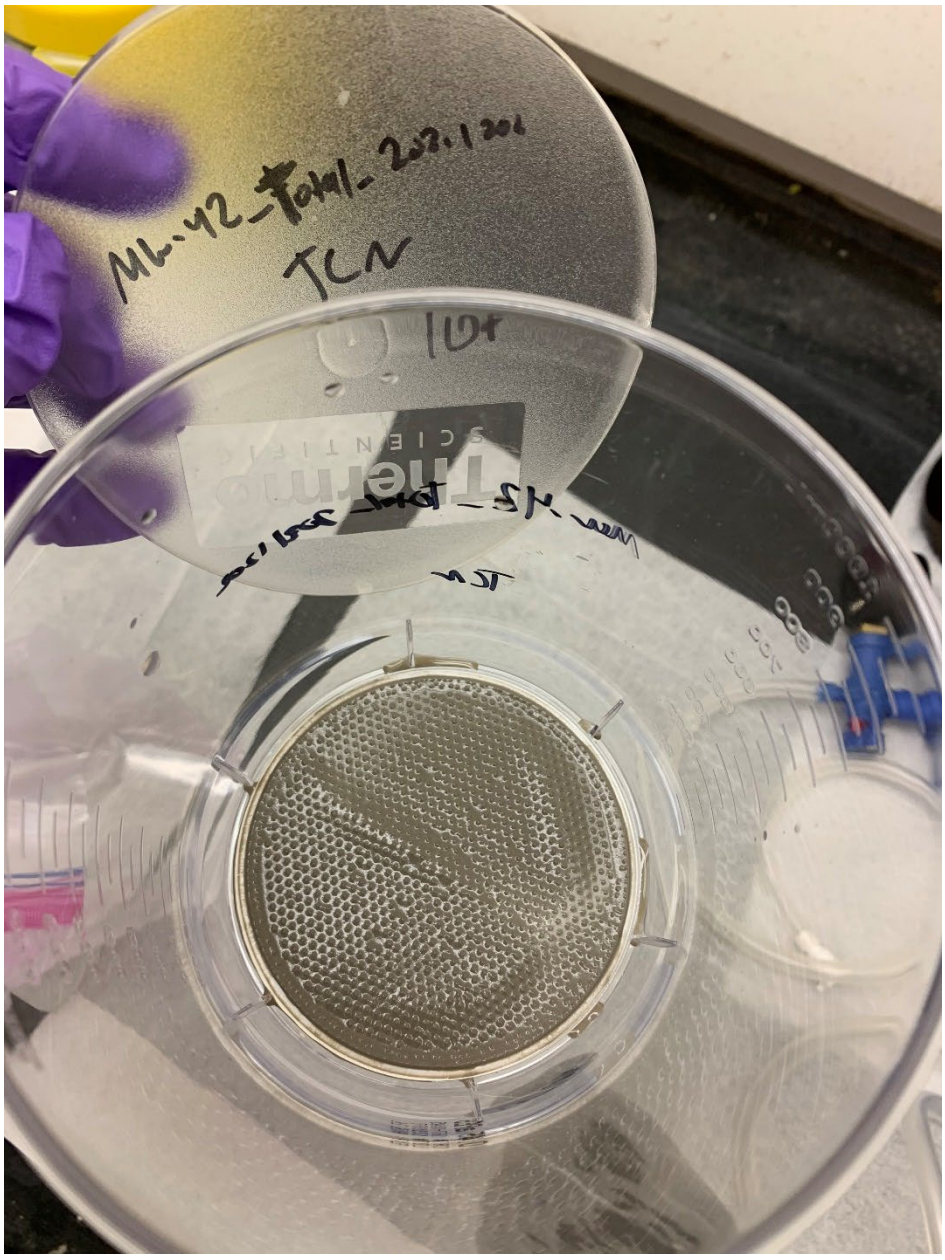
Photo No.	***17.***
Description: Sequential Filtration Taken By: MLG MW-42 0.45-µm filter after total sample was passed through it. Filter 1 of 5.	

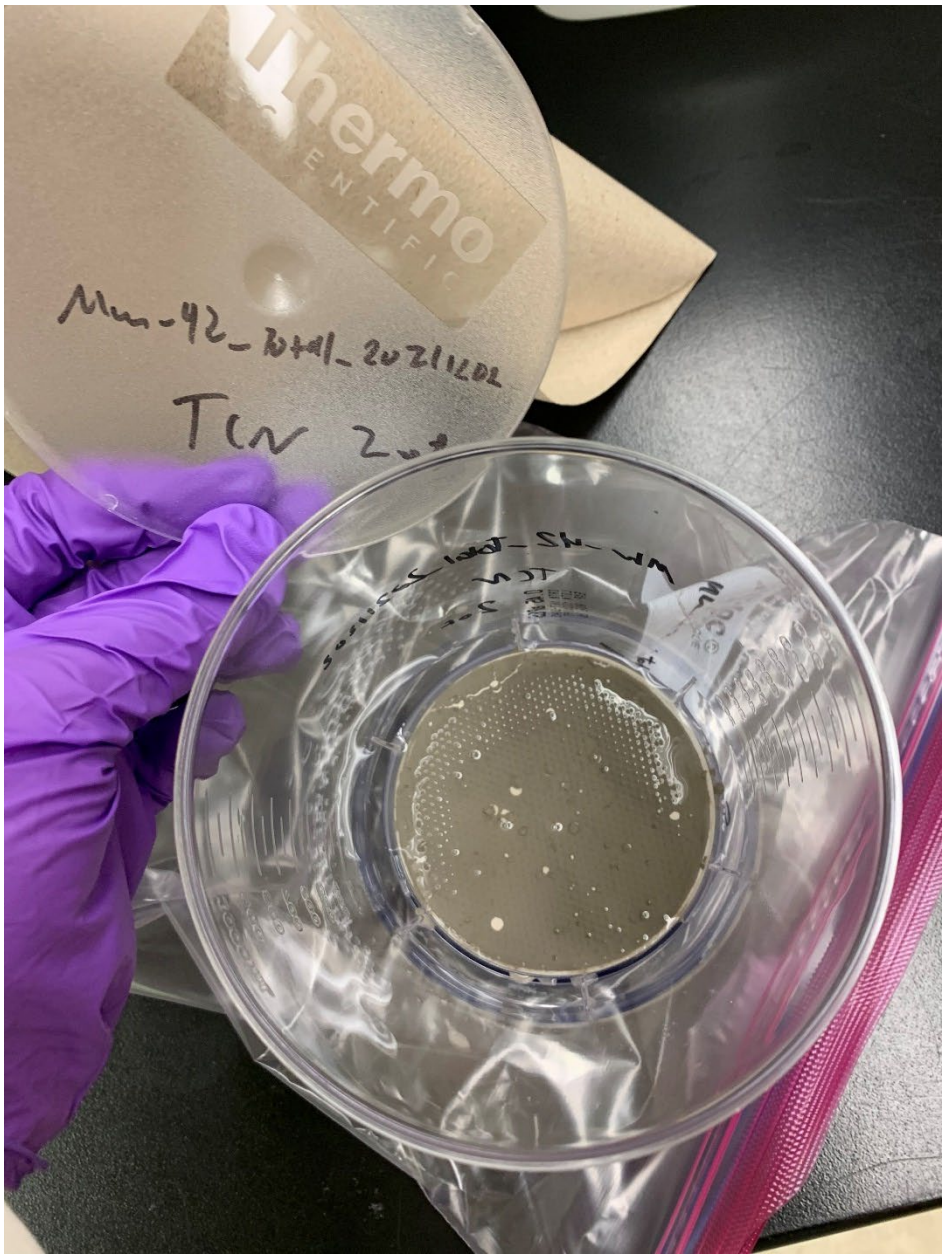
Photo No.	***18.***
Description: Sequential Filtration Taken By: MLG MW-42 0.45-µm filter after total sample was passed through it. Filter 2 of 5.	

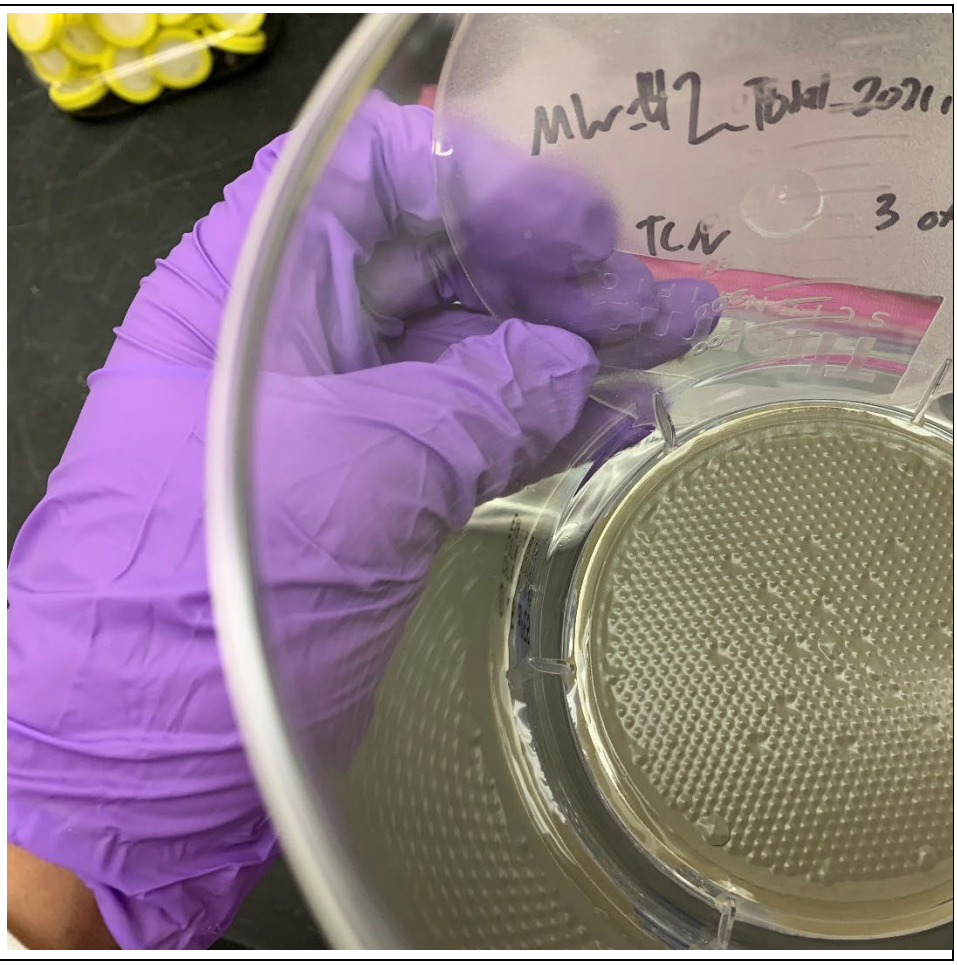
Photo No.	***19.***
Description: Sequential Filtration Taken By: MLG 3/22/21 MW-42 0.45-µm filter after total sample was passed through it. Filter 3 of 5.	

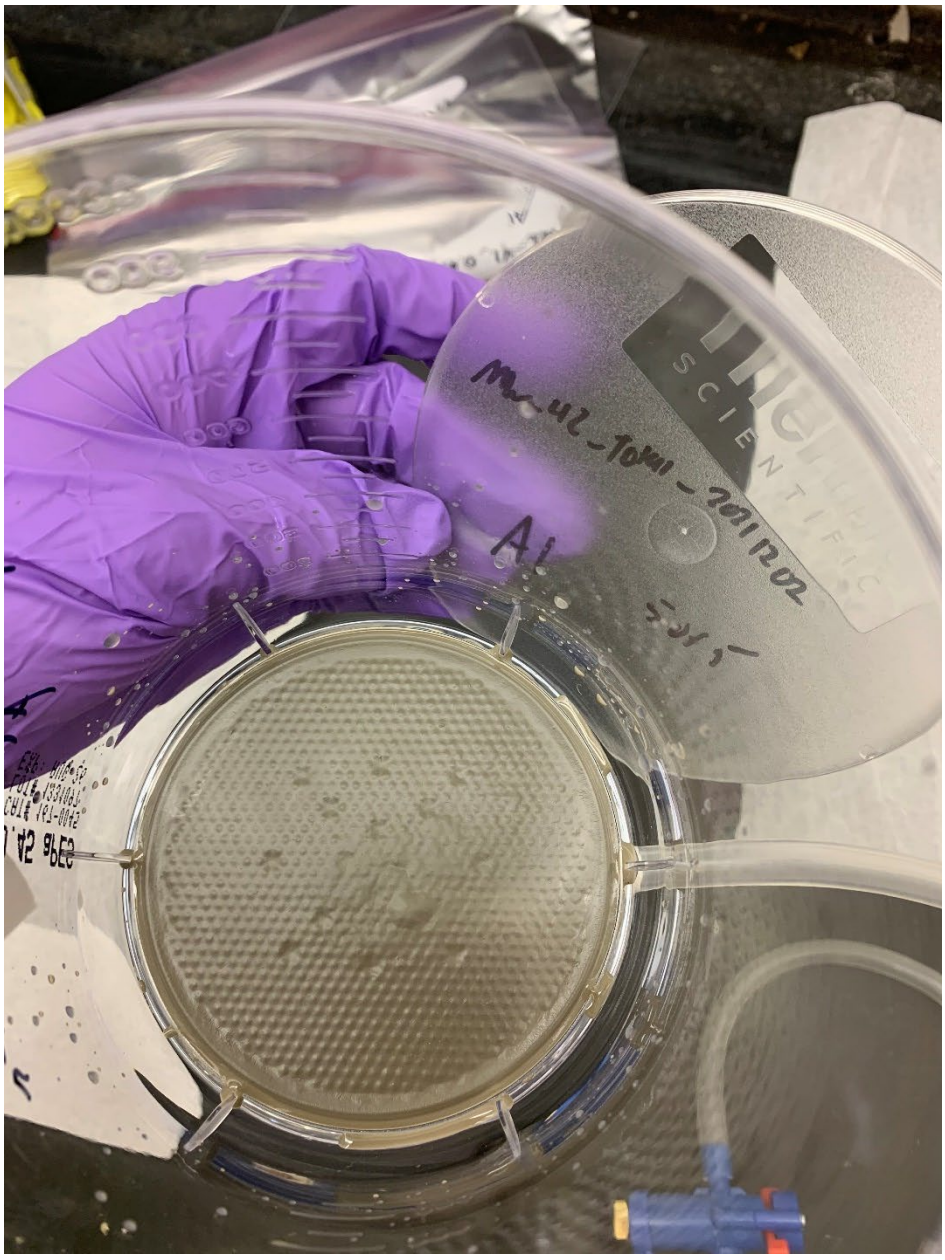
Photo No.	***20.***
Description: Sequential Filtration Taken By: MLG MW-42 0.45-µm filter after total sample was passed through it. Filter 5 of 5.	

