Clearwater, Scott

From: Clearwater, Scott
Sent: Tuesday, January 2, 2024 6:31 PM
To: Karg, Andrew (EGLE)
Cc: Armbruster, Amanda (DEQ); LeoneJ@michigan.gov; Ramanauskas, Peter; bnorton1@wm.com; Brian Keenan-Lechel (blechel@saginawcounty.com); Dave Favero <dfavero@racertrust.org>; Brendan Mullen; Pardys, John-Eric
Subject: RACER Saginaw Malleable and Green Point Landfill - 2023 Annual Progress Report
Attachments: 2023 Saginaw Malleable Annual Report with Att 5.pdf

Good afternoon Andrew,
Attached please find the Saginaw Malleable and Green Point Landfill 2023 Annual Progress Report text, tables, figures,

ARCADIS

and Attachment 5 submitted on behalf of RACER. Only Attachment 5 is included attached for easier emailing size. The complete report can be found here 2023 Saginaw Malleable Annual Report 1-2-24.pdf
The report summarizes site activities completed during 2023 including well abandonment of historic wells, well survey, and groundwater monitoring, inspection, and maintenance activities in accordance with the approved 2020 O&M Plan and email correspondence in 2023 regarding wells and parameters. As noted in the attached report this sampling also occurred utilizing the no purge sampling method with hydrasleeves and the statistical analysis is included as an attachment. Please let me know if you would like a hard copy submitted to you for the file or if we should upload to RIDE. Feel free to contact Dave Favero or Brendan Mullen or I with any questions.
Thanks,
Scott

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Date: January 2, 2024
Our ref: 30169042

Subject:
Annual Progress Report - December 2022 through December 2023
RACER Trust Saginaw Malleable Industrial Land, Green Point Landfill, and Peninsula Property
Saginaw, Michigan

Dear Mr. Karg:

This annual progress report presents a summary of the work activities conducted during the period of December 2022 through December 2023 for the Revitalizing Auto Communities Environmental Response (RACER) Trust Saginaw Malleable Industrial Land (SMI), Green Point Landfill (GPL), and Peninsula former properties located in Saginaw, Michigan (the Site, **Figure 1**). This progress report also provides a summary of the work activities anticipated at the Site for the next 12-month period.

Key Correspondence

The key correspondence between the Michigan Department of Environment, Great Lakes and Energy (EGLE), U.S. Environmental Protection Agency (EPA), or City of Saginaw from Arcadis and/or GHD on behalf of RACER Trust during the reporting period are as follows:

- The 2022 Annual Report was submitted by Arcadis on December 20, 2022.
- An acknowledgement of review of the 2022 Annual Report with a request for PFAS analysis on samples from MW-125WT and TW-242 for further characterization of the detections in TWW-1 was received from EGLE on January 6, 2023.
- An Addendum to the Annual Report: Supplemental PFAS Sampling was submitted to EGLE by Arcadis on February 9, 2023.
- An email was received from EGLE on March 13, 2023 following review of the Addendum to the 2022 Annual Report providing approval to discontinue sampling and analysis for VOCs at GPL wells TWW-1 and TW-242.
- An email was received from EGLE on March 22, 2023 agreeing to discontinue analyzing samples from TW-242 for PFAS for the September 2023 event, but requested that samples from MW-125WT continue to be analyzed for PFAS.
- A work notification for completing abandonment of the previously inaccessible monitoring wells at the Green Point Property was submitted February 10, 2023.

- An email was received from Saginaw County Parks & Recreation on May 4, 2023 indicating that the Site was now open to the public with hiking trails as the Saginaw Headwaters Recreation Area.
- A No Purge Sampling Work Plan was submitted on August 9, 2023 proposing to conduct the 2023 annual sampling utilizing no purge sampling with HydraSleeve's™ instead of low flow.
- An email was received from EGLE on August 23, 2023 providing approval of the No Purge Samling Work Plan utilizing PFAS free HDPE HydraSleeves™ instead of low flow or ultra-low flow sampling methods for the 2023 sampling event. EGLE requested further discussion of the findings and results of this 2023 event prior to approving implementation of no purge sampling for future routine sampling events.
- A Well Abandonment Memo was submitted on November 1, 2023 documenting the abandonment of 26 historic monitoring wells at the Green Point property that are no longer needed for monitoring and are not part of the approved O&M Plan.

Conference Call/Meetings

- None

Site Activities

PFAS Sampling

On January 17, 2023 two supplemental sampling locations were low-flow sampled for Per- and polyfluoroalkyl substances (PFAS). An addendum to the 2022 Annual Report was submitted February 9, 2023.

Well Abandonment

On February 20, 2023 Arcadis mobilized with Job Site Services (JSS) to complete the abandonment of the 27 monitoring well locations that were previously inaccessible within the GPL property. A Well Abandonment Plan was proposed on November 16, 2020 and approved by EGLE on December 11, 2020. An initial phase of well abandonment activity took place in January 2021 and is summarized in well abandonment memo submitted March 11, 2021. Following the 2021 work there remained 27 monitoring wells at the Green Point Property that were inaccessible due to high standing water. A revised approach to access these remaining wells was communicated to EGLE on November 11, 2022 and approved November 14, 2022. Due to site surface conditions only 2 of the monitoring wells were able to be abandoned during the February 20, 2023 event. On May 30 through June 1, 2023, Arcadis again mobilized with JSS to continue abandonment. In total 26 of the 27 wells planned for abandonment were abandoned or verified as no longer present.

Further details regarding well abandonment are provided in a summary memo along with boring log/well construction logs in **Attachment 1**.

During the May event a damaged sewer clean-out and vent cover located nearby the MW-105 wells was also repaired and placed within a flush mount vault.

Well Survey

On September 13, 2023 a professional survey was completed in accordance with proposed actions in the 2022 annual report based on the age of the previous survey and on certain wells not currently surveyed.

The survey took place utilizing Geodetic Designs Incorporated (GDI) professional licensed surveyors of Michigan. All key monitoring wells, staff gauges, and river gauge were surveyed with coordinates in the Michigan State Plane coordinate system of 1983 (Michigan South zone 2113) international feet NGVD datum of 1929. Results are summarized in **Table 1**.

Site Inspection

During the annual Operation and Maintenance (O&M) event that occurred from September 11 through September 19, 2023, the site inspection activities were conducted in accordance with the O&M Plan (Arcadis, August 2020) to ensure the ongoing effectiveness of various site corrective measures as summarized in the **table** below, at the locations depicted on **Figure 2.**

Inspection results are discussed further below and documented in the Site Inspection Form (**Attachment 2**).

Summary of Site Operation and Maintenance Activities

No.	Site Area	Operation and Maintenance Activities
1	Green Point Landfill	Annual inspection of cover system, leachate breakouts, surface water drainage system, passive gas venting system, groundwater monitoring wells, site access and security, wetlands, and site appearance.
2	Terminated Type III Landfills	Annual soil cover inspection.
3	SMI Former Plant Slab Soil Cover Area	Annual soil cover inspection.
4	I27.7 Area	Annual soil cover inspection.
5	Quench Pit Area	Annual soil cover inspection.
6	Melting Department	Annual soil cover inspection.
7	SMI Former Southwest LNAPL Area	Annual soil cover inspection.
8	Former Railyard Area	Annual soil cover inspection.
9	Peninsula Property	Annual soil cover inspection.
10	Permanent Markers	Annual inspection of permanent markers.
11	Stormwater Pond & Secondary Settling Pond	Annual inspection for absence/presence of sheens.

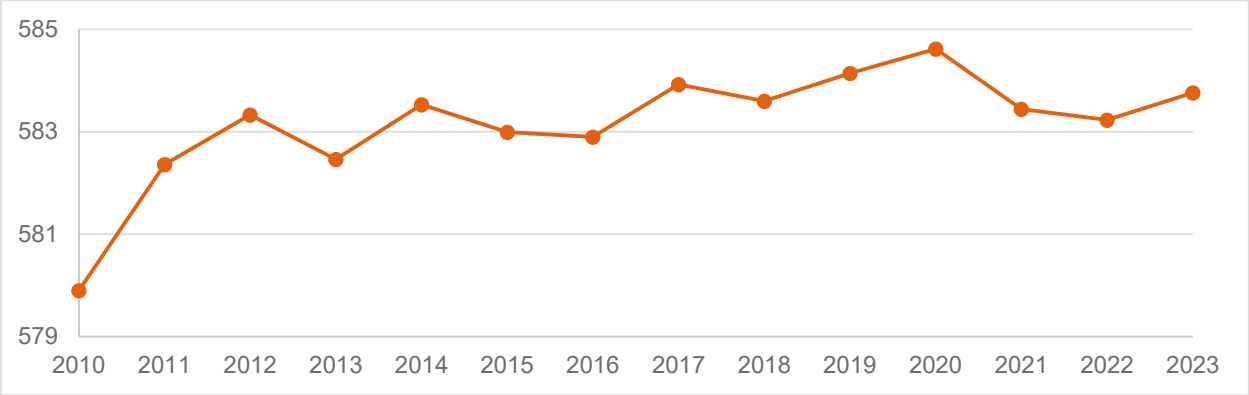
SMI Annual Operation, Maintenance, and Monitoring

- Arcadis mobilized with JSS on September 6, 2023 to complete mowing paths to and around wells where vegetation was overgrown at the Site in preparation for the annual O&M event to allow easier access to

sample. A path was mowed along the fence line at the north side of the Site to MW-149WT to allow staff to drive to this well location.

- The annual O&M and groundwater monitoring event occurred from September 11 through September 19, 2023, in accordance with the 2020 O&M Plan approved by EGLE on July 31, 2020 and email communications with EGLE in March 2023 approving discontinuing VOC analysis of samples from TWW-1 and TW-242 and discontinuing PFAS analysis from TW-242 and adding PFAS analysis at MW-125WT.
- Sampling was done this year following the No Purge Sampling Work Plan dated August 9, 2023 (**Attachment 3)**.
- All 45 of the SMI monitoring wells planned to be gauged were gauged on September 11 and 12, 2023 with an electronic water level indicator graduated at 0.01-foot increments, to measure static groundwater elevations, which are provided in **Table 1**. Additionally, measurements were collected at staff gauge SG-1 within the Secondary Settling Pond and river gauge RG-1 from the Center Street bridge over the Saginaw River. The following 10 LNAPL monitoring locations were gauged by Arcadis during the gauging event: QP-1R, QP-2R, QP-3R, QPTW-03R2, QPTW-04R, QPTW-05R, FV3.0, S5.6, V3.6, and X5.9, see **Attachment 4** for more detail.
- Average annual groundwater elevations are shown in the graph below. Groundwater elevations rose approximately 3-feet between 2010 and 2012 following plant demolition (2010) and storm sewer bulkheading, and elevations were stable between 2012 to 2018. The average groundwater elevation gradually increased another foot from 2018 to 2020. The average groundwater elevation dropped in 2021 and again in 2022. In 2023 the groundwater elevation slightly increased to 583.76 feet above mean sea level (amsl), indicating the average groundwater elevation is stable, as previously observed from 2012 through 2018 but varies somewhat depending on the amount of annual precipitation.

Average Groundwater Elevation Sitewide Per Year



- Groundwater generally flows east-southeast towards the Saginaw River in the SMI portion of the Site and transitions to more southerly in the GPL portion. (**Figure 3**).
- All 15 monitoring wells planned to be sampled were able to be sampled in the annual SMI groundwater monitoring program: (MW-107WT, MW-107S1, MW-108WT, MW-108S2, MW-110WTR, MW-111WT, MW-114WT, MW-114S2, MW-149WT, MW-185WT, MW-186WT, MW-131WT, MW-134WT, B-3R, and QPTW-13R). The no purge method was used to collect samples utilizing 1.75-inch x 38-inch 1 Liter

PFAS-free HDPE Hydrasleeves™ (hydrasleeves). These were deployed following the well gauging using a 5-ounce bottom weight and 24-ounce top weight that the hydrasleeve is attached to and compress the hydrasleeve to the bottom of the well awaiting retrieval. The hydrasleeves were left in place at least 24-hours to allow equilibration prior to retrieval and sample collection. Groundwater is captured from a discreet interval within the screen, as the hydrasleeve is pulled upward a 1-way reed valve at the top of the hydrasleeve opens allowing water to enter and fill the hydrasleeve and once full, the pressure of the hydrasleeve pushes the valve closed preventing mixing of any water volume in the well above the screen. The sample bottle set is filled first and then remaining water in the hydrasleeve is used to measure field parameters. The water column in monitoring wells MW-107WT and MW-108WT were too shallow to obtain a sample with use of a hydrasleeve, therefore a bailer was used to collect grab samples at these locations.

- Statistical analyses was completed comparing 2011-2022 data obtained using low and ultra-low flow sampling to 2023 data obtained using no purge sampling. The results from the analyses are summarized in the No Purge Sampling Statistical Analysis Memo in **Attachment 5**.
- A well construction and screen interval summary table, sampling parameters, and field parameters at the time of sampling for the SMI monitoring wells are included in **Attachment 6**. Groundwater concentrations were compared to the Site-specific Groundwater-Surface Water Interface (GSI) criteria, which have been identified as the minimum EGLE Rule 57 criterion for each constituent[1]. The results from the sampling are summarized in **Table 2 and Figure 4** (inorganics) and **Table 3 and Figure 5** (organics) and as follows.
    - Aroclor 1248 was detected in two (MW-110WTR and MW-111WT) of the five locations (MW-110WTR, MW-111WT, MW-114WT, MW-185WT, and MW-186WT) that are analyzed for polychlorinated biphenyls (PCBs). The remaining analyzed Aroclors were not detected. Total fraction Aroclor 1248 was detected in MW-110WTR at 0.14 micrograms per liter (µg/L), MW-111WT at 28.4J µg/L in the duplicate (parent sample was 0.087), and dissolved fraction Aroclor 1248 was detected at 12.9 J µg/L in the parent sample, duplicate was 0.10), all of which exceeded the Site-specific GSI criterion of 0.000026 µg/L[2]. The total and dissolved fraction Aroclor 1248 result at MW-111WT is greater than historic results but likely attributable to elevated suspended solids as observed with historic sampling and additional mixing in the hydrasleeve after filling the parent bottle set. Arcadis proposes to continue to redevelop this well, increase equilibration time after deployment before sampling, continue to look for ways to improve deployment, and evaluate techniques of filling parent and duplicate bottles while minimizing disturbance in the hydrasleeve during future monitoring of these levels.
    - Total arsenic was detected in both locations (MW-107WT and MW-149WT), and dissolved arsenic was detected at one location (MW-149WT) analyzed at concentrations below the Site-specific GSI criterion of 680 µg/L[3]. Dissolved arsenic was not detected at MW-107WT.

[1] Criteria are the current Rule 57 criteria. Hardness-dependent Rule 57 criteria are based on a hardness of 270 milligrams per liter for the Saginaw River, as analyzed in the October 2016 monitoring event. pH-dependent Rule 57 criteria are based on a default pH of 7. Un-ionized ammonia concentrations were calculated using field-measured pH and groundwater temperature, where available.

[2] This criterion defaults to the target method detection limit of 0.2 µg/L.

  - Manganese was detected in all seven wells sampled (MW-107WT, MW-108WT, MW-110WTR, MW-111WT, MW-114WT, MW-185WT, and MW-186WT). Concentrations were above the Site-specific GSI criterion of 4,700 µg/L at MW-107WT (5,900 µg/L), MW-108WT (18,000 µg/L), MW-185WT (34,300 J µg/L), and MW-186WT (6,190 µg/L) and reported concentrations were higher than observed recently. Arcadis proposes to continue to monitor these wells, redevelop and increase equilibration time after deployment before sampling and continue to monitor these levels.
  - EGLE previously evaluated a mixing zone application submitted by General Motors Corporation and established that there is no reasonable potential for ammonia to cause an exceedance of water quality standards. Concentrations of un-ionized ammonia were calculated using the measured groundwater temperatures and pH immediately prior to collecting each groundwater sample. The calculated un-ionized ammonia concentrations were less than the Site-specific GSI criterion of 53 µg/L for warm water bodies for all locations.
  - Total phosphorus was detected in the groundwater samples collected from monitoring wells MW-107WT, MW-108WT, MW-110WTR, MW-111WT, MW-114WT, MW-185WT, and MW-186WT. Concentrations were above the Site-specific GSI criterion of 1,000 µg/L at MW-107WT (1,700 µg/L), MW-108WT (1,200 µg/L), MW-149WT (3,600 µg/L), MW-185WT (3,800 µg/L), and MW-186WT (17,700 µg/L) higher than historic levels.
  - The sample collected from MW-108WT was analyzed for semi-volatile organic compounds (SVOCs). The results were validated and rejected[4].
- During the annual O&M monitoring event in September 2023, samples from five monitoring wells located within SMI (**Figure 6**) were analyzed for per- and polyfluoroalkyl substances (PFAS). The results from the sampling are summarized in **Table 4**.
  - Perfluorooctanesulfonic acid (PFOS) was below EGLE GSI Criterion at all monitoring wells.
- Analytical data packages for the SMI September 2023 groundwater monitoring event are provided in **Attachment 7a**. Validation was conducted on laboratory data for this year's sampling as an additional quality control measure based on the change in sample method but is not planned each year and are provided in **Attachment 7b**. Groundwater sampling logs are provided in **Attachment 8**.
- The SMI Former Plant Slab Soil Cover Area, I27.7 Manhole Area, Quench Pit Area, SMI Former Southwest LNAPL Area, Former Railyard Area, Stormwater Pond, Secondary Settling Pond, River Berm Area, and Two Terminated Type III Landfills were inspected during the September 2023 groundwater monitoring event. The inspection forms are provided in **Attachment 2.**
- Maintenance of items that were identified was completed on September 19, 2023. Maintenance included repair of the flush mount well vault at MW-134WT which needed to be replaced. It was damaged during

[3] The GSI mixing zone concentration for total arsenic was established for venting groundwater under the RAP and based on the 5 Year Mixing Zone Review renewals approved on August 5, 2016, and October 21, 2021.

[4] All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries with the laboratory established acceptance limits. Several surrogates exhibited recoveries outside of the control limits. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified. Previously reported detection limits or sample results are qualified as rejected due to a major deficiency in the laboratory data generation procedure. The data is not used for any qualitative or quantitative purposes.

the mowing event on September 6, 2023 as uneven ground caused the brush-hog to contact the concrete while passing over the well. The maintenance form is provided in **Attachment 2**.

Green Point Landfill (GPL) Annual Operation, Maintenance, and Monitoring

- Arcadis mobilized with JSS on September 6, 2023 to complete mowing paths to and around wells where vegetation was overgrown at the Site in preparation for the annual O&M event to allow easier access to sample. A path was mowed from X-16 to the west fence and along the fence line to the south to MW-125WT.
- The annual O&M and groundwater monitoring event occurred from September 11 through September 19, 2023 in accordance with the 2020 O&M Plan.
- Sampling was done this year following the No Purge Sampling Work Plan.
- A total of 29 of the 30 GPL monitoring wells planned to be gauged were gauged with an electronic water level indicator to measure static groundwater elevations to the nearest 0.01 foot (see **Table 1 and Figure 3**). MW-122S1 was unable to be opened.
- All 17 monitoring wells planned to be sampled were able to be sampled in the annual GPL groundwater monitoring program: MW-117WT, MW-117S1, MW-118WT, MW-118S1, MW-183WT, X-4AR, X-4CAUGR, X-4D, X-9AR, X-9BR, X-9CAUG, X-9D, TW-242, TWW-1, MW-122WT, X-10AR2, and X-2A. No purge method was used to collect samples with hydrasleeves in the same manner as discussed on pages 4 and 5 above. The water column in monitoring wells X-4AR was too shallow to obtain a sample with use of a hydrasleeve, a bailer was used to collect a sample at this location. The well went dry and did not recharge, therefore water quality parameters were unable to be collected.
- Statistical analyses was completed comparing 2011-2022 data obtained using low and ultra-low flow sampling to 2023 data using no purge sampling. The results from the analyses are summarized in the No Purge Sampling Statistical Analysis Memo in **Attachment 5**.
- A well construction and screen interval summary table, sampling parameters, and field parameters at the time of sampling for the GPL monitoring wells are included in **Attachment 9**. The results from the sampling are summarized in **Table 5, Figure 7, and Figure 8** (inorganics) and as follows.
    - Total arsenic was detected at concentrations below the Site-specific GSI criterion in samples collected from monitoring wells MW-117WT, MW-118WT, MW-183WT, X-4AR, X-9AR, and X-9BR, adjacent to the Saginaw River. Dissolved arsenic was detected at concentrations below Site-specific GSI criterion in samples collected from monitoring wells MW-118WT, MW-183WT, and X-9AR. Total and dissolved arsenic were not detected at the remaining locations analyzed.
    - Total and dissolved barium were detected at concentrations above Site-specific GSI criterion in samples collected from MW-117WT. Total and dissolved barium were detected at concentrations below Site-specific GSI criterion in samples collected fromMW-117S1, MW-118S1, MW-118WT, MW-183WT, X-4AR, X-4CAUGR, X-4D, X-9AR, X-9BR, X-9CAUG, and X-9D.
    - Total and dissolved iron were detected at concentrations below Site-specific GSI criterion in samples collected from monitoring wells MW-117S1, MW-117WT, MW-118S1, MW-118WT, MW-183WT, X-4AR (total only, dissolved iron was not detected), X-4CAUGR (total only, dissolved iron was not detected), X-4D, X-9AR, X-9BR, X-9CAUG, and X-9D (total only, dissolved iron was not detected) adjacent to the Saginaw River.

- Total and dissolved manganese were detected at concentrations below Site-specific GSI criterion in samples collected from monitoring wells MW-117S1, MW-117WT, MW-118S1, MW-118WT, MW-183WT, X-4AR, X-4CAUGR, X-4D, X-9AR, X-9BR, X-9CAUG, and X-9D adjacent to the Saginaw River.
- Total and dissolved selenium were not detected in the monitoring wells sampled adjacent to the Saginaw River.
- Total and dissolved cyanide were not detected in the monitoring wells sampled adjacent to the Saginaw River.
- EGLE previously evaluated a mixing zone application submitted by GM and Waste Management and established that there was no reasonable potential for ammonia to cause an exceedance of water quality standards. Concentrations of un-ionized ammonia were calculated using the measured groundwater temperatures and pH immediately prior to collecting each groundwater sample. The calculated un-ionized ammonia concentrations were greater than the Site-specific GSI criterion of 53 µg/L for warm water bodies for monitoring well X-9D at a concentration of 59 µg/L. The calculated un-ionized ammonia concentration in co-located monitoring wells X-4AR[5], X-4CAUGR, and X-4D; in nearby monitoring wellsX-9AR, X-9BR, and X-9CAUGdid not exceed Site-specific criterion.
- Concentrations of chloride were similar to those seen in prior years. Monitoring wells X-4D and X-9D are perimeter wells used for comparison to GSI criterion. Concentrations of chloride in monitoring wells X-4D and X-9D were above the Site-specific GSI criterion of 150,000 µg/L, at concentrations of 1,190,000 µg/L and 1,130,000 µg/L, respectively. The results are within the range of previously detected concentrations for X-4D and decreased in concentration for X-9D. Bedrock in the general vicinity of the Site is known to be high in chlorides, sodium, and other minerals, and may be contributing to elevated chloride concentrations with depth. The chloride concentrations in co-located monitoring wells screened at shallower intervals (X-4AR, X-4CAUGR, X-9AR, X-9CAUG) at these locations did not exceed the Site-specific GSI criterion. The chloride concentration in X-9BR did exceed the Site-specific GSI criterion.
- Detected concentrations of nitrate, nitrite, and sulfate were below Site-specific GSI criterion.
- Total dissolved solids (TDS) concentrations were similar to those seen in prior years. Monitoring wells X-4D and X-9D are perimeter wells used for evaluating potential GSI impacts. The established background screening level concentration for TDS in the RAP is 2,200,000 µg/L. Results from the samples collected from X-4D and X-9D were above the background screening level.

- During the annual O&M monitoring event in September 2023, samples from 10 monitoring wells within GPL (**Figure 6**) were analyzed for PFAS. The results from the sampling are summarized in **Table 4**.
  - PFOS was detected above EGLE GSI Criterion at monitoring well X-2A.
- Analytical data packages for GPL September 2023 groundwater monitoring events are provided in **Attachment 7a** and validation reports in **Attachment 7b**. Groundwater sampling logs are provided in **Attachment 8**.
- Green Point Landfill was inspected during the annual O&M event that occurred from September 11 through September 19, 2023. The inspection forms are included in **Attachment 2**.

[5] The pH and temperature from co-located monitoring well X-4CAUGR were used to calculate an estimated un-ionized ammonia concentration for X-4AR, as pH and temperature were not measured at X-4AR prior to sampling.

- Maintenance was completed on September 19, 2023, on the Green Point Landfill. The maintenance included trimming woody bushes/shrubs. The maintenance form is provided in **Attachment 2**.

Peninsula Property Annual Operation, Maintenance Inspection

- Exposure barriers at the Peninsula Property were inspected during the annual O&M event that occurred from September 11 through September 19, 2023. The barriers were in good condition and no notable observations were identified during the inspection. The inspection forms are included in **Attachment 2**.

PCB and LNAPL Activities

- Completed inspections of 25.4 acre 1-ft clay cover over the concrete floor slab, including the I27.7 Manhole Area. See **Attachment 2 and 4** for a summary of the inspections.
- Completed annual gauging/inspection of the Quench Pit wells and manholes in the Southwest Plant LNAPL Area during the annual O&M event that occurred from September 11 through September 19, 2023. There was no measurable product identified in the Southwest Plant LNAPL Area manholes. A possible sheen was identified in one manhole which has been identified in previous inspections as well. See **Attachment 3** for a summary of the annual gauging/inspections of the LNAPL areas.

The following activities are currently planned to be completed during 2024 in accordance with the EGLE approved O&M Plan:

- Complete annual groundwater monitoring. Sampling is expected to take place towards the end of the third quarter of 2024.
- Conduct inspection of the clay cover over the slab, including the I27.7 Manhole Area at least annually, and complete repairs and maintenance, as necessary including evaluating the need for a mowing event of the vegetated clay cover over the slab.
- Complete annual inspections/monitoring associated with the LNAPL areas.
- Respond to other information requests from EGLE, as necessary.
- Coordinate with MDNR and the Saginaw County Parks regarding park development, as necessary.

The following modifications to the EGLE approved O&M Plan are proposed:

- Arcadis proposes to continue use of the no purge sampling method with HydraSleeve's™ for the 2024 year based on the comparable results, ease of the method, and cost saving value for this long-term monitoring program.
    - Prior to sampling, propose to redevelop monitoring wells that observed elevated results that may be related to sediment or turbidity. It is proposed to redevelop the following seven wells: MW-107WT, MW-108WT, MW-111WT, MW-149WT, MW-185WT, MW-186WT and X-4AR. Manganese and phosphorous were detected higher than reported recently in MW-107WT, MW-108WT, MW-185WT, and MW-186WT. Phosphorous was detected higher than reported recently in MW-149WT. PCB Aroclor 1248 total and dissolved were detected higher than reported recently in MW-111WT. The water column in monitoring wells MW-107WT, MW-108WT, and X-4AR were too shallow to obtain a sample with use of a hydrasleeve, therefore a bailer was used to collect grab samples at these locations.

  - Deploy and allow longer equilibration (i.e., 1-2 weeks) of the hydraSleeve's within monitoring wells.
  - Continue to look for ways to improve deployment such as deploying the hydrasleeves to a depth where they hang and the sample intake at the top of the hydrasleeve remains approximately 1 to 2 feet off the bottom of the well in order to reduce potential effect of turbidity at the wells that had elevated levels attributable to the sample method such as those in the list to be redeveloped.
- Arcadis proposes to reduce the number of monitoring wells at GPL in the groundwater monitoring program with samples analyzed for PFAS. This proposal is based on consistent data trends over the past 5 years and with only slight GSI exceedances for PFOS at X-2A (**Figure 6**). Based on X-2A PFOS concentrations remaining above GSI, this well is proposed for additional monitoring along with MW-117WT located just to the east of the landfill and X-10AR2 located just to the south of the landfill. These wells should provide adequate indication of any increased PFOS concentrations that might originate from the landfill. However, Arcadis proposes to discontinue analyzing samples from the remaining 7 wells at GPL for PFAS.

Please contact me at 810-225-1921, David Favero, or Brendan Mullen with RACER if you have any questions regarding the enclosed report or its attachments.

Sincerely,
Arcadis of Michigan, LLC



Scott Clearwater
Certified Project Manager

Email: scott.clearwater@arcadis.com
Direct Line: 810.225.1921

Copies:
Amanda Armbruster, EGLE
John Fordell Leone, Department of Attorney General
Peter Ramanauskus, U.S. EPA
Brad Norton, Waste Management
Brian Lechel, Saginaw County Parks & Recreation
David Favero, RACER Trust
Brendan Mullen, RACER Trust
John-Eric Pardys, GHD

Enclosures:

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2 SMI Inorganics Analytical Data Summary Table
3 SMI Organics Analytical Data Summary Table
4 PFAS Groundwater Analytical Summary Table
5 GPL Inorganics Analytical Data Summary Table

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2 Site Inspection Areas
3 Groundwater Elevation Contour Map Shallow Aquifer – September 2023
4 SMI Inorganics Sampling Results
5 SMI Organics Sampling Results
6 PFAS Sampling Results
7 GPL Inorganics-Metals Sampling Results
8 GPL Inorganics-GenChem Sampling Results

Attachments

1 Green Point Well Abandonment Memo
2 SMI and Green Point Landfill Site Inspection Forms
3 No Purge Sampling Work Plan
4 2023 PCB Cover Inspections and Quarterly LNAPL Gauging/Inspections
5 No Purge Sampling Statistical Analysis Results Memo
6 SMI Well Construction Logs, Sampling Parameters, and Field Parameters
7 Laboratory Analytical Reports
8 Field Sampling Logs
9 GPL Well Construction Logs, Sampling Parameters, and Field Parameters

Tables

Table 1
Summary of Water Elevation Table
September 11-12, 2023
RACER Trust, Saginaw, Michigan

Location	Well Type	Ground Elevation (feet AMSL)	TOC Elevation (feet AMSL)	9/11/2023 - 9/12/2023 Depth to Water (feet)	Groundwater Elevation (feet AMSL)	Site Area (GPL or SMI)
Sampled Monitoring Wells (Green Point Landfill)						
MW-117WT	Stick Up	Ground Submerged	586.10	2.96	583.14	GPL
MW-117S1	Stick Up	Ground Submerged	586.76	3.78	582.98	GPL
MW-118WT	Stick Up	Ground Submerged	586.13	2.97	583.16	GPL
MW-118S1	Stick Up	Ground Submerged	586.39	3.49	582.90	GPL
MW-122WT	Stick Up	583.38	586.17	3.08	583.09	GPL
MW-125WT	Stick Up	585.25	587.35	4.37	582.98	GPL
MW-183WT	Stick Up	586.83	589.08	8	581.08	GPL
X-2A	Stick Up	591.77	593.57	4.45	589.12	GPL
X-4AR	Stick Up	584.04	586.41	6.12	580.29	GPL
X-4CAUGR	Stick Up	583.55	585.98	5.2	580.78	GPL
X-4D	Stick Up	583.15	585.85	2.28	583.57	GPL
X-9AR	Stick Up	584.76	587.30	6.42	580.88	GPL
X-9BR	Stick Up	585.24	587.23	6.94	580.29	GPL
X-9CAUG	Stick Up	584.60	587.02	6.7	580.32	GPL
X-9D	Stick Up	584.58	587.07	3.35	583.72	GPL
X-10AR2	Stick UP	592.74	595.39	6.35	589.04	GPL
TWW-1	Stick Up	584.04	588.07	5.17	582.90	GPL
Sampled Monitoring Wells (Saginaw Malleable Industrial Land)						
B-3R	Stick Up	594.27	596.72	7.92	588.80	SMI
MW-107WT	Flushmount	588.50	588.00	7.01	580.99	SMI
MW-107S1	Flushmount	588.65	588.17	8.15	580.02	SMI
MW-108WT	Stick Up	588.52	590.82	9.54	581.28	SMI
MW-108S2	Stick Up	588.57	590.58	10.74	579.84	SMI
MW-110WTR	Stick Up	589.40	591.67	12.02	579.65	SMI
MW-111WT	Stick Up	589.57	591.17	9.1	582.07	SMI
MW-114WT	Stick Up	589.75	591.29	7.82	583.47	SMI
MW-114S2	Stick Up	589.55	591.36	10.6	580.76	SMI
MW-131WT	Stick Up	591.54	592.83	5.12	587.71	SMI
MW-134WT	Flushmount	591.79	591.57	3.85	587.72	SMI
MW-149WT	Stick Up	589.86	592.52	12	580.52	SMI
MW-185WT	Stick Up	586.59	589.01	6.65	582.36	SMI
MW-186WT	Stick Up	586.91	589.57	8.85	580.72	SMI
QPTW-13R	Flushmount	594.29	593.56	4.58	588.98	SMI
Gauging Only Monitoring Wells						
B-3BAUG	Stick Up	594.76	596.91	12.8	584.11	SMI
B-5BAUG	Flushmount	592.89	592.66	9.61	583.05	SMI
B-5CAUG	Flushmount	592.74	592.52	9.45	583.07	SMI
B-5R	Flushmount	592.69	592.36	4.25	588.11	SMI
MW-103S1	Flushmount	593.86	593.42	10.74	582.68	SMI
MW-103S2	Flushmount	593.76	593.43	10.81	582.62	SMI
MW-103WT	Flushmount	593.77	593.47	9.32	584.15	SMI
MW-105S1	Flushmount	591.92	591.68	8.64	583.04	SMI
MW-105S2	Flushmount	591.75	591.53	8.46	583.07	SMI
MW-105WT	Flushmount	591.42	591.21	4.49	586.72	SMI
MW-108S1	Stick Up	588.09	590.50	9.35	581.15	SMI
MW-108S3	Stick Up	588.26	590.40	7.01	583.39	SMI
MW-108S4	Stick Up	588.45	590.49	6.99	583.50	SMI
MW-111S1	Stick Up	589.76	591.36	10.76	580.60	SMI
MW-111S2	Stick Up	589.57	591.32	11.18	580.14	SMI
MW-111S3	Stick Up	590.39	591.62	8.45	583.17	SMI
MW-111S4	Stick Up	590.13	591.96	8.6	583.36	SMI
MW-114S1	Stick Up	589.79	591.27	8.5	582.77	SMI
MW-114S3	Stick Up	589.82	591.23	7.89	583.34	SMI
MW-122S1	Stick Up	583.69	NA	NM	NA	GPL

Table 1
Summary of Water Elevation Table
September 11-12, 2023
RACER Trust, Saginaw, Michigan

Location	Well Type	Ground Elevation (feet AMSL)	TOC Elevation (feet AMSL)	9/11/2023 - 9/12/2023 Depth to Water (feet)	Groundwater Elevation (feet AMSL)	Site Area (GPL or SMI)
MW-122S2	Stick Up	583.28	585.53	2.97	582.56	GPL
MW-124WT	Stick Up	584.10	586.79	3.67	583.12	GPL
MW-124S1	Stick Up	584.10	586.42	3.29	583.13	GPL
MW-128S1	Flushmount	589.48	588.97	4.89	584.08	GPL
MW-128WT	Flushmount	589.23	588.92	5.88	583.04	GPL
MW-131S1	Stick Up	591.60	593.04	9.92	583.12	SMI
MW-131S2	Stick Up	591.90	592.67	9.58	583.09	SMI
MW-134S1	Flushmount	591.52	591.23	8.12	583.11	SMI
MW-134S2	Flushmount	590.93	590.76	7.68	583.08	SMI
MW-138WT	Stick Up	600.82	602.94	4.69	598.25	SMI
MW-140WT	Flushmount	593.25	592.28	5.91	586.37	SMI
MW-140S1	Flushmount	593.20	592.97	9.98	582.99	SMI
MW-140S2	Flushmount	593.39	592.92	9.95	582.97	SMI
MW-143WT	Stick Up	607.30	609.76	20.68	589.08	SMI
QP-1R	Flushmount	594.37	594.10	3.5	590.60	SMI
QPTW-10R	Flushmount	594.42	593.72	4.67	589.05	SMI
RG1	Mark on bridge	603.23	NA	23.23	580.00	SMI
SG1	Staff Gauge	Ground Submerged	588.27	3.02	587.94	SMI
TW-241	Stick Up	585.81	588.55	5.99	582.56	GPL
TW-242	Stick Up	585.77	589.27	7.61	581.66	GPL
X-16A	Stick Up	584.75	588.15	4.75	583.40	GPL
X-16B	Stick Up	584.79	587.84	4.13	583.71	GPL
X-1A	Stick Up	594.23	598.01	11.91	586.10	GPL
X-1B	Stick Up	594.71	597.83	12.68	585.15	GPL
X-1CR2	Stick Up	595.14	598.71	12.57	586.14	GPL

Notes:
- Elevations are shown in feet above mean sea level (AMSL) relative to the NGVD datum of 1929.
- Depth to water measurements were taken from the top of well casing.
- Elevations were resurveyed on September 13, 2023.
- Field measurements at SG-1 utilize two staff gauges set nearby that are surveyed-in, (off-shore) when pond levels are low, (nearshore)when levels are high.

GPL	Green Point Landfill
NA	Not available
NM	Not measured
SMI	Saginaw Malleable Industrial Land
TOC	Top of Casing

Table 2
Analytical Data Summary Table - SMI Inorganics
RACER Trust
Saginaw, MI

Sample ID:	Sample Depth (feet):	Date Collected:	Arsenic	Manganese	Arsenic (Dissolved)	Ammonia Nitrogen	Estimated Un-ionized Ammonia	Phosphorus
		Units:	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Site-Specific Groundwater Surface Water Interface Criteria			680*	4,700	680*	53	53	1,000
MW-107S1	12.5 - 17.5	07/12/95	--	--	--	--	--	--
MW-107S1	12.5 - 17.5	06/07/96	--	--	--	--	--	--
MW-107S1	12.5 - 17.5	06/06/08	--	--	--	**1,200 J**	--	--
MW-107S1	12.5 - 17.5	09/30/10	--	--	--	**1,200**	**20**	--
MW-107S1	12.5 - 17.5	09/21/11	--	--	--	**1,400**	**4.9**	--
MW-107S1	12.5 - 17.5	09/17/12	--	--	--	**1,400**	**6.1**	--
MW-107S1	12.5 - 17.5	09/26/13	--	--	--	**1,400 B**	**8.2 B**	--
MW-107S1	12.5 - 17.5	09/24/14	--	--	--	**1,700 B**	**9.7 B**	--
MW-107S1	12.5 - 17.5	10/01/15	--	--	--	**1,400**	**4.8**	--
MW-107S1	12.5 - 17.5	09/29/16	--	--	--	**1,500**	**4.1**	--
MW-107S1	12.5 - 17.5	08/30/17	--	--	--	**1,800**	**12**	--
MW-107S1	12.5 - 17.5	09/26/18	--	--	--	**1,300**	**4.1**	--
MW-107S1	12.5 - 17.5	08/21/19	--	--	--	**1,400**	**8.6**	--
MW-107S1	12.5 - 17.5	08/11/20	--	--	--	**1,400**	**13**	--
MW-107S1	12.5 - 17.5	08/20/21	--	--	--	**1,200**	**11**	--
MW-107S1	12.5 - 17.6	09/26/22	--	--	--	**1,200**	**5.6**	--
MW-107S1	12.5 - 17.6	09/14/23	--	--	--	**1,500**	**9.18**	--
MW-107WT	4 - 9	07/12/95	**2.30**	**446**	--	--	--	--
MW-107WT	4 - 9	06/07/96	5.0 U	**38.3 J**	--	--	--	--
MW-107WT	4 - 9	04/03/08	**0.950 J**	**379**	--	**300**	--	**30 J**
MW-107WT	4 - 9	09/18/12	**1.1 J**	**170**	--	**62 J**	--	100 U
MW-107WT	4 - 9	09/26/13	--	--	--	**880 B**	**2.3 B**	**100**
MW-107WT	4 - 9	09/24/14	**4.2**	**1,500**	--	**1,300 B**	**2.9 B**	100 U
MW-107WT	4 - 9	10/01/15	**11**	--	--	**1,200**	**6.2**	100 U
MW-107WT	4 - 9	09/29/16	**6.5**	**2,000 ^**	--	**1,400**	**3.2**	100 U
MW-107WT	4 - 9	08/30/17	**2**	**1500**	--	**590 B**	**4.4 B**	100 U
MW-107WT	4 - 9	09/26/18	**7.3 J**	**870**	--	**290**	**0.91**	100 U
MW-107WT	4 - 9	08/21/19	15 U	**340**	--	**150 J**	**0.68 J**	100 U
MW-107WT	4 - 9	08/11/20	2.0 U [2.0 U]	**200 [240]**	5.0 U [5.0 U]	200 U [200 U]	1.0 U [1.0 U]	100 U [100 U]
MW-107WT	4 - 9	08/20/21	**22**	**820**	**8.2**	**850**	**9**	**250**
MW-107WT	4 - 9	09/27/22	**8.0 J**	**480**	**9.2**	**620 F1**	**2.7 F1**	**120 B**
MW-107WT	4 - 9	09/14/23	**52**	**5,900**	5.0 U	**190**	**0.81**	**1,700**
MW-108S2	22 - 27	07/13/95	--	--	--	--	--	--
MW-108S2	22 - 27	06/08/96	--	--	--	--	--	--
MW-108S2	22 - 27	06/06/08	--	--	--	**3,500 J**	--	--
MW-108S2	22 - 27	09/29/10	--	--	--	**4,600**	**38**	--
MW-108S2	22 - 27	09/21/11	--	--	--	**4,900**	**39**	--
MW-108S2	22 - 27	09/17/12	--	--	--	**6,200**	**35**	--
MW-108S2	22 - 27	09/26/13	--	--	--	**5,300 B**	**36 B**	--
MW-108S2	22 - 27	09/24/14	--	--	--	**4,600 B**	--	--
MW-108S2	22 - 27	10/01/15	--	--	--	**7,700**	**72**	--
MW-108S2	22 - 27	09/29/16	--	--	--	**5,400**	**18**	--
MW-108S2	22 - 27	08/30/17	--	--	--	**8,800**	**110**	--
MW-108S2	22 - 27	09/27/18	--	--	--	**4,900**	**19**	--
MW-108S2	22 - 27	08/21/19	--	--	--	**5,100**	**51**	--
MW-108S2	22 - 27	08/11/20	--	--	--	**6,200**	**59**	--
MW-108S2	22 - 27	08/19/21	--	--	--	**5,000 [4,900]**	**33 [32]**	--
MW-108S2	22 - 27	09/27/22	--	--	--	**5,700 [5,800]**	**80 [81]**	--
MW-108S2	22 - 27	09/14/23	--	--	--	**5,200 [5,800]**	**26 [29]**	--
MW-108WT	2.5 - 7.5	07/13/95	**8.30 J**	**4,800**	--	--	--	--
MW-108WT	2.5 - 7.5	06/08/96	5.0 U	**933**	--	--	--	--
MW-108WT	2.5 - 7.5	05/21/00	10 U	**1,230**	--	--	--	--
MW-108WT	2.5 - 7.5	06/02/04	--	--	--	--	--	--
MW-108WT	2.5 - 7.5	09/29/16	--	**2,000 ^**	--	**60 J**	**0.065 J**	100 U
MW-108WT	2.5 - 7.5	08/31/17	--	**1,300**	--	200 U	--	100 U
MW-108WT	2.5 - 7.5	09/27/18	--	**430**	--	**97 J**	**0.049 J**	100 U
MW-108WT	2.5 - 7.5	08/21/19	--	**1,900**	--	**130 J**	**0.44 J**	100 U
MW-108WT	2.5 - 7.5	08/13/20	--	**2,000**	--	**131 J**	**4.6 J**	100 U
MW-108WT	2.5 - 7.5	08/19/21	--	**2,600**	--	**132 J**	**37 J**	100 U
MW-108WT	2.5 - 7.5	09/14/23	--	**18,000**	--	**350**	**0.62**	**1,200**
MW-110WT	UNKNOWN	06/12/96	**7.30**	**460**	--	--	--	--
MW-110WT	UNKNOWN	12/10/97	--	--	--	--	--	--
MW-110WTR	3 - 8	04/02/08	--	**2,680**	--	**90 J**	--	**200**
MW-110WTR	3 - 8	09/24/14	--	**4,000**	--	**100 J,B**	--	**120**
MW-110WTR	3 - 8	10/01/15	--	**4,000**	--	200 U	0.41 U	**200**
MW-110WTR	3 - 8	09/29/16	--	**3,500 ^**	--	**130 JB**	**0.1 JB**	**270**
MW-110WTR	3 - 8	10/13/16	--	--	--	--	--	--
MW-110WTR	3 - 8	08/31/17	--	**2,900**	--	200 U	0.27 U	**370**
MW-110WTR	3 - 8	09/27/18	--	**3,200**	--	**100 J**	**0.061 J**	**180**
MW-110WTR	3 - 8	08/21/19	--	**2,000**	--	200 U	0.85 U	**470**
MW-110WTR	3 - 8	08/12/20	--	**2,000**	--	200 U	0.45 U	**250**
MW-110WTR	3 - 8	08/19/21	--	**2,400 [2,400]**	--	200 U	0.48 U	**250**
MW-110WTR	3 - 8	09/27/22	--	**2,300 [2,200]**	--	200 U	0.32 U	**320 B**
MW-110WTR	3 - 8	09/14/23	--	**2,580 J [2,610 J]**	--	**180**	**0.44**	**630**

Table 2
Analytical Data Summary Table - SMI Inorganics
RACER Trust
Saginaw, MI

Sample ID:	Sample Depth (feet):	Date Collected:	Arsenic	Manganese	Arsenic (Dissolved)	Ammonia Nitrogen	Estimated Un-ionized Ammonia	Phosphorus
		Units:	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Site-Specific Groundwater Surface Water Interface Criteria			680*	4,700	680*	53	53	1,000
MW-111WT	5.5 - 10.5	07/14/95	**24.0 J**	**3,740**	--	--	--	--
MW-111WT	5.5 - 10.5	06/12/96	**30.7**	**4,440**	--	--	--	--
MW-111WT	5.5 - 10.5	06/30/99	--	**2,100**	--	**2,700**	--	**1,000**
MW-111WT	5.5 - 10.5	09/02/99	--	--	--	**3,100**	--	--
MW-111WT	5.5 - 10.5	05/19/00	**11.4**	**2,560**	--	--	--	--
MW-111WT	5.5 - 10.5	06/02/04	--	**1,090**	--	--	--	--
MW-111WT	5.5 - 10.5	08/26/05	--	**1,680 [1,520]**	--	--	--	--
MW-111WT	5.5 - 10.5	04/02/08	--	**1,080 [1,140]**	--	**500 [500]**	--	**400 [400]**
MW-111WT	5.5 - 10.5	09/18/12	--	**3,600**	--	**1,600**	**2.7**	**87 J**
MW-111WT	5.5 - 10.5	09/26/13	--	**1,600**	--	**1,400 B**	**2.2 B**	**370**
MW-111WT	5.5 - 10.5	09/23/14	--	**780**	--	**1,700**	--	**610**
MW-111WT	5.5 - 10.5	10/01/15	--	**1,600**	--	**1,400**	**3.7**	**970**
MW-111WT	5.5 - 10.5	09/29/16	--	**1,700**	--	**2,900**	**3.7**	**480**
MW-111WT	5.5 - 10.5	08/31/17	--	**1,000**	--	**1,100 B**	**7 B**	**390**
MW-111WT	5.5 - 10.5	09/27/18	--	**2,300**	--	**5,000**	**14**	**970**
MW-111WT	5.5 - 10.5	08/22/19	--	**1,500**	--	**1,900**	**7.9**	**1,000**
MW-111WT	5.5 - 10.5	08/12/20	--	**1,400**	--	**1,800**	**12**	**970**
MW-111WT	5.5 - 10.5	08/23/21	--	**1,700**	--	**1,900**	**6.5**	**960**
MW-111WT	5.5 - 10.5	09/27/22	--	**1,200**	--	**1,300**	**6.7**	**870 B**
MW-111WT	5.5 - 10.5	09/14/23	--	**1,580 J**	--	**3,200**	**12**	**400**
MW-114S2	22.5 - 27.5	07/17/95	--	--	--	--	--	--
MW-114S2	22.5 - 27.5	06/07/96	--	--	--	--	--	--
MW-114S2	22.5 - 27.5	06/06/08	--	--	--	**2,500 J**	--	--
MW-114S2	22.5 - 27.5	09/29/10	--	--	--	**2,300 [2,200]**	**160 [160]**	--
MW-114S2	22.5 - 27.5	09/22/11	--	--	--	**3,000 [3,000]**	**14 [14]**	--
MW-114S2	22.5 - 27.5	09/18/12	--	--	--	**2,900 [2,800]**	**13 [13]**	--
MW-114S2	22.5 - 27.5	09/25/13	--	--	--	**3,800 B [3,800 B]**	**23 B [23 B]**	--
MW-114S2	22.5 - 27.5	09/23/14	--	--	--	**5,000^ [5,500^]**	**7.9 ^ [8.6 ^]**	--
MW-114S2	22.5 - 27.5	10/02/15	--	--	--	**2,200 [2,800]**	**11 [14]**	--
MW-114S2	22.5 - 27.5	09/29/16	--	--	--	**2,700**	**7.2**	--
MW-114S2	22.5 - 27.5	09/01/17	--	--	--	**2,300 [2,100 B]**	**14 [13 B]**	--
MW-114S2	22.5 - 27.5	09/28/18	--	--	--	**2,500 [2,000]**	**2.8 [2.2]**	--
MW-114S2	22.5 - 27.5	08/22/19	--	--	--	**2,600 F1 [2,400]**	**16 F1 [15]**	**330 [330]**
MW-114S2	22.5 - 27.5	08/13/20	--	--	--	**2,200**	**2**	**--**
MW-114S2	22.5 - 27.5	08/20/21	--	--	--	**1,500**	**8.4**	**--**
MW-114S2	22.5 - 27.5	09/27/22	--	--	--	**1,800**	**6.7**	**--**
MW-114S2	22.5 - 27.5	09/14/23	--	--	--	**1,900**	**20**	**--**
MW-114WT	3.5 - 8.5	06/08/96	5.0 U	**2,260**	--	--	--	--
MW-114WT	3.5 - 8.5	12/11/97	--	--	--	--	--	--
MW-114WT	3.5 - 8.5	05/22/00	10 U	**503**	--	--	--	--
MW-114WT	3.5 - 8.5	09/26/13	--	**1,100**	--	**66 J,B**	**0.23 J,B**	100 U
MW-114WT	3.5 - 8.5	09/23/14	**5.3**	**1,400**	--	200 U	0.22 U	100 U
MW-114WT	3.5 - 8.5	10/02/15	--	**1,000**	--	**200 U [820]**	**0.34 U [1.4]**	100 U, F1 [100 U]
MW-114WT	3.5 - 8.5	09/29/16	--	**1,100**	--	200 U	0.42 U	100 U
MW-114WT	3.5 - 8.5	08/31/17	--	**850**	--	200 U	0.99 U	**160**
MW-114WT	3.5 - 8.5	09/28/18	--	**1,100**	--	200 U	0.31 U	**150**
MW-114WT	3.5 - 8.5	08/22/19	--	**950**	--	**150 J**	**0.69 J**	**240**
MW-114WT	3.5 - 8.5	08/13/20	--	**740**	--	**360**	**3.4**	**280**
MW-114WT	3.5 - 8.5	08/19/21	--	**860**	--	**570**	**2.6**	**190**
MW-114WT	3.5 - 8.5	09/27/22	--	**390**	--	**500**	**1.8**	**200 B**
MW-114WT	3.5 - 8.5	09/14/23	--	**1,280**	--	**1,000**	**4.5**	**920 J**
MW-149WT	7 - 17	06/12/96	--	--	--	--	--	--
MW-149WT	7 - 17	05/21/00	**10.7**	**868**	--	--	--	--
MW-149WT	7 - 17	06/02/04	**223 [227]**	**4,440 [4,560]**	--	--	--	--
MW-149WT	7 - 17	04/03/08	**93.6 [92.3]**	**1,570**	--	**800**	--	**300**
MW-149WT	7 - 17	09/30/10	**126 [122]**	--	--	**3,600**	**6.7**	**2,200 [1,800]**
MW-149WT	7 - 17	09/28/11	**190 [180]**	--	--	**4,700**	**6.9**	**1,600 [1,600]**
MW-149WT	7 - 17	09/18/12	**160 [160]**	--	--	**5,000**	**6.8**	**2,000 [1,900]**
MW-149WT	7 - 17	09/25/13	**140 B [140 B]**	--	--	**4,600 B**	**6.2 B**	**2,000 [2,100]**
MW-149WT	7 - 17	09/24/14	**75 B [69 B]**	--	--	**3,200 B**	--	**2,000 [1,300]**
MW-149WT	7 - 17	10/01/15	**60**	--	--	**3,000**	**4.7**	**1,100**
MW-149WT	7 - 17	09/29/16	**50 [52]**	--	--	**1,200**	**1**	**620 [700]**
MW-149WT	7 - 17	08/30/17	**48[48]**	--	--	**1,100 B**	**4.4 B**	**970 [850]**
MW-149WT	7 - 17	09/26/18	**66 [60]**	--	--	**920 [880]**	**0.66 [0.63]**	**910 [880]**
MW-149WT	7 - 17	08/21/19	**51 [50]**	--	--	**960 [1,600]**	**2.3 [3.8]**	**650 [1,100]**
MW-149WT	7 - 17	08/11/20	**40**	**900**	**9.1**	**1,800**	**5.1**	**1,100**
MW-149WT	7 - 17	08/19/21	**45 [50]**	**--**	**9.1 [11]**	**2,600 [2,700]**	**6.2 [6.5]**	**1,000 [1,000]**
MW-149WT	7 - 17	09/26/22	**30 [32]**	**--**	**8.7 [8.3]**	**2,600 [2,600]**	**3.5 [3.5]**	**1,200 B [1,400 B]**
MW-149WT	7 - 17	09/14/23	**178 [164]**	**--**	**37 [36.7]**	**2,100 [2,200]**	**3.7 [3.8]**	**3,600 [4,600]**
MW-185WT	3 - 8	11/28/07	--	**291**	--	300 U [300 U]	--	100 U [100 U]
MW-185WT	3 - 8	09/18/12	--	**700**	--	**380**	**4.3**	100 U
MW-185WT	3 - 8	09/25/13	--	**400**	--	**400 B**	--	100 U
MW-185WT	3 - 8	09/24/14	--	**320**	--	**160 J,B**	**4 J,B**	100 U
MW-185WT	3 - 8	10/01/15	--	**330**	--	**190 J**	**4.1 J**	100 U
MW-185WT	3 - 8	09/30/16	--	**150**	--	**97 J**	**0.54 J**	100 U
MW-185WT	3 - 8	08/31/17	--	**140**	--	**96 J,B**	**3.4 J,B**	100 U
MW-185WT	3 - 8	09/27/18	--	**1100**	--	**150 J**	**0.93 J**	100 U

Table 2
Analytical Data Summary Table - SMI Inorganics
RACER Trust
Saginaw, MI

Sample ID:	Sample Depth (feet):	Date Collected:	Arsenic	Manganese	Arsenic (Dissolved)	Ammonia Nitrogen	Estimated Un-ionized Ammonia	Phosphorus
		Units:	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Site-Specific Groundwater Surface Water Interface Criteria			680*	4,700	680*	53	53	1,000
MW-185WT	3 - 8	08/22/19	--	**650**	--	**120 J**	**1.7 J**	100 U
MW-185WT	3 - 8	08/14/20	--	**320**	--	**100 J**	**1.7 J**	100 U
MW-185WT	3 - 8	08/23/21	--	**470**	--	**140 J**	**2.9 J**	**70 J**
MW-185WT	3 - 8	09/27/22	--	**330**	--	**200**	**1.4**	**87 JB**
MW-185WT	3 - 8	09/14/23	--	**34,300 J**	--	**640**	**9.3**	**3,900**
MW-186WT	8 - 18	09/30/10	--	**252**	--	**1,500**	**29**	**300**
MW-186WT	8 - 18	09/23/11	--	**450**	--	**2,100**	**57**	**360**
MW-186WT	8 - 18	09/18/12	--	**400**	--	**2,100**	**15**	**250**
MW-186WT	8 - 18	09/25/13	--	**1,100**	--	**2,000 B**	**4.3 B**	**290**
MW-186WT	8 - 18	09/24/14	--	**2,100**	--	**2,000 B**	**2.3 B**	**170**
MW-186WT	8 - 18	10/02/15	--	**1,400**	--	**1,600**	**9.7**	**290**
MW-186WT	8 - 18	09/30/16	--	--	--	--	--	--
MW-186WT	8 - 18	09/30/16	--	**1,800**	--	**1,500**	**3.4**	**260**
MW-186WT	8 - 18	08/31/17	--	**700**	--	**1,300 B**	**12 B**	**290**
MW-186WT	8 - 18	09/27/18	--	**690**	--	**1,600**	**9.7**	**400**
MW-186WT	8 - 18	08/22/19	--	**920**	--	**1,500 [1,400]**	**12 [11]**	**440 [120]**
MW-186WT	8 - 18	08/12/20	--	**410**	--	**1,300**	**22**	**440**
MW-186WT	8 - 18	08/24/21	--	**1,000**	--	**1,200**	**4**	**460**
MW-186WT	8 - 18	09/28/22	--	**700**	--	**1,300**	**9**	**490 B**
MW-186WT	8 - 18	09/14/23	--	**6,190**	--	**1,100**	**2.5**	**17,700**

Table 2
Analytical Data Summary Table - SMI Inorganics
RACER Trust
Saginaw, MI

Notes:
All results are in micrograms per liter (ug/L).
Criteria presented are the applicable site-specific criteria. Drinking water is not a complete pathway; therefore drinking water criteria are not presented.
Applicable site-specific criteria are the minimum Rule 57 criteria, excluding drinking water.
Hardness-dependent Rule 57 criteria are based on a hardness of 270 milligrams per liter for the Saginaw River, as analyzed in the October 2016 sampling event.
pH-dependent Rule 57 criteria are based on a default pH of 7.
Un-ionized ammonia is calculated based on the pH and temperature of the groundwater sample, using the following equaitons. When available, the field-measured pH was used.
Un-ionized ammonia (µg/L = Total Ammonia (µg/L) × Fraction un-ionized ammonia
Fraction un-ionized ammonia = $1/[10^{(pKa-pH)} + 1]$
pKa = 0.0901821+2729.92/T
T (in Kelvin) = T(°C) + 273.15
Bolded cells represent constitiuent concentrations with detections.
Duplicate results are presented in brackets.
Gray shaded cells represent constituent concentrations that exceed site-specific Groundwater/Surface Water Interface (GSI) Criteria.
MW-183WT, X-4CAUGR, X-9AR, X-9BR, X-9CAUG represent a groundwater surface water interface (GSI) perimeter monitoring well from Green Point Landfill.
MW-107WT, MW-107S1, MW-108S2, MW-110WTR, MW-111WT, MW-114S2, MW-114WT, MW-149WT, MW-185WT, and MW-186WT represent a GSI perimeter monitoring well from SMI.
* Venting groundwater discharge concentrations was recommended by MDEQ in a letter dated November 26, 2008 followed by a Mixing Zone Determination Request and based on a five year renewal approved by the MDEQ on October 21, 2021.

Data Qualifiers:

ND =	Not detected. The value in parentheses represents the associated detection limit.
-- or NA =	Not analyzed for this constituent.
B =	Inorganics: the detected analyte is an estimated value between the instrument detection limit (IDL) and the reporting limit (RL).
B =	Organics: the compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
BJ =	The detected analyte is an estimated concentration between the IDL and the RL.
D =	Concentration is based on a diluted sample analysis.
F1=	MS and/or MSD Recovery is outside acceptance limits/recovery exceeds control limits.
H =	Sample was prepped or analyzed beyond the specified hold time.
J =	The compound/constituent was positively identified; however, the associated numerical value is an estimated concentration only.
L =	A negative instrument reading had an absolute value greater than the reporting limit.
M =	Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.
R =	Indicates that the previously reported detection limit or sample result has been rejected due to a major deficiency in the data generation procedure. The data shall not be used for any qualitative or quantitative purposes.
U =	The constituent was analyzed for but not detected. The associated value is the constituent quantitation limit.
UJ =	The constituent was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual result.
^ =	ICV, CCV, ICB, CCB, ISA, ISB, CRI, CRA, DLCK, or MRL standard: instrument related QC exceeds the control limits.

Table 3
Analytical Data Summary Table - SMI Organics
RACER Trust
Saginaw, MI

Sample ID:	Sample Depth (feet):	Date Collected:	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Total PCBs	Aroclor 1016 (Dissolved)	Aroclor 1221 (Dissolved)	Aroclor 1232 (Dissolved)	Aroclor 1242 (Dissolved)	Aroclor 1248 (Dissolved)	Aroclor 1254 (Dissolved)	Aroclor 1260 (Dissolved)	Aroclor 1262 (Dissolved)	Aroclor 1268 (Dissolved)
		Units:	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
	Site-Specific GSI Criteria		0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026
MW-110WT	UNKNOWN	06/12/96	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
MW-110WT	UNKNOWN	03/06/97	0.2 U	0.2 U	0.4 U	0.2 U	**0.23**	0.2 U	0.2 U	--	--	**0.23**	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
MW-110WT	UNKNOWN	12/10/97	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
MW-110WT	UNKNOWN	05/22/00	0.20 U	0.20 U	0.40 U	0.20 U	0.20 U	0.20 U	0.20 U	--	--	0.40 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
MW-110WTR	10 - 15	06/02/04	--	--	--	--	--	--	--	--	--	--	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
MW-110WTR	10 - 15	08/24/05	0.20 U [0.20 U]	0.20 U [0.20 U]	0.20 U [0.20 U]	0.20 U [0.20 U]	0.20 U [0.20 U]	0.20 U [0.20 U]	0.20 U [0.20 U]	--	--	0.20 U [0.20 U]	0.2 U [0.2 U]	0.2 U [0.2 U]	0.2 U [0.2 U]	0.2 U [0.2 U]	0.2 U [0.2 U]	0.2 U [0.2 U]	0.2 U [0.2 U]	--	--
MW-110WTR	10 - 15	04/02/08	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	--	--	0.20 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
MW-110WTR	10 - 15	09/24/14	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--	0.095 U	0.098 U	0.098 U	0.098 U	0.098 U	0.098 U	0.098 U	0.098 U	--	--
MW-110WTR	10 - 15	10/01/15	--	--	--	--	--	--	--	--	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-110WTR	10 - 15	09/29/16	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-110WTR	10 - 15	10/13/16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-110WTR	10 - 15	08/31/17	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-110WTR	10 - 15	09/27/18	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U
MW-110WTR	10 - 15	08/21/19	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U
MW-110WTR	10 - 15	08/12/20	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U
MW-110WTR	10 - 15	08/19/21	0.097 U	0.097 U	0.097 U	0.097 U	0.097 U	0.097 U	0.097 U	--	--	0.097 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-110WTR	10 - 15	09/27/22	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U
MW-110WTR	10 - 15	09/14/23	0.087 U	0.087 U	0.087 U	0.087 U	0.14	0.087 U	0.087 U	--	--	0.14	0.091 U	0.091 U	0.091 U	0.091 U	0.091 U	0.091 U	0.091 U	--	--
MW-111WT	5.5 - 10.5	07/14/95	0.21 U	0.21 U	0.42 U	0.21 U	0.41	0.21 U	0.21 U	--	--	0.41	0.21 U	0.21 U	0.42 U	0.21 U	0.21 U	0.21 U	0.21 U	--	--
MW-111WT	5.5 - 10.5	06/12/96	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
MW-111WT	5.5 - 10.5	03/07/97	0.2 U	0.2 U	0.4 U	0.2 U	**0.28**	0.2 U	0.2 U	--	--	**0.28**	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
MW-111WT	5.5 - 10.5	06/30/99	0.10 U	0.10 U	0.10 U	0.10 U	**0.11**	0.10 U	0.10 U	0.10 U	0.10 U	**0.11**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
MW-111WT	5.5 - 10.5	05/19/00	0.20 U	0.20 U	0.40 U	0.20 U	0.20 U	0.20 U	0.20 U	--	--	0.40 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
MW-111WT	5.5 - 10.5	04/05/01	0.20 U	0.20 U	0.40 U	0.20 U	0.20 U	0.20 U	0.20 U	--	--	0.40 U	--	--	--	--	--	--	--	--	--
MW-111WT	5.5 - 10.5	06/02/04	--	--	--	--	--	--	--	--	--	--	0.2 U [0.2 U]	0.2 U [0.2 U]	0.4 U [0.4 U]	0.2 U [0.2 U]	0.2 U [0.2 U]	0.2 U [0.2 U]	0.2 U [0.2 U]	--	--
MW-111WT	5.5 - 10.5	08/26/05	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	--	--	0.20 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
MW-111WT	5.5 - 10.5	04/02/08	0.20 U [0.20 U]	0.20 U [0.20 U]	0.20 U [0.20 U]	0.20 U [0.20 U]	0.20 U [0.20 U]	0.20 U [0.20 U]	0.20 U [0.20 U]	--	--	0.20 U [0.20 U]	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
MW-111WT	5.5-10.5	09/18/12	0.098 U	0.098 U	0.098 U	0.098 U	0.098 U	0.098 U	0.098 U	--	--	0.098 U	0.096 U	0.096 U	0.096 U	0.096 U	**0.082 J**	0.096 U	0.096 U	--	--
MW-111WT	5.5-10.5	09/26/13	0.095 U	0.095 U	0.095 U	0.095 U	**0.45**	0.095 U	0.095 U	--	--	**0.45**	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-111WT	5.5-10.5	09/23/14	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-111WT	5.5-10.5	10/01/15	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-111WT	5.5 - 10.5	09/29/16	0.19 U	0.19 U	0.19 U	0.19 U	**0.21**	0.19 U	0.19 U	--	--	**0.21**	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-111WT	5.5 - 10.5	08/31/17	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	**0.067 J p**	0.095 U	0.095 U	--	--
MW-111WT	5.5 - 10.5	09/27/18	0.095 U	0.095 U	0.095 U	0.095 U	**0.82**	0.095 U	0.095 U	0.095 U	0.095 U	**0.82**	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U
MW-111WT	5.5 - 10.5	08/22/19	0.098 U	0.098 U	0.098 U	0.098 U	**0.22**	0.098 U	0.098 U	--	--	**0.22**	0.097 U	0.097 U	0.097 U	0.097 U	0.097 U	0.097 U	0.097 U	--	--
MW-111WT	5.5 - 10.5	08/12/20	0.095 U	0.095 U	0.095 U	0.095 U	**0.068 J**	0.095 U	0.095 U	0.095 U	0.095 U	**0.068 J**	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U
MW-111WT	5.5 - 10.5	08/23/21	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	---	--	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	--	--
MW-111WT	5.5 - 10.5	09/27/22	0.095 U F2 [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	**0.22** [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	**0.22**	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	**0.52 [0.46]**	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]
MW-111WT	5.5 - 10.5	09/14/23	0.087 U [0.10 U]	0.087 U [0.10 U]	0.087 U [0.10 U]	0.087 U [0.10 U]	0.087 UJ [**28.4 J**]	0.087 U [0.10 U]	0.087 U [0.10 U]	--	--	0.087 UJ [**28.4 J**]	0.091 U [0.10 U]	0.091 U [0.10 U]	0.091 U [0.10 U]	0.091 U [0.10 U]	**12.9 J** [0.10 UJ]	0.091 U [0.10 U]	0.091 U [0.10 U]	--	--
MW-114WT	3.5 - 8.5	06/08/96	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
MW-114WT	3.5 - 8.5	03/06/97	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**0.41**	--	--	**0.41**	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
MW-114WT	3.5 - 8.5	12/11/97	0.2 U	0.2 UJ	0.4 U	0.2 U	0.2 UJ	0.2 UJ	0.2 U	--	--	0.4 U	0.2 U	0.2 UJ	0.4 U	0.2 U	0.2 UJ	0.2 UJ	0.2 U	--	--
MW-114WT	3.5 - 8.5	05/22/00	0.20 U	0.20 U	0.40 U	0.20 U	0.20 U	0.20 U	0.20 U	--	--	0.40 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
MW-114WT	3.5 - 8.5	04/05/01	0.20 U	0.20 U	0.40 U	0.20 U	0.20 U	0.20 U	0.20 U	--	--	0.40 U	--	--	--	--	--	--	--	--	--
MW-114WT	3.5 - 8.5	06/03/04	--	--	--	--	--	--	--	--	--	--	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
MW-114WT	3.5 - 8.5	08/24/05	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	--	--	0.20 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
MW-114WT	3.5 - 8.5	09/26/13	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-114WT	3.5 - 8.5	09/23/14	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-114WT	3.5 - 8.5	10/01/15	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-114WT	3.5 - 8.5	09/29/16	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-114WT	3.5 - 8.5	08/31/17	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--

Table 3
Analytical Data Summary Table - SMI Organics
RACER Trust
Saginaw, MI

Sample ID:	Sample Depth (feet):	Date Collected:	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Total PCBs	Aroclor 1016 (Dissolved)	Aroclor 1221 (Dissolved)	Aroclor 1232 (Dissolved)	Aroclor 1242 (Dissolved)	Aroclor 1248 (Dissolved)	Aroclor 1254 (Dissolved)	Aroclor 1260 (Dissolved)	Aroclor 1262 (Dissolved)	Aroclor 1268 (Dissolved)
		Units:	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
	Site-Specific GSI Criteria		0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026
MW-114WT	3.5 - 8.5	09/28/18	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U
MW-114WT	3.5 - 8.5	08/22/19	0.098 U	0.098 U	0.098 U	0.098 U	0.098 U	0.098 U	0.098 U	--	--	0.098 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-114WT	3.5 - 8.5	08/13/20	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U
MW-114WT	3.5 - 8.5	08/19/21	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-114WT	3.5 - 8.5	09/28/22	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U
MW-114WT	3.5 - 8.5	09/14/23	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	--	--	0.094 U	0.091 U	0.091 U	0.091 U	0.091 U	0.091 U	0.091 U	0.091 U	--	--
MW-185WT	3 - 8	06/03/04	--	--	--	--	--	--	--	--	--	--	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
MW-185WT	3 - 8	08/25/05	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	--	--	0.20 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
MW-185WT	3 - 8	11/28/07	0.20 U [0.20 U]	0.20 U [0.20 U]	0.20 U [0.20 U]	0.20 U [0.20 U]	0.17 J [0.20 U]	0.20 U [0.20 U]	0.20 U [0.20 U]	--	--	0.17 J [0.20 U]	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.06 J**	--	--
MW-185WT	3 - 8	09/18/12	0.096 U	0.096 U	0.096 U	0.096 U	0.096 U	0.096 U	0.096 U	--	--	0.096 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	**0.041 J***	--	--
MW-185WT	3 - 8	09/25/13	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-185WT	3 - 8	09/24/14	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-185WT	3 - 8	10/01/15	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-185WT	3 - 8	09/30/16	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-185WT	3 - 8	08/31/17	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-185WT	3 - 8	09/27/18	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U
MW-185WT	3 - 8	08/22/19	--	--	--	--	--	--	--	--	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-185WT	3 - 8	08/14/20	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U
MW-185WT	3 - 8	08/23/21	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-185WT	3 - 8	09/27/22	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U
MW-185WT	3 - 8	09/14/23	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--	0.095 U	0.091 U	0.091 U	0.091 U	0.091 U	0.091 U	0.091 U	0.091 U	--	--
MW-186WT	8-18	09/30/10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	--	--	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	--	--
MW-186WT	8-18	09/23/11	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-186WT	8-18	09/18/12	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	--	--	0.095 U [0.095 U]	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-186WT	8-18	09/25/13	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	--	--	0.095 U [0.095 U]	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-186WT	8-18	09/24/14	0.10 U [0.097 U]	0.10 U [0.097 U]	0.10 U [0.097 U]	0.10 U [0.097 U]	0.10 U [0.097 U]	0.10 U [0.097 U]	0.10 U [0.097 U]	--	--	0.10 U [0.097 U]	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-186WT	8-18	10/02/15	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	--	--	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	--	--
MW-186WT	8-18	09/30/16	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	--	--	0.095 U [0.095 U]	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-186WT	8-18	08/31/17	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	--	--	0.095 U [0.095 U]	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-186WT	8-18	09/27/18	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U
MW-186WT	8-18	08/22/19	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	--	--	0.095 U [0.095 U]	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	--	--
MW-186WT	8-18	08/12/20	0.095 U [0.097 U]	0.095 U [0.097 U]	0.095 U [0.097 U]	0.095 U [0.097 U]	0.095 U [0.097 U]	0.095 U [0.097 U]	0.095 U [0.097 U]	0.095 U [0.097 U]	0.095 U [0.097 U]	0.095 U [0.097 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]
MW-186WT	8-18	08/24/21	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	--	--	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	0.095 U [0.095 U]	--	--
MW-186WT	8-18	09/28/22	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U
MW-186WT	8-18	09/14/23	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	--	--	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	--	--

Notes:

All results are in micrograms per liter (ug/L).

Criteria presented are the applicable site-specific criteria. Drinking water is not a complete pathway; therefore drinking water criteria are not presented.

Applicable site-specific criteria are the minimum Rule 57 criteria, excluding drinking water.

Hardness-dependent Rule 57 criteria are based on a hardness of 270 milligrams per liter for the Saginaw River, as analyzed in the October 2016 sampling event.

pH-dependent Rule 57 criteria are based on a default pH of 7.

Un-ionized ammonia is calculated based on the pH and temperature of the groundwater sample, using the following equaitons. When available, the field-measured pH was used.

Un-ionized ammonia (µg/L = Total Ammonia (µg/L) × Fraction un-ionized ammonia

Fraction un-ionized ammonia = $1/[10^{(pKa-pH)} + 1]$

pKa = 0.0901821+2729.92/T

T (in Kelvin) = T(°C) + 273.15

Bolded cells represent constitiuent concentrations with detections.

Duplicate results are presented in brackets.

Gray shaded cells represent constituent concentrations that exceed site-specific Groundwater/Surface Water Interface (GSI) Criteria.

MW-183WT, X-4CAUGR, X-9AR, X-9BR, X-9CAUG represent a groundwater surface water interface (GSI) perimeter monitoring well from Green Point Landfill.

MW-107WT, MW-107S1, MW-108S2, MW-110WTR, MW-111WT, MW-114S2, MW-114WT, MW-149WT, MW-185WT, and MW-186WT represent a GSI perimeter monitoring well from SMI.

For MW-111WT a case narrative was provided from the lab for the parent and duplicate samples collected on September 27, 2022. The samples collected do not directly match any of the laboratory's Aroclor standards used for instrument calibration. The samples were quantified and reported using the best overall Aroclor/standard pattern match relative to the reference standards.

* Venting groundwater discharge concentrations was recommended by MDEQ in a letter dated November 26, 2008 followed by a Mixing Zone Determination Request and based on a five year renewal approved by the MDEQ on August 5, 2016.

Data Qualifiers:

ND =	Not detected. The value in parentheses represents the associated detection limit.
-- or NA =	Not analyzed for this constituent.
B =	Inorganics: the detected analyte is an estimated value between the instrument detection limit (IDL) and the reporting limit (RL).
B =	Organics: the compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
BJ =	The detected analyte is an estimated concentration between the IDL and the RL.
D =	Concentration is based on a diluted sample analysis.
F1 =	MS and/or MSD Recovery is outside acceptance limits.
F2 =	MS/MSD RPD exceeds control limits.
H =	Sample was prepped or analyzed beyond the specified hold time.
J =	The compound/constituent was positively identified; however, the associated numerical value is an estimated concentration only.
L =	A negative instrument reading had an absolute value greater than the reporting limit.
M =	Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.
R =	Indicates that the previously reported detection limit or sample result has been rejected due to a major deficiency in the data generation procedure. The data shall not be used for any qualitative or quantitative purposes.
RPD =	Relative Percent Difference, a measure of the relative distance between two points.
U =	The constituent was analyzed for but not detected. The associated value is the constituent quantitation limit.
UJ =	The constituent was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual result.
^ =	ICV, CCV, ICB, CCB, ISA, ISB, CRI, CRA, DLCK, or MRL standard: instrument related QC exceeds the control limits.
* =	LCS (lab control sample) or LCSD (lab control sample duplicate) is outside acceptance limits.