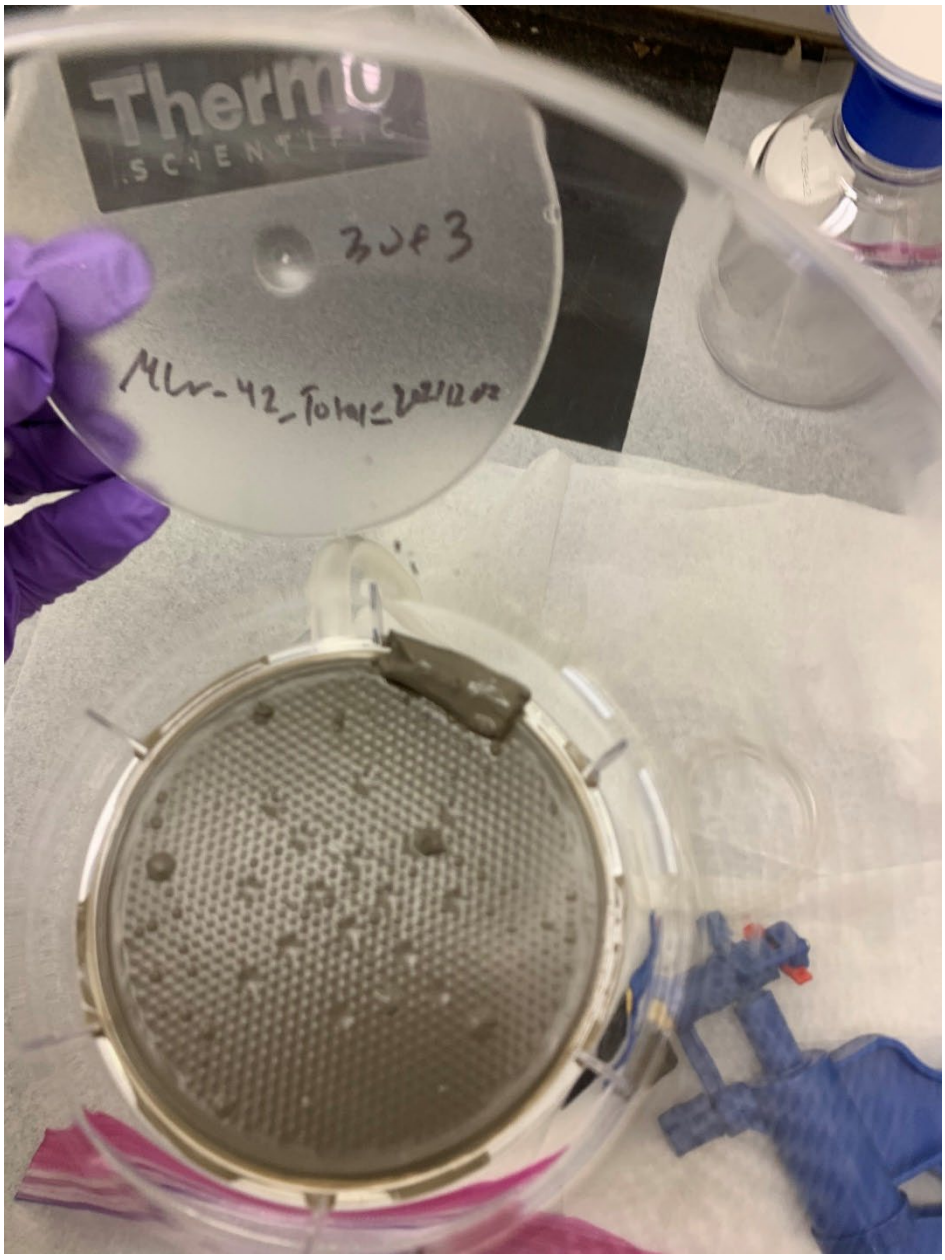
Photo No.	***21.***
Description: Sequential Filtration Taken By: MLG MW-42 0.45-µm filter after total sample was passed through it. Filter 3 of 3.	

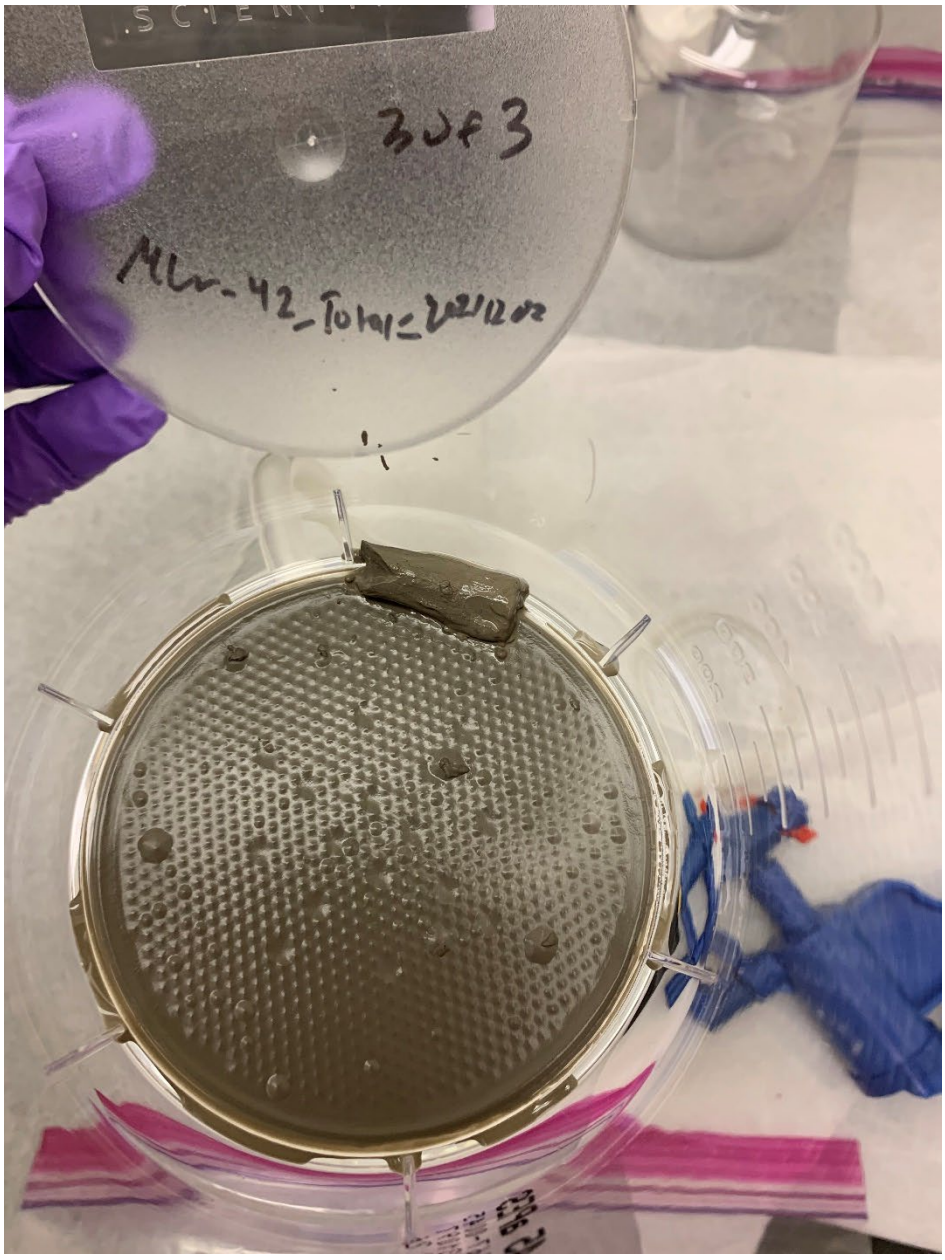
Photo No.	***22.***
Description: Sequential Filtration Taken By: MLG 3/22/21 MW-42 0.45-µm filter after total sample was passed through it. Filter 3 of 3.	

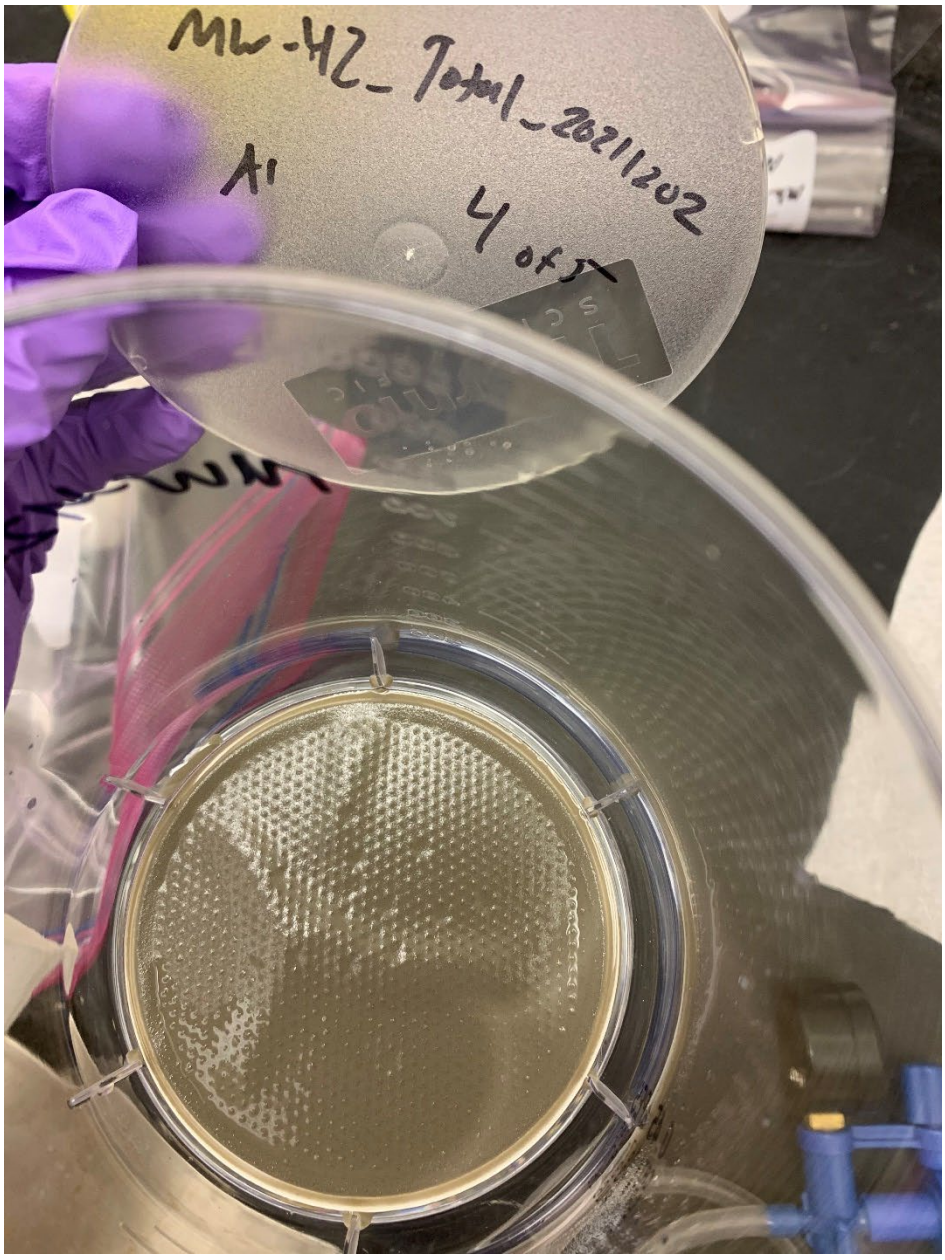
Photo No.	***23.***
Description: Sequential Filtration Taken By: MLG MW-42 0.45-µm filter after total sample was passed through it. Filter 4 of 5.	

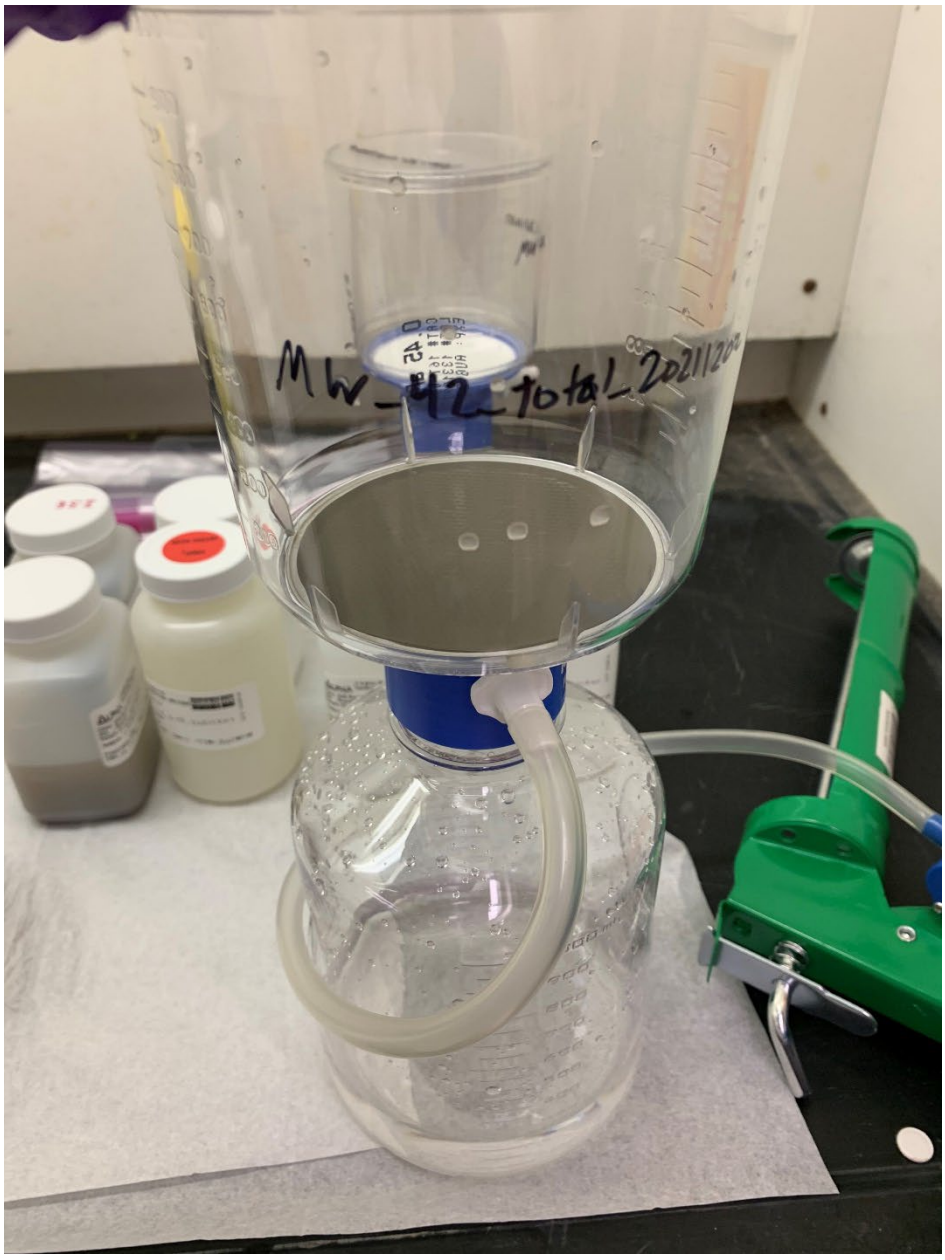
Photo No.	***24.***
Description: Sequential Filtration Taken By: MLG 3/22/21 MW-42 0.45-µm filtration tower.	

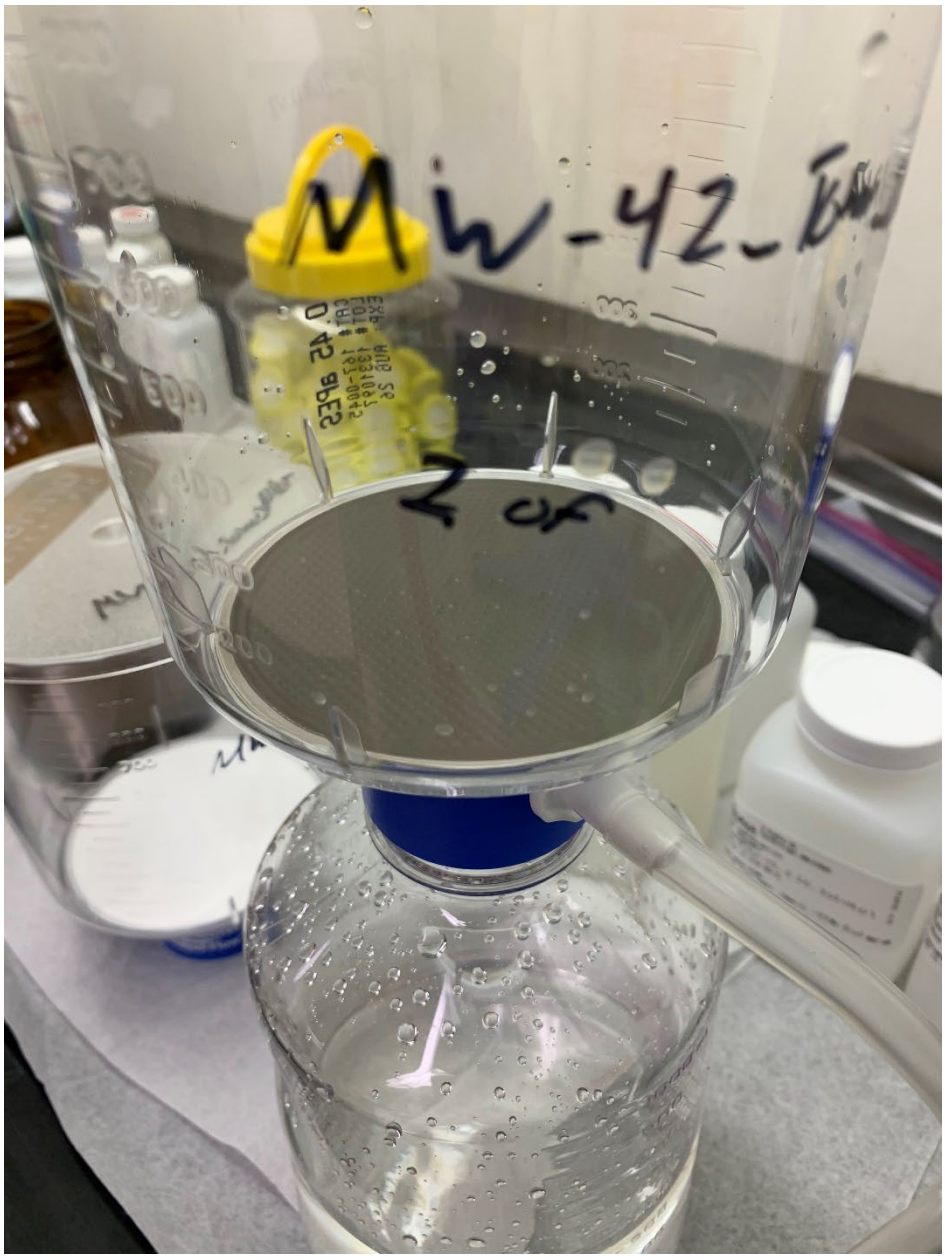
Photo No.	***25.***
Description: Sequential Filtration Taken By: MLG 3/22/21 12:21 MW-42 filtration tower with total sample. Filter 2of 3.	

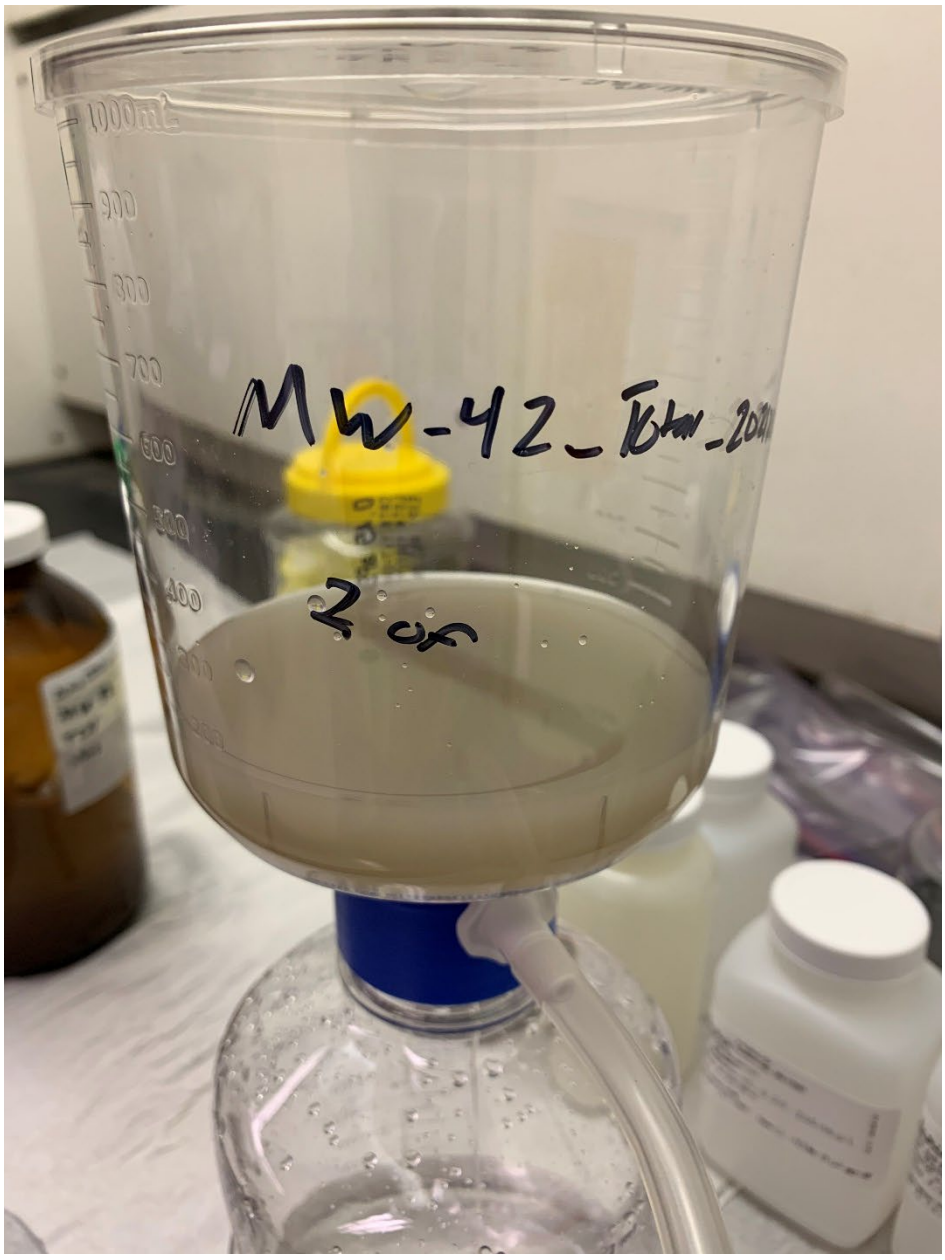
Photo No.	***26.***
Description: Sequential Filtration Taken By: MLG MW-42 filtration tower with total sample. Filter 2 of 3.	

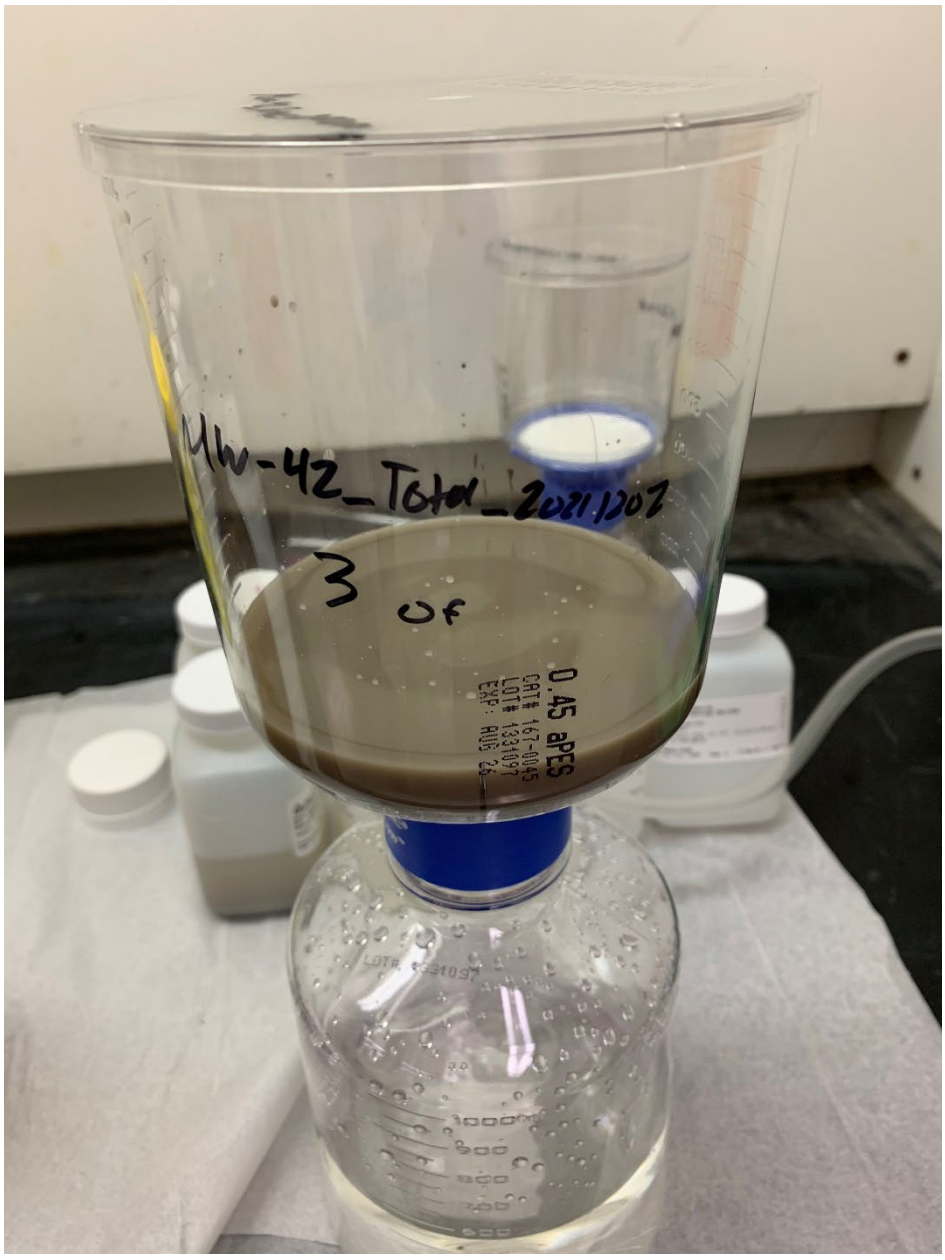
Photo No.	***27.***
Description: Sequential Filtration Taken By: MLG MW-42 filtration tower with total sample. Filter 3 of 3.	