Table 4
PFAS Groundwater Analytical Summary Table
RACER Saginaw Malleable
Saginaw, Michigan

Sample	Date Collected	Site Area	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnA	PFDoA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFNS	PFDS	4:2 FTS	6:2 FTS	8:2 FTS	NMeFOSAA	NEtFOSAA	PFOSA	HFPO-DA/GenX	ADONA	9Cl-PF3ONS	11Cl-PF3OUdS	Total PFAS
Units			ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
Drinking Water Criteria			--	--	400,000	--	8	6	--	--	--	--	--	420	--	51	--	16	--	--	--	--	--	--	--	--	370	--	--	--	--	--
GSI Criteria			--	--	--	--	170	30	--	--	--	--	--	670,000	--	210	--	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-3R	12/18/18	SMI	**2.3 J**	**1.68 J**	**1.26 J**	2.0 U	**5.58**	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**1.13 J**	2.0 U	**15.6**	2.0 U	2.0 U	4.0 U	4.0 U	4.0 U	8.0 U	8.0 U	2.0 U	--	--	--	--	27.6
B-3R	08/11/20	SMI	**11.3**	**13.4**	1.9 U	**2.1 J**	**2.7 J**	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U [a]	1.9 U [a]	1.9 U	1.9 U	1.9 U	1.9 U	**14.4**	1.9 U	1.9 U	3.7 U	3.7 U	3.7 U	7.4 U	7.4 U	1.9 U [a]	9.3 U	3.7 U	3.7 U	3.7 U	43.9
B-3R	08/19/21	SMI	3.6 U	1.8 U	1.8 U	**1.8 J**	**2.7 J**	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U [a]	1.8 U	1.8 U	**0.98 J**	1.8 U	**13.7**	1.8 U	1.8 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	1.8 U [a]	3.6 U	3.6 U	3.6 U	3.6 U	19.2
B-3R	09/26/22	SMI	3.7 U [a]	1.9 U [a]	**2.1 J** [a]	1.9 U [a]	**2.7 J** [a]	1.9 U [a]	1.9 U [a]	1.9 U	1.9 U [a]	1.9 U [a]	1.9 U [a]	1.9 U [a]	1.9 U [a]	1.9 U [a]	1.9 U [a]	**14.3**	1.9 U [a]	1.9 U	3.7 U [a]	3.7 U	3.7 U [a]	3.7 U	3.7 U	1.9 U [a]	3.7 U [a]	3.7 U [a]	3.7 U [a]	3.7 U [a]	19.1
B-3R	09/14/23	SMI	3.5 U	3.5 UJ	3.5 U	3.5 U	**3.3 J**	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 UJ	3.5 U	3.5 U	**1.9 J**	3.5 U	**13.0**	3.5 U	3.5 U	7.0 U	7.0 U	**7.0**	7.0 U	7.0 U	3.5 U	7.0 U	7.0 U	7.0 U	7.0 U	25.2
MW-108WT	12/18/18	SMI	**3.02 J**	**1.77 J**	2.0 U	2.0 U	**3.66 J**	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**1.92 J**	2.0 U	**2.63 J**	2.0 U	2.0 U	4.0 U	4.0 U	4.0 U	8.0 U	8.0 U	2.0 U	--	--	--	--	13.0
MW-108WT	08/13/20	SMI	**8.8**	**2.1 J**	**2.4 J**	**1.2 J**	**4.4**	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	**1.9 J**	1.9 U	**5.8**	1.9 U	**17.1**	1.9 U	1.9 U	3.7 U	3.7 U	3.7 U	7.4 U	7.4 U	9.3 U	9.3 U	3.7 U	3.7 U	3.7 U	43.7
MW-108WT	08/19/21	SMI	**3.7 J**	**1.8 J**	**1.9 J**	**1.9 J**	**4.6**	**1.4 J**	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	**3.5 J**	1.8 U	**15.1**	1.8 U	1.8 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	1.8 U [a]	3.6 U	3.6 U	3.6 U	3.6 U	33.9
MW-108WT	09/14/23	SMI	**2.1 J**	3.6 U	3.6 U	3.6 U	**1.6 J**	**0.45 J**	3.6 U	3.6 U	3.6 U	3.6 U	3.6 UJ	3.6 U	3.6 U	**1.7 J**	3.6 U	**7.0**	3.6 U	3.6 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	3.6 U	7.2 U	7.2 U	7.2 U	7.2 U	12.9
MW-117WT	08/13/20	GPL	**296**	**43.9**	**77.8**	**9.7**	**3.6 J**	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	3.7 U	3.7 U	3.7 U	7.4 U	7.4 U	1.9 U	9.3 U	3.7 U	3.7 U	3.7 U	431
MW-117WT	08/17/21	GPL	**449** [a]	**134** [a]	**114** [a]	**18.7**	**5.5**	8.9 U	1.8 U	1.8 U	8.9 U [a]	8.9 U [a]	8.9 U [a]	8.9 U	8.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	18 U	3.6 U	3.6 U	3.6 U	3.6 U	8.9 U [a]	3.6 U	3.6 U	3.6 U	18 U [a]	721
MW-117WT	09/22/22	GPL	**269** [b]	**47.3** [b]	**84.1** [b]	**10.0**	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	9.3 U [b]	9.3 U [b]	9.3 U [b]	1.9 U	1.9 U [a]	1.9 U [a]	9.3 U [b]	1.9 U	19 U [b]	3.7 U	3.7 U	3.7 U	3.7 U	9.3 U [b]	3.7 U	3.7 U	3.7 U	3.7 U	410
MW-117WT	09/13/23	GPL	**280**	**45.0**	**91.0**	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	80 U	80 U	80 U	80 U	80 U	40 U	80 U	80 U	80 U	80 U	416
MW-117S1	08/13/20	GPL	3.7 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	3.7 U	3.7 U	3.7 U	7.4 U	7.4 U	1.9 U	9.3 U	3.7 U	3.7 U	3.7 U	0.00
MW-117S1	08/17/21	GPL	3.6 U	8.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	8.9 U [a]	8.9 U [a]	8.9 U [a]	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	8.9 U [a]	3.6 U	3.6 U	3.6 U	18 U [a]	0.00
MW-117S1	09/21/22	GPL	3.7 U [a]	1.9 U [a]	1.9 U [a]	1.9 U [a]	1.9 U	1.9 U [a]	1.9 U [a]	1.9 U	1.9 U [a]	1.9 U [a]	1.9 U [a]	1.9 U [a]	1.9 U [a]	1.9 U	1.9 U	1.9 U [a]	1.9 U [a]	1.9 U	3.7 U [a]	3.7 U	3.7 U [a]	3.7 U	3.7 U [a]	1.9 U [a]	3.7 U [a]	3.7 U	3.7 U [a]	3.7 U [a]	0.00
MW-117S1	09/13/23	GPL	**1.7 J**	**1.7 J**	**1.2 J**	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 UJ	3.6 U	3.6 U	3.6 U	3.6 U	**2.9 J**	3.6 U	3.6 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	3.6 U	7.2 U	7.2 U	7.2 U	7.2 U	7.50
MW-118WT	08/14/20	GPL	**18.2**	**4.8**	**7.6**	**3.1 J**	**2.4 J**	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	**2.5 J**	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	3.7 U	3.7 U	3.7 U	7.4 U	7.4 U	9.3 U	9.3 U	3.7 U	3.7 U	3.7 U	38.6
MW-118WT	08/17/21	GPL	**49.4**	**23.0**	**21.1**	**6.1 J**	**5.3**	8.9 U	1.8 U	1.8 U	8.9 U [b]	8.9 U [b]	8.9 U [b]	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	8.9 U [b]	3.6 U	3.6 U	3.6 U	18 U [b]	105
MW-118WT	09/22/22	GPL	**48.8** [a]	**11.8** [a]	**19.4** [a]	**9.7** [a]	**4.8**	1.9 U [a]	1.9 U [a]	1.9 U	1.9 U [a]	1.9 U [a]	1.9 U [a]	1.9 U [a]	1.9 U [a]	1.9 U	1.9 U	1.9 U [a]	1.9 U [a]	1.9 U	3.7 U [a]	3.7 U	3.7 U [a]	3.7 U	3.7 U	1.9 U [a]	3.7 U [a]	3.7 U	3.7 U [a]	3.7 U [a]	94.5
MW-118WT	09/13/23	GPL	**110**	**13.0**	**35.0**	**5.6**	**7.0**	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 UJ	**2.9 J**	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	7.1 U	7.1 U	7.1 U	7.1 U	7.1 U	3.5 U	7.1 U	7.1 U	7.1 U	7.1 U	174
MW-118S1	12/18/18	GPL	**9.71**	**4.37**	**1.77 J**	**1.93 J**	**1.95 J**	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	4.0 U	4.0 U	4.0 U	8.0 U	8.0 U	2.0 U	--	--	--	--	19.7
MW-122WT	08/18/21	GPL	**51.3**	**6.4 J**	**2.6 J**	**2.2 J**	**3.1 J**	1.8 U	1.8 U	1.8 U	8.9 U [a]	8.9 U [a]	8.9 U [a]	**2.0 J**	1.8 U	1.8 U	1.8 U	**1.7 J**	1.8 U	1.8 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	8.9 U	3.6 U	3.6 U	3.6 U	18 U [a]	69.3
MW-122WT	09/23/22	GPL	**79.1** [b]	**7.3 J** [b]	**5.6 J** [b]	**1.7 J**	**2.4 J**	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	9.3 U [b]	**2.6 J** [a]	9.3 U [b]	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	19 U [b]	3.7 U	3.7 U	3.7 U	3.7 U	1.9 U [a]	19 U [b]	3.7 U	3.7 U	3.7 U	98.7
MW-122WT	09/13/23	GPL	**41.0**	**4.6**	**4.5**	**1.2 J**	**2.8 J**	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	**2.2 J**	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	3.7 U	7.4 U	7.4 U	7.4 U	7.4 U	56.3
MW-125WT	09/08/20	GPL	**20.5**	**2.4 J**	**2.9 J**	**1.5 J**	**4.3**	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	**3.0 J**	**1.2 J**	**3.0 J**	1.7 U	1.7 U	1.7 U	1.7 U	3.4 U	3.4 U	3.4 U	6.9 U	6.9 U	1.7 U	8.6 U	3.4 U	3.4 U	3.4 U	38.8
MW-125WT	01/17/23	GPL	**16.5**	**1.4 J**	**2.0 J** [a]	**1.1 J**	**2.9 J**	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	**2.7 J**	**1.2 J**	**5.1**	1.9 U	1.9 U	1.9 U	1.9 U	19 U [b]	3.7 U	3.7 U	3.7 U	3.7 U	9.3 U [b]	3.7 U	3.7 U	3.7 U	3.7 U	32.9
MW-125WT	09/13/23	GPL	**12.0**	**1.4 J**	3.6 U	**0.93 J**	**2.9 J**	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	**3.1 J**	**1.4 J**	**9.1**	3.6 U	3.6 U	3.6 U	3.6 U	7.1 U	7.1 U	7.1 U	7.1 U	7.1 U	3.6 U	7.1 U	7.1 U	7.1 U	7.1 U	30.8
MW-131WT	12/18/18	SMI	**4.14 J**	**2.24 J**	**1.14 J**	**1.2 J**	**2.38 J**	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**1.72 J**	2.0 U	**4.21**	2.0 U	**4.88 J**	2.0 U	2.0 U	4.0 U	4.0 U	4.0 U	8.0 U	8.0 U	2.0 U	--	--	--	--	21.9
MW-131WT	08/11/20	SMI	**11.1**	1.9 U	**0.99 J**	1.9 U	**3.6 J**	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	**3.0 J**	**1.1 J**	**4.9**	1.9 U	**7.9**	1.9 U	1.9 U	3.7 U	3.7 U	3.7 U	7.4 U	7.4 U	1.9 U	9.3 U	3.7 U	3.7 U	3.7 U	32.6
MW-131WT	08/19/21	SMI	**6.2 J**	**1.3 J**	**1.8 J**	**1.6 J**	**3.7**	**1.3 J**	1.8 U	1.8 U	1.8 U	1.8 U	1.8 J [q]	**2.0 J**	**1.3 J**	**9.1 J**	1.8 U	**11.0**	1.8 U	1.8 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	1.8 U [a]	3.6 U	3.6 U	3.6 U	3.6 U	39.3
MW-131WT	09/26/22	SMI	**7.4** [a]	**5.9** [a]	**1.6 J** [a]	1.9 U [a]	**3.3 J**	1.9 U [a]	1.9 U [a]	1.9 U [a]	1.9 U [a]	1.9 U [a]	1.9 U [a]	**3.0 J** [a]	**2.8 J** [a]	**8.3**	1.9 U [a]	**14.6** [a]	1.9 U [a]	1.9 U	3.7 U [a]	3.7 U	3.7 U [a]	3.7 U	3.7 U	1.9 U [a]	3.7 U [a]	3.7 U	3.7 U [a]	3.7 U [a]	46.9
MW-131WT	09/14/23	SMI	**2.5 J**	3.4 U	3.4 U	3.4 U	**2.1 J**	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	3.4 UJ	**1.4 J**	**1.0 J**	**5.9**	3.4 U	**7.4**	3.4 U	3.4 U	6.9 U	6.9 U	6.9 U	6.9 U	6.9 U	3.4 U	6.9 U	6.9 U	6.9 U	6.9 U	20.3
MW-134WT	12/18/18	SMI	**5.64 J**	**3.54 J**	**1.66 J**	**1.28 J**	**3.0 J**	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**1.99 J**	2.0 U	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	4.0 U	4.0 U	4.0 U	8.0 U	8.0 U	2.0 U	--	--	--	--	17.1
MW-134WT	08/11/20	SMI	**5.9 J**	**2.7 J**	**1.9 J**	**2.2 J**	**2.0 J**	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	3.7 U	3.7 U	3.7 U	7.4 U	7.4 U	9.3 U	9.3 U	3.7 U	3.7 U	3.7 U	14.7
MW-134WT	08/19/21	SMI	**3.0 J**	**1.0 J**	1.8 U	1.8 U	**1.7 J**	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	**1.1 J**	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	1.8 U [a]	3.6 U	3.6 U	3.6 U	3.6 U	6.80
MW-134WT	09/27/22	SMI	**6.4 J** [a]	**5.0** [a]	**2.4 J** [a]	1.9 U [a]	**3.6 J** [a]	1.9 U [a]	1.9 U [a]	1.9 U	1.9 U [a]	1.9 U [a]	1.9 U [a]	1.9 U [a]	1.9 U [a]	1.9 U	1.9 U	1.9 U [a]	1.9 U [a]	1.9 U	3.7 U [a]	3.7 U	3.7 U [a]	3.7 U	3.7 U	1.9 U [a]	3.7 U [a]	3.7 U [a]	3.7 U [a]	3.7 U [a]	17.4
MW-134WT	09/14/23	SMI	**6.4 J**	3.5 U	3.5 U	**1.5 J**	**3.7**	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	**1.7 J**	3.5 U	3.5 U	3.5 U	3.5 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	3.5 U	7.0 U	7.0 U	7.0 U	7.0 U	13.3
MW-183WT	12/19/18	GPL	**11.4**	2.0 U	2.0 U	2.0 U	**2.07 J**	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**1.66 J**	2.0 U	**1.5 J**	2.0 U	4.0 U	2.0 U	2.0 U	4.0 U	4.0 U	4.0 U	8.0 U	8.0 U	2.0 U	--	--	--	--	16.6
MW-183WT	08/18/20	GPL	**15.2**	**2.4 J**	**2.5 J**	**2.5 J**	**4.6**	**1.1 J**	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	**2.2 J**	1.9 U	**2.0 J**	1.9 U	**3.5 J**	1.9 U	1.9 U	3.7 U	3.7 U	3.7 U	7.4 U	7.4 U	1.9 U	9.3 U	3.7 U	3.7 U	3.7 U	36.0
MW-183WT	08/24/21	GPL	**8.3**	**0.83 J**	**1.0 J**	**1.10 J**	**2.9 J**	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	16 U [a]	**1.1 J**	1.6 U	**1.7 J**	1.6 U	**1.5 J**	1.6 U	1.6 U	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	16 U	3.2 U	3.2 U	3.2 U	3.2 U	18.4
MW-183WT	09/26/22	GPL	**11.4**	**3.4 J**	**1.3 J**	**1.4 J**	**4.0**	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	**2.5 J**	1.9 U	**2.1 J**	1.9 U	1.9 U	1.9 U	1.9 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	9.3 U [b]	3.7 U [a]	3.7 U	3.7 U	3.7 U	26.1
MW-183WT	09/13/23	GPL	**6.7**	**1.0 J**	**1.5 J**	**1.3 J**	**3.5 J**	**0.55 J**	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	**2.2 J**	**0.95 J**	**3.7**	3.6 U	**2.1 J**	3.6 U	3.6 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	3.6 U	7.2 U	7.2 U	7.2 U	7.2 U	23.5
QPTW-13R	12/18/18	SMI	**17.0**	**16.4**	**2.91 J**	2.0 U	**8.38**	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**3.54 J**	2.0 U	**1.92 J**	2.0 U	**8.47**	2.0 U	2.0 U	4.0 U	4.0 U	4.0 U [c]	8.0 U	8.0 U	2.0 U [a]	--	--	--	--	58.6
QPTW-13R	08/11/20	SMI	**16.6 [17.7]**	**38.4 [37.3]**	**2.7 J [2.8 J]**	9.3 U **[1.9 J]**	**4.7 J [5.1]**	9.3 U **[1.5 J]**	9.3 U [1.9 U]	9.3 U [1.9 U]	1.9 U [1.9 U]	1.9 U [1.9 U]	1.9 U [1.9 U]	1.9 U [1.9 U]	1.9 U [1.9 U]	**3.7 [3.4 J]**	1.9 U [1.9 U]	**11.0 [10.6]**	1.9 U [1.9 U]	1.9 U [1.9 U]	3.7 U [3.7 U]	3.7 U [3.7 U]	3.7 U [3.7 U]	37 U [37 U]	37 U [37 U]	9.3 U [a] [9.3 U [a]]	9.3 U [9.3 U]	3.7 U [3.7 U]	3.7 U [3.7 U]	3.7 U [3.7 U]	77.1 [80.3]
QPTW-13R	08/19/21	SMI	**11.3** [a] **[12.9 [a]]**	8.9 U [a] [8.9 U]	**1.9 J** [a] [1.8 U [a]]	**1.6 J** [a] **[2.1 J [a]]**	**3.8** [a] **[4.0 [a]]**	1.8 U [a] [1.8 U [a]]	1.8 U [a] [1.8 U [a]]	1.8 U [a] [1.8 U [a]]	1.8 U [a] [1.8 U [a]]	1.8 U [a] [1.8 U [a]]	1.8 U [a] [1.8 U [a]]	1.8 U [1.8 U [a]]	1.8 U [1.8 U [a]]	**1.9 J [1.5 J]**	1.8 U [1.8 U]	**6.6 [8.4]**	1.8 U [1.8 U]	1.8 U [1.8 U [a]]	3.6 U [a] [3.6 U [a]]	18 U [3.6 U]	18 U [3.6 U]	18 U [3.6 U [a]]	18 U [3.6 U [a]]	1.8 U [a] [1.8 U [a]]	3.6 U [a] [3.6 U [a]]	3.6 U [a] [3.6 U [a]]	3.6 U [a] [3.6 U [a]]	3.6 U [a] [3.6 U [a]]	27.1 [28.9]
QPTW-13R	09/26/22	SMI	**16.2** [a] **[16.8 [a]]**	1.9 U [a] [1.9 U [a]]	1.9 U [a] [1.9 U [a]]	**5.1** [a] **[1.8 J [a]]**	**3.9** [a] **[4.8 [a]]**	1.9 U [a] [1.9 U [a]]	1.9 U [a] [1.9 U [a]]	1.9 U [a] [1.9 U]	1.9 U [a] [1.9 U]	1.9 U [a] [1.9 U]	1.9 U [a] [1.9 U [a]]	1.9 U [a] [1.9 U [a]]	1.9 U [a] [1.9 U [a]]	1.9 U [a] **[2.6 J [a]]**	1.9 U [a] [1.9 U [a]]	**11.0 [12.8 [a]]**	1.9 U [a] [1.9 U [a]]	1.9 U [a] [1.9 U]	3.7 U [a] [3.7 U [a]]	3.7 U [a] [3.7 U [a]]	3.7 U [a] [3.7 U [a]]	3.7 U [a] [3.7 U [a]]	3.7 U [a] [3.7 U [a]]	1.9 U [a] [1.9 U [a]]	3.7 U [a] [3.7 U [a]]	3.7 U [a] [3.7 U [a]]	3.7 U [a] [3.7 U [a]]	3.7 U [a] [3.7 U]	36.2 [38.8]
QPTW-13R	09/14/23	SMI	R [R]	3.5 UJ [3.5 UJ]	3.5 UJ [3.5 UJ]	3.5 UJ [3.5 UJ]	**5.1 [6.2]**	3.5 U [3.5 U]	3.5 U [3.5 U]	3.5 U [3.5 U]	3.5 U [3.5 U]	3.5 U [3.5 U]	R [3.5 UJ]	3.5 U [3.5 U]	3.5 U [3.5 U]	**3.0 J [2.8 J]**	3.5 U [3.5 U]	**11 [8.5]**	3.5 U [3.5 U]	3.5 U [3.5 U]	7.0 U [6.9 U]	7.0 U [6.9 U]	7.0 U [6.9 U]	7.0 U [6.9 U]	7.0 U [6.9 U]	3.5 UJ [3.5 UJ]	7.0 UJ [6.9 UJ]	7.0 U [6.9 U]	7.0 U [6.9 U]	7.0 U [6.9 U]	19.1 [17.5]
TWW-1	09/08/20	GPL	**29.7 J**	**8.0**	**8.9**	**5.9**	**11.0**	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	**1.9 J**	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	3.6 U	3.6 U	3.6 U	7.1 U	7.1 U	1.8 U	8.9 U	3.6 U	3.6 U	3.6 U	65.4
TWW-1	08/18/21	GPL	**34.9 J**	**9.3 J**	**11.4**	**14.1**	**27.1**	**1.6 J**	1.8 U	1.8 U	1.8 U	1.8 U	8.9 [a]	**4.0**	1.8 U	1.8 U	1.8 U	**1.7 J**	1.8 U	1.8 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	8.9 U [a]	3.6 U	3.6 U	3.6 U	18 U [b]	104
TWW-1	09/23/22	GPL	**34.0 J** [b]	**7.8 J** [b]	**11.3 J** [b]	**10.9 J** [b]	**19.7**	**1.1 J**	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U [a]	**2.9 J** [a]	9.3 U [b]	1.9 U	1.9 U	**3.6 J** [a]	9.3 U [b]	1.9 U	19 U [b]	3.7 U	19 U [b]	3.7 U	3.7 U	1.9 U [a]	19 U [b]	3.7 U	3.7 U	3.7 U	91.3
TWW-1	09/13/23	GPL	**14.0**	**3.7**	**4.5**	**4.2**	**13.0**	**0.90 J**	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	**1.6 J**	3.6 U	**1.2 J**	3.6 U	**2.5 J**	3.6 U	3.6 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	3.6 J	7.2 U	7.2 U	7.2 U	7.2 U	45.6

Table 4
PFAS Groundwater Analytical Summary Table
RACER Saginaw Malleable
Saginaw, Michigan

Sample	Date Collected	Site Area	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnA	PFDoA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFNS	PFDS	4:2 FTS	6:2 FTS	8:2 FTS	NMeFOSAA	NEtFOSAA	PFOSA	HFPO-DA/GenX	ADONA	9Cl-PF3ONS	11Cl-PF3OUdS	Total PFAS
Units			ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
Drinking Water Criteria			--	--	400,000	--	8	6	--	--	--	--	--	420	--	51	--	16	--	--	--	--	--	--	--	--	370	--	--	--	--	--
GSI Criteria			--	--	--	--	170	30	--	--	--	--	--	670,000	--	210	--	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TW-242	01/17/23	GPL	3.8 U [19 U [a,b]]	9.4 U [a,b] [9.3 U [a,b]]	9.4 U [a,b] [9.3 U [a,b]]	1.9 U [9.3 U [a,b]]	1.9 U [9.3 U [b]]	1.9 U [1.9 U]	1.9 U [1.9 U]	1.9 U [1.9 U]	1.9 U [1.9 U]	1.9 U [1.9 U]	1.9 U [1.9 U]	9.4 U [a,b] [9.3 U [a,b]]	9.4 U [a,b] [9.3 U [a,b]]	1.9 U [9.3 U [a,b]]	1.9 U [1.9 U]	1.9 U [1.9 U]	1.9 U [1.9 U]	1.9 U [1.9 U]	19 U [a,b] [19 U [a,b]]	3.8 U [3.7 U]	3.8 U [19 U [b]]	3.8 U [3.7 U]	3.8 U [3.7 U]	9.4 U [a,b] [9.3 U [b]]	19 U [b] [19 U [b]]	3.8 U [19 U [b]]	3.8 U [3.7 U]	3.8 U [3.7 U]	0.00
X-2A	12/18/18	GPL	**34.1** [a] **[26.3** [a]**]**	**18.1 [14.4]**	**6.46 [5.32]**	**4.93 [5.15]**	**50.6 [46.5]**	2.0 U [2.0 U]	2.0 U [2.0 U]	2.0 U [2.0 U]	2.0 U [2.0 U]	2.0 U [2.0 U]	2.0 U [2.0 U]	2.0 U **[4.91]**	2.0 U [2.0 U]	**7.73 [5.89]**	2.0 U [2.0 U]	**16.5 [14.6]**	2.0 U [2.0 U]	2.0 U [2.0 U]	4.0 U [4.0 U]	4.0 U [4.0 U]	4.0 U [4.0 U]	8.0 U [8.0 U]	8.0 U [8.0 U]	2.0 U [a] [2.0 U [a]]	--	--	--	--	138 [123]
X-2A	09/08/20	GPL	**20.4** [a]	1.7 U	**4.4**	**3.1 J**	**29.9**	**1.9 J**	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	**3.4**	1.7 U	**4.7**	1.7 U	**14.5**	1.7 U	1.7 U	3.4 U	3.4 U	3.4 U	6.9 U	6.9 U	1.7 U [a]	8.6 U	3.4 U	3.4 U	3.4 U	82.3
X-2A	08/18/21	GPL	**14.3** [a] **[13.8** [a]**]**	1.8 U [1.8 U]	**2.9 J** [a] **[2.7 J]**	**3.8 [3.7]**	**29.6 [27.7]**	1.8 U [1.8 U]	1.8 U [1.8 U]	1.8 U [1.8 U]	1.8 U [1.8 U]	1.8 U [1.8 U]	1.8 U [1.8 U]	1.8 U [1.8 U]	1.8 U [1.8 U]	**5.6 [3.1 J]**	1.8 U [1.8 U]	**15.8 [14.9]**	1.8 U [1.8 U]	1.8 U [1.8 U]	3.6 U [3.6 U]	3.6 U [3.6 U]	3.6 U [3.6 U]	3.6 U [3.6 U]	3.6 U [3.6 U]	1.8 U [a] [1.8 U [a]]	3.6 U [3.6 U]	3.6 U [3.6 U]	3.6 U [3.6 U]	3.6 U [3.6 U]	72.0 [65.9]
X-2A	09/21/22	GPL	**11.5** [a] **[11.0** [a]**]**	1.9 U [a] [1.9 U [a]]	1.9 U [a] [1.9 U [a]]	**1.8 J** [a] **[4.2** [a]**]**	**23.6** [a] **[23.2** [a]**]**	1.9 U [a] [1.9 U [a]]	1.9 U [a] [1.9 U [a]]	1.9 U [1.9 U [a]]	1.9 U [1.9 U [a]]	1.9 U [1.9 U [a]]	1.9 U [a] [1.9 U [a]]	1.9 U [a] [1.9 U [a]]	1.9 U [a] [1.9 U [a]]	**4.3** [a] **[5.0** [a]**]**	1.9 U [a] [1.9 U [a]]	**20.9** [a] **[21.2** [a]**]**	1.9 U [a] [1.9 U [a]]	1.9 U [1.9 U [a]]	3.7 U [a] [3.7 U [a]]	3.7 U [3.7 U [a]]	3.7 U [3.7 U [a]]	3.7 U [3.7 U]	3.7 U [3.7 U]	1.9 U [a] [1.9 U [a]]	3.7 U [a] [3.7 U [a]]	3.7 U [a] [3.7 U [a]]	3.7 U [a] [3.7 U [a]]	3.7 U [3.7 U [a]]	62.1 [64.6]
X-2A	09/13/23	GPL	**6.7 [6.6]**	3.4 UJ [4.1 UJ]	**5.5** [4.1 U]	**2.0 J [2.0 J]**	**22.0 [23.0]**	3.4 U **[0.54 J]**	3.4 U [4.1 U]	3.4 U [4.1 U]	3.4 U [4.1 U]	3.4 U [4.1 U]	3.4 UJ [4.1 UJ]	3.4 U [4.1 U]	3.4 U [4.1 U]	**3.3 J [3.4 J]**	3.4 U [4.1 U]	**16.0 [20.0]**	3.4 U [4.1 U]	3.4 U [4.1 U]	6.9 U [8.2 U]	6.9 U [8.2 U]	6.9 U [8.2 U]	6.9 U [8.2 U]	6.9 U [8.2 U]	3.4 U [4.1 U]	6.9 U [8.2 U]	6.9 U [8.2 U]	6.9 U [8.2 U]	6.9 U [8.2 U]	55.5 [55.5]
X-9AR	12/19/18	GPL	**5.98 J**	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	4.0 U	4.0 U	4.0 U	8.0 U	8.0 U	2.0 U	--	--	--	--	5.98
X-9AR	08/17/20	GPL	**14.4**	**4.4**	**2.7 J**	**2.5 J**	**2.5 J**	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	**1.6 J**	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	3.7 U	3.7 U	3.7 U	7.4 U	7.4 U	1.9 U	9.3 U	3.7 U	3.7 U	3.7 U	28.1
X-9AR	08/18/21	GPL	**18.6**	**1.3 J**	**1.4 J**	**1.8 J**	**1.5 J**	1.8 U	1.8 U	1.8 U	8.9 U [a]	8.9 U [a]	8.9 U [a]	**1.5 J**	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	8.9 U [a]	3.6 U	3.6 U	3.6 U	18 U [a]	26.1
X-9AR	09/22/22	GPL	**19.0**	**2.0 J**	**1.6 J**	**1.6 J**	**1.3 J**	1.9 U	1.9 U	1.9 U	9.3 U [b]	9.3 U [b]	1.9 U [a]	**1.4 J**	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	1.9 U [a]	3.7 U	3.7 U	3.7 U	19 U [b]	26.9
X-9AR	09/13/23	GPL	**4.0**	**0.56 J**	**0.79 J**	**0.45 J**	**0.89 J**	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	**0.69 J**	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	3.4 U	6.9 U	6.9 U	6.9 U	6.9 U	6.9 U	3.4 U	6.9 U	6.9 U	6.9 U	6.9 U	7.38
X-10AR2	12/18/18	GPL	4.0 U	2.0 U	2.0 U	2.0 U	**2.13 J**	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	4.0 U	4.0 U	4.0 U	8.0 U	8.0 U	2.0 U	--	--	--	--	2.13
X-10AR2	09/08/20	GPL	**2.9 J [2.9 J]**	1.7 U [1.7 U]	1.7 U **[0.97 J]**	1.7 U [1.7 U]	**5.8 [5.6]**	1.7 U [1.7 U]	1.7 U [1.7 U]	1.7 U [1.7 U]	1.7 U [1.7 U]	1.7 U [1.7 U]	1.7 U [1.7 U]	**1.1 J [1.0 J]**	1.7 U [1.7 U]	1.7 U [1.7 U]	1.7 U [1.7 U]	1.7 U [1.7 U]	1.7 U [1.7 U]	1.7 U [1.7 U]	3.4 U [3.4 U]	3.4 U [3.4 U]	3.4 U [3.4 U]	6.9 U [6.9 U]	6.9 U [6.9 U]	1.7 U [1.7 U]	8.6 U [8.6 U]	3.4 U [3.4 U]	3.4 U [3.4 U]	3.4 U [3.4 U]	9.8 [10.5]
X-10AR2	08/18/21	GPL	**4.4 J**	**1.4 J**	**1.1 J**	1.8 U	**6.1**	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	**1.3 J**	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	1.8 U	3.6 U	3.6 U	3.6 U	3.6 U	14.3
X-10AR2	09/22/22	GPL	**4.3 J**	1.9 U	1.9 U	1.9 U	**6.3**	1.9 U	1.9 U	1.9 U	9.3 U [b]	9.3 U [b]	1.9 U [a]	**1.1 J**	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	1.9 U [a]	3.7 U	3.7 U	3.7 U	19 U [b]	11.7
X-10AR2	9/13/2023	GPL	**6.5**	**0.72 J**	**1.0 J**	**0.56 J**	**7.3**	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	**1.2 J**	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	3.8 U	7.7 U	7.7 U	7.7 U	7.7 U	17.3

Table 4
PFAS Groundwater Analytical Summary Table
RACER Saginaw Malleable
Saginaw, Michigan

All values are in nanograms per liter (ng/L).
Bold result denotes detection.
Shaded result denotes detection is above the EGLE Part 201 Generic Groundwater Surface-Water Interface Criteria.
Red result denotes detection is above EGLE Part 201 Generic Drinking Water Criteria.
Italicized result denotes detection is above Drinking Water Criteria.
For Total PFAS all detections were summed.

-- = not applicable
a = Associated ID Standard outside control limits. Confirmed by batch QC, re-extraction and/or reanalysis.
b = Result is from Run #2
U = not detected
Q = surrogate failure
J = estimated value between the limit of quantitation and the method detection limit.
[ ] = duplicate sample detections
EGLE = Environment Great Lakes and Energy
GSI = Groundwater Surface water Interface
SMI = Saginaw Malleable Iron Site Area
GPL = Green Point Landfill Site Area

PFBA = Perfluorobutanoic acid
PFPeA = Perfluoropentanoic acid
PFHxA = Perfluorohexanoic acid
PFHpA = Perfluoroheptanoic acid
PFOA = Perfluorooctanoic acid
PFNA = Perfluorononanoic acid
PFDA = Perfluorodecanoic acid
PFUnA = Perfluoroundecanoic acid
PFDoA = Perfluorododecanoic acid
PFTrDA = Perfluorotridecanoic Acid
PFTeDA = Perfluorotetradecanoic acid
PFBS = Perfluorobutanesulfonic acid
PFPeS = Perfluoropentanesulfonic acid
PFHxS = Perfluorohexanesulfonic acid
PFHpS = Perfluoroheptanesulfonic Acid
PFOS = Perfluorooctanesulfonic acid
PFNS = Perfluorononanesulfonic acid
PFDS = Perfluorodecanesulfonic acid
4:2 FTS = Fluorotelomer sulfonic acid 4:2
6:2 FTS = Fluorotelomer sulfonic acid 6:2
8:2 FTS = Fluorotelomer sulfonic acid 8:2
NMeFOSAA = 2-(N-Methylperfluorooctanesulfonamido)acetic acid
NEtFOSAA = 2-(N-Ethylperfluorooctanesulfonamido)acetic acid
PFOSA = Perfluorooctanesulfonamide
HFPO-DA/GenX = Hexafluoropropylene oxide dimer acid
ADONA = 4,8-dioxa-3H-perfluorononanoic acid
9Cl-PF3ONS = 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid
11Cl-PF3OUdS = 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid

Table 5
Analytical Data Summary Table - GPL Inorganics
RACER Trust
Saginaw, MI

Sample ID:	Sample Depth (feet):	Date Collected:	Arsenic	Barium	Cyanide (total)	Iron	Manganese	Selenium	Sodium	Arsenic (Dissolved)	Barium (Dissolved)	Cyanide (Dissolved)	Iron (Dissolved)	Manganese (Dissolved)
Units:			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Site-Specific Groundwater Surface Water Interface Criteria			680*	1,300	5.2	NSL	4,700	5	NSL	680*	1,300	5.2	NSL	4,700
MW-117S1	24.2 - 29.2	06/20/95	--	--	5.0 U	--	--	--	--	**1.2**	**1,410**	--	**5,780**	**347**
MW-117S1	24.2 - 29.2	07/14/95	--	--	--	--	--	--	--	--	--	--	--	--
MW-117S1	24.2 - 29.2	06/11/96	--	--	--	--	--	--	--	--	**1,670**	--	**8,260**	**330**
MW-117S1	24.2 - 29.2	05/19/00	--	--	--	--	--	--	--	10 U	**1,720**	5.0 U	**8,730**	**341**
MW-117S1	24.2 - 29.2	06/19/01	--	--	--	--	--	--	--	10 U	**1,740**	5.0 U	**9,120**	**340**
MW-117S1	24.2 - 29.2	06/26/02	--	--	--	--	--	--	--	10 U	**1,740**	5.0 U	**8,650**	**326**
MW-117S1	24.2 - 29.2	06/19/03	--	--	--	--	--	--	--	10 U	**1,800**	5.0 U	**9,160**	**354**
MW-117S1	24.2 - 29.2	05/27/04	--	--	--	--	--	--	--	10 U	**1,780**	5.0 U	**10,100**	**326 J**
MW-117S1	24.2 - 29.2	06/23/05	--	--	--	--	--	--	--	**2.7**	**1,530 J**	10 U	**8,150**	**289 J**
MW-117S1	24.2 - 29.2	12/13/06	--	--	--	--	--	--	--	5.0 U	**2,010**	10 U	**8,980**	**329**
MW-117S1	24.2 - 29.2	12/07/07	--	--	--	--	--	--	--	5.0 U	**1,890**	10 U	**9,480**	**332**
MW-117S1	24.2 - 29.2	03/14/08	--	--	--	--	--	--	--	**3.9 J**	**1,810**	10 U	**7,350**	**312**
MW-117S1	24.2 - 29.2	10/01/10	--	--	--	--	--	--	--	5.0 U	**1,800 J**	100 U	**8,980**	**307 J**
MW-117S1	24.2 - 29.2	09/27/11	--	--	--	--	--	--	--	**1.6**	**2,000**	--	**9,500**	**330**
MW-117S1	24.2 - 29.2	09/13/12	--	--	--	--	--	--	--	**1.6 J**	**1,800 B**	10 U	**8,600**	**300**
MW-117S1	24.2 - 29.2	09/24/13	--	--	--	--	--	--	--	**4.3 B**	**2,000**	10 U	**3,900**	**510**
MW-117S1	24.2 - 29.2	09/22/14	--	--	--	--	--	--	--	**4.6 B**	**2,100 B**	10 U	**12,000 B**	**290**
MW-117S1	24.2 - 29.2	09/30/15	--	--	10 U	--	--	--	--	**2.3**	**1,700**	10 U	**8,700**	**270**
MW-117S1	24.2 - 29.2	09/27/16	--	--	**10 U**	--	--	--	--	**1.9 J**	**1,500 B**	10 U	**9,000 B**	**270 B**
MW-117S1	24.2 - 29.2	11/13/17	--	--	10 U	--	--	--	--	**2.0**	**1,700**	10 U	**8,700**	**260**
MW-117S1	24.2 - 29.2	08/21/19	--	--	10 U	--	--	--	--	10 U	**1,700**	10 U	**8,700**	**270**
MW-117S1	24.2 - 29.2	08/13/20	10 U	**1,500**	10 U	**8,600 B**	**290**	15 U	**110,000**	10 U	**1,500**	10 U	**7,900 B**	**290**
MW-117S1	24.2 - 29.2	08/17/21	10 U	**1,800**	10 U	**7,800**	**290**	15 U	**120,000**	10 U	**1,800**	10 U	**7,600**	**270**
MW-117S1	24.2 - 29.2	09/21/22	10 U	**1,700**	10 U	**8,400**	**340**	15 U	**120,000**	10 U	**1,800**	10 U	**8,200**	**330**
MW-117S1	24.2 - 29.2	09/13/23	5.0 U	**910**	5.0 U	**3,560**	**265**	25 U	**126,000**	5.0 U	**862**	5.0 U	**2,260**	**211**
MW-117WT	3 - 13	06/20/95	--	--	5.0 U	--	--	--	--	1.3	**2,210**	--	**100,000**	**5,130**
MW-117WT	3 - 13	07/14/95	--	--	--	--	--	--	--	--	--	--	--	--
MW-117WT	3 - 13	06/11/96	--	--	--	--	--	--	--	--	**2,520**	--	**124,000**	**5,190**
MW-117WT	3 - 13	05/19/00	--	--	--	--	--	--	--	10 U	**3,580**	5.0 U	**149,000**	**5,510**
MW-117WT	3 - 13	06/18/01	--	--	--	--	--	--	--	10 U	**3,170**	5.0 U	**137,000**	**4,900**
MW-117WT	3 - 13	06/26/02	--	--	--	--	--	--	--	**2.2 B**	**2,970**	5.0 U	**128,000**	**4,850**
MW-117WT	3 - 13	06/19/03	--	--	--	--	--	--	--	10 U	**3,250**	5.0 U	**139,000**	**5,480**
MW-117WT	3 - 13	12/09/04	--	--	--	--	--	--	--	**4.1 [4.6 J]**	**3,110 J [2,880 J]**	10 U [10 U]	**143,000 J [125,000 J]**	**5,150 J [3,970 J]**
MW-117WT	3 - 13	06/23/05	--	--	--	--	--	--	--	**4.5**	**2,360 J**	10 U	**122,000**	**3,810 J**
MW-117WT	3 - 13	12/13/06	--	--	--	--	--	--	--	5.0 U	**2,710**	10 U	**105,000**	**4,000**
MW-117WT	3 - 13	12/07/07	--	--	--	--	--	--	--	5.0 U	**2,880**	10 U	**124,000**	**4,460**
MW-117WT	3 - 13	03/14/08	--	--	--	--	--	--	--	5.0 U	**2,670**	10 U	**112,000**	**4,160**
MW-117WT	3 - 13	10/01/10	--	--	--	--	--	--	--	5.0 U	**2,910 J**	10 U	**119,000**	**4,360 J**
MW-117WT	3 - 13	09/27/11	--	--	--	--	--	--	--	**2.5**	**3,300**	--	**130,000**	**4,700**
MW-117WT	3 - 13	09/13/12	--	--	--	--	--	--	--	**3.7**	**3,000 B**	10 U	**110,000**	**4,100**
MW-117WT	3 - 13	09/24/13	--	--	--	--	--	--	--	**4.8 B**	**3,100**	10 U	**130,000**	**7,000**
MW-117WT	3 - 13	09/23/14	--	--	--	--	--	--	--	**1.4 J,B**	**2,800 B**	10 U	**110,000 B**	**3,700**
MW-117WT	3 - 13	09/30/15	--	--	10 U	--	--	--	--	**3.0**	**2,100**	10 U	**83,000**	**2,900**
MW-117WT	3 - 13	09/27/16	--	--	**10 U**	--	--	--	--	**1.6 J**	**1,600 B**	10 U	**96,000 B**	**3,400 B**
MW-117WT	3 - 13	10/13/16	--	--	--	--	--	--	--	--	--	--	--	--
MW-117WT	3 - 13	08/13/20	**6.5 J**	**2,000**	10 U	**96,000 B**	**3,700**	15 U	**460,000**	**4.1 J**	**2,100**	10 U	**97,000 B**	**3,800**
MW-117WT	3 - 13	08/17/21	**5.6 J**	**3,800**	10 U	**130,000**	**4,600**	15 U	**680,000**	**4.5 J**	**3,500**	10 U	**120,000**	**4,400**
MW-117WT	3 - 13	09/22/22	10 U	**2,300**	10 U	**100,000**	**4,200**	15 U	**470,000**	10 U	**2,200**	10 U *+	**99,000**	**3,900**
MW-117WT	3 - 13	09/13/23	**15.4**	**1,540**	5.0 U	**83,400**	**3,470**	25 U	**390,000**	5.0 U	**1,480**	5.0 U	**77,900**	**3,420**
MW-118S1	23.5 - 28.5	06/20/95	--	--	5.0 U	--	--	--	--	**1.8**	**482**	--	**2,500**	**347**
MW-118S1	23.5 - 28.5	07/14/95	--	--	--	--	--	--	--	--	--	--	--	--
MW-118S1	23.5 - 28.5	06/11/96	--	--	--	**4,970**	**372**	--	--	--	**532**	--	**5,390**	**383**
MW-118S1	23.5 - 28.5	05/17/00	--	--	--	--	--	--	--	10 U [10 U]	**593 [612]**	5.0 U [5.0 U]	**6,090 [6,150]**	**420 [415]**
MW-118S1	23.5 - 28.5	06/19/01	--	--	--	--	--	--	--	10 U	**645**	5.0 U	**7,070**	**428**
MW-118S1	23.5 - 28.5	06/27/02	--	--	--	--	--	--	--	10 U	**622**	5.0 U	**6,070**	**408**
MW-118S1	23.5 - 28.5	06/19/03	--	--	--	--	--	--	--	10 U	**713**	5.0 U	**7,570**	**476**
MW-118S1	23.5 - 28.5	12/09/04	--	--	--	--	--	--	--	**2.3 J**	**718 J**	10 U	**7,420 J**	**405 J**
MW-118S1	23.5 - 28.5	06/23/05	--	--	--	--	--	--	--	**1.9 B**	**676 JE**	10 U	**6,630**	**370 J**
MW-118S1	23.5 - 28.5	12/14/06	--	--	--	--	--	--	--	5.0 U	**727**	10 U	**5,930**	**401**
MW-118S1	23.5 - 28.5	12/07/07	--	--	--	--	--	--	--	5.0 U	**753**	10 U	**6,940**	**425**
MW-118S1	23.5 - 28.5	04/01/08	--	--	--	--	--	--	--	5.0 U	**763**	10 U	**6,340**	**413**
MW-118S1	23.5 - 28.5	10/01/10	--	--	--	--	--	--	--	5.0 U	**759 J**	10 U	**6,570**	**395 J**
MW-118S1	23.5 - 28.5	09/27/11	--	--	--	--	--	--	--	**0.58**	**810**	10 U	**6,700**	**410**
MW-118S1	23.5 - 28.5	09/13/12	--	--	--	--	--	--	--	**0.74**	**710 B**	**11**	**5,900**	**400**

Table 5
Analytical Data Summary Table - GPL Inorganics
RACER Trust
Saginaw, MI

Sample ID:	Sample Depth (feet):	Date Collected:	Arsenic	Barium	Cyanide (total)	Iron	Manganese	Selenium	Sodium	Arsenic (Dissolved)	Barium (Dissolved)	Cyanide (Dissolved)	Iron (Dissolved)	Manganese (Dissolved)
Units:			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Site-Specific Groundwater Surface Water Interface Criteria			680*	1,300	5.2	NSL	4,700	5	NSL	680*	1,300	5.2	NSL	4,700
MW-118S1	23.5 - 28.5	09/24/13	--	--	--	--	--	--	--	**18 B**	**970 B**	10 U	**3,900 B**	**470 B**
MW-118S1	23.5 - 28.5	09/22/14	--	--	--	--	--	--	--	**0.86 J**	**730 B**	10 U	50 U	**350**
MW-118S1	23.5 - 28.5	09/30/15	--	--	10 U	--	--	--	--	**1.6 J**	**890**	10 U	7,700	**340**
MW-118S1	23.5 - 28.5	09/27/16	--	--	**10 U**	--	--	--	--	**1.9 J**	**850 B**	10 U	**8,700 B**	**360 B**
MW-118S1	23.5 - 28.5	11/13/17	--	--	10 U F1	--	--	--	--	**1.4 J**	**750**	10 U	**8,500**	**460**
MW-118S1	23.5 - 28.5	08/14/20	**7.8 J**	**29 J**	10 U	**3,900**	**770**	15 U	**13,000 B**	**8.2 J**	**28 J**	10 U	**2,700**	**800**
MW-118S1	23.5 - 28.5	08/17/21	10 U	**300**	10 U	**13,000**	**2,100**	15 U	**97,000**	10 U	**300**	10 U	**12,000**	**2,100**
MW-118S1	23.5 - 28.5	09/26/22	**4.7 J**	**72 J B**	10 U	**9,700**	**940**	15 U	**45,000**	**4.4 J**	**69 J B**	10 U *+	**8,700**	**850**
MW-118S1	23.5 - 28.5	09/13/23	5.0 U	**99.9**	5.0 U	**5,400**	**187**	25 U	**30,100**	5.0 U	**90.7**	5.0 U	**4,590**	**190**
MW-118WT	1.6 - 11.6	06/20/95	--	--	5.0 U	--	--	--	--	**1**	**1,970**	--	**71,500**	**5,460**
MW-118WT	1.6 - 11.6	07/14/95	--	--	--	--	--	--	--	--	--	--	--	--
MW-118WT	1.6 - 11.6	06/11/96	--	--	--	**81,900**	**4,990**	--	--	--	**2,420**	--	**93,100**	**5,390**
MW-118WT	1.6 - 11.6	05/17/00	--	--	--	--	--	--	--	10 U	**7,970**	5.0 U	**261,000**	**8,930**
MW-118WT	1.6 - 11.6	06/19/01	--	--	--	--	--	--	--	**5.1 B [7.4 B]**	**10,700 [11,200]**	5.0 U [5.0 U]	**330,000 [344,000]**	**7,740 [8,070]**
MW-118WT	1.6 - 11.6	06/27/02	--	--	--	--	--	--	--	**3.9 B [7.9 B]**	**8,650 [9,200]**	5.0 U [5.0 U]	**259,000 [277,000]**	**6,250 [6,360]**
MW-118WT	1.6 - 11.6	06/19/03	--	--	--	--	--	--	--	10 U [10 U]	**5,620 [5,420]**	5.0 U [5.0 U]	**173,000 [166,000]**	**4,110 [4,000]**
MW-118WT	1.6 - 11.6	05/27/04	--	--	--	--	--	--	--	**3.2**	**4,350**	5.0 U	**135,000**	**3,080 J**
MW-118WT	1.6 - 11.6	06/23/05	--	--	--	--	--	--	--	**3.4**	**2,210 J**	10 U	**92,400**	**1,560 J**
MW-118WT	1.6 - 11.6	12/14/06	--	--	--	--	--	--	--	5.0 U	**1,400**	10 U	**39,200**	**1,050**
MW-118WT	1.6 - 11.6	12/07/07	--	--	--	--	--	--	--	5.0 U	**1,120**	10 U	**35,400**	**881**
MW-118WT	1.6 - 11.6	04/01/08	--	--	--	--	--	--	--	5.0 U	**1,040**	10 U	**30,500**	**800**
MW-118WT	1.6 - 11.6	09/30/10	--	--	--	--	--	--	--	5.0 U	**571 J**	10 U	**16,900**	**448 J**
MW-118WT	1.6 - 11.6	09/27/11	--	--	--	--	--	--	--	**1.1**	**600**	--	**16,000**	**470**
MW-118WT	1.6 - 11.6	09/13/12	--	--	--	--	--	--	--	**0.80 J**	**390**	--	**11,000**	**340**
MW-118WT	1.6 - 11.6	09/24/13	--	--	--	--	--	--	--	**0.72 J,B**	**390 B**	10 U	**8,700 B**	**330 B**
MW-118WT	1.6 - 11.6	09/22/14	--	--	--	--	--	--	--	**0.37 J,B**	**360 B**	10 U	**8,600 B**	**300**
MW-118WT	1.6 - 11.6	09/30/15	--	--	10 U	--	--	--	--	**0.85 J**	**300**	10 U	**7,100**	**270**
MW-118WT	1.6 - 11.6	09/27/16	--	--	10 U	--	--	--	--	**1.0 J**	**300 B**	10 U	**8,500 B**	**300 B**
MW-118WT	1.6 - 11.6	11/13/17	--	--	10 U	--	--	--	--	2.0 U	**370**	**5.8 J**	**15,000**	**570**
MW-118WT	1.6 - 11.6	08/14/20	**15**	**250**	10 U	**26,000**	**970**	15 U	**48,000 B**	**15**	**250**	10 U	**26,000**	**1,000**
MW-118WT	1.6 - 11.6	08/17/21	10 U	**390**	**6.4 J**	**12,000**	**390**	15 U	**100,000**	10 U	**360**	10 U	**11,000**	**390**
MW-118WT	1.6 - 11.6	09/22/22	**11**	**330**	10 U	**19,000**	**860**	15 U	**92,000**	**10**	**340**	10 U	**18,000**	**850**
MW-118WT	1.6 - 11.6	09/13/23	**13.7**	**354**	5.0 U	**22,400**	**779**	25 U	**98,800**	**12.8**	**266**	5.0 U	**16,000**	**791**
MW-183WT	6 - 16	12/06/07	--	--	--	--	--	--	--	--	--	--	--	--
MW-183WT	6 - 16	01/09/08	5.0 U [5.0 U]	**44.1 J [44.3 J]**	--	**1,200 J [669 J]**	**514 [429 J]**	5.0 U [5.0 U]	**97,200 [99,800]**	5.0 U [5.0 U]	**45.6 J [44.2 J]**	10 U [10 U]	**714 J [1,280 J]**	**440 [565 J]**
MW-183WT	6 - 16	03/12/08	5.0 U	**52.6 J**	--	**659**	**611**	5.0 U	**99,000**	**3.3 J**	**51.4 J**	10 U	**298**	**608**
MW-183WT	6 - 16	09/28/10	**5.0 U [6.90]**	**38.2 BJ [37.7 BJ]**	--	**3,850 [3,630]**	**252 [248]**	5.0 U [5.0 U]	--	**5.0 U [5.0 U)]**	**36.8 BJ [37 BJ]**	10 U	**3.06 [3.02]**	**243 [238]**
MW-183WT	6 - 16	09/28/11	**1.90 [2.0]**	**36.0 [38.0]**	--	**2,600 [2,600]**	**240 [260]**	5.0 U [5.0 U]	--	**2.0**	**39**	--	**2,600**	**250**
MW-183WT	6 - 16	09/14/12	**1.0 [0.73 J]**	**79 B [85 B]**	--	**2,200 [2,100]**	**400 B [440 B]**	5.0 U [5.0 U]	--	**1.4 J**	**78 B**	10 U	**2,100**	**400 B**
MW-183WT	6 - 16	09/24/13	**3.9 B [3.3 B]**	**85 B [83 B]**	--	**4,500 B [3,800 B]**	**500 B [490 B]**	5.0 U [5.0 U]	--	**3.2 B**	**82 B**	10 U	**3,400 B**	**490 B**
MW-183WT	6 - 16	09/23/14	**1.8 J,B [1.9 J,B]**	**43 B [45 B]**	--	**2,300 B [2,600 B]**	**460 [540]**	**0.32 J,B [0.27 J,B]**	--	**1.9 J,B [1.9 J,B]**	**460 B [470 B]**	10 U	**2,700 B [2,600 B]**	**550 [560]**
MW-183WT	6 - 16	10/01/15	**1.5 J [1.3 J]**	**46 [45]**	--	**2,500 [2,400]**	**350 [330]**	**0.69 J,B [0.55 J,B]**	--	**1.7 J**	**44**	10 U	**2,600**	**350**
MW-183WT	6 - 16	09/28/16	**6.0**	**41 B**	10 U	**5,000 B**	**1,100 B**	**0.82 J**	**49,000**	**4.1**	**40 B**	10 U	**5,300 B**	**1,100 B**
MW-183WT	6 - 16	08/29/17	**5.8 [4.6]**	**50 F1 [41]**	10 U F1 F2	**4,200 [3,600]**	**1,700 [1,300]**	5.0 U [5.0 U]	**38,000 [35,000]**	**4.8**	**45**	10 U F1 F2	**3,800**	**1,500**
MW-183WT	6 - 16	09/26/18	**6.4 J [8.2 J]**	**35 J [44 J]**	10 U	**3,900 F1 [4,900]**	**1,200 F1 [1,500]**	15 U [15 U]	**21,000 [27,000]**	**6.5 J**	**41 J**	10 U [10 U]	**4,000**	**1,300**
MW-183WT	6 - 16	08/21/19	**10 [9.4 J]**	**52 J [52 J]**	10 U	**6,600 [6,800]**	**1,500 [1,500]**	15 U ^ [15 U ^]	**30,000 [29,000]**	**8.1 J**	**51 J**	10 U [10 U]	**5,900**	**1,400**
MW-183WT	6 - 16	08/18/20	**4.6 J [4.5 J]**	**48 J [53 J]**	10 U [10 U]	**5,400 [5,700]**	**1,600 [1,800]**	15 U [15 U]	**14,000 [15,000]**	**7.0 J,F2 [5.3 J]**	**53 J,F1,F2 [52 J]**	10 U [10 U]	**5,800 F1,F2 [5,600]**	**1,800 F1,F2 [1,800]**
MW-183WT	6 - 16	08/19/21	**10**	**45 J**	10 U	**5,800**	**1,700**	15 U	**23,000**	**8.3 J**	**43 J**	10 U	**4,400**	**1,600**
MW-183WT	6 - 16	09/26/22	**13**	**36 J B**	10 U	**5,100 F1**	**1,200 F1**	15 U	**22,000**	**11**	**34 J B**	10 U *+	**4,700**	**1,200**
MW-183WT	6 - 16	09/13/23	**26.4**	**94.1**	5.0 U	**19,700**	**1,700**	25 U	**31,700**	**6.1**	**38.4**	5.0 U	**3,580**	**1,290**
TWW-1	1.5 - 6.5	01/25/97	--	--	--	--	--	--	--	5.0 U	200 UL	10 U	**110**	**2,110**
TWW-1	1.5 - 6.5	05/21/00	10.0 U	**146**	--	100 U	**1,580**	5.0 U	**839,000**	10 U	**145**	--	127 U	**1,610**
TWW-1	1.5 - 6.5	05/29/08	--	--	--	--	--	--	--	--	--	--	--	--
TWW-1	1.5 - 6.5	09/27/16	--	--	--	--	--	--	--	--	--	--	--	--
TWW-1	1.5 - 6.5	08/30/17	--	--	--	--	--	--	--	--	--	--	--	--
X-10BR	26.3 - 31.3	07/24/95	--	--	5.0 U	--	--	--	--	**32**	**387**	--	**22,600**	**457**
X-10BR	26.3 - 31.3	12/15/06	--	--	--	--	--	--	--	**27.6**	**598**	10 U	**30,500**	**691**
X-10BR	26.3 - 31.3	12/04/07	--	--	--	--	--	--	--	**29.5**	**570**	10 U	**32,700**	**696**
X-10BR	26.3 - 31.3	03/12/08	--	--	--	--	--	--	--	**33**	**597**	10 U	**31,800**	**716**
X-10BR	26.3 - 31.3	09/29/10	--	--	--	--	--	--	--	**28.5**	**581 J**	10 U	**31,700**	**751**
X-10BR	26.3 - 31.3	09/22/11	--	--	--	--	--	--	--	**30**	**630**	10 U	**35,000**	**750**
X-10BR	26.3 - 31.3	09/14/12	--	--	--	--	--	--	--	**27**	**570**	10 U	**30,000**	**730 B^**
X-10BR	26.3 - 31.3	09/24/13	--	--	--	--	--	--	--	**28 B**	**630**	10 U	**33,000**	**750**

Table 5
Analytical Data Summary Table - GPL Inorganics
RACER Trust
Saginaw, MI

Sample ID:	Sample Depth (feet):	Date Collected:	Arsenic	Barium	Cyanide (total)	Iron	Manganese	Selenium	Sodium	Arsenic (Dissolved)	Barium (Dissolved)	Cyanide (Dissolved)	Iron (Dissolved)	Manganese (Dissolved)
		Units:	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Site-Specific Groundwater Surface Water Interface Criteria			680*	1,300	5.2	NSL	4,700	5	NSL	680*	1,300	5.2	NSL	4,700
X-4AR	3.3 - 8.3	07/24/95	**12.7**	**431**	5.0 U	**72,400**	**1,500**	5.0 U	**20,700**	**1.2**	200 U	--	**1,080**	**248**
X-4AR	3.3 - 8.3	06/09/96	5.0 U	200 U	5.0 U	**399**	**41.9**	5.0 U	**21,900**	5.0 U	200 U	5.0 U	**289**	**44.4**
X-4AR	3.3 - 8.3	05/21/00	10 U	**73.3 B**	--	193 U	15 U	5.0 U	**20,700**	10 U	**73.9 B**	--	100 U	15 U
X-4AR	3.3 - 8.3	06/03/04	--	--	--	--	--	--	--	--	--	--	--	--
X-4AR	3.3 - 8.3	08/18/20	10 U	**25 J**	10 U	100 U	**3.0 J**	15 U	**28,000**	10 U	**36 J**	--	100 U	**180**
X-4AR	3.3 - 8.3	09/21/22	10 U	**14 J**	10 U	**130**	**52**	15 U	**26,000**	--	**--**	--	--	**--**
X-4AR	3.3 - 8.3	09/13/23	**23**	**223**	5.0 U	**45,300**	**3,400**	25 U	**21,800 J**	5.0 U	**23.6**	5.0 U	100 U	**156**
X-4CAUG	18 - 23	07/24/95	--	--	5.0 U	--	--	--	--	1 UJ	200 U	--	**1,970**	**447**
X-4CAUG	18 - 23	06/08/96	--	--	--	--	--	--	--	5.0 U	200 U	5.0 UJ	**1,980**	**464**
X-4CAUGR	14 - 19	01/09/08	5.0 U	**114**	--	**4,600**	**397**	5.0 U	**73,900**	5.0 U	**123**	10 U	**4,940**	**427**
X-4CAUGR	14 - 19	03/12/08	5.0 U	**129**	--	**5,060**	**495**	5.0 U	**55,400**	5.0 U	**137**	10 U	**5,020**	**535**
X-4CAUGR	14 - 19	09/28/10	5.0 U	**132 J**	--	**4,930**	**559**	5.0 U	**54,000**	5.0 U	**129 J**	10 U	**5,180**	**571**
X-4CAUGR	14 - 19	09/26/11	**0.740**	**140**	--	**5,400**	**620**	5.0 U	**44,000**	**0.45**	**130**	10 U	**5,000**	**590**
X-4CAUGR	14 - 19	09/14/12	**0.42 J**	**120 B**	--	**4,500**	**560 B^**	5.0 U	**53,000**	**0.40 J**	**120 B**	10 U	**4,400**	**570 B^**
X-4CAUGR	14 - 19	09/24/13	**1.9 B**	**89**	--	**6,700**	**730**	5.0 U	**22,000 B**	**6.9 B**	**89 B**	10 U	**6,300 B**	**760 B**
X-4CAUGR	14 - 19	09/23/14	**2.3 B**	**130 B**	--	**9,100 B**	**610**	**0.36 J,B**	**59,000 B**	**2.2 B**	**140 B**	10 U	**9,000 B**	**610**
X-4CAUGR	14 - 19	09/30/15	**2.0**	**120**	10 U	**6,500**	**430**	**0.56 J**	**64,000 B**	**2.1**	**140**	10 U	**7,800**	**500**
X-4CAUGR	14 - 19	09/28/16	**1.3 J**	**100 B**	10 U	**4,900 B**	**380 B**	**0.92 J**	**78,000**	**1.1 J**	**96 B**	10 U	**4,700 B**	**370 B**
X-4CAUGR	14 - 19	08/29/17	**0.84 J**	**110**	10 U	**4,800**	**420**	--	**9,200**	**0.84 J**	**110**	10 U	**4,700**	**450**
X-4CAUGR	14 - 19	09/26/18	10 U	**67 J**	10 U	**3,500**	**300**	15 U	**10,000**	10 U	**64 J**	10 U	**2,800**	**300**
X-4CAUGR	14 - 19	08/22/19	2.0 U	**57**	10 U	**2,400**	**270**	5.0 U	**12,000**	2.0 U	**59**	10 U	**2,700**	**280**
X-4CAUGR	14 - 19	08/17/20	**7.2 J**	**54 J**	10 U	**2,700**	**300**	15 U	**13,000**	**4.3 J**	**54 J**	10 U	**2,700**	**300**
X-4CAUGR	14 - 19	08/17/21	10 U	**52 J**	**6.6 J**	**2,600**	**290**	15 U	**13,000**	10 U	**53 J**	10 U	**2,300**	**290**
X-4CAUGR	14 - 19	09/21/22	10 U	**58 J**	10 U	**3,200**	**300**	15 U	**12,000**	10 U	**55 J**	10 U	**2,800**	**290**
X-4CAUGR	14 - 19	09/13/23	5.0 U	**64.7**	5.0 U [5.0 U]	**5,700**	**420**	25 U	**36,500**	5.0 U	**41.5**	5.0 U [5.0 U]	100 U	**342**
X-4D	40 - 45	01/09/08	5.0 U	**125**	--	**2,250**	**327**	5.0 U	**733,000**	5.0 U	**124**	10 U	**2,080**	**318**
X-4D	40 - 45	04/01/08	--	--	--	--	--	--	--	5.0 U [5.0 U]	**112 [111]**	10 U [10 U]	**1,930 [1,780]**	**263 [258]**
X-4D	40 - 45	04/03/08	5.0 U	**110**	--	**1,640**	**263**	5.0 U	**701,000**	--	--	--	--	--
X-4D	40 - 45	06/05/08	--	--	--	--	--	--	--	--	--	--	--	--
X-4D	40 - 45	09/28/10	5.0 U	**99.7 BJ**	--	**1,030**	**265**	5.0 U	**699,000**	5.0 U	**98.9 BJ**	10 U	**979**	**275**
X-4D	40 - 45	09/26/11	**1.10**	**100**	--	**1,400**	**190**	5.0 U	**720,000**	**0.94**	**99**	10 U	**1,300**	**180**
X-4D	40 - 45	09/14/12	**1.1**	**86 B**	--	**980**	**180 B**	5.0 U	**690,000**	**0.89 J**	**87 B**	10 U	**1,000**	**190 B^**
X-4D	40 - 45	09/24/13	**0.91 J,B**	**92**	--	**1,300**	**160**	5.0 U	**690,000**	**0.79 J,B**	**89 B**	10 U	**1,200**	**160 B**
X-4D	40 - 45	09/23/14	**0.49 J,B**	**58 B**	--	**290 J,B**	**340**	**0.42 J,B**	**260,000 B**	**0.53 J,B**	**82 B**	10 U	**35 J,B**	**180**
X-4D	40 - 45	09/30/15	**1.2 J**	**87**	10 U	**1,000**	**160**	**2.0 J,B**	**660,000**	**1.1 J**	**82**	10 U	**740**	**180**
X-4D	40 - 45	09/28/16	**0.85 J**	**93 B**	10 U	**1,200 B**	**200 B**	5.0 U	**660,000**	**0.97 J**	**91 B**	10 U	**1,100 B**	**200 B**
X-4D	40 - 45	08/29/17	2.0 U	**83**	10 U	50 U	**190**	5.0 U	**1,600,000**	2.0 U	**84**	10 U	50 U	**180**
X-4D	40 - 45	09/26/18	10 U	**83 J**	10 U	**330**	**310**	15 U	**560,000**	10 U	**83 J**	10 U	**1,300**	**210**
X-4D	40 - 45	08/22/19	2.0 U	**28**	10 U	**1,000**	**240**	5.0 U	**85,000**	2.0 U	**61**	10 U	**1,000**	**220**
X-4D	40 - 45	08/17/20	**6.3 J**	**81 J**	10 U	**1,200**	**210**	15 U	**630,000**	**5.8 J**	**84 J**	10 U	**1,100**	**220**
X-4D	40 - 45	08/17/21	10 U	**61 J**	**7.2 J**	**340**	**260**	15 U	**350,000**	10 U	**95 J**	10 U	**940**	**280**
X-4D	40 - 45	09/21/22	10 U	**75 J**	10 U	**900**	**180**	15 U	**620,000**	10 U	**83 J**	10 U	**1,200**	**160**
X-4D	40 - 45	09/13/23	5.0 U	**115**	5.0 U	**8,920**	**324**	25 U	**627,000**	5.0 U	**73.3**	6.0 U	**892**	**189**
X-9AR	3 - 13	07/24/95	**1.60**	200 U	5.0 U	**11,100**	**770**	5.0 U	**340,000**	**2.1**	200 U	--	**9,170**	**674**
X-9AR	3 - 13	06/09/96	5.0 U	200 U	5.0 U	**2,900**	**348**	5.0 U	**57,200**	5.0 U	200 U	5.0 UJ	**3,190**	**382**
X-9AR	3 - 13	12/15/06	5.0 U	**94.0 J**	--	**1,090**	**157**	5.0 U	**55,000**	5.0 U	**91.2 J**	10 U	**965**	**153**
X-9AR	3 - 13	01/10/08	5.0 U	**108**	--	**5,510**	**318**	5.0 U	**58,600**	5.0 U	**110**	10 U	**5,620**	**325**
X-9AR	3 - 13	03/11/08	5.0 U	**51.8 J**	--	100 U	**6.80 J**	**8.20**	**34,300**	5.0 U	**51.2 J**	10 U	**134**	**3.1 J**
X-9AR	3 - 13	06/05/08	--	--	--	--	--	**4.60 B [5.0 U]**	--	--	--	--	--	--
X-9AR	3 - 13	09/29/10	5.0 U	**113 J**	--	**6,320**	**380**	5.0 U	**55,600**	5.0 U	**116 J**	10 U	**6,580**	**388**
X-9AR	3 - 13	09/23/11	**0.40**	**200**	--	**6,600**	**770**	5.0 U	**95,000**	2 U	**200**	10 U	**6,600**	**750**
X-9AR	3 - 13	09/12/12	**0.43 J**	**190**	--	**5,400**	**790 B^**	5.0 U	**120,000**	2 U	**190**	10 U	**5,500**	**780 B^**
X-9AR	3 - 13	09/25/13	**6**	**220 B**	--	**10,000 B**	**840 B**	5.0 U	**120,000 B**	**5.5**	**220 B**	10 U	**8,900 B**	**670 B**
X-9AR	3 - 13	09/22/14	**1.2 J**	**160 B**	--	**8,800**	**570**	5.0 U	**60,000 B**	**1.3 J**	**170 B**	10 U	**9,100**	**590**
X-9AR	3 - 13	10/01/15	**0.63 J**	**91**	10 U	**5,000**	**310**	**0.55 J,B**	**39,000 B**	2.0 U	**87**	10 U	**4,700**	**300**
X-9AR	3 - 13	09/28/16	**0.50 *J**	**100**	10 U	**5,600**	**360**	**0.62 J**	**39,000**	**0.61 *J**	**97**	10 U	**5,500**	**360**
X-9AR	3 - 13	08/29/17	**2.4**	**56**	10 U	**2,900**	**1,300**	5.0 U	**11,000**	**2.4**	**--**	10 U	**2,300**	**1,400**
X-9AR	3 - 13	09/26/18	10 U	**58 J**	10 U	**2,100**	**3,600**	15 U	**10,000**	10 U	**55 J**	10 U	**1,900**	**4,000**
X-9AR	3 - 13	08/21/19	**4.4 J**	**64 J**	10 U	**3,300**	**3,600**	15 U ^	**11,000**	**4.3 J**	**65 J**	10 U	**3,100**	**3,600**
X-9AR	3 - 13	08/17/20	**23**	**57 J**	10 U	**6,400**	**3,100**	15 U	**9,600**	**24**	**57 J**	10 U	**5,600**	**3,000**
X-9AR	3 - 13	08/18/21	**11**	**71 J**	10 U	**7,500**	**2,500**	15 U	**13,000**	**10**	**72 J**	10 U	**7,800**	**2,600**
X-9AR	3 - 13	09/22/22	**13 [14]**	**67 J [69 J]**	10 U **[11]**	**12,000 [12,000]**	**1,900 [2,000]**	15 U [15 U]	**9,600 [9,800]**	**14 [16]**	**75 J [76 J]**	10 U *+ [10 U *+]	**13,000 [13,000]**	**2,100 [2,200]**
X-9AR	3 - 13	09/13/23	**117**	**757**	5.0 U	**82,300**	**2,670**	25 U	**16,300**	**19.8**	**105**	5.0 U	**23,600**	**2,230**

Table 5
Analytical Data Summary Table - GPL Inorganics
RACER Trust
Saginaw, MI

Sample ID:	Sample Depth (feet):	Date Collected:	Arsenic	Barium	Cyanide (total)	Iron	Manganese	Selenium	Sodium	Arsenic (Dissolved)	Barium (Dissolved)	Cyanide (Dissolved)	Iron (Dissolved)	Manganese (Dissolved)
		Units:	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Site-Specific Groundwater Surface Water Interface Criteria			680*	1,300	5.2	NSL	4,700	5	NSL	680*	1,300	5.2	NSL	4,700
X-9BR	26 - 31	07/24/95	--	--	5.0 U	--	--	--	--	1 UJ	200 U	--	**3,360**	**763**
X-9BR	26 - 31	06/08/96	--	--	--	--	--	--	--	5.0 U	200 U	5.0 UJ	**2,490**	**813**
X-9BR	26 - 31	12/15/06	5.0 U [5.0 U]	**143 [148]**	--	**3,070 [3,120]**	**777 [801]**	5.0 U [5.0 U]	**102,000 [102,000]**	5.0 U	**153**	10 U	**4,450**	**717**
X-9BR	26 - 31	01/08/08	5.0 U	**155**	--	**4,160**	**833**	5.0 U	**122,000**	5.0 U	**103**	10 U	**2,790**	**541**
X-9BR	26 - 31	03/11/08	5.0 U	**147**	--	**2,590**	**903**	5.0 U	**81,200**	5.0 U	**136**	10 U	**2,560**	**828**
X-9BR	26 - 31	09/28/10	5.0 U	**175 J**	--	**3,970**	**893**	5.0 U	**151,000**	5.0 U	**164 J**	10 U	**4,060**	**848**
X-9BR	26 - 31	09/23/11	**0.650**	**180**	--	**3,700**	**960**	5.0 U	**140,000**	**0.63**	**180**	10 U	**3,700**	**960**
X-9BR	26 - 31	09/12/12	**0.940 J**	**170**	--	**5,100**	**900 B^**	5.0 U	**190,000**	**0.91 J**	**160**	10 U	**5,300**	**850 B^**
X-9BR	26 - 31	09/25/13	**6.2**	**130 B**	--	**9,200 B**	**620 B**	5.0 U	**210,000 B**	**6.6**	**140 B**	10 U	**9,000 B**	**740 B**
X-9BR	26 - 31	09/22/14	**2.0**	**170 B**	--	**10,000**	**610**	**0.25 J**	**230,000 B**	**1.9 J**	**160 B**	10 U	**10,000**	**630**
X-9BR	26 - 31	10/01/15	**1.6 J**	**160**	10 U	**8,700**	**560**	**0.74 J,B**	**210,000 B**	**1.7 J**	**170**	10 U	**8,700**	**560**
X-9BR	26 - 31	09/28/16	**1.7 *J**	**150**	10 U	**7,500**	**550**	**0.72 J**	**230,000**	**1.8 *J**	**150**	10 U	**7,900**	**530**
X-9BR	26 - 31	08/29/17	**2.1**	**170**	10 U	**8,700**	**520**	5.0 U	**250,000**	**2.1**	**170**	10 U	**8,600**	**520**
X-9BR	26 - 31	09/26/18	10 U	**63 J**	10 U	**5,000**	**220**	15 U	**49,000**	10 U	**59 J**	10 U	**4,100**	**180**
X-9BR	26 - 31	08/21/19	10 U	**150 J**	--	**9,400**	**540**	15 U ^	**200,000**	10 U	**150 J**	10 U	**9,900**	**520**
X-9BR	26 - 31	08/18/20	10 U	**50 J**	10 U	**5,000**	**590**	15 U	**100,000**	**4.7 J**	**56 J**	10 U	**7,200**	**680**
X-9BR	26 - 31	08/18/21	10 U	**53 J**	10 U	**3,700**	**330**	15 U	**59,000**	10 U	**53 J**	10 U	**3,500**	**340**
X-9BR	26 - 31	09/22/22	10 U	**100 J**	10 U	**6,700**	**340**	15 U	**120,000**	10 U	**97 J**	10 U *+	**6,300**	**330**
X-9BR	26 - 31	09/13/23	**5.1 [6.1]**	**265 [209]**	5.0 U	**22,900 [17,400]**	**587 [538]**	25 U [25 U]	**279,000 [274,000]**	5.0 U [5.0 U]	**96.4 [108]**	5.0 U	**6,670 [7,330]**	**421 [441]**
X-9CAUG	20 - 25	07/24/95	--	--	5.0 U	--	--	--	--	1 UJ	200 U	--	**7,500**	**628**
X-9CAUG	20 - 25	06/08/96	--	--	--	--	--	--	--	5.0 U	200 U	5.0 UJ	**8,900**	**615**
X-9CAUG	20 - 25	12/15/06	5.0 U	**176**	--	**6,920**	**632**	5.0 U	**59,400**	5.0 U	**173**	10 U	**6,730**	**630**
X-9CAUG	20 - 25	01/08/08	5.0 U	**381**	--	**2,980**	**616**	5.0 U	**72,800**	5.0 U	**360**	10 U	**2,810**	**586**
X-9CAUG	20 - 25	03/11/08	5.0 U	**167**	--	**6,410**	**679**	5.0 U	**59,900**	5.0 U	**174**	10 U	**6,730**	**699**
X-9CAUG	20 - 25	09/28/10	5.0 U	**193 J**	--	**5,420**	**760**	5.0 U	**100,000**	5.0 U	**194 J**	10 U	**5,790**	**801**
X-9CAUG	20 - 25	09/23/11	**1.50**	**110**	--	**6,000**	**350**	5.0 U	**54,000**	**1.7**	**120**	10 U	**6,000**	**350**
X-9CAUG	20 - 25	09/12/12	**1.9 J**	**110 B**	--	**4,700**	**340**	**0.68 J**	**47,000**	**0.12 J**	**100 B**	10 U	**5,200**	**340**
X-9CAUG	20 - 25	09/25/13	**1.8 J**	**89 B**	--	**4,500 B**	**290 B**	5.0 U	**47,000 B**	**1.8 J**	**87 B**	10 U	**4,400 B**	**300 B**
X-9CAUG	20 - 25	09/22/14	**1.1 J,B**	**84 B**	--	**5,700 B**	**330**	**0.40 J,B**	**38,000 B**	**1.1 J,B**	**860 B**	10 U	**5,700 B**	**350**
X-9CAUG	20 - 25	09/30/15	**1.3 J**	**210**	--	**9,800**	**640**	**0.32 J**	**88,000 B**	**1.1 J,B**	**190**	10 U	**10,000**	**550**
X-9CAUG	20 - 25	09/28/16	**0.97 *J**	**260**	10 U	**8,400**	**740**	**0.89 J**	**120,000**	**1.0 *J**	**250**	10 U	**9,900**	**690**
X-9CAUG	20 - 25	08/29/17	2.0 U	**220**	10 U	**12,000**	**530**	5.0 U	**42,000**	2.0 U	**230**	10 U	**12,000**	**570**
X-9CAUG	20 - 25	09/25/18	10 U	**120 J**	10 U	**7,500**	**500**	15 U	**24,000**	10 U	**120 J**	10 U	**7,500**	**500**
X-9CAUG	20 - 25	08/21/19	10 U	**130 J**	10 U	**7,700**	**470**	15 U ^	**16,000**	10 U	**130 J**	10 U	**7,600**	**440**
X-9CAUG	20 - 25	08/18/20	10 U	**73 J**	10 U	**8,900**	**480**	15 U	**16,000**	10 U	**69 J**	10 U	**8,000**	**440**
X-9CAUG	20 - 25	08/18/21	10 U	**130 J**	10 U	**8,500**	**510**	15 U	**21,000**	10 U	**130 J**	10 U	**7,900**	**520**
X-9CAUG	20 - 25	09/22/22	10 U	**130 J**	10 U	**7,700**	**570**	15 U	**22,000**	10 U	**130 J**	10 U *+	**7,700**	**560**
X-9CAUG	20 - 25	09/13/23	5.0 U	**263**	5.0 U	**21,200**	**745**	25 U	**31,300**	5.0 U	**138**	5.0 U	**6,890**	**595**
X-9D	42.5 - 47.5	01/08/08	5.0 U	**94.2 J**	--	**3,640**	**186**	5.0 U	**717,000**	5.0 U	**87.8 J**	10 U	**3,370**	**173**
X-9D	42.5 - 47.5	03/11/08	5.0 U	**80.7 J**	--	**3,150**	**149**	5.0 U	**635,000**	5.0 U	**86.6 J**	10 U	**3,570**	**155**
X-9D	42.5 - 47.5	06/05/08	--	--	--	--	--	--	--	--	--	--	--	--
X-9D	42.5 - 47.5	09/28/10	5.0 U	**93.0 BJ**	--	**2,930**	**132**	5.0 U	**685,000**	5.0 U	**90.3 BJ**	10 U	**2,670**	**125**
X-9D	42.5 - 47.5	09/23/11	**0.640**	**100**	--	**3,100**	**130**	5.0 U	**690,000**	**0.63**	**95**	10 U	**2,900**	**120**
X-9D	42.5 - 47.5	09/12/12	**0.67 J**	**84 B**	--	**2,500**	**110**	5.0 U	**650,000**	**0.83 J**	**88 B**	10 U	**2,700**	**120**
X-9D	42.5 - 47.5	09/25/13	**21**	**140 B**	--	**3,100 B**	**360 B**	5.0 U	**690,000 B**	**22**	**140 B**	10 U	**2,900 B**	**390 B**
X-9D	42.5 - 47.5	09/22/14	**15**	**110 B**	--	**3,000**	**170**	**0.58 J**	**680,000 B**	**16**	**110 B**	10 U	**2,800**	**170**
X-9D	42.5 - 47.5	09/30/15	**9.5**	**100**	10 U	**2,800**	**140**	**0.49 J**	**630,000 B**	**7.3**	**85**	10 U	**1,900**	**180**
X-9D	42.5 - 47.5	09/28/16	**3.8**	**94**	**10 U**	**1,500**	**130**	**0.52 J**	**630,000 B**	**5.0**	**91**	10 U	**2,200**	**120**
X-9D	42.5 - 47.5	08/29/17	**1.2 J**	**54**	10 U	50 U	**75**	5.0 U	**330,000**	**0.76 J**	**74**	10 U	50 U	**130**
X-9D	42.5 - 47.5	09/25/18	**5.4 J**	**120 J**	10 U	**2,900**	**360**	15 U	**630,000**	10 U	**120 J**	10 U	**2,900**	**370**
X-9D	42.5 - 47.5	08/20/19	**5.7 J**	**110 J**	10 U H	**3,300**	**200**	15 U	**620,000**	10 U	**110 J**	10 U	**2,800**	**200**
X-9D	42.5 - 47.5	08/17/20	**38**	**200**	10 U	**22,000**	**3,400**	15 U	**490,000**	**22**	**160 J**	**6.6 J**	**13,000**	**2,200**
X-9D	42.5 - 47.5	08/18/21	**19 [13]**	**170 J [120 J]**	10 U [10 U]	**13,000 [9,500]**	**2,400 [2,200]**	15 U [15 U]	**420,000 [290,000]**	10 U [10 U]	**130 J [130 J]**	10 U [10 U]	**5,100 [5,100]**	**550 [550]**
X-9D	42.5 - 47.5	09/22/22	10 U	**33 J**	10 U	**820**	**220**	15 U	**110,000**	10 U	**30 J**	10 U *+	100 U	**190**
X-9D	42.5 - 47.5	09/13/23	5.0 U	**64.1**	5.0 U	**3,740**	**279**	25 U	**450,000 J**	5.0 U	**62**	5.0 U	**2,330**	**267**