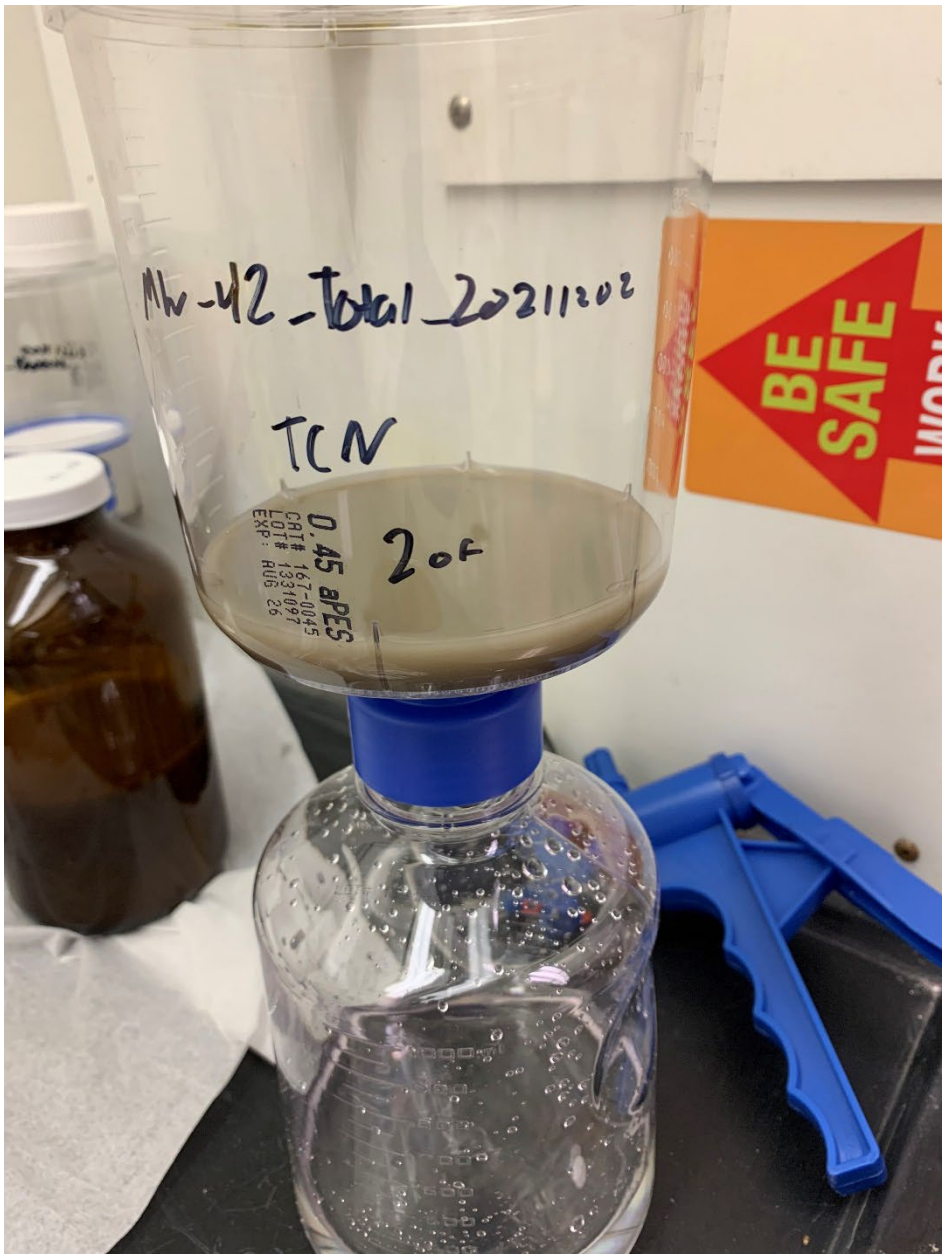
Photo No.	***28.***
Description: Sequential Filtration Taken By: MLG MW-42 filtration tower with total sample. Filter 2 of 5.	

Photo No.	***29.***
Description: Sequential Filtration Taken By: MLG Sample splits in bottles for laboratory analysis.	

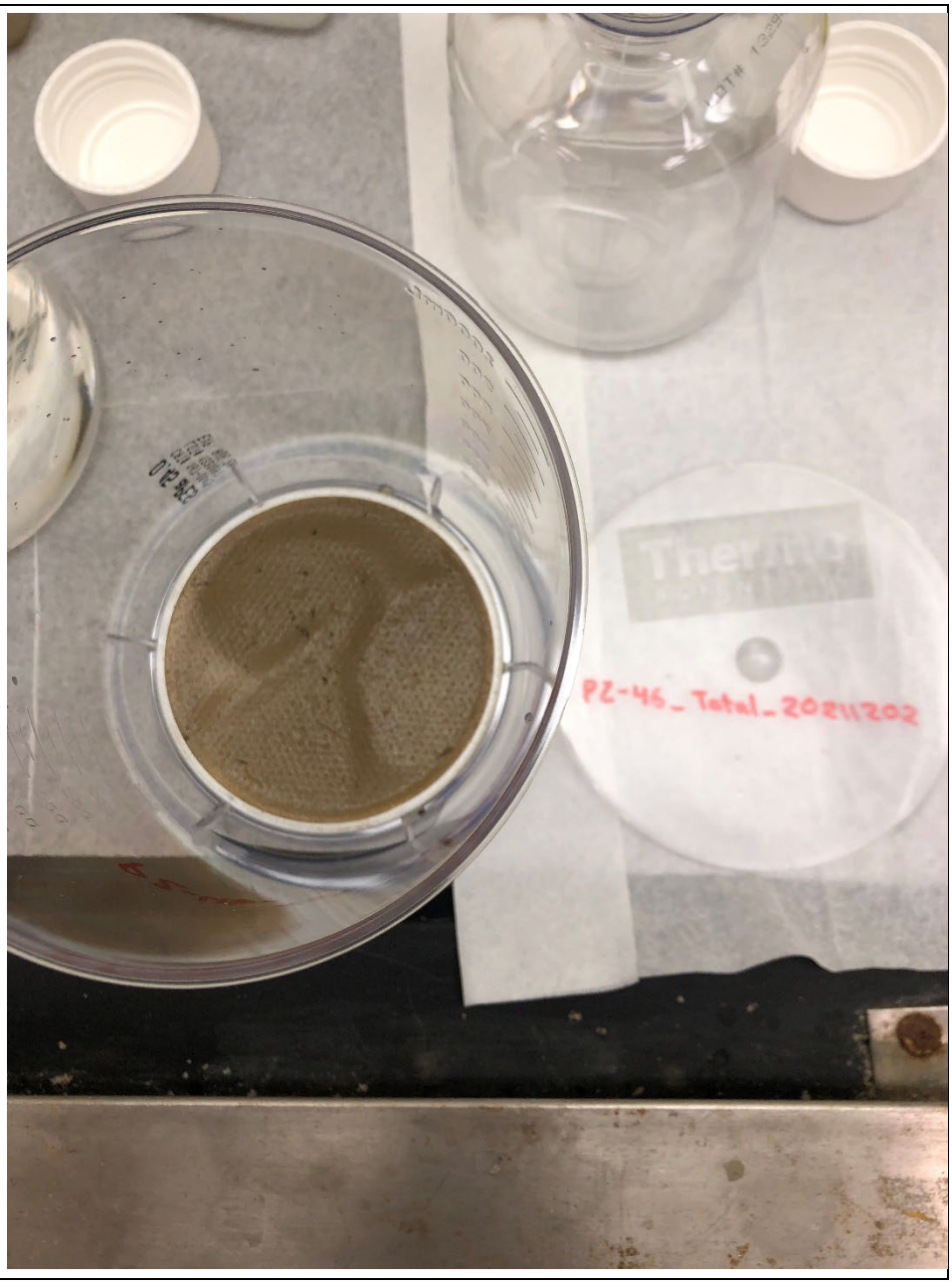
Photo No.	***30.***
Description: Sequential Filtration Taken By: MLG PZ-46 0.45-µm filter after total sample was passed through it.	

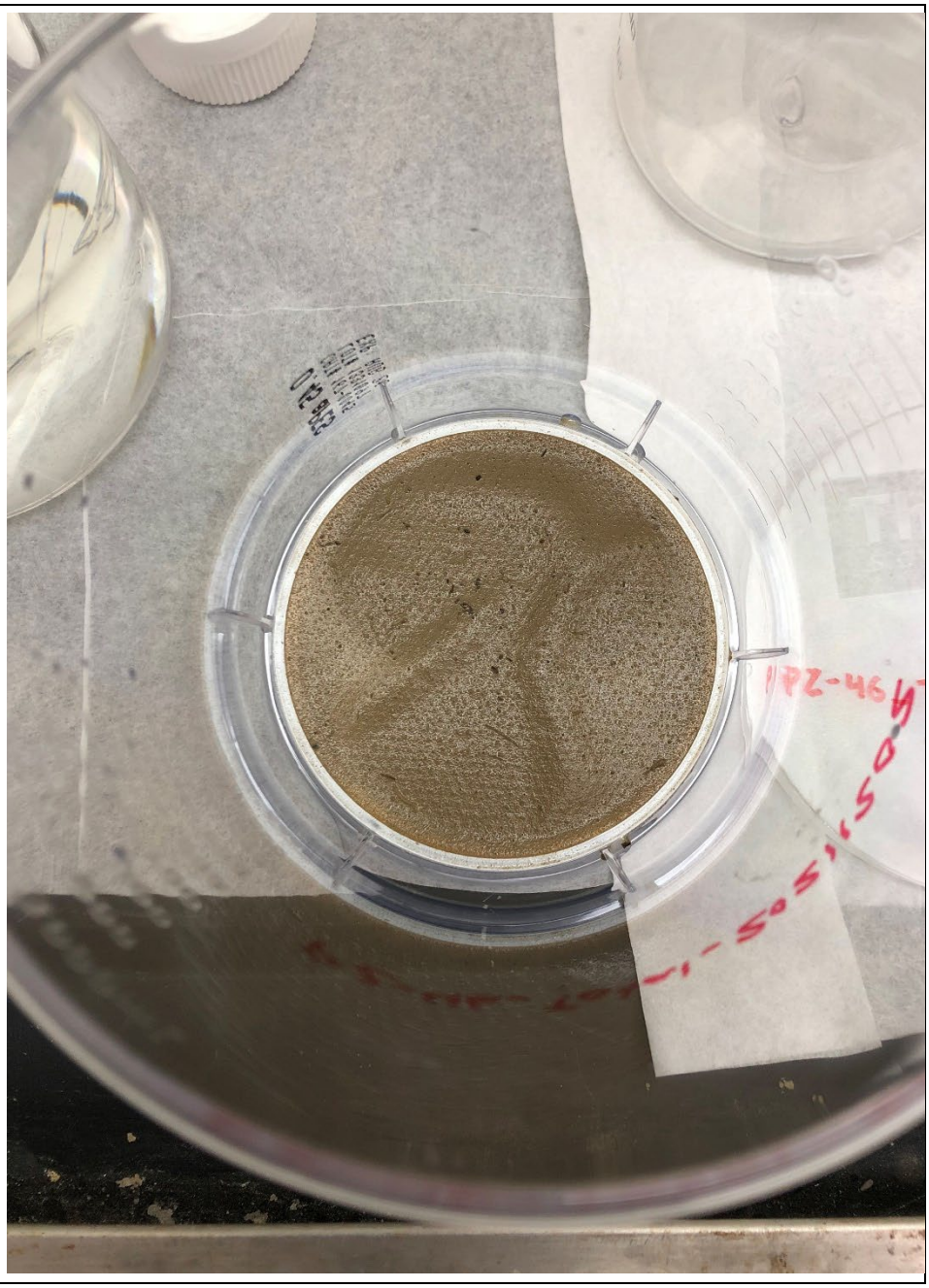
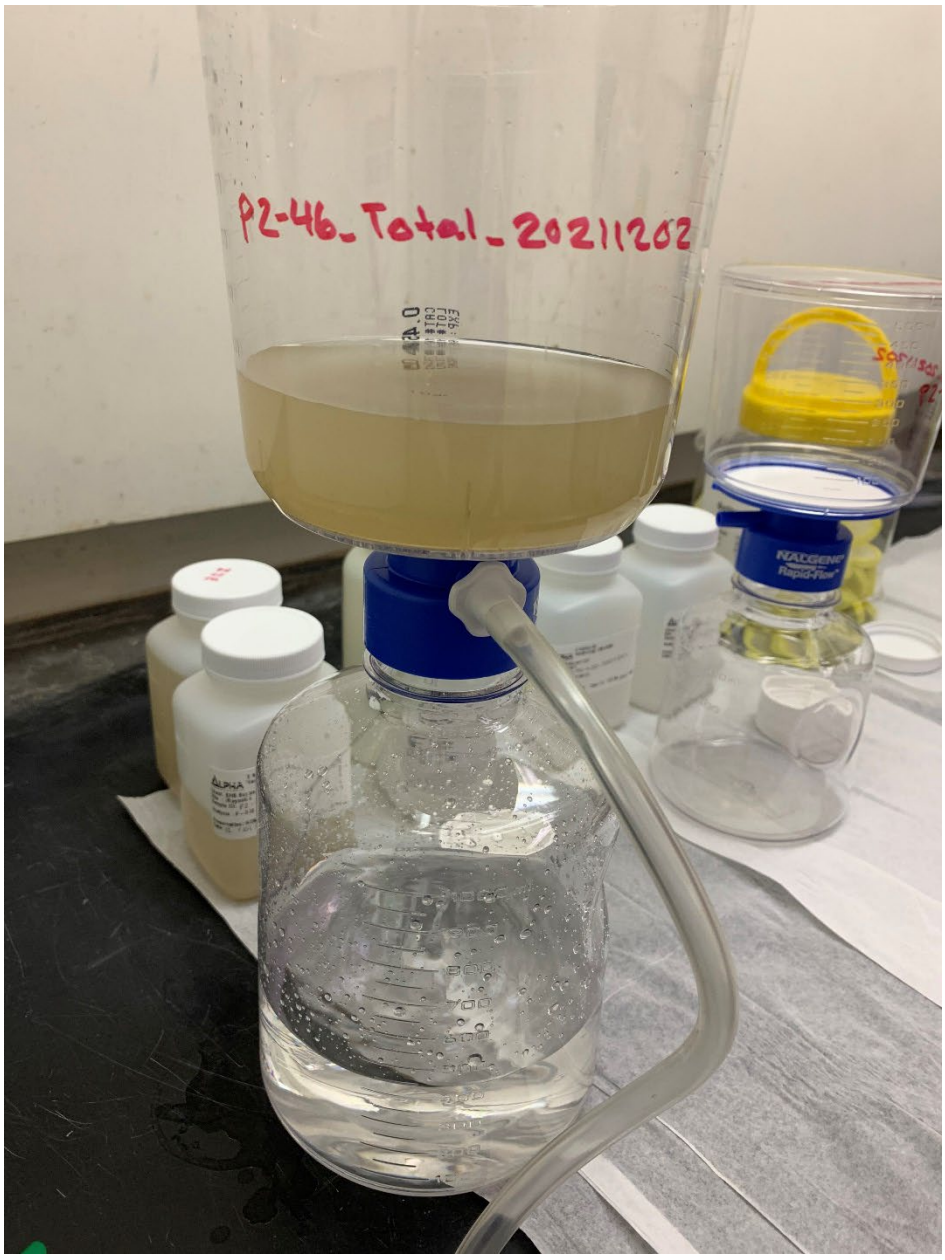
Photo No.	***31.***
Description: Sequential Filtration Taken By: MLG PZ-46 0.45-µm filter after total sample was passed through it.	