Table 5
Analytical Data Summary Table - GPL Inorganics
RACER Trust
Saginaw, MI

Sample ID:	Sample Depth (feet):	Date Collected:	Selenium (Dissolved)	Sodium (Dissolved)	Ammonia Nitrogen	Un-ionized Ammonia	Chloride	Nitrate (as N)	Nitrite (as N)	Sulfate	Total Dissolved Solids (TDS)
		Units:	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Site-Specific Groundwater Surface Water Interface Criteria			5	NSL	53	53	150,000	NA	NSL	370,000	NSL
MW-117S1	24.2 - 29.2	06/20/95	5.0 UJ	**101,000**	--	--	--	--	--	--	--
MW-117S1	24.2 - 29.2	07/14/95	--	--	1,000 UJ	--	**230,000**	--	--	--	**990,000**
MW-117S1	24.2 - 29.2	06/11/96	--	**108,000**	--	--	--	--	--	--	--
MW-117S1	24.2 - 29.2	05/19/00	5.0 U	**120,000**	**5,100**	--	**284,000 J**	1,000 UG	1,000 UG	2,000 UG	**840,000**
MW-117S1	24.2 - 29.2	06/19/01	5.0 U	**121,000**	**11,000**	--	**269,000**	500 U	R	**260 B**	**920,000**
MW-117S1	24.2 - 29.2	06/26/02	5.0 U	**114,000**	**7,100**	--	**270,000**	500 U	500 U	**140 B**	**970,000**
MW-117S1	24.2 - 29.2	06/19/03	5.0 U	**118,000**	**7,400**	--	**264,000**	500 U	140 BJ	1,000 UJ	**1,000,000**
MW-117S1	24.2 - 29.2	05/27/04	5.0 U	**115,000**	**7,300**	--	**275,000**	500 U	160 B	**440 B**	**1,000,000**
MW-117S1	24.2 - 29.2	06/23/05	**5.4**	**118,000**	**8,400 J**	--	**270,000**	100 U	100 U	1,000 U	**970,000 J**
MW-117S1	24.2 - 29.2	12/13/06	5.0 U	**118,000**	**8,200**	--	**267,000**	100 U	100 U	1,000 U	**960,000**
MW-117S1	24.2 - 29.2	12/07/07	5.0 U	**129,000**	**22,000**	--	**268,000**	100 U	100 U	1,000 U	**950,000**
MW-117S1	24.2 - 29.2	03/14/08	5.0 U	**113,000**	**1,200**	--	**274,000**	100 UJ	100 UJ	1,000 U	**940,000**
MW-117S1	24.2 - 29.2	10/01/10	5.0 U	**119,000**	**6,500**	**210**	**319,000**	100 U	100 U	1,000 U	**940,000**
MW-117S1	24.2 - 29.2	09/27/11	5.0 U	**120,000**	**8,400**	**19**	**270,000**	100 U	100 U	1,000 U	**970,000**
MW-117S1	24.2 - 29.2	09/13/12	5.0 U	**110,000**	**7,800**	**13**	**270,000**	100 U	100 U	1,000 U	**930,000**
MW-117S1	24.2 - 29.2	09/24/13	5.0 U	**120,000**	**7,000 B**	**11 B**	**250,000**	100 U	100 U	**450 J**	**880,000**
MW-117S1	24.2 - 29.2	09/22/14	**0.29 J,B**	**120,000 B**	**7,800**	**4.8**	**260,000**	100 U , H	100 U, H	1,000 U	**880,000**
MW-117S1	24.2 - 29.2	09/30/15	**0.52 J, B**	**110,000 B**	**6,500**	**7.6**	**240,000**	500 U	500 U	5,000 U	**930,000**
MW-117S1	24.2 - 29.2	09/27/16	**0.57 J**	**120,000**	**10,000 B**	**10 B**	**250,000**	50 U	50 U	1,000 U	**870,000**
MW-117S1	24.2 - 29.2	11/13/17	5.0 U	**110,000**	**8,500**	**1.2**	**240,000**	50 U	50 U	1,000 U	**950,000**
MW-117S1	24.2 - 29.2	08/21/19	15 U ^	**110,000**	**4,500**	**12**	**110,000**	50 U	50 U	**23,000**	**530,000**
MW-117S1	24.2 - 29.2	08/13/20	15 U	**110,000**	**8,200**	**43**	**220,000**	**1,300**	100 U	1,000 U	**860,000**
MW-117S1	24.2 - 29.2	08/17/21	15 U	**120,000**	**7,200**	**27**	**230,000**	**7,200**	**71 J**	**7,300**	**1,100,000**
MW-117S1	24.2 - 29.2	09/21/22	15 U	**120,000**	**7,000**	**23**	**220,000**	100 U H	100 U H	**710 J**	**710,000**
MW-117S1	24.2 - 29.2	09/13/23	10 U	**123,000**	**5,200**	**21**	**169,000**	**65**	50 U	**2,600**	**814,000**
MW-117WT	3 - 13	06/20/95	5.0 UJ	**463,000**	--	--	--	--	--	--	--
MW-117WT	3 - 13	07/14/95	--	--	**30,000 J**	--	**4,600,000**	--	--	--	**11,000,000**
MW-117WT	3 - 13	06/11/96	--	**499,000**	--	--	--	--	--	--	--
MW-117WT	3 - 13	05/19/00	5.0 U	**590,000**	**46,000**	--	**4,930,000 J**	12,500 UG	12,500 UG	25,000 UG	**11,000,000**
MW-117WT	3 - 13	06/18/01	5.0 U	**559,000**	**63,000**	--	**5,380,000**	500 U	R	**230 B**	**13,000,000**
MW-117WT	3 - 13	06/26/02	5.0 U	**539,000**	**63,000**	--	**5,540,000**	1,000 U	25,000 U	**320 B**	**11,000,000 J [12,000,000]**
MW-117WT	3 - 13	06/19/03	5.0 U	**628,000**	**63,000**	--	**4,680,000**	1,000 U	25,000 U	**340 BJG**	**13,000,000**
MW-117WT	3 - 13	12/09/04	**14 J [14.3 J]**	--	**65,000 [69,000]**	--	**4,650,000 J [4,420,000 J]**	100 U [100 U]	1,000 UG [1,000 UG]	**240 B [1,000 U]**	**7,800,000 J [7,900,000 J]**
MW-117WT	3 - 13	06/23/05	**16.1**	**564,000**	**59,000 J**	--	**3,970,000**	100 U	2,000 U	**230 B**	**9,600,000 J**
MW-117WT	3 - 13	12/13/06	5.0 U	**531,000**	**75,000**	--	**3,680,000**	**750**	**3,600**	**270 J**	**7,800,000**
MW-117WT	3 - 13	12/07/07	5.0 U	**620,000**	**68,000**	--	**3,690,000**	100 U	100 U	**800 J**	**7,600,000**
MW-117WT	3 - 13	03/14/08	5.0 U	**545,000**	**68,000**	--	**3,220,000**	200 UJ	200 UJ	2,000 U	**5,900,000**
MW-117WT	3 - 13	10/01/10	5.0 U	**604,000**	**64,000**	**5,100**	**5,210,000**	100 U	5,000 U, G	1,000 U	**7,900,000**
MW-117WT	3 - 13	09/27/11	5.0 U	**560,000**	**71,000**	**68**	**4,300,000**	100 U	2,500 U	**380**	**9,800,000**
MW-117WT	3 - 13	09/13/12	**0.78 J**	**560,000 B**	**78,000**	**40**	**4,600,000**	100 U	5,000 U	**350 J**	**9,900,000**
MW-117WT	3 - 13	09/24/13	5.0 U	**570,000**	**86,000 B**	**46 B**	**4,500,000 B**	100 U	1,000 U	**710 J**	**7,300,000**
MW-117WT	3 - 13	09/23/14	**0.59 J,B**	**520,000 B**	**3,000^**	**1.2 ^**	**3,700,000**	1,000 U, H	1,000 U, H	10,000 U	**6,300,000**
MW-117WT	3 - 13	09/30/15	**1.0 J B**	**450,000 B**	**60,000**	**49**	**3,500,000**	2,500 U	2,500 U	2,500 U	**5,700,000**
MW-117WT	3 - 13	09/27/16	**1.5 J**	**470,000**	**81,000 B**	**120 B**	**3,500 ,000**	50 U	50 U	**250 J**	**4,800,000**
MW-117WT	3 - 13	10/13/16	--	--	--	--	--	--	--	--	**--**
MW-117WT	3 - 13	08/13/20	15 U	**490,000**	**66,000**	**97**	**3,200,000**	**630**	500 U	**5,100**	**4,600,000**
MW-117WT	3 - 13	08/17/21	15 U	**650,000**	**83,000**	**100**	**4,700,000**	1,000 U	1,000 U	100,000 U	**9,400,000**
MW-117WT	3 - 13	09/22/22	15 U	**440,000**	**58,000**	**39**	**3,800,000**	500 U	500 U	**2,000 J**	**4,900,000**
MW-117WT	3 - 13	09/13/23	10 U	**382,000**	**35,200**	**14**	**3,640,000**	50 U	500 U	**330**	**6,340,000**
MW-118S1	23.5 - 28.5	06/20/95	5.0 UJ	**97,300**	--	--	--	--	--	--	--
MW-118S1	23.5 - 28.5	07/14/95	--	--	**4,800 J**	--	**260,000**	--	--	--	**8,000,000**
MW-118S1	23.5 - 28.5	06/11/96	--	**112,000**	--	--	--	80 U	70 U	5,000 U	--
MW-118S1	23.5 - 28.5	05/17/00	5.0 U [5.0 U]	**121,000 [122,000]**	**5,900 [6,200]**	--	**284,000 [281,000]**	2,000 UG [2,000 UG]	2,000 UG [2,000 UG]	4,000 UG [4,000 UG]	**930,000 [940,000]**
MW-118S1	23.5 - 28.5	06/19/01	5.0 U	**117,000**	**8,400**	--	**272,000**	500 U	R	**150 B**	**910,000**
MW-118S1	23.5 - 28.5	06/27/02	5.0 U	**112,000**	**7,300**	--	**286,000**	500 U	500 U	**1,600**	**1,200,000 [1,200,000]**
MW-118S1	23.5 - 28.5	06/19/03	5.0 U	**118,000**	**6,200**	--	**264,000**	500 U	500 U	1,000 UJ	**1,000,000**
MW-118S1	23.5 - 28.5	12/09/04	**5.9 J**	--	**5,900**	--	**270,000 J**	100 U	100 U	1,000 U	**980,000 J**
MW-118S1	23.5 - 28.5	06/23/05	3.5	**112,000**	**7,300 J**	--	**296,000**	100 U	100 U	1,000 U	**520,000 J**
MW-118S1	23.5 - 28.5	12/14/06	5.0 U	**115,000**	**8,000**	--	**290,000**	100 U	**160**	1,000 U	**1,000,000**
MW-118S1	23.5 - 28.5	12/07/07	5.0 U	**131,000**	**8,500**	--	**275,000**	100 U	100 U	1,000 U	**900,000**
MW-118S1	23.5 - 28.5	04/01/08	5.0 U	**115,000**	**8,100**	--	**310,000**	100 U	100 U	**4,700**	**960,000**
MW-118S1	23.5 - 28.5	10/01/10	5.0 U	**129,000**	**6,700**	--	**362,000**	100 U	100 U	1,000 U	**970,000**
MW-118S1	23.5 - 28.5	09/27/11	5.0 U	**130,000**	**7,900**	**27**	**290,000**	100 U	100 U	1,000 U	**1,000,000**
MW-118S1	23.5 - 28.5	09/13/12	5.0 U	**130,000**	**7,200**	**14**	**290,000**	100 U	100 U	1,000 U	**960,000**

Table 5
Analytical Data Summary Table - GPL Inorganics
RACER Trust
Saginaw, MI

Sample ID:	Sample Depth (feet):	Date Collected:	Selenium (Dissolved)	Sodium (Dissolved)	Ammonia Nitrogen	Un-ionized Ammonia	Chloride	Nitrate (as N)	Nitrite (as N)	Sulfate	Total Dissolved Solids (TDS)
		Units:	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Site-Specific Groundwater Surface Water Interface Criteria			5	NSL	53	53	150,000	NA	NSL	370,000	NSL
MW-118S1	23.5 - 28.5	09/24/13	**0.47 J**	**150,000 B**	**6,900 B**	**3.7 B**	**300,000 B**	100 U	100 U	**320 J**	**920,000**
MW-118S1	23.5 - 28.5	09/22/14	5.0 U	**130,000 B**	**7,500**	**3.8**	**320,000**	100 U	100 U	1,000 U	**980,000**
MW-118S1	23.5 - 28.5	09/30/15	0.58 J B	**120,000 B**	**5,900**	**8**	**310,000**	500 U	500 U	5,000 U	**1,000,000**
MW-118S1	23.5 - 28.5	09/27/16	**1.0 J**	**130,000**	**9,900 B**	**13 B**	**290,000**	50 U	50 U	1,000 U	**930,000**
MW-118S1	23.5 - 28.5	11/13/17	5.0 U	**100,000**	**7,600**	**1.2**	**260,000**	**31 J**	**31 J**	1,000 U	**920,000**
MW-118S1	23.5 - 28.5	08/14/20	15 U	**15,000 B**	200 U	1.1 U	**17,000**	100 U	100 U	**420 J**	**200,000**
MW-118S1	23.5 - 28.5	08/17/21	15 U	**97,000**	**3,800**	**16**	**220,000**	500 U H	**240**	**3,200**	**830,000**
MW-118S1	23.5 - 28.5	09/26/22	15 U	**46,000**	**2,100**	**8.4**	**120,000**	100 U	100 U	1,000 U	**440,000**
MW-118S1	23.5 - 28.5	09/13/23	10 U	**31,000**	**2,900**	**7.5**	**153,000**	50 U	50 U	280	**441,000**
MW-118WT	1.6 - 11.6	06/20/95	5.0 UJ	**175,000**	--	--	--	--	--	--	--
MW-118WT	1.6 - 11.6	07/14/95	--	--	**10,000 J**	--	**3,700,000**	--	--	--	**1,400,000**
MW-118WT	1.6 - 11.6	06/11/96	--	**229,000**	--	--	--	80 U	70 U	5,000 U	--
MW-118WT	1.6 - 11.6	05/17/00	5.0 U	**647,000**	**26,000**	--	**16,100,000**	50,000 UG	50,000 UG	100,000 UG	**37,000,000**
MW-118WT	1.6 - 11.6	06/19/01	5.0 U [5.0 U]	**955,000 [976,000]**	**92,000 [76,000]**	--	**21,800,000 [18,800,000]**	50,000 U [500 U]	R [R]	**100,000 U [630 B]**	**34,000,000 [36,000,000]**
MW-118WT	1.6 - 11.6	06/27/02	5.0 U [5.0 U]	**925,000 [970,000]**	**82,000 [88,000]**	--	**16,900,000 [16,500,000]**	2,500 U [2,500 U]	2,500 U [2,500 U]	**590 B [560 B]**	**42,000,000 [41,000,000]**
MW-118WT	1.6 - 11.6	06/19/03	5.0 U [5.0 U]	**764,000 [735,000]**	**66,000 [65,000]**	--	**9,740,000 [9,470,000]**	2,000 U [2,000 U]	50,000 U [50,000 U]	**700 BJG [1,200 BJG]**	**23,000,000 [24,000,000]**
MW-118WT	1.6 - 11.6	05/27/04	5.0 U	**662,000**	**66,000**	--	**7,580,000**	1,000 U	25,000 U	**2,000 U**	**15,000,000**
MW-118WT	1.6 - 11.6	06/23/05	**16.3**	**541,000**	**47,000 J**	--	**4,670,000**	100 U	2,000 U	**5,000**	**12,000,000 J**
MW-118WT	1.6 - 11.6	12/14/06	5.0 U	**408,000**	**42,000**	--	**2,370,000**	100 U	**1,900**	**25,300**	**6,800,000**
MW-118WT	1.6 - 11.6	12/07/07	5.0 U	**406,000**	**42,000**	--	**1,760,000**	100 U	100 U	**17,600**	**4,600,000**
MW-118WT	1.6 - 11.6	04/01/08	5.0 U	**334,000**	**38,000**	--	**1,800,000**	100 U	100 U	**23,500**	**4,600,000**
MW-118WT	1.6 - 11.6	09/30/10	5.0 U	**216,000**	**34,000**	**170**	**932,000**	100 U	1,000 U, G	**10,000**	**2,000,000**
MW-118WT	1.6 - 11.6	09/27/11	5.0 U	**200,000**	**38,000**	**33**	**730,000**	100 U	100 U	**5,200**	**2,300,000**
MW-118WT	1.6 - 11.6	09/13/12	5.0 U	**140,000**	**35,000**	**61**	**410,000**	100 U	100 U	**2,300**	**1,300,000**
MW-118WT	1.6 - 11.6	09/24/13	5.0 U	**120,000 B**	**35,000 B**	**23 B**	**280,000 B**	100 U	100 U	**18,000**	**1,000,000**
MW-118WT	1.6 - 11.6	09/22/14	**0.27 J,B**	**86,000 B**	**29,000**	**35**	**260,000**	100 U, H	100 U, H	**19,000**	**990,000**
MW-118WT	1.6 - 11.6	09/30/15	**1.6 J,B**	**70,000 B**	**24,000**	**74**	**230,000**	500 U	500 U	**9,300**	**980,000**
MW-118WT	1.6 - 11.6	09/27/16	**1.0 J**	**82,000**	**37,000 B**	**100 B**	**240,000**	50 U	50 U	**6,100**	**900,000**
MW-118WT	1.6 - 11.6	11/13/17	5.0 U	**82,000**	**24,000**	**5.6**	**270,000**	50 U	50 U	1,000 U	**1,000,000**
MW-118WT	1.6 - 11.6	08/14/20	15 U	**100,000 B**	**14,000**	**40**	**120,000 F1**	**1,200 F1**	100 U,F1,F2	**520 J,F1**	**720,000**
MW-118WT	1.6 - 11.6	08/17/21	15 U	**96,000**	**27,000**	**110**	**300,000**	1,000 U H	**170**	**14,000**	**1,200,000**
MW-118WT	1.6 - 11.6	09/22/22	15 U	**96,000**	**15,000**	**22**	**310,000**	**85 J**	**76 J**	**510 J**	**1,100,000**
MW-118WT	1.6 - 11.6	09/13/23	10 U	**85,100**	**15,600**	**22**	**388,000**	50 U	50 U	**300**	**1,370,000**
MW-183WT	6 - 16	12/06/07	--	--	--	--	--	--	--	--	--
MW-183WT	6 - 16	01/09/08	5.0 U [5.0 U]	**102,000 [98,000]**	**400 [300]**	--	**147,000 [148,000]**	100 U [100 U]	100 U [100 U]	1,000 [700 J]	440,000 [470,000]
MW-183WT	6 - 16	03/12/08	5.0 U	**100,000**	**300**	--	**147,000**	100 U	100 U	2,600 U	520,000
MW-183WT	6 - 16	09/28/10	5.0 U [5.0 U]	**87.4 [85.6]**	**800 J [800 J]**	**5.3 J [5.3 J]**	**76,600 [77,400]**	100 U [100 U]	100 U [100 U]	**1,000 U [1,000 U]**	**360,000 [370,000]**
MW-183WT	6 - 16	09/28/11	5.0 U	**94,000**	**530 [550]**	**7 [7.3]**	**63,000 [63,000]**	100 U [100 U]	100 U [100 U]	**11,000 [11,000]**	**410,000 [430,000]**
MW-183WT	6 - 16	09/14/12	**0.78 J**	**93,000**	**920 [1,100]**	**3.3 [3.9]**	**36,000 [46,000]**	100 U [100 U]	100 U [100 U]	**200,000 [200,000]**	**600,000 [600,000]**
MW-183WT	6 - 16	09/24/13	5.0 U	**100,000 B**	**1,100 B [800 B]**	**1.3 B [0.93 B]**	**36,000 B [36,000 B]**	100 U, H [100 U, H]	100 U, H [100 U, H]	**89,000 [88,000]**	**570,000 [570,000]**
MW-183WT	6 - 16	09/23/14	**0.27 J,B [5.0 U]**	**47,000 B [47,000 B]**	**200 U [140 J]**	--	**29,000 [23,000]**	100 U, H [100 U, H]	100 U, H [100 U, H]	**3,200 [2,900 J]**	**410,000 [400,000]**
MW-183WT	6 - 16	10/01/15	**0.72 J,B**	**52,000**	**750 [840]**	**3.4 [3.9]**	**32,000 F1 [33,000]**	100 U [100 U]	100 U [100 U]	1,000 U [1,000 U]	**410,000 [410,000]**
MW-183WT	6 - 16	09/28/16	**1.5 J**	**50,000**	**940 J,B**	**4.9 J,B**	**28,000**	50 U, F1	50 U, F1	**970 J**	**400,000**
MW-183WT	6 - 16	08/29/17	5.0 U	**37,000**	**350 [490]**	**1.2 [1.7]**	**21,000 [21,000]**	50 U [50 U]	50 U [50 U]	**3,100 [3,200]**	**390,000 [390,000]**
MW-183WT	6 - 16	09/26/18	15 U	**27,000**	**120 J [98 J]**	**0.16 J [0.13 J]**	**21,000 [21,000]**	100 UH [100 U H]	100 UH [100 U H]	**3,100 [3,100]**	**380,000 [380,000]**
MW-183WT	6 - 16	08/21/19	15 U ^	**30,000**	**190 J [200]**	**0.67 J [0.71]**	**20,000 [20,000]**	50 U [50 U]	50 U [50 U]	**980 J [1,100]**	**430,000 [420,000]**
MW-183WT	6 - 16	08/18/20	15 U,F2 [15 U]	**15,000 F1,F2 [15,000]**	200 U [200 U]	0.48 U [0.48 U]	**17,000 [17,000]**	100 U [100 U]	100 U [100 U]	1,000 U [1,000 U]	**380,000 [400,000]**
MW-183WT	6 - 16	08/19/21	15 U	**23,000**	**85 J F1 B**	**0.36 J F1 B**	**19,000**	500 U H	100 U H	**3,000**	**350,000**
MW-183WT	6 - 16	09/26/22	15 U	**24,000**	**110 J**	**0.55 J**	**15,000**	100 U	100 U	**480 J**	**330,000**
MW-183WT	6 - 16	09/13/23	10 U	**31,300**	100 U	0.63 U	**16,200**	50 U	50 U	**1,100**	**344,000**
TWW-1	1.5 - 6.5	01/25/97	5.0 U	**858,000**	--	--	--	--	--	--	--
TWW-1	1.5 - 6.5	05/21/00	5.0 U	**845,000**	--	--	--	--	--	**340,000**	--
TWW-1	1.5 - 6.5	05/29/08	--	--	**200**	--	--	--	--	--	**1,600,000**
TWW-1	1.5 - 6.5	09/27/16	--	--	--	--	--	--	--	--	**--**
TWW-1	1.5 - 6.5	08/30/17	--	--	--	--	--	--	--	--	--
X-10BR	26.3 - 31.3	07/24/95	5.0 U	**149,000**	--	--	--	--	--	--	--
X-10BR	26.3 - 31.3	12/15/06	5.0 U	**192,000**	**6,000**	--	**505,000**	100 U	**300**	1,000 U	**1,600,000**
X-10BR	26.3 - 31.3	12/04/07	5.0 U	**198,000**	**4,500**	--	**497,000**	100 U	100 U	1,000 U	**1,400,000**
X-10BR	26.3 - 31.3	03/12/08	5.0 U	**186,000**	**4,000**	--	**502,000**	100 U	100 U	1,000 U	**1,400,000**
X-10BR	26.3 - 31.3	09/29/10	5.0 U	**187,000**	**4,800**	**6**	**595,000**	100 U	100 U	1,000 U	**1,400,000**
X-10BR	26.3 - 31.3	09/22/11	5.0 U	**190,000**	**6,000**	**11**	**540,000**	500 U	100 U	**360**	**1,500,000**
X-10BR	26.3 - 31.3	09/14/12	5.0 U	**200,000**	**7,900**	**8.1**	**620,000**	100 U	100 U	**590 J**	**1,500,000**
X-10BR	26.3 - 31.3	09/24/13	5.0 U	**200,000**	**9,100 B**	**5.9 B**	**540,000 B**	100 U	500 U	**120 J**	**1,500,000**

Table 5
Analytical Data Summary Table - GPL Inorganics
RACER Trust
Saginaw, MI

Sample ID:	Sample Depth (feet):	Date Collected:	Selenium (Dissolved)	Sodium (Dissolved)	Ammonia Nitrogen	Un-ionized Ammonia	Chloride	Nitrate (as N)	Nitrite (as N)	Sulfate	Total Dissolved Solids (TDS)
		Units:	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Site-Specific Groundwater Surface Water Interface Criteria			5	NSL	53	53	150,000	NA	NSL	370,000	NSL
X-4AR	3.3 - 8.3	07/24/95	5.0 U	**18,100**	--	--	--	--	--	--	--
X-4AR	3.3 - 8.3	06/09/96	5.0 U	**22,900**	--	--	--	--	--	--	--
X-4AR	3.3 - 8.3	05/21/00	5.0 U	**20,900**	--	--	--	--	--	--	--
X-4AR	3.3 - 8.3	06/03/04	--	--	--	--	--	--	--	--	--
X-4AR	3.3 - 8.3	08/18/20	15 U	**27,000**	200 U	21 U	**17,000**	**1,500**	100 U	**1,100**	**310,000**
X-4AR	3.3 - 8.3	09/21/22	--	**--**	200 U	**0.55 U**	**17,000**	**3,200 H**	100 U H	**1,000**	**200,000**
X-4AR	3.3 - 8.3	09/13/23	10 U	**25,200 J**	**120**	**4.9**	**12,800**	**2,600**	50 U	**1,200**	**339,000**
X-4CAUG	18 - 23	07/24/95	5.0 U	**65,400**	--	--	--	--	--	--	--
X-4CAUG	18 - 23	06/08/96	5.0 U	**79,100**	--	--	--	--	--	--	--
X-4CAUGR	14 - 19	01/09/08	5.0 U	**79,600**	**1,500**	--	**160,000**	100 U	100 U	1,000 U	**550,000**
X-4CAUGR	14 - 19	03/12/08	5.0 U	**58,000**	**2,000**	--	**108,000**	100 U	100 U	1,000 U	**580,000**
X-4CAUGR	14 - 19	09/28/10	5.0 U	**52,300**	**1,900 J**	**5.4 J**	**123,000**	100 U	100 U	**210 B**	**570,000**
X-4CAUGR	14 - 19	09/26/11	5.0 U	**41,000**	**1,800**	**5.3**	**99,000**	100 U	100 U	1,000 U	**570,000**
X-4CAUGR	14 - 19	09/14/12	5.0 U	**54,000**	**1,900**	**3.5**	**140,000**	100 U	100 U	1,000 U	**630,000**
X-4CAUGR	14 - 19	09/24/13	5.0 U	**26,000 B**	**2,900 B**	**1.1 B**	**37,000 B**	100 U	100 U	**190**	**540,000**
X-4CAUGR	14 - 19	09/23/14	5.0 U	**60,000 B**	**1,600**	--	**129,000**	100 U	100 U	1,000 U	**630,000**
X-4CAUGR	14 - 19	09/30/15	**0.35 J**	**75,000 B**	--	--	**170,000**	100 U H	100 U H	1,000 U	**700,000**
X-4CAUGR	14 - 19	09/28/16	5.0 U	**74,000**	**1,100 B**	**1.8 B**	**81,000**	50 U	50 U	**18,000**	**570,000**
X-4CAUGR	14 - 19	08/29/17	5.0 U	**10,000**	**990**	**11**	**6,500**	50 U	50 U	1,000 U	**490,000**
X-4CAUGR	14 - 19	09/26/18	15 U	**12,000**	**420**	**0.65**	**23,000**	100 U H	100 U H	1,000 U	**370,000**
X-4CAUGR	14 - 19	08/22/19	5.0 U	**13,000**	**390**	**1.4**	**23,000**	50 U	50 U	**1,400**	**350,000**
X-4CAUGR	14 - 19	08/17/20	15 U	**13,000**	**340**	**0.92**	**18,000**	**31 J**	**100 U**	1,000 U	**280,000**
X-4CAUGR	14 - 19	08/17/21	15 U	**13,000**	**250**	**1.4**	**21,000**	500 U H	**100 U H**	5,000 U	**320,000**
X-4CAUGR	14 - 19	09/21/22	15 U	**12,000**	**330**	**3.2**	**20,000**	100 U H	100 U H	**370 J**	**300,000**
X-4CAUGR	14 - 19	09/13/23	10 U	**38,300**	**310**	**13**	**13,900**	50 U	**50 U**	**650**	**381,000**
X-4D	40 - 45	01/09/08	5.0 U	**718,000**	**6,900**	--	**1,400,000**	100 U	2,000 U	**94,400**	**2,300,000**
X-4D	40 - 45	04/01/08	5.0 U [5.0 U]	**726,000 [708,000]**	**8,800 [8,100]**	--	**1,460,000 [1,460,000]**	100 U [100 U]	100 U [100 U]	**118,000 [118,000]**	**2,500,000 [2,600,000 J]**
X-4D	40 - 45	04/03/08	--	--	**--**	--	--	--	--	--	--
X-4D	40 - 45	06/05/08	--	--	**6,200 [7,320]**	--	--	--	--	--	**3,300,000 [2,820,000]**
X-4D	40 - 45	09/28/10	5.0 U	**708,000**	**6,800 J**	**42 J**	**1,470,000**	**130**	1,000 U, G	**122,000**	**2,500,000**
X-4D	40 - 45	09/26/11	5.0 U	**700,000**	**9,700**	**120**	**1,400,000**	100 U	2,000 U	**150,000**	**2,800,000**
X-4D	40 - 45	09/14/12	5.0 U	**690,000**	**8,300**	**28**	**1,500,000**	500 U	100 U	**190,000**	**2,400,000**
X-4D	40 - 45	09/24/13	5.0 U	**680,000 B**	**8,800 B**	**5.3 B**	**1,500,000 B**	100 U	1,000 U	**160,000**	**2,400,000**
X-4D	40 - 45	09/23/14	**0.31 J,B**	**550,000 B**	**200 U**	--	**760,000**	**1800**	100 U	**88,000**	**830,000**
X-4D	40 - 45	09/30/15	**1.8 J,B**	**620,000**	**3,600**	**13**	**1,500,000**	2,500 U	2,500 U	**160,000**	**2,700,000**
X-4D	40 - 45	09/28/16	5.0 U	**630,000**	**6,200 B**	**38 B**	**1,300,000**	50 U	50 U	**160,000**	**2,600,000**
X-4D	40 - 45	08/29/17	5.0 U	**1,600,000**	**6,800**	**55**	**1,300,000**	**360**	**360**	**180,000**	**2,300,000**
X-4D	40 - 45	09/26/18	15 U	**590,000**	**8,800**	**17**	**1,300,000**	500 UH	500 UH	**190,000**	**2,400,000**
X-4D	40 - 45	08/22/19	5.0 U	**420,000**	**7,000**	**30**	**890,000**	50 U	50 U	**160,000**	**1,800,000**
X-4D	40 - 45	08/17/20	15 U	**650,000**	**7,600**	**82**	**1,300,000**	500 U	500 U	**190,000**	**2,100,000**
X-4D	40 - 45	08/17/21	15 U	**640,000**	**5,700**	**24**	**1,300,000**	500 U H	500 U H	**170,000**	**2,500,000**
X-4D	40 - 45	09/21/22	15 U	**640,000**	**7,200**	**91**	**1,300,000**	200 U H	200 U H	**210,000**	**1,800,000**
X-4D	40 - 45	09/13/23	10 U	**630,000**	**6,800**	**48 [46]**	**1,190,000**	**91**	50 U	**172,000**	**2,630,000 [2,120,000]**
X-9AR	3 - 13	07/24/95	5.0 U	**37,600**	--	--	--	--	--	--	--
X-9AR	3 - 13	06/09/96	5.0 U	**57,000**	--	--	--	--	--	--	--
X-9AR	3 - 13	12/15/06	5.0 U	**54,500**	200 U	--	**29,700**	100 U	100 U	**29,200**	**790,000**
X-9AR	3 - 13	01/10/08	5.0 U	**60,500**	**300**	--	**58,000**	100 U	100 U	**400 J**	**770,000**
X-9AR	3 - 13	03/11/08	**9.8**	**33,600**	200 U	--	**10,700**	100 U	100 U	**35,500**	**600,000**
X-9AR	3 - 13	06/05/08	5.0 U [5.0 U]	--	--	--	--	--	--	--	--
X-9AR	3 - 13	09/29/10	5.0 U	**56,400**	**600**	**3.5**	**52,100**	100 U	100 U	**310 B**	**700,000**
X-9AR	3 - 13	09/23/11	5.0 U	**91,000**	**4,300**	**11**	**180,000**	100 U	100 U	1,000 U	**750,000**
X-9AR	3 - 13	09/12/12	5.0 U	**120,000**	**5,000**	**9.6**	**180,000**	100 U	100 U	1,000 U	**820,000**
X-9AR	3 - 13	09/25/13	5.0 U	**110,000 B**	**6,200 B**	**11 B**	**160,000**	100 U	100 U	**790 J**	**800,000**
X-9AR	3 - 13	09/22/14	**0.25 J**	**63,000 B**	**3,700^**	--	**100,000**	100 U	100 U	1,000 U	**630,000**
X-9AR	3 - 13	10/01/15	**0.50 J,B**	**37,000 B**	**720**	**1.2**	**17,000**	100 U	100 U	130 U	**640,000**
X-9AR	3 - 13	09/28/16	**0.67 J**	**38,000**	**560 B**	**0.65 B**	**15,000**	50 U	50 U	1,000 U	**630,000**
X-9AR	3 - 13	08/29/17	5.0 U	**11,000**	**540**	**4.4**	**17,000**	50 U	50 U	1,000 U	**460,000**
X-9AR	3 - 13	09/26/18	15 U	**11,000**	**160 J**	**0.11 J**	**14,000**	100 U H	100 U H	**4,100**	**430,000**
X-9AR	3 - 13	08/21/19	15 U ^	**11,000**	**94 J**	**0.43 J**	**15,000**	50 U	50 U	**13,000**	**550,000**
X-9AR	3 - 13	08/17/20	15 U	**9,700**	**110 J**	**0.51 J**	**13,000**	100 U	100 U	1,000 U	**360,000**
X-9AR	3 - 13	08/18/21	15 U	**13,000**	**210**	**0.7**	**19,000**	100 U	**18 J**	**8,900**	**410,000**
X-9AR	3 - 13	09/22/22	15 U [15 U]	**11,000 [11,000]**	**260 F1 [230]**	**0.96 F1 [0.85]**	**13,000 [13,000]**	100 U [**48 J H**]	100 U [100 U H]	**830 J** [1,000 U]	**370,000 [380,000]**
X-9AR	3 - 13	09/13/23	10 U	**11,500**	**190**	**0.52**	**8,900**	50 U	50 U	**4,100**	**515,000**

Table 5
Analytical Data Summary Table - GPL Inorganics
RACER Trust
Saginaw, MI

Sample ID:	Sample Depth (feet):	Date Collected:	Selenium (Dissolved)	Sodium (Dissolved)	Ammonia Nitrogen	Un-ionized Ammonia	Chloride	Nitrate (as N)	Nitrite (as N)	Sulfate	Total Dissolved Solids (TDS)
		Units:	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Site-Specific Groundwater Surface Water Interface Criteria			5	NSL	53	53	150,000	NA	NSL	370,000	NSL
X-9BR	26 - 31	07/24/95	5.0 U	**64,000**	--	--	--	--	--	--	--
X-9BR	26 - 31	06/08/96	5.0 U	**48,800**	--	--	--	--	--	--	--
X-9BR	26 - 31	12/15/06	5.7 U	**125,000**	**5,900**	--	**191,000**	**100**	**180**	1,000 U	**830,000**
X-9BR	26 - 31	01/08/08	5.0 U	**81,500**	**5,200**	--	**200,000**	100 U	100 U	1,000 U	**810,000**
X-9BR	26 - 31	03/11/08	5.0 U	**84,500**	**5,000**	--	**181,000**	100 U	100 U	1,000 U	**760,000**
X-9BR	26 - 31	09/28/10	5.0 U	**145,000**	**2,900 J**	**9.4 J**	**269,000**	100 U	100 U	1,000 U	**880,000**
X-9BR	26 - 31	09/23/11	5.0 U	**140,000**	**6,700**	**18**	**250,000**	100 U	100 U	1,000 U	**900,000**
X-9BR	26 - 31	09/12/12	5.0 U	**190,000**	**7,300**	**9**	**280,000**	100 U	100 U	1,000 U	**980,000**
X-9BR	26 - 31	09/25/13	5.0 U	**210,000 B**	**9,400 B**	**18 B**	**240,000**	100 U	100 U	**2,100**	**870,000**
X-9BR	26 - 31	09/22/14	**0.39 J**	**220,000 B**	**9,900**	--	**260,000**	100 U	100 U	1,000 U	**1,000,000**
X-9BR	26 - 31	10/01/15	**0.76 J,B**	**210,000 B**	**12,000**	**21**	**270,000**	100 U	100 U	1,000 U	**990,000**
X-9BR	26 - 31	09/28/16	**0.70 J**	**240,000**	**6,800 B**	**29 B**	**280,000**	50 U	50 U	1,000 U	**990,000**
X-9BR	26 - 31	08/29/17	5.0 U	**250,000**	**12,000**	**45**	**290,000**	50 U	50 U	1,000 U	**990,000**
X-9BR	26 - 31	09/26/18	15 U	**40,000**	**2,400**	**3.1**	**62,000**	100 U H	100 U H	**8,800**	**290,000**
X-9BR	26 - 31	08/21/19	15 U ^	**210,000**	**9,000**	**42**	**110,000**	**590**	**590**	**23,000**	**930,000**
X-9BR	26 - 31	08/18/20	15 U	**200,000**	**5,900**	**31**	**190,000**	100 U	100 U	**870 J**	**680,000**
X-9BR	26 - 31	08/18/21	15 U	**59,000**	**1,100**	**3**	**69,000**	100 U	100 U	**5,400**	**350,000**
X-9BR	26 - 31	09/22/22	15 U	**150,000**	**3,800**	**21**	**150,000**	100 U	**19 J**	**3,100**	**600,000**
X-9BR	26 - 31	09/13/23	10 U [10 U]	**209,000 [216,000]**	**11,100**	**43**	**253,000**	50 U	50 U	**460**	**920,000**
X-9CAUG	20 - 25	07/24/95	5.0 U	**47,200**	--	--	--	--	--	--	--
X-9CAUG	20 - 25	06/08/96	5.0 U	**47,000**	--	--	--	--	--	--	--
X-9CAUG	20 - 25	12/15/06	5.0 U	**58,200**	**2,900**	--	**130,000**	100 U	**110**	1,000 U	**690,000**
X-9CAUG	20 - 25	01/08/08	5.0 U	**68,600**	**3,200**	--	**145,000**	**200**	100 U	**300 J**	**700,000**
X-9CAUG	20 - 25	03/11/08	5.0 U	**62,000**	**3,300**	--	**130,000**	100 U	100 U	1,000 U	**680,000**
X-9CAUG	20 - 25	09/28/10	5.0 U	**101,000**	**4,400 J**	**9.2 J**	**200,000**	**34 B**	100 U	**260 B**	**750,000**
X-9CAUG	20 - 25	09/23/11	5.0 U	**55,000**	**550**	**1.4**	**41,000**	100 U	100 U	**310**	**690,000**
X-9CAUG	20 - 25	09/12/12	5.0 U	**48,000**	**690**	**1.3**	**34,000**	100 U	100 U	1,000 U	**680,000**
X-9CAUG	20 - 25	09/25/13	5.0 U	**47,000 B**	**430 B**	**0.43 B**	**24,000**	100 U	100 U	**340 J**	**640,000**
X-9CAUG	20 - 25	09/22/14	**0.42 J,B**	**38,000 B**	**120 J**	--	**16,000**	100 U , H	100 U , H	**1,100**	**640,000**
X-9CAUG	20 - 25	09/30/15	**0.43 J**	**73,000 B**	**7,800**	**23**	**180,000**	100 U , H	100 U , H	1,000 U	**790,000**
X-9CAUG	20 - 25	09/28/16	**0.57 J**	**110,000**	**4,400 B**	**5.3 B**	**190,000**	50 U	50 U	1,000 U	**830,000**
X-9CAUG	20 - 25	08/29/17	5.0 U	**42,000**	**3,400**	**23**	**39,000**	50 U	50 U	1,000 U	**570,000**
X-9CAUG	20 - 25	09/25/18	15 U	**24,000**	**2,500**	**13**	**26,000**	100 U H	100 U H	1,000 U	**490,000**
X-9CAUG	20 - 25	08/21/19	15 U ^	**15,000**	**1,900**	**5.7**	**240,000**	50 U	50 U	**1,100**	**550,000**
X-9CAUG	20 - 25	08/18/20	15 U	**14,000**	**1,400**	**3.8**	**12,000**	500 U	100 U	**380 J**	**470,000**
X-9CAUG	20 - 25	08/18/21	15 U	**20,000**	**1,700**	**6**	**23,000**	100 U	100 U	1,000 U	**550,000**
X-9CAUG	20 - 25	09/22/22	15 U	**18,000**	**1,900**	**6.4**	**35,000**	**54 J**	**22 J**	**820 J**	**550,000**
X-9CAUG	20 - 25	09/13/23	10 U	**26,800**	**2,100**	**14**	**63,900**	50 U	50 U	**270**	**633,000 J**
X-9D	42.5 - 47.5	01/08/08	5.0 U	**634,000**	**8,500**	--	**1,370,000**	100 U	100 U	**194,000**	**2,400,000**
X-9D	42.5 - 47.5	03/11/08	5.0 U	**678,000**	**9,700**	--	**1,340,000**	100 U	100 UJ	**185,000**	**2,500,000**
X-9D	42.5 - 47.5	06/05/08	--	--	**5,900**	--	--	--	--	--	**2,900,000**
X-9D	42.5 - 47.5	09/28/10	5.0 U	**679,000**	**7,400 J**	**34 J**	**1,520,000**	100 U	1,000 U, G	**220,000**	**2,400,000**
X-9D	42.5 - 47.5	09/23/11	5.0 U	**650,000**	**8,600**	**50**	**1,400,000**	100 U	1,000 U	**220,000**	**2,700,000**
X-9D	42.5 - 47.5	09/12/12	5.0 U	**680,000**	**7,700**	**27**	**1,400,000**	100 U	1,000 U	**200,000**	**2,600,000**
X-9D	42.5 - 47.5	09/25/13	5.0 U	**690,000 B**	**7,400 B**	**21 B**	**1,300,000**	100 U	100 U	**240,000**	**2,400,000**
X-9D	42.5 - 47.5	09/22/14	**0.50 J**	**640,000 B**	**7,500**	--	**1,400,000**	100 U	500 U, H	**220,000**	**2,600,000**
X-9D	42.5 - 47.5	09/30/15	**0.66 J**	**640,000 B**	**7,500 F1**	**30 F1**	**1,500,000**	500 U, H	500 U, H	**230,000 F1**	**2,800,000**
X-9D	42.5 - 47.5	09/28/16	**0.70 J**	**630,000 B**	**6,700 B**	**23 B**	**1,300,000**	50 U*	50 U*	**240,000**	**2,300,000**
X-9D	42.5 - 47.5	08/29/17	5.0 U	**1,500,000**	**3,200**	**10**	**1,100,000**	**1,700**	--	**230,000**	**2,300,000**
X-9D	42.5 - 47.5	09/25/18	15 U	**630,000**	**4,800**	**22**	**1,300,000**	500 U H	500 U H	**250,000**	**2,100,000**
X-9D	42.5 - 47.5	08/20/19	15 U ^	**650,000**	**7,000**	**52**	**1,200,000**	50 U	50 U	**250,000**	**2,600,000**
X-9D	42.5 - 47.5	08/17/20	15 U	**560,000**	**4,900**	**68**	**1,100,000**	500 U	500 U	**170,000**	**2,100,000**
X-9D	42.5 - 47.5	08/18/21	15 U [15 U]	**570,000 [590,000]**	**6,300 B [5,500 B]**	**56 B [49 B]**	**1,300,000 [1,200,000]**	500 U H [500 U H]	500 U H [500 U H]	**240,000 [240,000]**	**2,600,000 [2,300,000]**
X-9D	42.5 - 47.5	09/22/22	15 U	**110,000**	**160 J**	**1.5 J**	**260,000**	**230**	100 U	**50,000**	**620,000**
X-9D	42.5 - 47.5	09/13/23	10 U	**564,000 J**	**5,700**	**59**	**1,130,000 [1,280,000]**	50 U [50 U]	500 U [50 U]	**263,000 [242,000]**	**2,560,000**

Notes:
All results are in micrograms per liter (ug/L).
Criteria presented are the applicable site-specific criteria. Drinking water is not a complete pathway; therefore drinking water criteria are not presented.
Applicable site-specific criteria are the minimum Rule 57 criteria, excluding drinking water.
Hardness-dependent Rule 57 criteria are based on a hardness of 270 milligrams per liter for the Saginaw River, as analyzed in the October 2016 sampling event.
pH-dependent Rule 57 criteria are based on a default pH of 7.
Un-ionized ammonia is calculated based on the pH and temperature of the groundwater sample, using the following equaitons. When available, the field-measured pH was used.
Un-ionized ammonia (µg/L = Total Ammonia (µg/L) × Fraction un-ionized ammonia
Fraction un-ionized ammonia = $1/[10^{(pKa-pH)} + 1]$
pKa = 0.0901821+2729.92/T
T (in Kelvin) = T(°C) + 273.15
Bolded cells represent constitiuent concentrations with detections.
Duplicate results are presented in brackets.
Gray shaded cells represent constituent concentrations that exceed site-specific Groundwater/Surface Water Interface (GSI) Criteria.
MW-183WT, X-4CAUGR, X-9AR, X-9BR, X-9CAUG represent a groundwater surface water interface (GSI) perimeter monitoring well from Green Point Landfill.
MW-107WT, MW-107S1, MW-108S2, MW-110WTR, MW-111WT, MW-114S2, MW-114WT, MW-149WT, MW-185WT, and MW-186WT represent a GSI perimeter monitoring well from SMI.
The pH and temperature from co-located monitoring well X-4CAUGR were used to calculate an estimated un-ionized ammonia concentration for X-4AR on September 21, 2022.
* Venting groundwater discharge concentrations was recommended by MDEQ in a letter dated November 26, 2008 followed by a Mixing Zone Determination Request and based on a five year renewal approved by the MDEQ on October 21, 2021.

Data Qualifiers:

ND =	Not detected. The value in parentheses represents the associated detection limit.
-- or NA =	Not analyzed for this constituent.
B =	Inorganics: the detected analyte is an estimated value between the instrument detection limit (IDL) and the reporting limit (RL).
B =	Organics: the compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
BJ =	The detected analyte is an estimated concentration between the IDL and the RL.
D =	Concentration is based on a diluted sample analysis.
F1=	MS and/or MSD Recovery is outside acceptance limits
H =	Sample was prepped or analyzed beyond the specified hold time.
J =	The compound/constituent was positively identified; however, the associated numerical value is an estimated concentration only.
L =	A negative instrument reading had an absolute value greater than the reporting limit.
M =	Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.
R =	Indicates that the previously reported detection limit or sample result has been rejected due to a major deficiency in the data generation procedure. The data shall not be used for any qualitative or quantitative purposes.
U =	The constituent was analyzed for but not detected. The associated value is the constituent quantitation limit.
UJ =	The constituent was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual result.
^ =	ICV, CCV, ICB, CCB, ISA, ISB, CRI, CRA, DLCK, or MRL standard: instrument related QC exceeds the control limits.
*+ =	LCS and/or LCSD is outside acceptance limits, high biased.
*- =	LCS and/or LCSD is outside acceptance limits, low biased.
^- =	Continuing Calibration Verification (CCV) is outside acceptance limits, low biased.

Figures

Service Layer Credits: Esri, USDA Farm Service Agency 2020

MW-138WT
MW-103WT,S1,S2
NEW PARKING LOT
MW-140WT,S1,S2
MW-105WT,S1,S2
B-5R,BAUG,CAUG
RG1
MW-149WT
RECREATION PLAZA
QPTW-04R
QP-1R
QPTW-03R2
QP-2R
QP-3R
QPTW-01R
QPTW-05R
QPTW-10R
QPTW-13R
MW-107WT,S1
MW-134WT,S1,S2
MW-108WT,S1,S2,S3,S4
S5.6
V3.6
X5.9
V3.0
VIEWING PLATFORM
MW-110WTR
MW-131WT,S1,S2
MW-111WT,S1,S2,S3,S4
MW-185WT
MW-186WT
B-3R,BAUG
MW-143WT
SG1
MW-114WT,S1,S2,S3
X-1CR2
X-2A
X-1A,B
MW-115WT,S1,S2,S3
MW-183WT
MW-117WT,S1
X-4AR,CAUGR,D
MW-118WT,S1
X-16A,B
MW-128WT,S1
X-10AR2
MW-2A,B,CAUG
X-9AR,BR,CAUG,D
VIEWING PLATFORM
MW-119WT,S1,S2
MW-3A,B
X-13AR,B,CAUG
TW-241
TWW-2
MW-127WT,S1
TW-242
TWW-1
X-12B
X-12AR,B,CAUG
MW-120WT,S1,S2
MW-121WT,S1,S2
MW-124WT,S1
MW-123WT,S1
MW-122WT
X-14A,B,CAUG
VIEWING PLATFORM
MW-125WT
MW-122S1,S2

LEGEND

- EXISTING MONITORING WELL
- ABANDONED MONITORING WELL
- MANHOLE
- WELL TO BE GAUGED AND SAMPLED
- WELL TO BE GAUGED ONLY
- PERMANENT MARKER LOCATION
- SAGINAW MALLEABLE INDUSTRIAL (SMI) PROPERTY BOUNDARY
- GREEN POINT LANDFILL (GPL) PROPERTY BOUNDARY
- PENINSULA PROPERTY BOUNDARY

NOTE: WELLS LISTED FOR SAMPLING AND/OR GAUGING IN ACCORDANCE WITH THE 2020 O&M PLAN

0 500 1,000
SCALE IN FEET

SAGINAW MALLEABLE INDUSTRIAL LAND,
GREEN POINT LANDFILL, AND PENINSULA PROPERTY
SAGINAW, MICHIGAN

SITE LAYOUT MAP

ARCADIS

FIGURE
1

CITY: NOVI, MI DIV: ENV DB: TRY PIC: J. Barrett PM: S. Clearwater TM: A. Robinson TR: PROJECT NUMBER: 30169042 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
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Service Layer Credits: Esri, USDA Farm Service Agency 2020

FORMER RAILYARD AREA
SALT STREET
CENTER STREET
FORMER QUEEN STREET DUMP AREA
FORMER MELTING DEPARTMENT AREA
I27.7 MANHOLE AREA
FORMER SMI PLANT SLAB
FORMER INTAKE CHANNEL
TERMINATED TYPE III LANDFILL
FORMER QUENCH PIT AREA
FORMER PARKING LOT NORTH OF THE BUFFER BASIN
SAGINAW RIVER
STORMWATER POND
SOUTHWEST PLANT LNAPL AREA
PENINSULA PROPERTY EXPOSURE BARRIER
FORMER SECONDARY SETTLING POND
TERMINATED TYPE III LANDFILL
SEDIMENTATION BASIN
GREEN POINT LANDFILL
STORM WATER DETENTION BASIN
FORMER HILLOCK AREA
MITIGATION WETLAND
MITIGATION WETLAND

LEGEND

- INTRUSIVE ACTIVITY PROHIBITION AND SOIL COVER
- INTRUSIVE ACTIVITY PROHIBITION
- LNAPL AREA
- FORMER QUEEN STREET DUMP NOTIFICATION AREA
- PCB REMEDIATION WASTE/LOW OCCUPANCY AREA WITH A 1-FT SOIL COVER OVER IMPACTS ≤10 PPM PCBS
- PCB REMEDIATION WASTE/LOW OCCUPANCY AREA PCB CONCENTRATIONS >100 PPM AT >10 FT BGS
- MITIGATION WETLAND
- SURFACE WATER BODIES
- SAGINAW MALLEABLE INDUSTRIAL (SMI) PROPERTY BOUNDARY
- GREEN POINT LANDFILL (GPL) PROPERTY BOUNDARY
- PENINSULA PROPERTY BOUNDARY
- STORM SEWER BULKHEAD LOCATIONS

SITEWIDE RESTRICTIONS IN PLACE ON LAND USE, GROUNDWATER USE, AND VAPOR INTRUSION.
GPL CAP IS A MULTI-LAYER COVER.

SMI: SAGINAW MALLEABLE INDUSTRIAL LAND
GPL: GREEN POINT LANDFILL
LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID
PCB: POLYCHLORINATED BIPHENYLS

0 500 1,000
SCALE IN FEET

SAGINAW MALLEABLE INDUSTRIAL LAND,
GREEN POINT LANDFILL, AND PENINSULA PROPERTY
SAGINAW, MICHIGAN

SITE RESTRICTION AREAS

ARCADIS

FIGURE
2

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: 30169042 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
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Service Layer Credits: Esri, USDA Farm Service Agency 2020

MW-138WT 598.25
MW-103WT 584.15
MW-103S1,S2
MW-105WT 586.72
MW-105S1,S2
(SURFACE WATER)
MW-140WT 586.37
MW-140S1,S2
MW-149WT 580.52
RG1 580.00
B-5BAUG,CAUG
B-5R 588.11
MW-107WT
MW-107S1 580.02
MW-134S2
MW-134S1
MW-134WT 587.72
QP-1R 590.60
QPTW-04R
QPTW-03R2
QPTW-05R
QP-2R
QPTW-10R 589.05
QP-3R
QPTW-01R
QPTW-13R 588.98
MW-108WT,S2,S3,S4
MW-108S1 581.15
MW-110WTR 579.65
MW-131S1,S2
MW-111S1 580.60
MW-131WT 587.71
MW-111WT,S2,S3,S4
MW-185WT 582.36
MW-143WT 589.08
B-3BAUG,R
MW-186WT 580.72
SG1 587.94
MW-114S1 582.77
MW-114WT,S2
X-1B
X-1CR2
X-1A 586.10
X-2A 589.12
MW-183WT 581.08
X-4CAUGR,D
MW-117S1
X-4AR 580.29
MW-117WT 583.14
MW-118S1
X-16A,B
X-10AR2 589.04
MW-118S1 583.16
MW-128WT 583.04
MW-128S1
X-9BR,CAUG,D
X-9AR 580.88
TW-241 582.56
TW-242 581.66
TWW-1 582.90
MW-124WT 583.12
MW-122WT 583.09
MW-125WT 582.98
MW-124S1
MW-122S1,S2

598 596 594 592 590 588 586 584 582 580

LEGEND

- MONITORING WELL
- 584 — GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- APPARENT GROUNDWATER FLOW DIRECTION
- SAGINAW MALLEABLE INDUSTRIAL (SMI) PROPERTY BOUNDARY
- GREEN POINT LANDFILL (GPL) PROPERTY BOUNDARY
- PENINSULA PROPERTY BOUNDARY
- NA NOT AVAILABLE

GPL CAP IS A MULTI-LAYER COVER

NOTES:

1. DEPTH TO WATER ELEVATIONS WERE COLLECTED ON SEPTEMBER 11-12, 2023, AND MEASURED FROM TOP OF WELL CASING.
2. ALL GROUNDWATER ELEVATIONS AND MEASUREMENTS ARE IN FEET ABOVE MEAN SEA LEVEL (AMSL).
3. VERTICAL DATUM REFERENCED TO NGVD OF 1929, HORIZONTAL DATUM REFERENCED TO MICHIGAN SPC-NAD 1983.
4. GPL CAP IS A MULTI-LAYER COVER.

* ANOMALOUS GROUNDWATER ELEVATIONS NOT USED FOR CONTOURING.

0 500 1,000
SCALE IN FEET

SAGINAW MALLEABLE INDUSTRIAL LAND,
GREEN POINT LANDFILL, AND PENINSULA PROPERTY
SAGINAW, MICHIGAN

GROUNDWATER ELEVATION CONTOUR MAP SHALLOW AQUIFER - SEPTEMBER 11-12, 2023

ARCADIS

FIGURE 3

CITY: Novi DIV: ENV DB: TRY PIC: J. BARRETT PM: S. CLEARWATER TM: A. ROBINSON PROJECT NUMBER: 30169042 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
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Service Layer Credits: Esri, USDA Farm Service Agency 2020

MW-138WT

MW-103WT,S1,S2

MW-107WT	
Arsenic	52
Diss. Arsenic	5.0 U
Manganese	5,900
Ammonia Nitrogen	190
Est. Un-ionized Ammonia	0.81
Phosphorus	1,700

MW-140WT,S1,S2

MW-105WT,S1,S2

B-5R,BAUG,CAUG

MW-149WT	
Arsenic	178 [164]
Diss. Arsenic	37 [36.7]
Manganese	--
Ammonia Nitrogen	2,100 [2,200]
Est. Un-ionized Ammonia	3.7 [3.8]
Phosphorus	3,600 [4,600]

RG1

MW-149WT

MW-107S1	
Arsenic	--
Diss. Arsenic	--
Manganese	--
Ammonia Nitrogen	1,500
Est. Un-ionized Ammonia	9.18
Phosphorus	--

MW-107WT,S1

QPTW-04R
QP-1R
QPTW-03R2
QP-2R
QP-3R
QPTW-01R
QPTW-05R
QPTW-10R
QPTW-13R

MW-134WT,S1,S2

MW-108S2	
Arsenic	--
Diss. Arsenic	--
Manganese	--
Ammonia Nitrogen	5,200 [5,800]
Est. Un-ionized Ammonia	26 [29]
Phosphorus	--

MW-108WT,S1,S2,S3,S4

MW-108WT	
Arsenic	--
Diss. Arsenic	--
Manganese	18,000
Ammonia Nitrogen	350
Est. Un-ionized Ammonia	0.62
Phosphorus	1,200

S5.6

X5.9

V3.6

V3.0

MW-110WTR	
Arsenic	--
Diss. Arsenic	--
Manganese	2,580 J [2,610 J]
Ammonia Nitrogen	180
Est. Un-ionized Ammonia	0.44
Phosphorus	630

MW-110WTR

MW-131WT,S1,S2

MW-111WT,S1,S2,S3,S4

MW-111WT	
Arsenic	--
Diss. Arsenic	--
Manganese	1,580 J
Ammonia Nitrogen	3,200
Est. Un-ionized Ammonia	12
Phosphorus	400

MW-185WT

MW-185WT	
Arsenic	--
Diss. Arsenic	--
Manganese	34,300 J
Ammonia Nitrogen	640
Est. Un-ionized Ammonia	9.3
Phosphorus	3,900

MW-186WT

B-3R,BAUG

MW-143WT

MW-186WT	
Arsenic	--
Diss. Arsenic	--
Manganese	6,190
Ammonia Nitrogen	1,100
Est. Un-ionized Ammonia	2.5
Phosphorus	17,700

SG1

MW-114WT,S1,S2,S3

MW-115WT,S1,S2,S3

MW-114S2	
Arsenic	--
Diss. Arsenic	--
Manganese	--
Ammonia Nitrogen	1,900
Est. Un-ionized Ammonia	20
Phosphorus	--

MW-114WT	
Arsenic	--
Diss. Arsenic	--
Manganese	1,280
Ammonia Nitrogen	1,000
Est. Un-ionized Ammonia	4.5
Phosphorus	920 J

LEGEND

- EXISTING MONITORING WELL
- MANHOLE
- WELL TO BE GAUGED AND SAMPLED
- WELL TO BE GAUGED ONLY
- SAGINAW MALLEABLE INDUSTRIAL (SMI) PROPERTY BOUNDARY

NOTES:

ALL SAMPLES COLLECTED ON 9/14/2023

ALL RESULTS ARE IN MICROGRAMS PER LITER (ug/L).

BOLDED CELLS REPRESENT CONSTITIUENT CONCENTRATIONS WITH DETECTIONS.

DUPLICATE RESULTS ARE PRESENTED IN BRACKETS.

GRAY SHADED CELLS REPRESENT CONSTITUENT CONCENTRATIONS THAT EXCEED SITE-SPECIFIC GROUNDWATER/SURFACE WATER INTERFACE (GSI) CRITERIA.

U = THE CONSTITUENT WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE CONSTITUENT QUANTITATION LIMIT.

J = THE COMPOUND/CONSTITUENT WAS POSITIVELY IDENTIFIED; HOWEVER, THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY.

UJ = THE CONSTITUENT WAS NOT DETECTED ABOVE THE REPORTED SAMPLE QUANTITATION LIMIT. HOWEVER, THE REPORTED LIMIT IS APPROXIMATE AND MAY OR MAY NOT REPRESENT THE ACTUAL RESULT.

EST = ESTIMATED

Diss = DISSOLVED

0 300 600

SCALE IN FEET

SAGINAW MALLEABLE INDUSTRIAL LAND,
GREEN POINT LANDFILL, AND PENINSULA PROPERTY
SAGINAW, MICHIGAN

SMI INORGANICS SAMPLING RESULTS

ARCADIS

FIGURE
4

CITY: NOVI, MI DIV: ENV DB: TRY PIC: J. Barrett PM: S. Clearwater TM: A. Robinson TR: PROJECT NUMBER: 30169042 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
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Service Layer Credits: Esri, USDA Farm Service Agency 2020

MW-138WT
MW-103WT,S1,S2
MW-140WT,S1,S2
MW-105WT,S1,S2
B-5R,BAUG,CAUG
RG1
MW-149WT
MW-107WT,S1
QP-1R
QPTW-04R
QPTW-03R2
QPTW-05R
QP-2R
QP-3R
QPTW-10R
QPTW-01R
QPTW-13R
MW-134WT,S1,S2
MW-108WT,S1,S2,S3,S4
S5.6
X5.9
V3.6
V3.0

MW-110WTR	
Aroclor 1248	0.14
Diss. Aroclor 1248	0.091 U

MW-110WTR

MW-111WT	
Aroclor 1248	0.087 UJ [28.4 J]
Diss. Aroclor 1248	12.9 J [0.10 UJ]

MW-131WT,S1,S2
MW-111WT,S1,S2,S3,S4

MW-186WT	
Aroclor 1248	0.10 U
Diss. Aroclor 1248	0.10 U

MW-185WT
MW-186WT

MW-114WT	
Aroclor 1248	0.094 U
Diss. Aroclor 1248	0.091 U

B-3R,BAUG
MW-143WT
SG1
MW-114WT,S1,S2,S3
MW-115WT,S1,S2,S3

LEGEND

- EXISTING MONITORING WELL
- MANHOLE
- WELL TO BE GAUGED AND SAMPLED
- WELL TO BE GAUGED ONLY
- SAGINAW MALLEABLE INDUSTRIAL (SMI) PROPERTY BOUNDARY

NOTES:

ALL SAMPLES COLLECTED ON 9/14/2023

ALL RESULTS ARE IN MICROGRAMS PER LITER (ug/L).

ONLY AROCLOR 1248 AND AROCLOR 1248 (DISSOLVED) HAD DETECTIONS AND ARE SHOWN ON THIS FIGURE.

BOLDED CELLS REPRESENT CONSTITIUENT CONCENTRATIONS WITH DETECTIONS.

DUPLICATE RESULTS ARE PRESENTED IN BRACKETS.

GRAY SHADED CELLS REPRESENT CONSTITUENT CONCENTRATIONS THAT EXCEED SITE-SPECIFIC GROUNDWATER/SURFACE WATER INTERFACE (GSI) CRITERIA.

U = THE CONSTITUENT WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE CONSTITUENT QUANTITATION LIMIT.

J = THE COMPOUND/CONSTITUENT WAS POSITIVELY IDENTIFIED; HOWEVER, THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY.

UJ = THE CONSTITUENT WAS NOT DETECTED ABOVE THE REPORTED SAMPLE QUANTITATION LIMIT. HOWEVER, THE REPORTED LIMIT IS APPROXIMATE AND MAY OR MAY NOT REPRESENT THE ACTUAL RESULT.

Diss = DISSOLVED

0 300 600
SCALE IN FEET

SAGINAW MALLEABLE INDUSTRIAL LAND,
GREEN POINT LANDFILL, AND PENINSULA PROPERTY
SAGINAW, MICHIGAN

SMI ORGANICS SAMPLING RESULTS

ARCADIS

FIGURE
5

CITY: NOVI, MI DIV: ENV DB: TRY PIC: J. Barrett PM: S. Clearwater TM: A. Robinson TR: PROJECT NUMBER: 30169042 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
D:\GIS\Project Files\MotorsLiquidationCompany\Saginaw\Documents\PFAS 2023\06 SMI Organics.mxd PLOTTED: 12/15/2023 5:00:02 PM BY: TYarbrough

Service Layer Credits: Esri, USDA Farm Service Agency 2020

MW-138WT

MW-103WT,S1,S2

NEW PARKING LOT

MW-140WT,S1,S2

MW-105WT,S1,S2

B-5R,BAUG,CAUG

RG1

MW-149WT

RECREATION PLAZA

MW-107WT,S1

QPTW-04R
QP-1R
QPTW-03R2
QP-2R
QP-3R
QPTW-01R
QPTW-13R
QPTW-05R
QPTW-10R

MW-134WT,S1,S2

MW-134WT					
Sample Date	12/18/18	8/11/20	8/19/21	9/27/22	9/14/23
PFOA	3.0 J	2.0 J	1.7 J	3.6 J[a]	3.7
PFOS	4.0 U	1.9 U	1.8 U	1.9 U a	3.5 U

QPTW-13R					
Sample Date	12/18/18	8/11/20	8/19/21	9/26/22	9/14/23
PFOA	8.38	4.7 J [5.1]	3.8[a] [4.0[a]]	3.9[a] [4.8[a]]	5.1 [6.2]
PFOS	8.47	11.0 [10.6]	6.6 [8.4]	11.0 [12.8[a]]	11.0 [8.5]

MW-108WT				
Sample Date	12/18/18	8/13/20	8/19/21	9/14/23
PFOA	3.66 J	4.4	4.6	1.6 J
PFOS	2.63 J	17.1	15.1	7.0

MW-108WT,S1,S2,S3,S4

S5.6
V3.6
V3.0
X5.9

MW-131WT					
Sample Date	12/18/18	8/11/20	8/19/21	9/26/22	9/14/23
PFOA	2.38 J	3.6 J	3.7	3.3 J	2.1 J
PFOS	4.88 J	7.9	11.0	14.6[a]	7.4

MW-110WTR

VIEWING PLATFORM

MW-131WT,S1,S2

MW-111WT,S1,S2,S3,S4

B-3R					
Sample Date	12/18/18	08/11/20	08/19/21	09/26/22	09/14/23
PFOA	5.58	2.7 J	2.7 J	2.7 J[a]	3.3 J
PFOS	15.6	14.4	13.7	14.3	13.0

X-2A					
Sample Date	12/18/18	9/8/20	8/18/21	9/21/22	9/13/23
PFOA	50.6 [46.5]	29.9	29.6 [27.7]	23.6[a] [23.2[a]]	22.0 [23.0]
PFOS	16.5 [14.6]	14.5	15.8 [14.9]	20.9[a] [21.2[a]]	16.0 [20.0]

MW-185WT

MW-186WT

MW-183WT					
Sample Date	12/19/18	8/18/20	8/24/21	9/26/22	9/13/23
PFOA	2.07 J	4.6	2.9 J	4.0	3.5 J
PFOS	4.0 U	3.5 J	1.5 J	1.9 U	2.1 J

B-3R,BAUG

MW-143WT

SG1

MW-114WT,S1,S2,S3

X-1CR2

X-2A

X-1A,B

MW-115WT,S1,S2,S3

MW-183WT

MW-117WT								
Sample Date	8/13/20	8/17/21	9/22/22	9/13/23	8/13/20	8/17/21	9/21/22	9/13/23
PFOA	3.6 J	5.5	1.9 U	40 U	1.9 U	1.8 U	1.9 U	3.6 U
PFOS	1.9 U	1.8 U	1.9 U[a]	40 U	1.9 U	1.8 U	1.9 U a	2.9 J

X-4AR,CAUGR,D

MW-117WT,S1

MW-118WT					
Sample Date	8/14/20	8/17/21	9/22/22	9/13/23	12/18/18
PFOA	2.4 J	5.3	4.8	7.0	1.95 J
PFOS	1.9 U	1.8 U	1.9 U[a]	3.5 U	4.0 U

MW-118WT,S1

X-16A,B

MW-128WT,S1

X-10AR2

MW-2A,B,CAUG

X-9AR,BR,CAUG,D

X-10AR2					
Sample Date	12/18/18	9/8/20	8/18/21	9/22/22	9/13/23
PFOA	2.13 J	5.8 [5.6]	6.1	6.3	7.3
PFOS	4.0 U	1.7 U [1.7 U]	1.8 U	1.9 U	3.8 U

MW-119WT,S1,S2

TW-242	
Sample Date	1/17/23
PFOA	1.9 U [9.3 U][b]
PFOS	1.9 U [1.9 U]

MW-3A,B

X-9AR					
Sample Date	12/19/18	8/17/20	8/18/21	9/22/22	9/13/23
PFOA	2.0 U	2.5 J	1.5 J	1.3 J	0.89 J
PFOS	4.0 U	1.9 U	1.8 U	1.9 U	3.4 U

X-13AR,B,CAUG

TW-241

TWW-2

MW-127WT,S1

TW-242

TWW-1

X-12AR,CAUG

X-12B

MW-120WT,S1,S2

TWW-1				
Sample Date	9/8/20	8/18/21	9/23/22	9/13/23
PFOA	11.0	27.1	19.7	13.0
PFOS	1.8 U	1.7 J	3.6 J[a]	2.5 J

MW-121WT,S1,S2

MW-123WT,S1

MW-122WT,S1,S2

VIEWING PLATFORM

MW-124WT,S1

X-14A,B,CAUG

MW-125WT

MW-125WT			
Sample Date	9/8/20	1/17/23	9/13/23
PFOA	4.3	2.9 J	2.9 J
PFOS	1.7 U	1.9 U	3.6 U

MW-122WT			
Sample Date	8/18/21	9/23/22	9/13/23
PFOA	3.1 J	2.4 J	2.8 J
PFOS	1.7 J	1.9 U	3.7 U

LEGEND

- EXISTING MONITORING WELL
- ABANDONED MONITORING WELL
- MONITORING WELL INACCESSIBLE
- MANHOLE
- WELL TO BE GAUGED AND SAMPLED
- WELL TO BE GAUGED ONLY
- PERMANENT MARKER LOCATION
- SAGINAW MALLEABLE INDUSTRIAL (SMI) PROPERTY BOUNDARY
- GREEN POINT LANDFILL (GPL) PROPERTY BOUNDARY
- PENINSULA PROPERTY BOUNDARY
- * POTENTIAL ALTERNATE SAMPLING LOCATION

TW98-111WT	
Sample Date	12/18/18
PFOA	6.36
PFOS	18

SAMPLE LOCATION
SAMPLING DATE
PFOA ANALYTICAL RESULT
PFOS ANALYTICAL RESULT

NOTES:

ALL VALUES ARE IN NANOGRAMS PER LITER (ng/L).

BOLD RESULT DENOTES DETECTION.

SHADED RESULT DENOTES DETECTION IS ABOVE THE EGLE PART 201 GENERIC GROUNDWATER SURFACE-WATER INTERFACE CRITERIA.

RED RESULT DENOTES DETECTION IS ABOVE EGLE PART 201 GENERIC DRINKING WATER CRITERIA.

a = ASSOCIATED ID STANDARD OUTSIDE CONTROL LIMITS. CONFIRMED BY BATCH QC, RE-EXTRACTION AND/OR REANALYSIS.
J = ESTIMATED VALUE BETWEEN THE LIMIT OF QUANTITATION AND THE METHOD DETECTION LIMIT.
U = NOT DETECTED.
[ ] = DUPLICATE SAMPLE DETECTIONS
EGLE = ENVIRONMENT GREAT LAKES AND ENERGY
PFOA = PERFLUOROOCTANOIC ACID
PFOS = PERFLUOROOCTANESULFONIC ACID

0 500 1,000
SCALE IN FEET

SAGINAW MALLEABLE INDUSTRIAL LAND,
GREEN POINT LANDFILL, AND PENINSULA PROPERTY
SAGINAW, MICHIGAN

PFAS SAMPLING RESULTS

ARCADIS

FIGURE
6

CITY: NOVI, MI DIV: ENV DB: TRY PIC: J. Barrett PM: S. Clearwater TM: A. Robinson TR: PROJECT NUMBER: 30169042 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
D:\GIS\Project Files\MotorsLiquidationCompany\Saginaw\Documents\PFAS 2023\04 PFAS Sampling.mxd PLOTTED: 12/20/2023 3:03:06 PM BY: TYarbrough

Service Layer Credits: Esri, USDA Farm Service Agency 2020

X-4AR	
Arsenic	**23**
Barium	**223**
Iron	**45,300**
Manganese	**3,400**
Sodium	**21,800 J**
Diss. Arsenic	5.0 U
Diss. Barium	**23.6**
Diss. Iron	100 U
Diss. Manganese	**156**
Diss. Sodium	**25,200 J**

X-4CAUGR	
Arsenic	5.0 U
Barium	**64.7**
Iron	**5,700**
Manganese	**420**
Sodium	**36,500**
Diss. Arsenic	5.0 U
Diss. Barium	**41.5**
Diss. Iron	100 U
Diss. Manganese	**342**
Diss. Sodium	**38,300**

MW-183WT	
Barium	**94.1**
Iron	**19,700**
Manganese	**1,700**
Sodium	**31,700**
Diss. Arsenic	**6.1**
Diss. Barium	**38.4**
Diss. Iron	**3,580**
Diss. Manganese	**1,290**
Diss. Sodium	**31,300**

MW-117WT	
Arsenic	**15.4**
Barium	**1,540**
Iron	**3,470**
Manganese	**265**
Sodium	**390,000**
Diss. Arsenic	5.0 U
Diss. Barium	**1,480**
Diss. Iron	**77,900**
Diss. Manganese	**3,420**
Diss. Sodium	**382,000**

X-4D	
Arsenic	5.0 U
Barium	**115**
Iron	**8,920**
Manganese	**324**
Sodium	**627,000**
Diss. Arsenic	5.0 U
Diss. Barium	**73.3**
Diss. Iron	**892**
Diss. Manganese	**189**
Diss. Sodium	**630,000**

MW-117S1	
Arsenic	5.0 U
Barium	**910**
Iron	**3,560**
Manganese	**265**
Sodium	**126,000**
Diss. Arsenic	5.0 U
Diss. Barium	**862**
Diss. Iron	**2,260**
Diss. Manganese	**211**
Diss. Sodium	**123,000**

MW-118S1	
Arsenic	5.0 U
Barium	**99.9**
Iron	**5,400**
Manganese	**187**
Sodium	**30,100**
Diss. Arsenic	5.0 U
Diss. Barium	**90.7**
Diss. Iron	**4,590**
Diss. Manganese	**190**
Diss. Sodium	**31,000**

MW-118WT	
Arsenic	**13.7**
Barium	**354**
Manganese	**779**
Sodium	**98,800**
Diss. Barium	**266**
Diss. Iron	**16,000**
Diss. Manganese	**791**

X-9CAUG	
Arsenic	5.0 U
Barium	**263**
Iron	**21,200**
Manganese	**745**
Sodium	**31,300**
Diss. Arsenic	5.0 U
Diss. Barium	**138**
Diss. Iron	**6,890**
Diss. Manganese	**595**
Diss. Sodium	**26,800**

X-9AR	
Arsenic	**117**
Barium	**757**
Iron	**82,300**
Manganese	**2,670**
Sodium	**16,300**
Diss. Arsenic	**19.8**
Diss. Barium	**105**
Diss. Iron	**23,600**
Diss. Manganese	**2,230**
Diss. Sodium	**11,500**

X-9D	
Arsenic	5.0 U
Barium	**64.1**
Iron	**3,740**
Manganese	**279**
Sodium	**450,000 J**
Diss. Arsenic	5.0 U
Diss. Barium	**62**
Diss. Iron	**2,330**
Diss. Manganese	**267**
Diss. Sodium	**564,000 J**

X-9BR	
Arsenic	**5.1 [6.1]**
Barium	**265 [209]**
Iron	**22,900 [17,400]**
Manganese	**587 [538]**
Sodium	**279,000 [274,000]**
Diss. Arsenic	5.0 U [5.0 U]
Diss. Barium	**96.4 [108]**
Diss. Iron	**6,670 [7,330]**
Diss. Manganese	**421 [441]**
Diss. Sodium	**209,000 [216,000]**

X-1CR2
X-1A,B
X-2A
MW-183WT
X-4AR,CAUGR,D
MW-117WT,S1
MW-118WT,S1,S2
X-16A,B
MW-128WT,S1
X-10AR2
X-9AR,BR,CAUG,D
TW-241
TWW-2
TW-242
TWW-1
X-12B
MW-125WT
MW-124WT,S1
MW-122S1,S2
MW-122WT

LEGEND

- EXISTING MONITORING WELL
- WELL TO BE GAUGED AND SAMPLED
- WELL TO BE GAUGED ONLY
- GREEN POINT LANDFILL (GPL) PROPERTY BOUNDARY

NOTES:

ALL SAMPLES COLLECTED ON 9/13/2023

ALL RESULTS ARE IN MICROGRAMS PER LITER (ug/L).

BOLDED CELLS REPRESENT CONSTITIUENT CONCENTRATIONS WITH DETECTIONS.

DUPLICATE RESULTS ARE PRESENTED IN BRACKETS.

GRAY SHADED CELLS REPRESENT CONSTITUENT CONCENTRATIONS THAT EXCEED SITE-SPECIFIC GROUNDWATER/SURFACE WATER INTERFACE (GSI) CRITERIA.

U = THE CONSTITUENT WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE CONSTITUENT QUANTITATION LIMIT.

J = THE COMPOUND/CONSTITUENT WAS POSITIVELY IDENTIFIED; HOWEVER, THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY.

UJ = THE CONSTITUENT WAS NOT DETECTED ABOVE THE REPORTED SAMPLE QUANTITATION LIMIT. HOWEVER, THE REPORTED LIMIT IS APPROXIMATE AND MAY OR MAY NOT REPRESENT THE ACTUAL RESULT.

DISS = DISSOLVED

0 400 800
SCALE IN FEET

SAGINAW MALLEABLE INDUSTRIAL LAND,
GREEN POINT LANDFILL, AND PENINSULA PROPERTY
SAGINAW, MICHIGAN

GPL INORGANICS-METALS SAMPLING RESULTS

ARCADIS

FIGURE
7

CITY: NOVI, MI DIV: ENV DB: TRY PIC: J. Barrett PM: S. Clearwater TM: A. Robinson TR: PROJECT NUMBER: 30169042 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
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Service Layer Credits: Esri, USDA Farm Service Agency 2020

X-4CAUGR	
Ammonia Nitrogen	310
Est. Un-ionized Ammonia	13
Chloride	13,900
Nitrate	50 U
Nitrite	50 U
Sulfate	650
TDS	381,000

X-4AR	
Ammonia Nitrogen	120
Est. Un-ionized Ammonia	4.9
Chloride	12,800
Nitrate	2,600
Nitrite	50 U
Sulfate	1,200
TDS	339,000

MW-183WT	
Ammonia Nitrogen	100 U
Est. Un-ionized Ammonia	0.63 U
Chloride	16,200
Nitrate	50 U
Nitrite	50 U
Sulfate	1,100
TDS	344,000

X-4D	
Ammonia Nitrogen	6,800
Est. Un-ionized Ammonia	48 [46]
Chloride	1,190,000
Nitrate	91
Nitrite	50 U
Sulfate	172,000
TDS	2,630,000 [2,120,000]

MW-117S1	
Ammonia Nitrogen	5,200
Est. Un-ionized Ammonia	21
Chloride	169,000
Nitrate	65
Nitrite	50 U
Sulfate	2,600
TDS	814,000

MW-117WT	
Ammonia Nitrogen	35,200
Est. Un-ionized Ammonia	14
Chloride	3,640,000
Nitrate	50 U
Nitrite	500 U
Sulfate	330
TDS	6,340,000

X-9AR	
Ammonia Nitrogen	190
Est. Un-ionized Ammonia	0.52
Chloride	8,900
Nitrate	50 U
Nitrite	50 U
Sulfate	4,100
TDS	515,000

MW-118S1	
Ammonia Nitrogen	2,900
Est. Un-ionized Ammonia	7.5
Chloride	153,000
Nitrate	50 U
Nitrite	50 U
Sulfate	280
TDS	441,000

X-9BR	
Ammonia Nitrogen	11,100
Est. Un-ionized Ammonia	43
Chloride	253,000
Nitrate	50 U
Nitrite	50 U
Sulfate	460
TDS	920,000

MW-118WT	
Ammonia Nitrogen	15,600
Est. Un-ionized Ammonia	22
Chloride	388,000
Nitrate	50 U
Nitrite	50 U
Sulfate	300
TDS	1,370,000

X-9CAUG	
Ammonia Nitrogen	2,100
Est. Un-ionized Ammonia	14
Chloride	63,900
Nitrate	50 U
Nitrite	50 U
Sulfate	270
TDS	633,000 J

X-9D	
Ammonia Nitrogen	5,700
Est. Un-ionized Ammonia	59
Chloride	1,130,000 [1,280,000]
Nitrate	50 U [50 U]
Nitrite	500 U [50 U]
Sulfate	263,000 [242,000]
TDS	2,560,000

X-1A,B
X-1CR2
X-2A
MW-183WT
X-4AR,CAUGR,D
MW-117WT,S1
X-16A,B
MW-128WT,S1
X-10AR2
MW-118WT,S1,S2
X-9AR,BR,CAUG,D
TW-241
TWW-2
TW-242
TWW-1
X-12B
MW-124WT,S1
MW-122S1,S2
MW-122WT
MW-125WT

LEGEND

- EXISTING MONITORING WELL
- WELL TO BE GAUGED AND SAMPLED
- WELL TO BE GAUGED ONLY
- GREEN POINT LANDFILL (GPL) PROPERTY BOUNDARY

NOTES:

ALL SAMPLES COLLECTED ON 9/13/2023

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BOLDED CELLS REPRESENT CONSTITIUENT CONCENTRATIONS WITH DETECTIONS.

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UJ = THE CONSTITUENT WAS NOT DETECTED ABOVE THE REPORTED SAMPLE QUANTITATION LIMIT. HOWEVER, THE REPORTED LIMIT IS APPROXIMATE AND MAY OR MAY NOT REPRESENT THE ACTUAL RESULT.

DISS = DISSOLVED

TDS = TOTAL DISSOLVED SOLIDS

EST = ESTIMATED

0 400 800

SCALE IN FEET

SAGINAW MALLEABLE INDUSTRIAL LAND,
GREEN POINT LANDFILL, AND PENINSULA PROPERTY
SAGINAW, MICHIGAN

GPL INORGANICS-GENCHEM SAMPLING RESULTS

ARCADIS

FIGURE 8

CITY: NOVI, MI DIV: ENV DB: TRY PIC: J. Barrett PM: S. Clearwater TM: A. Robinson TR: PROJECT NUMBER: 30169042 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
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Attachment 1

Green Point Well Abandonment Memo

Memo

TO
Andrew Karg
Bay City District Office
Michigan Department of Environment, Great Lakes, and Energy
401 Ketchum Street, Suite B
Bay City, Michigan 48708

DATE
November 1, 2023

PROJECT NUMBER
30169042

COPIES
Amanda Armbruster, EGLE
Dave Favero, RACER
Brian Lechel, Saginaw County Parks & Recreation

FROM
Scott Clearwater, Certified Project Manager
810.225.1921
Scott.clearwater@arcadis.com

SUBJECT
Monitoring Well Abandonment Activities
RACER Saginaw Malleable Industrial Land, Green Point Landfill and Peninsula Property
Saginaw, Michigan

This Monitoring Well Abandonment Memo has been prepared by Arcadis of Michigan, LLC (Arcadis) on behalf of Revitalizing Auto Communities Environmental Response (RACER) Trust for activities at the Saginaw Malleable Industrial Land (SMI), Green Point Landfill (GPL), and Peninsula Properties, collectively referred to as the Site located at 77 West Center Street, Saginaw, Michigan (**Figure 1**).

A work plan proposing the abandonment of historic monitoring wells that were no longer required for the long-term monitoring program was submitted to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) on November 16, 2020, and was approved on December 11, 2020. An initial phase of well abandonment activity took place in January 2021 and is summarized in well abandonment memo submitted March 11, 2021.

A total of 27 groundwater monitoring wells within the GPL property remained from the 2020 work plan of wells that were proposed to be located and abandoned, all of which were inaccessible during the previous attempts (**Figure 2**). Safe and reliable methods to abandon the locations were evaluated. It was determined that a pontoon boat would be used to aid in transportation onsite to locate and abandon the wells within areas of standing water in addition to a lower overall level of standing water present at GPL. This revised approach was communicated to EGLE on November 11, 2022, and approved November 14, 2022.

On February 20, 2023, Arcadis mobilized with Job Site Services (JSS) to complete the abandonment of the inaccessible wells within the GPL property. Due to site surface conditions only 2 of the monitoring wells were able to be abandoned during this event.

On May 30 through June 1, 2023, Arcadis mobilized with JSS to continue the abandonment. These abandonment activities followed the procedures outlined in the Proposed Monitoring Well Abandonment Scope of Work (**Attachment 1**) previously submitted to and approved by EGLE. Wells were abandoned in accordance with the American Society of Testing Materials Standard D 5299-92, “Standard Guide for Decommissioning Ground Water Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities”. The depth of each monitoring well was measured before abandoning to ensure that there were no obstructions that may interfere with effective abandonment. Measurements of static water levels were also collected and recorded. A table summarizing the monitoring well depths was provided as Table 1 within the Well Abandonment Work Plan. The well casings were attempted to be removed from the ground by pulling the well from the subsurface. As the

well was pulled from the ground, cement grout was placed from the bottom of the well by knocking out the bottom of the well casing and pumping the grout at the bottom of the well, filling the void space upward as the casing was being pulled. The cement grout was brought to within two feet of the ground surface in one continuous operation. If the well could not be removed from the subsurface, the wells were cut approximately 2 ft below ground surface (bgs) if conditions allowed. If possible, the metal upright protective covers and concrete pads at the wells were removed and recycled/disposed.

In February 2023 MW-123WT and MW-123S1 were abandoned.

In May 2023 the following monitoring points were abandoned: MW-2A, MW-2B, MW-2CAUG, MW-3A, MW-3B, MW-127WT, MW-127S1, X-12AR, X-12CAUG, X-13AR, X-13CAUG, and X-14A. The casing was able to be pulled at X-14A and borehole sealed. The casing was cut below grade, casing grouted in, and the protective covers removed at MW-123S1, MW-123WT, MW-127S1, MW-127WT, X-12CAUG, X-13AR, and X-13CAUG. The casing was cut below grade, casing grouted in, and the protective covers were unable to be removed and left in place at MW-3A and MW-3B. MW-2A, MW-2B, MW-2CAUG, and X-12AR were partially to fully submerged in standing water and the protective covers and casing were unable to be pulled so the wells casings grouted in and were sealed and abandoned in place. X-12B was underwater, unable to be opened, and could not be abandoned. MW-119S1 appeared to be previously abandoned as the casing was cut and was filled with bentonite. JSS cut casing to surface and capped with bentonite.

The following monitoring points, were unable to be located or abandoned during these mobilizations and are determined to be no longer present:

MW-119WT, MW-119S2, MW-120WT, MW-120S1, MW-120S2, MW-121WT, MW-121S1, MW-121S2, X-13B, X-14B, and X-14CAUG. The attempts to locate these wells included utilizing a GPS unit to fix at the well coordinates, use of metal detector, and probing in the water/sediment. No presence of these wells was encountered.

Well abandonment logs, including photographic records depicting the well condition before and after the abandonment activities are included in the Abandonment Documentation in **Attachment 2**.

Enclosures:

FIGURES

Figure 1 Site Location Map

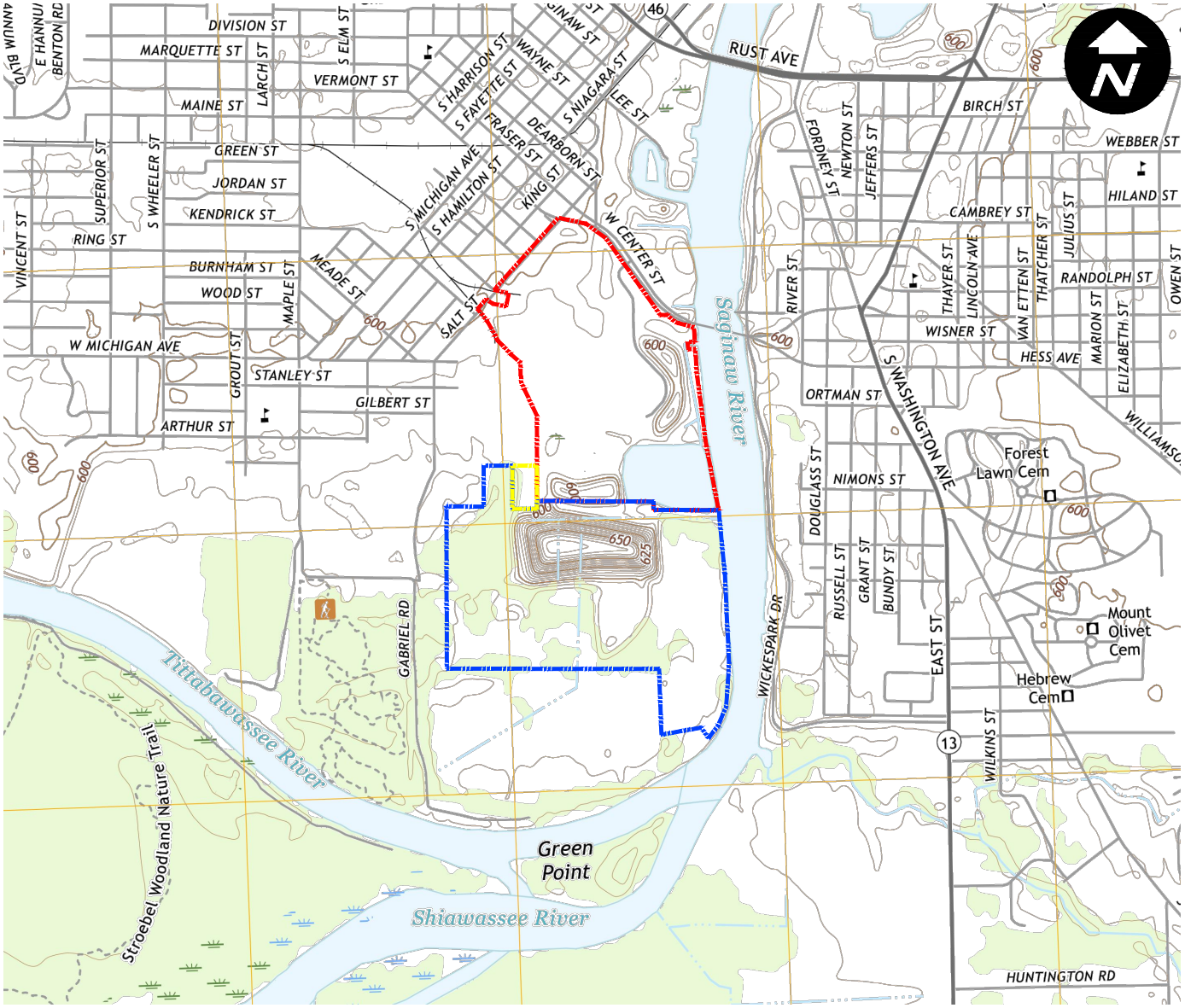
Figure 2 GPL Well Abandonment Locations

ATTACHMENTS

1 Monitoring Well Abandonment Scope of Work & Approval Correspondence

2 Abandonment Documentation

Figures



SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2

1000 500 0 METERS 1000 2000

1 0.5 0 1

MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

FEET

CONTOUR INTERVAL 5 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the
National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.19

LEGEND:

- SMI PROPERTY BOUNDARY
- GPL PROPERTY BOUNDARY
- PENINSULA PROPERTY BOUNDARY



SAGINAW MALLEABLE INDUSTRIAL LAND,
GREEN POINT LANDFILL, AND PENINSULA PROPERTY
SAGINAW, MICHIGAN

SITE LOCATION MAP

ARCADIS

FIGURE
1

CITY:NOVI DIV/GROUP:ENV DB: PIC: PM: TM: TR: PROJECT NUMBER:
C:\BIM\OneDrive - ARCADIS\BIM 360 Docs\RACER TRUST\SAGINAW MALLEABLE\2019\B0064434.2019\01-DWG\1-SITE-LOC.dwg LAYOUT: 1 SAVED: 4/12/2019 1:54 PM PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 4/12/2019 1:55 PM BY: STOWELL, GARY

Service Layer Credits: Esri, USDA Farm Service Agency 2020

MW-185WT
MW-186WT
MW-143WT
B-3R,BAUG
SG1
MW-114WT,S1,S2,S3
X-2A
MW-115WT,S1,S2,S3
X-1CR2
X-1A,B
MW-183WT
X-4A,AR,CAUGR,D
MW-117WT,S1
MW-118WT,S1
X-16A,B
MW-128WT,S1
X-10AR2
MW-2A,B,CAUG
X-9AR,BR,CAUG,D
MW-119WT,S1,S2
MW-3A,B
X-13AR,B,CAUG
TW-241
TWW-2
MW-127WT,S1
TW-242
TWW-1
X-12AR,CAUG
X-12B
MW-120WT,S1,S2
MW-121WT,S1,S2
MW-123WT,S1
MW-125WT
MW-124WT,S1
MW-122WT,S1,S2
X-14A,B,CAUG

LEGEND

- EXISTING MONITORING WELL
- ABANDONED MONITORING WELL
- MONITORING WELL INACCESSIBLE
- MANHOLE
- WELL TO BE GAUGED AND SAMPLED
- WELL TO BE GAUGED ONLY
- PERMANENT MARKER LOCATION
- SMI PROPERTY BOUNDARY
- GPL PROPERTY BOUNDARY
- PENINSULA PROPERTY BOUNDARY

0 350 700

SCALE IN FEET

SAGINAW MALLEABLE INDUSTRIAL LAND,
GREEN POINT LANDFILL, AND PENINSULA PROPERTY
SAGINAW, MICHIGAN

2023 GPL WELL ABANDONMENT MAP

ARCADIS

FIGURE 2

CITY: NOVI, MI DIV: ENV DB: TRY PIC: J. Barrett PM: S. Clearwater TM: A. Robinson TR:
D:\GIS\Project Files\MotorsLiquidationCompany\Saginaw\Documents\202309_WellAbandonment_GPL.mxd PLOTTED: 9/28/2023 6:07:08 PM BY: TYarbrough
PROJECT NUMBER: 30169042 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl

Attachment 1

Monitoring Well Abandonment Scope of Work & Approval Correspondence

Clearwater, Scott

From: Karg, Andrew (EGLE) <KargA@michigan.gov>
Sent: Monday, February 13, 2023 3:27 PM
To: Clearwater, Scott
Cc: Dave Favero; Armbruster, Amanda (EGLE)
Subject: RE: RACER Saginaw Malleable - Abandonment of previously inaccessible wells

Hi Scott,

Sounds good. Thanks for the update.

Thanks,

Andy

Andrew R. Karg
Senior Environmental Quality Analyst
Remediation and Redevelopment Division | Bay City District Office
Michigan Department of Environment, Great Lakes, and Energy
Phone: 989-891-6948
Email: KargA@michigan.gov
Follow Us | **Michigan.gov/EGLE**

From: Clearwater, Scott <Scott.Clearwater@arcadis.com>
Sent: Friday, February 10, 2023 3:40 PM
To: Karg, Andrew (EGLE) <KargA@michigan.gov>
Cc: Dave Favero <dfavero@racertrust.org>; Armbruster, Amanda (EGLE) <ARMBRUSTERA@michigan.gov>
Subject: RE: RACER Saginaw Malleable - Abandonment of previously inaccessible wells

CAUTION: This is an External email. Please send suspicious emails to abuse@michigan.gov

Hi Andy,
I am writing to provide a schedule update that we have the well abandonment activity at the Site planned for February 20 through 22 for removal of the historic monitoring wells that are no longer in the monitoring plan as discussed below. I will keep you updated if anything changes in the schedule. Please let me know if any comments or questions.
Thanks,
Scott

From: Karg, Andrew (EGLE) <KargA@michigan.gov>
Sent: Monday, November 14, 2022 2:21 PM
To: Clearwater, Scott <Scott.Clearwater@arcadis.com>
Cc: Dave Favero <dfavero@racertrust.org>; Armbruster, Amanda (EGLE) <ARMBRUSTERA@michigan.gov>
Subject: RE: RACER Saginaw Malleable - Abandonment of previously inaccessible wells

Thanks Scott. I don't have any additional questions at this time. Please keep me in the loop in regards to the schedule of this abandonment work.

Thanks,

Andy

Andrew R. Karg
Senior Environmental Quality Analyst
Remediation and Redevelopment Division | Bay City District Office
Michigan Department of Environment, Great Lakes, and Energy
Phone: 989-891-6948
Email: KargA@michigan.gov
Follow Us | **Michigan.gov/EGLE**

From: Clearwater, Scott <Scott.Clearwater@arcadis.com>
Sent: Friday, November 11, 2022 1:43 PM
To: Karg, Andrew (EGLE) <KargA@michigan.gov>
Cc: Dave Favero <dfavero@racertrust.org>; Armbruster, Amanda (EGLE) <ARMBRUSTERA@michigan.gov>
Subject: RACER Saginaw Malleable - Abandonment of previously inaccessible wells

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Hi Andy,
Following up with our discussion earlier this week I am providing the previously approved Well Abandonment Work Plan for your awareness. 27 of the wells that are located around the southern portion of the Green Point property (shown in orange on Figure 2) were inaccessible during the previous abandonment activities completed in 2021. During recent site visits towards end of this year it was observed that water levels within the Site have dropped quite a bit making things more accessible. We are planning to wait for January for the ground to begin to freeze and use a tracked rig to access some wells and use a pontoon boat to access wells still surrounded by water.

Per your question regarding concentrations observed from this year's sampling, our preliminary review is showing all results are consistent with recent trends. The annual report is scheduled to be submitted by December 20th.

Feel free to reach out if you have any questions and let me know if you would like any further information for the removal of the remaining approved wells to be abandoned.
Thanks,
Scott

Scott Clearwater
Certified Project Manager
Arcadis of Michigan, LLC
28550 Cabot Drive, Suite 500 | Novi, MI | 48377 | USA
T +1 810 225 1921
M +1 248 346 5970
www.arcadis.com

Clearwater, Scott

From: Armbruster, Amanda (EGLE) <ARMBRUSTERA@michigan.gov>
Sent: Friday, December 11, 2020 10:33 AM
To: Clearwater, Scott
Cc: Dave Favero; Person, Ann (EGLE)
Subject: RE: RACER Malleable - Well Abandonment SOW

Scott,
Thank you for providing the updated Proposed Well Abandonment Scope of Work Report for SMI. I have no questions or concerns related to the report, but would like to know when the field work is scheduled to start the well abandonments. Hope you are well and enjoy the upcoming holidays.

Amanda Armbruster
Geologist | Bay City District Office
Remediation and Redevelopment Division
Michigan Department of Environment, Great Lakes, and Energy
989-450-6377 work cell phone
Follow Us | **Michigan.gov/EGLE**

From: Clearwater, Scott <Scott.Clearwater@arcadis.com>
Sent: Monday, November 16, 2020 1:17 PM
To: Armbruster, Amanda (EGLE) <ARMBRUSTERA@michigan.gov>
Cc: Dave Favero <dfavero@racertrust.org>
Subject: RACER Malleable - Well Abandonment SOW

CAUTION: This is an External email. Please send suspicious emails to abuse@michigan.gov

Amanda,
Attached for your review is a Well Abandonment Scope of Work for RACER Saginaw Malleable. This finalized SOW is an update to the draft that was provided to you for comment on March 16, 2020 and incorporates the edits requested in your email to us on July 21, 2020, our phone conversation July 27, 2020, and aligns with the 2020 O&M Plan. Feel free to let me know if any questions.
Thanks,
Scott

Scott Clearwater | Certified Project Manager | scott.clearwater@arcadis.com
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ARCADIS Design & Consultancy for natural and built assets

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Be green, leave it on the screen.

Ms. Amanda Armbruster
Saginaw Bay District Office
Michigan Department of Environment, Great Lakes, and Energy
401 Ketchum Street, Suite B
Bay City, Michigan 48708

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241
www.arcadis.com

Subject:
Proposed Monitoring Well Abandonment Scope of Work
RACER Saginaw Malleable Industrial Land, Green Point Landfill and Peninsula Property, Saginaw, Michigan

ENVIRONMENT

Date:
November 16, 2020

Contact:
Scott Clearwater

Phone:
810-225-1921

Email:
Scott.Clearwater@arcadis.com

Our ref:
30042836

Dear Ms. Armbruster:

This Scope of Work has been prepared by Arcadis of Michigan LLC on behalf of Revitalizing Auto Communities Environmental Response (RACER) Trust.

Monitoring wells have been installed throughout Saginaw Malleable (SMI), Green Point Landfill (GPL), and Peninsula Properties (Site) during various environmental investigations. Many of the wells installed at the Site have been abandoned or removed from the monitoring plan over time as they were no longer needed and ownership of 16 wells and a staff gauge have been transferred to the DPH Environmental Response Trust (**Attachment 1**). All current and known former monitoring wells are depicted on **Figure 1**.

A total of 63 groundwater monitoring wells throughout the Site are proposed to be abandoned, 27 of the wells are currently inaccessible, thus 36 monitoring locations are proposed to be abandoned at this time. The wells proposed to be abandoned are not needed for gauging or sampling related to on-going operation and maintenance (O&M). This determination is based on evaluations and comparison of Site data to the Site-specific criteria approved by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for the Site, which include Drinking Water criteria and Groundwater Surface Water Interface criteria. Exceedances of the Drinking Water criteria have been addressed at the Site through a Declaration of Restrictive Covenant (RC) restricting installation of wells and the use of groundwater.

There are three monitoring wells that were identified at GPL without protective covers which are identified as unknown ID. These are not included in the monitoring and gauging plan and are proposed to be abandoned. Wells proposed to be abandoned are listed in **Tables 1 and 2** and are illustrated in **Figure 2** for SMI and GPL and **Figure 3** for Peninsula. It is noted that there are several wells that are not currently accessible due to standing water over portions of the GPL property (**Table 2 and Figure 2**). When these wells become accessible, they will be abandoned, and we will continue to evaluate safe and reliable methods to abandon them under current conditions. The monitoring wells and staff gauge that have been transferred to the DPH Environmental Response Trust are summarized in **Table 3**.

The rationale for abandoning each well is included in the tables but the primary reasons include:

- The RC eliminates risk, and monitoring is no longer required in the area, or nearby wells will continue to be monitored instead.
- The wells are no longer needed for gauging or sampling based on proximity to other wells.
- The concentrations are below EGLE criteria and Site-Specific criteria for multiple years.

Well Abandonment Procedures

Wells will be abandoned in accordance with the American Society of Testing Materials Standard D 5299-92, “Standard Guide for Decommissioning Ground Water Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities”. Well abandonment activities will be scheduled following EGLE’s approval of this Scope of Work and dependent upon weather conditions.

The following details the abandonment procedures:

- The depth of each monitoring well will be measured before it is abandoned to ensure that there are no obstructions that may interfere with effective abandonment. Measurements of static water levels will also be recorded.
- The well casings will be removed from the ground by pulling the well from the subsurface. If the well cannot be removed from the subsurface, the well will be cut approximately two feet below grade and grouted in place.
- As the well casing is being pulled from the ground, cement grout, or neat cement grout will be used as primary abandoning material and placed from the bottom of the well casing by knocking out the bottom of the well casing and pumping in the grout at the bottom of the well filling the void upward as the casing is pulled to within two feet of the ground surface in one continuous operation. For wells shallower than 20 feet deep, granular bentonite pellets may be used to seal the well. The pellets would be placed after the casing is pulled and hydrated after placement.
- The metal upright protective covers of the wells will be removed and recycled/disposed. Void space above well casing will be filled with soil from on-site stockpile to within six inches of grade.
- Surface restoration at all wells will be completed to blend with the adjacent grade by either placing topsoil and seeding or asphalt patch to match pre-existing conditions.

- All debris accumulated by well abandonment (removed stick up well casings, concrete pads, etc.) will be disposed offsite at a permitted landfill. The metal protective covers from the stick-up wells will be recycled if possible.
- The well abandonment details will be logged in a well abandonment record (**Attachment 2**) completed per monitoring well.

A well abandonment memo that will include a summary of the well abandonment activities, completed well abandonment records, and a photolog will be prepared and submitted to EGLE following completion.

Please let me know if you have any questions or would like to discuss this Scope of Work.

Sincerely,

Arcadis of Michigan, LLC



Scott Clearwater
Certified Project Manager

Enclosures:

Tables

1 Proposed Monitoring Well Abandonment List
2 Inaccessible Monitoring Well Proposed Abandonment List
3 Monitoring Well Transfer List

Figures

1 Monitoring Well Status as of 2020
2 Proposed Monitoring Wells to be Abandoned at SMI and GPL
3 Proposed Monitoring Wells to be Abandoned at Peninsula Property

Attachments

1 Easement Agreement between RACER Trust and DPH Trust
2 Example Monitoring Well Abandonment Record

TABLES

Table 1
Proposed Monitoring Well Abandonment List
RACER Saginaw - Saginaw Malleable Industrial Land,
Green Point Landfill and Peninsula Property

ARCADIS Design & Consultancy for natural and built assets

Well ID	Proposed Action	Well Diameter (in)	Total Depth (ft btoc)	Casing	Northing	Easting	Comments/Reason for Abandonment
Saginaw Malleable Industrial Land							
MW-01-119S1	Abandon	2	28.32	stick up	691605.08	13227675.92	RC eliminates drinking water risk, nearby wells will continue to be monitored
MW04-119WT	Abandon	2	16.96	stick up	691598.00	13227676.06	RC eliminates drinking water risk, nearby wells will continue to be monitored
MW04-121S1	Abandon	2	25.05	stick up	691211.04	13227664.61	RC eliminates drinking water risk, nearby wells will continue to be monitored
MW04-121WT	Abandon	2	18.38	stick up	691215.85	13227664.90	RC eliminates drinking water risk, nearby wells will continue to be monitored
MW-114S4	Abandon - damaged	2	well screen 47.8-52.8 ft bgs	stick up	691209.33	13229827.06	Damaged, gauging well is not necessary based on proximity to other gauging wells
MW-150WT	Abandon	2	16.35	stick up	691037.68	13229266.46	Concentrations below EGLE criteria and Site Specific criteria, monitoring will continue at the river boundary downstream
Green Point Landfill							
TW-07-02	Abandon	2	15.54	stick up	691221.24	13227184.19	Indentified in April 2019, monitoring not required for RACER
TW-07-02 Staff Gauge	Abandon	2	NA	staff gauge	691221.24	13227184.19	Indentified in April 2019, monitoring not required for RACER
X-20	Abandon - damaged	2	well screen 4.7-7.7 ft bgs	stick up	691017.54	13227186.92	Damaged, concentrations below EGLE criteria, nearby wells will continue to be monitored
Unknown ID 1	Abandon	NA	NA	stick up	NA	NA	Monitoring not required for RACER
Unknown ID 2	Abandon	NA	NA	stick up	NA	NA	Monitoring not required for RACER
Unknown ID 3	Abandon	NA	NA	stick up	NA	NA	Monitoring not required for RACER
Peninsula Property							
MW-11-05	Abandon	2	20.50	stick up	691542.37	13227392.03	RC eliminates drinking water risk, monitoring no longer required for RACER
MW-11-06	Abandon	2	19.84	stick up	691478.83	13227392.38	RC eliminates drinking water risk, monitoring no longer required for RACER
MW-11-07	Abandon	2	19.83	stick up	691460.78	13227392.38	RC eliminates drinking water risk, monitoring no longer required for RACER
MW-11-08	Abandon	2	19.84	stick up	691414.94	13227391.34	RC eliminates drinking water risk, monitoring no longer required for RACER
MW-11-09	Abandon	2	19.50	stick up	691382.65	13227392.73	RC eliminates drinking water risk, monitoring no longer required for RACER
MW-11-10	Abandon	2	20.12	stick up	691347.93	13227389.60	RC eliminates drinking water risk, monitoring no longer required for RACER
MW-11-11	Abandon	2	8.39	stick up	691292.03	13227392.03	RC eliminates drinking water risk, monitoring no longer required for RACER

Table 1
Proposed Monitoring Well Abandonment List
RACER Saginaw - Saginaw Malleable Industrial Land,
Green Point Landfill and Peninsula Property

Well ID	Proposed Action	Well Diameter (in)	Total Depth (ft btoc)	Casing	Northing	Easting	Comments/Reason for Abandonment
Peninsula Property (continued)							
MW-11-13	Abandon	2	23.40	stick up	691412.51	13227440.99	RC eliminates drinking water risk, monitoring no longer required for RACER
MW-11-14	Abandon	2	22.77	stick up	691322.93	13227499.33	RC eliminates drinking water risk, monitoring no longer required for RACER
MW-11-15	Abandon	2	22.55	stick up	691244.80	13227553.84	RC eliminates drinking water risk, monitoring no longer required for RACER
MW-12-01	Abandon	2	19.67	stick up	691321.19	13227440.30	RC eliminates drinking water risk, monitoring no longer required for RACER
MW-12-02	Abandon	2	19.69	stick up	691351.40	13227425.71	RC eliminates drinking water risk, monitoring no longer required for RACER
MW-12-03	Abandon	2	19.63	stick up	691346.19	13227460.44	RC eliminates drinking water risk, monitoring no longer required for RACER
MW-12-04	Abandon	2	20.72	stick up	691370.85	13227479.88	RC eliminates drinking water risk, monitoring no longer required for RACER
MW-12-05	Abandon	2	20.74	stick up	691296.89	13227425.37	RC eliminates drinking water risk, monitoring no longer required for RACER
MW-144WT	Abandon	2	15.10	stick up	691091.96	13227621.75	RC eliminates drinking water risk, monitoring no longer required for RACER
MW97-105S1	Abandon	2	23.08	stick up	691202.42	13227506.39	RC eliminates drinking water risk, monitoring no longer required for RACER
MW97-105WT	Abandon	2	16.42	stick up	691200.65	13227512.31	RC eliminates drinking water risk, monitoring no longer required for RACER
TW-06-01D	Abandon	2	30.59	stick up	691428.07	13227654.30	RC eliminates drinking water risk, monitoring no longer required for RACER
TW-06-01WT	Abandon	2	19.66	stick up	691438.73	13227654.38	RC eliminates drinking water risk, monitoring no longer required for RACER
TW-06-02D	Abandon	2	25.28	stick up	691275.20	13227585.16	RC eliminates drinking water risk, monitoring no longer required for RACER
TW-06-02WT	Abandon	2	16.79	stick up	691285.85	13227585.24	RC eliminates drinking water risk, monitoring no longer required for RACER
TW-06-03D	Abandon	2	20.46	stick up	691124.02	13227396.32	RC eliminates drinking water risk, monitoring no longer required for RACER
TW-06-03WT	Abandon	2	16.69	stick up	691134.67	13227396.40	RC eliminates drinking water risk, monitoring no longer required for RACER

Sub-total = 36 wells

Notes:

Total depth (ft) = 634.04

ft bgs = feet below ground surface

ft btoc = feet below top of casing

NA= not applicable

RC= restrictive covenant

Coordinates are based on the North American Datum 1983 (NAD 83) State Plane Coordinate System

Table 2
Inaccessible Monitoring Well Proposed Abandonment List
RACER Saginaw - Saginaw Malleable Industrial Land,
Green Point Landfill and Peninsula Property

ARCADIS Design & Consultancy for natural and built assets

Well ID	Proposed Action	Well Diameter (in)	Well Screen (ft bgs)	Casing	Northing	Easting	Comments/Reason for Abandonment
Green Point Landfill							
MW-119S1	Abandon	2	24-29	stick up	690050.29	13229070.42	Concentrations below EGLE criteria and Site-Specific criteria, monitoring will continue at the river boundary
MW-119S2	Abandon	2	36.5-41.5	stick up	690041.41	13229068.44	Concentrations below EGLE criteria and Site-Specific criteria, monitoring will continue at the river boundary
MW-119WT	Abandon	2	2-12	stick up	690060.05	13229070.26	RC eliminates drinking water risk, monitoring will continue at the river boundary downstream
MW-120S1	Abandon	2	23.8-28.8	stick up	689474.66	13228833.18	Concentrations below EGLE criteria and Site-Specific criteria, monitoring will continue at the river boundary
MW-120S2	Abandon	2	36-41	stick up	689468.41	13228826.67	Concentrations below EGLE criteria and Site-Specific criteria, monitoring will continue at the river boundary
MW-120WT	Abandon	2	4-14	stick up	689481.14	13228839.60	Concentrations below EGLE criteria and Site-Specific criteria, monitoring will continue at the river boundary
MW-121S1	Abandon	2	21.5-26.5	stick up	689251.24	13228555.88	RC eliminates drinking water risk, additional monitoring will continue at the river boundary downstream
MW-121S2	Abandon	2	34.8-39.8	stick up	689244.95	13228546.56	RC eliminates drinking water risk, additional monitoring will continue at the river boundary downstream
MW-121WT	Abandon	2	3.5-13.5	stick up	689262.18	13228570.52	RC eliminates drinking water risk, additional monitoring will continue at the river boundary downstream
MW-123S1	Abandon	2	15-20	stick up	689117.53	13227494.3	RC eliminates drinking water risk, additional monitoring will continue at the river boundary downstream
MW-123WT	Abandon	2	3-8	stick up	689117.51	13227503.05	RC eliminates drinking water risk, additional monitoring will continue at the river boundary downstream
MW-127S1	Abandon	2	16.5-21.5	stick up	689636.41	13227876.93	Concentrations below EGLE criteria and Site-Specific criteria, nearby wells will continue to be monitored
MW-127WT	Abandon	2	2-12	stick up	689644.53	13227879.47	Concentrations below EGLE criteria and Site-Specific criteria, nearby wells will continue to be monitored

Table 2
Inaccessible Monitoring Well Proposed Abandonment List
RACER Saginaw - Saginaw Malleable Industrial Land,
Green Point Landfill and Peninsula Property

ARCADIS Design & Consultancy for natural and built assets

Well ID	Proposed Action	Well Diameter (in)	Well Screen (ft bgs)	Casing	Northing	Easting	Comments/Reason for Abandonment
Green Point Landfull (continued)							
MW-2A	Abandon	2	4-14	stick up	690191.04	13229487.11	Concentrations below EGLE criteria and Site-Specific criteria, Gauging well is not necessary based on proximity to other gauging wells
MW-2B	Abandon	2	36-46	stick up	690191.04	13229487.11	Concentrations below EGLE criteria and Site-Specific criteria, Gauging well is not necessary based on proximity to other gauging wells
MW-2CAUG	Abandon	2	24-29	stick up	690178.81	13229488.78	Concentrations below EGLE criteria and Site-Specific criteria, Gauging well is not necessary based on proximity to other gauging wells
MW-3A	Abandon	2	2.5-12.5	stick up	689840.47	13228191.25	Concentrations below EGLE criteria and Site-Specific criteria, nearby wells will continue to be monitored
MW-3B	Abandon	2	23-28	stick up	689840.47	13228191.25	Concentrations below EGLE criteria and Site-Specific criteria, nearby wells will continue to be monitored
X-12AR	Abandon	2	2-7	stick up	689454.48	13227771.96	Concentrations below EGLE criteria and Site-Specific criteria, monitoring will continue at the river boundary
X-12B	Abandon	2	41.7-44.7	stick up	689454.18	13227761.97	Concentrations below EGLE criteria and Site-Specific criteria, monitoring will continue at the river boundary
X-12CAUG	Abandon	2	17.5-20	stick up	689445.05	13227747.37	Concentrations below EGLE criteria and Site-Specific criteria, monitoring will continue at the river boundary
X-13AR	Abandon	2	2-12	stick up	689734.87	13229118.83	Concentrations below EGLE criteria and Site-Specific criteria, monitoring will continue at the river boundary
X-13B	Abandon	2	19.9-22.9	stick up	689706.93	13229115.32	Concentrations below EGLE criteria and Site-Specific criteria, monitoring will continue at the river boundary
X-13CAUG	Abandon	2	36.2-41.2	stick up	689735.73	13229061.52	Concentrations below EGLE criteria and Site-Specific criteria, monitoring will continue at the river boundary
X-14A	Abandon	2	2.8-5.8	unknown	689083.58	13228218.73	Concentrations below EGLE criteria and Site-Specific criteria, monitoring will continue at the river boundary
X-14B	Abandon	2	21.3-24.3	stick up	689083.58	13228218.73	Concentrations below EGLE criteria and Site-Specific criteria, monitoring will continue at the river boundary
X-14CAUG	Abandon	2	26-31	stick up	689087.40	13228250.74	RC eliminates drinking water risk, monitoring will continue at the river boundary

Sub-total = 27 wells

Notes:
ft bgs = feet below ground surface
ft btoc = feet below top of casing
RC= restrictive covenant
Coordinates are based on the North American Datum 1983 (NAD 83) State Plane Coordinate System

Table 3
Monitoring Well Transfer List
RACER Saginaw - Saginaw Malleable Industrial Land,
Green Point Landfill and Peninsula Property

ARCADIS Design & Consultancy for natural and built assets

Well ID	Status	Well Diameter (in)	Total Depth (ft btoc)	Casing	Northing	Easting
Green Point Landfill						
MW04-124S1	Well has been transferred to DPH	2	21.29	stick up	691280.55	13227341.59
MW04-124WT	Well has been transferred to DPH	2	15.41	stick up	691275.62	13227341.91
MW-129WT	Well has been transferred to DPH	2	15.30	stick up	691461.33	13227155.48
Staff Gauge	Staff gauge has been transferred to DPH	2	NA	staff gauge	691288.79	13227358.90
Peninsula Property						
MW04-118S1	Well has been transferred to DPH	2	20.70	stick up	691440.67	13227388.11
MW04-122S1	Well has been transferred to DPH	2	19.58	stick up	691497.87	13227387.37
MW04-122WT	Well has been transferred to DPH	2	17.70	stick up	691503.82	13227387.31
MW04-123S1	Well has been transferred to DPH	2	20.52	stick up	691323.01	13227386.98
MW04-123WT	Well has been transferred to DPH	2	18.61	stick up	691317.67	13227386.85
MW98-108S1	Well has been transferred to DPH	2	24.96	stick up	691378.08	13227552.76
MW98-109S1	Well has been transferred to DPH	2	20.20	stick up	691370.58	13227440.85
MW98-110S1	Well has been transferred to DPH	2	20.11	stick up	691548.43	13227553.53
MW98-111S1	Well has been transferred to DPH	2	19.95	stick up	691546.79	13227445.11
TW98-108WT	Well has been transferred to DPH	2	14.99	stick up	691381.02	13227550.64
TW98-109WT	Well has been transferred to DPH	2	14.85	stick up	691371.19	13227436.66
TW98-110WT	Well has been transferred to DPH	2	15.06	stick up	691549.17	13227556.60
TW98-111WT	Well has been transferred to DPH	2	15.20	stick up	691551.88	13227441.68

Sub-total = 17 locations

Notes:

ft bgs = feet below ground surface

ft btoc = feet below top of casing

NA= not applicable

Coordinates are based on the North American Datum 1983 (NAD 83) State Plane Coordinate System

List of wells transferred in accordance with the *Easement Agreement* between RACER Trust and DPH Trust, dated June 3, 2019

FIGURES

PENINSULA PROPERTY DETAIL

MW-11-04
TW98-111WT
MW-11-05
MW98-111S1
TW98-110WT
MW98-110S1
MW04-122WT,S1
MW-11-06
MW97-104WT
MW-11-07
MW97-104S1
MW04-118S1
MW01-118WT
TW-06-01WT,D
MW-11-08
MW-11-13
TW98-109WT
MW-11-09
MW98-109S1
TW98-108WT
MW98-108S1
MW-12-02
MW-12-04
MW-11-10
MW-12-03
MW04-123WT,S1
MW-11-14
MW-12-01
MW-12-05
TW-06-02WT,D
MW-11-11
STAFF GAUGE
MW04-124WT,S1
MW-11-15
MW97-105WT,S1
TW-06-03WT,D
MW-144WT
X-1A,B
X-1CR2
X-1CR

MW-101WT
TW-201
MW-4
TW-202
TW-240
MW-102WT,S1
TW-203
MW-145WT
MW-138WT
MW-141WT
MW-176WT
MW-103WT,S1,S2
TW-231
MW-146WT
MW-136WT,S1,S2
UST8-3
TW-232
MW-104WT,S1,S2
UST8-1
UST8-5
MW-140WT,S1,S2
TW-205
UST8-2
MW-137WT
TW-234
MW-105WT,S1,S2
TW-233
UST4-MW2
TW-206
MW-106WT,S1,S2
RG1
TW-235
QPTW-03R2
TW-230
QPTW-4
UST-MW,S1,S2
B-5R,BAUG,CAUG
MW-149WT
QPTW-3
QPTW-04R
UST4-MW1
UST4-MW3
SG7
QP-2R
QPTW-06
QP-1R
UST4-MW4
TW-207
QP-02
QP-01
TW-4
TW-3
MW-107S2
MW-107WT,S1
QPTW-05R
TW-2
QPTW-12
TW-1
TW-236
QP-3R
TW-229
B-6R,BAUG,CAUG,DAUG
QPTW-5
QPTW-11
QPTW-09
BBL-MW2
MW-134S1,S2
MW-134WT
TW-208
QPTW-02
HOD-MW1
QP-03
BBL-MW1
UST7-7
UST7-6
QPTW-1
QPTW-08
UST7-5
QPTW-10
QPTW-01R
UST-MW-B
MW-135WT,S1,S2,S3
MW-9A,B
TW-237
UST7-MW2
QPTW-07
TW-238
QPTW-10R
UST7-2
BBL-MW3
TW-209
QPTW-13R
UST7-3R
BBL-MW4
UST7-3
MW-165WT
QPTW-13
BBL-MW5
B-4AR,BR,CAUG,DAUG
MW-147WT
UST,MW-D
MW-133WT,S1,S2
MW-108WT,S2
MW-153WT
UST7-4
SG6
MW-108S1,S3,S4
MW-166WT
TW-228
UST7-1
TW-239
TW-228S1
UST7-MW1
MW-174WT
MW-158WT
MW-157WT
MW-132WT,S1
TW-210
MW-148WT
MW-162WT
MW-109WT
RW-1
MW-160WT
MW-179WT
MW-180WT
RW-4
MW-172WT
MW-156WT
MW-177WT
MW-178WT
MW-154WT
RW-2
MW-6A,B,CAUG,DAUG
MW-155WT
MW-175WT
MW-168WT
MW-171WT
MW-169WT
RW-3
MW-173WT
MW-161WT
MW-181WT
MW-130WT,S1,S2,S3
MW-164WT
MW-152WT
MW-110WTR
MW-159WT
MW-163WT
MW-182WT
MW-170WT
TW-211
MW-151WT
MW-131S1,S2
MW-131WT
MW-111WT
SG8
MW-111S1,S2,S3,S4
B-2R,BAUG
TW-212
B-1A,BAUG,CAUG,DAUG
MW-112WT
MW-185WT
MW-01-119SI
MW04-119WT
SG4
MW-184WT
MW-186WT
MW-129WT
TW01-120
B-7R,BAUG,CAUG
MW-143WT
MW-113WT
TW-213
STAFF GAUGE
BAUG
MW04-124WT,S1
B-3R
SG1
MW-114S1,S3
MW-114S4
TW-07-02
STAFF GAUGE
MW04-121WT,S1
MW-116WT,S1,S2
MW-114WT,S2
X-20
X-1CR
X-2B,C,DAUG
X-2A
TW-215
TW-214
X-1A,B
X-1CR2
SG3
MW-150WT
MW-115WT,S1,S2,S3
MW-183WT
X-19AR
MW-1A,B,CAUG
X-18
X-3AR,BR,CAUG
TW-216
X-4AR,CAUGR,D
X-6
MW-117WT,S1
X-4A,JCAUG
SG2
MW-117S2
TW-217
X-7A,BR,CAUG,DAUG
MW-118WT,S1
X-17R
X-16A,B
X-5A,B,C
MW-118S2
X-10BR,CR,DAUG
X-10AR2
MW-128WT,S1
TW-218
MW-2A,B,CAUG
Unknown ID 1?
Unknown ID 3?
Unknown ID 2?
X-9AR,BR,CAUG,D
MW-119WT,S1,S2
X-11AR
TW-219
MW-3A,B
X-13AR,B,CAUG
TW-241
TWW-2
MW-127WT,S1
TW-220
TW-242
TWW-1
X-12AR,B,CAUG
MW-120WT,S1,S2
MW-126WT
TW-221
MW-121WT,S1,S2
MW-124WT,S1
X-15AR,BR
MW-123WT,S1
MW-122S1,S2
TW-222
TW-227
TW-226
TW-225
TW-224
TW-223
X-14A,B,CAUG
MW-125WT
MW-122WT
SG5

0
500
1,000
SCALE IN FEET

LEGEND

- MONITORING WELL
- HISTORIC/ PREVIOUSLY ABANDONED MONITORING WELL
- WELL TO BE GAUGED AND SAMPLED
- WELL TO BE GAUGED ONLY IN ACCORDANCE WITH 2020 O&M PLAN
- SMI PROPERTY BOUNDARY
- GPL PROPERTY BOUNDARY
- PENINSULA PROPERTY BOUNDARY

SAGINAW MALLEABLE INDUSTRIAL LAND,
GREEN POINT LANDFILL, AND PENINSULA PROPERTY
SAGINAW, MICHIGAN

MONITORING WELL STATUS - 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
D:\GIS\Project Files\MotorsLiquidationCompany\Saginaw\RACER_Saginaw\MXD\From Novi\20190l01_Site Location Map_Rev2.mxd PLOTTED: 8/14/2020 12:51:59 PM BY: TYarbrough

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

MW-138WT
MW-103WT,S1,S2
MW-140WT,S1,S2
MW-105WT,S1,S2
B-5R,BAUG,CAUG
RG1
MW-149WT
MW-107WT,S1
QPTW-04R
QP-1R
QPTW-03R2
QP-2R
QP-3R
QPTW-01R
QPTW-13R
QPTW-05R
QPTW-10R
MW-134WT,S1,S2
MW-108WT,S1,S2,S3,S4
MW-110WTR
MW-131WT,S1,S2
MW-111WT,S1,S2,S3,S4
MW-185WT
MW-186WT
MW-01-119SI
MW04-119WT
MW-129WT
MW04-124WT,S1
STAFF GAUGE
TW-07-02
STAFF GAUGE
MW-143WT
B-3R,BAUG
MW04-121WT,S1
SG1
MW-114S4
MW-114WT,S1,S2,S3
X-20
X-1A,B
X-1CR2
X-2A
MW-150WT
MW-115WT,S1,S2,S3*
MW-183WT
X-4A,AR,CAUGR,D
MW-117WT,S1
X-16A,B
MW-118WT,S1
MW-128WT,S1
X-10AR2
MW-2A,B,CAUG
X-9AR,BR,CAUG,D
Unknown ID 1?
Unknown ID 3?
Unknown ID 2?
MW-119WT,S1,S2
MW-3A,B
X-13AR,B,CAUG
TW-241
TWW-2*
MW-127WT,S1
TW-242
TWW-1
X-12AR,B,CAUG
MW-120WT,S1,S2
MW-121WT,S1,S2
MW-123WT,S1
MW-125WT
MW-124WT,S1
MW-122WT,S1,S2
X-14A,B,CAUG

LEGEND

- EXISTING MONITORING WELL
- MONITORING WELL TO BE ABANDONED
- INACCESSIBLE MONITORING WELL TO BE ABANDONED
- DPH MONITORING WELL
- WELL TO BE GAUGED AND SAMPLED
- WELL TO BE GAUGED ONLY
- SMI PROPERTY BOUNDARY
- GPL PROPERTY BOUNDARY
- PENINSULA PROPERTY BOUNDARY
- * POTENTIAL ALTERNATE SAMPLING LOCATION

NOTE: WELLS LISTED FOR SAMPLING AND/OR GAUGING IN ACCORDANCE WITH THE 2020 O&M PLAN

0 500 1,000
SCALE IN FEET

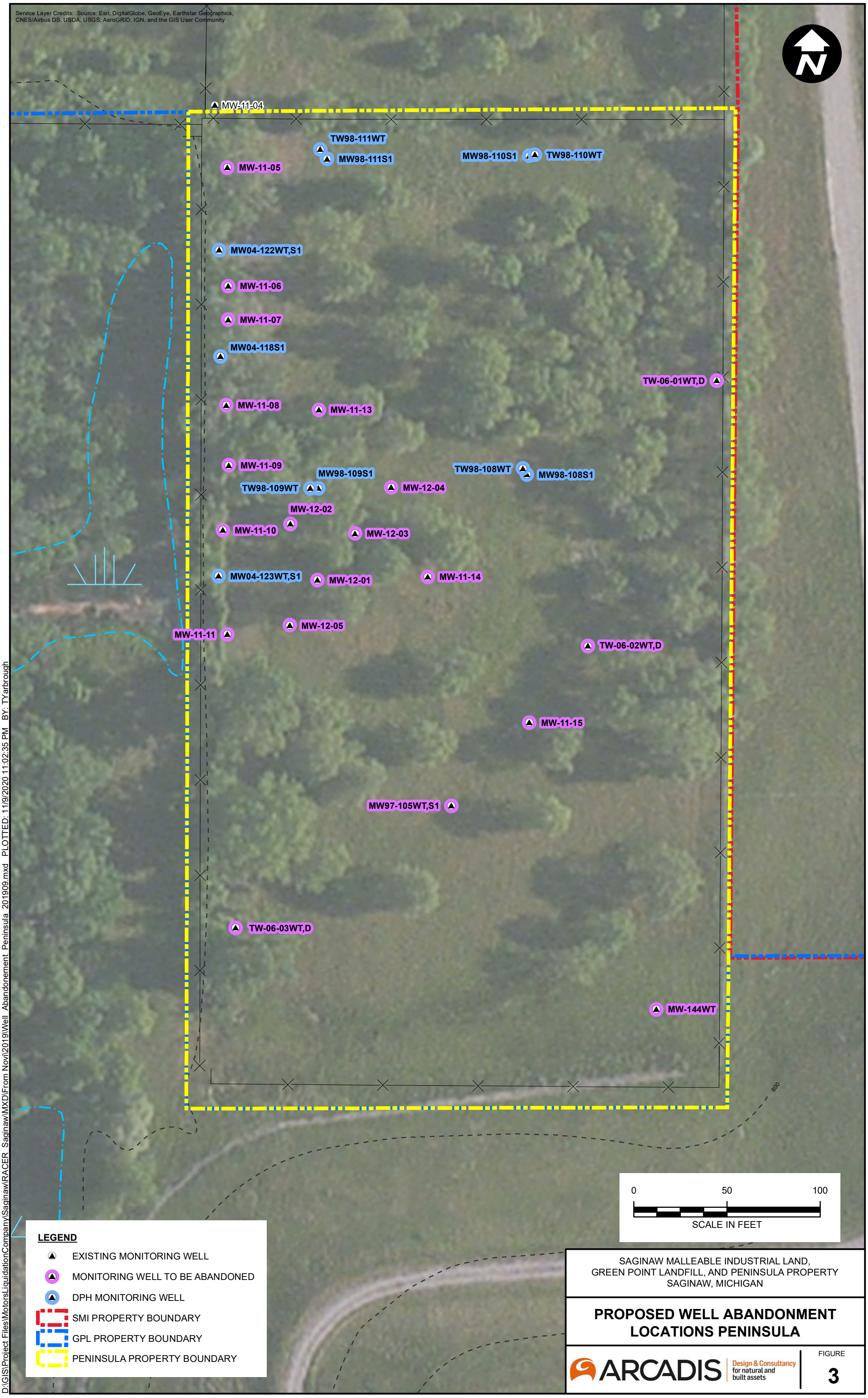
SAGINAW MALLEABLE INDUSTRIAL LAND,
GREEN POINT LANDFILL, AND PENINSULA PROPERTY
SAGINAW, MICHIGAN

PROPOSED WELL ABANDONMENT LOCATION SMI AND GPL

ARCADIS Design & Consultancy for natural and built assets

FIGURE 2

CITY: NOVI, MI DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
D:\GIS\Project Files\MotorsLiquidationCompany\Saginaw\RACER Saginaw\MXD\From Novi\2019\02 Well Abandonement GPL SMI 201909 rev2.mxd PLOTTED: 11/9/2020 11:07:30 PM BY: TYarbrough


Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
MW-11-04
TW98-111WT
MW98-111S1
MW-11-05
MW98-110S1
TW98-110WT
MW04-122WT,S1
MW-11-06
MW-11-07
MW04-118S1
TW-06-01WT,D
MW-11-08
MW-11-13
MW-11-09
MW98-109S1
TW98-108WT
MW98-108S1
TW98-109WT
MW-12-04
MW-12-02
MW-11-10
MW-12-03
MW04-123WT,S1
MW-12-01
MW-11-14
MW-12-05
MW-11-11
TW-06-02WT,D
MW-11-15
MW97-105WT,S1
TW-06-03WT,D
MW-144WT
600
0
50
100
SCALE IN FEET
LEGEND
EXISTING MONITORING WELL
MONITORING WELL TO BE ABANDONED
DPH MONITORING WELL
SMI PROPERTY BOUNDARY
GPL PROPERTY BOUNDARY
PENINSULA PROPERTY BOUNDARY
SAGINAW MALLEABLE INDUSTRIAL LAND,
GREEN POINT LANDFILL, AND PENINSULA PROPERTY
SAGINAW, MICHIGAN
PROPOSED WELL ABANDONMENT LOCATIONS PENINSULA
ARCADIS
Design & Consultancy for natural and built assets
FIGURE
3
CITY: NOVI, MI DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
D:\GIS\Project Files\MotorsLiquidationCompany\Saginaw\RACER_Saginaw\MXD\From Novi\2019\Well_Abandonement_Peninsula_201909.mxd PLOTTED: 11/9/2020 11:02:35 PM BY: TYarbrough

ATTACHMENT 1

Easement Agreement between RACER Trust and DPH Trust

2019014836
PAGE 1 OF 18
EASEMENT
OFFICIAL SEAL, Saginaw County MI
Katie A. Kelly Register of Deeds
06/03/2019 10:52:50 AM

EASEMENT AGREEMENT

This Easement Agreement is exempt from state and county transfer tax under MCL 207.526. Sec. 6(a) and MCL 207.505. Sec. 5(a).

This EASEMENT AGREEMENT ("Agreement") is made by and between the REVITALIZING AUTO COMMUNITIES ENVIRONMENTAL RESPONSE TRUST (the "Trust" or "Grantor"), by and through EPLET, LLC, acting solely in its representative capacity as Administrative Trustee of the Trust, together with RACER Properties LLC, the owner of the Property (as defined herein) and the wholly owned affiliate of the Trust (collectively, "RACER"), having an address of 500 Woodward Avenue, Suite 2650, Detroit, MI 48226, and the DPH ENVIRONMENTAL RESPONSE TRUST (the "DPH Trust" or "Grantee" and together with RACER the "Parties" or each a "Party"), by and through Le Petomane XXVIII, Inc., not individually, but solely as Trustee of the DPH Trust, having an address of 35 E. Wacker Drive, Suite 690, Chicago, IL 60601, with reference to the following recitals.

RECITALS

A. RACER is the owner of property located at 79 West Center Street, Saginaw, Michigan ("RACER Property"), the legal description and depiction of which are shown in the attached **Exhibit 1**. Several groundwater monitoring wells owned by RACER are located on the RACER Property, and ownership of the RACER Wells Transferred to DPH (as hereinafter defined) is being transferred to the DPH Trust pursuant to a Bill of Sale executed by the Parties concurrently with this Agreement.

B. The DPH Trust also owns several other existing groundwater monitoring wells located on the RACER Property as depicted on **Exhibit 1** attached hereto (the "DPH-Owned Wells").

C. RACER is willing to grant certain easement rights in the RACER Property to the DPH Trust and its successors, assigns, employees, consultants, contractors, subcontractors, and other agents, for purposes of accessing the DPH-Owned Wells and the groundwater monitoring wells being transferred to the DPH Trust pursuant to the Bill of Sale, subject to the terms and conditions of this Agreement. Each Party's respective officers, shareholders, directors, representatives, members, managers, successors, assigns, employees, consultants, contractors, subcontractors, agents or other professionals employed by each, shall be referred to below collectively as "Representatives."

NOW THEREFORE, in consideration of the foregoing recitals and the mutual promises, covenants, and agreements set forth herein, and for other good and valuable consideration, which consideration is valued at less than $100, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. **Grant of Easement:** Upon the terms, covenants, and conditions set forth in this Agreement, RACER hereby grants to the DPH Trust and its successors, assigns, and Representatives, a non-exclusive, perpetual easement (the "Easement") on, over, under, and across the RACER Property for purposes of: (i) maintaining and repairing perimeter fencing and locked fence gates as required herein; (ii) installing additional wells from time to time in accordance with an approved Michigan Department of Environment, Great Lakes, and Energy work plan within the 'New-Well Area' designated on **Exhibit 1** ("Additional Wells"), and (iii) accessing, inspecting, sampling, repairing, replacing, abandoning, removing, or performing any other activities related to the DPH-Owned Wells, any Additional Wells, and the following groundwater monitoring wells and staff gauge (collectively, the "Permitted Activities"):

    a. TW98-111WT
    b. MW98-111S1
    c. TW98-110WT
    d. MW98-110S1
    e. MW-129WT
    f. MW04-122WT
    g. MW04-122S1
    h. MW04-118S1
    i. TW98-108WT
    j. MW98-108S1
    k. TW-98-109WT
    l. MW-98-109S1
    m. MW-04-123WT
    n. MW-04-123S1
    o. MW-04-124S1
    p. MW-04-124WT
    q. Staff Gauge

    The monitoring wells and staff gauge listed in subsections a-q above shall be collectively referred to herein as the "RACER Wells Transferred to DPH."

    Neither the Easement nor anything else in this Agreement shall limit the rights of RACER and its Representatives to enter onto the RACER Property to provide access to others, and RACER and its Representatives shall be entitled to enter and inspect the RACER Property or any portion thereof or the Permitted Activities of the DPH Trust thereon at any time.

2. **Permitted Activities:** The DPH Trust and its Representatives may access the RACER Property only to perform the Permitted Activities. If requested, the DPH Trust shall provide RACER with copies of all data, test results, split samples, draft and final reports, and other documents generated as a result of, or in connection with, the Permitted Activities. All Permitted Activities shall be performed at the DPH Trust's sole expense.

3. **Term:** The Agreement shall be effective on the date on which it is signed by both Parties (the "Effective Date"), and shall have a perpetual term, provided, DPH Trust shall have the right to terminate this Agreement at any time upon written notice to RACER or the then owner of the RACER Property. Upon such termination, this Agreement shall be of no further force and effect and neither party shall have any further rights or obligations under this Agreement, other than those expressly stated to survive a termination. Within thirty (30) days following such termination, DPH Trust shall deliver to RACER or the then owner an executed and acknowledged statement (the "Termination Statement") providing DPH Trust's confirmation of the termination of the Agreement and to otherwise terminate the Easement rights and release and relinquish the Easement; such Termination Statement shall evidence DPH Trust's consent for such termination and will be in a form that can be counter-signed and recorded by RACER or by the then owner.

4. **Operations:** In completing the Permitted Activities:

   a. The DPH Trust shall comply with all applicable laws relating to the Permitted Activities and shall use all commercially reasonable efforts to avoid: (i) damage to the RACER Property (and persons and personal property thereon); and (ii) interference with RACER's or any other third party's operations at the RACER Property.

   b. RACER shall use (and shall require its Representatives and other permitted occupants of the RACER Property to use) all commercially reasonable efforts to avoid interference with the DPH Trust's performance of the Permitted Activities at the RACER Property.

   c. The DPH Trust agrees, at its expense, to repair any damage to the RACER Property resulting from its use within thirty (30) days of such occurrence or the expiration of this Agreement, whichever occurs sooner, and to leave the RACER Property in substantially the same condition it was in prior to this Agreement.

   d. No structure, signs or other improvement of any kind shall be constructed and no grading or moving of earth, except as required as part of the Permitted Activities, shall be undertaken on the RACER Property by the DPH Trust or its Representatives without the express prior written permission of RACER, which approval may be withheld in RACER's sole discretion, and then only according to

plans, or specifications and in the proposed location thereof specifically approved by RACER in each case.

e. The DPH Trust shall regularly inspect and promptly repair any damaged portions of the perimeter fence surrounding the eastern, western and southern boundaries of the RACER Property as designated on **Exhibit 1**, and any fence gates therein, unless such damage is caused by RACER or its representatives, or by the then current owner of the RACER Property, or the then current owner's representative(s), in which case the responsible parties shall promptly repair such damage at their sole cost. The DPH Trust agrees that all fence gates surrounding the RACER Property, other than the gate at the DPH Property, are to be secured with chains and in a daisy-chain fashion as to provide for RACER and the then-current owner of the RACER Property the ability to use their own locks to open such gates.

5. Release:

a. Each Party hereby releases the other Party and its Representatives from liability or responsibility for any and all claims, losses, damage, injuries, liabilities, fines and penalties arising from the following, except to the extent caused by or arising from the negligence, fraud, or willful misconduct of the other Party's Representatives or the fraud or willful misconduct of the other Party: (i) any use of the RACER Property by RACER, the DPH Trust, or their respective Representatives; (ii) any act or omission of RACER, the DPH Trust, or their respective Representatives arising from or related to the Permitted Activities; (iii) any bodily injury, property damage, accident, or casualty caused by the acts or omissions of RACER, the DPH Trust, or their respective Representatives arising from or related to the Permitted Activities; (iv) any violation or alleged violation by RACER, the DPH Trust, or their respective Representatives of any law or regulation now or hereafter enacted arising from or related to the Permitted Activities; (v) any loss or theft whatsoever of any property or anything placed or stored by RACER, the DPH Trust, or their respective Representatives on or about the RACER Property; (vi) any breach by RACER or the DPH Trust of their obligations under this Agreement; and (vii) any enforcement by RACER or the DPH Trust of any provision of this Agreement and any cost of removing the DPH Trust from the RACER Property or restoring the same as provided herein. Each Party's release of the other Party and its Representatives hereunder shall survive the termination of this Agreement.

6. Insurance:

a. Prior to entering the RACER Property to conduct Permitted Activities, the DPH Trust or its Representatives shall obtain, and throughout the Term maintain,

insurance against all claims for personal injury (including death), and property damage, under a policy or policies of comprehensive general liability insurance with limits at least equal to $2,000,000 for each bodily injury and property damage from a reputable company or companies. The DPH Trust's environmental consultant performing the Permitted Activities shall obtain, and throughout the Term maintain professional and pollution liability insurance of not less than $5,000,000 combined single limit bodily injury, death and property damage liability per occurrence from a reputable company or companies. The DPH Trust's comprehensive general liabilityinsurance policy and the DPH Trust's environmental consultant's general and pollution liability insurance policies shall name "Revitalizing Auto Communities Environmental Response Trust" and "RACER Properties LLC" as additional insureds.

b. The DPH Trust's environmental consultant performing the Permitted Activities shall obtain, and throughout the Term maintain, workers' compensation insurance to cover any employees engaged in the Permitted Activities.

7. **No Representations:** RACER makes no representations or warranties as to the physical or environmental state of the RACER Property or with respect to its compliance or non-compliance with any law, regulation or ordinance. The DPH Trust expressly assumes any and all dangers, risks, and hazards associated, known or unknown, with its access, use and presence at the RACER Property. All persons who enter upon the RACER Property pursuant to this Agreement do so at their own risk, and shall comply with any and all instructions and directions of RACER provided in writing to the DPH Trust. The DPH Trust shall cause its Representatives to observe strict fire and smoking precautions, and shall ensure that no fires are lighted on the RACER Property and that no firearms or intoxicating liquor shall be carried onto the RACER Property by any persons entering thereon pursuant hereto. Except as otherwise required by law, RACER shall have no duty to inspect the RACER Property and shall have no duty to warn the DPH Trust or its Representatives of any latent or patent defect, condition or risk that may exist in the RACER Property or that might be incurred in the exercise of the rights granted herein.

8. **Liens:** The DPH Trust shall keep the RACER Property free and clear of any liens relating to the Permitted Activities or the acts or omission of the DPH Trust or its Representatives in performing such activities. The DPH Trust, acting in good faith, may contest the validity of any such lien, at its sole expense and liability, provided that it provides to RACER a surety bond in an amount at least equal to the contested lien, including interest and penalties assessed, and releases RACER from all liabilities associated with the contested lien. RACER reserves the right at any time to post and maintain notices of non-responsibility or other notices or disclaimers as may be necessary to protect RACER against liability for all such liens and claims on the RACER Property. The DPH Trust's obligations to RACER

and its Representatives under this paragraph shall survive the termination of this Agreement.

9. **Notice:** The DPH Trust, through its Representatives, will notify RACER two (2) business days before accessing the RACER Property, except in the event of any emergency or where otherwise required by law. All notices required to be given pursuant to this Agreement shall be sent by U.S. Mail or overnight courier (Federal Express or U.P.S.), along with an electronic mail copy to the following addresses:

   a. To RACER:

   Grant Trigger
   Cleanup Manager
   RACER Trust
   500 Woodward Avenue, Suite 2650
   Detroit, MI 48226
   gtrigger@racertrust.org

   Carl Garvey
   General Counsel
   RACER Trust
   500 Woodward Avenue, Suite 2650
   Detroit, MI 48226
   cgarvey@racertrust.org

   RACER Trust
   P.O. 43859
   Detroit, MI 48243

   b. To the DPH Trust:

   Michael Kovacich
   Project Manager
   Tetra Tech, Inc. (on behalf of the DPH Environmental Response Trust)
   710 Avis Drive
   Ann Arbor, MI 48108
   Michael.kovacich@tetratech.com

   Andrew Steinberg
   DPH Environmental Response Trust
   35 East Wacker Drive
   Suite 690
   Chicago, IL 60601
   Andrew.Steinberg@lepetomaneinc.com

   Tanya O'Neill
   Foley & Lardner LLP
   777 E. Wisconsin Avenue
   Milwaukee, WI 53202
   toneill@foley.com

10. **Governing Law/Venue:** The laws of the State of Michigan shall govern the validity, construction, enforcement and interpretation of this Agreement. Any legal suit, action or proceeding arising out of or based upon this Agreement shall be instituted in the United States Bankruptcy Court, Southern District of New York.

11. **Enforcement**: The DPH Trust shall be entitled to enforce the terms of this Agreement by resort to specific performance or legal process without regard to the existence or

nonexistence of any dominant estate. RACER represents that there are no mortgages, liens or other rights of third parties in the RACER Property which could divest any of the rights granted to DPH Trust in this Agreement.

12. **Available Funding**: Anything to the contrary in this Agreement notwithstanding, the DPH Trust shall be required to fulfill any and all obligations under this Agreement only to the extent it has funding available to do so in its Saginaw Environmental Cost Account.

13. **Entire Agreement:** The terms and conditions of this Agreement shall not be modified other than by a written agreement signed by both Parties, all of which together with this Agreement and Exhibits, constitute a fully executed agreement. This Agreement represents the enter agreement between the Parties hereto and supersedes and replaces all prior negotiations or agreements, either written or oral.

14. **Additional Actions and Documents:** The Parties agree to take such additional actions and execute such additional documents as may be reasonably necessary or useful to carry out the transactions contemplated by this Agreement.

15. **Severability:** If any term of this Agreement is found to be unenforceable in any jurisdiction, then such term shall be enforced to the maximum extent permitted by law, rather than voided, and the remaining terms of this Agreement shall remain in full force and effect.

16. **Assignability**: Neither this Agreement, nor any rights hereunder, may be assigned, whether voluntarily or by operation of law.

17. **Waiver of Jury Trial:** RACER AND THE DPH TRUST EACH ACKNOWLEDGES THAT IT IS AWARE OF AND HAS HAD THE ADVICE OF COUNSEL OF ITS CHOICE WITH RESPECT TO ITS RIGHTS TO TRIAL BY JURY, AND EACH PARTY HEREBY EXPRESSLY AND KNOWINGLY WAIVES AND RELEASES ALL SUCH RIGHTS TO TRIAL BY JURY IN ANY ACTION, PROCEEDING OR COUNTERCLAIM BROUGHT BY EITHER PARTY HERETO AGAINST THE OTHER (AND/OR AGAINST ITS OFFICERS, DIRECTORS, EMPLOYEES, AGENTS, OR SUBSIDIARY OR AFFILIATED ENTITIES) ON OR WITH REGARD TO ANY MATTERS WHATSOEVER ARISING OUT OF OR IN ANY WAY CONNECTED WITH THIS AGREEMENT, THE DPH TRUST'S USE OR OCCUPANCY OF THE RACER PROPERTY, AND/OR ANY CLAIM OF INJURY OR DAMAGE.

JS CC DPH Trust Initials _____ RACER Initials

18. **Covenants Running With Land:** The terms of this Agreement are covenants running with the land and inure to the benefit of, and are binding upon, the Parties and their

nonexistence of any dominant estate. RACER represents that there are no mortgages, liens or other rights of third parties in the RACER Property which could divest any of the rights granted to DPH Trust in this Agreement.

12. **Available Funding**: Anything to the contrary in this Agreement notwithstanding, the DPH Trust shall be required to fulfill any and all obligations under this Agreement only to the extent it has funding available to do so in its Saginaw Environmental Cost Account.

13. **Entire Agreement:** The terms and conditions of this Agreement shall not be modified other than by a written agreement signed by both Parties, all of which together with this Agreement and Exhibits, constitute a fully executed agreement. This Agreement represents the enter agreement between the Parties hereto and supersedes and replaces all prior negotiations or agreements, either written or oral.

14. **Additional Actions and Documents:** The Parties agree to take such additional actions and execute such additional documents as may be reasonably necessary or useful to carry out the transactions contemplated by this Agreement.

15. **Severability:** If any term of this Agreement is found to be unenforceable in any jurisdiction, then such term shall be enforced to the maximum extent permitted by law, rather than voided, and the remaining terms of this Agreement shall remain in full force and effect.

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17. **Waiver of Jury Trial:** RACER AND THE DPH TRUST EACH ACKNOWLEDGES THAT IT IS AWARE OF AND HAS HAD THE ADVICE OF COUNSEL OF ITS CHOICE WITH RESPECT TO ITS RIGHTS TO TRIAL BY JURY, AND EACH PARTY HEREBY EXPRESSLY AND KNOWINGLY WAIVES AND RELEASES ALL SUCH RIGHTS TO TRIAL BY JURY IN ANY ACTION, PROCEEDING OR COUNTERCLAIM BROUGHT BY EITHER PARTY HERETO AGAINST THE OTHER (AND/OR AGAINST ITS OFFICERS, DIRECTORS, EMPLOYEES, AGENTS, OR SUBSIDIARY OR AFFILIATED ENTITIES) ON OR WITH REGARD TO ANY MATTERS WHATSOEVER ARISING OUT OF OR IN ANY WAY CONNECTED WITH THIS AGREEMENT, THE DPH TRUST'S USE OR OCCUPANCY OF THE RACER PROPERTY, AND/OR ANY CLAIM OF INJURY OR DAMAGE.

_____ DPH Trust Initials _____ RACER Initials

18. **Covenants Running With Land:** The terms of this Agreement are covenants running with the land and inure to the benefit of, and are binding upon, the Parties and their

respective successors and permitted assigns. References to RACER and the DPH Trust include their respective successors and permitted assigns.

19. **Authority:** The Parties or their duly authorized representatives hereby represent and warrant that each has the requisite authority to execute this Agreement, and have signed this Agreement effective on the date specified herein.

20. **Counterparts:** This Agreement may be executed in any number of identical counterparts, each of which shall be deemed and original for all purposes and all of such counterparts together shall constitute one and the same instrument.

[Remainder of this page left blank intentionally; signature pages follow]

Signature page to Easement Agreement between RACER and the DPH Trust

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the Effective Date.

RACER (GRANTOR):

Dated as of May 16, 2019

REVITALIZING AUTO COMMUNITIES ENVIRONMENTAL RESPONSE TRUST,
a trust formed under the laws of the State of New York

By: EPLET, LLC, acting solely in its capacity as Administrative Trustee of Revitalizing Auto Communities Environmental Response Trust

By: _____
ELLIOTT P. LAWS, not individually, but acting solely in his capacity as Managing Member

STATE OF Michigan)
) SS:
COUNTY OF Wayne)

On the 16th day of May, 2019 before me a Notary Public for the State and County aforesaid, personally appeared Elliott P. Laws who acknowledged himself to be the Managing Member of EPLET, LLC, as Administrative Trustee of the REVITALIZING AUTO COMMUNITIES ENVIRONMENTAL RESPONSE TRUST (the "Trust"), Sole Member of RACER Properties LLC, a Delaware limited liability company, and that he, being authorized to do so, executed the foregoing Easement Agreement on behalf of RACER PROPERTIES LLC, not individually, but solely in his capacity as Managing Member of EPLET, LLC, Administrative Trustee of the Trust, its Sole Member, for the purposes therein contained by signing his name.

WITNESS my hand and seal the day and year aforesaid.

_____
Print Name: Tracie L. Nichols
Notary Public, State of Michigan
County of Wayne
Acting in the County of Wayne
My commission expires: 3/19/23

TRACIE L. NICHOLS
Notary Public, State of Michigan
County Of Wayne
My Commission Expires 03-19-2023
Acting in the County of Wayne

Signature page to Easement Agreement between RACER and the DPH Trust

IN WITNESS WHEREOF, the Parties have executed and delivered this Agreement as of the Effective Date.

THE DPH TRUST (GRANTEE):

Dated as of May 21, 2019

DPH Environmental Response Trust,
by and through Le Petomane XXVIII, Inc.,
not individually but solely as Trustee of the
DPH Environmental Response Trust

not individually but solely as Trust

By: _____
Jay A. Steinberg, not individually but solely as President of the DPH Environmental Response Trust Trustee

STATE OF Tennessee)
) SS:
COUNTY OF Williamson)

On the 21st day of May, 2019, before me a Notary Public for the State and County aforesaid, personally appeared Jay A. Steinberg, not individually but solely as President of Le Petomane XXVIII, Inc., not individually but solely in the representative capacity as the Trustee of the DPH Environmental Response Trust, who acknowledged that he, being authorized to do so, executed the foregoing Easement Agreement for the purposes therein contained by signing the name of said entity by himself or herself as such officer of the Trustee.

WITNESS my hand and seal the day and year aforesaid.

_____
Print Name: Todd W. Koller
Notary Public, State of Tennessee
County of Williamson
Acting in the County of Williamson
My commission expires: 11.27.2021

TODD W. KOLLER
STATE OF TENNESSEE NOTARY PUBLIC
COUNTY OF WILLIAMSON

TAX PARCEL IDENTIFICATION NUMBERS: 19-2249-00000 & 19-2231-00100
DRAFTED BY AND WHEN RECORDED MAIL TO:
Carl P. Garvey
General Counsel
Revitalizing Auto Communities Environmental Response Trust
500 Woodward Avenue, Suite 2650
Detroit, Michigan 48226

EXHIBIT 1
LEGAL DESCRIPTION & DEPICTION OF RACER PROPERTY

Land situated in the City of Saginaw, County of Saginaw, State of Michigan, and more particularly described as follows, to wit:

A parcel of land in the Southwest ¼ of Section 35, Township 12 North, Range 4 East described as: Beginning at a point on the West line of said Section 35, 787.14 feet North 00 degrees 36 minutes 00 seconds East of the Southwest corner of said Section; thence continue on said West Section line 535.24 feet; thence South 89 degrees 24 minutes 46 seconds East 300.00 feet; thence South 00 degrees 36 minutes 00 seconds West parallel with said West Section line 536.79 feet to the North line of the South half of side of-called South 80.77 acres of said Southwest ¼; thence North 89 degrees 07 minutes 00 seconds West on said North line 300.00 feet to the point of beginning. Containing 3.69 acres of land, more or less.

And also,

A parcel of land in the Southwest ¼ of Section 35, Township 12 North, Range 4 East described as: Beginning at a point on the West line of said Section 35, 787.14 feet North 00 degrees 36 minutes 00 seconds East of the Southwest corner of said Section; thence continuing North along said West Section line 223.67 feet; thence North 89 degrees 24 minutes 46 seconds West 83.10 feet; thence North 16 degrees 02 minutes 29 seconds West 267.58 feet; South 89 degrees 24 minutes 46 seconds East 157.05 feet; thence along said Section line North 00 degrees 36 minutes 00 seconds East 54.91 feet; thence South 89 degrees 24 minutes 46 seconds East 300.00 feet; thence South 00 degrees 36 minutes 00 seconds West parallel with said West Section line 536.79 feet to the North line of the South half of side of-called South 80.77 acres of said Southwest ¼; thence North 89 degrees 07 minutes 00 seconds West on said North line 300.00 feet to the point of beginning.

Tax Parcel ID(s): 19-2231-00100 and portion of 19-2249-00000.

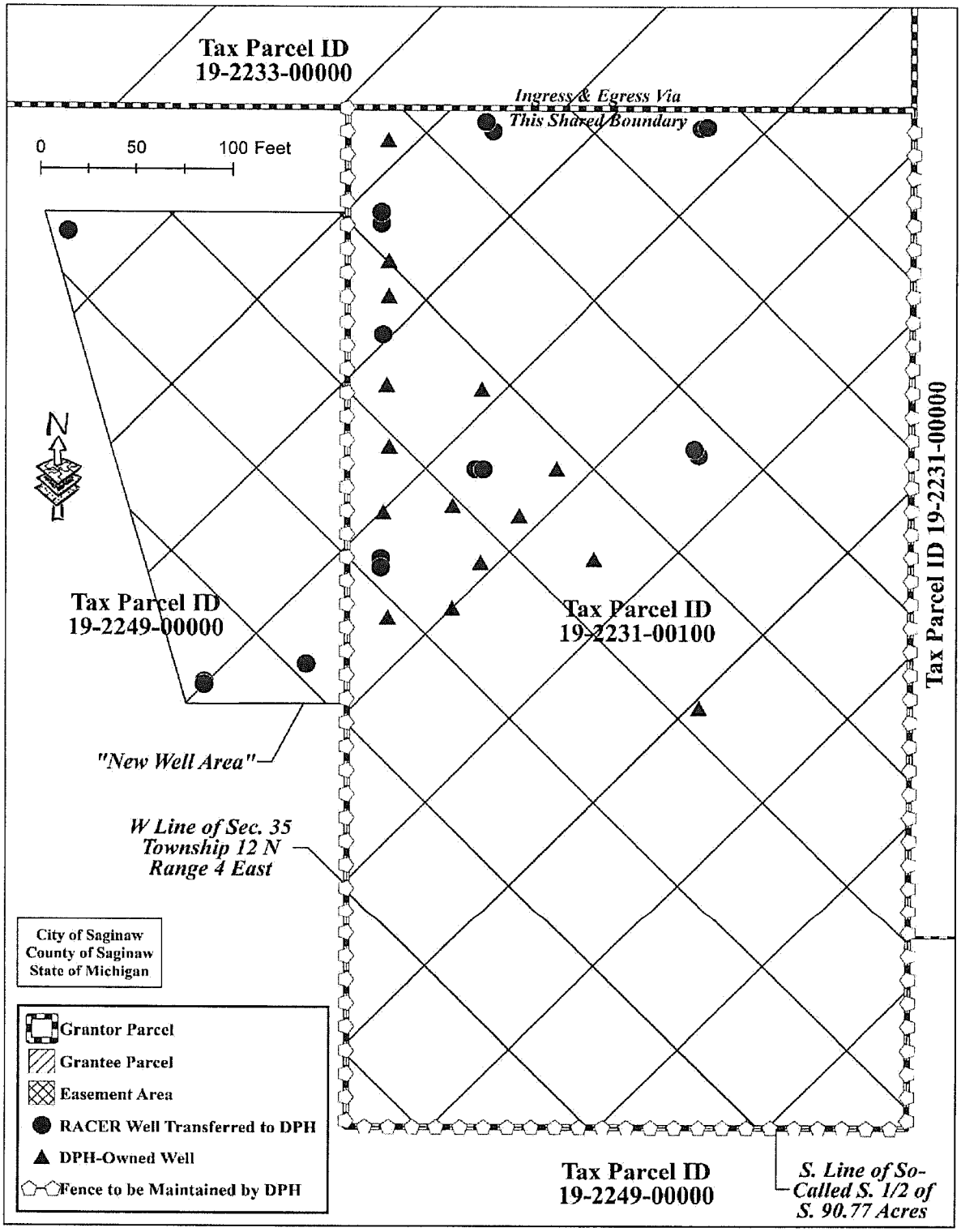

Tax Parcel ID
19-2233-00000
Ingress & Egress Via
This Shared Boundary
0
50
100 Feet
N
Tax Parcel ID
19-2249-00000
Tax Parcel ID
19-2231-00100
Tax Parcel ID 19-2231-00000
"New Well Area"
W Line of Sec. 35
Township 12 N
Range 4 East
City of Saginaw
County of Saginaw
State of Michigan
Grantor Parcel
Grantee Parcel
Easement Area
RACER Well Transferred to DPH
DPH-Owned Well
Fence to be Maintained by DPH
Tax Parcel ID
19-2249-00000
S. Line of So-
Called S. 1/2 of
S. 90.77 Acres

EXHIBIT 2
BILL OF SALE

THIS BILL OF SALE (this "**Bill of Sale**") is made and entered into as of May 21, 2019, by and between the REVITALIZING AUTO COMMUNITIES ENVIRONMENTAL RESPONSE TRUST, a trust formed under the laws of the State of New York (the "**Trust**"), and DPH ENVIRONMENTAL RESPONSE TRUST (the "**DPH Trust**"), by and through Le Petomane XXVIII, Inc., not individually, but solely as trustee of the DPH Trust ("**Buyer**").