Photo No.	***32.***
Description: Sequential Filtration Taken By: MLG PZ-46 0.45-µm filter tower with total sample being passed through it.	

Attachment 5 Method 300.0 Determination of Inorganic Anions by Ion Chromatography

METHOD 300.0

DETERMINATION OF INORGANIC ANIONS BY ION CHROMATOGRAPHY

John D. Pfaff
Inorganic Chemistry Branch
Chemistry Research Division

Revision 2.1
August 1993

ENVIRONMENTAL MONITORING SYSTEMS LABORATORY
OFFICE OF RESEARCH AND DEVELOPMENT
U.S. ENVIRONMENTAL PROTECTION AGENCY
CINCINNATI, OHIO 45268

METHOD 300.0

DETERMINATION OF INORGANIC ANIONS BY ION CHROMATOGRAPHY

1.0 SCOPE AND APPLICATION

1.1 This method covers the determination of the following inorganic anions:

PART A.

Bromide	Nitrite
Chloride	Ortho-Phosphate-P
Fluoride	Sulfate
Nitrate	

PART B.

Bromate	Chlorite
Chlorate	

1.2 The matrices applicable to each method are shown below:

1.2.1 Drinking water, surface water, mixed domestic and industrial wastewaters, groundwater, reagent waters, solids (after extraction 11.7), leachates (when no acetic acid is used).

1.2.2 Drinking water and reagent waters

1.3 The single laboratory Method Detection Limit (MDL defined in Section 3.2) for the above analytes is listed in Tables 1A and 1B. The MDL for a specific matrix may differ from those listed, depending upon the nature of the sample.

1.4 Method A is recommended for drinking and wastewaters. The multilaboratory ranges tested for each anion are as follows:

Analyte	mg/L
Bromide	0.63 - 21.0
Chloride	0.78 - 26.0
Fluoride	0.26 - 8.49
Nitrate-N	0.42 - 14.0
Nitrite-N	0.36 - 12.0
Otho-Phosphate-P	0.69 - 23.1
Sulfate	2.85 - 95.0

1.5 This method is recommended for use only by or under the supervision of analysts experienced in the use of ion chromatography and in the interpretation of the resulting ion chromatograms.

1.6 When this method is used to analyze unfamiliar samples for any of the above anions, anion identification should be supported by the use of a fortified sample matrix covering the anions of interest. The fortification procedure is described in Section 11.6.

1.7 Users of the method data should state the data-quality objectives prior to analysis. Users of the method must demonstrate the ability to generate acceptable results with this method, using the procedures described in Section 9.0.

2.0 SUMMARY OF METHOD

2.1 A small volume of sample, typically 2-3 mL, is introduced into an ion chromatograph. The anions of interest are separated and measured, using a system comprised of a guard column, analytical column, suppressor device, and conductivity detector.

2.2 The main differences between Parts A and B are the separator columns and guard columns. Sections 6.0 and 7.0 will elicit the differences.

2.3 An extraction procedure must be performed to use this method for solids (See Section 11.7).

2.4 Limited performance-based method modifications may be acceptable provided they are fully documented and meet or exceed requirements expressed in Section 9.0, Quality Control.

3.0 DEFINITIONS

3.1 **Calibration Blank (CB)** -- A volume of reagent water fortified with the same matrix as the calibration standards, but without the analytes, internal standards, or surrogate analytes.

3.2 **Calibration Standard (CAL)** -- A solution prepared from the primary dilution standard solution or stock standard solutions and the internal standards and surrogate analytes. The CAL solutions are used to calibrate the instrument response with respect to analyte concentration.

3.3 **Field Duplicates (FD)** -- Two separate samples collected at the same time and placed under identical circumstances and treated exactly the same throughout field and laboratory procedures. Analyses of field duplicates indicate the precision associated with sample collection, preservation and storage, as well as with laboratory procedures.

3.4 **Instrument Performance Check Solution (IPC)** -- A solution of one or more method analytes, surrogates, internal standards, or other test substances used to evaluate the performance of the instrument system with respect to a defined set of criteria.

3.5 **Laboratory Fortified Blank (LFB)** -- An aliquot of reagent water or other blank matrices to which known quantities of the method analytes are added in the laboratory. The LFB is analyzed exactly like a sample, and its purpose is to determine whether the methodology is in control, and whether the laboratory is capable of making accurate and precise measurements.

3.6 **Laboratory Fortified Sample Matrix (LFM)** -- An aliquot of an environmental sample to which known quantities of the method analytes are added in the laboratory. The LFM is analyzed exactly like a sample, and its purpose is to determine whether the sample matrix contributes bias to the analytical results. The background concentrations of the analytes in the sample matrix must be determined in a separate aliquot and the measured values in the LFM corrected for background concentrations.

3.7 **Laboratory Reagent Blank (LRB)** -- An aliquot of reagent water or other blank matrices that are treated exactly as a sample including exposure to all glassware, equipment, solvents, reagents, internal standards, and surrogates that are used with other samples. The LRB is used to determine if method analytes or other interferences are present in the laboratory environment, the reagents, or the apparatus.

3.8 **Linear Calibration Range (LCR)** -- The concentration range over which the instrument response is linear.

3.9 **Material Safety Data Sheet (MSDS)** -- Written information provided by vendors concerning a chemical's toxicity, health hazards, physical properties, fire, and reactivity data including storage, spill, and handling precautions.

3.10 **Method Detection Limit (MDL)** -- The minimum concentration of an analyte that can be identified, measured and reported with 99% confidence that the analyte concentration is greater than zero.

3.11 **Performance Evaluation Sample (PE)** -- A solution of method analytes distributed by the Quality Assurance Research Division (QARD), Environmental Monitoring Systems Laboratory (EMSL-Cincinnati), U. S. Environmental Protection Agency, Cincinnati, Ohio, to multiple laboratories for analysis. A volume of the solution is added to a known volume of reagent water and analyzed with procedures used for samples. Results of analyses are used by QARD to determine statistically the accuracy and precision that can be expected when a method is performed by a competent analyst. Analyte true values are unknown to the analyst.

3.12 **Quality Control Sample (QCS)** -- A solution of method analytes of known concentrations that is used to fortify an aliquot of LRB or sample matrix. The QCS is obtained from a source external to the laboratory and different from the source of calibration standards. It is used to check laboratory performance with externally prepared test materials.

3.13 **Stock Standard Solution (SSS)** -- A concentrated solution containing one or more method analytes prepared in the laboratory using assayed reference materials or purchased from a reputable commercial source.

4.0 INTERFERENCES

4.1 Interferences can be caused by substances with retention times that are similar to and overlap those of the anion of interest. Large amounts of an anion can interfere with the peak resolution of an adjacent anion. Sample dilution and/or fortification can be used to solve most interference problems associated with retention times.

4.2 The water dip or negative peak that elutes near, and can interfere with, the fluoride peak can usually be eliminated by the addition of the equivalent of 1 mL of concentrated eluent (7.3 100X) to l00 mL of each standard and sample.

4.3 Method interferences may be caused by contaminants in the reagent water, reagents, glassware, and other sample processing apparatus that lead to discrete artifacts or elevated baseline in ion chromatograms.

4.4 Samples that contain particles larger than 0.45 microns and reagent solutions that contain particles larger than 0.20 microns require filtration to prevent damage to instrument columns and flow systems.

4.5 Any anion that is not retained by the column or only slightly retained will elute in the area of fluoride and interfere. Known coelution is caused by carbonate and other small organic anions. At concentrations of fluoride above 1.5 mg/L, this interference may not be significant, however, it is the responsibility of the user to generate precision and accuracy information in each sample matrix.

4.6 The acetate anion elutes early during the chromatographic run. The retention times of the anions also seem to differ when large amounts of acetate are present. Therefore, this method is not recommended for leachates of solid samples when acetic acid is used for pH adjustment.

4.7 The quantitation of unretained peaks should be avoided, such as low molecular weight organic acids (formate, acetate, propionate etc.) which are conductive and coelute with or near fluoride and would bias the fluoride quantitation in some drinking and most waste waters.

4.8 Any residual chlorine dioxide present in the sample will result in the formation of additional chlorite prior to analysis. If any concentration of chlorine dioxide is suspected in the sample purge the sample with an inert gas (argon or nitrogen) for about five minutes or until no chlorine dioxide remains.

5.0 SAFETY

5.1 The toxicity or carcinogenicity of each reagent used in this method have not been fully established. Each chemical should be regarded as a potential health hazard and exposure should be as low as reasonably achievable. Cautions are included for known extremely hazardous materials or procedures.

5.2 Each laboratory is responsible for maintaining a current awareness file of OSHA regulations regarding the safe handling of the chemicals specified in this method. A reference file of Material Safety Data Sheets (MSDS) should be made available to all personnel involved in the chemical analysis. The preparation of a formal safety plan is also advisable.

5.3 The following chemicals have the potential to be highly toxic or hazardous, consult MSDS.

5.3.1 Sulfuric acid (Section 7.4)

6.0 EQUIPMENT AND SUPPLIES

6.1 Balance -- Analytical, capable of accurately weighing to the nearest 0.000l g.

6.2 Ion chromatograph -- Analytical system complete with ion chromatograph and all required accessories including syringes, analytical columns, compressed gasses and detectors.

6.2.1 Anion guard column: A protector of the separator column. If omitted from the system the retention times will be shorter. Usually packed with a substrate the same as that in the separator column.

6.2.2 Anion separator column: This column produces the separation shown in Figures 1 and 2.

6.2.2.1 Anion analytical column (Method A): The separation shown in Figure 1 was generated using a Dionex AS4A column (P/N 37041). An optional column may be used if comparable resolution of peaks is obtained, and the requirements of Section 9.2 can be met.

6.2.2.2 Anion analytical column (Method B): The separation shown in Figure 2 was generated using a Dionex AS9 column (P/N 42025). An optional column may be used if comparable resolution of peaks is obtained and the requirements of Section 9.2 can be met.

6.2.3 Anion suppressor device: The data presented in this method were generated using a Dionex anion micro membrane suppressor (P/N 37106).

6.2.4 Detector -- Conductivity cell: Approximately 1.25 µL internal volume, (Dionex, or equivalent) capable of providing data as required in Section 9.2.