RECITALS

This Agreement is made with respect to the following facts:

A. The Trust and Buyer entered into an Easement Agreement dated May 21, 2019 (the "**Easement Agreement**") related to real property located at 79 West Center Street, Saginaw, Saginaw County, Michigan (the "**Real Property**").

B. The Trust is the owner of those certain monitoring wells and a staff gauge located, placed or installed on or about the Real Property as depicted and designated on Exhibit A (the "**Personal Property**").

C. In connection with the Easement Agreement, the Trust desires to sell and convey to Buyer the Personal Property.

AGREEMENT

For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto hereby agree as follows:

1. Transferred Property. The Trust hereby sells, conveys, transfers, assigns, and delivers to Buyer all of the Trust's right, title and interest in and to the Personal Property, "AS-IS," without warranties or representations of any kind whatsoever; provided, however, that Seller hereby warrants that it is the true owner of the Personal Property and has the ability to convey same free and clear of any liens or encumbrances, and binds itself and its successors to warrant and defend the title to the Personal Property as against all persons claiming under Seller, and no others.

2. Binding Effect. This Bill of Sale shall bind and inure to Trust and Buyer and their respective successors and assigns.

3. Counterparts/Facsimile or Electronic Signatures. This Bill of Sale may be executed in a number of identical counterparts, each of which for all purposes shall be deemed an original, and all of such counterparts together shall constitute one and the same Bill of Sale. This Bill of Sale may be executed by facsimile or electronic signature which shall be deemed binding upon the parties with an original to follow via mail.

[Signatures on following page.]

Signature Page to Bill of Sale by and between Revitalizing Auto Communities Environmental Response Trust and DPH Environmental Response Trust

IN WITNESS WHEREOF, Trust and Buyer have executed this Bill of Sale as of the date set forth above.

TRUST:

REVITALIZING AUTO COMMUNITIES ENVIRONMENTAL RESPONSE TRUST, a trust Formed under the laws of the State of New York

By: EPLET, LLC, acting solely in its capacity as Administrative Trustee of Revitalizing Auto Communities Environmental Response Trust

By: _____
ELLIOTT P. LAWS, not individually, but acting solely in his capacity as Managing Member

BUYER:

DPH Environmental Response Trust, by and through Le Petomane XXVIII, Inc., not individually but solely as Trustee of the DPH Environmental Response Trust

By: _____
Jay A. Steinberg, not individually but solely as President of the DPH Environmental Response Trust Trustee

Signature Page to Bill of Sale by and between Revitalizing Auto Communities Environmental Response Trust and DPH Environmental Response Trust

IN WITNESS WHEREOF, Trust and Buyer have executed this Bill of Sale as of the date set forth above.

TRUST:

REVITALIZING AUTO COMMUNITIES ENVIRONMENTAL RESPONSE TRUST, a trust Formed under the laws of the State of New York

By: EPLET, LLC, acting solely in its capacity as Administrative Trustee of Revitalizing Auto Communities Environmental Response Trust

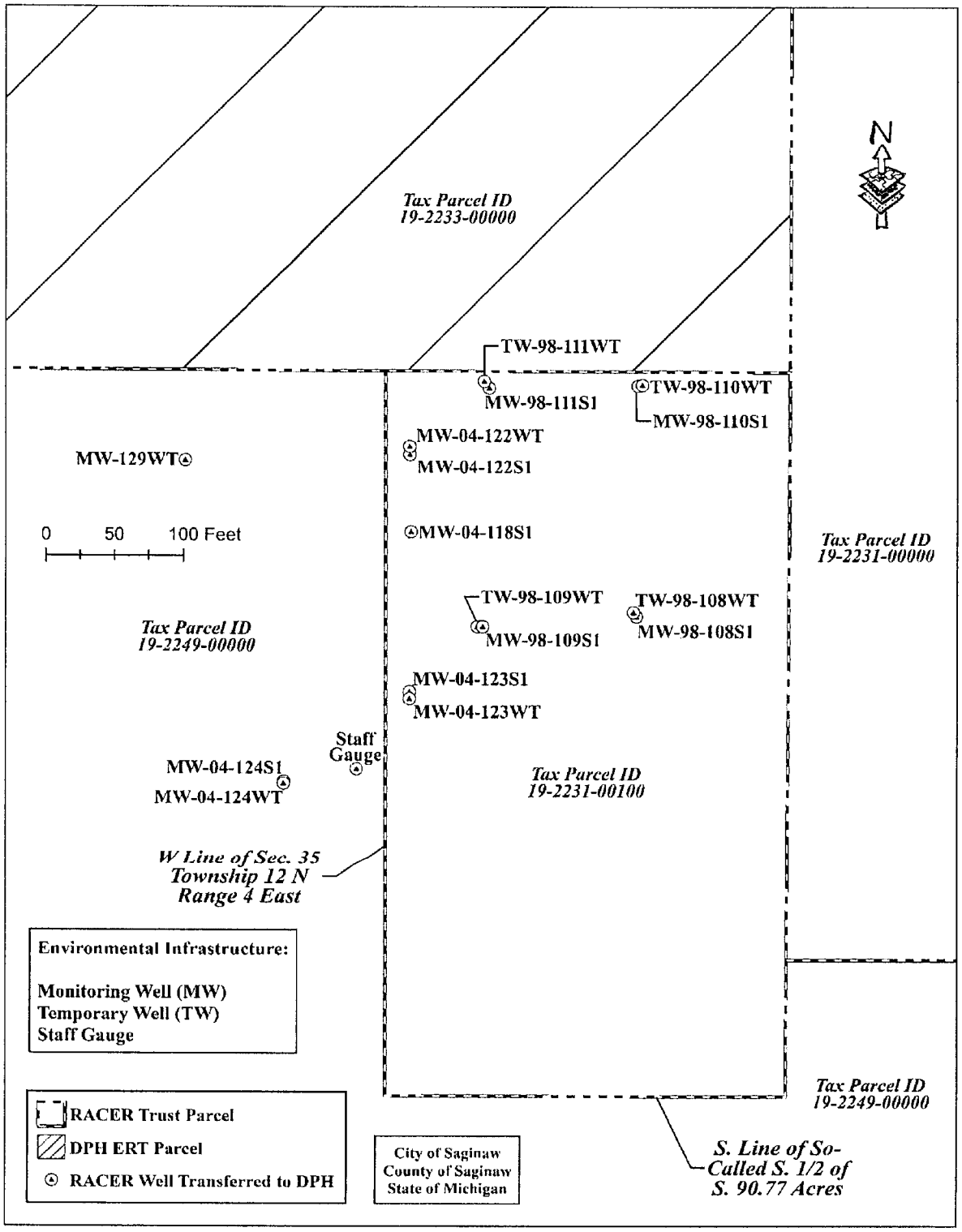
By: _____
ELLIOTT P. LAWS, not individually, but acting solely in his capacity as Managing Member

BUYER:

DPH Environmental Response Trust, by and through Le Petomane XXVIII, Inc., not individually but solely as Trustee of the DPH Environmental Response Trust

By: _____
Jay A. Steinberg, not individually but solely as President of the DPH Environmental Response Trust Trustee

EXHIBIT A



4823-5781-4136.11

ATTACHMENT 2

Monitoring Well Abandonment Record

ARCADIS Design & Consultancy for natural and built assets

MONITOR WELL ABANDONMENT RECORD

Site Name: Racer Saginaw County: Saginaw

Well ID#: .

Date Installed: Date Abandoned: Drilling Firm:

Well Depth: ft Screen Depth from TOC: ft Water Table Depth from TOC: ft

Casing Type: Galvanized ☐ PVC ☐ Stainless Steel ☐ ID: 2" ☐ 4" ☐

Screen Type: PVC ☐ Stainless Steel ☐ Length: ft

2" Annulus Grouted: Yes ☐ No ☐ from ft to ft Grout Type

4" Annulus Grouted: Yes ☐ No ☐ from ft to ft Grout Type:

Casing: Pulled ☐ Cut ☐ Depth BGS: Well Grouted? Yes ☐ No ☐

Grout Type: Bentonite ☐ Cement ☐ Grouting Method: Through Casing ☐ Tremie ☐ Other ☐ (explain)

Crew: Location Sketch:

Comments:

Signature of Consultant/Engineer Date

Printed Name of Consultant/Engineer Date

Attachment 2

Abandonment Documentation

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: MW-2A

Site Name: Racer Saginaw

County: Saginaw

Well ID: MW-2A

Project Number: 30169042

Date Installed:

Date Abandoned: 6/1/2023

Subcontractor: JSS

Well Depth: 16.5 ft

Screen Depth from TOC (ft): ft

Water Table Depth from TOC: NA ft

Casing Type: Galvanized ☐ PVC ☑ Stainless Steel ☐ ID: 2in ☑ 4in ☐

Screen Type: PVC ☐ Stainless steel ☐ Abandoned Screen Length: ft

2in Annulus Grouted: Yes ☑ No ☐ from 0 ft to 16.5 ft Grout Type: Bentonite

4in Annulus Grouted: Yes ☐ No ☐ from __ ft to __ ft Grout Type: _____

Casing: Pulled ☐ Cut ☐ Depth BGS: Well Grouted? Yes ☑ No ☐

Grout Type: Bentonite ☑ Cement ☐ Grout Mixture: Chips ☐ Slurry ☑

Grouting Method: Through Casing ☐ Tremie ☐ Poured ☑

Other ☐ Grouting Method Other:

Crew: JSS

Comments: Due to condition of surrounding area, well could not be removed. Well abandoned in place and filled with grout slurry.

Notes:

ft - feet in - inches TOC - Top of Casing

ID - Inside Diameter BGS - Below ground surface

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: MW-2A

Well before Abandonment



Well after Abandonment



Additional Photos



Signature Of Consultant

Arcadis/System Technician — Company / Position

6/1/2023 — Date

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: MW-2B

Site Name: Racer Saginaw

County: Saginaw

Well ID: MW-2B

Project Number: 30169042

Date Installed:

Date Abandoned: 6/1/2023

Subcontractor: JSS

Well Depth: 49.5 ft

Screen Depth from TOC (ft): ft

Water Table Depth from TOC: NA ft

Casing Type: Galvanized ☐ PVC ☑ Stainless Steel ☐ ID: 2in ☑ 4in ☐

Screen Type: PVC ☐ Stainless steel ☐ Abandoned Screen Length: ft

2in Annulus Grouted: Yes ☑ No ☐ from 0 ft to 49 ft Grout Type: Bentonite

4in Annulus Grouted: Yes ☐ No ☐ from __ ft to __ ft Grout Type: _____

Casing: Pulled ☐ Cut ☐ Depth BGS: Well Grouted? Yes ☑ No ☐

Grout Type: Bentonite ☑ Cement ☐ Grout Mixture: Chips ☐ Slurry ☑

Grouting Method: Through Casing ☐ Tremie ☐ Poured ☑

Other ☐ Grouting Method Other:

Crew: JSS

Comments: Due to condition of surrounding area, well could not be removed. Well abandoned in place and filled with bentonite slurry.

Notes:

ft - feet in - inches TOC - Top of Casing

ID - Inside Diameter BGS - Below ground surface

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: MW-2B

Well before Abandonment

No pre-abandonment photo was collected

Well after Abandonment



Additional Photos



Signature Of Consultant

Arcadis/System Technician — Company / Position

6/1/2023 — Date

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: MW-2CAUG

Site Name: Racer Saginaw

County: Saginaw

Well ID: MW-2CAUG

Project Number: 30169042

Date Installed:

Date Abandoned: 6/1/2023

Subcontractor: JSS

Well Depth: 32.5 ft

Screen Depth from TOC (ft): ft

Water Table Depth from TOC: 2 ft

Casing Type: Galvanized ☐ PVC ☑ Stainless Steel ☐ ID: 2in ☑ 4in ☐

Screen Type: PVC ☐ Stainless steel ☐ Abandoned Screen Length: 32.5 ft

2in Annulus Grouted: Yes ☑ No ☐ from 0 ft to 32 ft Grout Type: Bentonite

4in Annulus Grouted: Yes ☐ No ☐ from __ ft to __ ft Grout Type: _____

Casing: Pulled ☐ Cut ☐ Depth BGS: Well Grouted? Yes ☑ No ☐

Grout Type: Bentonite ☑ Cement ☐ Grout Mixture: Chips ☐ Slurry ☑

Grouting Method: Through Casing ☐ Tremie ☐ Poured ☑

Other ☐ Grouting Method Other:

Crew:

Comments: Due to condition of surrounding area, well could not be removed. Well abandoned in place and filled with bentonite slurry.

Notes:

ft - feet in - inches TOC - Top of Casing

ID - Inside Diameter BGS - Below ground surface

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: MW-2CAUG

Well before Abandonment



Well after Abandonment



Additional Photos



Signature Of Consultant

Arcadis/System Technician — Company / Position

6/1/2023 — Date

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: MW-3A

Site Name: Racer Saginaw

County: Saginaw

Well ID: MW-3A

Project Number: 30169042

Date Installed:

Date Abandoned: 5/30/2023

Subcontractor: JSS

Well Depth: 14.5 ft

Screen Depth from TOC (ft): ft

Water Table Depth from TOC: 2 ft

Casing Type: Galvanized ☐ PVC ☑ Stainless Steel ☐ ID: 2in ☑ 4in ☐

Screen Type: PVC ☑ Stainless steel ☐ Abandoned Screen Length: ft

2in Annulus Grouted: Yes ☑ No ☐ from 2 ft to 14.5 ft Grout Type: Bentonite

4in Annulus Grouted: Yes ☐ No ☐ from __ ft to __ ft Grout Type: _____

Casing: Pulled ☐ Cut ☑ Depth BGS: 2 Well Grouted? Yes ☑ No ☐

Grout Type: Bentonite ☑ Cement ☐ Grout Mixture: Chips ☐ Slurry ☑

Grouting Method: Through Casing ☐ Tremie ☐ Poured ☑

Other ☐ Grouting Method Other:

Crew: JSS, Ian

Comments: Could not pull, grout in place, cut casing in attempted to drive boat over top of to use winch. Was unsuccessful.

Notes:

ft - feet in - inches TOC - Top of Casing

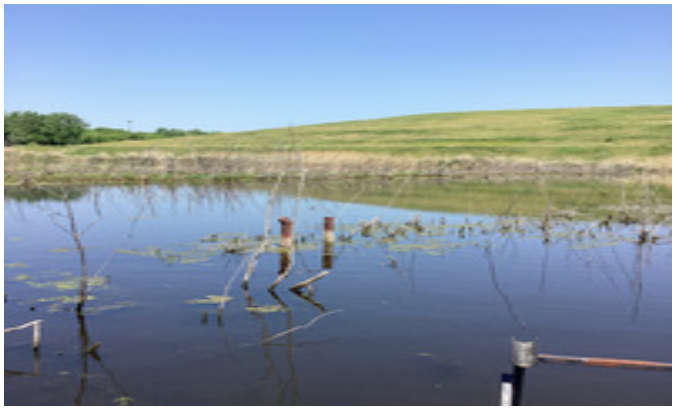
ID - Inside Diameter BGS - Below ground surface

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: MW-3A

Well before Abandonment



Well after Abandonment



Signature Of Consultant

Arcadis/system tech

Company / Position

5/30/2023

Date

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: MW-3B

Site Name: Racer Saginaw

County: Saginaw

Well ID: MW-3B

Project Number: 30169042

Date Installed:

Date Abandoned: 5/30/2023

Subcontractor: JSS

Well Depth: 31.5 ft

Screen Depth from TOC (ft): NA ft

Water Table Depth from TOC: 2 ft

Casing Type: Galvanized ☐ PVC ☑ Stainless Steel ☐ ID: 2in ☑ 4in ☐

Screen Type: PVC ☑ Stainless steel ☐ Abandoned Screen Length: ft

2in Annulus Grouted: Yes ☑ No ☐ from 2 ft to 31.5 ft Grout Type: Bentonite

4in Annulus Grouted: Yes ☐ No ☐ from __ ft to __ ft Grout Type: _____

Casing: Pulled ☐ Cut ☑ Depth BGS: 2 Well Grouted? Yes ☑ No ☐

Grout Type: Bentonite ☑ Cement ☐ Grout Mixture: Chips ☐ Slurry ☑

Grouting Method: Through Casing ☐ Tremie ☐ Poured ☑

Other ☐ Grouting Method Other:

Crew: JSS,Ian

Comments: Could not pull well. Grout in place.

Notes:

ft - feet in - inches TOC - Top of Casing

ID - Inside Diameter BGS - Below ground surface

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: MW-3B

Well before Abandonment



Well after Abandonment



Signature Of Consultant

Arcadis/system tech — Company / Position

5/30/2023 — Date

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: MW-123S1

Site Name: Racer Saginaw

County: Saginaw

Well ID: MW-123S1

Project Number: 30169042

Date Installed:

Date Abandoned: 2/20/2023

Subcontractor: JSS

Well Depth: 24.3 ft

Screen Depth from TOC (ft): ft

Water Table Depth from TOC: 2.08 ft

Casing Type: Galvanized ☐ PVC ☑ Stainless Steel ☐ ID: 2in ☑ 4in ☐

Screen Type: PVC ☑ Stainless steel ☐ Abandoned Screen Length: 5 ft

2in Annulus Grouted: Yes ☑ No ☐ from ft to 20 ft Grout Type: Chips

4in Annulus Grouted: Yes ☐ No ☐ from __ ft to __ ft Grout Type: _____

Casing: Pulled ☐ Cut ☑ Depth BGS: 2 Well Grouted? Yes ☑ No ☐

Grout Type: Bentonite ☐ Cement ☐ Grout Mixture: Chips ☑ Slurry ☐

Grouting Method: Through Casing ☐ Tremie ☐ Poured ☑

Other ☐ Grouting Method Other:

Crew:

Comments:

Notes:

ft - feet in - inches TOC - Top of Casing

ID - Inside Diameter BGS - Below ground surface

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: MW-123S1

Well before Abandonment



Well after Abandonment



Signature Of Consultant

Arcadia/System Technician

Company / Position

2/20/2023

Date

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: MW-123WT

Site Name: Racer Saginaw

County: Saginaw

Well ID: MW-123WT

Project Number: 30169042

Date Installed:

Date Abandoned: 2/20/2023

Subcontractor: JSS

Well Depth: 14.6 ft

Screen Depth from TOC (ft): ft

Water Table Depth from TOC: 2.31 ft

Casing Type: Galvanized ☐ PVC ☑ Stainless Steel ☐ ID: 2in ☑ 4in ☐

Screen Type: PVC ☑ Stainless steel ☐ Abandoned Screen Length: 5 ft

2in Annulus Grouted: Yes ☑ No ☐ from ft to 12 ft Grout Type: Chips

4in Annulus Grouted: Yes ☐ No ☐ from __ ft to __ ft Grout Type: _____

Casing: Pulled ☐ Cut ☑ Depth BGS: 2 Well Grouted? Yes ☑ No ☐

Grout Type: Bentonite ☐ Cement ☐ Grout Mixture: Chips ☑ Slurry ☐

Grouting Method: Through Casing ☐ Tremie ☐ Poured ☑

Other ☐ Grouting Method Other:

Crew:

Comments:

Notes:

ft - feet in - inches TOC - Top of Casing

ID - Inside Diameter BGS - Below ground surface

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: MW-123WT

Well before Abandonment



Well after Abandonment



Additional Photos



Signature Of Consultant

Arcadis/System Technician — Company / Position

2/20/2023 — Date

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: MW-127S1

Site Name: Racer Saginaw

County: Saginaw

Well ID: MW-127S1

Project Number: 30169042

Date Installed:

Date Abandoned: 5/30/2023

Subcontractor: JSS

Well Depth: 24.5 ft

Screen Depth from TOC (ft): NA ft

Water Table Depth from TOC: 0 ft

Casing Type: Galvanized ☐ PVC ☑ Stainless Steel ☐ ID: 2in ☑ 4in ☐

Screen Type: PVC ☑ Stainless steel ☐ Abandoned Screen Length: ft

2in Annulus Grouted: Yes ☑ No ☐ from 0 ft to 24.5 ft Grout Type: Bentonite

4in Annulus Grouted: Yes ☐ No ☐ from __ ft to __ ft Grout Type: _____

Casing: Pulled ☐ Cut ☑ Depth BGS: 1 Well Grouted? Yes ☑ No ☐

Grout Type: Bentonite ☑ Cement ☐ Grout Mixture: Chips ☐ Slurry ☑

Grouting Method: Through Casing ☐ Tremie ☐ Poured ☑

Other ☐ Grouting Method Other:

Crew: JSS, Ian

Comments: Could not pull well, grout in place

Notes:

ft - feet in - inches TOC - Top of Casing

ID - Inside Diameter BGS - Below ground surface

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: MW-127S1

Well before Abandonment



Well after Abandonment



Signature Of Consultant

Arcadis/system tech

Company / Position

5/30/2023

Date

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: MW-127WT

Site Name: Racer Saginaw

County: Saginaw

Well ID: MW-127WT

Project Number: 30169042

Date Installed:

Date Abandoned: 5/30/2023

Subcontractor: JSS

Well Depth: 14.82 ft

Screen Depth from TOC (ft): NA ft

Water Table Depth from TOC: 0 ft

Casing Type: Galvanized ☐ PVC ☑ Stainless Steel ☐ ID: 2in ☑ 4in ☐

Screen Type: PVC ☑ Stainless steel ☐ Abandoned Screen Length: ft

2in Annulus Grouted: Yes ☑ No ☐ from 0 ft to 14.82 ft Grout Type: Bentonite

4in Annulus Grouted: Yes ☐ No ☐ from __ ft to __ ft Grout Type: _____

Casing: Pulled ☐ Cut ☑ Depth BGS: 3 Well Grouted? Yes ☑ No ☐

Grout Type: Bentonite ☑ Cement ☐ Grout Mixture: Chips ☐ Slurry ☑

Grouting Method: Through Casing ☐ Tremie ☐ Poured ☑

Other ☐ Grouting Method Other:

Crew: JSS,Ian

Comments: Pulled stick up, grouted well in place

Notes:

ft - feet in - inches TOC - Top of Casing

ID - Inside Diameter BGS - Below ground surface

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: MW-127WT

Well before Abandonment



Well after Abandonment



Signature Of Consultant

Arcadis/system tech

Company / Position

5/30/2023

Date

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: X-12AR

Site Name: Racer Saginaw

County: Saginaw

Well ID: X-12AR

Project Number: 30169042

Date Installed:

Date Abandoned: 5/30/2023

Subcontractor: JSS

Well Depth: 8 ft

Screen Depth from TOC (ft): NA ft

Water Table Depth from TOC: 0.4 ft

Casing Type: Galvanized ☐ PVC ☑ Stainless Steel ☐ ID: 2in ☑ 4in ☐

Screen Type: PVC ☑ Stainless steel ☐ Abandoned Screen Length: ft

2in Annulus Grouted: Yes ☑ No ☐ from 0 ft to 8 ft Grout Type: Bentonite

4in Annulus Grouted: Yes ☐ No ☐ from __ ft to __ ft Grout Type: _____

Casing: Pulled ☐ Cut ☐ Depth BGS: Well Grouted? Yes ☑ No ☐

Grout Type: Bentonite ☑ Cement ☐ Grout Mixture: Chips ☐ Slurry ☑

Grouting Method: Through Casing ☐ Tremie ☐ Poured ☑

Other ☐ Grouting Method Other:

Crew: JSS, Ian

Comments: Could not get the boat close to well. Grout in place.

Notes:

ft - feet in - inches TOC - Top of Casing

ID - Inside Diameter BGS - Below ground surface

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: X-12AR

Well before Abandonment



Well after Abandonment



Signature Of Consultant

Arcadis/system tech

Company / Position

5/30/2023

Date

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: X-12CAUG

Site Name: Racer Saginaw

County: Saginaw

Well ID: X-12CAUG

Project Number: 30169042

Date Installed:

Date Abandoned: 5/30/2023

Subcontractor: JSS

Well Depth: 21.3 ft

Screen Depth from TOC (ft): NA ft

Water Table Depth from TOC: 1.3 ft

Casing Type: Galvanized ☐ PVC ☑ Stainless Steel ☐ ID: 2in ☑ 4in ☐

Screen Type: PVC ☑ Stainless steel ☐ Abandoned Screen Length: ft

2in Annulus Grouted: Yes ☑ No ☐ from 2 ft to 21.3 ft Grout Type: Bentonite

4in Annulus Grouted: Yes ☐ No ☐ from __ ft to __ ft Grout Type: _____

Casing: Pulled ☐ Cut ☑ Depth BGS: 2 Well Grouted? Yes ☑ No ☐

Grout Type: Bentonite ☑ Cement ☐ Grout Mixture: Chips ☐ Slurry ☑

Grouting Method: Through Casing ☐ Tremie ☐ Poured ☑

Other ☐ Grouting Method Other:

Crew: JSS

Comments: Could not get the boat close. Filled and cut down well.

Notes:

ft - feet in - inches TOC - Top of Casing

ID - Inside Diameter BGS - Below ground surface

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: X-12CAUG

Well before Abandonment



Well after Abandonment



Signature Of Consultant

Arcadis/system tech

Company / Position

5/30/2023

Date

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: X-13AR

Site Name: Racer Saginaw

County: Saginaw

Well ID: X-13AR

Project Number: 30169042

Date Installed:

Date Abandoned: 5/31/2023

Subcontractor: JSS

Well Depth: 14.93 ft

Screen Depth from TOC (ft): ft

Water Table Depth from TOC: 0.29 ft

Casing Type: Galvanized ☐ PVC ☑ Stainless Steel ☐ ID: 2in ☑ 4in ☐

Screen Type: PVC ☑ Stainless steel ☐ Abandoned Screen Length: ft

2in Annulus Grouted: Yes ☑ No ☐ from 2 ft to 15 ft Grout Type: Bentonite

4in Annulus Grouted: Yes ☐ No ☐ from __ ft to __ ft Grout Type: _____

Casing: Pulled ☐ Cut ☑ Depth BGS: 2 Well Grouted? Yes ☑ No ☐

Grout Type: Bentonite ☑ Cement ☐ Grout Mixture: Chips ☐ Slurry ☑

Grouting Method: Through Casing ☐ Tremie ☐ Poured ☑

Other ☐ Grouting Method Other:

Crew: JSS, Ian

Comments: Pulled stickup cover. Could not pull well. Filled with grout and cut well.

Notes:

ft - feet in - inches TOC - Top of Casing

ID - Inside Diameter BGS - Below ground surface

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: X-13AR

Well before Abandonment



Well after Abandonment



Signature Of Consultant

Arcadis/system tech

Company / Position

5/31/2023

Date

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: X-13CAUG

Site Name: Racer Saginaw

County: Saginaw

Well ID: X-13CAUG

Project Number: 30169042

Date Installed:

Date Abandoned: 5/31/2023

Subcontractor: JSS

Well Depth: 44.45 ft

Screen Depth from TOC (ft): ft

Water Table Depth from TOC: 0.37 ft

Casing Type: Galvanized [ ] PVC [✓] Stainless Steel [ ] ID: 2in [✓] 4in [ ]

Screen Type: PVC [✓] Stainless steel [ ] Abandoned Screen Length: ft

2in Annulus Grouted: Yes [✓] No [ ] from 2 ft to 44.45 ft Grout Type: Bentonite

4in Annulus Grouted: Yes [ ] No [ ] from __ ft to __ ft Grout Type: _____

Casing: Pulled [ ] Cut [✓] Depth BGS: 2 Well Grouted? Yes [✓] No [ ]

Grout Type: Bentonite [✓] Cement [ ] Grout Mixture: Chips [ ] Slurry [✓]

Grouting Method: Through Casing [ ] Tremie [ ] Poured [✓]

Other [ ] Grouting Method Other:

Crew: JSS, Ian

Comments: Cover was pulled. Well could not be pulled. Well filled with grout and cut.

Notes:

ft - feet in - inches TOC - Top of Casing

ID - Inside Diameter BGS - Below ground surface

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: X-13CAUG

Well before Abandonment



Well after Abandonment



Signature Of Consultant

Arcadis/system tech

Company / Position

5/31/2023

Date

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: X-14A

Site Name: Racer Saginaw

County: Saginaw

Well ID: X-14A

Project Number: 30169042

Date Installed:

Date Abandoned: 5/30/2023

Subcontractor: JSS

Well Depth: 8.3 ft

Screen Depth from TOC (ft): 5 ft

Water Table Depth from TOC: 1.42 ft

Casing Type: Galvanized [✓] PVC [ ] Stainless Steel [ ] ID: 2in [✓] 4in [ ]

Screen Type: PVC [ ] Stainless steel [✓] Abandoned Screen Length: 3 ft

2in Annulus Grouted: Yes [✓] No [ ] from 2 ft to 8 ft Grout Type: Bentonite

4in Annulus Grouted: Yes [ ] No [ ] from __ ft to __ ft Grout Type: _____

Casing: Pulled [✓] Cut [ ] Depth BGS: Well Grouted? Yes [✓] No [ ]

Grout Type: Bentonite [✓] Cement [ ] Grout Mixture: Chips [ ] Slurry [✓]

Grouting Method: Through Casing [ ] Tremie [ ] Poured [✓]

Other [ ] Grouting Method Other:

Crew: JSS, Ian

Comments: Crew pulled well before I could get a before pic. Pictures are facing south due to location.

Notes:

ft - feet in - inches TOC - Top of Casing

ID - Inside Diameter BGS - Below ground surface

MONITOR WELL ABANDONMENT RECORD

Site Name : Racer Saginaw

Well ID: X-14A

Well before Abandonment



Well after Abandonment



Signature Of Consultant

Arcadis/system tech — Company / Position

5/30/2023 — Date

Attachment 2

SMI and Green Point Landfill Site Inspection Forms

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240

Inspector Name:	Billy Cobern
Inspector Date and Time:	9/15/2023 12:00:00 AM / 07:30
Weather Conditions:	64.40 degrees F and
Inspector Signature:	

Green Point Landfill

Location	No Issue	Potential Issue Description, if identified[1] Note if issue is from property use or naturally occurring	Date Record of Maintenance Was Completed
Site Access Road			
Erosion/Washout/Settlement	x	No erosion, washout, settlement observed	
Sufficient Gravel	x	Gravel areas have sufficient gravel	

Photo with description



West Gate to GPL and access road



Access road to the top of GPL

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

28550 Cabot Dr Suite 500
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Access road to the west from “T”



Access road looking down



Access road south from the NW corner

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

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	Access road looking east from the SW corner
	Access road looking west from the SE corner
	Access road looking north from the SE corner

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

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East gate and access road looking south from the NE corner

Location	No Issue	Potential Issue Description, if identified[1] Note if issue is from property use or naturally occurring	Date Record of Maintenance Was Completed
Landfill Cover			
Bare spots	x	No bare spots observed	
Stressed Vegetation	x	No signs of stressed vegetation	
Cracks or intrusions	x	No cracks or intrusions observed	
Burrowing Animals	x	No animal burrows observed	
Erosion	x	No erosion observed	
Washout	x	No wash out areas observed	
Settlement	x	No signs of settlement observed	
Water Ponding	x	No ponding water observed	
Protruding Objects	x	No protruding objects observed	
Undesirable (woody) Growth		Observed woody bush near "T", near bottom and middle of SW downchute, and near the SW corner of access road. Various woody bushes observed in other areas as well.	9/18/2023
Slope Movement	x	No slope movement observed	

Photo with description



North side from the NE corner

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

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East side from the NE corner



East side from the SE corner



South side from the SE corner

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

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South side from the SW corner



West side from the SW corner



West side from the NW corner

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

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North side from the NW corner



North side from "T"



Woody bush near "T" flagged for removal

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

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	Top of GPL looking east from turnaround area
	Top of GPL looking west from turnaround area
	Flagged woody growth near bottom of the SW downchute

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

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Woody bush flagged for removal near the SW corner of the access road.



Flagged woody growth south side of GPL north of MW-128

Location	No Issue	Potential Issue Description, if identified[1] Note if issue is from property use or naturally occurring	Date Record of Maintenance Was Completed
Leachate Breakouts			
Area Locations	x	No leachate breakouts observed	
Seepage or groundwater discharge	x	No seepage or groundwater discharge observed	
Location	No Issue	Potential Issue Description, if identified[1] Note if issue is from property use or naturally occurring	Date Record of Maintenance Was Completed
Surface Water Drainage System			
Drainage Swales	x	Drainage swales good	
Culverts	x	Culverts good	
Downchutes	x	Downchutes good	
Primary Sedimentation Basin	x		
Bank Erosion	x	No bank erosion observed	
Silt Levels	x		

Photo with description

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

28550 Cabot Dr Suite 500
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SW downchute from top of GPL



SW downchute from bottom



Culverts at SW corner on the north side of access road

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

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Culverts at SW corner south side of the access road

Location	No Issue	Potential Issue Description, if identified[1] Note if issue is from property use or naturally occurring	Date Record of Maintenance Was Completed
Gas Management System			
Vent Riser Condition	x	Vents good	
Vent Screen Condition	x	Vent screens intact	
Detectable Odor	x	No odor detected	
Surface Seal	x	Surface seals good	

Photo with description



Typical vent riser

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

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Typical vent screen

Location	No Issue	Potential Issue Description, if identified[1] Note if issue is from property use or naturally occurring	Date Record of Maintenance Was Completed
Overall Site Appearance	x	Good	

Location	No Issue	Potential Issue Description, if identified[1] Note if issue is from property use or naturally occurring	Date Record of Maintenance Was Completed
Mitigation Wetlands	x	Wetland area lower than last year	

Photo with description



Mitigation wetland south east

Site Inspection Form

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		Mitigation wetland south center
		Mitigation wetland south west
		South fence line of the mitigation wetland area

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

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SMI terminated Type III Landfills

Location	No Issue	Potential Issue Description, if identified[1] Note if issue is from property use or naturally occurring	Date Record of Maintenance Was Completed
Soil Cover			
Bare spots	x	No bare spots observed	
Stressed Vegetation	x	No stressed vegetation observed	
Cracks or intrusions	x	No cracks or intrusions observed	
Burrowing Animals	x	No animal burrows observed	
Erosion	x	No erosion observed	
Washout	x	No washout observed	
Settlement	x	No settlement observed	
Water Ponding	x	No ponding water observed	
Protruding Objects	x	No protruding objects observed	
Undesirable (woody) Growth	x	No undesirable growth observed	
Slope Movement	x	No slope movement observed	

Photo with description



South side of south landfill looking west



East side of south landfill looking north

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

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South side of south landfill looking east



West side of south landfill looking north



Top of south landfill looking east

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

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	North side of south landfill looking east
	East side of south landfill looking south
	North side of south landfill looking west

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

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West side of north landfill looking north



South side of north landfill looking north



South side of north landfill looking west

Site Inspection Form

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East side of north landfill looking north



North side of north landfill looking west



North side of north landfill looking east

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

28550 Cabot Dr Suite 500
Novi, MI 48377
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West side of north landfill looking south

Location	No Issue	Potential Issue Description, if identified[1] Note if issue is from property use or naturally occurring	Date Record of Maintenance Was Completed
Leachate Breakouts			
Area Locations	x	No leachate observed	
Seepage or groundwater discharge	x	No seepage or groundwater discharge observed	

Photo with description



Top off south landfill looking east

SMI Former Plant Slab Soil Cover Area

Includes the following subareas - I27.7 manhole area, former Melting Department Area, former Quench Pit Area

Location	No Issue	Potential Issue Description, if identified[1] Note if issue is from property use or naturally occurring	Date Record of Maintenance Was Completed
Soil Cover			
Bare spots	x	No bare spots observed	
Stressed Vegetation	x	No stressed vegetation observed	
Cracks or intrusions	x	No cracks or intrusions observed	
Burrowing Animals	x	No animal burrows observed	
Erosion	x	No erosion observed	

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

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Washout	x	No washout observed	
Settlement	x	No settlement observed	
Water Ponding	x	No ponding water observed	
Protruding Objects	x	No protruding objects observed	
Undesirable (woody) Growth	x	No woody growth observed	
Slope Movement	x	No slope movement observed	

Photo with description



North LNAPL area looking north



North LNAPL area looking west

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

28550 Cabot Dr Suite 500
Novi, MI 48377
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North LNAPL area looking east



North LNAPL area looking south

SMI Former Southwest LNAPL Area

Location	No Issue	Potential Issue Description, if identified[1] Note if issue is from property use or naturally occurring	Date Record of Maintenance Was Completed
Area Access Road			
Erosion/Washout/Settlement	x	No erosion observed	
Sufficient Gravel	x	Access road is mostly concrete/asphalt (new asphalt bike trail over existing concrete)	

Photo with description

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

28550 Cabot Dr Suite 500
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Access road looking southeast

Location	No Issue	Potential Issue Description, if identified[1] Note if issue is from property use or naturally occurring	Date Record of Maintenance Was Completed
Soil Cover			
Bare spots	x	No bare spots	
Stressed Vegetation	x	No stressed vegetation	
Cracks or intrusions	x	No cracks or intrusions	
Burrowing Animals	x	No animal burrows observed	
Erosion	x	No erosion observed	
Washout	x	No washout observed	
Settlement	x	No settlement observed	
Water Ponding	x	No ponded water	
Protruding Objects	x	No protruding objects observed	
Undesirable (woody) Growth	x	No woody growth observed	
Slope Movement	x	No slope movement observed	

Photo with description



SW Plant LNAPL area looking NW

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

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Former Railyard Area			
Location	No Issue	Potential Issue Description, if identified[1] Note if issue is from property use or naturally occurring	Date Record of Maintenance Was Completed
Soil Cover			
Bare spots	x	No bare spots observed	
Stressed Vegetation	x	No stressed vegetation observed	
Cracks or intrusions	x	No cracks or intrusions observed	
Burrowing Animals	x	No animal burrows observed	
Erosion	x	No erosion observed	
Washout	x	No washout observed	
Settlement	x	No settlement observed	
Water Ponding	x	No ponding water observed	
Protruding Objects	x	No protruding objects observed	
Undesirable (woody) Growth	x	No woody growth observed	
Slope Movement	x	No slope movement observed	

Photo with description



Former Railyard Area looking NW



Former Railyard area looking NE

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

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Peninsula Property

Location	No Issue	Potential Issue Description, if identified[1] Note if issue is from property use or naturally occurring	Date Record of Maintenance Was Completed
Soil Cover			
Bare spots	x	No bare spots observed	
Stressed Vegetation	x	No stressed vegetation observed	
Cracks or intrusions	x	No cracks or intrusions observed	
Burrowing Animals	x	No animal burrows observed	
Erosion	x	No erosion observed	
Washout	x	No washout observed	
Settlement	x	No settlement observed	
Water Ponding	x	No ponding water observed	
Protruding Objects	x	No protruding objects observed	
Undesirable (woody) Growth	x	No woody growth observed in the cover areas.	
Slope Movement	x	No slope movement observed	

Photo with description



Opening in fence on the east side. Internal fence to be assessed for repair next year.



Peninsula property exposure barrier area looking west

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240

SMI Stormwater Pond

Location	No Issue	Potential Issue Description, if identified[1] Note if issue is from property use or naturally occurring	Date Record of Maintenance Was Completed
Intrusive Restriction			
Disturbance to pond lining	x	Lining looks good	
Erosion	x	No erosion observed	
Evidence of Sheen	x	No sheen observed	
Signs of intrusive activity	x	No signs of intrusive activity.	

Photo with description



Storm water pond looking east



Storm water pond concrete structure looking north

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240



Storm water pond looking west

Overall Site Condition

Location	No Issue	Potential Issue Description, if identified[1] Note if issue is from property use or naturally occurring	Date Record of Maintenance Was Completed
Monitoring Wells / LNAPL Systems:			
Have any monitoring wells or LNAPL systems been damaged or destroyed?		MW-134WT well vault and pad destroyed during mowing activities	09/19/2023
Well Cap Integrity	x	All wells capped	09/19/2023
Well lock integrity	x	MW-134WT well vault and pad replaced on 9-19-23	09/19/2023

Photo with description



MW-134WT well vault and pad destroyed during mowing activities

Location	No Issue	Potential Issue Description, if identified[1] Note if issue is from property use or naturally occurring	Date Record of Maintenance Was Completed
Water Wells:			
Have any water wells been installed at the Property?	x	No known water wells on site	
Building Construction/Additions:			
Have any new buildings been constructed, added onto or any other redevelopment occurred at the Site?	x	No buildings on site	
Permanent Markers:			

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Site Inspection Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240

Location	No Issue	Potential Issue Description, if identified[1] Note if issue is from property use or naturally occurring	Date Record of Maintenance Was Completed
Are the markers visible and is the map and wording in legible condition with no vegetation blocking it?	x		
Evidence of Disturbance	x		
Land Use - Non-Residential/Passive Recreational:			
Location	No Issue	Potential Issue Description, if identified[1] Note if issue is from property use or naturally occurring	Date Record of Maintenance Was Completed
In accordance with the RC the land use needs to remain non-residential/passive recreational, is the property still non-	x		
Other items, if any:			
Location	No Issue	Potential Issue Description, if identified[1] Note if issue is from property use or naturally occurring	Date Record of Maintenance Was Completed
Please describe any other notable items identified during Inspection		N/A	

Notes:

1. If issue is identified, a Record of Maintenance Form must be completed

'- Use related refers to any wear or development that occurs as part of the daily use of the Property. An example would be trail use, etc.

'- Naturally occurring refers to any wear or damage caused by natural phenomenon. Examples include flooding, rain, spontaneous tree growth, etc.

'- Inspections to be completed annually

Submit completed form to EGLE Saginaw Bay District Office RRD, 401 Ketchum Street, Suite B, Bay City, MI 48708 attention Amanda Armbruster annually by December 20.

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Record of Maintenance Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240

Work Loction On-Site:	Overall Site Condition
Description of Work:	Replaced well vault at MW-134WT

Before Maintanence Photos:



1

After Maintanence Photos:



2

Materials Used:	Concrete, well vault
Personal Protective Equipment Used (if applicable):	Level D plus dust mask while mixing concrete
Work Performed By (Contractor Name):	Billy J Cobern Arcadis

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Record of Maintenance Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240

Address of Contractor:	Saginaw MI 48602 US
Telephone of Contractor:	8105883642
Start Date:	09/19/2023
Completion Date:	09/19/2023
Desginated Inspector:	Billy Cobern
Inspector Signature and Date:	##################

Comments:

Note - Submit completed form, if response actions are required, to EGLE annually according to the Postclosure Agreement and per Part 20114d(4)(a)-(c).

Work Loction On-Site:	Green Point Landfill
Description of Work:	Cut woody vegetation

Before Maintanence Photos:

		3	Woody bush 1

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Record of Maintenance Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240

		4	Woody bush 2
		5	Woody bush 3
		6	Woody bush 4

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Record of Maintenance Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240

		7	Woody bush 5
		8	Woody bush 6
		9	Woody bush 7

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Record of Maintenance Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240

		10	Woody bush 8
		11	Woody bush 9
		12	Woody bush 10

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Record of Maintenance Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240

		13	Woody bush 11
		14	Woody bush 12
		15	Woody bush 13

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Record of Maintenance Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240

		16	Woody bush 14
		17	Woody bush 15
		18	Woody bush 16

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Record of Maintenance Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240

		19	Woody bush 17
		20	Woody bush 18
		21	Woody bush 19

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Record of Maintenance Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240

		22	Woody bush 20
		23	Woody bush 21

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Record of Maintenance Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240

After Maintanence Photos:

		24	Woody bush 1
		25	Woody bush 2

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Record of Maintenance Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240

		26	Woody bush 3
		27	Woody bush 4
		28	Woody bush 5

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Record of Maintenance Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240

		29	Woody bush 6
		30	Woody bush 7
		31	Woody bush 8

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Record of Maintenance Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240

		32	Woody bush 9
		33	Woody bush 10
		34	Woody bush 11

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Record of Maintenance Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240

		35	Woody bush 12
		36	Woody bush 13
		37	Woody bush 14

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Record of Maintenance Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240

		38	Woody bush 15
		39	Woody bush 16
		40	Woody bush 17

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Record of Maintenance Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240

		41	Woody bush 18
		42	Woody bush 19
		43	Woody bush 20

Client Name: RACER Trust
Client Contact: Dave Favero
Site Name: RACER Saginaw
Site Address: 77 West Center Street
Saginaw, MI 48605

Record of Maintenance Form

28550 Cabot Dr Suite 500
Novi, MI 48377
(248) 994-2240

		44	Woody bush 21

Materials Used:	Hand cutter (lopper) and hand saw
Personal Protective Equipment Used (if applicable):	Level D with leather gloves
Work Performed By (Contractor Name):	Arcadis
Address of Contractor:	Saginaw MI 48602 US
Telephone of Contractor:	8105883642
Start Date:	09/18/2023
Completion Date:	09/18/2023
Desginated Inspector:	Billy Cobern
Inspector Signature and Date:	##################
Comments:	All located woody brush on GPL has been cut.

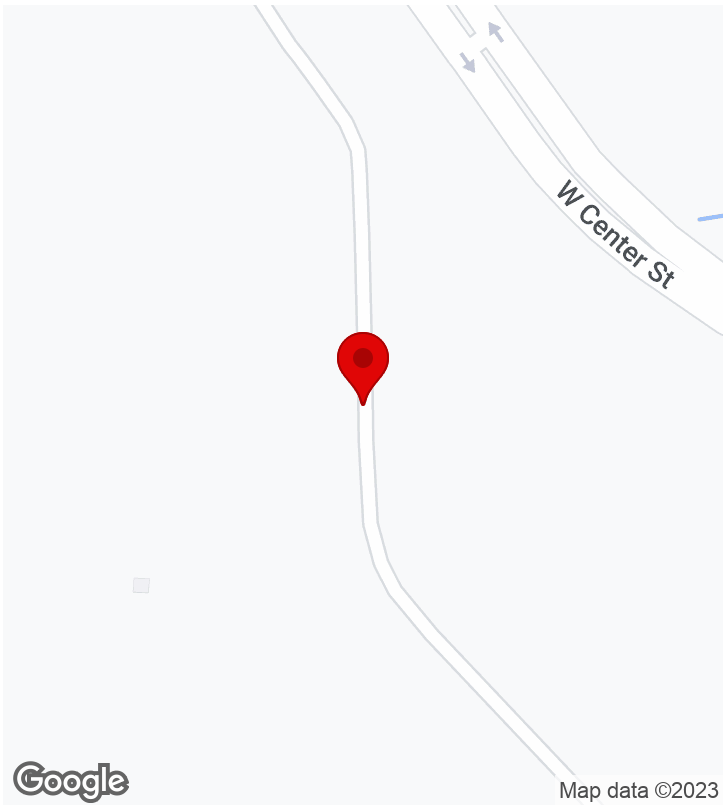
Note - Submit completed form, if response actions are required, to EGLE annually according to the Postclosure Agreement and per Part 20114d(4)(a)-(c).

RACER Trust IC/EC Inspection v2

A site inspection app made for Institutional Control (IC) and Engineering Control (EC) conformance across RACER Trust sites.

IC/EC Inspection Report for Saginaw Malleable Site at Green Point Landfill (11060) on September 19, 2022





INSPECTION DATE

9/18/2023, 2:30:01 PM UTC
by Billy J Cobern

UPDATED

12/8/2023, 5:29:04 PM UTC
by RACER User

LOCATION

43.401699, -83.969932

SITE NAME

Saginaw Malleable Site

ZONE NAME

Green Point Landfill (11060)

Site Description

Site Name	Saginaw Malleable Site
Site Zone	Green Point Landfill (11060)
Site Address	77 West Center Street
Site City	Saginaw
Site State	MI

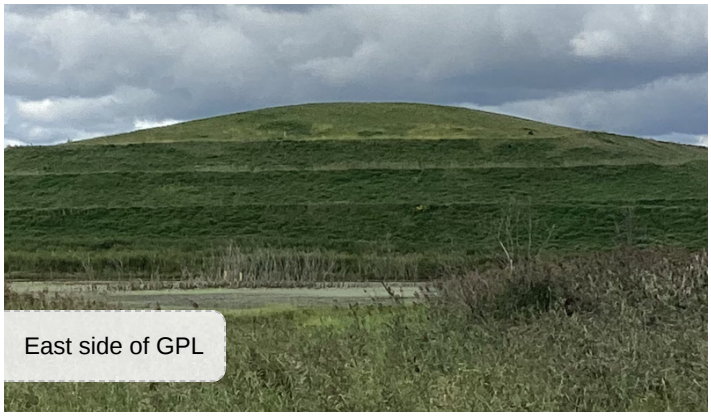
General Site Conditions

Describe on-site land use	Recreational
Describe off-site surrounding land use	Recreational, Open Space, Vacant
Describe any on-site ownership or tenancy changes.	None
Describe any needed on-site repairs	Several woody bushes were cut on GPL
Describe any on-site improvements	None
Weather Conditions at time of inspection	Partly Cloudy, 50's-60's

Photos of current conditions/uses



South side of GPL



East side of GPL

Inspect Institutional Controls and Engineering Controls

Institutional Controls (IC) (5 Items)

Institutional Controls (IC) - 1. Property-wide

Name of the IC	Property-wide
Characterize restricted activities and uses	Commercial Use Restriction, Drinking Water Well or GW Use Restriction, Excavation Restriction, Obligation to Maintain Vegetation, Underground Utility Construction or Repair Restriction, Obligation to Maintain Wells and Markers, Obligation to Manage Contaminated Soils

Is commerical use occurring?	No
Have drinking water wells been drilled, constructed, or used on the property for unauthorized purposes?	No
Has excavation occurred?	No
Is vegetation present and kept in acceptable condition?	Yes
Is new underground utility or repair observed?	No
Are all permanent survey markers, benchmarks, and monitoring stations in place as designed?	Yes
Other comments or notes about the IC?	

Institutional Control photos



Cap top looking east



Cap top looking west

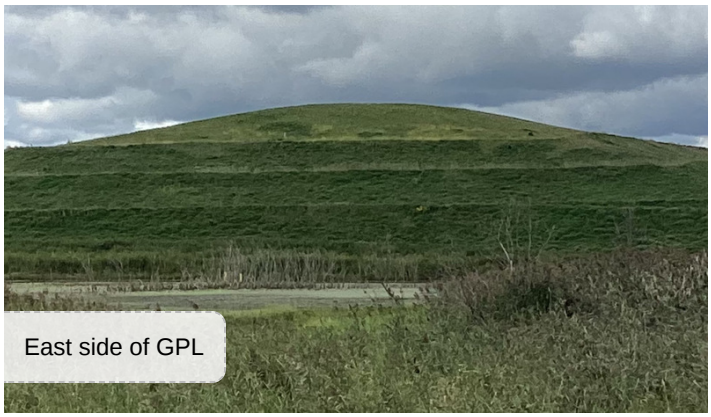


West side of GPL



South side of GPL


North side of GPL


East side of GPL

Institutional Controls (IC) - 2. Landfill Cap

Name of the IC	Landfill Cap
Characterize restricted activities and uses	Excavation Restriction, New Building or Structure Restriction
Has excavation occurred?	No
Is new building or structure present?	No
Other comments or notes about the IC?	

Institutional Control photos


Landfill cap looking west


Landfill cap looking east

Institutional Controls (IC) - 3. Hillock Area

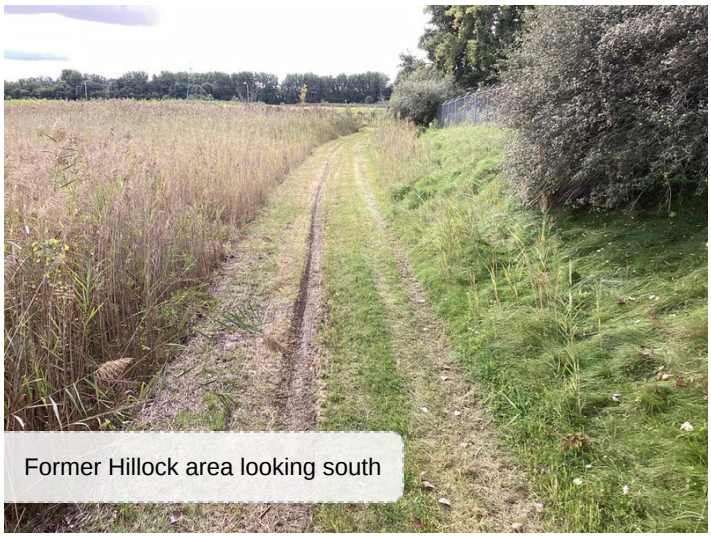
Name of the IC	Hillock Area
Characterize restricted activities and uses	Excavation Restriction
Has excavation occurred?	No

Other comments or notes about the IC?	

Institutional Control photos



Former Hillock area looking northeast



Former Hillock area looking south

Institutional Controls (IC) - 4. On-Site Surface Water Bodies

Name of the IC	On-Site Surface Water Bodies
Characterize restricted activities and uses	Water Recreation Restrictions, Fishing Restrictions
Are water-based recreation restrictions met?	Yes
Are fishing restrictions met?	Yes
Other comments or notes about the IC?	

Institutional Control photos



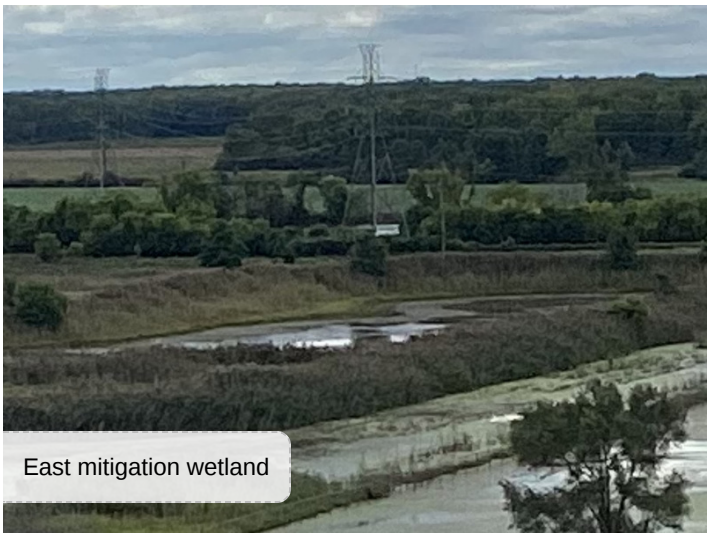




Institutional Controls (IC) - 5. Mitigation Wetlands

Name of the IC	Mitigation Wetlands
Characterize restricted activities and uses	Dredging of Stream or Waterway Restriction, Wetland Alteration/Development Restriction
Has dredging of stream or waterway occurred?	No
Has the wetland been altered or developed?	No
Other comments or notes about the IC?	Southwest mitigation wetlands

Institutional Control photos


East mitigation wetland


West mitigation wetland

Engineering Controls (EC) (1 Item)

Engineering Controls (EC) - 1. Landfill Cap

What is the Name of the EC?	Landfill Cap
Describe the EC	Multi-layer cap and infiltration barrier
Is the general condition of the EC acceptable?	Yes
Elevation has remained consistent without settlement?	Yes
Has the engineering control not been disturbed and has been adequately repaired/restored?	Yes
Other comments or notes about the EC?	

Engineering Control Photos


Landfill cap looking east


Land fill cap looking west

Inspector Information

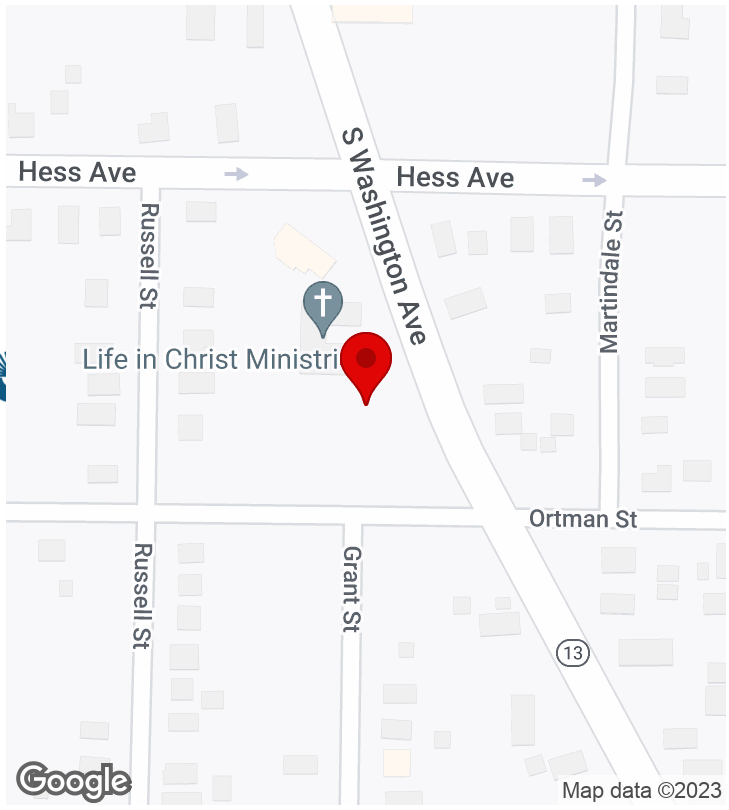
Inspector Name	Billy J Cobern
Inspector Company	Arcadis
Inspector Email	Billy.Cobern@arcadis.com
Inspection Date	September 19, 2022
Inspector Signature	 Signed 9/18/2023, 6:34:20 PM UTC

RACER Trust IC/EC Inspection v2

A site inspection app made for Institutional Control (IC) and Engineering Control (EC) conformance across RACER Trust sites.

IC/EC Inspection Report for Saginaw Malleable Site at Saginaw Malleable Peninsula (13280) on September 19, 2023





INSPECTION DATE

9/19/2023, 2:38:56 PM UTC
by Billy J Cobern

UPDATED

9/19/2023, 2:55:47 PM UTC
by RACER User

LOCATION Page 1 of 4
10/4/2023, 8:41:54 PM UTC

43.399536, -83.958706

SITE NAME

Saginaw Malleable Site

ZONE NAME

Saginaw Malleable Peninsula (13280)

Site Description

Site Name	Saginaw Malleable Site
Site Zone	Saginaw Malleable Peninsula (13280)
Site Address	77 West Center Street
Site City	Saginaw
Site State	MI

General Site Conditions

Describe on-site land use	Recreational, Commercial, Open Space, Vacant
Describe off-site surrounding land use	Recreational, Commercial, Open Space, Vacant
Describe any on-site ownership or tenancy changes.	None
Describe any needed on-site repairs	None
Describe any on-site improvements	None
Weather Conditions at time of inspection	Partly Cloudy, 50’s-60’s

Photos of current conditions/uses



Inspect Institutional Controls and Engineering Controls

Institutional Controls (IC) (1 Item)

Institutional Controls (IC) - 1. Property wide

Name of the IC	Property wide

Characterize restricted activities and uses	Residential Use Restriction, Commercial Use Restriction, Recreational Use Restriction, Agricultural Use Restriction, Drinking Water Well or GW Use Restriction, New Building or Structure Restriction, Obligation to Maintain Wells and Markers
Is residential use occurring?	No
Is commerical use occurring?	No
Are restricted recreational uses occurring?	No
Have drinking water wells been drilled, constructed, or used on the property for unauthorized purposes?	No
Is new building or structure present?	No
Are all permanent survey markers, benchmarks, and monitoring stations in place as designed?	Yes
Are unauthorized agricultural activities occurring?	No
Other comments or notes about the IC?	

Institutional Control photos



Engineering Controls (EC) (1 Item)

Engineering Controls (EC) - 1. Lead impacted soil area

What is the Name of the EC?	Lead impacted soil area
Describe the EC	Vegetated Cover
Is the general condition of the EC acceptable?	Yes
Elevation has remained consistent without settlement?	Yes

Has the engineering control not been disturbed and has been adequately repaired/restored?	Yes
The vegetation is an area void of vegetation?	No
Other comments or notes about the EC?	

Engineering Control Photos



Inspector Information

Inspector Name	Billy J Cobern
Inspector Company	Arcadis
Inspector Email	Billy.cobern@arcadis.com
Inspection Date	September 19, 2023
Inspector Signature	Signed 9/19/2023, 2:44:25 PM UTC

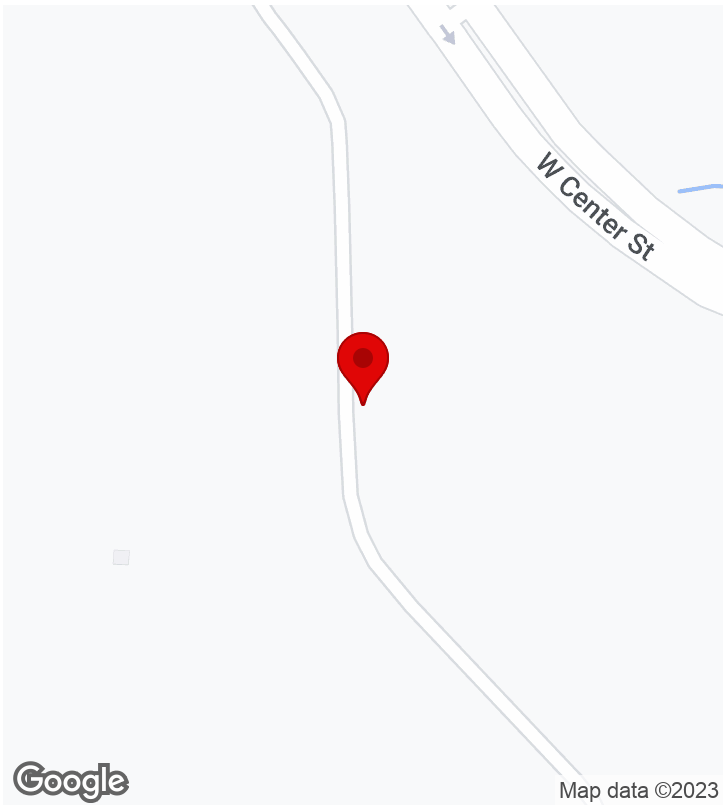
RACER Trust IC/EC Inspection v2

A site inspection app made for Institutional Control (IC) and Engineering Control (EC) conformance across RACER Trust sites.

IC/EC Inspection Report for Saginaw Malleable Site at Saginaw Malleable Industrial Land (10030) on September 19, 2022



View of the site looking north from GPL



INSPECTION DATE

9/18/2023, 8:57:48 PM UTC
by Billy J Cobern

UPDATED

12/8/2023, 5:31:31 PM UTC
by RACER User

LOCATION

43.401594, -83.969821

SITE NAME

Saginaw Malleable Site

ZONE NAME

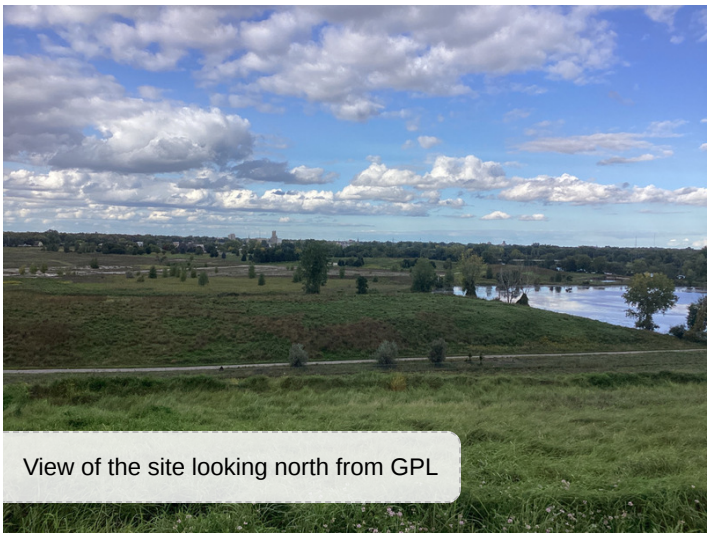
Saginaw Malleable Industrial Land (10030)

Site Description

Site Name	Saginaw Malleable Site
Site Zone	Saginaw Malleable Industrial Land (10030)
Site Address	77 West Center Street
Site City	Saginaw
Site State	MI

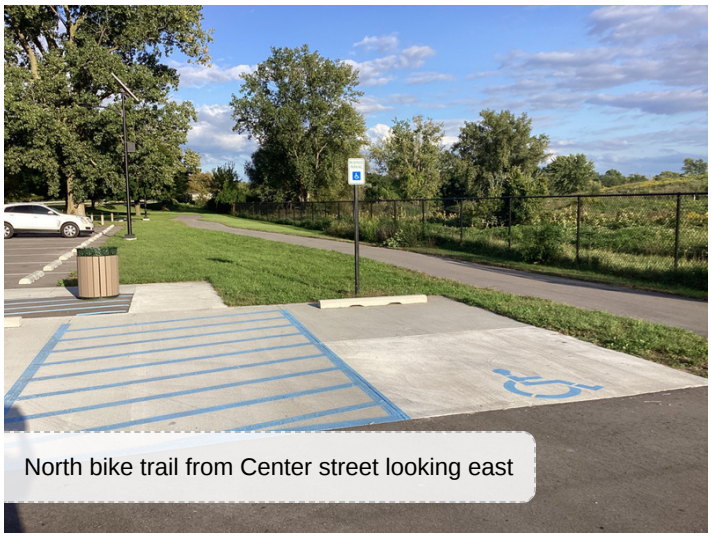
General Site Conditions

Describe on-site land use	Recreational
Describe off-site surrounding land use	Residential, Recreational, Commercial, Open Space
Describe any on-site ownership or tenancy changes.	None
Describe any needed on-site repairs	None
Describe any on-site improvements	In 2023 Saginaw County Parks installed a parking lot on the north end, some paved trails, improved the gravel base on some of the access roads, installed description signs in a couple areas, and several new park benches.
Weather Conditions at time of inspection	Partly Cloudy, 50’s-60’s
Photos of current conditions/uses	


View of the site looking north from GPL


North gate looking south


North parking lot looking east


North bike trail from Center street looking east

Inspect Institutional Controls and Engineering Controls

Institutional Controls (IC) (11 Items)

Institutional Controls (IC) - 1. Property-Wide

Name of the IC	Property-Wide
Characterize restricted activities and uses	Commercial Use Restriction, Drinking Water Well or GW Use Restriction, Excavation Restriction, Obligation to Maintain Vegetation, Obligation to Maintain Wells and Markers, Obligation to Manage Contaminated Soils
Is commerical use occurring?	No
Have drinking water wells been drilled, constructed, or used on the property for unauthorized purposes?	No
Has excavation occurred?	No
Is vegetation present and kept in acceptable condition?	Yes

Are all permanent survey markers, benchmarks, and monitoring stations in place as designed?	Yes
Other comments or notes about the IC?	

Institutional Control photos



View of site looking south from GPL

Institutional Controls (IC) - 2. Southwest Plant LNAPL Area (Residual LNAPL Area 1) Lead Impacted Soil Area

Name of the IC	Southwest Plant LNAPL Area (Residual LNAPL Area 1) Lead Impacted Soil Area
Characterize restricted activities and uses	Excavation Restriction
Has excavation occurred?	No
Other comments or notes about the IC?	

Institutional Control photos



SW Plant LNAPL area from GPL

Institutional Controls (IC) - 3. Quench Pit LNAPL Area (Residual LNAPL Area 2)

Name of the IC	Quench Pit LNAPL Area (Residual LNAPL Area 2)
Characterize restricted activities and uses	Excavation Restriction, Obligation to Maintain Wells and Markers
Has excavation occurred?	No
Are all permanent survey markers, benchmarks, and monitoring stations in place as designed?	Yes
Other comments or notes about the IC?	

Institutional Control photos



Quench Pit LNAPL area looking north

Institutional Controls (IC) - 4. Former SMI Plant Slab

Name of the IC	Former SMI Plant Slab
Characterize restricted activities and uses	Excavation Restriction, New Building or Structure Restriction, Other Restrictions
Has excavation occurred?	No
Is new building or structure present?	No
Characterize other restriction(s)	Limit worker duration in area to 335 hours or less per calendar year
Do site use and activities comply with other restrictions	Yes
Other comments or notes about the IC?	

Institutional Control photos



Former Plant Slab area looking west

Institutional Controls (IC) - 5. 127.7 Manhole Area

Name of the IC	127.7 Manhole Area
Characterize restricted activities and uses	Excavation Restriction, Other Restrictions
Has excavation occurred?	No
Characterize other restriction(s)	Limit worker duration in area to 335 hours or less per calendar year
Do site use and activities comply with other restrictions	Yes
Other comments or notes about the IC?	

Institutional Control photos



Former Manhole 127.7 area looking east

Institutional Controls (IC) - 6. Melting Department Area

Name of the IC	Melting Department Area

Characterize restricted activities and uses	Excavation Restriction, Other Restrictions
Has excavation occurred?	No
Characterize other restriction(s)	Limit worker duration in area to 335 hours or less per calendar year
Do site use and activities comply with other restrictions	Yes
Other comments or notes about the IC?	

Institutional Control photos



Former Melting Department area looking NE

Institutional Controls (IC) - 7. Former Railyard Area

Name of the IC	Former Railyard Area
Characterize restricted activities and uses	Excavation Restriction
Has excavation occurred?	No
Other comments or notes about the IC?	

Institutional Control photos



Former Railyard area looking NE

Institutional Controls (IC) - 8. Type III Landfills

Name of the IC	Type III Landfills
Characterize restricted activities and uses	Excavation Restriction
Has excavation occurred?	No
Other comments or notes about the IC?	

Institutional Control photos



North type 3 landfill looking SE



South type 3 landfill looking NE

Institutional Controls (IC) - 9. Stormwater Pond

Name of the IC	Stormwater Pond
Characterize restricted activities and uses	Excavation Restriction
Has excavation occurred?	No

Other comments or notes about the IC?	No NAPL or sheen present.

Institutional Control photos



Storm water pond looking NE

Institutional Controls (IC) - 10. Storm Sewers

Name of the IC	Storm Sewers
Characterize restricted activities and uses	Underground Utility Construction or Repair Restriction
Is new underground utility or repair observed?	No
Other comments or notes about the IC?	Possible sheen present in one of the manholes.

Institutional Control photos


X5.9


V3.0
V3.0


V3.6
V3.6
V3.6


S5.6
S5.6
S5.6

Institutional Controls (IC) - 11. On-Site Surface Water Bodies

Name of the IC	On-Site Surface Water Bodies
Characterize restricted activities and uses	Water Recreation Restrictions, Fishing Restrictions
Are water-based recreation restrictions met?	Yes
Are fishing restrictions met?	Yes
Other comments or notes about the IC?	

Institutional Control photos



Former secondary settling pond looking NE



South wetland area looking SE



South wetland area looking south



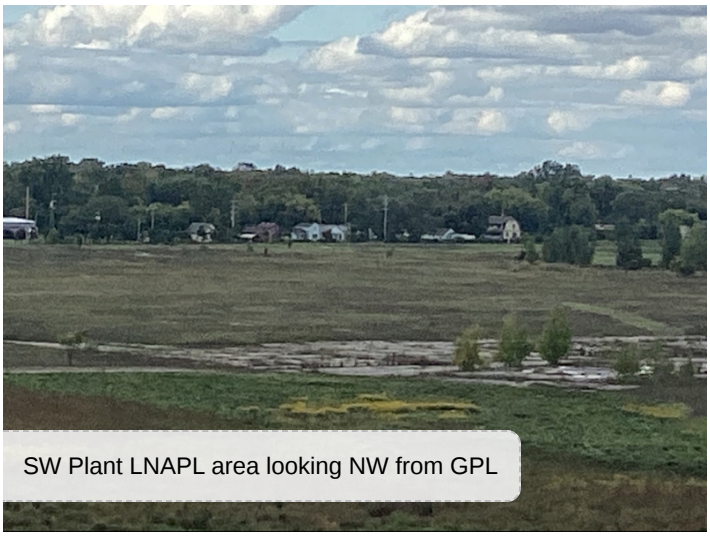
South wetland area looking SW

Engineering Controls (EC) (7 Items)

Engineering Controls (EC) - 1. Southwest Plant LNAPL Area (Residual LNAPL Area 1) Lead Impacted Soil Area

What is the Name of the EC?	Southwest Plant LNAPL Area (Residual LNAPL Area 1) Lead Impacted Soil Area
Describe the EC	Vegetated Cover
Is the general condition of the EC acceptable?	Yes
Elevation has remained consistent without settlement?	Yes
Has the engineering control not been disturbed and has been adequately repaired/restored?	Yes
The vegetation is an area void of vegetation?	No
Other comments or notes about the EC?	

Engineering Control Photos



SW Plant LNAPL area looking NW from GPL

Engineering Controls (EC) - 2. Quench Pit LNAPL Area (Residual LNAPL Area 1) Lead Impacted Soil Area

What is the Name of the EC?	Quench Pit LNAPL Area (Residual LNAPL Area 1) Lead Impacted Soil Area
Describe the EC	Vegetated Cover
Is the general condition of the EC acceptable?	Yes
Elevation has remained consistent without settlement?	Yes
Has the engineering control not been disturbed and has been adequately repaired/restored?	Yes
The vegetation is an area void of vegetation?	No
Other comments or notes about the EC?	

Engineering Control Photos



Quench pit LNAPL area looking north

Engineering Controls (EC) - 3. Former SMI Plant Slab

What is the Name of the EC?	Former SMI Plant Slab
Describe the EC	Vegetated Cover
Is the general condition of the EC acceptable?	Yes
Elevation has remained consistent without settlement?	Yes
Has the engineering control not been disturbed and has been adequately repaired/restored?	Yes
The vegetation is an area void of vegetation?	No
Other comments or notes about the EC?	

Engineering Control Photos



Former SMI plant slab looking west

Engineering Controls (EC) - 4. 127.7 Manhole Area

What is the Name of the EC?	127.7 Manhole Area
Describe the EC	Vegetated Cover
Is the general condition of the EC acceptable?	Yes
Elevation has remained consistent without settlement?	Yes
Has the engineering control not been disturbed and has been adequately repaired/restored?	Yes
The vegetation is an area void of vegetation?	No
Other comments or notes about the EC?	

Engineering Control Photos



127.7 Manhole area looking east

Engineering Controls (EC) - 5. Melting Department Area

What is the Name of the EC?	Melting Department Area
Describe the EC	Vegetated Cover
Is the general condition of the EC acceptable?	Yes
Elevation has remained consistent without settlement?	Yes
Has the engineering control not been disturbed and has been adequately repaired/restored?	Yes
The vegetation is an area void of vegetation?	No
Other comments or notes about the EC?	Cover consists of flowable concrete beneath the vegetative cover

Engineering Control Photos



Melting Department area looking NE

Engineering Controls (EC) - 6. Former Railyard Area

What is the Name of the EC?	Former Railyard Area
Describe the EC	Vegetated Cover
Is the general condition of the EC acceptable?	Yes
Elevation has remained consistent without settlement?	Yes
Has the engineering control not been disturbed and has been adequately repaired/restored?	Yes
The vegetation is an area void of vegetation?	No
Other comments or notes about the EC?	

Engineering Control Photos



Former Railyard area looking NE

Engineering Controls (EC) - 7. Type III Landfills

What is the Name of the EC?	Type III Landfills
Describe the EC	Vegetated Cover
Is the general condition of the EC acceptable?	Yes
Elevation has remained consistent without settlement?	Yes
Has the engineering control not been disturbed and has been adequately repaired/restored?	Yes
The vegetation is an area void of vegetation?	No
Other comments or notes about the EC?	Woody brush in area of B-3R needs to be cut.

Engineering Control Photos



South type 3 landfill looking NE



North type 3 landfill looking SE

Inspector Information

Inspector Name	Billy J Cobern
Inspector Company	Arcadis
Inspector Email	Billy.Cobern@arcadis.com
Inspection Date	September 19, 2022
Inspector Signature	 Signed 9/19/2023, 1:02:42 AM UTC

Attachment 3

No Purge Sampling Work Plan

Clearwater, Scott

From: Karg, Andrew (EGLE) <KargA@michigan.gov>
Sent: Thursday, August 24, 2023 1:44 PM
To: Clearwater, Scott
Cc: Armbruster, Amanda (EGLE); Dave Favero <dfavero@racertrust.org>; Lechel, Brian; Person, Ann (EGLE)
Subject: RE: RACER Saginaw Malleable - No Purge Sampling Work Plan

Thanks Scott, that sounds good. I look forward to seeing the results later this year.

Thanks,

Andy

Andrew R. Karg
Senior Environmental Quality Analyst
Remediation and Redevelopment Division | Bay City District Office
Michigan Department of Environment, Great Lakes, and Energy
Phone: 989-891-6948
Email: KargA@michigan.gov
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From: Clearwater, Scott <Scott.Clearwater@arcadis.com>
Sent: Thursday, August 24, 2023 8:48 AM
To: Karg, Andrew (EGLE) <KargA@michigan.gov>
Cc: Armbruster, Amanda (EGLE) <ARMBRUSTERA@michigan.gov>; Dave Favero <dfavero@racertrust.org> <dfavero@racertrust.org>; Lechel, Brian <blechel@saginawcounty.com>; Person, Ann (EGLE) <PERSONA@michigan.gov>
Subject: RE: RACER Saginaw Malleable - No Purge Sampling Work Plan

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Hi Andrew,
Thank you for your approval of the plan to sample by no purge for this event and compare results to historic trends. Initial results will be provided to you by November 15 and then final results and proposal will be included within the annual report and we will be sure to discuss with you before continued use. In reviewing your comments below regarding the types of Hydrasleeves we have determined it will be simpler to utilize the 1-liter PFAS-free HDPE Hydrasleeves for all wells rather than the different types of sleeves we initially indicated in the plan.
Thanks,
Scott

From: Karg, Andrew (EGLE) <KargA@michigan.gov>
Sent: Wednesday, August 23, 2023 4:04 PM

To: Clearwater, Scott <Scott.Clearwater@arcadis.com>
Cc: Armbruster, Amanda (EGLE) <ARMBRUSTERA@michigan.gov>; Dave Favero <dfavero@racertrust.org> <dfavero@racertrust.org>; Lechel, Brian <blechel@saginawcounty.com>; Person, Ann (EGLE) <PERSONA@michigan.gov>
Subject: RE: RACER Saginaw Malleable - No Purge Sampling Work Plan

Hi Scott,

EGLE has reviewed the No Purge Sampling Method Work Plan (work plan), sent by Arcadis via email on August 9, 2023, for the RACER Saginaw Malleable site. Based on its review, EGLE approves the work plan and utilization of the no purge sampling method on a trial basis for the 2023 annual groundwater sampling event. As mentioned in the proposed schedule of the work plan, upon receipt and review of the 2023 results, please discuss with EGLE prior to implementing a no purge sampling method on a permanent basis for future routine sampling events. In addition and as discussed in the email chain below, prior to sampling, please be sure to verify that the appropriate equipment (HydraSleeve) is used for the intended parameter to be sampled.

If you would like to discuss further or if you have any additional questions, please let me know.