6.3 The Dionex AI-450 Data Chromatography Software was used to generate all the data in the attached tables. Systems using a stripchart recorder and integrator or other computer based data system may achieve approximately the same MDL's but the user should demonstrate this by the procedure outlined in Section 9.2.

7.0 REAGENTS AND STANDARDS

7.1 Sample bottles: Glass or polyethylene of sufficient volume to allow replicate analyses of anions of interest.

7.2 Reagent water: Distilled or deionized water, free of the anions of interest. Water should contain particles no larger than 0.20 microns.

7.3 Eluent solution (Method A and Method B): Sodium bicarbonate (CASRN 144-55-8) 1.7 mM, sodium carbonate (CASRN 497-19-8) 1.8 mM. Dissolve 0.2856 g sodium bicarbonate ($NaHCO_3$) and 0.3816 g of sodium carbonate (Na_2CO_3) in reagent water (Section 7.2) and dilute to 2 L.

7.4 Regeneration solution (micro membrane suppressor): Sulfuric acid (CASRN-7664-93-9) 0.025N. Dilute 2.8 mL conc. sulfuric acid (H_2SO_4) to 4 L with reagent water.

7.5 Stock standard solutions, l000 mg/L (1 mg/mL): Stock standard solutions may be purchased as certified solutions or prepared from ACS reagent grade materials (dried at 105°C for 30 minutes) as listed below.

7.5.1 Bromide (Br^-) 1000 mg/L: Dissolve 1.2876 g sodium bromide (NaBr, CASRN 7647-15-6) in reagent water and dilute to 1 L.

7.5.2 Bromate (BrO_3^-) 1000 mg/L: Dissolve 1.1798g of sodium bromate ($NaBrO_3$, CASRN 7789-38-0) in reagent water and dilute to 1 L.

7.5.3 Chlorate ($Cl0_3^-$) 1000 mg/L: Dissolve 1.2753g of sodium chlorate ($NaC10_3$, CASRN 7775-09-9) in reagent water and dilute to 1 L.

7.5.4 Chloride (Cl^-) l000 mg/L: Dissolve 1.6485 g sodium chloride (NaCl, CASRN 7647-l4-5) in reagent water and dilute to 1 L.

7.5.5 Chlorite ($Cl0_2^-$) 1000 mg/L: Dissolve 1.3410g of sodium chlorite ($NaC10_2$, CASRN 7758-19-2) in reagent water and dilute to 1 L.

7.5.6 Fluoride (F^-) 1000 mg/L: Dissolve 2.2100g sodium fluoride (NaF, CASRN 7681-49-4) in reagent water and dilute to 1 L.

7.5.7 Nitrate (NO_3^--N) 1000 mg/L: Dissolve 6.0679 g sodium nitrate ($NaNO_3$, CASRN 7631-99-4) in reagent water and dilute to 1 L.

7.5.8 Nitrite (NO_2^--N) 1000 mg/L: Dissolve 4.9257 g sodium nitrite ($NaNO_2$, CASRN 7632-00-0) in reagent water and dilute to 1 L.

7.5.9 Phosphate ($PO^{=}_{4}$-P) 1000 mg/L: Dissolve 4.3937 g potassium phosphate (KH_2PO_4, CASRN 7778-77-0) in reagent water and dilute to 1 L.

7.5.10 Sulfate ($SO_4^{=}$) 1000 mg/L: Dissolve 1.8141 g potassium sulfate (K_2SO_4, CASRN 7778-80-5) in reagent water and dilute to 1 L.

Note: Stability of standards: Stock standards (7.5) are stable for at least one month when stored at 4°C. Except for the chlorite standard which is only stable for two weeks. Dilute working standards should be prepared weekly, except those that contain nitrite and phosphate should be prepared fresh daily.

7.6 Ethylenediamine preservation solution: Dilute 10 mL of ethylenediamine (99%) (CASRN 107-15-3) to 200 mL with reagent water. Use 1 mL of this dilution to each 1 L of sample taken.

8.0 SAMPLE COLLECTION, PRESERVATION AND STORAGE

8.1 Samples should be collected in plastic or glass bottles. All bottles must be thoroughly cleaned and rinsed with reagent water. Volume collected should be sufficient to insure a representative sample, allow for replicate analysis, if required, and minimize waste disposal.

8.2 Sample preservation and holding times for the anions that can be determined by this method are as follows:

Analyte	Preservation	Holding Time
Bromate	None required	28 days
Bromide	None required	28 days
Chlorate	None required	28 days
Chloride	None required	28 days
Chlorite	Cool to 4°C	immediately
Fluoride	None required	28 days
Nitrate-N	Cool to 4°C	48 hours
Combined (Nitrate/Nitrite)	conc. H_2SO_4 to a pH <2	28 days
Nitrite-N	Cool to 4°C	48 hours
0-Phosphate-P	Cool to 4°C	48 hours
Sulfate	Cool to 4°C	28 days

Note: If the determined value for the combined nitrate/nitrite exceeds 0.5 mg/L as N^-, a resample must be analyzed for the individual concentrations of nitrate and nitrite.

8.3 The method of preservation and the holding time for samples analyzed by this method are determined by the anions of interest. In a given sample, the anion that requires the most preservation treatment and the shortest holding time will determine the preservation treatment. It is recommended that all samples

be cooled to 4°C and held for no longer than 28 days for Method A and analyzed immediately in Method B.

Note: If the sample cannot be analyzed for chlorite within ≤10 minutes, the sample may be preserved by adding 1 mL of the ethylenediamine (EDA) preservation solution (Section 7.6) to 1 L of sample. This will preserve the concentration of the chlorite for up to 14 days. This addition of EDA has no effect on bromate or chlorate, so they can also be determined in a sample preserved with EDA. Residual chlorine dioxide should be removed from the sample (per Section 4.8) prior to the addition of EDA.

9.0 QUALITY CONTROL

9.1 Each laboratory using this method is required to operate a formal quality control (QC) program. The minimum requirements of this program consist of an initial demonstration of laboratory capability, and the periodic analysis of laboratory reagent blanks, fortified blanks and other laboratory solutions as a continuing check on performance. The laboratory is required to maintain performance records that define the quality of the data that are generated.

9.2 INITIAL DEMONSTRATION OF PERFORMANCE

9.2.1 The initial demonstration of performance is used to characterize instrument performance (determination of LCRs and analysis of QCS) and laboratory performance (determination of MDLs) prior to performing analyses by this method.

9.2.2 Linear Calibration Range (LCR) -- The LCR must be determined initially and verified every six months or whenever a significant change in instrument response is observed or expected. The initial demonstration of linearity must use sufficient standards to insure that the resulting curve is linear. The verification of linearity must use a minimum of a blank and three standards. If any verification data exceeds the initial values by ±10%, linearity must be reestablished. If any portion of the range is shown to be nonlinear, sufficient standards must be used to clearly define the nonlinear portion.

9.2.3 Quality Control Sample (QCS) -- When beginning the use of this method, on a quarterly basis or as required to meet data-quality needs, verify the calibration standards and acceptable instrument performance with the preparation and analyses of a QCS. If the determined concentrations are not within ±10% of the stated values, performance of the determinative step of the method is unacceptable. The source of the problem must be identified and corrected before either proceeding with the initial determination of MDLs or continuing with on-going analyses.

9.2.4 Method Detection Limit (MDL) -- MDLs must be established for all analytes, using reagent water (blank) fortified at a concentration of two

to three times the estimated instrument detection limit.[6] To determine MDL values, take seven replicate aliquots of the fortified reagent water and process through the entire analytical method. Perform all calculations defined in the method and report the concentration values in the appropriate units. Calculate the MDL as follows:

$$MDL = (t) \times (S)$$

where, t = Student's t value for a 99% confidence level and a standard deviation estimate with n-1 degrees of freedom [t= 3.14 for seven replicates]

S = standard deviation of the replicate analyses

MDLs should be determined every six months, when a new operator begins work or whenever there is a significant change in the background or instrument response.

9.3 ASSESSING LABORATORY PERFORMANCE

9.3.1 Laboratory Reagent Blank (LRB) -- The laboratory must analyze at least one LRB with each batch of samples. Data produced are used to assess contamination from the laboratory environment. Values that exceed the MDL indicate laboratory or reagent contamination should be suspected and corrective actions must be taken before continuing the analysis.

9.3.2 Laboratory Fortified Blank (LFB) -- The laboratory must analyze at least one LFB with each batch of samples. Calculate accuracy as percent recovery (Section 9.4.2). If the recovery of any analyte falls outside the required control limits of 90-110%, that analyte is judged out of control, and the source of the problem should be identified and resolved before continuing analyses.

9.3.3 The laboratory must use LFB analyses data to assess laboratory performance against the required control limits of 90-110%. When sufficient internal performance data become available (usually a minimum of 20-30 analyses), optional control limits can be developed from the percent mean recovery (x) and the standard deviation (S) of the mean recovery. These data can be used to establish the upper and lower control limits as follows:

UPPER CONTROL LIMIT = x + 3S
LOWER CONTROL LIMIT = x - 3S

The optional control limits must be equal to or better than the required control limits of 90-110%. After each five to 10 new recovery measurements, new control limits can be calculated using only the most recent 20-30 data points. Also, the standard deviation (S) data should

be used to establish an on-going precision statement for the level of concentrations included in the LFB. These data must be kept on file and be available for review.

9.3.4 Instrument Performance Check Solution (IPC) -- For all determinations the laboratory must analyze the IPC (a mid-range check standard) and a calibration blank immediately following daily calibration, after every tenth sample (or more frequently, if required) and at the end of the sample run. Analysis of the IPC solution and calibration blank immediately following calibration must verify that the instrument is within ±10% of calibration. Subsequent analyses of the IPC solution must verify the calibration is still within ±10%. If the calibration cannot be verified within the specified limits, reanalyze the IPC solution. If the second analysis of the IPC solution confirms calibration to be outside the limits, sample analysis must be discontinued, the cause determined and/or in the case of drift, the instrument recalibrated. All samples following the last acceptable IPC solution must be reanalyzed. The analysis data of the calibration blank and IPC solution must be kept on file with the sample analyses data.

9.4 ASSESSING ANALYTE RECOVERY AND DATA QUALITY

9.4.1 Laboratory Fortified Sample Matrix (LFM) -- The laboratory must add a known amount of analyte to a minimum of 10% of the routine samples. In each case the LFM aliquot must be a duplicate of the aliquot used for sample analysis. The analyte concentration must be high enough to be detected above the original sample and should not be less than four times the MDL. The added analyte concentration should be the same as that used in the laboratory fortified blank.

9.4.1.1 If the concentration of fortification is less than 25% of the background concentration of the matrix the matrix recovery should not be calculated.

9.4.2 Calculate the percent recovery for each analyte, corrected for concentrations measured in the unfortified sample, and compare these values to the designated LFM recovery range 90-110%. Percent recovery may be calculated using the following equation:

$$R = \frac{C_s - C}{s} x100$$

where, R = percent recovery
C_s = fortified sample concentration
C = sample background concentration
s = concentration equivalent of analyte added to sample

9.4.3 Until sufficient data becomes available (usually a minimum of 20-30 analysis), assess laboratory performance against recovery limits for Method A of 80-120% and 75-125% for Method B. When sufficient internal performance data becomes available develop control limits from percent mean recovery and the standard deviation of the mean recovery.

9.4.4 If the recovery of any analyte falls outside the designated LFM recovery range and the laboratory performance for that analyte is shown to be in control (Section 9.3), the recovery problem encountered with the LFM is judged to be either matrix or solution related, not system related.

9.4.5 Where reference materials are available, they should be analyzed to provide additional performance data. The analysis of reference samples is a valuable tool for demonstrating the ability to perform the method acceptably.

9.4.6 In recognition of the rapid advances occurring in chromatography, the analyst is permitted certain options, such as the use of different columns and/or eluents, to improve the separations or lower the cost of measurements. Each time such modifications to the method are made, the analyst is required to repeat the procedure in Section 9.2.

9.4.7 It is recommended that the laboratory adopt additional quality assurance practices for use with this method. The specific practices that are most productive depend upon the needs of the laboratory and the nature of the samples. Field duplicates may be analyzed to monitor the precision of the sampling technique. When doubt exists over the identification of a peak in the chromatogram, confirmatory techniques such as sample dilution and fortification, must be used. Whenever possible, the laboratory should perform analysis of quality control check samples and participate in relevant performance evaluation sample studies.

9.4.8 At least quarterly, replicates of LFBs should be analyzed to determine the precision of the laboratory measurements. Add these results to the on-going control charts to document data quality.

9.4.9 When using Part B, the analyst should be aware of the purity of the reagents used to prepare standards. Allowances must be made when the solid materials are less than 99% pure.

10.0 CALIBRATION AND STANDARDIZATION

10.1 Establish ion chromatographic operating parameters equivalent to those indicated in Tables 1A or 1B.

10.2 For each analyte of interest, prepare calibration standards at a minimum of three concentration levels and a blank by adding accurately measured volumes of one or more stock standards (Section 7.5) to a volumetric flask and diluting

to volume with reagent water. If a sample analyte concentration exceeds the calibration range the sample may be diluted to fall within the range. If this is not possible then three new calibration concentrations must be chosen, two of which must bracket the concentration of the sample analyte of interest. Each attenuation range of the instrument used to analyze a sample must be calibrated individually.

10.3 Using injections of 0.1-1.0 mL (determined by injection loop volume) of each calibration standard, tabulate peak height or area responses against the concentration. The results are used to prepare a calibration curve for each analyte. During this procedure, retention times must be recorded.

10.4 The calibration curve must be verified on each working day, or whenever the anion eluent is changed, and after every 20 samples. If the response or retention time for any analyte varies from the expected values by more than ±10%, the test must be repeated, using fresh calibration standards. If the results are still more than ±10%, a new calibration curve must be prepared for that analyte.