Thanks,

Andy

Andrew R. Karg
Senior Environmental Quality Analyst
Remediation and Redevelopment Division | Bay City District Office
Michigan Department of Environment, Great Lakes, and Energy
Phone: 989-891-6948
Email: KargA@michigan.gov
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From: Karg, Andrew (EGLE)
Sent: Friday, August 18, 2023 11:54 AM
To: Clearwater, Scott <Scott.Clearwater@arcadis.com>
Cc: Armbruster, Amanda (EGLE) <ARMBRUSTERA@michigan.gov>; Dave Favero <dfavero@racertrust.org> <dfavero@racertrust.org>; Lechel, Brian <blechel@saginawcounty.com>; Person, Ann (EGLE) <PERSONA@michigan.gov>
Subject: RE: RACER Saginaw Malleable - No Purge Sampling Work Plan

Okay thanks. That was what I was going to mention next. I had found a page on their website that mentions that only certain versions of HydraSleeves are suitable for PFAS (https://www.hydrasleeve.com/news-tips-a-tricks/178-pfc-hydrasleeve-sampling).

I was then looking at the work plan to see if it mentioned a specific version of HydraSleeve. I didn't see a specific version mentioned, but in the section titled Implementation Plan, I saw it indicated a HydraSleeve with a 625mL volume and a 30-inch sleeve. So then I was comparing those numbers with this selection chart on their website (https://hydrasleeve.com/technical-info/hydrasleeve-selection-guide), and thought it was likely the top line of the blue section that the work plan was referencing (600 mL and 30"). That version didn't appear to me that it was likely one that was suitable for PFAS, since I see PFAS mentioned on some of the other options further down the selection

chart. So just wanted to clarify the parameters proposed and also point out the potential issues with PFAS and sleeve type.

Thanks,

Andy

Andrew R. Karg
Senior Environmental Quality Analyst
Remediation and Redevelopment Division | Bay City District Office
Michigan Department of Environment, Great Lakes, and Energy
Phone: 989-891-6948
Email: KargA@michigan.gov
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From: Clearwater, Scott <Scott.Clearwater@arcadis.com>
Sent: Friday, August 18, 2023 11:26 AM
To: Karg, Andrew (EGLE) <KargA@michigan.gov>
Cc: Armbruster, Amanda (EGLE) <ARMBRUSTERA@michigan.gov>; Dave Favero <dfavero@racertrust.org> <dfavero@racertrust.org>; Lechel, Brian <blechel@saginawcounty.com>; Person, Ann (EGLE) <PERSONA@michigan.gov>
Subject: RE: RACER Saginaw Malleable - No Purge Sampling Work Plan

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Hi Andrew,
Yes we are proposing to conduct the sampling for all parameters using no purge including PFAS. There are PFAS free HDPE Hydrasleeves designed for PFAS sampling that we would utilize for those wells.
Thanks,
Scott

From: Karg, Andrew (EGLE) <KargA@michigan.gov>
Sent: Friday, August 18, 2023 10:42 AM
To: Clearwater, Scott <Scott.Clearwater@arcadis.com>
Cc: Armbruster, Amanda (EGLE) <ARMBRUSTERA@michigan.gov>; Dave Favero <dfavero@racertrust.org> <dfavero@racertrust.org>; Lechel, Brian <blechel@saginawcounty.com>; Person, Ann (EGLE) <PERSONA@michigan.gov>
Subject: RE: RACER Saginaw Malleable - No Purge Sampling Work Plan

Hi Scott,

I have a question regarding the no purge sampling work plan.

Is Arcadis proposing to attempt the no purge sampling (HydraSleeve) for all sampling parameters in 2023, including PFAS?

Thanks,

Andy

Andrew R. Karg
Senior Environmental Quality Analyst
Remediation and Redevelopment Division | Bay City District Office
Michigan Department of Environment, Great Lakes, and Energy
Phone: 989-891-6948
Email: KargA@michigan.gov
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From: Karg, Andrew (EGLE)
Sent: Thursday, August 10, 2023 3:53 PM
To: Clearwater, Scott <Scott.Clearwater@arcadis.com>
Cc: Armbruster, Amanda (EGLE) <ARMBRUSTERA@michigan.gov>; Dave Favero <dfavero@racertrust.org> <dfavero@racertrust.org>; Lechel, Brian <blechel@saginawcounty.com>
Subject: RE: RACER Saginaw Malleable - No Purge Sampling Work Plan

Hi Scott,

Your email/proposed work plan has been received. We will take a look at it and get back to you.

Thanks,

Andy

Andrew R. Karg
Senior Environmental Quality Analyst
Remediation and Redevelopment Division | Bay City District Office
Michigan Department of Environment, Great Lakes, and Energy
Phone: 989-891-6948
Email: KargA@michigan.gov
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From: Clearwater, Scott <Scott.Clearwater@arcadis.com>
Sent: Wednesday, August 9, 2023 5:02 PM
To: Karg, Andrew (EGLE) <KargA@michigan.gov>
Cc: Armbruster, Amanda (EGLE) <ARMBRUSTERA@michigan.gov>; Dave Favero <dfavero@racertrust.org> <dfavero@racertrust.org>; Lechel, Brian <blechel@saginawcounty.com>
Subject: RACER Saginaw Malleable - No Purge Sampling Work Plan

CAUTION: This is an External email. Please send suspicious emails to abuse@michigan.gov

Good Afternoon Andy,
Following up with our recent discussion we are providing the attached work plan for your review proposing the testing of an alternative cost saving sampling method for use during the routine annual sampling in lieu of the low flow/ultra-low flow method. Please let me know if you have any comments or questions and if you would like to have a call to discuss.
Thanks,
Scott

Scott Clearwater
Certified Project Manager
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www.arcadis.com

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Memo

TO
Mr. Andrew Karg
Michigan Department of Environment, Great Lakes, & Energy (EGLE)
Saginaw Bay District Office
401 Ketchum Street, Suite B
Bay City, Michigan 48708

SUBJECT
No Purge Sampling Method Work Plan
RACER Saginaw Malleable Industrial Land, Green Point Landfill and Peninsula Property
Saginaw, Michigan

DATE
August 9, 2023

PROJECT NUMBER
30169042

COPIES TO
Amanda Armbruster, EGLE
Dave Favero, RACER
Brian Lechel, Saginaw County Parks & Recreation

NAME
Scott Clearwater, Certified Project Manager
810.225.1921
Scott.clearwater@arcadis.com

This no purge sampling method work plan is being submitted to the agency requesting approval to pilot test no purge as an alternative sampling method for the monitoring program at the Saginaw Malleable Industrial Land (SMI), Green Point Landfill (GPL), and Peninsula Properties, collectively referred to as; Saginaw Malleable (Site, **Figure 1**) located at 77 West Center Street, Saginaw, Michigan.

INTRODUCTION

The existing groundwater monitoring program conducted historically at the Site since the 2009 Remedial Action Plan (RAP) and updated in the 2020 Operation, Maintenance and Monitoring Plan (2020 O&M Plan) requires extensive sampling equipment and time to achieve stabilization and fill the bottle sets. An alternate sampling method such as no purge sampling can reduce the timeframe from 2 to 4 hours down to 20 to 30 minutes per well while providing similar performance with less purge water generated and at a 60 to 80% lower sampling cost.

BACKGROUND

The Site received approval of a recreational use risk evaluation in 2017 and approval of a nonresidential criteria risk evaluation in 2019. The Site is in a monitoring program which is detailed in the 2020 O&M Plan update that was approved July 31, 2020. Therefore, the Site fits the scenario of routine sampling for the foreseeable future.

PROPOSED PLAN

We propose to complete the 2023 sampling event using the no purge sampling method and complete a statistical analysis and comparison to historical trends in order to show no purge is a viable option that can then be continued for the on-going routine sampling. If any results fall outside of the typical trends they can be resampled

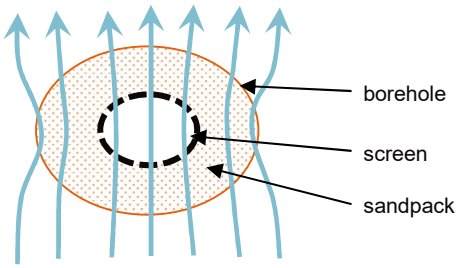
as needed using the current low-flow sampling techniques. Initial results will be presented in a memo following the sampling. Final results will be presented in the annual report.

TECHNICAL BASIS

The proposed study and sampling method change assumes the results from low-flow/ultra-low flow sampling are the standard for comparison. It should be noted that HydraSleeve™ and low-flow sampling methodologies are both viable groundwater sampling methodologies that are based on the principle that groundwater is always flushing the open interval of a monitoring well with its natural flow.

Historical sampling at the Site has occurred using mainly the low flow or ultra-low flow sampling techniques. No purge sampling is being proposed for the Site based on the suitable sandy lithology at the target intervals and ability for historic field parameters to achieve stabilization historically during low flow sampling showing that the groundwater is naturally flushes through the formation.

With no purge groundwater sampling, it is assumed that the water inside the open interval of a monitoring well represents ambient groundwater. This assumption is based on the fact that wellbore hydraulic conductivity is higher than that of the surrounding formation in almost all geologic settings. Thus, upgradient groundwater flow lines converge toward the well and constantly flush the open interval of the well (Graw et al., 2000). This natural "purging" effect has been demonstrated by laboratory tests and computer simulations (Raymond, 1955) and in field studies (Powell and Puls, 1993).



Arcadis completed a previous pilot study in Michigan on a portfolio of petroleum sites, and in 2014 obtained agency approval to utilize no purge sampling for all routine groundwater sampling. Since that time Arcadis has obtained approval to utilize no purge at multiple other Sites.

IMPLEMENTATION PLAN

Arcadis proposes sampling the full annual sampling plan monitoring well list using the no purge sampling method instead of the ultra-low flow or low flow methods that were being used. Samples collected will be analyzed for the same monitoring parameters as identified within the 2020 O&M Plan and as amended in correspondence from EGLE on March 22, 2023. Results of this sampling will then be compared to historic trends using statistical evaluation. In preparation for this sampling method change and data comparison Arcadis proposes to redevelop the wells given their age and observations of sediment buildup within the bottom. This will help remove silts and fines that have accumulated over the years and reduce the chance of sediment effecting results.

The HydraSleeve™ sampling method is preferred over other no-purge sampling methods (e.g., permeable diffusion bags [PDBs], etc.) due to their simplicity, repeatability, compatibility with site-specific COCs, and cost advantages. Hydrasleeves™ are designed to remain closed and not fill with water until an upward pulling action opens the valve at the top of the sleeve.

The HydraSleeve™ to be primarily used will be a 625 mL volume, 1.5 inch outer-diameter, 30-inch length sleeve. A larger 1-liter sleeve will be utilized on wells where duplicate and MS/MSD samples will be collected. Hydrasleeve™ sampling includes a weight at the bottom of the sleeve that aids in lowering the sleeve down the

well and a top weight that helps hold the sleeve and compresses it to the bottom of the well once it reaches the bottom, awaiting recovery/sample collection. When deploying the Hydrasleeves™ they will be lowered slowly into the well to minimize any disturbance. A one-way reed valve at the top of the HydraSleeve™ remains closed until the upward movement during sample recover opens the valve and the sleeve fills from the top with water. Once the sleeve is full (across the 30-inch sleeve length section of the well screen) the pressure of the full sleeve causes the reed valve to collapse, blocking off remaining water in the well column from entering the sleeve. This closing of the reed valve allows for the sample to be of this discreet interval even with wells where head pressure has depth to water well above the screen interval. The HydraSleeve™ placement for sample collection will target the same sample interval within the well screen as the historic low-flow in order to follow consistent discreet sample collection while also keeping the top of the sleeve elevated at least a foot off the bottom to minimize chance of pulling in sediment. HydraSleeves™ will be deployed at least 24-hours prior to sampling to allow for equilibration.

Statistical Methods

Statistical analysis will be completed using no purge sample results in comparison to the historic low flow/ultra-low flow sample results per well. Historic well low flow sample results will be evaluated on a per well basis to determine if there are any existing temporal trends (i.e., decreasing or increasing) or if the well is stable. Mann-Kendall trend analysis methods will be used to assess historic low flow/ultra-low flow concentrations per well. Linear regression techniques will be used to develop both 95% confidence limits and prediction limits for each well using the historic concentrations. No purge “HydraSleeve™” results will be plotted and compared against the well-specific confidence limits and prediction limits to determine if the no purge method results are in agreement with low flow/ultra-low flow sampling method results.

In summary, the statistical comparison between the low-flow/ultra-low flow and HydraSleeve™ data sets will include regression analysis and a practical comparison of the results from both methods compared to applicable groundwater regulatory criteria.

SCHEDULE

The 2023 annual groundwater sampling event is scheduled to occur beginning September 11, 2023. Arcadis proposes that this event utilize the no purge sampling method. No purge sample results will be compared to the historic low flow/ultra-low flow data as discussed above. Arcadis will prepare the statistical analysis and provide a summary memo for initial discussion by November 15, 2023. This will allow time if any resampling is warranted. Final results will be submitted within the annual report due December 20th. If results show good correlation, then no purge would continue to be used for the on-going routine sampling.

Andrew Karg
EGLE
August 9, 2023

REFERENCES

u. Graw, K & Jagsch, N & Lengricht, J & Schöne, J & Storz, H. (2000). Enhancing groundwater flow information by understanding of borehole flow.

Interstate Technology and Regulatory Council (ITRC). 2006. Technology overview of passive sampler technologies.

Interstate Technology and Regulatory Council (ITRC). 2007. Protocol for use of five passive samplers to sample for a variety of contaminants in groundwater.

Powell, R.M., and R.W. Puls. 1993. Passive sampling of ground-water monitoring wells without purging: multilevel well chemistry and tracer disappearance. Journal of Contaminant Hydrology, Vol. 12, pp. 51-77.

Hydrasleeve No-purge Groundwater Sampler. https://hydrasleeve.com/

ATTACHMENTS

Figure 1 – Site Layout & Monitoring Plan Map

Service Layer Credits: Esri, USDA Farm Service Agency 2020

MW-138WT
MW-103WT,S1,S2
NEW PARKING LOT
MW-140WT,S1,S2
MW-105WT,S1,S2
B-5R,BAUG,CAUG
RG1
MW-149WT
RECREATION PLAZA
QPTW-04R
QP-1R
QPTW-03R2
QP-2R
QP-3R
QPTW-01R
QPTW-05R
QPTW-10R
QPTW-13R
MW-107WT,S1
MW-134WT,S1,S2
MW-108WT,S1,S2,S3,S4
S5.6
X5.9
V3.6
V3.0
VIEWING PLATFORM
MW-110WTR
MW-131WT,S1,S2
MW-111WT,S1,S2,S3,S4
MW-185WT
MW-186WT
MW-143WT
B-3R,BAUG
SG1
MW-114WT,S1,S2,S3
X-2A
X-1CR2
X-1A,B
MW-115WT,S1,S2,S3
MW-183WT
X-4A,AR,CAUGR,D
MW-117WT,S1
MW-118WT,S1
X-16A,B
MW-128WT,S1
X-10AR2
MW-2A,B,CAUG
VIEWING PLATFORM
MW-119S1
MW-119WT,S2
X-9AR,BR,CAUG,D
MW-3A,B
X-13B
X-13AR,CAUG
TW-241
TWW-2
MW-127WT,S1
TW-242
TWW-1
X-12B
X-12AR,CAUG
MW-120WT,S1,S2
MW-121WT,S1,S2
MW-123WT,S1
MW-122WT,S1,S2
MW-124WT,S1
X-14A
VIEWING PLATFORM
MW-125WT
X-14B,CAUG

LEGEND

- EXISTING MONITORING WELL
- MONITORING WELL TO BE ABANDONED
- MONITORING WELL INACCESSIBLE
- MANHOLE
- WELL TO BE GAUGED AND SAMPLED
- WELL TO BE GAUGED ONLY
- PERMANENT MARKER LOCATION
- SMI PROPERTY BOUNDARY
- GPL PROPERTY BOUNDARY
- PENINSULA PROPERTY BOUNDARY

NOTE: WELLS LISTED FOR SAMPLING AND/OR GAUGING IN ACCORDANCE WITH THE 2020 O&M PLAN

0 500 1,000
SCALE IN FEET

SAGINAW MALLEABLE INDUSTRIAL LAND,
GREEN POINT LANDFILL, AND PENINSULA PROPERTY
SAGINAW, MICHIGAN

SITE LAYOUT AND MONITORING PLAN MAP

ARCADIS

FIGURE
1

CITY: NOVI, MI DIV: ENV DB: TRY PIC: J. Barrett PM: S. Clearwater TM: A. Robinson TR: PROJECT NUMBER: 30121470 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
D:\GIS\Project Files\MotorsLiquidationCompany\Saginaw\Documents\2023 WellAbandonment.mxd PLOTTED: 8/8/2023 3:37:32 PM BY: TYarbrough

Attachment 4

2023 PCB Cover Inspections and Quarterly LNAPL Guaging/Inspections

Technical Memorandum

December 19, 2023

To	Dave Favero (RACER)	**Tel**	519-340-4316
Copy to	Jessica Gallaway	**Email**	John-eric.pardys@ghd.com
From	John-Eric Pardys	**Ref. No.**	11208013-MEM-4
Subject	2023 Annual Inspections and Gauging RACER Trust Saginaw Malleable Industrial Land, Saginaw Michigan		

1. Introduction

This memorandum presents a summary of the inspection conducted on the cover placed over the former building slab, including the I27.7 Manhole Area, and annual gauging/inspection of the LNAPL areas in accordance with RACER Trust's Operation, Maintenance, and Monitoring Plan (ARCADIS, 2020) completed on September 12, 2023 at RACER Trust's Saginaw Malleable Industrial Land (Site) in Saginaw, Michigan (Figure 1). The purpose of the inspections are to confirm the cover is being maintained in accordance with 40 CFR 761.61 (a)(8) and to identify any changes in LNAPL conditions that would necessitate further evaluation.

2. Visual Cover Observations

Arcadis staff completed a visual assessment on September 18, 2023, of the cover placed over the former building slab, including the I27.7 Manhole Area, to document its condition and to recommend any maintenance that may be required. The week prior to the inspection, the Saginaw area received approximately 0.37-inches of rain (https://w2.weather.gov/climate/index.php?wfo=dtx). See Attachment 1 for the Institutional Control and Engineering Control Inspection Report for the Site which includes photos documenting the cover observations.

The following observations were made during the inspection:

– No maintenance needed.
– A new parking lot in the north end, paved trails, access roads with improved gravel bases, description signs, and several new park benches were installed by Saginaw County Parks in 2023.
– There were no signs of any major depressions on the cover.
– Vegetation is primarily composed of grasses, clovers, wildflowers, thistles, and other small plants. The vegetation is 6-8 inches tall and there does not appear to be much (if any) woody vegetation. No mowing needed at this time.
– The cover over the former building slab, including the I27.7 Manhole Area, was not mowed this year.

Based on the results of the September 2023 inspection, no maintenance of the cover was required.

3. Annual LNAPL Gauging / Inspection

The annual gauging event was conducted by Arcadis on September 12, 2023. The groundwater gaging log is provided in Attachment 2.

Quench Pit Area

Figure 2 presents the Quench Pit Area monitoring well locations. A summary of the annual gauging information is provided in Table 1, along with historical gauging information for reference. All water levels/LNAPL thicknesses were below the top of screen during the September 2023 gauging event. The LNAPL thickness in the wells is consistent with historical readings and changes in LNAPL thickness in wells exhibit the expected correlation with fluctuations in hydraulic conditions (i.e., water table elevation).

Southwest Plant LNAPL Area

Arcadis also inspected manholes in the Southwest Plant LNAPL area, the storm water pond and the secondary pond for the presence of LNAPL. Figure 3 presents the location of the inspection points. A possible sheen was identified in one manhole, which has been identified in previous inspections as well, however, no evidence of LNAPL was identified in the Stormwater Pond or the Secondary Pond. A summary of the manhole inspections is provided in Table 2.

Transmissivity Testing

Table 3 summarizes the LNAPL Transmissivity that has been completed to date. No transmissivity testing was completed in 2023 as conditions were similar to when the previous tests were completed. A memorandum was submitted to EGLE on January 28, 2019 summarizing transmissivity testing that has been completed. The memorandum concluded that the remaining concern with LNAPL appears to be limited to the potential for residual LNAPL sheen to enter active sewers that discharge to the on-Site stormwater pond. However, it is noted that no sheen has been observed in the on-Site stormwater pond since before the Plant was closed in 2007. Further, transmissivity testing since 2016 has demonstrated LNAPL is not readily or practically recoverable.

4. Conclusions/Recommendations

With respect to the cover, in order to keep phragmite growth and woody growth under control, GHD recommends evaluating the need for a mowing event at a minimum annually. LNAPL conditions continue to remain stable and, therefore, no further evaluation is necessary beyond continued monitoring. Consistent with the January 28, 2019 memorandum, GHD recommends that no additional transmissivity testing be performed, and that observations/inspections of the cap continue on an annual basis.

List of Enclosures:
Figure 1 Site Plan
Figure 2 Quench Pit Area – LNAPL Monitoring Program
Figure 3 Southwest Plan LNAPL Area – LNAPL Monitoring Program

Table 1 Summary of Groundwater Gauging Data – Quench Pit Area
Table 2 Summary of Manhole Inspections – Southwest LNAPL Area
Table 3 Summary of Transmissivity Testing – Quench Pit Area

Attachment 1 Institutional Control and Engineering Control Inspection Report
Attachment 2 Gauging Form

Regards

John-Eric Pardys
Engineer

SALT STREET

CENTER STREET

MELTING DEPARTMENT AREA

I27.7 AREA

CONCRETE PAD
(FORMER SAGINAW
MALLEABLE IRON PLANT)

SEE FIGURE 2

QUENCH PIT AREA

SEE FIGURE 3

SOUTHWEST LNAPL AREA

TERMINATED
TYPE III LANDFILL

SAGINAW RIVER

SAGINAW RIVER BERM AREA

STORWATER
POND

POND
OBSERVATION
LOCATION

SECONDARY
POND

TERMINATED TYPE III LANDFILL

LEGEND

RACER MALLEABLE IRON INDUSTRIAL LAND PROPERTY LINE (APPROX.)

UNPAVED ROAD

620 GROUND SURFACE ELEVATION CONTOUR (10 FT INTERVAL)

FENCE LINE

NOTE:
THIS DRAWING HAS BEEN PREPARED
UTILIZING THE BEST AVAILABLE INFORMATION.

0 150 300 ft

1" = 300 ft

N

GHD

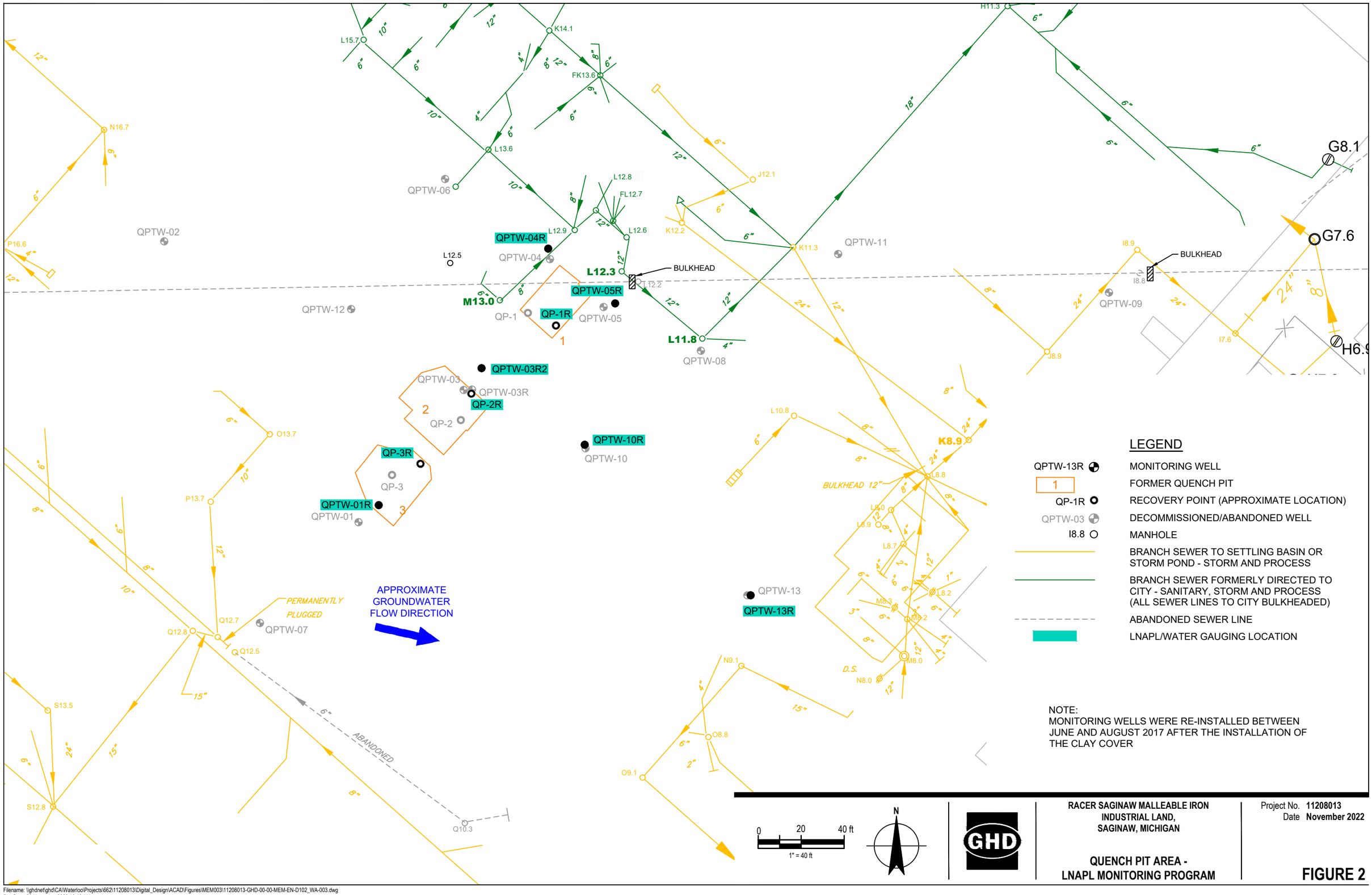
RACER SAGINAW MALLEABLE IRON INDUSTRIAL LAND, SAGINAW, MICHIGAN

SITE PLAN

Project No. **11208013**
Date **November 2022**

FIGURE 1

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Plot Date: 28 November 2022 1:08 PM



LEGEND

- QPTW-13R — MONITORING WELL
- 1 — FORMER QUENCH PIT
- QP-1R — RECOVERY POINT (APPROXIMATE LOCATION)
- QPTW-03 — DECOMMISSIONED/ABANDONED WELL
- I8.8 — MANHOLE
- BRANCH SEWER TO SETTLING BASIN OR STORM POND - STORM AND PROCESS
- BRANCH SEWER FORMERLY DIRECTED TO CITY - SANITARY, STORM AND PROCESS (ALL SEWER LINES TO CITY BULKHEADED)
- ABANDONED SEWER LINE
- LNAPL/WATER GAUGING LOCATION

NOTE:
MONITORING WELLS WERE RE-INSTALLED BETWEEN JUNE AND AUGUST 2017 AFTER THE INSTALLATION OF THE CLAY COVER

0 20 40 ft
1" = 40 ft

N

GHD

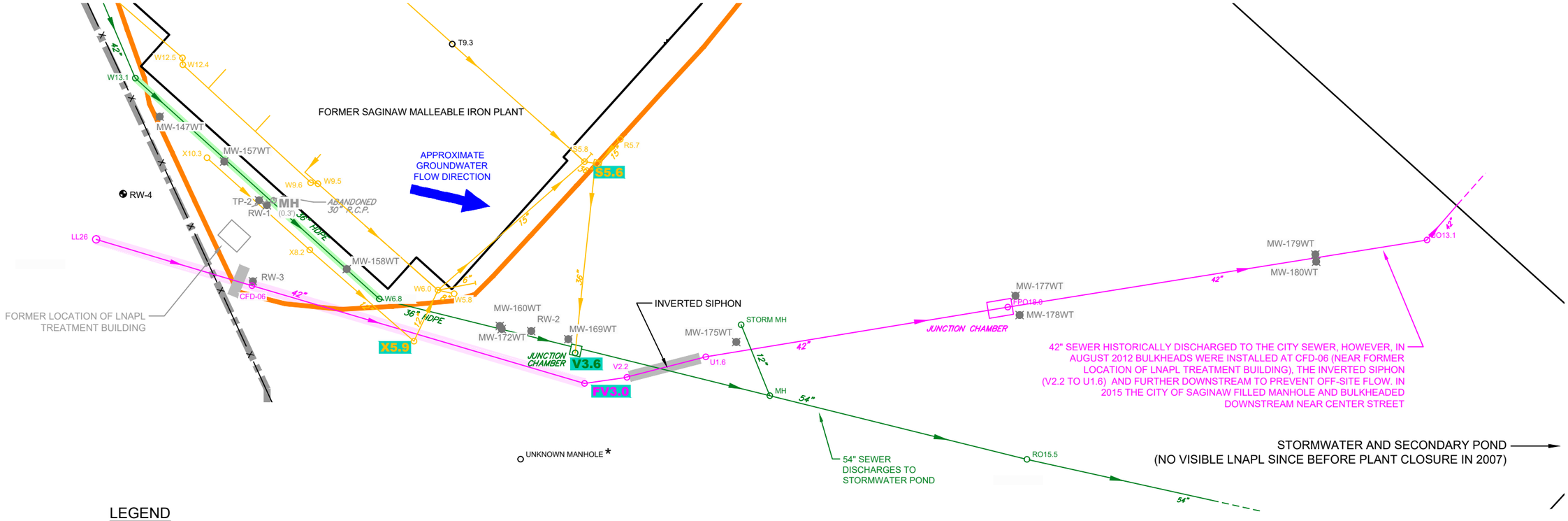
RACER SAGINAW MALLEABLE IRON INDUSTRIAL LAND, SAGINAW, MICHIGAN

QUENCH PIT AREA - LNAPL MONITORING PROGRAM

Project No. **11208013**
Date **November 2022**

FIGURE 2

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Plot Date: 28 November 2022 10:43 AM



LEGEND

- RW-1 — RECOVERY WELL (LNAPL) LOCATION
- MW147 — DECOMMISSIONED WELL LOCATION
- CURE-IN-PLACE LINING
- SEWER SLEVE
- RACER PROPERTY BOUNDARY
- BULKHEAD
- LNAPL/WATER GAUGING LOCATION
- EXTENT OF 1-FT COVER AREA

NOTE:

* LOCATION OF MANHOLE IS APPROXIMATED BASED ON ARCADIS FIELD COORDINATES.

0 50 100 ft

1" = 100 ft

N

GHD

RACER SAGINAW MALLEABLE IRON INDUSTRIAL LAND, SAGINAW, MICHIGAN

SOUTHWEST PLANT NAPL AREA - LNAPL MONITORING PROGRAM

Project No. **11208013**
Date **November 2022**

FIGURE 3

Filename: \\ghdnet\ghd\CA\Waterloo\Projects\662\11208013\Digital_Design\ACAD\Figures\MEM003\11208013-GHD-00-00-MEM-EN-D103_WA-003.dwg
Plot Date: 28 November 2022 1:14 PM

Table 1

Summary of Groundwater Gauging Data - Quench Pit Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Well ID	Date	Ground Surface Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Top of Screen (ft btoc)	Total Depth (ft btoc)	Depth to Water (ft btoc)	Depth to Product (ft btoc)	LNAPL Thickness (ft)	Corrected Groundwater Elevation [1] (ft amsl)	Corrected Water Table Depth [1] (ft btoc)
QPTW-01	03/17/05	592.3	591.95	2.85	12.85	10.48	7.28	3.20	584.29	7.66
	04/12/05	592.3	591.95	2.85	12.85	10.63	7.30	3.33	584.25	7.70
	05/31/05	592.3	591.95	2.85	12.85	10.69	7.36	3.33	584.19	7.76
	06/24/05	592.3	591.95	2.85	12.85	10.45	7.04	3.41	584.50	7.45
	08/12/05	592.3	591.95	2.85	12.85	10.20	6.95	3.25	584.61	7.34
	10/14/05	592.3	591.95	2.85	12.85	10.58	7.29	3.29	584.27	7.68
	11/08/05	592.3	591.95	2.85	12.85	10.82	7.44	3.38	584.10	7.85
	12/19/05	592.3	591.95	2.85	12.85	10.91	7.52	3.39	584.02	7.93
	01/31/06	592.3	591.95	2.85	12.85	10.53	7.29	3.24	584.27	7.68
	02/15/06	592.3	591.95	2.85	12.85	10.46	7.21	3.25	584.35	7.60
	03/13/06	592.3	591.95	2.85	12.85	9.71	6.93	2.78	584.69	7.26
	04/10/06	592.3	591.95	2.85	12.85	10.02	7.04	2.98	584.55	7.40
	05/22/06	592.3	591.95	2.85	12.85	10.23	7.11	3.12	584.47	7.48
	06/21/06	592.3	591.95	2.85	12.85	10.22	7.05	3.17	584.52	7.43
	07/11/06	592.3	591.95	2.85	12.85	9.67	6.82	2.85	584.79	7.16
	08/23/06	592.3	591.95	2.85	12.85	9.99	6.78	3.21	584.78	7.17
	09/26/06	592.3	591.95	2.85	12.85	9.90	6.82	3.08	584.76	7.19
	10/30/06	592.3	591.95	2.85	12.85	9.62	6.83	2.79	584.79	7.16
	11/27/06	592.3	591.95	2.85	12.85	9.79	6.91	2.88	584.69	7.26
	12/27/06	592.3	591.95	2.85	12.85	9.97	6.96	3.01	584.63	7.32
	01/15/07	592.3	591.95	2.85	12.85	9.79	6.94	2.85	584.67	7.28
	02/21/07	592.3	591.95	2.85	12.85	10.35	7.29	3.06	584.29	7.66
	03/23/07	592.3	591.95	2.85	12.85	10.18	7.27	2.91	584.33	7.62
	04/09/07	592.3	591.95	2.85	12.85	10.39	7.25	3.14	584.32	7.63
	05/15/07	592.3	591.95	2.85	12.85	10.09	7.32	2.77	584.30	7.65
	06/11/07	592.3	591.95	2.85	12.85	10.36	7.47	2.89	584.13	7.82
	07/11/07	592.3	591.95	2.85	12.85	10.36	7.43	2.93	584.17	7.78
	08/16/07	592.3	591.95	2.85	12.85	10.41	7.48	2.93	584.12	7.83
	09/17/07	592.3	591.95	2.85	12.85	10.11	7.38	2.73	584.24	7.71
	11/26/07	592.3	591.95	2.85	12.85	10.62	7.64	2.98	583.95	8.00
	12/12/07	592.3	591.95	2.85	12.85	10.79	7.77	3.02	583.82	8.13
	01/11/08	592.3	591.95	2.85	12.85	10.32	7.56	2.76	584.06	7.89
	02/05/08	592.3	591.95	2.85	12.85	9.91	7.42	2.49	584.23	7.72
	04/11/08	592.3	591.95	2.85	12.85	8.41	6.60	1.81	585.13	6.82
	05/16/08	592.3	591.95	2.85	12.85	8.65	6.56	2.09	585.14	6.81
	10/29/08	592.3	591.95	2.85	12.85	8.71	6.39	2.32	585.28	6.67
	01/21/09	592.3	591.95	2.85	12.85	8.22	6.26	1.96	585.45	6.50
	03/18/09	592.3	591.95	2.85	12.85	***8.07***	***6.16***	1.91	585.56	6.39
	10/17/09	592.3	591.95	2.85	12.85	8.46	6.39	2.07	585.31	6.64
	10/23/09	592.3	591.95	2.85	12.85	8.07	6.34	1.73	585.40	6.55
	06/24/10	592.3	591.95	2.85	12.85	8.31	5.06	3.25	586.50	5.45
	07/08/10	592.3	591.95	2.85	12.85	8.88	4.62	4.26	586.82	5.13
	07/22/10	592.3	591.95	2.85	12.85	9.86	4.81	5.05	586.53	5.42
	07/29/10	592.3	591.95	2.85	12.85	8.27	5.11	3.16	586.46	5.49
	08/06/10	592.3	591.95	2.85	12.85	8.13	5.41	2.72	586.21	5.74
	08/13/10	592.3	591.95	2.85	12.85	6.83	4.04	2.79	587.58	4.37
	08/27/10	592.3	591.95	2.85	12.85	7.40	4.42	2.98	587.17	4.78
	09/23/10	592.3	591.95	2.85	12.85	5.54	3.05	2.49	588.60	3.35
	10/15/10	592.3	591.95	2.85	12.85	7.14	4.01	3.13	587.56	4.39
	10/29/10	592.3	591.95	2.85	12.85	6.90	3.99	2.91	587.61	4.34
	12/07/10	592.3	591.95	2.85	12.85	7.61	3.87	3.74	587.63	4.32
	03/18/11	592.3	591.95	2.85	12.85	6.57	3.54	3.03	588.05	3.90
	04/08/11	592.3	591.95	2.85	12.85	6.15	2.77	3.38	588.77	3.18
	05/09/11	592.3	591.95	2.85	12.85	5.98	3.11	2.87	588.50	3.45
	06/09/11	592.3	591.95	2.85	12.85	6.31	3.16	3.15	588.41	3.54
	07/05/11	592.3	591.95	2.85	12.85	5.62	3.31	2.31	588.36	3.59
	08/23/11	592.3	591.95	2.85	12.85	4.21	2.88	1.33	588.91	3.04

Table 1

Summary of Groundwater Gauging Data - Quench Pit Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Well ID	Date	Ground Surface Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Top of Screen (ft btoc)	Total Depth (ft btoc)	Depth to Water (ft btoc)	Depth to Product (ft btoc)	LNAPL Thickness (ft)	Corrected Groundwater Elevation [1] (ft amsl)	Corrected Water Table Depth [1] (ft btoc)
QPTW-01 (cont'd)	10/14/11	592.3	591.95	2.85	12.85	5.72	3.81	1.91	587.91	4.04
	01/24/12	592.3	591.95	2.85	12.85	6.28	1.66	4.62	589.74	2.21
	03/20/12	592.3	591.95	2.85	12.85	5.41	2.67	2.74	588.95	3.00
	04/23/12	592.3	591.95	2.85	12.85	5.53	2.16	3.37	589.39	2.56
	06/11/12	592.3	591.95	2.85	12.85	6.72	2.87	3.85	588.62	3.33
	07/10/12	592.3	591.95	2.85	12.85	5.41	3.69	1.72	588.05	3.90
	08/29/12	592.3	591.95	2.85	12.85	5.75	3.04	2.71	588.58	3.37
	09/12/12	592.3	591.95	2.85	12.85	4.25	2.90	1.35	588.89	3.06
	11/06/12	592.3	591.95	2.85	12.85	4.06	3.04	1.02	588.79	3.16
	12/05/12	592.3	591.95	2.85	12.85	4.41	3.26	1.15	588.55	3.40
	04/03/13	592.3	591.95	2.85	12.85	4.91	3.37	1.54	588.40	3.55
	07/18/13	592.3	591.95	2.85	12.85	3.48	2.80	0.68	589.07	2.88
	09/23/13	592.3	591.95	2.85	12.85	4.34	3.74	0.60	588.14	3.81
	06/02/14	592.3	591.95	2.85	12.85	3.06	2.36	0.70	589.51	2.44
	07/09/14	592.3	591.95	2.85	12.85	2.92	1.07	1.85	590.66	1.29
	07/31/14	592.3	591.95	2.85	12.85	3.17	1.99	1.18	589.82	2.13
	09/16/14	592.3	591.95	2.85	12.85	3.31	2.27	1.04	589.56	2.39
	03/24/15	592.3	591.95	2.85	12.85	4.51	3.14	1.37	588.65	3.30
	06/17/15	592.3	591.95	2.85	12.85	3.31	1.25	2.06	590.45	1.50
	09/09/15	592.3	591.95	2.85	12.85	3.81	1.11	2.70	590.52	1.43
	12/04/15	592.3	591.95	2.85	12.85	4.70	3.48	1.22	588.32	3.63
	03/15/16	592.3	591.95	2.85	12.85	5.13	1.94	3.19	589.63	2.32
	06/17/16	592.3	591.95	2.85	12.85	2.23	1.17	1.06	590.65	1.30
	09/22/16	592.3	591.95	2.85	12.85	3.82	2.86	0.96	588.97	2.98
	09/27/16	ABANDONED								
QPTW-01R	09/06/17	594.69	594.49	2.00	12.00	4.14	---	---	590.35	4.14
	11/27/17	594.69	594.49	2.00	12.00	4.17	---	---	590.32	4.17
	02/27/18	594.69	594.49	2.00	12.00	3.66	---	---	590.83	3.66
	06/04/18	594.69	594.49	2.00	12.00	3.81	---	---	590.68	3.81
	10/05/18	594.69	594.49	2.00	12.00	4.13	---	---	590.36	4.13
	12/11/18	594.69	594.49	2.00	12.00	frozen	---	---	---	---
	03/12/19	594.69	594.49	2.00	12.00	3.94	---	---	590.55	3.94
	06/18/19	594.69	594.49	2.00	12.00	2.53	2.51	0.02	591.98	2.51
	09/16/19	594.69	594.49	2.00	12.00	4.34	---	---	590.15	4.34
	12/03/19	594.69	594.49	2.00	12.00	2.22	2.19	0.03	592.30	2.19
	03/12/20	594.69	594.49	2.00	12.00	2.87	---	---	591.62	2.87
	06/03/20	594.69	594.49	2.00	12.00	2.54	---	---	591.95	2.54
	09/09/20	594.69	594.49	2.00	12.00	4.62	4.60	0.02	589.89	4.60
	12/03/20	594.69	594.49	2.00	12.00	4.86	---	---	589.63	4.86
	08/16/21	594.69	594.49	2.00	12.00	4.65	4.63	0.02	589.86	4.63
	09/20/22	594.69	594.49	2.00	12.00	4.55	4.51	0.04	589.98	4.51
	09/12/23	594.69	594.49	2.00	12.00	3.51	---	---	590.98	3.51
QPTW-02	03/17/05	592.6	592.35	2.80	12.80	7.54	7.51	0.03	584.84	7.51
	04/12/05	592.6	592.35	2.80	12.80	7.64	7.58	0.06	584.76	7.59
	05/31/05	592.6	592.35	2.80	12.80	7.54	7.50	0.04	584.85	7.50
	06/24/05	592.6	592.35	2.80	12.80	7.41	7.38	0.03	584.97	7.38
	08/12/05	592.6	592.35	2.80	12.80	7.30	7.26	0.04	585.09	7.26
	10/14/05	592.6	592.35	2.80	12.80	7.50	7.44	0.06	584.90	7.45
	11/08/05	592.6	592.35	2.80	12.80	7.52	7.49	0.03	584.86	7.49
	12/19/05	592.6	592.35	2.80	12.80	7.67	7.63	0.04	584.72	7.63
	01/31/06	592.6	592.35	2.80	12.80	7.53	7.48	0.05	584.86	7.49
	02/15/06	592.6	592.35	2.80	12.80	7.50	7.47	0.03	584.88	7.47
	03/13/06	592.6	592.35	2.80	12.80	7.30	7.26	0.04	585.09	7.26
	04/10/06	592.6	592.35	2.80	12.80	7.39	7.36	0.03	584.99	7.36
	05/22/06	592.6	592.35	2.80	12.80	7.38	7.35	0.03	585.00	7.35
	06/21/06	592.6	592.35	2.80	12.80	7.33	7.29	0.04	585.06	7.29
	07/11/06	592.6	592.35	2.80	12.80	7.29	7.26	0.03	585.09	7.26
	08/23/06	592.6	592.35	2.80	12.80	7.28	7.26	0.02	585.09	7.26
	09/26/06	592.6	592.35	2.80	12.80	7.39	7.37	0.02	584.98	7.37
	10/30/06	592.6	592.35	2.80	12.80	7.38	7.35	0.03	585.00	7.35
	11/27/06	592.6	592.35	2.80	12.80	7.41	7.38	0.03	584.97	7.38

Table 1

Summary of Groundwater Gauging Data - Quench Pit Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Well ID	Date	Ground Surface Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Top of Screen (ft btoc)	Total Depth (ft btoc)	Depth to Water (ft btoc)	Depth to Product (ft btoc)	LNAPL Thickness (ft)	Corrected Groundwater Elevation [1] (ft amsl)	Corrected Water Table Depth [1] (ft btoc)
QPTW-02	12/27/06	592.6	592.35	2.80	12.80	7.44	7.42	0.02	584.93	7.42
(cont'd)	01/15/07	592.6	592.35	2.80	12.80	7.46	7.42	0.04	584.93	7.42
	02/21/07	592.6	592.35	2.80	12.80	7.47	7.46	0.01	584.89	7.46
	03/23/07	592.6	592.35	2.80	12.80	7.42	7.40	0.02	584.95	7.40
	04/09/07	592.6	592.35	2.80	12.80	7.45	7.43	0.02	584.92	7.43
	05/15/07	592.6	592.35	2.80	12.80	7.50	7.48	0.02	584.87	7.48
	08/16/07	592.6	592.35	2.80	12.80	7.65	7.62	0.03	584.73	7.62
	09/17/07	592.6	592.35	2.80	12.80	7.51	7.48	0.03	584.87	7.48
	11/26/07	592.6	592.35	2.80	12.80	7.73	7.71	0.02	584.64	7.71
	12/12/07	592.6	592.35	2.80	12.80	7.76	7.74	0.02	584.61	7.74
	01/11/08	592.6	592.35	2.80	12.80	7.15	7.14	0.01	585.21	7.14
	02/05/08	592.6	592.35	2.80	12.80	7.27	7.26	0.01	585.09	7.26
	04/11/08	592.6	592.35	2.80	12.80	6.79	---	---	585.56	6.79
	05/16/08	592.6	592.35	2.80	12.80	7.30	---	---	585.05	7.30
	10/29/08	592.6	592.35	2.80	12.80	6.99	---	---	585.36	6.99
	01/21/09	592.6	592.35	2.80	12.80	6.53	---	---	585.82	6.53
	03/18/09	592.6	592.35	2.80	12.80	6.28	---	---	586.07	6.28
	10/17/09	592.6	592.35	2.80	12.80	6.93	---	---	585.42	6.93
	10/23/09	592.6	592.35	2.80	12.80	7.08	---	---	585.27	7.08
	10/15/10	592.6	592.35	2.80	12.80	5.23	---	---	587.12	5.23
	10/29/10	592.6	592.35	2.80	12.80	5.30	---	---	587.05	5.30
	03/18/11	592.6	592.35	2.80	12.80	3.96	---	---	588.39	3.96
	04/08/11	592.6	592.35	2.80	12.80	3.19	---	---	589.16	3.19
	05/09/11	592.6	592.35	2.80	12.80	3.47	---	---	588.88	3.47
	06/09/11	592.6	592.35	2.80	12.80	3.58	---	---	588.77	3.58
	07/05/11	592.6	592.35	2.80	12.80	3.79	---	---	588.56	3.79
	08/23/11	592.6	592.35	2.80	12.80	3.11	---	---	589.24	3.11
	10/14/11	592.6	592.35	2.80	12.80	4.04	---	---	588.31	4.04
	11/23/11	592.6	592.35	2.80	12.80	3.81	---	---	588.54	3.81
	03/20/12	592.6	592.35	2.80	12.80	2.77	---	---	589.58	2.77
	04/23/12	592.6	592.35	2.80	12.80	3.02	---	---	589.33	3.02
	06/11/12	592.6	592.35	2.80	12.80	3.22	---	---	589.13	3.22
	07/10/12	592.6	592.35	2.80	12.80	3.88	---	---	588.47	3.88
	08/29/12	592.6	592.35	2.80	12.80	3.22	---	---	589.13	3.22
	09/12/12	592.6	592.35	2.80	12.80	3.01	---	---	589.34	3.01
	10/01/12	592.6	592.35	2.80	12.80	3.79	---	---	588.56	3.79
	11/06/12	592.6	592.35	2.80	12.80	2.98	---	---	589.37	2.98
	12/05/12	592.6	592.35	2.80	12.80	3.61	---	---	588.74	3.61
	04/03/13	592.6	592.35	2.80	12.80	3.25	---	---	589.10	3.25
	07/18/13	592.6	592.35	2.80	12.80	2.59	---	---	589.76	2.59
	09/23/13	592.6	592.35	2.80	12.80	3.94	---	---	588.41	3.94
	04/25/14	592.6	592.35	2.80	12.80	1.81	---	---	590.54	1.81
	06/02/14	592.6	592.35	2.80	12.80	2.62	---	---	589.73	2.62
	07/31/14	592.6	592.35	2.80	12.80	2.31	---	---	590.04	2.31
	09/16/14	592.6	592.35	2.80	12.80	2.36	---	---	589.99	2.36
	03/24/15	592.6	592.35	2.80	12.80	3.20	---	---	589.15	3.20
	06/17/15	592.6	592.35	2.80	12.80	under water	---	---	---	under water
	09/09/15	592.6	592.35	2.80	12.80	1.84	---	---	590.51	1.84
	12/04/15	592.6	592.35	2.80	12.80	3.85	---	---	588.50	3.85
	03/15/16	592.6	592.35	2.80	12.80	1.98	---	---	590.37	1.98
	06/17/16	592.6	592.35	2.80	12.80	1.66	---	---	590.69	1.66
	09/22/16	592.6	592.35	2.80	12.80	2.98	---	---	589.37	2.98
	09/27/16	ABANDONED								
QPTW-03R	04/25/14	592.5	592.13	2.75	12.75	2.19	1.82	0.37	590.27	1.86
	06/02/14	592.5	592.13	2.75	12.75	3.13	2.86	0.27	589.24	2.89
	07/09/14	592.5	592.13	2.75	12.75	2.10	1.98	0.12	590.14	1.99
	07/31/14	592.5	592.13	2.75	12.75	2.74	2.66	0.08	589.46	2.67
	09/16/14	592.5	592.13	2.75	12.75	3.27	---	---	588.86	3.27
	03/24/15	592.5	592.13	2.75	12.75	3.56	3.55	0.01	588.58	3.55
	06/17/15	592.5	592.13	2.75	12.75	3.36	2.72	0.64	589.33	2.80
	09/09/15	592.5	592.13	2.75	12.75	2.74	2.46	0.28	589.64	2.49

Table 1

Summary of Groundwater Gauging Data - Quench Pit Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Well ID	Date	Ground Surface Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Top of Screen (ft btoc)	Total Depth (ft btoc)	Depth to Water (ft btoc)	Depth to Product (ft btoc)	LNAPL Thickness (ft)	Corrected Groundwater Elevation [1] (ft amsl)	Corrected Water Table Depth [1] (ft btoc)
QPTW-03R (cont'd)	12/04/15	592.5	592.13	2.75	12.75	4.14	---	---	587.99	4.14
	03/15/16	592.5	592.13	2.75	12.75	2.46	2.39	0.07	589.73	2.40
	06/17/16	592.5	592.13	2.75	12.75	2.30	1.77	0.53	590.30	1.83
	09/22/16	592.5	592.13	2.75	12.75	3.78	3.05	0.73	588.99	3.14
	09/27/16	ABANDONED								
QPTW-03R2	09/06/17	594.91	594.61	2.00	12.00	5.24	---	---	589.37	5.24
	11/27/17	594.91	594.61	2.00	12.00	5.07	4.85	0.22	589.73	4.88
	02/27/18	594.91	594.61	2.00	12.00	4.31	3.92	0.39	590.64	3.97
	06/04/18	594.91	594.61	2.00	12.00	4.83	4.65	0.18	589.94	4.67
	10/05/18	594.91	594.61	2.00	12.00	5.75	5.21	0.54	589.34	5.27
	12/11/18	594.91	594.61	2.00	12.00	5.13	4.52	0.61	590.02	4.59
	03/12/19	594.91	594.61	2.00	12.00	5.14	4.17	0.97	590.32	4.29
	06/18/19	594.91	594.61	2.00	12.00	3.26	3.03	0.23	591.55	3.06
	09/16/19	594.91	594.61	2.00	12.00	5.92	5.38	0.54	589.17	5.44
	12/03/19	594.91	594.61	2.00	12.00	2.35	---	---	592.26	2.35
	03/12/20	594.91	594.61	2.00	12.00	3.71	---	---	590.90	3.71
	06/03/20	594.91	594.61	2.00	12.00	3.49	---	---	591.12	3.49
	09/09/20	594.91	594.61	2.00	12.00	5.78	5.59	0.19	589.00	5.61
	12/03/20	594.91	594.61	2.00	12.00	6.16	5.86	0.30	588.71	5.90
	08/16/21	594.91	594.61	2.00	12.00	6.06	5.78	0.28	588.80	5.81
(2)	09/20/22	594.91	594.61	2.00	12.00	6.04	5.77	0.27	588.81	5.80
	09/12/23	594.91	594.61	2.00	12.00	4.85	4.73	0.12	589.87	4.74
QPTW-04	03/17/05	592.3	591.73	2.50	12.50	8.54	7.51	1.03	584.10	7.63
	04/12/05	592.3	591.73	2.50	12.50	8.53	7.54	0.99	584.07	7.66
	05/31/05	592.3	591.73	2.50	12.50	8.58	7.50	1.08	584.10	7.63
	06/24/05	592.3	591.73	2.50	12.50	8.34	7.29	1.05	584.31	7.42
	08/12/05	592.3	591.73	2.50	12.50	8.28	7.26	1.02	584.35	7.38
	10/14/05	592.3	591.73	2.50	12.50	8.61	7.68	0.93	583.94	7.79
	11/08/05	592.3	591.73	2.50	12.50	8.70	7.72	0.98	583.89	7.84
	12/19/05	592.3	591.73	2.50	12.50	8.87	7.83	1.04	583.78	7.95
	01/31/06	592.3	591.73	2.50	12.50	8.58	7.46	1.12	584.14	7.59
	02/15/06	592.3	591.73	2.50	12.50	8.45	7.33	1.12	584.27	7.46
	03/13/06	592.3	591.73	2.50	12.50	8.14	7.16	0.98	584.45	7.28
	04/10/06	592.3	591.73	2.50	12.50	8.29	7.32	0.97	584.29	7.44
	05/22/06	592.3	591.73	2.50	12.50	8.41	7.39	1.02	584.22	7.51
	06/21/06	592.3	591.73	2.50	12.50	8.34	7.41	0.93	584.21	7.52
	07/11/06	592.3	591.73	2.50	12.50	8.16	7.12	1.04	584.49	7.24
	08/23/06	592.3	591.73	2.50	12.50	8.39	7.10	1.29	584.48	7.25
	09/26/06	592.3	591.73	2.50	12.50	8.09	7.11	0.98	584.50	7.23
	10/30/06	592.3	591.73	2.50	12.50	8.05	7.08	0.97	584.53	7.20
	11/27/06	592.3	591.73	2.50	12.50	8.08	7.19	0.89	584.43	7.30
	12/27/06	592.3	591.73	2.50	12.50	8.58	7.48	1.10	584.12	7.61
	01/15/07	592.3	591.73	2.50	12.50	8.07	7.29	0.78	584.35	7.38
	02/21/07	592.3	591.73	2.50	12.50	8.45	7.57	0.88	584.05	7.68
	03/23/07	592.3	591.73	2.50	12.50	8.32	7.56	0.76	584.08	7.65
	04/09/07	592.3	591.73	2.50	12.50	8.47	7.52	0.95	584.10	7.63
	05/15/07	592.3	591.73	2.50	12.50	8.42	7.51	0.91	584.11	7.62
	06/11/07	592.3	591.73	2.50	12.50	8.61	7.64	0.97	583.97	7.76
	07/11/07	592.3	591.73	2.50	12.50	8.67	7.61	1.06	583.99	7.74
	08/16/07	592.3	591.73	2.50	12.50	8.80	7.69	1.11	583.91	7.82
	09/17/07	592.3	591.73	2.50	12.50	8.62	7.54	1.08	584.06	7.67
	11/26/07	592.3	591.73	2.50	12.50	9.05	7.99	1.06	583.61	8.12
	12/12/07	592.3	591.73	2.50	12.50	9.15	8.09	1.06	583.51	8.22
	01/11/08	592.3	591.73	2.50	12.50	8.81	7.82	0.99	583.79	7.94
	02/05/08	592.3	591.73	2.50	12.50	8.69	7.64	1.05	583.96	7.77
	04/11/08	592.3	591.73	2.50	12.50	7.75	6.68	1.07	584.92	6.81
	05/16/08	592.3	591.73	2.50	12.50	7.82	6.81	1.01	584.80	6.93
	10/29/08	592.3	591.73	2.50	12.50	7.70	6.69	1.01	584.92	6.81
	01/21/09	592.3	591.73	2.50	12.50	7.35	6.61	0.74	585.03	6.70
	03/18/09	592.3	591.73	2.50	12.50	6.86	6.12	0.74	585.52	6.21
	10/17/09	592.3	591.73	2.50	12.50	7.76	6.85	0.91	584.77	6.96

Table 1

Summary of Groundwater Gauging Data - Quench Pit Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Well ID	Date	Ground Surface Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Top of Screen (ft btoc)	Total Depth (ft btoc)	Depth to Water (ft btoc)	Depth to Product (ft btoc)	LNAPL Thickness (ft)	Corrected Groundwater Elevation [1] (ft amsl)	Corrected Water Table Depth [1] (ft btoc)
QPTW-04	10/23/09	592.3	591.73	2.50	12.50	7.76	6.83	0.93	584.79	6.94
(cont"d)	06/09/10	592.3	591.73	2.50	12.50	6.23	5.65	0.58	586.01	5.72
	08/27/10	592.3	591.73	2.50	12.50	7.06	6.17	0.89	585.45	6.28
	09/17/10	592.3	591.73	2.50	12.50	5.61	5.02	0.59	586.64	5.09
	09/23/10	592.3	591.73	2.50	12.50	5.47	4.87	0.60	586.79	4.94
	10/15/10	592.3	591.73	2.50	12.50	6.03	5.20	0.83	586.43	5.30
	10/29/10	592.3	591.73	2.50	12.50	6.39	5.86	0.53	585.81	5.92
	03/18/11	592.3	591.73	2.50	12.50	5.16	4.20	0.96	587.41	4.32
	04/08/11	592.3	591.73	2.50	12.50	4.27	3.54	0.73	588.10	3.63
	05/09/11	592.3	591.73	2.50	12.50	4.60	3.64	0.96	587.97	3.76
	06/09/11	592.3	591.73	2.50	12.50	4.35	3.63	0.72	588.01	3.72
	07/05/11	592.3	591.73	2.50	12.50	4.84	3.87	0.97	587.74	3.99
	08/23/11	592.3	591.73	2.50	12.50	4.16	3.34	0.82	588.29	3.44
	03/20/12	592.3	591.73	2.50	12.50	5.21	2.78	2.43	588.66	3.07
	04/23/12	592.3	591.73	2.50	12.50	5.59	3.06	2.53	588.37	3.36
	06/11/12	592.3	591.73	2.50	12.50	5.85	3.16	2.69	588.25	3.48
	07/10/12	592.3	591.73	2.50	12.50	5.97	3.40	2.57	588.02	3.71
	08/29/12	592.3	591.73	2.50	12.50	5.32	2.99	2.33	588.46	3.27
	09/12/12	592.3	591.73	2.50	12.50	5.03	2.68	2.35	588.77	2.96
	10/01/12	592.3	591.73	2.50	12.50	5.80	3.31	2.49	588.12	3.61
	11/06/12	592.3	591.73	2.50	12.50	4.85	2.88	1.97	588.61	3.12
	12/05/12	592.3	591.73	2.50	12.50	5.49	3.50	1.99	587.99	3.74
	04/03/13	592.3	591.73	2.50	12.50	5.36	3.16	2.20	588.31	3.42
	07/18/13	592.3	591.73	2.50	12.50	4.74	2.48	2.26	588.98	2.75
	09/23/13	592.3	591.73	2.50	12.50	4.73	3.61	1.12	587.99	3.74
	04/25/14	592.3	591.73	2.50	12.50	3.16	1.73	1.43	589.83	1.90
	06/02/14	592.3	591.73	2.50	12.50	3.98	2.39	1.59	589.15	2.58
	07/09/14	593.3	592.73	2.50	12.50	2.74	1.61	1.13	590.98	1.75
	07/31/14	592.3	591.73	2.50	12.50	3.53	2.33	1.20	589.26	2.47
	09/16/14	591.3	590.73	2.50	12.50	4.00	2.10	1.90	588.40	2.33
	03/24/15	590.3	589.73	2.50	12.50	4.66	3.02	1.64	586.51	3.22
	06/17/15	589.3	588.73	2.50	12.50	3.51	2.05	1.46	586.50	2.23
	09/09/15	588.3	587.73	2.50	12.50	4.09	2.64	1.45	584.92	2.81
	12/04/15	587.3	586.73	2.50	12.50	5.56	3.51	2.05	582.97	3.76
	03/15/16	586.3	585.73	2.50	12.50	3.68	1.76	1.92	583.74	1.99
	06/17/16	585.3	584.73	2.50	12.50	2.27	2.16	0.11	582.56	2.17
	09/22/16	584.3	583.73	2.50	12.50	4.61	2.80	1.81	580.71	3.02
	09/27/16	ABANDONED								
QPTW-04R	09/06/17	594.96	594.46	2.00	12.00	5.61	4.75	0.86	589.61	4.85
	11/27/17	594.96	594.46	2.00	12.00	5.10	4.51	0.59	589.88	4.58
	02/27/18	594.96	594.46	2.00	12.00	3.62	3.58	0.04	590.88	3.58
	06/04/18	594.96	594.46	2.00	12.00	4.51	4.32	0.19	590.12	4.34
	10/05/18	594.96	594.46	2.00	12.00	5.01	4.85	0.16	589.59	4.87
	12/11/18	594.96	594.46	2.00	12.00	4.58	4.27	0.31	590.15	4.31
	03/12/19	594.96	594.46	2.00	12.00	4.20	3.86	0.34	590.56	3.90
	06/18/19	594.96	594.46	2.00	12.00	2.86	2.68	0.18	591.76	2.70
	09/16/19	594.96	594.46	2.00	12.00	6.40	5.00	1.40	589.29	5.17
	12/03/19	594.96	594.46	2.00	12.00	2.03	1.35	0.68	593.03	1.43
	03/12/20	594.96	594.46	2.00	12.00	3.37	3.30	0.07	591.15	3.31
	06/03/20	594.96	594.46	2.00	12.00	3.24	3.18	0.06	591.27	3.19
	09/09/20	594.96	594.46	2.00	12.00	6.31	5.16	1.15	589.16	5.30
	12/03/20	594.96	594.46	2.00	12.00	6.15	5.28	0.87	589.08	5.38
	08/16/21	594.96	594.46	2.00	12.00	5.56	5.51	0.05	588.94	5.52
	09/20/22	594.96	594.46	2.00	12.00	5.51	5.48	0.03	588.98	5.48
	09/12/22	594.96	594.46	2.00	12.00	4.65	4.51	0.14	589.93	4.53
QPTW-05	03/17/05	592.4	592.13	2.70	12.70	8.94	7.67	1.27	584.31	7.82
	04/12/05	592.4	592.13	2.70	12.70	8.98	7.69	1.29	584.29	7.84
	05/31/05	592.4	592.13	2.70	12.70	9.10	7.73	1.37	584.24	7.89
	06/24/05	592.4	592.13	2.70	12.70	8.65	7.50	1.15	584.49	7.64
	08/12/05	592.4	592.13	2.70	12.70	8.76	7.68	1.08	584.32	7.81
	10/14/05	592.4	592.13	2.70	12.70	9.38	7.91	1.47	584.04	8.09

Table 1

Summary of Groundwater Gauging Data - Quench Pit Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Well ID	Date	Ground Surface Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Top of Screen (ft btoc)	Total Depth (ft btoc)	Depth to Water (ft btoc)	Depth to Product (ft btoc)	LNAPL Thickness (ft)	Corrected Groundwater Elevation [1] (ft amsl)	Corrected Water Table Depth [1] (ft btoc)
QPTW-05 (cont"d)	11/08/05	592.4	592.13	2.70	12.70	9.55	7.99	1.56	583.95	8.18
	12/19/05	592.4	592.13	2.70	12.70	9.74	8.05	1.69	583.88	8.25
	01/31/06	592.4	592.13	2.70	12.70	8.84	7.68	1.16	584.31	7.82
	02/15/06	592.4	592.13	2.70	12.70	8.63	7.54	1.09	584.46	7.67
	03/13/06	592.4	592.13	2.70	12.70	8.20	7.33	0.87	584.70	7.43
	04/10/06	592.4	592.13	2.70	12.70	8.44	7.47	0.97	584.54	7.59
	05/22/06	592.4	592.13	2.70	12.70	8.65	7.58	1.07	584.42	7.71
	06/21/06	592.4	592.13	2.70	12.70	8.70	6.71	1.99	585.18	6.95
	07/11/06	592.4	592.13	2.70	12.70	8.35	7.38	0.97	584.63	7.50
	08/23/06	592.4	592.13	2.70	12.70	8.52	7.46	1.06	584.54	7.59
	09/26/06	592.4	592.13	2.70	12.70	8.46	7.45	1.01	584.56	7.57
	10/30/06	592.4	592.13	2.70	12.70	8.32	7.33	0.99	584.68	7.45
	11/27/06	592.4	592.13	2.70	12.70	8.50	7.44	1.06	584.56	7.57
	12/27/06	592.4	592.13	2.70	12.70	8.18	7.23	0.95	584.79	7.34
	01/15/07	592.4	592.13	2.70	12.70	8.55	7.49	1.06	584.51	7.62
	02/21/07	592.4	592.13	2.70	12.70	9.27	7.84	1.43	584.12	8.01
	03/23/07	592.4	592.13	2.70	12.70	9.19	7.81	1.38	584.15	7.98
	04/09/07	592.4	592.13	2.70	12.70	9.27	7.77	1.50	584.18	7.95
	05/15/07	592.4	592.13	2.70	12.70	9.11	7.74	1.37	584.23	7.90
	06/11/07	592.4	592.13	2.70	12.70	9.41	7.92	1.49	584.03	8.10
	07/11/07	592.4	592.13	2.70	12.70	9.52	7.96	1.56	583.98	8.15
	08/16/07	592.4	592.13	2.70	12.70	9.71	8.04	1.67	583.89	8.24
	09/17/07	592.4	592.13	2.70	12.70	9.25	7.82	1.43	584.14	7.99
	11/26/07	592.4	592.13	2.70	12.70	10.10	8.21	1.89	583.69	8.44
	12/12/07	592.4	592.13	2.70	12.70	10.31	8.30	2.01	583.59	8.54
	01/11/08	592.4	592.13	2.70	12.70	9.62	8.07	1.55	583.87	8.26
	02/05/08	592.4	592.13	2.70	12.70	9.05	7.90	1.15	584.09	8.04
	04/11/08	592.4	592.13	2.70	12.70	7.50	7.00	0.50	585.07	7.06
	05/16/08	592.4	592.13	2.70	12.70	7.67	7.12	0.55	584.94	7.19
	10/29/08	592.4	592.13	2.70	12.70	7.71	7.23	0.48	584.84	7.29
	01/21/09	592.4	592.13	2.70	12.70	7.43	6.87	0.56	585.19	6.94
	03/18/09	592.4	592.13	2.70	12.70	7.11	6.57	0.54	585.50	6.63
	10/17/09	592.4	592.13	2.70	12.70	7.98	7.18	0.80	584.85	7.28
	10/23/09	592.4	592.13	2.70	12.70	7.68	7.09	0.59	584.97	7.16
	06/09/10	592.4	592.13	2.70	12.70	7.07	6.23	0.84	585.80	6.33
	06/24/10	592.4	592.13	2.70	12.70	7.40	6.59	0.81	585.44	6.69
	07/29/10	592.4	592.13	2.70	12.70	7.34	6.14	1.20	585.85	6.28
	08/06/10	592.4	592.13	2.70	12.70	7.31	6.28	1.03	585.73	6.40
	08/13/10	592.4	592.13	2.70	12.70	6.08	5.57	0.51	586.50	5.63
	08/27/10	592.4	592.13	2.70	12.70	6.51	5.70	0.81	586.33	5.80
	09/17/10	592.4	592.13	2.70	12.70	6.36	5.83	0.53	586.24	5.89
	09/23/10	592.4	592.13	2.70	12.70	6.12	5.59	0.53	586.48	5.65
	10/15/10	592.4	592.13	2.70	12.70	6.31	6.01	0.30	586.08	6.05
	10/29/10	592.4	592.13	2.70	12.70	5.48	5.14	0.34	586.95	5.18
	12/07/10	592.4	592.13	2.70	12.70	6.46	5.72	0.74	586.32	5.81
	01/03/11	592.4	592.13	2.70	12.70	5.99	5.71	0.28	586.39	5.74
	03/18/11	592.4	592.13	2.70	12.70	5.43	5.11	0.32	586.98	5.15
	04/08/11	592.4	592.13	2.70	12.70	4.63	4.32	0.31	587.77	4.36
	05/09/11	592.4	592.13	2.70	12.70	4.55	4.31	0.24	587.79	4.34
	06/09/11	592.4	592.13	2.70	12.70	4.83	4.56	0.27	587.54	4.59
	07/05/11	592.4	592.13	2.70	12.70	5.11	4.64	0.47	587.43	4.70
	08/23/11	592.4	592.13	2.70	12.70	4.26	4.03	0.23	588.07	4.06
	10/14/11	592.4	592.13	2.70	12.70	5.28	4.94	0.34	587.15	4.98
	11/23/11	592.4	592.13	2.70	12.70	4.75	4.42	0.33	587.67	4.46
	01/24/12	592.4	592.13	2.70	12.70	3.73	3.58	0.15	588.53	3.60
	03/20/12	592.4	592.13	2.70	12.70	4.05	3.72	0.33	588.37	3.76
	04/23/12	592.4	592.13	2.70	12.70	4.10	3.74	0.36	588.35	3.78
	06/11/12	592.4	592.13	2.70	12.70	4.44	4.00	0.44	588.08	4.05
	07/10/12	592.4	592.13	2.70	12.70	5.17	4.52	0.65	587.53	4.60
	08/29/12	592.4	592.13	2.70	12.70	4.44	3.80	0.64	588.25	3.88
	09/12/12	592.4	592.13	2.70	12.70	4.39	3.63	0.76	588.41	3.72

Table 1

Summary of Groundwater Gauging Data - Quench Pit Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Well ID	Date	Ground Surface Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Top of Screen (ft btoc)	Total Depth (ft btoc)	Depth to Water (ft btoc)	Depth to Product (ft btoc)	LNAPL Thickness (ft)	Corrected Groundwater Elevation [1] (ft amsl)	Corrected Water Table Depth [1] (ft btoc)
QPTW-05 (cont'd)	11/06/12	592.4	592.13	2.70	12.70	4.49	3.69	0.80	588.34	3.79
	12/05/12	592.4	592.13	2.70	12.70	5.28	4.31	0.97	587.70	4.43
	04/03/13	592.4	592.13	2.70	12.70	5.07	4.01	1.06	587.99	4.14
	07/18/13	592.4	592.13	2.70	12.70	4.80	3.10	1.70	588.83	3.30
	09/23/13	592.4	592.13	2.70	12.70	6.20	4.26	1.94	587.64	4.49
	04/25/14	592.4	592.13	2.70	12.70	4.87	2.36	2.51	589.47	2.66
	06/02/14	592.4	592.13	2.70	12.70	4.45	3.16	1.29	588.82	3.31
	07/09/14	592.4	592.13	2.70	12.70	3.66	2.19	1.47	589.76	2.37
	07/31/14	592.4	592.13	2.70	12.70	4.25	2.93	1.32	589.04	3.09
	09/16/14	592.4	592.13	2.70	12.70	4.77	2.99	1.78	588.93	3.20
	03/24/15	592.4	592.13	2.70	12.70	5.11	3.70	1.41	588.26	3.87
	06/17/15	592.4	592.13	2.70	12.70	4.77	2.59	2.18	589.28	2.85
	09/09/15	592.4	592.13	2.70	12.70	5.30	2.49	2.81	589.30	2.83
	12/04/15	592.4	592.13	2.70	12.70	6.38	4.10	2.28	587.76	4.37
	03/15/16	592.4	592.13	2.70	12.70	4.86	2.49	2.37	589.36	2.77
	06/17/16	592.4	592.13	2.70	12.70	4.14	1.99	2.15	589.88	2.25
	09/22/16	592.4	592.13	2.70	12.70	5.67	3.15	2.52	588.68	3.45
	09/27/16	ABANDONED								
QPTW-05R	09/06/17	595	594.28	2.00	12.00	5.64	4.98	0.66	589.22	5.06
	11/27/17	595	594.28	2.00	12.00	5.41	4.75	0.66	589.45	4.83
	02/27/18	595	594.28	2.00	12.00	4.21	4.07	0.14	590.19	4.09
	06/04/18	595	594.28	2.00	12.00	5.36	4.52	0.84	589.66	4.62
	10/05/18	595	594.28	2.00	12.00	5.38	5.05	0.33	589.19	5.09
	12/11/18	595	594.28	2.00	12.00	4.97	4.66	0.31	589.58	4.70
	03/12/19	595	594.28	2.00	12.00	4.67	4.08	0.59	590.13	4.15
	06/18/19	595	594.28	2.00	12.00	3.90	2.97	0.93	591.20	3.08
	09/16/19	595	594.28	2.00	12.00	5.58	5.12	0.46	589.10	5.18
	12/03/19	595	594.28	2.00	12.00	4.35	2.73	1.62	591.36	2.92
	03/12/20	595	594.28	2.00	12.00	5.28	3.57	1.71	590.50	3.78
	06/03/20	595	594.28	2.00	12.00	4.47	3.38	1.09	590.77	3.51
	09/09/20	595	594.28	2.00	12.00	6.91	5.25	1.66	588.83	5.45
	12/03/20	595	594.28	2.00	12.00	5.84	5.32	0.52	588.90	5.38
	08/16/21	595	594.28	2.00	12.00	6.29	5.43	0.86	588.75	5.53
	09/20/22	595	594.28	2.00	12.00	6.50	5.30	1.20	588.84	5.44
	09/12/23	595	594.28	2.00	12.00	5.39	4.69	0.70	589.51	4.77
QPTW-10	03/17/05	592.4	592.15	2.60	12.60	9.83	7.58	2.25	584.30	7.85
	04/12/05	592.4	592.15	2.60	12.60	9.96	7.63	2.33	584.24	7.91
	05/31/05	592.4	592.15	2.60	12.60	10.29	7.83	2.46	584.02	8.13
	06/24/05	592.4	592.15	2.60	12.60	9.72	7.43	2.29	584.45	7.70
	08/12/05	592.4	592.15	2.60	12.60	9.79	7.58	2.21	584.30	7.85
	10/14/05	592.4	592.15	2.60	12.60	10.56	7.80	2.76	584.02	8.13
	11/08/05	592.4	592.15	2.60	12.60	10.82	7.88	2.94	583.92	8.23
	12/19/05	592.4	592.15	2.60	12.60	11.01	7.95	3.06	583.83	8.32
	01/31/06	592.4	592.15	2.60	12.60	9.79	7.54	2.25	584.34	7.81
	02/15/06	592.4	592.15	2.60	12.60	9.73	7.44	2.29	584.44	7.71
	03/13/06	592.4	592.15	2.60	12.60	9.22	7.23	1.99	584.68	7.47
	04/10/06	592.4	592.15	2.60	12.60	9.59	7.34	2.25	584.54	7.61
	05/22/06	592.4	592.15	2.60	12.60	9.95	7.43	2.52	584.42	7.73
	06/21/06	592.4	592.15	2.60	12.60	10.00	7.49	2.51	584.36	7.79
	07/11/06	592.4	592.15	2.60	12.60	9.69	7.30	2.39	584.56	7.59
	08/23/06	592.4	592.15	2.60	12.60	9.58	7.30	2.28	584.58	7.57
	09/26/06	592.4	592.15	2.60	12.60	9.85	7.33	2.52	584.52	7.63
	10/30/06	592.4	592.15	2.60	12.60	9.68	7.19	2.49	584.66	7.49
	11/27/06	592.4	592.15	2.60	12.60	9.91	7.33	2.58	584.51	7.64
	12/27/06	592.4	592.15	2.60	12.60	9.99	7.34	2.65	584.49	7.66
	01/15/07	592.4	592.15	2.60	12.60	9.90	7.37	2.53	584.48	7.67
	02/21/07	592.4	592.15	2.60	12.60	10.81	7.78	3.03	584.01	8.14
	03/23/07	592.4	592.15	2.60	12.60	10.71	7.72	2.99	584.07	8.08
	04/09/07	592.4	592.15	2.60	12.60	10.63	7.64	2.99	584.15	8.00
	05/15/07	592.4	592.15	2.60	12.60	10.38	7.46	2.92	584.34	7.81
	06/11/07	592.4	592.15	2.60	12.60	10.81	7.81	3.00	583.98	8.17

Table 1

Summary of Groundwater Gauging Data - Quench Pit Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Well ID	Date	Ground Surface Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Top of Screen (ft btoc)	Total Depth (ft btoc)	Depth to Water (ft btoc)	Depth to Product (ft btoc)	LNAPL Thickness (ft)	Corrected Groundwater Elevation [1] (ft amsl)	Corrected Water Table Depth [1] (ft btoc)
QPTW-10 (cont'd)	07/11/07	592.4	592.15	2.60	12.60	11.05	7.86	3.19	583.91	8.24
	08/16/07	592.4	592.15	2.60	12.60	11.27	7.95	3.32	583.80	8.35
	09/17/07	592.4	592.15	2.60	12.60	10.54	7.73	2.81	584.08	8.07
	11/26/07	592.4	592.15	2.60	12.60	11.57	8.11	3.46	583.62	8.53
	12/12/07	592.4	592.15	2.60	12.60	11.80	8.18	3.62	583.54	8.61
	01/11/08	592.4	592.15	2.60	12.60	10.96	7.95	3.01	583.84	8.31
	02/05/08	592.4	592.15	2.60	12.60	10.21	7.78	2.43	584.08	8.07
	04/11/08	592.4	592.15	2.60	12.60	8.71	6.83	1.88	585.09	7.06
	05/16/08	592.4	592.15	2.60	12.60	8.91	6.95	1.96	584.96	7.19
	10/29/08	592.4	592.15	2.60	12.60	9.12	6.94	2.18	584.95	7.20
	01/21/09	592.4	592.15	2.60	12.60	7.96	6.68	1.28	585.32	6.83
	03/18/09	592.4	592.15	2.60	12.60	8.69	6.36	2.33	585.51	6.64
	10/17/09	592.4	592.15	2.60	12.60	9.10	7.04	2.06	584.86	7.29
	10/23/09	592.4	592.15	2.60	12.60	8.67	6.97	1.70	584.98	7.17
	06/09/10	592.4	592.15	2.60	12.60	8.42	6.23	2.19	585.66	6.49
	06/24/10	592.4	592.15	2.60	12.60	8.91	6.48	2.43	585.38	6.77
	07/29/10	592.4	592.15	2.60	12.60	9.37	6.51	2.86	585.30	6.85
	08/06/10	592.4	592.15	2.60	12.60	9.22	6.71	2.51	585.14	7.01
	08/13/10	592.4	592.15	2.60	12.60	8.06	5.73	2.33	586.14	6.01
	08/27/10	592.4	592.15	2.60	12.60	8.83	6.03	2.80	585.78	6.37
	09/17/10	592.4	592.15	2.60	12.60	8.68	5.72	2.96	586.07	6.08
	09/23/10	592.4	592.15	2.60	12.60	8.54	5.64	2.90	586.16	5.99
	10/15/10	592.4	592.15	2.60	12.60	8.92	5.82	3.10	585.96	6.19
	10/29/10	592.4	592.15	2.60	12.60	8.87	5.68	3.19	586.09	6.06
	03/18/11	592.4	592.15	2.60	12.60	8.03	4.92	3.11	586.86	5.29
	04/08/11	592.4	592.15	2.60	12.60	7.75	4.06	3.69	587.65	4.50
	05/09/11	592.4	592.15	2.60	12.60	8.24	3.95	4.29	587.69	4.46
	06/09/11	592.4	592.15	2.60	12.60	8.28	4.24	4.04	587.43	4.72
	07/05/11	592.4	592.15	2.60	12.60	8.75	4.38	4.37	587.25	4.90
	08/23/11	592.4	592.15	2.60	12.60	8.50	3.67	4.83	587.90	4.25
	10/14/11	592.4	592.15	2.60	12.60	8.64	4.58	4.06	587.08	5.07
	11/23/11	592.4	592.15	2.60	12.60	8.38	3.98	4.40	587.64	4.51
	04/23/12	592.4	592.15	2.60	12.60	4.13	3.78	0.35	588.33	3.82
	07/10/12	592.4	592.15	2.60	12.60	5.65	4.51	1.14	587.50	4.65
	11/12/14	592.4	592.15	2.60	12.60	4.83	3.91	0.92	588.13	4.02
	09/09/15	592.4	592.15	2.60	12.60	2.99	2.85	0.14	589.28	2.87
	03/15/16	592.4	592.15	2.60	12.60	3.37	2.77	0.60	589.31	2.84
	06/17/16	592.4	592.15	2.60	12.60	2.84	2.41	0.43	589.69	2.46
	09/22/16	592.4	592.15	2.60	12.60	5.60	3.27	2.33	588.60	3.55
	09/27/16	ABANDONED								
QPTW-10R	09/06/17	594.82	594.20	2.00	12.00	4.99	---	---	589.21	4.99
	11/27/17	594.82	594.20	2.00	12.00	4.77	---	---	589.43	4.77
	02/27/18	594.82	594.20	2.00	12.00	4.00	---	---	590.20	4.00
	06/04/18	594.82	594.20	2.00	12.00	4.56	---	---	589.64	4.56
	10/05/18	594.82	594.20	2.00	12.00	5.05	---	---	589.15	5.05
	12/11/18	594.82	594.20	2.00	12.00	4.61	---	---	589.59	4.61
	03/12/19	594.82	594.20	2.00	12.00	4.14	---	---	590.06	4.14
	06/18/19	594.82	594.20	2.00	12.00	3.05	---	---	591.15	3.05
	09/16/19	594.82	594.20	2.00	12.00	5.14	---	---	589.06	5.14
	12/03/19	594.82	594.20	2.00	12.00	2.66	---	---	591.54	2.66
	03/12/20	594.82	594.20	2.00	12.00	3.62	---	---	590.58	3.62
	06/03/20	594.82	594.20	2.00	12.00	3.45	---	---	590.75	3.45
	09/09/20	594.82	594.20	2.00	12.00	5.29	---	---	588.91	5.29
	12/03/20	594.82	594.20	2.00	12.00	5.35	---	---	588.85	5.35
	08/16/21	594.82	594.20	2.00	12.00	5.49	---	---	588.71	5.49
	09/20/22	594.82	594.20	2.00	12.00	5.42	---	---	588.78	5.42
	09/12/23	594.82	594.20	2.00	12.00	4.67	---	---	589.53	4.67
QPTW-13	10/15/10	592.7	592.36	2.76	12.76	7.17	6.65	0.52	585.65	6.71
	10/29/10	592.7	592.36	2.76	12.76	6.77	6.49	0.28	585.84	6.52
	03/18/11	592.7	592.36	2.76	12.76	4.56	4.47	0.09	587.88	4.48
	05/09/11	592.7	592.36	2.76	12.76	4.59	4.56	0.03	587.80	4.56

Table 1

Summary of Groundwater Gauging Data - Quench Pit Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Well ID	Date	Ground Surface Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Top of Screen (ft btoc)	Total Depth (ft btoc)	Depth to Water (ft btoc)	Depth to Product (ft btoc)	LNAPL Thickness (ft)	Corrected Groundwater Elevation [1] (ft amsl)	Corrected Water Table Depth [1] (ft btoc)
QPTW-13 (cont'd)	06/09/11	592.7	592.36	2.76	12.76	4.88	4.85	0.03	587.51	4.85
	07/05/11	592.7	592.36	2.76	12.76	5.08	5.02	0.06	587.33	5.03
	08/23/11	592.7	592.36	2.76	12.76	4.43	4.38	0.05	587.97	4.39
	10/14/11	592.7	592.36	2.76	12.76	5.12	5.03	0.09	587.32	5.04
	03/20/12	592.7	592.36	2.76	12.76	4.12	---	---	588.24	4.12
	04/23/12	592.7	592.36	2.76	12.76	4.16	4.15	0.01	588.21	4.15
	06/11/12	592.7	592.36	2.76	12.76	4.38	---	---	587.98	4.38
	07/10/12	592.7	592.36	2.76	12.76	5.06	4.84	0.22	587.49	4.87
	08/29/12	592.7	592.36	2.76	12.76	4.30	4.24	0.06	588.11	4.25
	09/12/12	592.7	592.36	2.76	12.76	4.13	4.09	0.04	588.27	4.09
	04/15/13	592.7	592.36	2.76	12.76	2.85	---	---	589.51	2.85
	07/18/13	592.7	592.36	2.76	12.76	3.54	---	---	588.82	3.54
	09/23/13	592.7	592.36	2.76	12.76	4.74	4.71	0.03	587.65	4.71
	04/25/14	592.7	592.36	2.76	12.76	2.98	---	---	589.38	2.98
	06/02/14	592.7	592.36	2.76	12.76	3.65	---	---	588.71	3.65
	07/09/14	592.7	592.36	2.76	12.76	2.73	---	---	589.63	2.73
	07/31/14	592.7	592.36	2.76	12.76	3.41	---	---	588.95	3.41
	09/16/14	592.7	592.36	2.76	12.76	3.48	---	---	588.88	3.48
	03/24/15	592.7	592.36	2.76	12.76	4.12	---	---	588.24	4.12
	06/17/15	592.7	592.36	2.76	12.76	3.17	---	---	589.19	3.17
	09/09/15	592.7	592.36	2.76	12.76	3.17	---	---	589.19	3.17
	03/15/16	592.7	592.36	2.76	12.76	3.11	---	---	589.25	3.11
	06/17/16	592.7	592.36	2.76	12.76	2.53	---	---	589.83	2.53
	09/22/16	592.7	592.36	2.76	12.76	3.72	---	---	588.64	3.72
	09/27/16	ABANDONED								
QPTW-13R	09/06/17	594.8	594.04	4	14	4.83	---	---	589.21	4.83
	11/27/17	594.8	594.04	4	14	4.61	---	---	589.43	4.61
	02/27/18	594.8	594.04	4	14	3.93	---	---	590.11	3.93
	06/04/18	594.8	594.04	4	14	4.40	---	---	589.64	4.40
	10/05/18	594.8	594.04	4	14	4.88	---	---	589.16	4.88
	12/11/18	594.8	594.04	4	14	4.54	---	---	589.50	4.54
	03/12/19	594.8	594.04	4	14	4.02	---	---	590.02	4.02
	06/18/19	594.8	594.04	4	14	3.00	---	---	591.04	3.00
	09/16/19	594.8	594.04	4	14	4.98	---	---	589.06	4.98
	12/03/19	594.8	594.04	4	14	1.68	---	---	592.36	1.68
	03/12/20	594.8	594.04	4	14	3.47	---	---	590.57	3.47
	06/03/20	594.8	594.04	4	14	3.36	---	---	590.68	3.36
	09/09/20	594.8	594.04	4	14	3.11	---	---	590.93	3.11
	12/03/20	594.8	594.04	4	14	5.20	---	---	588.84	5.20
	08/16/21	594.8	594.04	4	14	5.32	---	---	588.72	5.32
	09/20/22	594.8	594.04	4	14	5.26	---	---	588.78	5.26
	09/11/23	594.8	594.04	4	14	4.58	---	---	589.46	4.58
QP-1	06/24/10	---	---	5	15	9.65	9.51	0.14	---	9.53
	07/22/10	---	---	5	15	12.22	12.14	0.08	---	12.15
	08/06/10	---	---	5	15	4.40	4.21	0.19	---	4.23
	08/13/10	---	---	5	15	1.63	1.56	0.07	---	1.57
	08/27/10	---	---	5	15	9.79	---	---	---	9.79
	09/17/10	---	---	5	15	8.64	---	---	---	8.64
	09/23/10	---	---	5	15	8.45	---	---	---	8.45
	10/15/10	---	---	5	15	8.91	---	---	---	8.91
	10/29/10	---	---	5	15	8.85	---	---	---	8.85
	12/07/10	---	---	5	15	9.22	---	---	---	9.22
	01/03/11	---	---	5	15	8.73	---	---	---	8.73
	03/18/11	---	---	5	15	8.83	---	---	---	8.83
	04/08/11	---	---	5	15	8.26	---	---	---	8.26
	05/09/11	---	---	5	15	8.19	---	---	---	8.19
	06/09/11	---	---	5	15	7.72	---	---	---	7.72
	07/05/11	---	---	5	15	8.54	---	---	---	8.54
	08/23/11	---	---	5	15	7.47	---	---	---	7.47
	10/14/11	---	---	5	15	8.82	---	---	---	8.82
	11/23/11	---	---	5	15	8.21	---	---	---	8.21

Table 1

Summary of Groundwater Gauging Data - Quench Pit Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Well ID	Date	Ground Surface Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Top of Screen (ft btoc)	Total Depth (ft btoc)	Depth to Water (ft btoc)	Depth to Product (ft btoc)	LNAPL Thickness (ft)	Corrected Groundwater Elevation [1] (ft amsl)	Corrected Water Table Depth [1] (ft btoc)
QP-1	01/24/12	---	---	5	15	6.58	---	---	---	6.58
(cont'd)	03/20/12	---	---	5	15	7.63	---	---	---	7.63
	04/23/12	---	---	5	15	7.15	---	---	---	7.15
	06/11/12	---	---	5	15	7.91	---	---	---	7.91
	07/10/12	---	---	5	15	8.54	---	---	---	8.54
	08/29/12	---	---	5	15	7.91	---	---	---	7.91
	09/12/12	---	---	5	15	7.66	---	---	---	7.66
	10/01/12	---	---	5	15	8.47	---	---	---	8.47
	11/06/12	---	---	5	15	7.66	---	---	---	7.66
	12/05/12	---	---	5	15	7.68	---	---	---	7.68
	04/03/13	---	---	5	15	7.93	---	---	---	7.93
	07/18/13	---	---	5	15	7.37	---	---	---	7.37
	09/23/13	---	---	5	15	8.55	---	---	---	8.55
	04/25/14	---	---	5	15	6.49	---	---	---	6.49
	06/02/14	---	---	5	15	7.17	---	---	---	7.17
	07/09/14	---	---	5	15	6.16	---	---	---	6.16
	07/31/14	---	---	5	15	6.48	---	---	---	6.48
	09/16/14	---	---	5	15	6.94	---	---	---	6.94
	03/24/15	---	---	5	15	7.55	---	---	---	7.55
	06/17/15	---	---	5	15	6.51	---	---	---	6.51
	09/09/15	---	---	5	15	6.12	---	---	---	6.12
	12/04/15	---	---	5	15	8.25	---	---	---	8.25
	03/15/16	---	---	5	15	6.88	---	---	---	6.88
	06/17/16	---	---	5	15	6.12	---	---	---	6.12
	09/22/16	---	---	5	15	7.45	---	---	---	7.45
	09/27/16	ABANDONED								
QP-1R	09/06/17	594.87	594.59	1.5	12	5.20	---	---	589.39	5.20
	11/27/17	594.87	594.59	1.5	12	5.11	---	---	589.48	5.11
	02/27/18	594.87	594.59	1.5	12	4.65	---	---	589.94	4.65
	06/04/18	594.87	594.59	1.5	12	4.68	---	---	589.91	4.68
	10/05/18	594.87	594.59	1.5	12	5.29	---	---	589.30	5.29
	12/11/18	594.87	594.59	1.5	12	4.63	---	---	589.96	4.63
	03/12/19	594.87	594.59	1.5	12	4.57	---	---	590.02	4.57
	06/18/19	594.87	594.59	1.5	12	2.96	---	---	591.63	2.96
	09/16/19	594.87	594.59	1.5	12	5.19	---	---	589.40	5.19
	12/03/19	594.87	594.59	1.5	12	2.61	---	---	591.98	2.61
	03/12/20	594.87	594.59	1.5	12	3.66	---	---	590.93	3.66
	06/03/20	594.87	594.59	1.5	12	3.48	---	---	591.11	3.48
	09/09/20	594.87	594.59	1.5	12	5.39	---	---	589.20	5.39
	12/03/20	594.87	594.59	1.5	12	5.64	---	---	588.95	5.64
	08/16/21	594.87	594.59	1.5	12	5.61	---	---	588.98	5.61
	09/20/22	594.87	594.59	1.5	12	5.47	---	---	589.12	5.47
	09/12/23	594.87	594.59	1.5	12	3.50	---	---	591.09	3.50
QP-2	06/24/10	---	---	5	15	10.27	10.25	0.02	---	10.25
	06/28/10	---	---	5	15	9.49	9.45	0.04	---	9.45
	07/08/10	---	---	5	15	8.57	8.48	0.09	---	8.49
	07/22/10	---	---	5	15	8.31	8.22	0.09	---	8.23
	07/29/10	---	---	5	15	8.55	8.46	0.09	---	8.47
	08/06/10	---	---	5	15	8.88	8.74	0.14	---	8.76
	08/13/10	---	---	5	15	6.70	6.61	0.09	---	6.62
	08/27/10	---	---	5	15	7.76	7.66	0.10	---	7.67
	09/17/10	---	---	5	15	7.44	7.28	0.16	---	7.30
	09/23/10	---	---	5	15	7.14	6.98	0.16	---	7.00
	10/15/10	---	---	5	15	7.96	7.73	0.23	---	7.76
	10/29/10	---	---	5	15	7.74	7.48	0.26	---	7.51
	12/07/10	---	---	5	15	7.71	7.40	0.31	---	7.44
	01/03/11	---	---	5	15	7.62	7.31	0.31	---	7.35
	03/18/11	---	---	5	15	7.51	7.25	0.26	---	7.28
	04/08/11	---	---	5	15	7.03	6.73	0.30	---	6.77
	05/09/11	---	---	5	15	6.97	6.61	0.36	---	6.65
	06/09/11	---	---	5	15	7.36	6.93	0.43	---	6.98

Table 1

Summary of Groundwater Gauging Data - Quench Pit Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Well ID	Date	Ground Surface Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Top of Screen (ft btoc)	Total Depth (ft btoc)	Depth to Water (ft btoc)	Depth to Product (ft btoc)	LNAPL Thickness (ft)	Corrected Groundwater Elevation [1] (ft amsl)	Corrected Water Table Depth [1] (ft btoc)
QP-2	07/05/11	---	---	5	15	7.45	6.92	0.53	---	6.98
(cont'd)	08/23/11	---	---	5	15	7.13	6.42	0.71	---	6.51
	10/14/11	---	---	5	15	8.31	7.34	0.97	---	7.46
	11/23/11	---	---	5	15	7.99	7.07	0.92	---	7.18
	01/24/12	---	---	5	15	6.79	5.81	0.98	---	5.93
	03/20/12	---	---	5	15	7.25	6.29	0.96	---	6.41
	04/23/12	---	---	5	15	7.21	6.18	1.03	---	6.30
	06/11/12	---	---	5	15	7.20	6.48	0.72	---	6.57
	07/10/12	---	---	5	15	8.43	7.04	1.39	---	7.21
	08/29/12	---	---	5	15	8.00	6.44	1.56	---	6.63
	09/12/12	---	---	5	15	7.75	6.17	1.58	---	6.36
	10/01/12	---	---	5	15	8.66	6.81	1.85	---	7.03
	11/06/12	---	---	5	15	7.02	6.29	0.73	---	6.38
	12/05/12	---	---	5	15	7.59	6.86	0.73	---	6.95
	04/03/13	---	---	5	15	7.12	6.40	0.72	---	6.49
	07/18/13	---	---	5	15	6.91	5.86	1.05	---	5.99
	09/23/13	---	---	5	15	7.73	6.95	0.78	---	7.04
	04/25/14	---	---	5	15	5.86	5.40	0.46	---	5.46
	06/02/14	---	---	5	15	6.24	5.74	0.50	---	5.80
	07/09/14	---	---	5	15	5.86	5.29	0.57	---	5.36
	07/31/14	---	---	5	15	6.16	5.55	0.61	---	5.62
	09/16/14	---	---	5	15	5.93	5.76	0.17	---	5.78
	03/24/15	---	---	5	15	6.51	6.30	0.21	---	6.33
	06/17/15	---	---	5	15	5.79	5.53	0.26	---	5.56
	09/09/15	---	---	5	15	5.71	5.36	0.35	---	5.40
	12/04/15	---	---	5	15	7.35	6.88	0.47	---	6.94
	03/15/16	---	---	5	15	5.77	5.51	0.26	---	5.54
	06/17/16	---	---	5	15	5.53	5.22	0.31	---	5.26
	09/22/16	---	---	5	15	6.38	5.99	0.39	---	6.04
	09/27/16	ABANDONED								
QP-2R	09/06/17	594.81	594.22	2	12	4.29	4.27	0.02	589.95	4.27
	11/27/17	594.81	594.22	2	12	4.36	4.35	0.01	589.87	4.35
	02/27/18	594.81	594.22	2	12	3.80	3.79	0.01	590.43	3.79
	06/04/18	594.81	594.22	2	12	3.86	3.85	0.01	590.37	3.85
	10/05/18	594.81	594.22	2	12	4.33	---	---	589.89	4.33
	12/11/18	594.81	594.22	2	12	3.69	---	---	590.53	3.69
	03/12/19	594.81	594.22	2	12	3.87	3.83	0.04	590.39	3.83
	06/18/19	594.81	594.22	2	12	2.54	2.47	0.07	591.74	2.48
	09/16/19	594.81	594.22	2	12	4.42	---	---	589.80	4.42
	12/03/19	594.81	594.22	2	12	2.06	---	---	592.16	2.06
	03/12/20	594.81	594.22	2	12	2.92	---	---	591.30	2.92
	06/03/20	594.81	594.22	2	12	2.56	---	---	591.66	2.56
	09/09/20	594.81	594.22	2	12	4.67	---	---	589.55	4.67
	12/03/20	594.81	594.22	2	12	4.92	---	---	589.30	4.92
	08/16/21	594.81	594.22	2	12	4.86	4.84	0.02	589.38	4.84
	09/20/22	594.81	594.22	2	12	4.75	---	---	589.47	4.75
	09/12/23	594.81	594.22	2	12	3.74	3.72	0.02	590.50	3.72
QP-3	06/24/10	---	---	5	15	17.53	16.80	0.73	---	16.89
	06/28/10	---	---	5	15	12.56	12.53	0.03	---	12.53
	07/08/10	---	---	5	15	12.37	12.32	0.05	---	12.33
	07/29/10	---	---	5	15	12.47	12.35	0.12	---	12.36
	08/06/10	---	---	5	15	12.89	12.81	0.08	---	12.82
	08/13/10	---	---	5	15	11.69	11.62	0.07	---	11.63
	08/27/10	---	---	5	15	11.78	11.71	0.07	---	11.72
	09/17/10	---	---	5	15	11.78	11.69	0.09	---	11.70
	09/23/10	---	---	5	15	11.55	11.41	0.14	---	11.43
	10/15/10	---	---	5	15	8.19	8.03	0.16	---	8.05
	10/29/10	---	---	5	15	8.27	8.09	0.18	---	8.11
	12/07/10	---	---	5	15	7.92	7.82	0.10	---	7.83
	01/03/11	---	---	5	15	7.70	7.57	0.13	---	7.59
	03/18/11	---	---	5	15	7.69	7.59	0.10	---	7.60

Table 1

Summary of Groundwater Gauging Data - Quench Pit Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Well ID	Date	Ground Surface Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Top of Screen (ft btoc)	Total Depth (ft btoc)	Depth to Water (ft btoc)	Depth to Product (ft btoc)	LNAPL Thickness (ft)	Corrected Groundwater Elevation [1] (ft amsl)	Corrected Water Table Depth [1] (ft btoc)
QP-3	04/08/11	---	---	5	15	6.78	6.72	0.06	---	6.73
(cont'd)	05/09/11	---	---	5	15	7.08	7.02	0.06	---	7.03
	06/09/11	---	---	5	15	7.33	7.25	0.08	---	7.26
	07/05/11	---	---	5	15	7.26	7.18	0.08	---	7.19
	08/23/11	---	---	5	15	6.41	6.37	0.04	---	6.37
	10/14/11	---	---	5	15	7.44	7.35	0.09	---	7.36
	11/23/11	---	---	5	15	7.06	7.00	0.06	---	7.01
	01/24/12	---	---	5	15	5.63	5.60	0.03	---	5.60
	03/20/12	---	---	5	15	6.25	6.22	0.03	---	6.22
	04/23/12	---	---	5	15	6.02	6.00	0.02	---	6.00
	06/11/12	---	---	5	15	6.55	6.51	0.04	---	6.51
	07/10/12	---	---	5	15	7.21	7.11	0.10	---	7.12
	08/29/12	---	---	5	15	6.58	6.49	0.09	---	6.50
	09/12/12	---	---	5	15	6.16	6.10	0.06	---	6.11
	10/01/12	---	---	5	15	7.11	7.01	0.10	---	7.02
	11/06/12	---	---	5	15	7.07	7.01	0.06	---	7.02
	12/05/12	---	---	5	15	6.58	6.55	0.03	---	6.55
	04/03/13	---	---	5	15	6.57	6.54	0.03	---	6.54
	07/18/13	---	---	5	15	5.98	5.92	0.06	---	5.93
	09/23/13	---	---	5	15	7.01	6.91	0.10	---	6.92
	04/25/14	---	---	5	15	5.41	5.39	0.02	---	5.39
	06/02/14	---	---	5	15	5.74	5.71	0.03	---	5.71
	07/09/14	---	---	5	15	5.17	5.13	0.04	---	5.13
	07/31/14	---	---	5	15	5.25	5.24	0.01	---	5.24
	09/16/14	---	---	5	15	5.47	5.41	0.06	---	5.42
	03/24/15	---	---	5	15	6.36	6.34	0.02	---	6.34
	06/17/15	---	---	5	15	5.20	5.18	0.02	---	5.18
	09/09/15	---	---	5	15	5.12	5.09	0.03	---	5.09
	12/04/15	---	---	5	15	6.40	6.39	0.01	---	6.39
	03/15/16	---	---	5	15	5.40	5.39	0.01	---	5.39
	06/17/16	---	---	5	15	5.13	5.11	0.02	---	5.11
	09/22/16	---	---	5	15	5.72	5.68	0.04	---	5.68
	09/27/16	ABANDONED								
QP-3R	09/06/17	594.8	594.41	2	12	4.17	4.08	0.09	590.32	4.09
	11/27/17	594.8	594.41	2	12	4.15	4.04	0.11	590.36	4.05
	02/27/18	594.8	594.41	2	12	3.79	3.71	0.08	590.69	3.72
	06/04/18	594.8	594.41	2	12	3.87	3.76	0.11	590.64	3.77
	10/05/18	594.8	594.41	2	12	4.24	4.08	0.16	590.31	4.10
	12/11/18	594.8	594.41	2	12	3.71	3.59	0.12	590.81	3.60
	03/12/19	594.8	594.41	2	12	4.02	3.88	0.14	590.51	3.90
	06/18/19	594.8	594.41	2	12	2.62	2.39	0.23	591.99	2.42
	09/16/19	594.8	594.41	2	12	4.40	4.26	0.14	590.13	4.28
	12/03/19	594.8	594.41	2	12	2.57	2.26	0.31	592.11	2.30
	03/12/20	594.8	594.41	2	12	2.90	2.85	0.05	591.55	2.86
	06/03/20	594.8	594.41	2	12	2.65	2.52	0.13	591.87	2.54
	09/09/20	594.8	594.41	2	12	4.56	4.46	0.10	589.94	4.47
	12/03/20	594.8	594.41	2	12	4.91	4.81	0.10	589.59	4.82
	08/16/21	594.8	594.41	2	12	4.73	4.61	0.12	589.79	4.62
	09/20/22	594.8	594.41	2	12	4.67	4.54	0.13	589.85	4.56
	09/12/23	594.8	594.41	2	12	3.56	3.47	0.09	590.93	3.48

Notes

LNAPL	Light Non-Aqueous Phase Liquid
ft	Feet
ft amsl	Feet Above Mean Sea Level
ft btoc	Feet Below Top of Casing
---	No LNAPL measured
(1)	A specific gravity of 0.88 (quench/hydraulic oil) was used to calculate corrected groundwater levels
(2)	Values for water and LNAPL depth appeared reversed on data collection log, it has been corrected on this table.

Table 2

Summary of Manhole Inspections - Southwest LNAPL Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Manhole Inspection Location	Inspection Date [(1)]	Depth to Water (ft btor)	Depth to Product (ft btor)	LNAPL Thickness (ft)	Observations
V3.6	03/24/15	4.99	---		none
	06/17/15	4.69	---		slight sheen
	09/09/15	5.13	---		none
	12/04/15	5.34	---		slight sheen
	03/15/16	4.27	---		very slight sheen
	06/17/16	3.77	---		slight sheen
	09/22/16	4.56	---		none
	02/27/18	4.07	---		slight sheen/scum
	06/04/18	4.19	---		very little debris
	07/26/18	5.03	---		very minor amount of sheen
	12/11/18	4.79	---		slight sheen
	03/12/19	4.05	---		very slight sheen
	06/18/19	2.93	---		very slight sheen
	09/16/19	4.71	---		none
	12/03/19	3.04	---		none
	03/12/20	3.09	---		little scum
	06/03/20	3.14	---		none
	09/09/20	4.84	---		none
	12/03/20	5.14	---		none
	08/16/21	5.43	---		none
	09/20/22	5.20	---		none
	09/12/23	4.58	---		none
X5.9	03/24/15	4.47	---		none
	06/17/15	4.19	---		none
	09/09/15	4.62	---		none
	12/04/15	4.88	---		very slight sheen
	03/15/16	3.73	---		none
	06/17/16	3.24	---		none
	09/22/16	4.08	---		none
	02/27/18	N/a	---		none
	06/04/18	N/a	---		none
	07/26/18	4.52	---		none
	12/11/18	4.32	---		none
	03/12/19	N/a	---		covered in ice
	06/18/19	N/a	---		flooded-water on concrete
	09/16/19	4.22	---		a little scum
	12/03/19	N/a	---		flooded-water on concrete
	03/12/20	2.61	---		little scum
	06/03/20	2.65	---		none
	09/09/20	N/a	---		underwater
	12/03/20	4.51	---		little scum, little water
	08/16/21	4.73	---		none
	09/20/22	4.65	---		possible sheen
	09/12/23	3.90	---		possible sheen
S5.6	03/24/15	4.63	---		none
	06/17/15	N/a	---		none
	09/09/15	6.30	---		none
	12/04/15	6.57	---		none
	03/15/16	5.44	---		none
	06/17/16	4.92	---		none
	09/22/16	5.78	---		none
	02/27/18	5.27	---		none

Table 2

Summary of Manhole Inspections - Southwest LNAPL Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Manhole Inspection Location	Inspection Date (1)	Depth to Water (ft btor)	Depth to Product (ft btor)	LNAPL Thickness (ft)	Observations
S5.6 (cont'd)	06/04/18	5.36	---		none
	07/26/18	6.22	---		none
	12/11/18	5.99	---		none
	03/12/19	5.19	---		ice
	06/18/19	4.11	---		none
	09/16/19	5.91	---		none
	12/03/19	4.21	---		none
	03/12/20	4.31	---		none
	06/03/20	4.35	---		none
	09/09/20	6.05	---		none
	12/03/20	6.32	---		none
	08/16/21	6.62	---		none
	09/20/22	5.19	---		none
	09/12/23	4.60	---		none
FV3.0	03/24/15	4.09	---		none
	06/17/15	3.15	---		slight sheen and a little scum
	09/09/15	3.55	---		floating scum (less than 1/16 ")
	12/04/15	4.49	---		oily scum - boom installed
	03/15/16	2.89	---		boom installed - very little scum
	06/17/16	2.66	---		very little scum - leave boom in
	09/22/16	3.58	---		a little scum; boom in
	02/27/18	2.83	---		very sllight sheen
	06/04/18	3.36	---		very little debris
	07/26/18	4.14	---		a little oily scum
	12/11/18	3.70	---		slight sheen
	03/12/19	3.55	---		little sheen
	06/18/19	1.91	---		little sheen
	09/16/19	4.01	---		slight scum
	12/03/19	1.95	---		none
	03/12/20	2.37	---		slight sheen
	06/03/20	2.31	---		very slight sheen
	09/09/20	3.89	---		slight sheen, trace scum
	12/03/20	4.09	---		very slight sheen
	08/16/21	4.25	---		sheen
	09/20/22	4.30	---		possible sheen
	09/12/23	3.25	---		no visible pipes; none

Notes

(1) Inspections did not occur between September 22, 2019 and February 27, 2018 as a result of work being conducted on the concrete floor slab of the former plant including the removal PCB impacted flooring and installation of cover over the entire floor slab.

LNAPL	Light Non-Aqueous Phase Liquid
ft	Feet
ft btor	Feet Below Top of Reference
---	No LNAPL measured

Table 3

Summary of Transmissivity Testing - Quench Pit Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Quench Pit Well Location	Date of Last Transmissivity Test	LNAPL Transmissivity - T_n (ft^3/day)	LNAPL Thickness at Time of Transmissivity Testing (ft)	Range of LNAPL Thickness Since Well Re-Installation (ft)
QPTW-01R*				0.02 - 0.03
QPTW-01	5/10/2016	0.05	1.3	
QPTW-03R2*	4/27/2018	0.30	0.54	0.18 - 0.97
QPTW-03R	4/28/2016	0.11	1.3	
QPTW-04R*	9/9/2017	0.21	0.82	0.04 - 1.40
QPTW-04	5/10/2016	0.08	0.97	
QPTW-05R*	9/9/2017	de minimis	0.6	0.14 - 1.71
QPTW-05	4/29/2016	0.31	2.18	
QPTW-05	10/30/2014	0.31	1.7	
QPTW-10R*				No Measurable Product
QPTW-10	4/28/2016	0.00	0.23	
QPTW-10	9/30/2015	1.17	0.58	
QPTW-10	10/30/2014	1.58	2.56	

Notes

* Monitoring well re-installed between June and August 2017

Attachment 1

Photographic Log

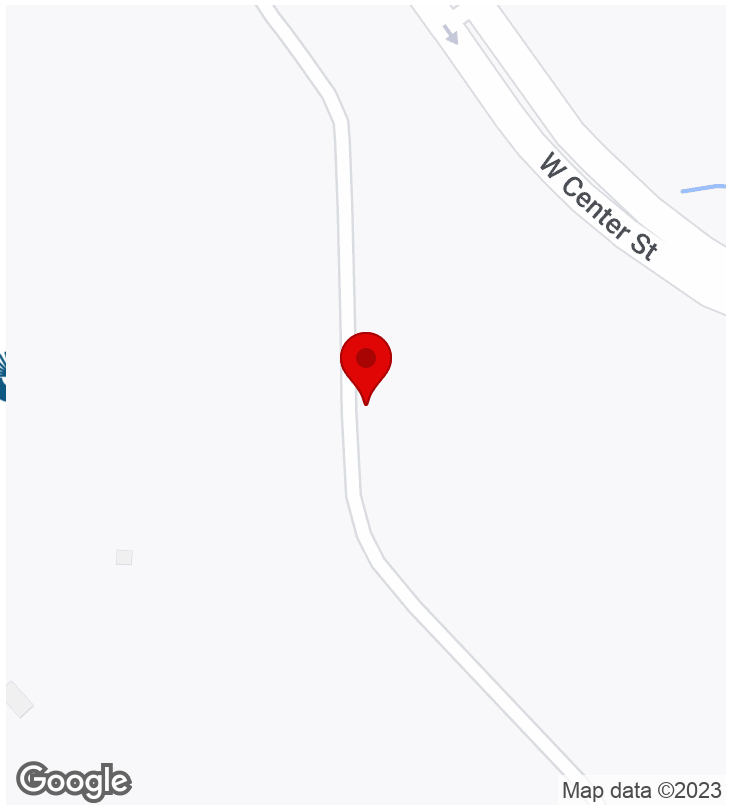
RACER Trust IC/EC Inspection v2

A site inspection app made for Institutional Control (IC) and Engineering Control (EC) conformance across RACER Trust sites.

IC/EC Inspection Report for Saginaw Malleable Site at Saginaw Malleable Industrial Land (10030) on September 19, 2022



View of the site looking north from GPL



INSPECTION DATE

9/18/2023, 8:57:48 PM UTC
by Billy J Cobern

UPDATED

9/18/2023, 10:12:35 PM UTC
by RACER User

LOCATION

43.401594, -83.969821

SITE NAME

Saginaw Malleable Site

ZONE NAME

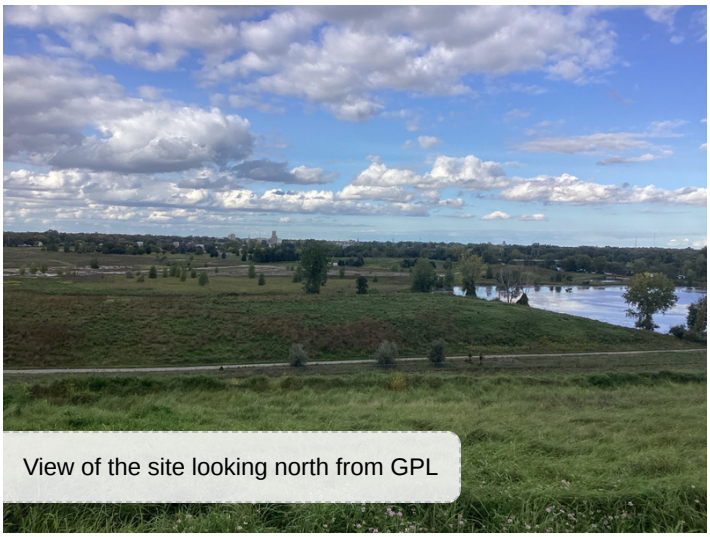
Saginaw Malleable Industrial Land (10030)

Site Description

Site Name	Saginaw Malleable Site
Site Zone	Saginaw Malleable Industrial Land (10030)
Site Address	77 West Center Street
Site City	Saginaw
Site State	MI

General Site Conditions

Describe on-site land use	Recreational
Describe off-site surrounding land use	Residential, Recreational, Commercial, Open Space
Describe any on-site ownership or tenancy changes.	None
Describe any needed on-site repairs	Several woody bushes were cut on GPL
Describe any on-site improvements	In 2023 Saginaw County Parks installed a parking lot on the north end, some paved trails, improved the gravel base on some of the access roads, installed description signs in a couple areas, and several new park benches.
Weather Conditions at time of inspection	Partly Cloudy, 50’s-60’s
Photos of current conditions/uses	



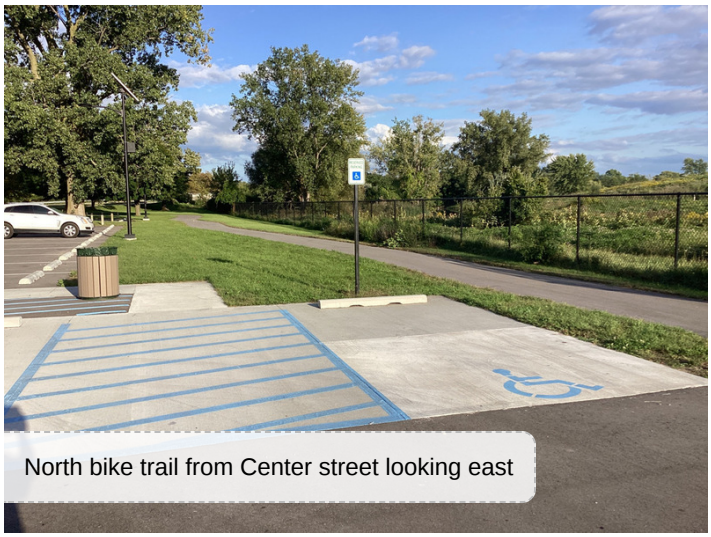
View of the site looking north from GPL



North gate looking south



North parking lot looking east



North bike trail from Center street looking east

Inspect Institutional Controls and Engineering Controls

Institutional Controls (IC) (11 Items)

Institutional Controls (IC) - 1. Property-Wide

Name of the IC	Property-Wide
Characterize restricted activities and uses	Commercial Use Restriction, Drinking Water Well or GW Use Restriction, Excavation Restriction, Obligation to Maintain Vegetation, Obligation to Maintain Wells and Markers, Obligation to Manage Contaminated Soils
Is commerical use occurring?	No
Have drinking water wells been drilled, constructed, or used on the property for unauthorized purposes?	No
Has excavation occurred?	No
Is vegetation present and kept in acceptable condition?	Yes

Are all permanent survey markers, benchmarks, and monitoring stations in place as designed?	Yes
Other comments or notes about the IC?	

Institutional Control photos



View of site looking south from GPL

Institutional Controls (IC) - 2. Southwest Plant LNAPL Area (Residual LNAPL Area 1) Lead Impacted Soil Area

Name of the IC	Southwest Plant LNAPL Area (Residual LNAPL Area 1) Lead Impacted Soil Area
Characterize restricted activities and uses	Excavation Restriction
Has excavation occurred?	No
Other comments or notes about the IC?	

Institutional Control photos



SW Plant LNAPL area from GPL

Institutional Controls (IC) - 3. Quench Pit LNAPL Area (Residual LNAPL Area 2)

Name of the IC	Quench Pit LNAPL Area (Residual LNAPL Area 2)
Characterize restricted activities and uses	Excavation Restriction, Obligation to Maintain Wells and Markers
Has excavation occurred?	No
Are all permanent survey markers, benchmarks, and monitoring stations in place as designed?	Yes
Other comments or notes about the IC?	

Institutional Control photos



Quench Pit LNAPL area looking north

Institutional Controls (IC) - 4. Former SMI Plant Slab

Name of the IC	Former SMI Plant Slab
Characterize restricted activities and uses	Excavation Restriction, New Building or Structure Restriction, Other Restrictions
Has excavation occurred?	No
Is new building or structure present?	No
Characterize other restriction(s)	Limit worker duration in area to 335 hours or less per calendar year
Do site use and activities comply with other restrictions	Yes
Other comments or notes about the IC?	

Institutional Control photos



Former Plant Slab area looking west

Institutional Controls (IC) - 5. 127.7 Manhole Area

Name of the IC	127.7 Manhole Area
Characterize restricted activities and uses	Excavation Restriction, Other Restrictions
Has excavation occurred?	No
Characterize other restriction(s)	Limit worker duration in area to 335 hours or less per calendar year
Do site use and activities comply with other restrictions	Yes
Other comments or notes about the IC?	

Institutional Control photos



Former Manhole 127.7 area looking east

Institutional Controls (IC) - 6. Melting Department Area

Name of the IC	Melting Department Area

Characterize restricted activities and uses	Excavation Restriction, Other Restrictions
Has excavation occurred?	No
Characterize other restriction(s)	Limit worker duration in area to 335 hours or less per calendar year
Do site use and activities comply with other restrictions	Yes
Other comments or notes about the IC?	

Institutional Control photos



Former Melting Department area looking NE

Institutional Controls (IC) - 7. Former Railyard Area

Name of the IC	Former Railyard Area
Characterize restricted activities and uses	Excavation Restriction
Has excavation occurred?	No
Other comments or notes about the IC?	

Institutional Control photos



Former Railyard area looking NE

Institutional Controls (IC) - 8. Type III Landfills

Name of the IC	Type III Landfills
Characterize restricted activities and uses	Excavation Restriction
Has excavation occurred?	No
Other comments or notes about the IC?	

Institutional Control photos



North type 3 landfill looking SE



South type 3 landfill looking NE

Institutional Controls (IC) - 9. Stormwater Pond

Name of the IC	Stormwater Pond
Characterize restricted activities and uses	Excavation Restriction
Has excavation occurred?	No

Other comments or notes about the IC?	No NAPL or sheen present.

Institutional Control photos



Storm water pond looking NE

Institutional Controls (IC) - 10. Storm Sewers

Name of the IC	Storm Sewers
Characterize restricted activities and uses	Underground Utility Construction or Repair Restriction
Is new underground utility or repair observed?	No
Other comments or notes about the IC?	Possible sheen present in two of the manholes.

Institutional Control photos


X5.9


V3.0
V3.0


V3.6
V3.6
V3.6


S5.6
S5.6
S5.6

Institutional Controls (IC) - 11. On-Site Surface Water Bodies

Name of the IC	On-Site Surface Water Bodies
Characterize restricted activities and uses	Water Recreation Restrictions, Fishing Restrictions
Are water-based recreation restrictions met?	Yes
Are fishing restrictions met?	Yes
Other comments or notes about the IC?	

Institutional Control photos



Former secondary settling pond looking NE



South wetland area looking SE



South wetland area looking south



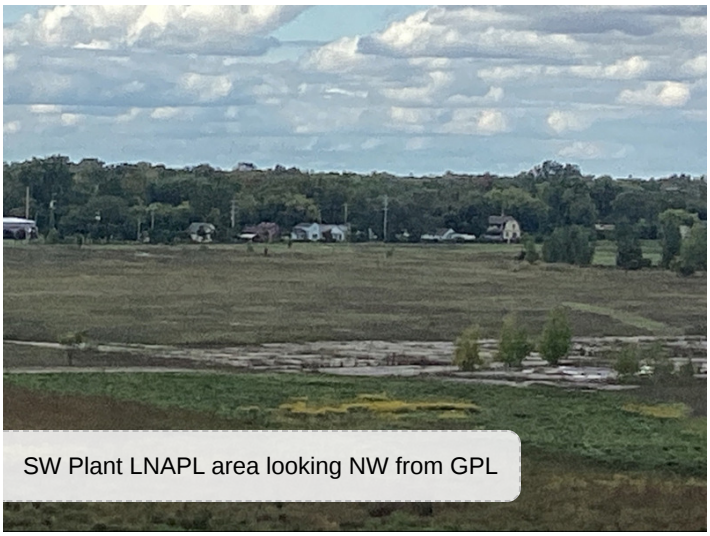
South wetland area looking SW

Engineering Controls (EC) (7 Items)

Engineering Controls (EC) - 1. Southwest Plant LNAPL Area (Residual LNAPL Area 1) Lead Impacted Soil Area

What is the Name of the EC?	Southwest Plant LNAPL Area (Residual LNAPL Area 1) Lead Impacted Soil Area
Describe the EC	Vegetated Cover
Is the general condition of the EC acceptable?	Yes
Elevation has remained consistent without settlement?	Yes
Has the engineering control not been disturbed and has been adequately repaired/restored?	Yes
The vegetation is an area void of vegetation?	No
Other comments or notes about the EC?	

Engineering Control Photos



SW Plant LNAPL area looking NW from GPL

Engineering Controls (EC) - 2. Quench Pit LNAPL Area (Residual LNAPL Area 1) Lead Impacted Soil Area

What is the Name of the EC?	Quench Pit LNAPL Area (Residual LNAPL Area 1) Lead Impacted Soil Area
Describe the EC	Vegetated Cover
Is the general condition of the EC acceptable?	Yes
Elevation has remained consistent without settlement?	Yes
Has the engineering control not been disturbed and has been adequately repaired/restored?	Yes
The vegetation is an area void of vegetation?	No
Other comments or notes about the EC?	

Engineering Control Photos



Quench pit LNAPL area looking north

Engineering Controls (EC) - 3. Former SMI Plant Slab

What is the Name of the EC?	Former SMI Plant Slab
Describe the EC	Vegetated Cover
Is the general condition of the EC acceptable?	Yes
Elevation has remained consistent without settlement?	Yes
Has the engineering control not been disturbed and has been adequately repaired/restored?	Yes
The vegetation is an area void of vegetation?	No
Other comments or notes about the EC?	

Engineering Control Photos



Former SMI plant slab looking west

Engineering Controls (EC) - 4. 127.7 Manhole Area

What is the Name of the EC?	127.7 Manhole Area
Describe the EC	Vegetated Cover
Is the general condition of the EC acceptable?	Yes
Elevation has remained consistent without settlement?	Yes
Has the engineering control not been disturbed and has been adequately repaired/restored?	Yes
The vegetation is an area void of vegetation?	No
Other comments or notes about the EC?	

Engineering Control Photos



127.7 Manhole area looking east

Engineering Controls (EC) - 5. Melting Department Area

What is the Name of the EC?	Melting Department Area
Describe the EC	Vegetated Cover
Is the general condition of the EC acceptable?	Yes
Elevation has remained consistent without settlement?	Yes
Has the engineering control not been disturbed and has been adequately repaired/restored?	Yes
The vegetation is an area void of vegetation?	No
Other comments or notes about the EC?	Cover consists of flowable concrete beneath the vegetative cover

Engineering Control Photos



Melting Department area looking NE

Engineering Controls (EC) - 6. Former Railyard Area

What is the Name of the EC?	Former Railyard Area
Describe the EC	Vegetated Cover
Is the general condition of the EC acceptable?	Yes
Elevation has remained consistent without settlement?	Yes
Has the engineering control not been disturbed and has been adequately repaired/restored?	Yes
The vegetation is an area void of vegetation?	No
Other comments or notes about the EC?	

Engineering Control Photos



Former Railyard area looking NE

Engineering Controls (EC) - 7. Type III Landfills

What is the Name of the EC?	Type III Landfills
Describe the EC	Vegetated Cover
Is the general condition of the EC acceptable?	Yes
Elevation has remained consistent without settlement?	Yes
Has the engineering control not been disturbed and has been adequately repaired/restored?	Yes
The vegetation is an area void of vegetation?	No
Other comments or notes about the EC?	Woody brush in area of B-3R needs to be cut.

Engineering Control Photos



South type 3 landfill looking NE



North type 3 landfill looking SE

Inspector Information

Inspector Name	Billy J Cobern
Inspector Company	Arcadis
Inspector Email	Billy.Cobern@arcadis.com
Inspection Date	September 19, 2022
Inspector Signature	Signed 9/18/2023, 9:02:42 PM UTC

Attachment 2

Gauging Form

Groundwater Gauging Log

Client:	RACER Trust
Project Name/Location:	RACER Saginaw 2023
Date(s):	09-12-2023
Sampler(s):	Austin Westhuis Billy Cobern
Equipment:	water probe

Well	Date	Time	Depth to Water (ft)	Well Depth (ft)	Depth to LNAPL (ft)	PID (ppmv)	Remarks
QPTW-10R	09-12-2023	12:00	4.67	11.85	--	--	2” well
QP-1R	09-12-2023	12:10	3.5	11.5	--	--	4” well
QP-2R	09-12-2023	12:20	3.74	11.3	3.72	--	4” well
QP-3R	09-12-2023	12:30	3.56	12.1	3.47	--	4” well
QPTW-01R	09-12-2023	12:45	3.51	11.5	--	--	2” well
QPTW-03R2	09-12-2023	13:00	4.85	12.1	4.73	--	2” well
QPTW-04R	09-12-2023	13:15	4.65	11.8	4.51	--	2” well
QPTW-05R	09-12-2023	13:30	5.39	11.7	4.69	--	2” well
X-5.9	09-12-2023	14:47	3.9	4.7	--	--	Possible sheen
V-3.0	09-12-2023	15:08	3.25	9.8	--	--	No visible pipes. No
V-3.6	09-12-2023	15:10	4.58	10.2	--	--	No sheen
S-5.6	09-12-2023	15:24	4.6	5.7	--	--	No sheen
QPTW-13R	09-11-2023	17:38	4.58	14.41	--	--	

Attachment 5

No Purge Sampling Statistical Analysis Results Memo

Memo

TO
Andrew Karg
Bay City District Office
Michigan Department of Environment, Great Lakes, and Energy
401 Ketchum Street, Suite B
Bay City, Michigan 48708

DATE
January 2, 2024

PROJECT NUMBER
30169042

COPIES
Amanda Armbruster, EGLE
Dave Favero, RACER
Brendan Mullen, RACER

FROM
Scott Clearwater, Certified Project Manager
810.225.1921
Scott.clearwater@arcadis.com

SUBJECT
No Purge Sampling Statistical Trend Analysis Memo
RACER Saginaw Malleable Industrial Land, Green Point Landfill and Peninsula Property
Saginaw, Michigan

This No Purge Sampling Statistical Trend Analysis Memo has been prepared by Arcadis of Michigan, LLC (Arcadis) on behalf of Revitalizing Auto Communities Environmental Response (RACER) Trust for activities at the Saginaw Malleable Industrial Land (SMI), Green Point Landfill (GPL), and Peninsula Properties, collectively referred to as the Site located at 77 West Center Street, Saginaw, Michigan.

Background

A no purge sampling work plan was submitted to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) on August 9, 2023 and was approved on August 23, 2023 providing approval of the no purge sampling work plan (work plan). The work plan proposed conducting the 2023 annual sampling utilizing no purge sampling with Hydrasleeves™ instead of low flow or ultra-low flow sampling methods. This no purge sampling event was planned as a study to evaluate the no purge sampling method providing representative samples and a cost reduction for this long-term monitoring program. With the approval for the 2023 no purge sampling, EGLE requested further discussion of the findings and results of the 2023 event prior to approving implementation of no purge sampling on a permanent basis for future routine sampling events. This memo provides the analysis of the 2023 results.

Implementation

During the annual Operation and Maintenance (O&M) event that occurred from September 11 through September 19, 2023 no purge sampling was conducted utilizing 1.75-inch x 38-inch 1 Liter PFAS-free HDPE Hydrasleeves™ (hydrasleeve). These were selected based on their ease of use, repeatability, and effectiveness for a wide range of constituents. The hydrasleeves were deployed following the well gauging using a 5-ounce bottom weight and 24-ounce top weight that the hydrasleeve is attached to and compress the hydrasleeve to the bottom of the well awaiting retrieval. The hydrasleeves were left in place at least 24-hours to allow equilibration prior to retrieval and sample collection.

At SMI 13 of the 15 monitoring wells planned to be sampled were able to be sampled by hydrasleeves: MW-107WT, MW-107S1, MW-108WT, MW-108S2, MW-110WTR, MW-111WT, MW-114WT, MW-114S2, MW-149WT, MW-185WT, MW-186WT, MW-131WT, MW-134WT, B-3R, and QPTW-13R. The water column in monitoring wells MW-107WT and MW-108WT were too shallow to obtain a sample with use of a hydrasleeve, therefore a bailer was used to collect grab samples at these locations.

At GPL 16 of the 17 monitoring wells planned to be sampled in the annual GPL groundwater monitoring program were able to be sampled by hydrasleeves: MW-117WT, MW-117S1, MW-118WT, MW-118S1, MW-183WT, X-4AR, X-4CAUGR, X-4D, X-9AR, X-9BR, X-9CAUG, X-9D, TW-242, TWW-1, MW-122WT, X-10AR2, and X-2A. The water column in monitoring well X-4AR was too shallow to obtain a sample with use of a hydrasleeve, and therefore a bailer was used to collect a grab sample at this location. There was not sufficient water volume from X-4AR to collect field water quality parameters.

Following sample collection, the sampling results were run through trend and statistical analysis for data from 2011 through 2023, comparing 2011 through 2022 data to 2023 data.

Mann-Kendall Trend Analysis

Trend analysis was performed in accordance with the U.S. Environmental Protection Agency (USEPA) guidance for statistical analysis of groundwater data (USEPA, 2009). Trends were evaluated for the 32 wells sampled in 2023: B-3R, MW-107S1, MW-107WT, MW-108S2, MW-108WT, MW-110WTR, MW-111WT, MW-114S2, MW-114WT, MW-117S1, MW-117WT, MW-118S1, MW-118WT, MW-122WT, MW-125WT, MW-131WT, MW-134WT, MW-149WT, MW-183WT, MW-185WT, MW-186WT, QPTW-13R, TWW-1, X-10AR2, X-2A, X-4AR, X-4CAUGR, X-4D, X-9AR, X-9BR, X-9CAUG, and X-9D. Concentrations of 208 constituents were evaluated for the wells from September 2011 to September 2023. Trends were grouped by analyte and well. Group A included anions, cyanide, and general chemistry. Group B included metals. Group C included polychlorinated biphenyls (PCBs). Group D included per- and polyfluoroalkyl substances (PFAS). SVOCs were omitted based on no detections in the 2023 sample and VOCs are no longer in the monitoring program.

Groundwater monitoring data were processed to facilitate data analysis and reporting. The following data condition steps were performed to prepare the data for analysis:

- Parent samples only were included. Recent USEPA guidance discourages averaging duplicate samples and suggests either selecting a parent or duplicate sample at random unless duplicates are collected for each field sample (USEPA 2009). Assuming that a parent and a field duplicate sample could be considered random samples at the same location, a straightforward way to deal with duplicates is to consider the parent sample only, which is essentially a random sample.
- For statistics, NDs were replaced with a common value less than the minimum detect. The Mann-Kendall (MK) trend analysis was performed, in which values below the detection limit were replaced by a common value lower than any of the detected measurements, following USEPA guidance (2009), so that any pair of tied values or any pair of non-detect values (values less than reporting limits) is simply given a score of 0 in the calculation of the MK statistic “S.” Additional details regarding the MK Trend test are provided below.
- Trends are presented in the summary tables A-1, B-1, C-1, and D-1 in **Attachment 1**. However, only trends with sufficient sample size and frequency of detection should be considered reliable. MK Trend statistics where at least four samples were available and >50% frequency of detection (FOD) is considered reliable. If trends are not reliable, they are presented but noted as such.

Statistically significant (α = 0.10) trends were evaluated for constituents at the Site from September 2011 to September 2023. The direction of the trend was evaluated using the MK test for trends. The MK trend test is a non-parametric test for trend and is one of the most common trend tests used in environmental statistics. The statistics for the MK test were implemented in Microsoft Excel following USEPA (2009) guidance. The MK test has the flexibility to accommodate any distribution form and is relatively insensitive to outliers and non-detect values (values less than reporting limits).

The MK test compares each data point to every successive measurement and determines if the change is positive or negative (the magnitude of change, or slope, is not considered). Each discordant pair was given a score of -1 and a concordant pair a sore of +1. Tied values were given a score of 0. A test statistic "S" was then computed based on the difference between the number of positive differences and negative differences. S was then compared to a critical value based on an 80% confidence level in order to accept or reject the null hypothesis of no trend (equal numbers of positive and negative differences) in accordance with USEPA guidance (USEPA, 2009). A minimum of n = 4 (preferably eight) sampling events per well is needed to run the MK Trend Test (USEPA, 2009). Values below the detection limit were replaced by a common value lower than the minimum detected value (i.e., 5% below the minimum detected value) for each data set as per USEPA 2009, so that any pair of tied values or any pair of non-detects was simply given a score of 0 in the calculation of the MK statistic S. Trends were calculated by running one well per analyte combination per figure.

Results of the MK statistical trend analysis and summary statistics are provided in tables and figures within **Attachment 1**. **Tables A-1 through D-1** for anions, cyanide, and general chemistry, metals, PCBs, and PFAS, respectively. Concentration vs. time plots with MK statistics are presented for datasets where constituents exhibit trends. In the trend summary tables, results are noted accordingly:

- Trend results are presented when at least four samples and one detected value are available. Significance of trends evaluated at 95% confidence (alpha = 0.05).
- MK and Sen's Trend results for datasets with fewer than 8 samples may not be reliable and should be treated with caution.
- MK Trend results for datasets with an FOD <=20% may not be reliable and should be treated with caution.
- Sen's Trend results for datasets with an FOD <=50% may not be reliable and should be treated with caution.

Mann Kendall Trend Analysis Findings

In Group A, trends were calculated for anions, cyanide, and general chemistry (**Table A-1**). For the 86 well/analyte combinations with sufficient data, 11 had statistically significant upward trends, 22 had statistically significant downward trends, and 53 had no significant trends (**Figures A-1 through A-86**). The criteria depicted on the figures (RACER_SAG) refers to the Saginaw Malleable Site-specific Groundwater Surface Water Interface Criteria (site specific screening criteria). The Upward trends were exhibited for ammonia at wells MW-108WT and MW-114WT, for phosphorus at wells MW-110WTR, MW-111WT, MW-114WT, MW-185WT, and MW-186WT, and for sulfate at wells X-9AR and X-9BR. Downward trends were exhibited for ammonia at MW-107-WT, MW-114S2, MW-118S1, MW-118WT, MW-186QR, Z-4CAUGR, X-9AR and X-9D. Downward trends were exhibited for chloride at MW-117S1, MW-118S1, MW-183WT, X-4CAUGR, X-4D, X-9AR and X-9D. Downward trends were exhibited for sulfate at MW-183WT. TDS exhibited downward trends at MW-118S1, MW-183WT, X-4CAUGR, X-9AR, X-9AUG, and X-9D.

In Group B, trends were calculated for metals (**Table B-1**). Out of the 143 well/analyte combinations with sufficient data, 15 had statistically significant upward trends, 39 had statistically significant downward trends, and 89 had no

significant trends (**Figures B-1 through B-143**). Upward trends were exhibited for arsenic and dissolved arsenic at wells MW-183WT and X-9AR, for iron and dissolved iron at MW-183WT and iron X-9CAUG, for manganese and dissolved manganese at MW-183WT, X-9CAUG, and X-9D, and manganese at X-4D. All statistically upward trend concentrations were below the site-specific screening criteria except for iron and dissolved iron, which did not have a screening criterion. Downward trends for manganese and/or dissolved manganese were exhibited at wells MW-110WTR, MW-117S1, X-4CAUGR, and X-9BR. Downward trends for arsenic and/or dissolved arsenic were exhibited at MW-117S1, MW-149 WT, X-4CAUGR, X-4D, X-9CAUG and X-9D. Downward trends for barium and/or dissolved barium were exhibited at wells MW-117S1, MW-118S1, X-4CAUGR, X-9AR and X-9BR. Downward trends for iron and/or dissolved iron were exhibited at wells MW-117S1 and X-4CAUGR. Downward trends for sodium and/or dissolved sodium were exhibited at wells MW-117WT, MW-118S1, MW-183WT, X-4D, X-9AR, X-9CAUG, and X-9D. There was one downward trend for Thallium at well MW-149WT. Where there were site-specific screening criteria the downward trends were below the site-specific screening criteria with the exception of dissolved barium at MW-117WT (**Figure B-24**). In addition, dissolved barium at MW-117S1 was greater than the site-specific screening level from 2011 through the 2022 sampling but was below the screening level for the 2023 sampling event (**Figure B-13**).

In Group C, trends were calculated for PCBs (**Table C-1**). Out of the four well/analyte combinations with sufficient data, all four exhibited no significant trends (**Figures C-1 through C-4**). However, PCB concentrations at these four wells were still greater than the site-specific screening levels.

In Group D, trends were calculated for PFAS (**Table D-1**). Out of the 62 well/analyte combinations with sufficient data, 2 had statistically significant upward trends, 4 had statistically significant downward trends, and 56 had no significant trends (**Figures D-1 through D-62**). PFAS results are also compared to Part 201 Generic Drinking Water Criteria (DW) and Groundwater Surface water Interface Criteria (GSI). A downward trend for perfluorooctanesulfonic acid (PFOS) was exhibited at well B-3R. Although this trend was downward, trend concentrations still exceed the GSI (**Figure D-5**). Upward trends were exhibited for perfluorobutanoic acid (PFBA) and for perfluorooctanoic acid (PFOA) at well X-10AR2. Criteria are only available for PFOA and trend results did not exceed GSI or DW (**Figure D-46**). A downward trend for PFOA was exhibited at well X-2A, however it remains above DW (**Figure D-55**). Downard trends were exhibited for PFBA at wells QPTW-13R and X-2A. There are no criteria for PFBA.

Overall, trends of the well/analyte combinations with sufficient data were stable in 68% and were trending down in 22% for a total of 90.5% of the data and were only trending up in 9.5%.

Statistical Analysis

To supplement the MK trends, statistical analysis box plots were also used. The box plots show the 2023 no purge result along with the distribution of pre-2023 low and ultra-low flow results. Trends were grouped by analyte and well. Groups include anions, cyanide, general chemistry, metals, PCBs, and PFAS.

The data were reviewed and all well/analyte pairs with both 2023 and pre-2023 sample results were assessed. The following assumptions were used to construct prediction intervals for the pre-2023 datasets:

- Prediction intervals for 1 future observation assessed for datasets with at least 8 samples and a frequency of detect (FOD) greater than 50%.
- Samples with non-detect detection intervals greater than maximum detected result were excluded from the prediction interval assessment.

- If the assumption is that the data (or log-transformed data) follow a normal distribution, prediction intervals were constructed using standard methods.
- The data distribution of the untransformed and log-transformed datasets were tested and the "best-fit" dataset was used to construct the parametric prediction interval.
- The distribution of datasets without non-detect (ND) results were tested using the gofTest function and prediction intervals were constructed using the predIntNorm (for untransformed datasets) or predIntLnorm (for log-transformed datasets) function in the R EnvStats package (Millard, 2013).
- The distribution of datasets with ND results were tested using the gofTestCensored function and prediction intervals were constructed using the cenPredInt function in the R EnvStats package (Millard, 2013).
- If the dataset (or log-transformed dataset) did not follow a normal distribution, nonparametric predication intervals were constructed. Nonparametric prediction intervals were constructed using the predIntNpar function in the R EnvStats package (Millard, 2013).

The 2023 low flow result(s) were compared to the pre-2023 prediction interval to determine if the 2023 result was above, below, or within the prediction interval. If a pre-2023 prediction interval could not be constructed due to small sample size or low frequency of detection, the 2023 low flow result was compared to the range of results in the pre-2023 dataset.

In the results a yellow box was used in the prediction interval to indicate the expected result range based on the historic data. Larger yellow boxes indicate that the data historically has been more variable. When there is no yellow box that indicates that there is not enough data for prediction (less than 8 samples or less than half having detections). Blue boxes indicate the range with the top data being within 75th percentile and the bottom is within 25th percentile. Blue boxes with an empty bottom half indicate elevated detection limit and the empty space is the area below the detection limit. Vertical black lines (whiskers) are also presented on the box plots that extend to the 90^{th} and 10^{th} percentile. The 50th percentile would be the middle of the expected result range and the most ideal being the median of the distribution range.

General observations:

Anions - With the exception of chloride in wells X-4AR and X-9AR, 2023 results were within or above the prediction interval or range of pre-2023 results.

Cyanide - 2023 results were non-detect which matches low frequency of detection in the pre-2023 dataset.

GenChem (TDS) - 2023 results were within or above the prediction interval or range of pre-2023 results.

Metals - 2023 results were lower than the prediction interval or range of pre-2023 results for several metals but within a trend range.

PCBs - Detected 2023 results at well locations MW-110WTR and MW-111WT were slightly greater than the range of results measured in pre-2023 data.

PFAS - 2023 results were lower than the range of pre-2023 results for several wells.

These results show that the no purge results are similar and in-line with historic data. Results of the box plot statistical trend analysis and summary statistics are provided in tables and figures within **Attachment 2.** The

prediction limit evaluation within the boxplots is used to support conclusions on whether the 2023 no purge results are within expected limit estimated from the historic low flow data.

Statistical Analysis Findings

The following summarizes the frequency of times there was sufficient data to establish a prediction range in the statistical analysis for each analyte group. Sufficient data is represented in the box plots with the yellow boxes which indicate the expected result range based on historic data. The data below summarizes the frequency of 2023 data that was within the predicted range boxes.

Anion Analyte Group	Sufficient Data for Prediction Range	2023 No Purge Within Range	Wells with 2023 Result Outside Range	No Purge to Low Flow Correlation
Ammonia	20	19/20	MW-185WT above	95%
Chloride	11	10/11	X-9AR below	91%
Nitrate/Nitrite	0			
Phosphorous	5	1/5	MW-111WT, MW-114WT, MW149WT, and MW-186WT above	20%
Sulfate	7	6/7	X-9D above	86%
Total		**30/36**		**84%**

Cyanide: insufficient data for prediction range (no yellow boxes). In the 6 wells with detected cyanide in pre-2023 low flow results, the no purge non-detect detection limit was within the range of pre-2023 low flow results.

GENCHEM Analyte Group	Sufficient Data for Prediction Range	2023 No Purge Within Range	Wells with 2023 Result Outside Range	No Purge to Low Flow Correlation
TDS	11	10/11	MW-118S1 below	95%
Total		**10/11**		**95%**

Metals Analyte Group	Sufficient Data for Prediction Range	2023 No Purge Within Range	Wells with 2023 Result Outside Range	No Purge to Low Flow Correlation
Arsenic	7	5/7	MW-107WT and X-9AR above	71%
Dissolved Arsenic	7	6/7	MW-118WT above	86%
Barium	7	3/7	MW-183WT, X-4D, X-9AR, X-9BR above	43%
Dissolved Barium	11	9/11	MW-117S1 and MW-118WT below	82%
Iron	7	2/7	MW-183WT, X-4D, X-9AR, X-9BR, X-9CAUG above	29%
Dissolved Iron	11	8/11	MW-117S1 below, X-4D at bottom edge, X-9AR above	73%

Metals Analyte Group	Sufficient Data for Prediction Range	2023 No Purge Within Range	Wells with 2023 Result Outside Range	No Purge to Low Flow Correlation
Manganese	13	11/13	MW-185WT and MW-186WT above	85%
Dissolved Manganese	11	9/11	MW-117S1 and MW-118S1 below	
Selenium and Dissolved	0			
Sodium	11	11/11		100%
Dissolved Sodium	11	10/11	MW-117S1 above	91%
Total		**74/96**		**77%**

PCBs: Sufficient data for prediction only from 1 location; Aroclor 1248 at MW-111WT. 2023 data is within the prediction range box.
PFAS: insufficient data for prediction range (no yellow boxes).
SVOCs: Due to small sample size in the pre-2023 low flow dataset, prediction limits could not be constructed.

Conclusion

The trend and statistical analysis comparisons completed on the historical low flow data vs no purge encountered some challenges getting sufficient data sets with detections or quantity of sample events for certain compounds. This is due to the age and status of the monitoring program and remedial action success addressing higher concentrations previously. Therefore, there are fewer steady elevated concentrations year over year leaving many low levels or non-detects which could not be compared, though it should be noted that the no purge data did return the same non-detect result in most of those situations.

The MK Trends show that there is agreement in the expected stable or decreasing trend across 90.5% of the well/analytes. The increasing trend at 9.5% can continue to be monitored and evaluated.

The Statistical analysis showed an overall total average across all wells and analyte groupings found 58% difference between the low flow mean and no purge result. This result indicates that no purge sampling with hydrasleeves is a comparable method in close proximity to the low flow expected comparison range. There are historic data points using low flow that fall outside the prediction range as well. Iron data had poor correlation but could be an artifact of small sample size and warrants further study.

Based on the results of the no purge groundwater sampling and comparison to historical trends and statistics both showing within close proximity to expected results, Arcadis recommends that the use of no purge sampling with hydrasleeves be approved for long-term routine monitoring for the Site.

Mr. Andrew Karg
EGLE
January 2, 2024

REFERENCES

USEPA, 2009. Statistical Analysis of Groundwater Data at RCRA Facilities: Unified Guidance. Office of Resource Conservation and Recovery. EPA/530/R-09/007. March.
Millard SP (2013). EnvStats: An R Package for Environmental Statistics. Springer, New York. ISBN 978-1-4614-8455-4, <https://www.springer.com>.

Enclosures:

ATTACHMENTS

1 Mann-Kendall Trend Analysis Results
2 Box Plots Results Figures and Tables

TABLE A-1
Summary Statistics and Trend Results - Anions, Cyanide, General Chemistry - 2011 to 2023
RACER Saginaw
November, 2023

Well ID	Analyte	Date Range	Figure	FOD	Detected Results Summary [1]				Mann-Kendall Test [2]				Sen's Estimator of Slope [2]			
					Range	Mean	Median	SD	Result[4]	MK Result Note	P-Value	S Value	Result[4]	Sen's Result Note	Slope (Units/Day)	95% CI (Units/Day)
MW-107S1	Ammonia	09/14 - 09/23	A-1	9 / 9	1.2 - 1.8	1.4	1.4	0.21	NST	--	0.110	-13	NST	--	-0.0000937	-0.000272 to 0.0000425
MW-107WT	Ammonia	09/14 - 09/23	A-2	9 / 10	0.15 - 1.4	0.73	0.62	0.48	DWN	--	0.036	-21	DWN	--	-0.000339	-0.000675 to -0.0000226
MW-107WT	Phosphorus	09/13 - 09/23	A-3	4 / 11	0.1 - 1.7	0.54	0.185	0.77	NST	--	0.061	18	NT	5c	0	0 to 0.0000822
MW-108S2	Ammonia	09/14 - 09/23	A-4	10 / 10	4.6 - 8.8	5.9	5.3	1.4	NST	--	0.500	1	NST	--	0.0000673	-0.00133 to 0.000538
MW-108WT	Ammonia	09/16 - 09/23	A-5	6 / 7	0.06 - 1.2	0.49	0.24	0.52	UP	5a	0.015	15	UP	5a	0.000148	0.0000473 to 0.000994
MW-108WT	Phosphorus	09/16 - 09/23	A-6	1 / 7	1.2 - 1.2	1.2	1.2	0	NST	5a 5b	0.236	6	NT	5a 5c	0	0 to 0
MW-110WTR	Ammonia	09/14 - 09/23	A-7	4 / 10	0.1 - 0.18	0.13	0.115	0.038	NST	--	0.431	-3	NST	5c	0	-0.0000284 to 0.00000168
MW-110WTR	Phosphorus	09/14 - 09/23	A-8	10 / 10	0.12 - 0.63	0.31	0.26	0.15	UP	--	0.030	22	NST	--	0.0000958	-0.00000462 to 0.000191
MW-110WTR	Total dissolved solids (TDS)	09/16 - 08/19	A-9	4 / 4	720 - 1000	858	855	116	NST	5a	0.167	-4	NA	5a	NA	NA
MW-111WT	Ammonia	09/14 - 09/23	A-10	10 / 10	1.1 - 5	2.2	1.85	1.2	NST	--	0.332	6	NST	--	0.000108	-0.000680 to 0.000743
MW-111WT	Phosphorus	09/13 - 09/23	A-11	11 / 11	0.37 - 4	1.1	0.96	1	UP	--	0.049	22	NST	--	0.000204	-0.00000440 to 0.000656
MW-114S2	Ammonia	09/14 - 09/23	A-12	10 / 10	1.5 - 5	2.5	2.25	0.96	DWN	--	0.019	-24	DWN	--	-0.000354	-0.00110 to -0.0000939
MW-114WT	Ammonia	09/14 - 09/23	A-13	5 / 10	0.15 - 1	0.52	0.5	0.31	UP	--	0.001	33	UP	5c	0.000184	0.0000301 to 0.000320
MW-114WT	Phosphorus	09/13 - 09/23	A-14	7 / 11	0.15 - 0.92	0.31	0.2	0.27	UP	--	0.001	39	UP	--	0.0000881	0.0000351 to 0.000152
MW-117S1	Ammonia	09/11 - 09/23	A-15	10 / 10	4.5 - 10	7.3	7.5	1.6	NST	--	0.078	-17	NST	--	-0.000550	-0.00156 to 0.000191
MW-117S1	Chloride	09/11 - 09/23	A-16	12 / 12	110 - 270	227	240	46.1	DWN	--	<0.001	-48	DWN	--	-0.0137	-0.0250 to -0.0111
MW-117S1	Nitrate (as N)	09/11 - 09/23	A-17	2 / 9	0.065 - 1.3	0.68	0.6825	0.87	NST	--	0.209	9	NT	5c	0	0 to 0.00000263
MW-117S1	Nitrite (as N)	09/11 - 09/23	A-18	1 / 9	0.071 - 0.071	0.071	0.071	0	NST	5b	0.381	4	NT	5c	0	0 to 0
MW-117S1	Sulfate	09/11 - 09/23	A-19	5 / 12	0.45 - 23	6.8	2.6	9.5	UP	--	0.045	23	NT	5c	0.000100	0 to 0.000698
MW-117S1	Total dissolved solids (TDS)	09/11 - 09/23	A-20	12 / 12	530 - 1100	869	880	142	NST	--	0.057	-24	NST	--	-0.0281	-0.0753 to 0.0140
MW-117WT	Ammonia	09/11 - 09/23	A-21	8 / 8	3 - 83	57.2	63	26.5	NST	--	0.452	-2	NST	--	-0.00116	-0.0174 to 0.0182
MW-117WT	Chloride	09/11 - 09/23	A-22	10 / 10	3200 - 4700	3940	3750	533	NST	--	0.168	-12	NST	--	-0.213	-0.525 to 0.0610
MW-117WT	Nitrate (as N)	09/11 - 09/23	A-23	1 / 9	0.63 - 0.63	0.63	0.63	0	NST	5b	0.460	2	NT	5c	0	0 to 0
MW-117WT	Sulfate	09/11 - 09/23	A-24	7 / 10	0.25 - 5.1	1.3	0.38	1.8	NST	--	0.536	0	NST	--	0	-0.000182 to 0.000451
MW-117WT	Total dissolved solids (TDS)	09/11 - 09/23	A-25	10 / 10	4600 - 9900	6900	6320	2100	NST	--	0.054	-19	NST	--	-0.792	-2.60 to 0.0275
MW-118S1	Ammonia	09/11 - 09/23	A-26	8 / 8	2.1 - 9.9	6	6.7	2.8	DWN	--	0.031	-16	DWN	--	-0.00138	-0.00307 to -0.000152
MW-118S1	Chloride	09/11 - 09/23	A-27	10 / 10	120 - 320	255	290	69	DWN	--	0.019	-24	DWN	--	-0.0341	-0.0539 to -0.00642
MW-118S1	Nitrite (as N)	09/11 - 09/23	A-28	1 / 8	0.24 - 0.24	0.24	0.24	0	NST	5b	0.406	3	NT	5c	0	0 to 0
MW-118S1	Sulfate	09/11 - 09/23	A-29	3 / 10	0.28 - 3.2	1.3	0.32	1.7	NST	--	0.271	8	NT	5c	0	0 to 0.0000372
MW-118S1	Cyanide (total)	09/11 - 09/23	A-30	1 / 10	0.011 - 0.011	0.011	0.011	0	NST	5b	0.300	-7	NT	5c	0	0 to 0
MW-118S1	Total dissolved solids (TDS)	09/11 - 09/23	A-31	10 / 10	440 - 1000	842	925	217	DWN	--	0.005	-29	DWN	--	-0.0679	-0.153 to -0.0231
MW-118WT	Ammonia	09/11 - 09/23	A-32	8 / 8	15 - 38	26.2	25.5	8.6	DWN	--	0.024	-17	DWN	--	-0.00457	-0.00940 to -0.000582
MW-118WT	Chloride	09/11 - 09/23	A-33	10 / 10	230 - 730	342	290	149	NST	--	0.500	-1	NST	--	-0.00548	-0.109 to 0.0304
MW-118WT	Nitrate (as N)	09/11 - 09/23	A-34	1 / 8	0.085 - 0.085	0.085	0.085	0	NST	5b	0.317	5	NT	5c	0	0 to 0
MW-118WT	Nitrite (as N)	09/11 - 09/23	A-35	2 / 8	0.076 - 0.17	0.12	0.123	0.066	NST	--	0.237	7	NT	5c	0	0 to 0.0000139
MW-118WT	Sulfate	09/11 - 09/23	A-36	9 / 10	0.3 - 19	8.3	6.1	7.2	NST	--	0.146	-13	NST	--	-0.00139	-0.00850 to 0.00230
MW-118WT	Cyanide (dissolved)	09/14 - 09/23	A-37	1 / 7	0.0058 - 0.0058	0.0058	0.0058	0	NST	5a 5b	0.563	0	NT	5a 5c	0	0 to 0
MW-118WT	Cyanide (total)	09/11 - 09/23	A-38	1 / 10	0.0064 - 0.0064	0.0064	0.0064	0	NST	5b	0.364	5	NT	5c	0	0 to 0
MW-118WT	Total dissolved solids (TDS)	09/11 - 09/23	A-39	10 / 10	900 - 2300	1210	1050	411	NST	--	0.466	-2	NST	--	-0.0268	-0.278 to 0.0867

TABLE A-1
Summary Statistics and Trend Results - Anions, Cyanide, General Chemistry - 2011 to 2023
RACER Saginaw
November, 2023

Well ID	Analyte	Date Range	Figure	FOD	Detected Results Summary [1]				Mann-Kendall Test [2]				Sen's Estimator of Slope [2]			
					Range	Mean	Median	SD	Result[4]	MK Result Note	P-Value	S Value	Result[4]	Sen's Result Note	Slope (Units/Day)	95% CI (Units/Day)
MW-149WT	Ammonia	09/14 - 09/23	A-40	10 / 10	0.92 - 3.2	1.9	1.95	0.87	NST	--	0.398	-4	NST	--	-0.000186	-0.000656 to 0.000699
MW-149WT	Phosphorus	09/11 - 09/23	A-41	12 / 12	0.62 - 3.6	1.3	1.1	0.81	NST	--	0.392	-5	NST	--	-0.0000698	-0.000310 to 0.000293
MW-183WT	Ammonia	09/11 - 09/23	A-42	8 / 11	0.085 - 0.75	0.28	0.155	0.25	NST	--	0.067	-20	NST	--	-0.0000833	-0.000182 to 0.00000693
MW-183WT	Chloride	09/11 - 09/23	A-43	13 / 13	15 - 63	27.2	21	13	DWN	--	<0.001	-70	DWN	--	-0.00592	-0.00841 to -0.00442
MW-183WT	Sulfate	09/11 - 09/23	A-44	11 / 13	0.48 - 200	28.7	3.1	62.5	DWN	--	0.016	-36	DWN	--	-0.00213	-0.00735 to -0.0000690
MW-183WT	Total dissolved solids (TDS)	09/11 - 09/23	A-45	13 / 13	330 - 600	416	400	80.8	DWN	--	<0.001	-56	DWN	--	-0.0276	-0.0650 to -0.0166
MW-185WT	Ammonia	09/14 - 09/23	A-46	9 / 9	0.096 - 0.64	0.2	0.15	0.17	NST	--	0.179	10	NST	--	0.0000288	-0.0000227 to 0.000141
MW-185WT	Phosphorus	09/13 - 09/23	A-47	3 / 10	0.07 - 3.9	1.4	0.087	2.2	UP	--	0.019	24	NT	5c	0.00000792	0 to 0.0000192
MW-186WT	Ammonia	09/14 - 09/23	A-48	10 / 10	1.1 - 2	1.4	1.4	0.26	DWN	--	0.002	-32	DWN	--	-0.000186	-0.000319 to -0.0000912
MW-186WT	Phosphorus	09/11 - 09/23	A-49	12 / 12	0.17 - 17.7	1.8	0.38	5	UP	--	<0.001	46	UP	--	0.0000870	0.0000426 to 0.000129
X-4CAUGR	Ammonia	09/11 - 09/23	A-50	11 / 11	0.25 - 1.9	0.86	0.42	0.65	DWN	--	<0.001	-47	DWN	--	-0.000394	-0.000601 to -0.000181
X-4CAUGR	Chloride	09/11 - 09/23	A-51	13 / 13	6.5 - 170	59.4	23	55.7	DWN	--	0.004	-45	DWN	--	-0.0214	-0.0428 to -0.00497
X-4CAUGR	Nitrate (as N)	09/11 - 09/23	A-52	1 / 9	0.031 - 0.031	0.031	0.031	0	NST	5b	0.460	2	NT	5c	0	0 to 0
X-4CAUGR	Sulfate	09/11 - 09/23	A-53	5 / 13	0.19 - 18	4.1	0.65	7.8	NST	--	0.146	16	NT	5c	0	0 to 0.000130
X-4CAUGR	Cyanide (total)	09/11 - 09/23	A-54	1 / 13	0.0066 - 0.0066	0.0066	0.0066	0	NST	5b	0.175	8	NT	5c	0	0 to 0
X-4CAUGR	Total dissolved solids (TDS)	09/11 - 09/23	A-55	13 / 13	280 - 700	472	490	144	DWN	--	0.003	-46	DWN	--	-0.0778	-0.124 to -0.0437
X-4D	Ammonia	09/11 - 09/23	A-56	10 / 11	3.6 - 9.7	6.9	6.9	1.7	NST	--	0.292	8	NST	--	0.000277	-0.000768 to 0.00222
X-4D	Chloride	09/11 - 09/23	A-57	13 / 13	760 - 1500	1270	1300	222	DWN	--	0.040	-28	NT	--	-0.0448	-0.0935 to 0
X-4D	Nitrate (as N)	09/11 - 09/23	A-58	2 / 9	0.091 - 1.8	0.95	0.9455	1.2	NST	--	0.344	5	NT	5c	0	0 to 0
X-4D	Nitrite-Nitrate	09/16 - 08/19	A-59	1 / 4	0.36 - 0.36	0.36	0.36	0	NST	5a	0.500	-1	NA	5a 5c	NA	NA
X-4D	Sulfate	09/11 - 09/23	A-60	13 / 13	88 - 210	168	170	29.4	UP	--	0.030	31	NT	--	0.00557	0 to 0.0164
X-4D	Cyanide (total)	09/11 - 09/23	A-61	1 / 13	0.0072 - 0.0072	0.0072	0.0072	0	NST	5b	0.175	8	NT	5c	0	0 to 0
X-4D	Total dissolved solids (TDS)	09/11 - 09/23	A-62	13 / 13	830 - 2800	2250	2400	528	NST	--	0.212	-14	NST	--	-0.0690	-0.275 to 0.124
X-9AR	Ammonia	09/11 - 09/23	A-63	11 / 11	0.094 - 4.3	0.99	0.26	1.5	DWN	--	0.006	-33	DWN	--	-0.000342	-0.00113 to -0.000145
X-9AR	Chloride	09/11 - 09/23	A-64	13 / 13	8.9 - 180	57.8	17	70.1	DWN	--	<0.001	-58	DWN	--	-0.0288	-0.0576 to -0.00275
X-9AR	Nitrite (as N)	09/11 - 09/23	A-65	1 / 9	0.018 - 0.018	0.018	0.018	0	NST	5b	0.381	4	NT	5c	0	0 to 0
X-9AR	Sulfate	09/11 - 09/23	A-66	7 / 13	0.13 - 13	4.6	4.1	4.8	UP	--	0.030	30	NT	--	0.000268	0 to 0.00184
X-9AR	Total dissolved solids (TDS)	09/11 - 09/23	A-67	13 / 13	360 - 820	567	550	159	DWN	--	<0.001	-53	DWN	--	-0.101	-0.135 to -0.0528
X-9BR	Ammonia	09/11 - 09/23	A-68	11 / 11	1.1 - 12	7.3	6.8	3.8	NST	--	0.195	-12	NST	--	-0.000722	-0.00416 to 0.00143
X-9BR	Chloride	09/11 - 09/23	A-69	13 / 13	62 - 290	208	250	82.9	NST	--	0.164	-17	NST	--	-0.0191	-0.0604 to 0.0164
X-9BR	Nitrite (as N)	09/11 - 09/23	A-70	1 / 9	0.019 - 0.019	0.019	0.019	0	NST	5b	0.306	6	NT	5c	0	0 to 0
X-9BR	Nitrite-Nitrate	09/16 - 08/19	A-71	1 / 4	0.59 - 0.59	0.59	0.59	0	NST	5a	0.271	3	NA	5a 5c	NA	NA
X-9BR	Sulfate	09/11 - 09/23	A-72	7 / 13	0.46 - 23	6.2	3.1	7.9	UP	--	0.047	27	NT	--	0.000151	0 to 0.00156
X-9BR	Total dissolved solids (TDS)	09/11 - 09/23	A-73	13 / 13	290 - 1000	807	920	249	NST	--	0.088	-23	NST	--	-0.0354	-0.173 to 0.00671

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TABLE A-1
Summary Statistics and Trend Results - Anions, Cyanide, General Chemistry - 2011 to 2023
RACER Saginaw
November, 2023

Well ID	Analyte	Date Range	Figure	FOD	Detected Results Summary [1]				Mann-Kendall Test [2]				Sen's Estimator of Slope [2]			
					Range	Mean	Median	SD	Result[4]	MK Result Note	P-Value	S Value	Result[4]	Sen's Result Note	Slope (Units/Day)	95% CI (Units/Day)
X-9CAUG	Ammonia	09/11 - 09/23	A-74	11 / 11	0.12 - 7.8	2.5	1.9	2.1	NST	--	0.407	-4	NST	--	-0.000275	-0.00185 to 0.000594
X-9CAUG	Chloride	09/11 - 09/23	A-75	13 / 13	12 - 240	71.1	35	77.6	NST	--	0.524	0	NST	--	-0.0000368	-0.0221 to 0.0218
X-9CAUG	Nitrate (as N)	09/11 - 09/23	A-76	1 / 9	0.054 - 0.054	0.054	0.054	0	NST	5b	0.306	6	NT	5c	0	0 to 0
X-9CAUG	Nitrite (as N)	09/11 - 09/23	A-77	1 / 9	0.022 - 0.022	0.022	0.022	0	NST	5b	0.306	6	NT	5c	0	0 to 0
X-9CAUG	Sulfate	09/11 - 09/23	A-78	7 / 13	0.27 - 1.1	0.62	0.38	0.38	NST	--	0.373	6	NST	--	0	-0.0000726 to 0.000129
X-9CAUG	Total dissolved solids (TDS)	09/11 - 09/23	A-79	13 / 13	470 - 830	622	633	108	DWN	--	0.021	-34	DWN	--	-0.0372	-0.0722 to -0.000148
X-9D	Ammonia	09/11 - 09/23	A-80	11 / 11	0.16 - 8.6	5.7	6.3	2.4	DWN	--	0.018	-28	DWN	--	-0.000875	-0.00221 to -0.000276
X-9D	Chloride	09/11 - 09/23	A-81	13 / 13	260 - 1500	1210	1300	311	DWN	--	0.005	-42	DWN	--	-0.0792	-0.177 to -0.0287
X-9D	Nitrate (as N)	09/11 - 09/23	A-82	1 / 9	0.23 - 0.23	0.23	0.23	0	NST	5b	0.306	6	NT	5c	0	0 to 0
X-9D	Nitrite-Nitrate	09/16 - 08/19	A-83	1 / 4	1.7 - 1.7	1.7	1.7	0	NST	5a	0.500	-1	NA	5a 5c	NA	NA
X-9D	Sulfate	09/11 - 09/23	A-84	13 / 13	50 - 263	216	230	55.2	NST	--	0.147	18	NST	--	0.00657	-0.0137 to 0.0137
X-9D	Cyanide (dissolved)	09/14 - 09/23	A-85	1 / 10	0.0066 - 0.0066	0.0066	0.0066	0	NST	5b	0.431	3	NT	5c	0	0 to 0
X-9D	Total dissolved solids (TDS)	09/11 - 09/23	A-86	13 / 13	620 - 2800	2330	2560	558	DWN	--	0.036	-30	NT	--	-0.0922	-0.279 to 0

Abbreviations:

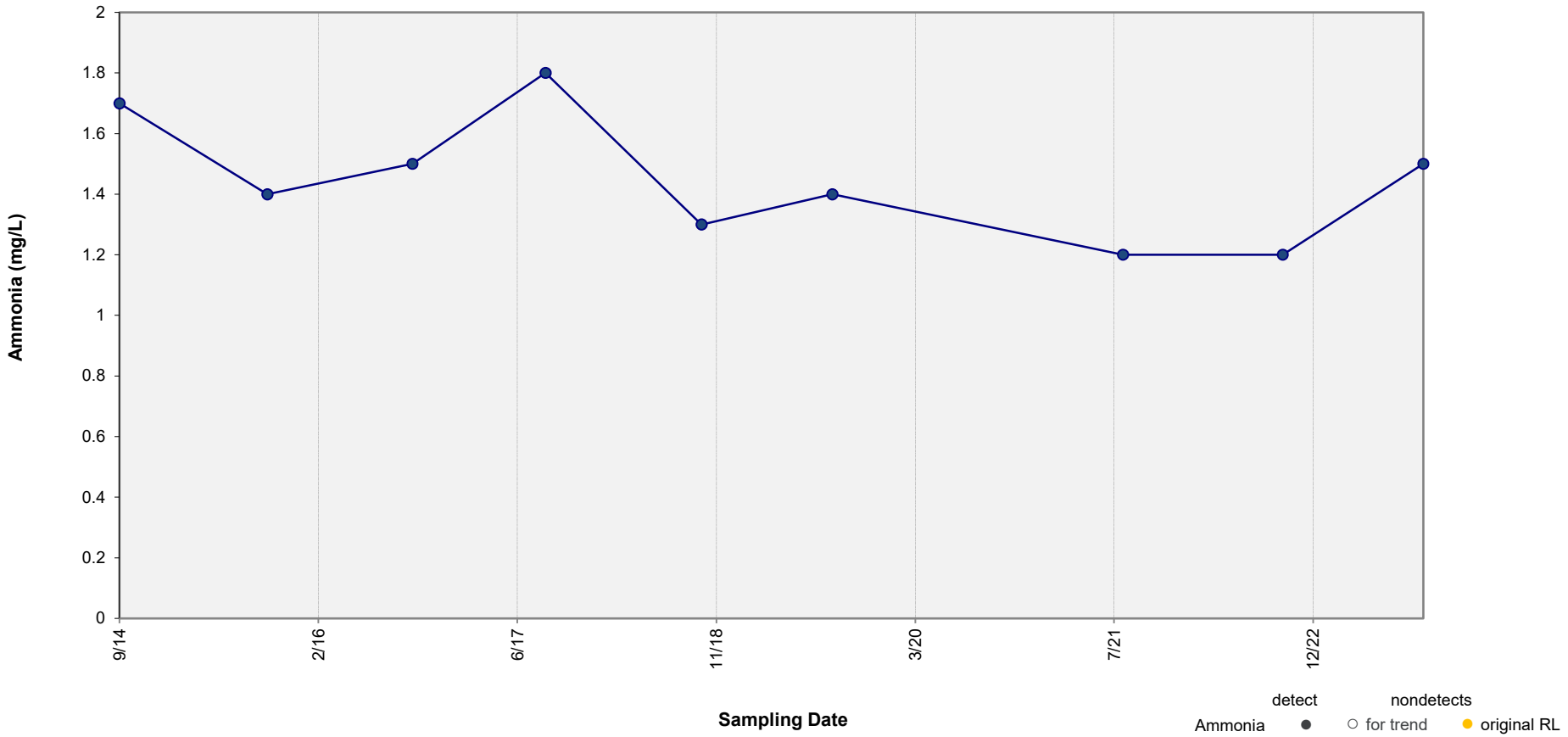
-- insufficient data for calculating statistics (n < 4) or not available
FOD = frequency of detection (# detects / # samples)
mean = arithmetic mean
SD = standard deviation
NST = no significant trend
NT = no trend
DWN = downward trend
UP = upward trend
H_0 = null hypothesis: no significant trend (slope = 0)
H_a = alternative hypothesis: significant trend (slope ≠ 0)
95% CI = 95% confidence interval

Notes:

1. All analytical results are in µg/L. Result values less than 10 are reported to 2 significant figures; values greater than 10 are reported to 3 significant figures. P-values are reported to 3 decimal places.
2. Trend results are presented when at least four samples and one detected value are available. Significance of trends evaluated at 95% confidence (alpha = 0.05).
3. Non-detects were assigned a common value less than the minimum detected value, equal to half the minimum reporting limit (RL) in the dataset (USEPA, 2009). If half the minimum RL was greater than the minimum detected value, then half the minimum detect was assigned.
4. Statistically significant trend defined as having p-value ≤ 0.05, or 95% confidence.
5a. MK and Sen's Trend results for datasets with fewer than 8 samples may not be reliable and should be treated with caution.
5b. MK Trend results for datasets with an FOD <=20% may not be reliable and should be treated with caution.
5c. Sen's Trend results for datasets with an FOD <=50% may not be reliable and should be treated with caution.
5d. MK and Sen's Trend results for datasets with more than 100 samples are not shown.