10.5 Nonlinear response can result when the separator column capacity is exceeded (overloading). The response of the detector to the sample when diluted 1:1, and when not diluted, should be compared. If the calculated responses are the same, samples of this total anionic concentration need not be diluted.

11.0 PROCEDURE

11.1 Tables 1A and 1B summarize the recommended operating conditions for the ion chromatograph. Included in these tables are estimated retention times that can be achieved by this method. Other columns, chromatographic conditions, or detectors may be used if the requirements of Section 9.2 are met.

11.2 Check system calibration daily and, if required, recalibrate as described in Section 10.0.

11.3 Load and inject a fixed amount of well mixed sample. Flush injection loop thoroughly, using each new sample. Use the same size loop for standards and samples. Record the resulting peak size in area or peak height units. An automated constant volume injection system may also be used.

11.4 The width of the retention time window used to make identifications should be based upon measurements of actual retention time variations of standards over the course of a day. Three times the standard deviation of a retention time can be used to calculate a suggested window size for each analyte. However, the experience of the analyst should weigh heavily in the interpretation of chromatograms.

11.5 If the response for the peak exceeds the working range of the system, dilute the sample with an appropriate amount of reagent water and reanalyze.

11.6 If the resulting chromatogram fails to produce adequate resolution, or if identification of specific anions is questionable, fortify the sample with an appropriate amount of standard and reanalyze.

Note: Retention time is inversely proportional to concentration. Nitrate and sulfate exhibit the greatest amount of change, although all anions are affected to some degree. In some cases this peak migration may produce poor resolution or identification.

11.7 The following extraction should be used for solid materials. Add an amount of reagent water equal to 10 times the weight of dry solid material taken as a sample. This slurry is mixed for 10 minutes using a magnetic stirring device. Filter the resulting slurry before injecting using a 0.45 µ membrane type filter. This can be the type that attaches directly to the end of the syringe. Care should be taken to show that good recovery and identification of peaks is obtained with the user's matrix through the use of fortified samples.

11.8 It has been reported that lower detection limits for bromate (≈7 µg/L) can be obtained using a borate based eluent[7]. The use of this eluent or other eluents that improve method performance may be considered as a minor modification of the method and as such still are acceptable.

11.9 Should more complete resolution be needed between peaks the eluent (7.3) can be diluted. This will spread out the run but will also cause the later eluting anions to be retained longer. The analyst must determine to what extent the eluent is diluted. This dilution should not be considered a deviation from the method.

12.0 DATA ANALYSIS AND CALCULATIONS

12.1 Prepare a calibration curve for each analyte by plotting instrument response against standard concentration. Compute sample concentration by comparing sample response with the standard curve. Multiply answer by appropriate dilution factor.

12.2 Report only those values that fall between the lowest and the highest calibration standards. Samples exceeding the highest standard should be diluted and reanalyzed.

12.3 Report results in mg/L.

12.4 Report NO_2^- as N
NO_3^- as N
HPO_4 as P

13.0 METHODS PERFORMANCE

13.1 Tables 1A and 2A give the single laboratory (EMSL-Cincinnati) MDL for each anion included in the method under the conditions listed.

13.2 Tables 2A and 2B give the single laboratory (EMSL-Cincinnati) standard deviation for each anion included in the method in a variety of waters for the listed conditions.

13.3 Multiple laboratory accuracy and bias data (S_t) and estimated single operator values (S_o) for reagent, drinking and waste water using Method A are given for each anion in Tables 3 through 9. Data from 19 laboratories were used for this data.

13.4 Some of the bias statements, for example chloride and sulfate, may be misleading due to spiking small increments of the anion into large naturally occurring concentrations of the same anion.

14.0 POLLUTION PREVENTION

14.1 Pollution prevention encompasses any technique that reduces or eliminates the quantity or toxicity of waste at the point of generation. Numerous opportunities for pollution prevention exist in laboratory operation. The EPA has established a preferred hierarchy of environmental management techniques that places pollution prevention as the management option of first choice. Whenever feasible, laboratory personnel should use pollution prevention techniques to address their waste generation. When wastes cannot be feasibly reduced at the source, the Agency recommends recycling as the next best option.

14.2 Quantity of the chemicals purchased should be based on expected usage during its shelf life and disposal cost of unused material. Actual reagent preparation volumes should reflect anticipated usage and reagent stability.

14.3 For information about pollution prevention that may be applicable to laboratories and research institutions, consult "Less is Better: Laboratory Chemical Management for Waste Reduction," available from the American Chemical Society's Department of Government Regulations and Science Policy, 1155 16th Street N.W., Washington, D.C. 20036, (202) 872-4477.

15.0 WASTE MANAGEMENT

15.1 The Environmental Protection Agency requires that laboratory waste management practices be conducted consistent with all applicable rules and regulations. Excess reagents, samples and method process wastes should be characterized and disposed of in an acceptable manner. The Agency urges laboratories to protect the air, water, and land by minimizing and controlling all releases from hoods and bench operations, complying with the letter and spirit of any waste discharge permit and regulations, and by complying with all solid and hazardous waste regulations, particularly the hazardous waste identification rules and land disposal restrictions. For further information on waste management consult the "Waste Management Manual for Laboratory Personnel", available from the American Chemical Society at the address listed in Section 14.3.

16.0 REFERENCES

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17.0 TABLES, DIAGRAMS, FLOWCHARTS AND VALIDATION DATA

TABLE 1A. CHROMATOGRAPHIC CONDITIONS AND DETECTION LIMITS IN REAGENT WATER (PART A)

Analyte	Peak #*	Retention Time (min)	MDL (mg/L)
Fluoride	1	1.2	0.01
Chloride	2	1.7	0.02
Nitrite-N	3	2.0	0.004
Bromide	4	2.9	0.01
Nitrate-N	5	3.2	0.002
o-Phosphate-P	6	5.4	0.003
Sulfate	7	6.9	0.02

Standard Conditions:

Columns: as specified in Sesction 6.2.2.1
Detector: as specified in Section 6.2.4 Pump Rate: 2.0 mL/min.
Eluent: as specified in Section 7.3 Sample Loop: 50 µL

MDL calculated from data system using a y-axis selection of 1000 ns and with a stripchart recorder with an attenuator setting of 1 uMHO full scale.
*See Figure 1

TABLE 1B. CHROMATOGRAPHIC CONDITIONS AND DETECTION LIMITS IN REAGENT WATER (PART B)

Analyte	Peak #*	Retention Time (min)	MDL (mg/L)
Chlorite	1	2.8	0.01
Bromate	2	3.2	0.02
Chlorate	4	7.1	0.003

Standard Conditions:

Column: as specified in Section 6.2.2.2
Detector: as specified in Section 6.2.4 Pump Rate: 1.0 mL/min.
Eluent: as specified in Section 7.3 Sample Loop: 50 µL
Attentuation - 1
y-axis - 500 ns

*See Figure 2

TABLE 2A. SINGLE-OPERATOR ACCURACY AND BIAS OF STANDARD ANIONS (METHOD A)

Analyte	Sample Type	Known Conc. (mg/L)	Number of Replicates	Mean Recovery %	Standard Deviation (mg/L)
Bromide	RW	5.0	7	99	0.08
	DW	5.0	7	105	0.10
	SW	5.0	7	95	0.13
	WW	5.0	7	105	0.34
	GW	5.0	7	92	0.34
	SD	2.0	7	82	0.06
Chloride	RW	20.0	7	96	0.35
	DW	20.0	7	108	1.19
	SW	10.0	7	86	0.33
	WW	20.0	7	101	5.2
	GW	20.0	7	114	1.3
	SD	20.0	7	90	0.32
Fluoride	RW	2.0	7	91	0.05
	DW	1.0	7	92	0.06
	SW	1.0	7	73	0.05
	WW	1.0	7	87	0.07
	GW	0.4	7	95	0.07
	SD	5.0	7	101	0.35
Nitrate-N	RW	10.0	7	103	0.21
	DW	10.0	7	104	0.27
	SW	10.0	7	93	0.17
	WW	10.0	7	101	0.82
	GW	10.0	7	97	0.47
	SD	10.0	7	82	0.28
Nitrite	RW	10.0	7	97	0.14
	DW	10.0	7	121	0.25
	SW	5.0	7	92	0.14
	WW	5.0	7	91	0.50
	GW	10.0	7	96	0.35
	SD	2.0	7	98	0.08
o-Phosphate-P	RW	10.0	7	99	0.17
	DW	10.0	7	99	0.26
	SW	10.0	7	98	0.22
	WW	10.0	7	106	0.85
	GW	10.0	7	95	0.33
Sulfate	RW	20.0	7	99	0.40
	DW	50.0	7	105	3.35
	SW	40.0	7	95	1.7
	WW	40.0	7	102	6.4
	GW	40.0	7	112	3.2

TABLE 2A. SINGLE-OPERATOR ACCURACY AND BIAS OF STANDARD ANIONS (METHOD A)

Analyte	Sample Type	Known Conc. (mg/L)	Number of Replicates	Mean Recovery %	Standard Deviation (mg/L)

RW = Reagent Water
WW = Mixed Domestic and Industrial Wastewater
DW = Drinking Water
GW = Groundwater
SW = Surface Water
SD = USEPA QC Solid (shale)

TABLE 2B. SINGLE-OPERATOR ACCURACY AND BIAS OF BY-PRODUCT (PART B)

Analyte	Sample Type	Spike (mg/L)	Number of Replicates	Mean Recovery %	Standard Deviation (mg/L)
Bromide	RW	5.0	7	103	0.07
		1.0	7	98	0.04
		0.1	7	155	0.005
		0.05	7	122	0.01
	DW	5.0	7	95	0.04
		1.0	7	85	0.02
		0.1	7	98	0.005
		0.05	7	98	0.005
Chlorate	RW	5.0	7	101	0.06
		1.0	7	97	0.01
		0.1	7	100	0.01
		0.05	7	119	0.05
	DW	5.0	7	101	0.04
		1.0	7	115	0.01
		0.1	7	121	0.005
		0.05	7	110	0.01
Chlorite	RW	5.0	7	100	0.04
		1.0	7	98	0.01
		0.1	7	86	0.01
		0.05	7	94	0.01
	DW	5.0	7	96	0.03
		1.0	7	100	0.02
		0.1	7	76	0.00
		0.05	7	96	0.01

RW = Reagent Water
DW = Drinking Water

TABLE 3. MULTIPLE LABORATORY (n=19) DETERMINATION OF BIAS FOR FLUORIDE

Water	Amount Added mg/L	Amount Found mg/L	S_t	S_o	Bias %
Reagent	0.26	0.25	0.08	0.11	-3.8
	0.34	0.29	0.11		-14.7
	2.12	2.12	0.07	0.12	0.0
	2.55	2.48	0.14		-2.7
	6.79	6.76	0.20	0.19	-0.4
	8.49	8.46	0.30		-0.4
Drinking	0.26	0.24	0.08	0.05	-7.7
	0.34	0.34	0.11		0.0
	2.12	2.09	0.18	0.06	-1.4
	2.55	2.55	0.16		0.0
	6.79	6.84	0.54	0.25	+0.7
	8.49	8.37	0.75		-1.4
Waste	0.26	0.25	0.15	0.06	-3.8
	0.34	0.32	0.08		-5.9
	2.12	2.13	0.22	0.15	+0.5
	2.55	2.48	0.16		-2.7
	6.79	6.65	0.41	0.20	-2.1
	8.49	8.27	0.36		-2.6

TABLE 4. MULTIPLE LABORATORY (n=19) DETERMINATION OF BIAS FOR CHLORIDE

Water	Amount Added mg/L	Amount Found mg/L	S_t	S_o	Bias %
Reagent	0.78	0.79	0.17	0.29	+1.3
	1.04	1.12	0.46		+7.7
	6.50	6.31	0.27	0.14	-2.9
	7.80	7.76	0.39		-0.5
	20.8	20.7	0.54	0.62	-0.5
	26.0	25.9	0.58		-0.4
Drinking	0.78	0.54	0.35	0.20	-30.8
	1.04	0.51	0.38		-51.0
	6.50	5.24	1.35	1.48	-19.4
	7.80	6.02	1.90		-22.8
	20.8	20.0	2.26	1.14	-3.8
	26.0	24.0	2.65		-7.7
Waste	0.78	0.43	0.32	0.39	-44.9
	1.04	0.65	0.48		-37.5
	6.50	4.59	1.82	0.83	-29.4
	7.80	5.45	2.02		-30.1
	20.8	18.3	2.41	1.57	-11.8
	26.0	23.0	2.50		-11.5

TABLE 5. MULTIPLE LABORATORY (n=19) DETERMINATION OF BIAS FOR NITRITE-NITROGEN

Water	Amount Added mg/L	Amount Found mg/L	S_t	S_o	Bias %
Reagent	0.36	0.37	0.04	0.04	+2.8
	0.48	0.48	0.06		0.0
	3.00	3.18	0.12	0.06	+6.0
	3.60	3.83	0.12		+6.4
	9.60	9.84	0.36	0.26	+2.5
	12.0	12.1	0.27		+0.6
Drinking	0.36	0.30	0.13	0.03	-16.7
	0.48	0.40	0.14		-16.7
	3.00	3.02	0.23	0.12	+0.7
	3.60	3.62	0.22		+0.6
	9.60	9.59	0.44	0.28	-0.1
	12.0	11.6	0.59		-3.1
Waste	0.36	0.34	0.06	0.04	-5.6
	0.48	0.46	0.07		-4.2
	3.00	3.18	0.13	0.10	+6.0
	3.60	3.76	0.18		+4.4
	9.60	9.74	0.49	0.26	+1.5
	12.0	12.0	0.56		+0.3

TABLE 6. MULTIPLE LABORATORY (n=19) DETERMINATION OF BIAS FOR BROMIDE

Water	Amount Added mg/L	Amount Found mg/L	S_t	S_o	Bias %
Reagent	0.63	0.69	0.11	0.05	+9.5
	0.84	0.85	0.12		+1.2
	5.24	5.21	0.22	0.21	-0.6
	6.29	6.17	0.35		-1.9
	16.8	17.1	0.70	0.36	+1.6
	21.0	21.3	0.93		+1.5
Drinking	0.63	0.63	0.13	0.04	0.0
	0.84	0.81	0.13		-3.6
	5.24	5.11	0.23	0.13	-2.5
	6.29	6.18	0.30		-1.7
	16.8	17.0	0.55	0.57	+0.9
	21.0	20.9	0.65		-0.4
Waste	0.63	0.63	0.15	0.09	0.0
	0.84	0.85	0.15		+1.2
	5.24	5.23	0.36	0.11	-0.2
	6.29	6.27	0.46		-0.3
	16.8	16.6	0.69	0.43	-1.0
	21.0	21.1	0.63		+0.3

TABLE 7. MULTIPLE LABORATORY (n=19) DETERMINATION OF BIAS FOR NITRATE-NITROGEN

Water	Amount Added mg/L	Amount Found mg/L	S_t	S_o	Bias %
Reagent	0.42	0.42	0.04	0.02	0.0
	0.56	0.56	0.06		0.0
	3.51	3.34	0.15	0.08	-4.8
	4.21	4.05	0.28		-3.8
	11.2	11.1	0.47	0.34	-1.1
	14.0	14.4	0.61		+2.6
Drinking	0.42	0.46	0.08	0.03	+9.5
	0.56	0.58	0.09		+3.6
	3.51	3.45	0.27	0.10	-1.7
	4.21	4.21	0.38		0.0
	11.2	11.5	0.50	0.48	+2.3
	14.0	14.2	0.70		+1.6
Waste	0.42	0.36	0.07	0.06	-14.6
	0.56	0.40	0.16		-28.6
	3.51	3.19	0.31	0.07	-9.1
	4.21	3.84	0.28		-8.8
	11.2	10.9	0.35	0.51	-3.0
	14.0	14.1	0.74		+0.4

TABLE 8. MULTIPLE LABORATORY (n=19) DETERMINATION OF BIAS FOR ORTHO-PHOSPHATE

Water	Amount Added mg/L	Amount Found mg/L	S_t	S_o	Bias %
Reagent	0.69	0.69	0.06	0.06	0.0
	0.92	0.98	0.15		+6.5
	5.77	5.72	0.36	0.18	-0.9
	6.92	6.78	0.42		-2.0
	18.4	18.8	1.04	0.63	+2.1
	23.1	23.2	0.35		+2.4
Drinking	0.69	0.70	0.17	0.17	+1.4
	0.92	0.96	0.20		+4.3
	5.77	5.43	0.52	0.40	-5.9
	6.92	6.29	0.72		-9.1
	18.4	18.0	0.68	0.59	-2.2
	23.1	22.6	1.07		-2.0
Waste	0.69	0.64	0.26	0.09	-7.2
	0.92	0.82	0.28		-10.9
	5.77	5.18	0.66	0.34	-10.2
	6.92	6.24	0.74		-9.8
	18.4	17.6	2.08	1.27	-4.1
	23.1	22.4	0.87		-3.0

TABLE 9. MULTIPLE LABORATORY (n=19) DETERMINATION OF BIAS FOR SULFATE

Water	Amount Added mg/L	Amount Found mg/L	S_t	S_o	Bias %
Reagent	2.85	2.83	0.32	0.52	-0.7
	3.80	3.83	0.92		+0.8
	23.8	24.0	1.67	0.68	+0.8
	28.5	28.5	1.56		-0.1
	76.0	76.8	3.42	2.33	+1.1
	95.0	95.7	3.59		+0.7
Drinking	2.85	1.12	0.37	0.41	-60.7
	3.80	2.26	0.97		-40.3
	23.8	21.8	1.26	0.51	-8.4
	28.5	25.9	2.48		-9.1
	76.0	74.5	4.63	2.70	-2.0
	95.0	92.3	5.19		-2.8
Waste	2.85	1.89	0.37	0.24	-33.7
	3.80	2.10	1.25		-44.7
	23.8	20.3	3.19	0.58	-14.7
	28.5	24.5	3.24		-14.0
	76.0	71.4	5.65	3.39	-6.1
	95.0	90.3	6.80		-5.0

Method A

Peak	Ret. Time	Ion	mg/L
1	1.17	F^-	2
2	1.73	Cl^-	20
3	2.02	NO_2^-	2
4	2.95	Br^-	2
5	3.20	NO_3^-	10
6	5.38	HPO_4^{2-}	2
7	6.92	SO_4^{2-}	60

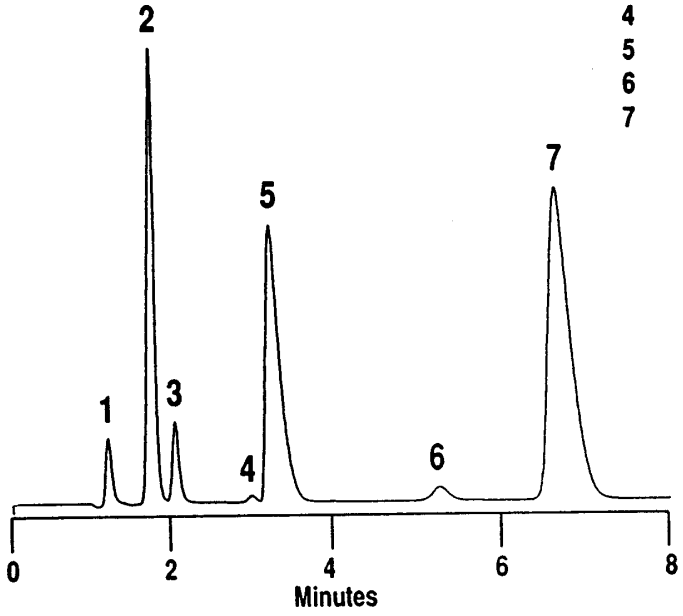


Figure 1. Chromatogram showing separation using the AS4A column

Method B

Peak	Ret. Time	Ion	mg/L
1	2.75	ClO_2^-	0.1
2	3.23	BrO_3^-	0.1
3	3.63	Cl^-	0.1
4	7.08	ClO_3^-	0.1

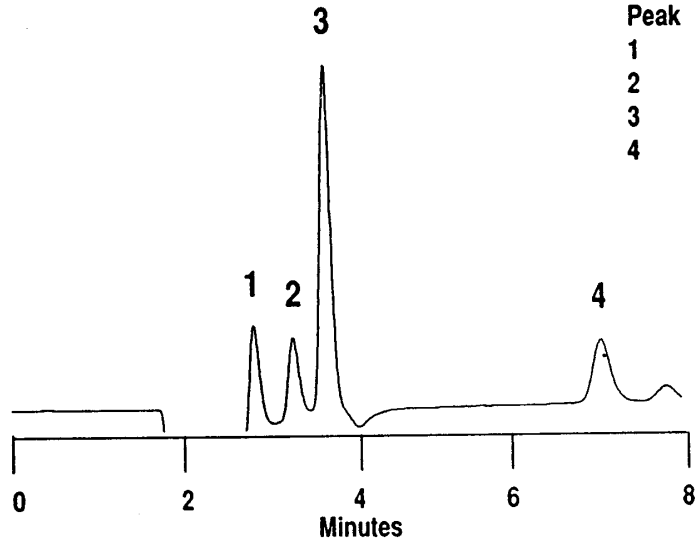


Figure 2. Chromatogram showing separation using the AS9 column

Appendix J Daily Precipitation Data for 2021

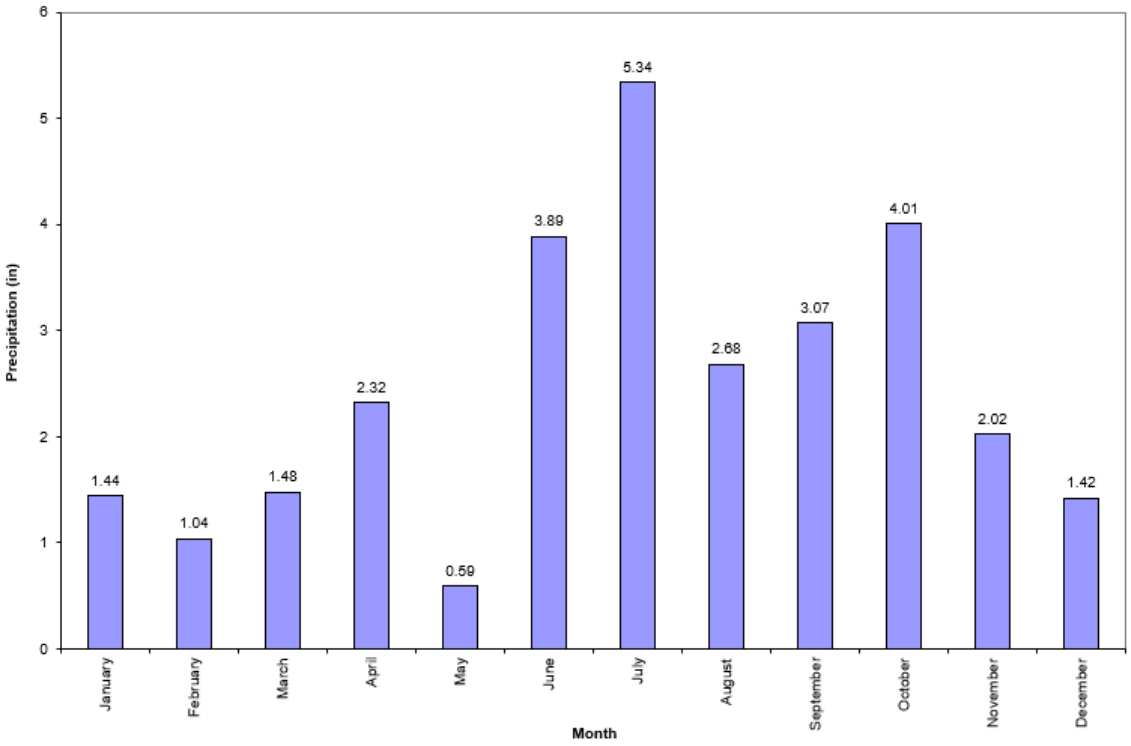


Figure 1 Post-Closure Reporting 2021 Monthly Precipitation

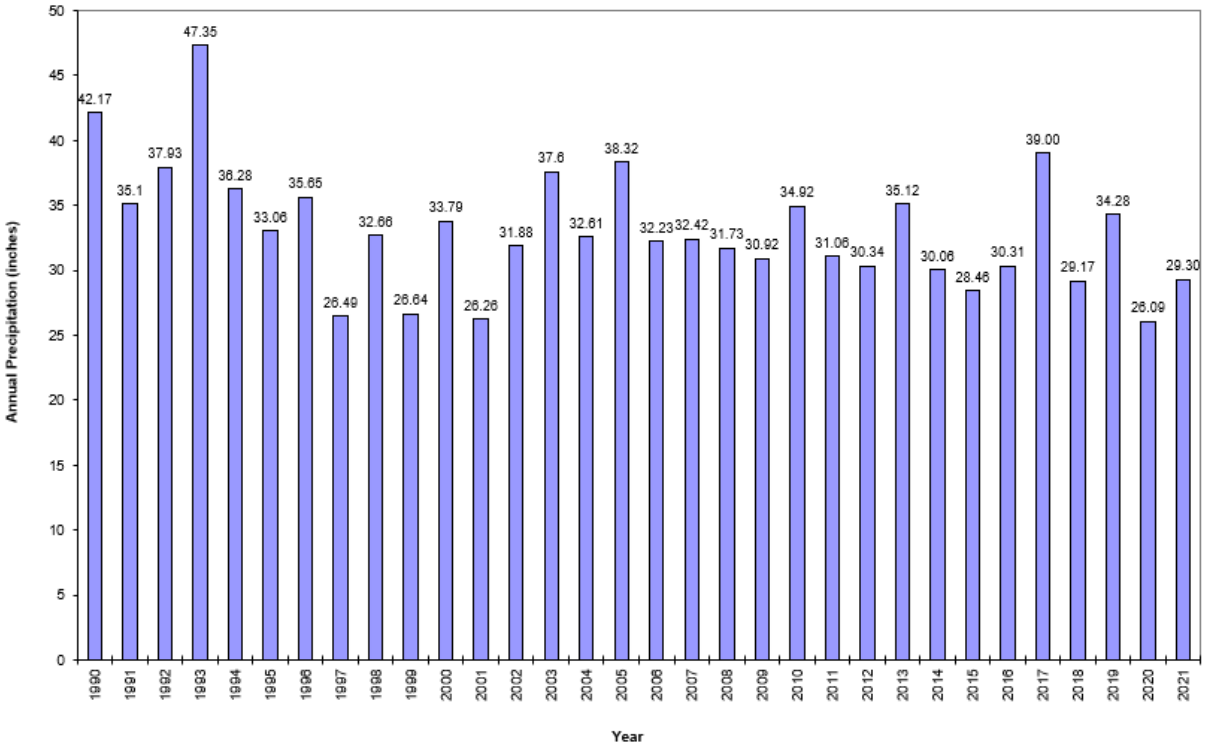


Figure 2 Post Closure Reporting Annual Precipitation for Massena