Reference:

USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities. Unified Guidance. EPA/530/R-09/007, 2009.



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.110 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -9.4E-05 mg/L Per Day

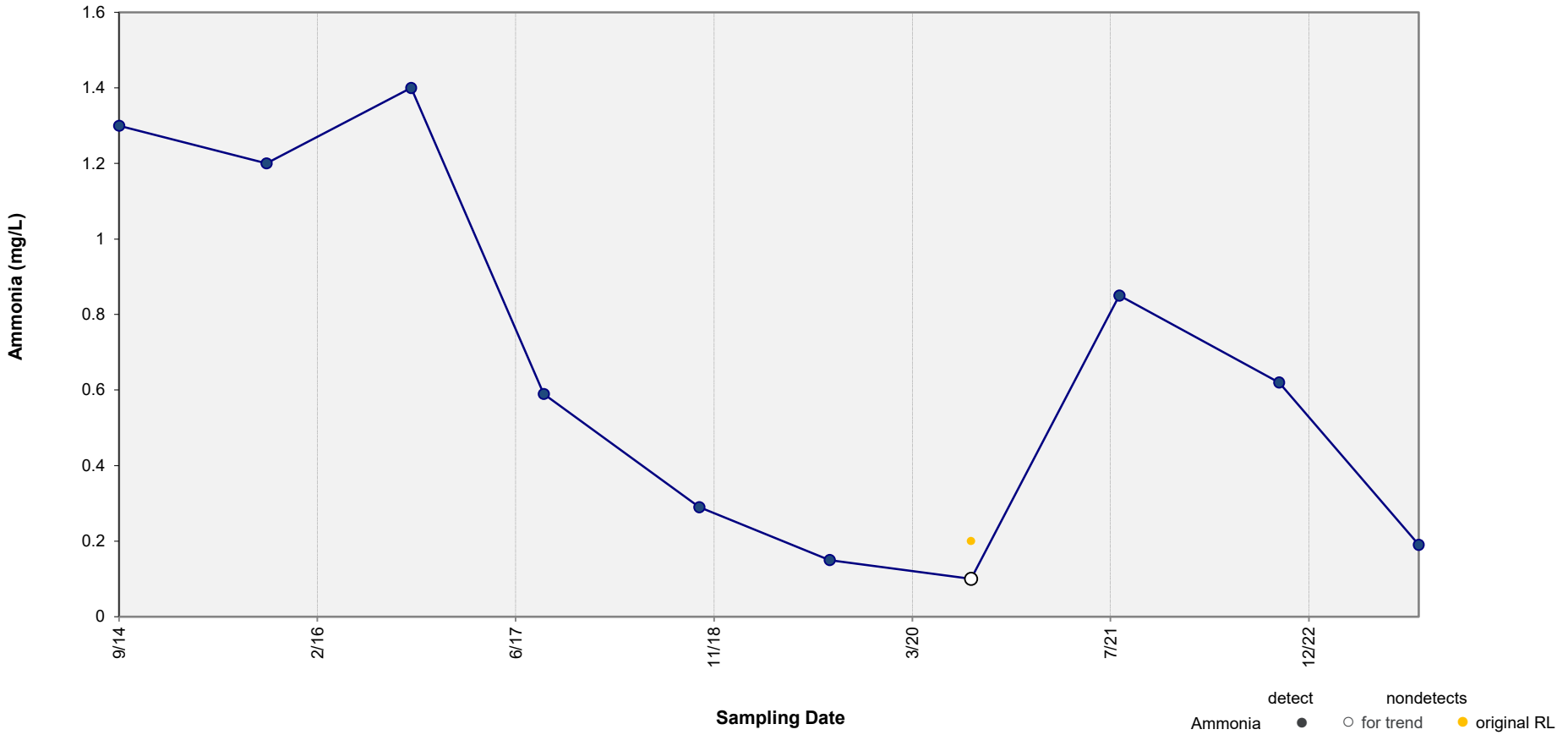
95% Confidence Interval = -2.7E-04 to 4.2E-05 mg/L Per Day

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Concentration vs. Time Plot – Ammonia in Well MW-107S1

RACER Saginaw

Figure A-1



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.036 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -3.4E-04 mg/L Per Day

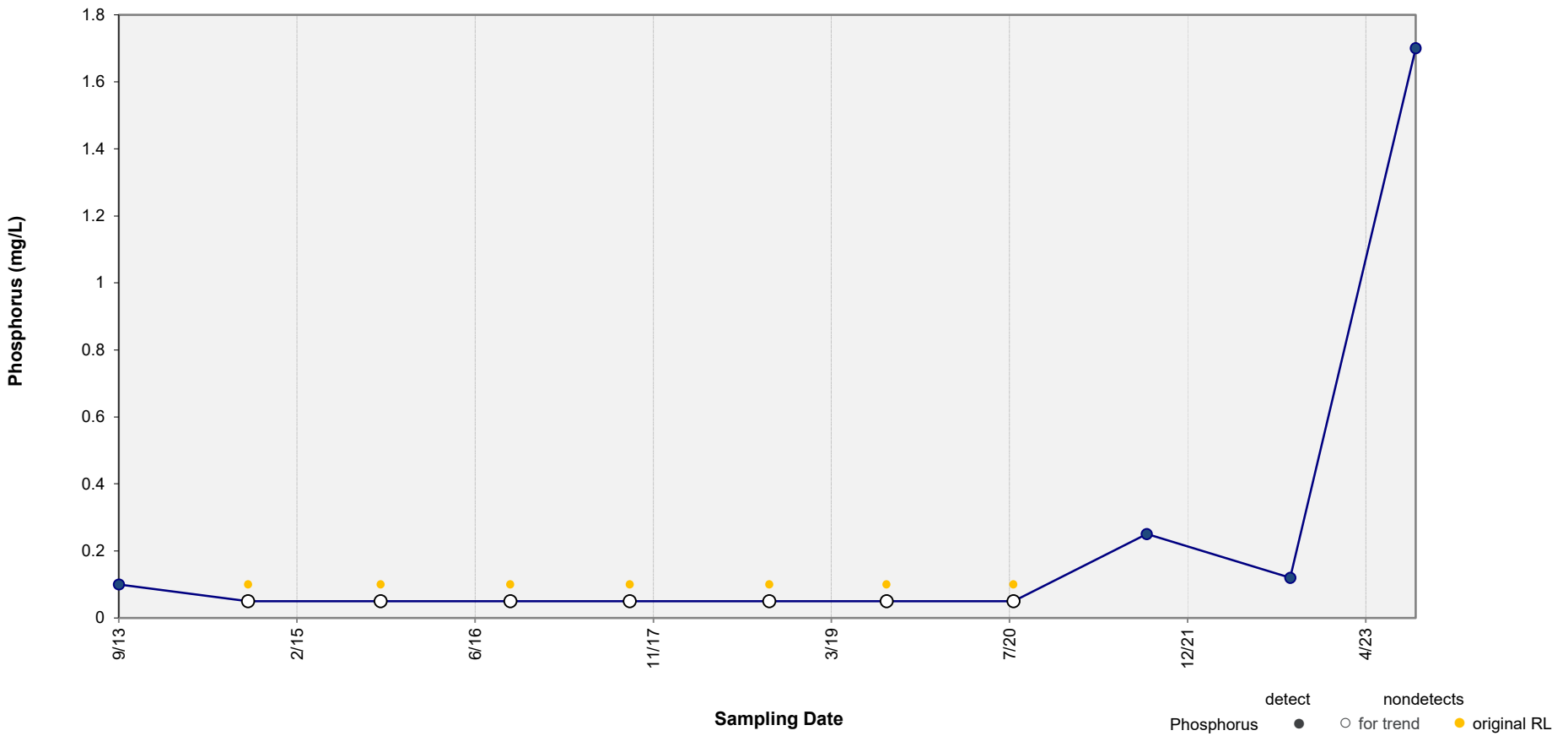
95% Confidence Interval = -6.8E-04 to -2.3E-05 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well MW-107WT

RACER Saginaw

Figure A-2



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.061 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

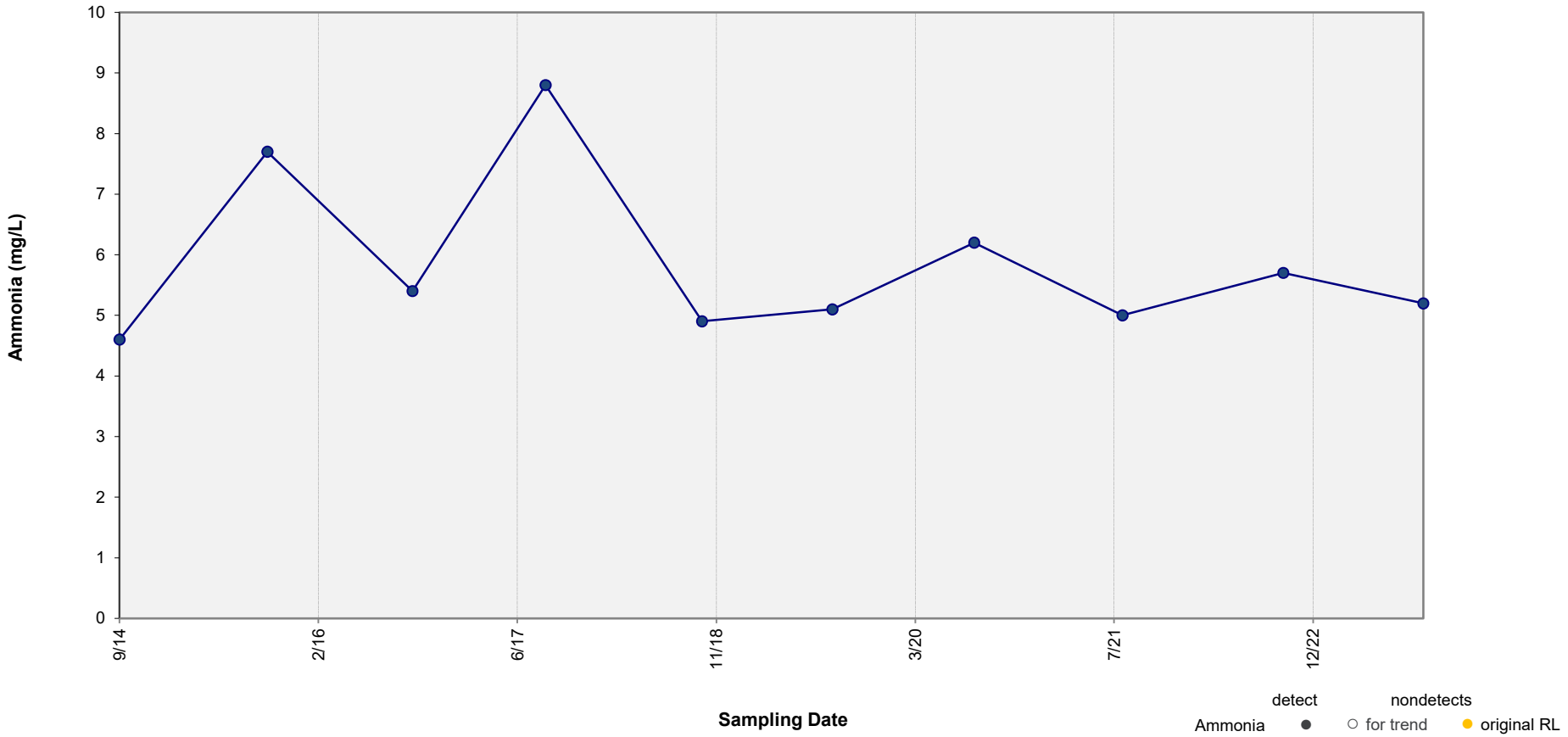
95% Confidence Interval = 0.0E+00 to 8.2E-05 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Phosphorus in Well MW-107WT

RACER Saginaw

Figure A-3



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 6.7E-05 mg/L Per Day

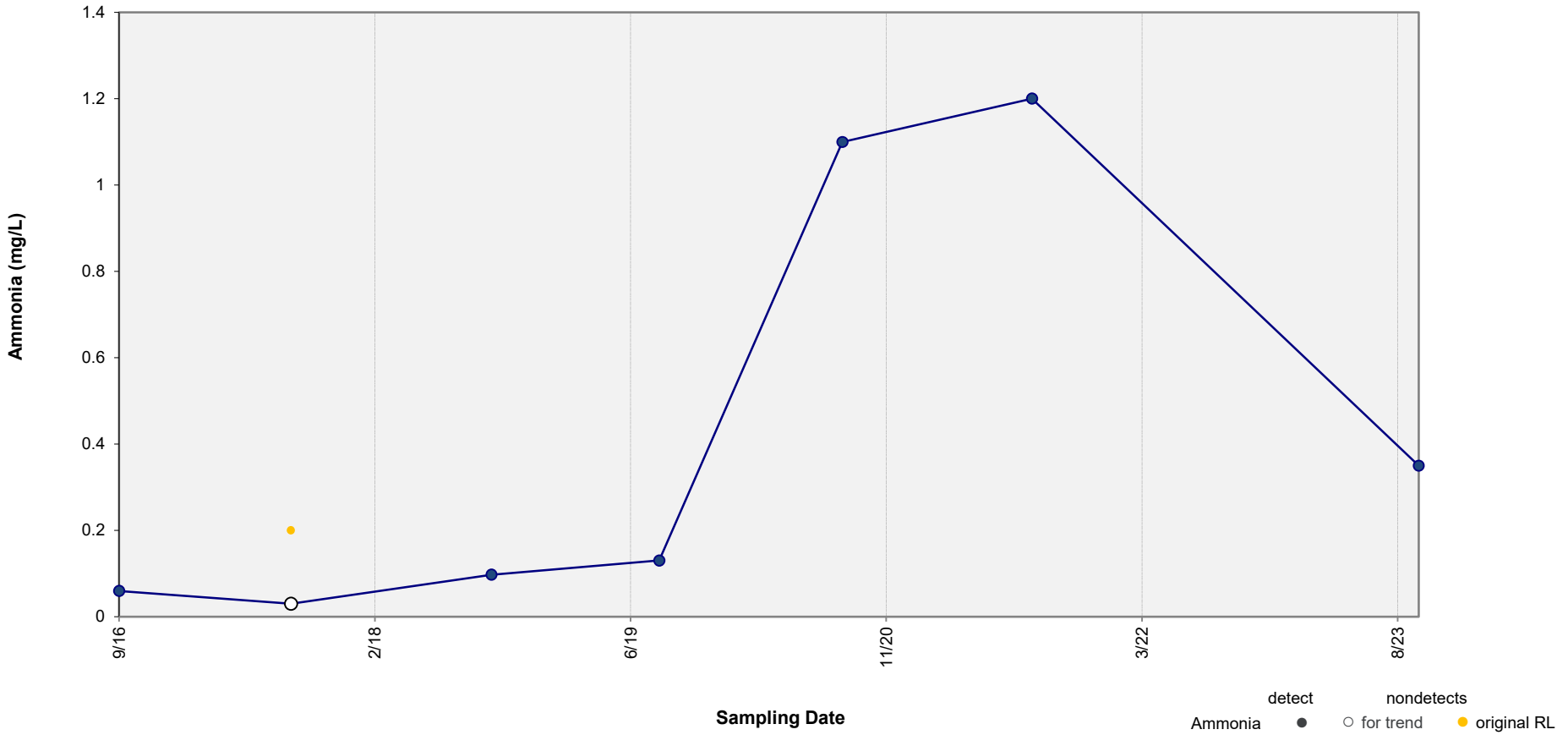
95% Confidence Interval = -1.3E-03 to 5.4E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well MW-108S2

RACER Saginaw

Figure A-4



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.015 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 1.5E-04 mg/L Per Day

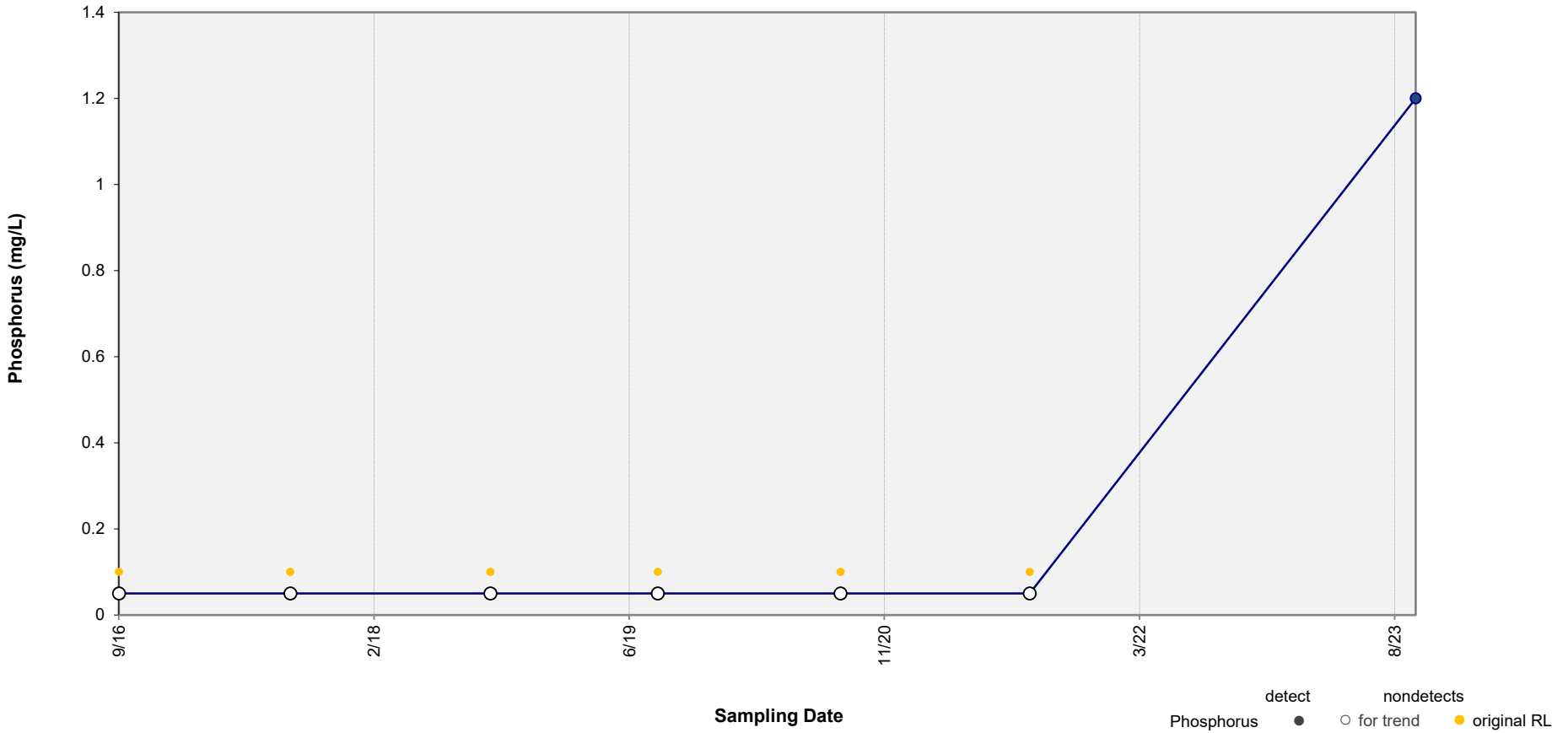
95% Confidence Interval = 4.7E-05 to 9.9E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well MW-108WT

RACER Saginaw

Figure A-5



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.236 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

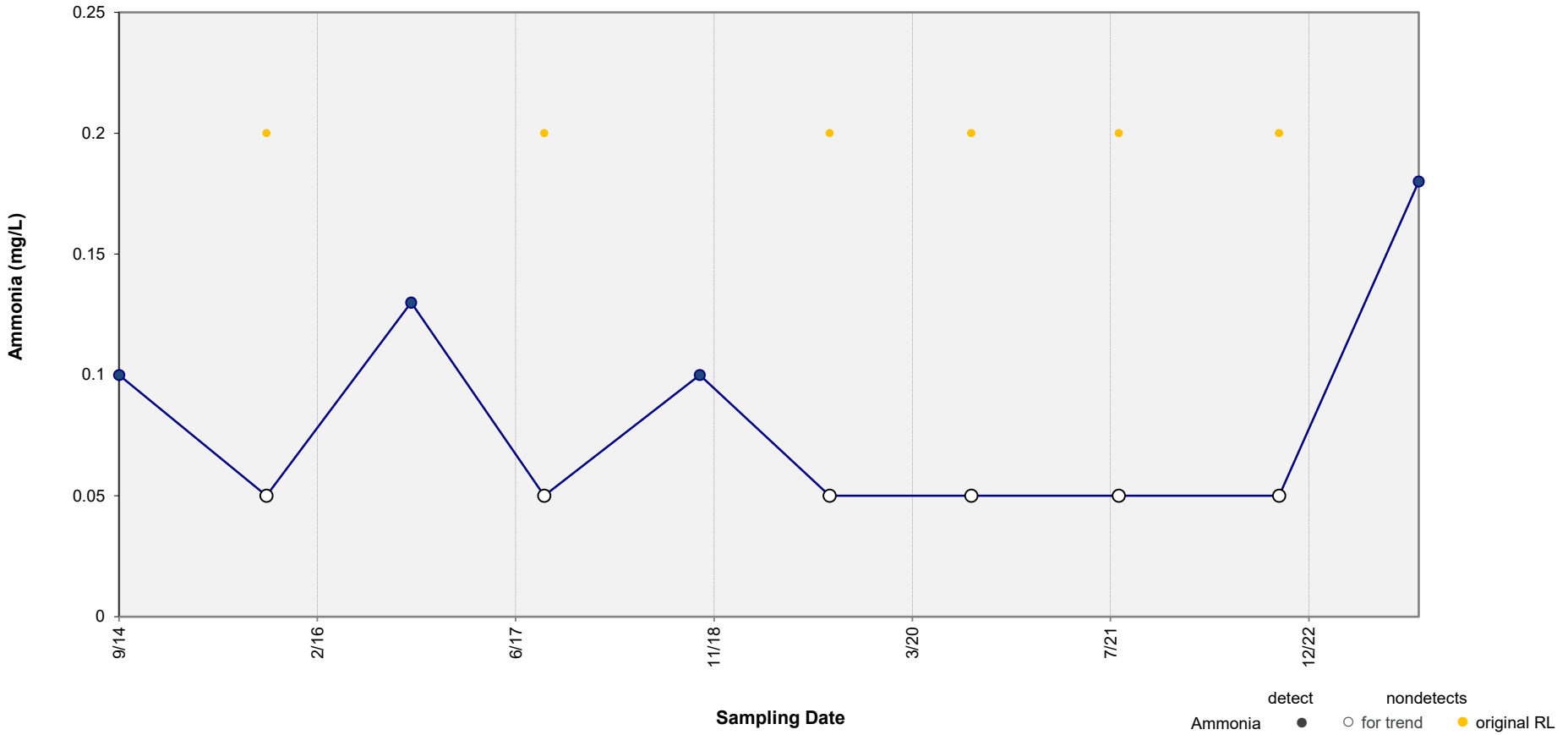
95% Confidence Interval = 0.0E+00 to 0.0E+00 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Phosphorus in Well MW-108WT

RACER Saginaw

Figure A-6



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.431 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

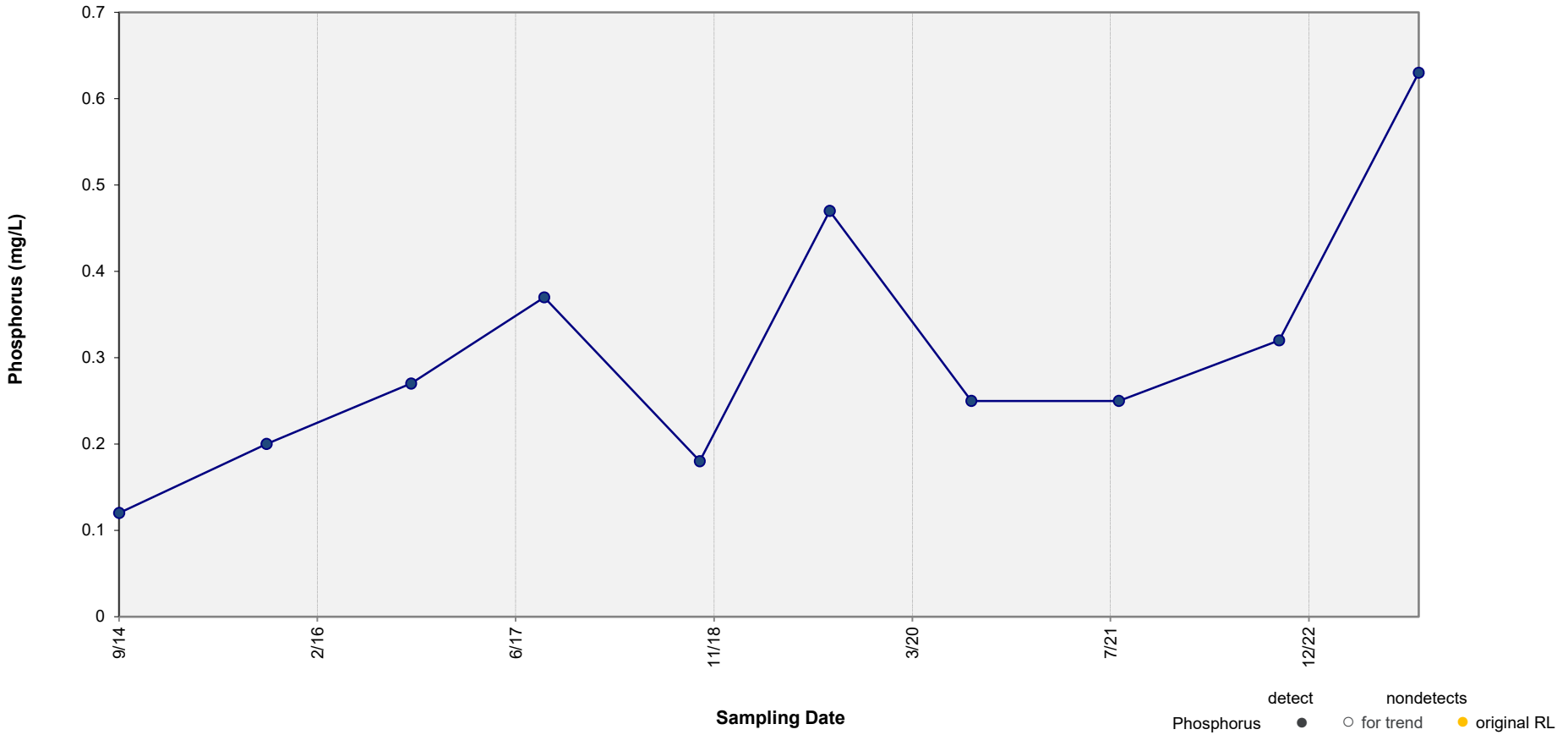
95% Confidence Interval = -2.8E-05 to 1.7E-06 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well MW-110WTR

RACER Saginaw

Figure A-7



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.030 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 9.6E-05 mg/L Per Day

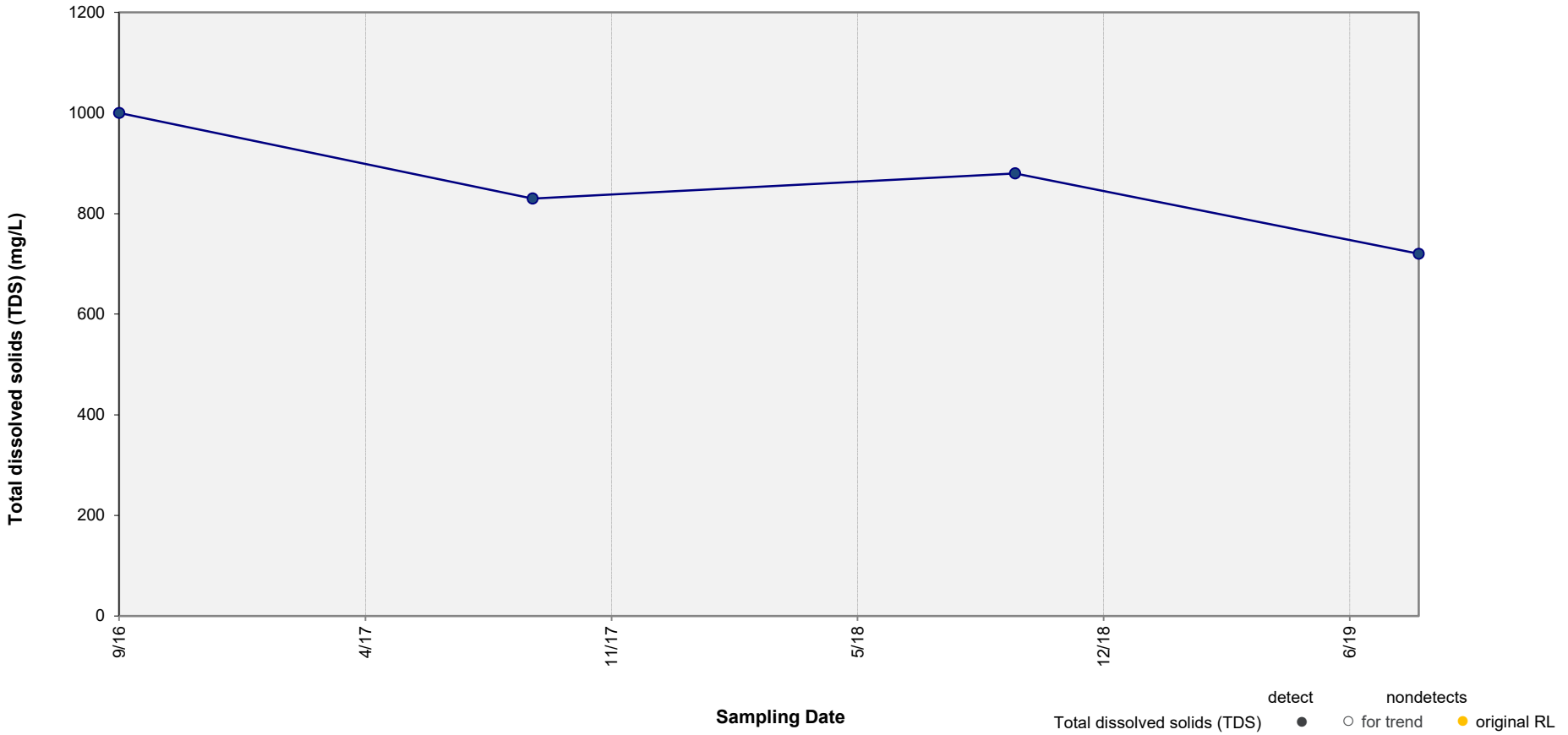
95% Confidence Interval = -4.6E-06 to 1.9E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Phosphorus in Well MW-110WTR

RACER Saginaw

Figure A-8



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.167 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA mg/L Per Day

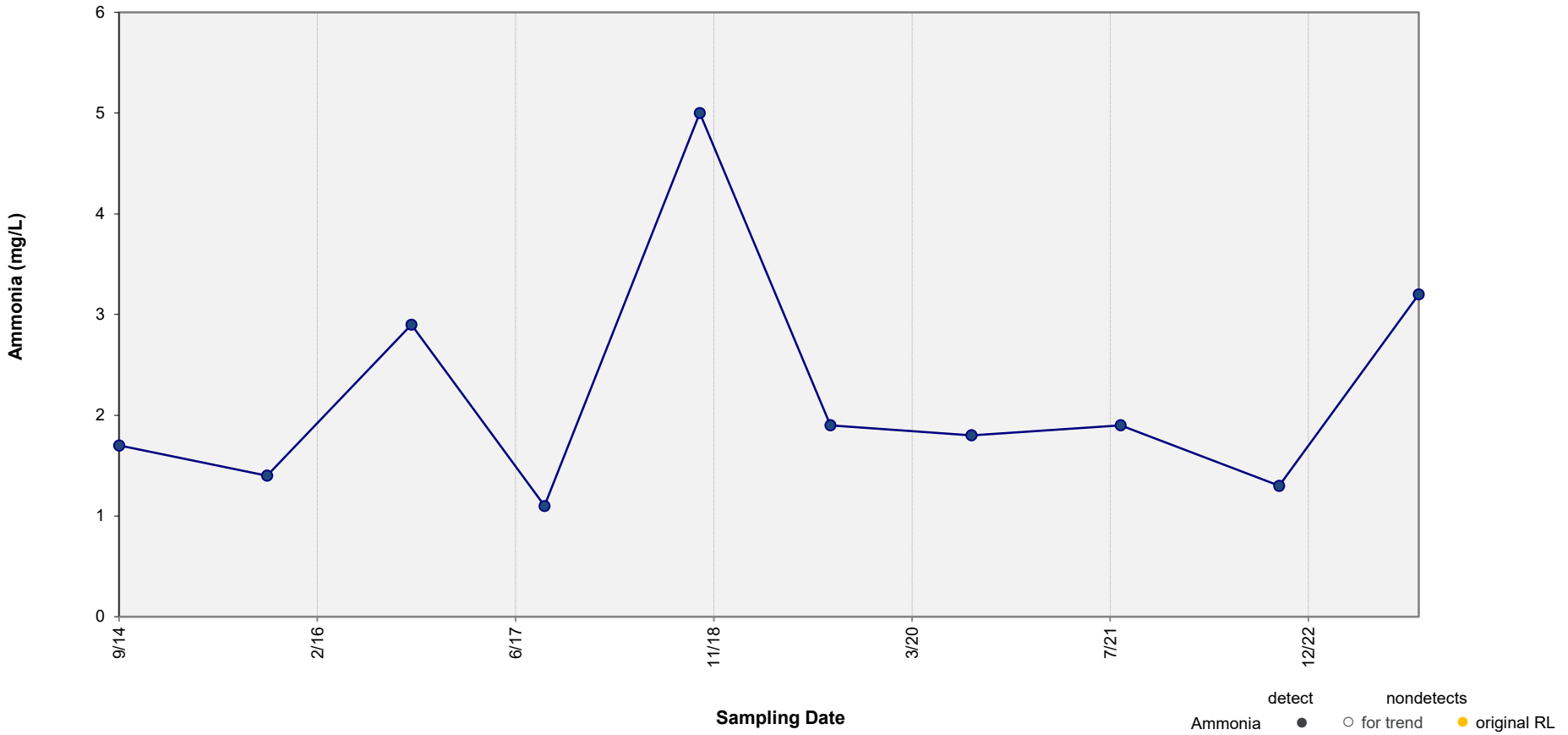
95% Confidence Interval = NA to NA mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Total dissolved solids (TDS) in Well MW-110WTR

RACER Saginaw

Figure A-9



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.332 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 1.1E-04 mg/L Per Day

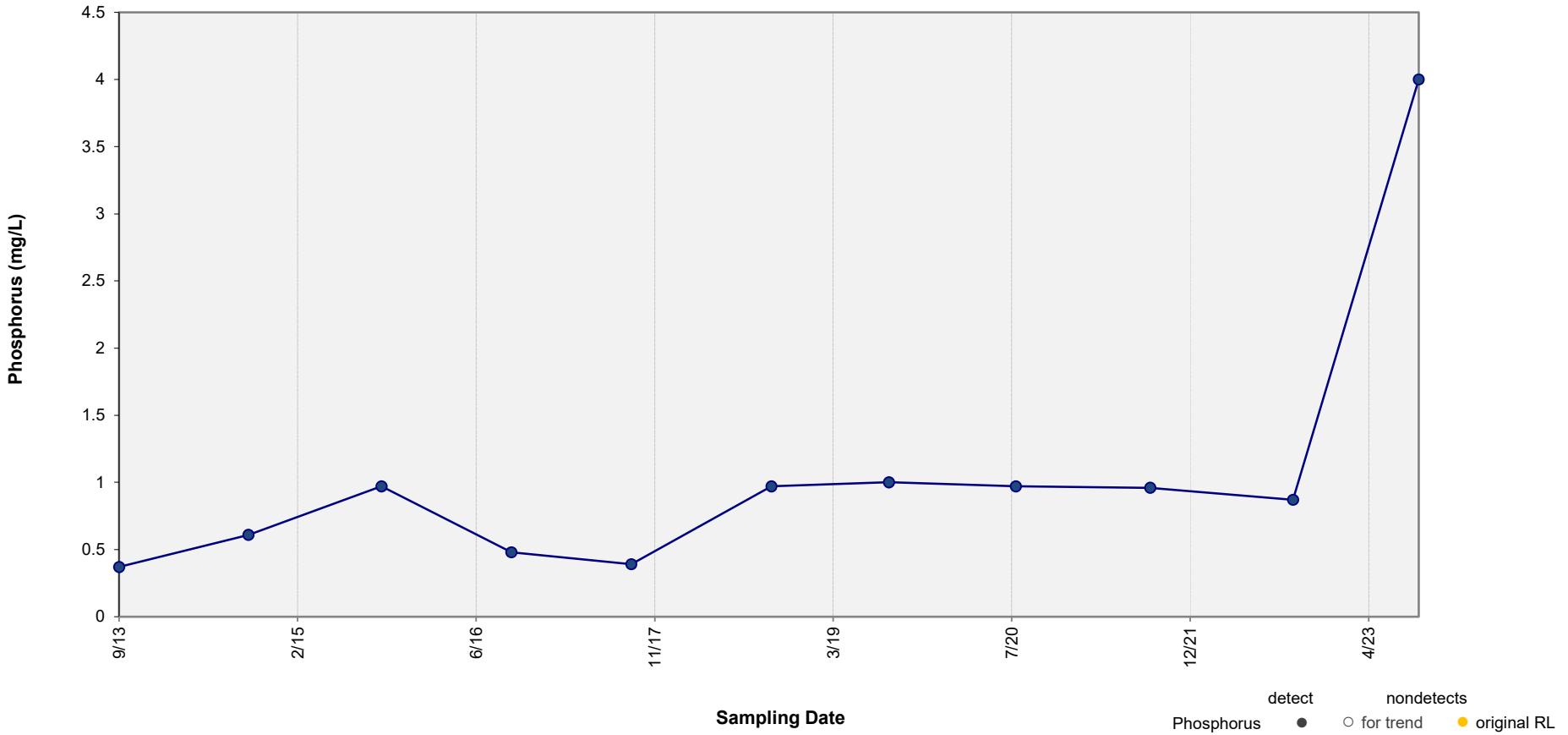
95% Confidence Interval = -6.8E-04 to 7.4E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well MW-111WT

RACER Saginaw

Figure A-10



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.049 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 2.0E-04 mg/L Per Day

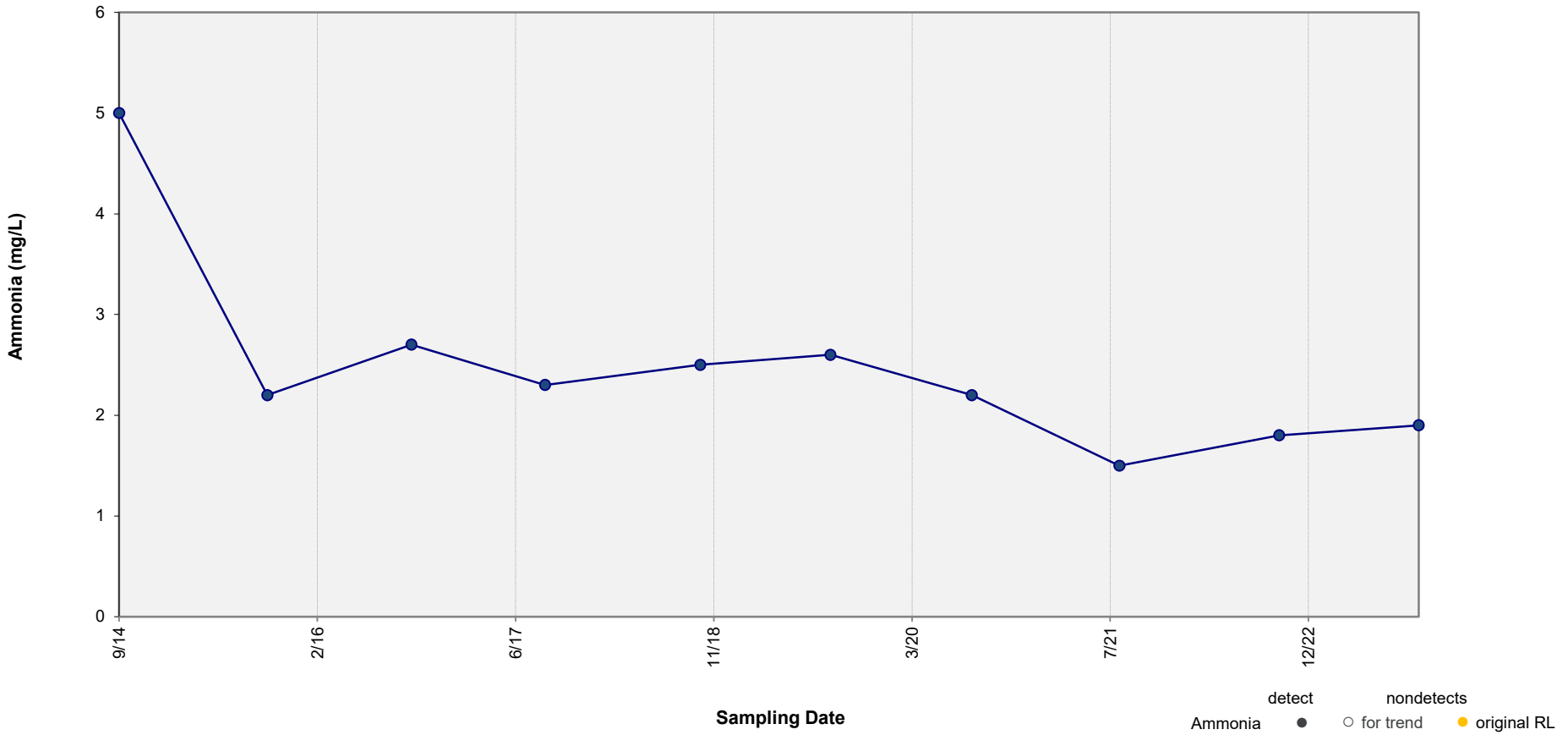
95% Confidence Interval = -4.4E-06 to 6.6E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Phosphorus in Well MW-111WT

RACER Saginaw

Figure A-11



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.019 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -3.5E-04 mg/L Per Day

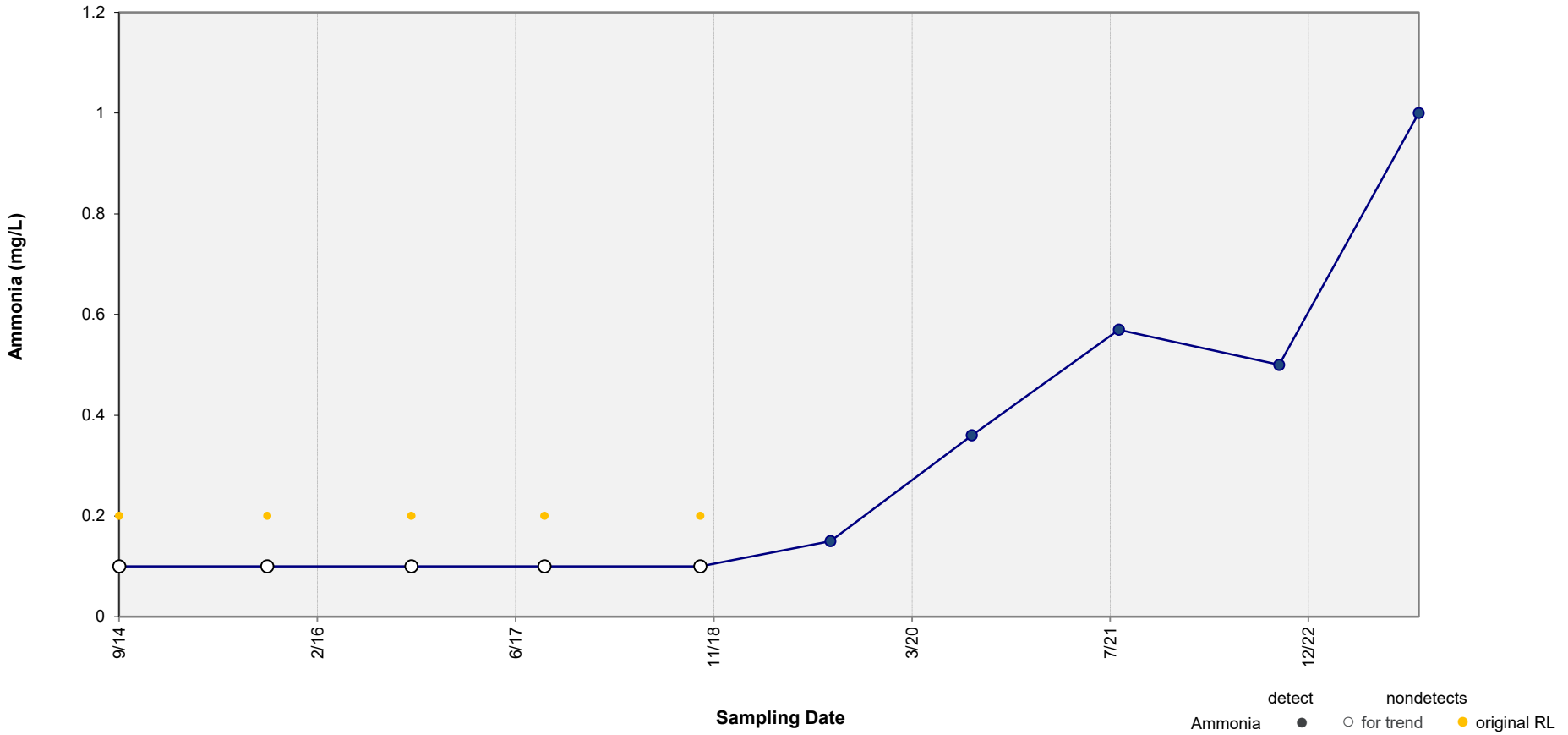
95% Confidence Interval = -1.1E-03 to -9.4E-05 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well MW-114S2

RACER Saginaw

Figure A-12



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 1.8E-04 mg/L Per Day

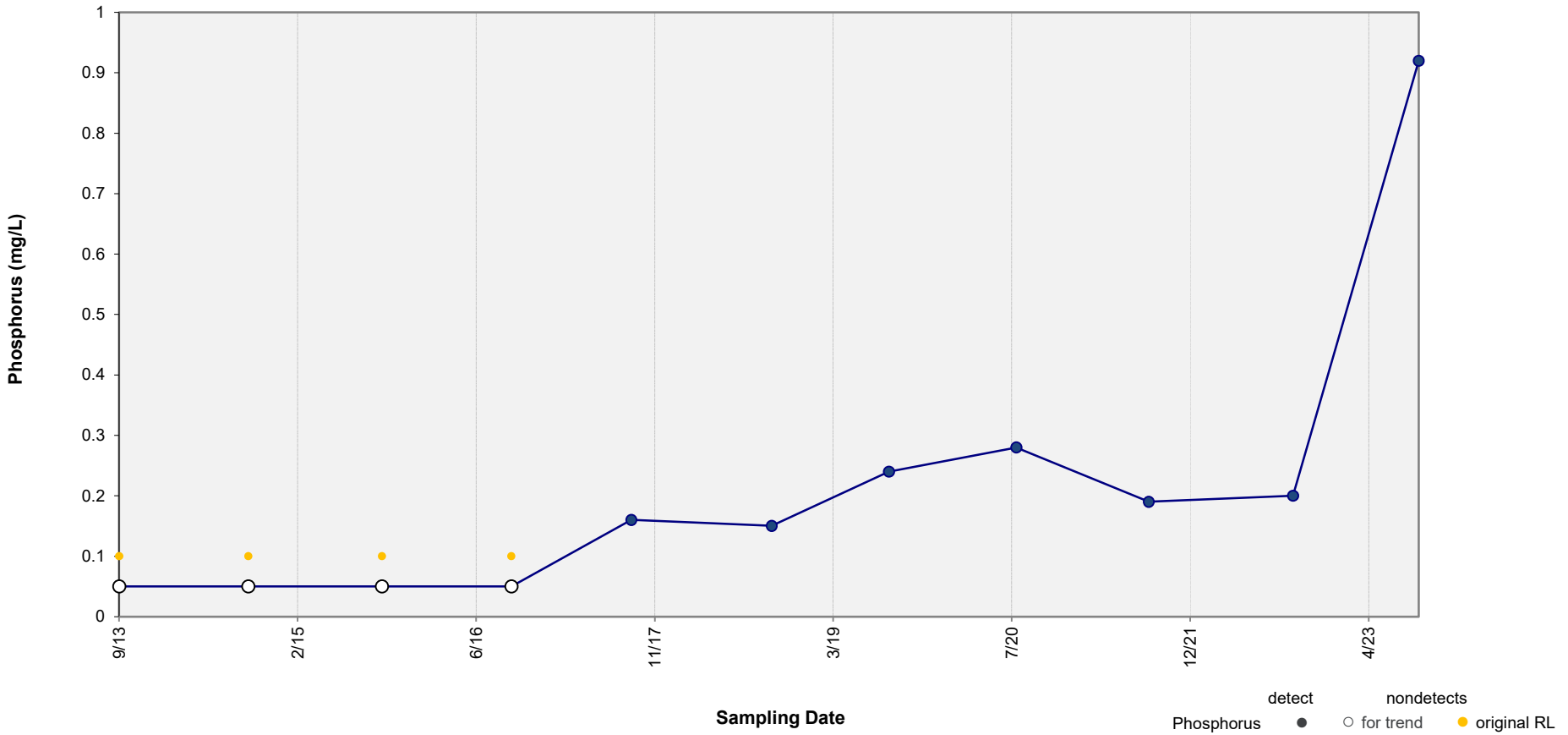
95% Confidence Interval = 3.0E-05 to 3.2E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well MW-114WT

RACER Saginaw

Figure A-13



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 8.8E-05 mg/L Per Day

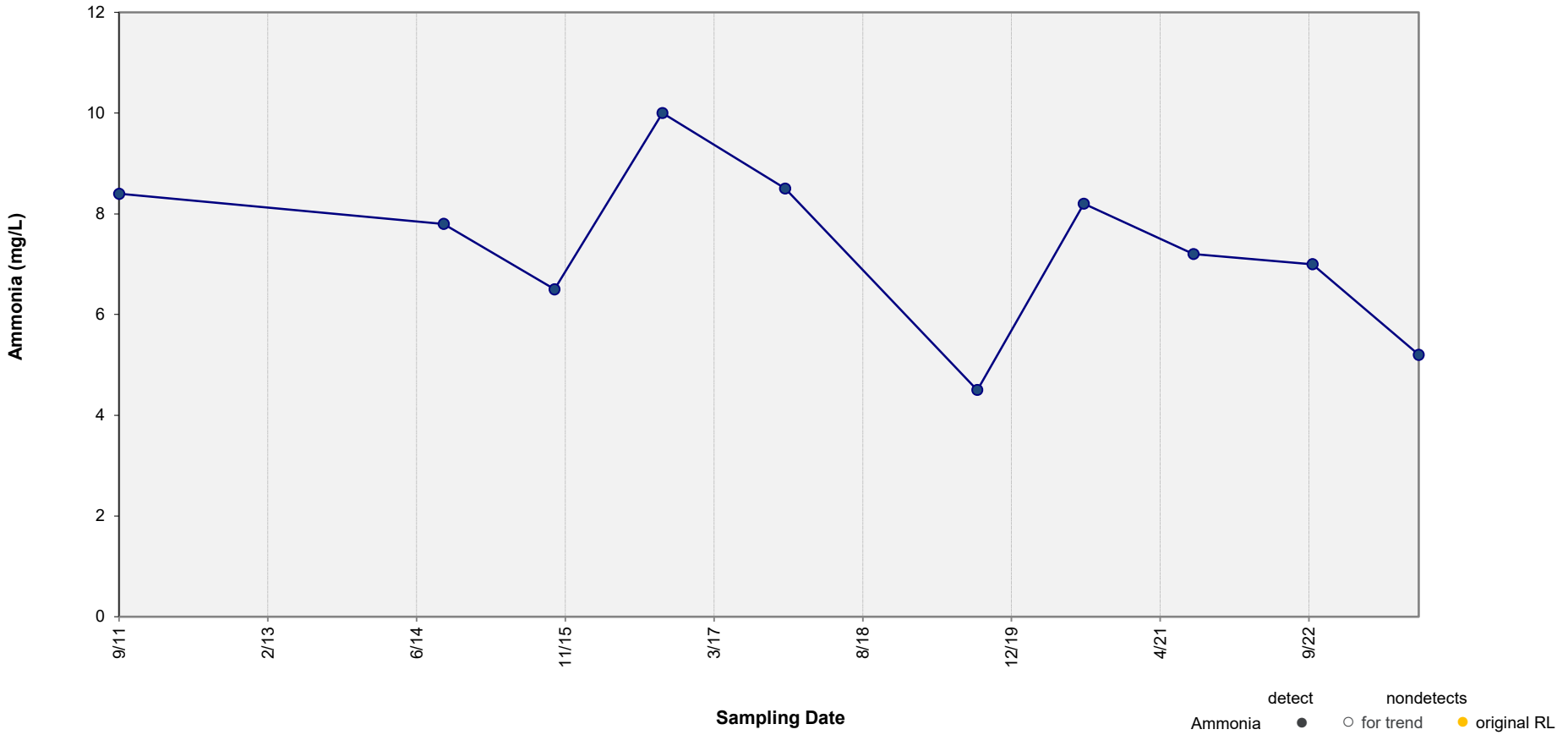
95% Confidence Interval = 3.5E-05 to 1.5E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Phosphorus in Well MW-114WT

RACER Saginaw

Figure A-14



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.078 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -5.5E-04 mg/L Per Day

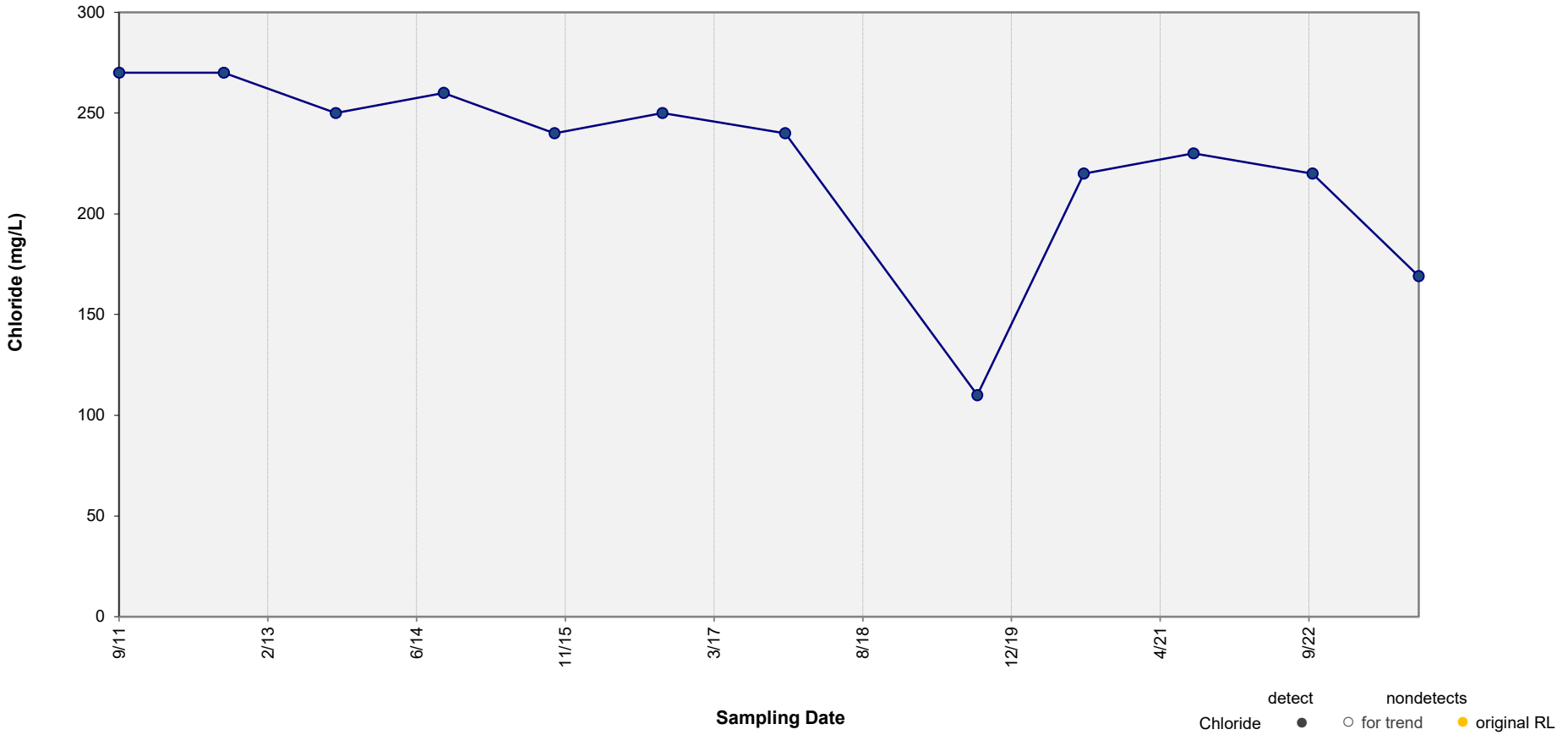
95% Confidence Interval = -1.6E-03 to 1.9E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well MW-117S1

RACER Saginaw

Figure A-15



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -1.4E-02 mg/L Per Day

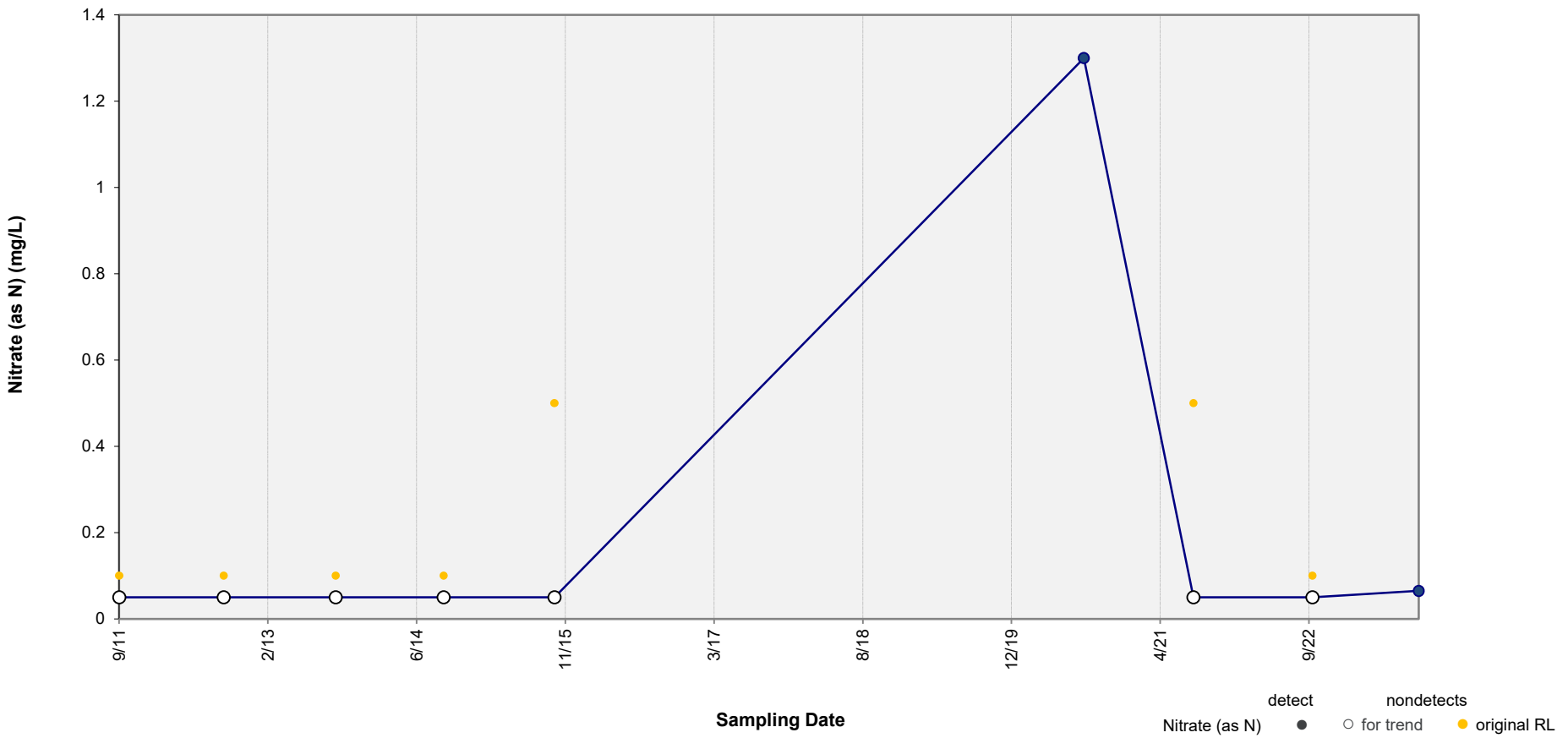
95% Confidence Interval = -2.5E-02 to -1.1E-02 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Chloride in Well MW-117S1

RACER Saginaw

Figure A-16



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.209 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

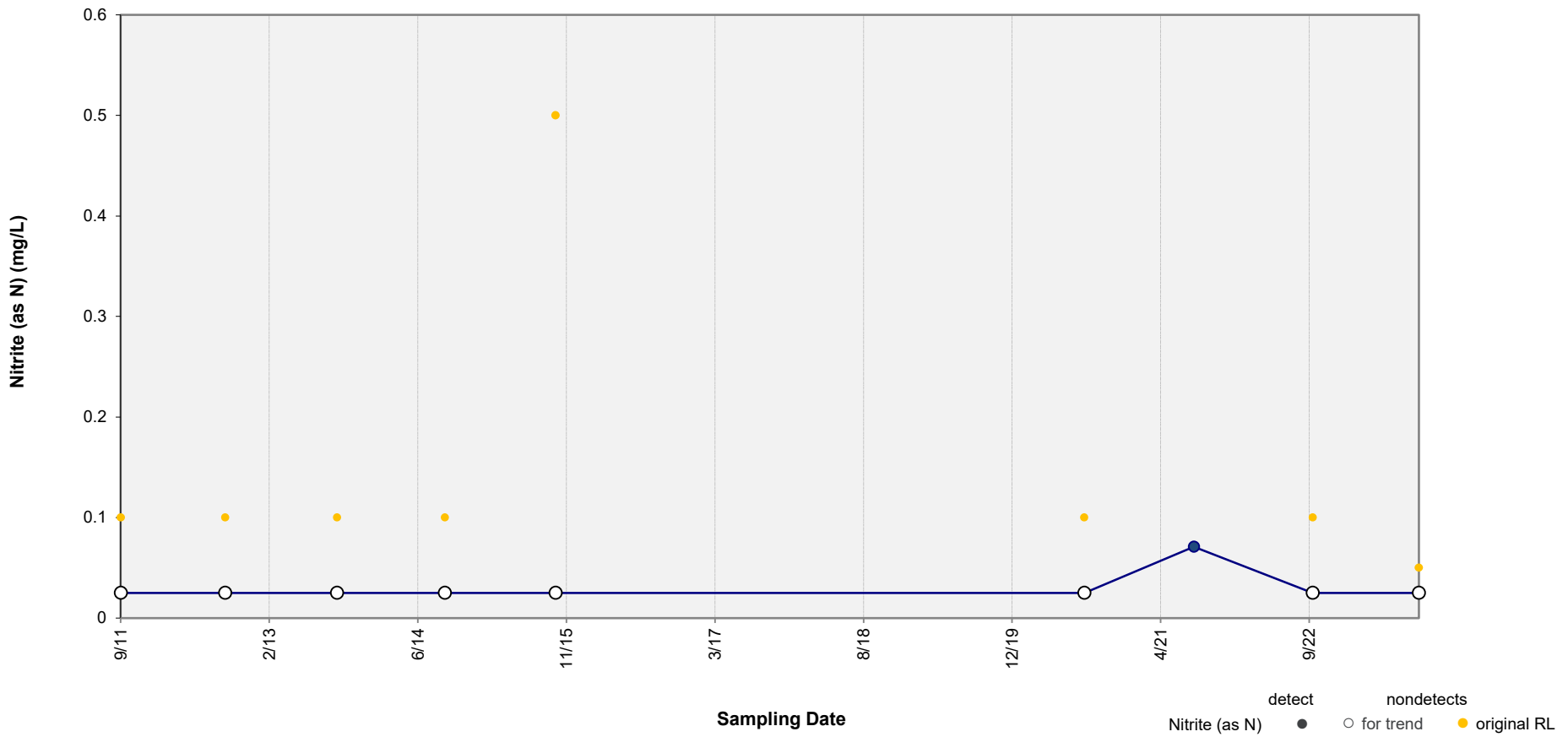
95% Confidence Interval = 0.0E+00 to 2.6E-06 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Nitrate (as N) in Well MW-117S1

RACER Saginaw

Figure A-17



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.381 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

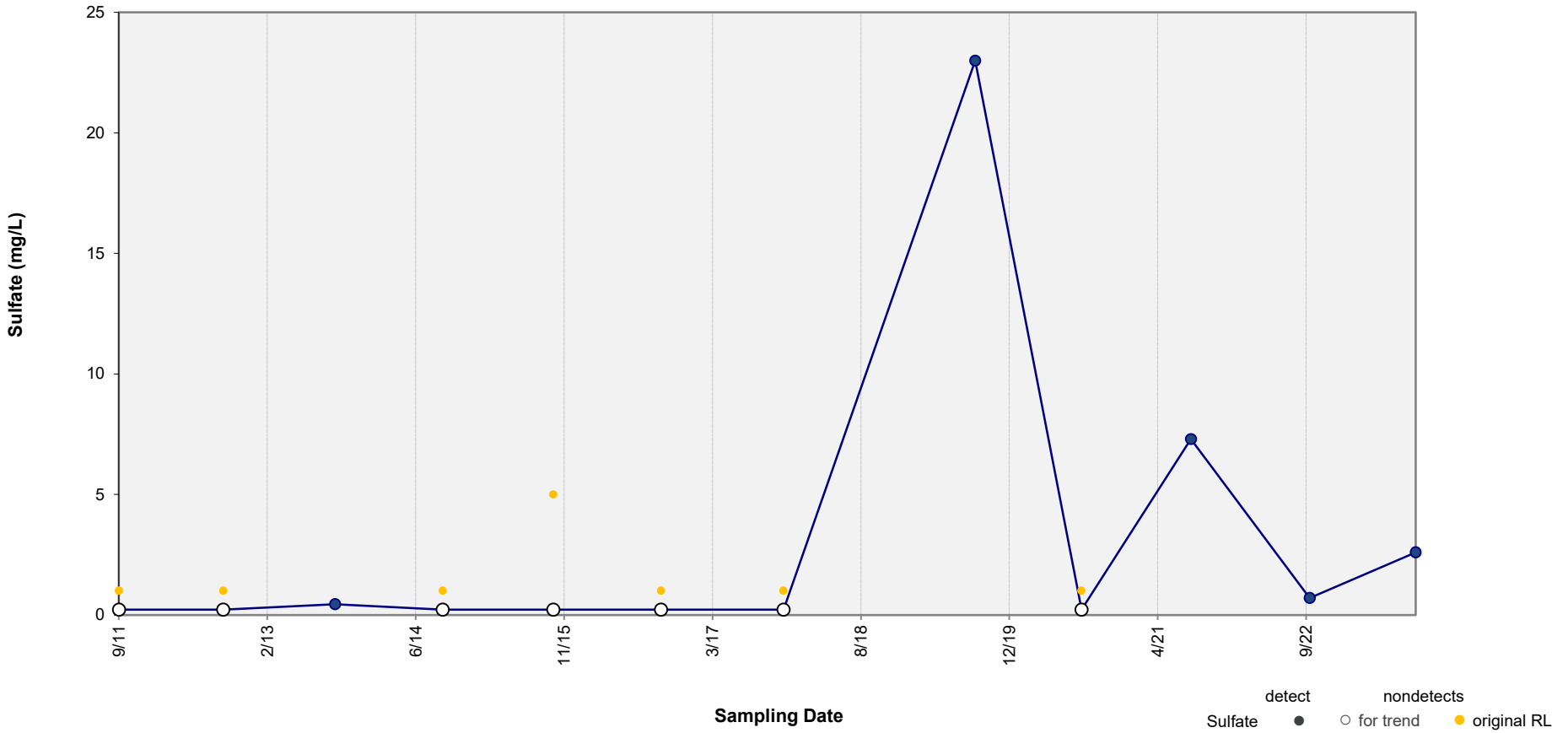
95% Confidence Interval = 0.0E+00 to 0.0E+00 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Nitrite (as N) in Well MW-117S1

RACER Saginaw

Figure A-18



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.045 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 1.0E-04 mg/L Per Day

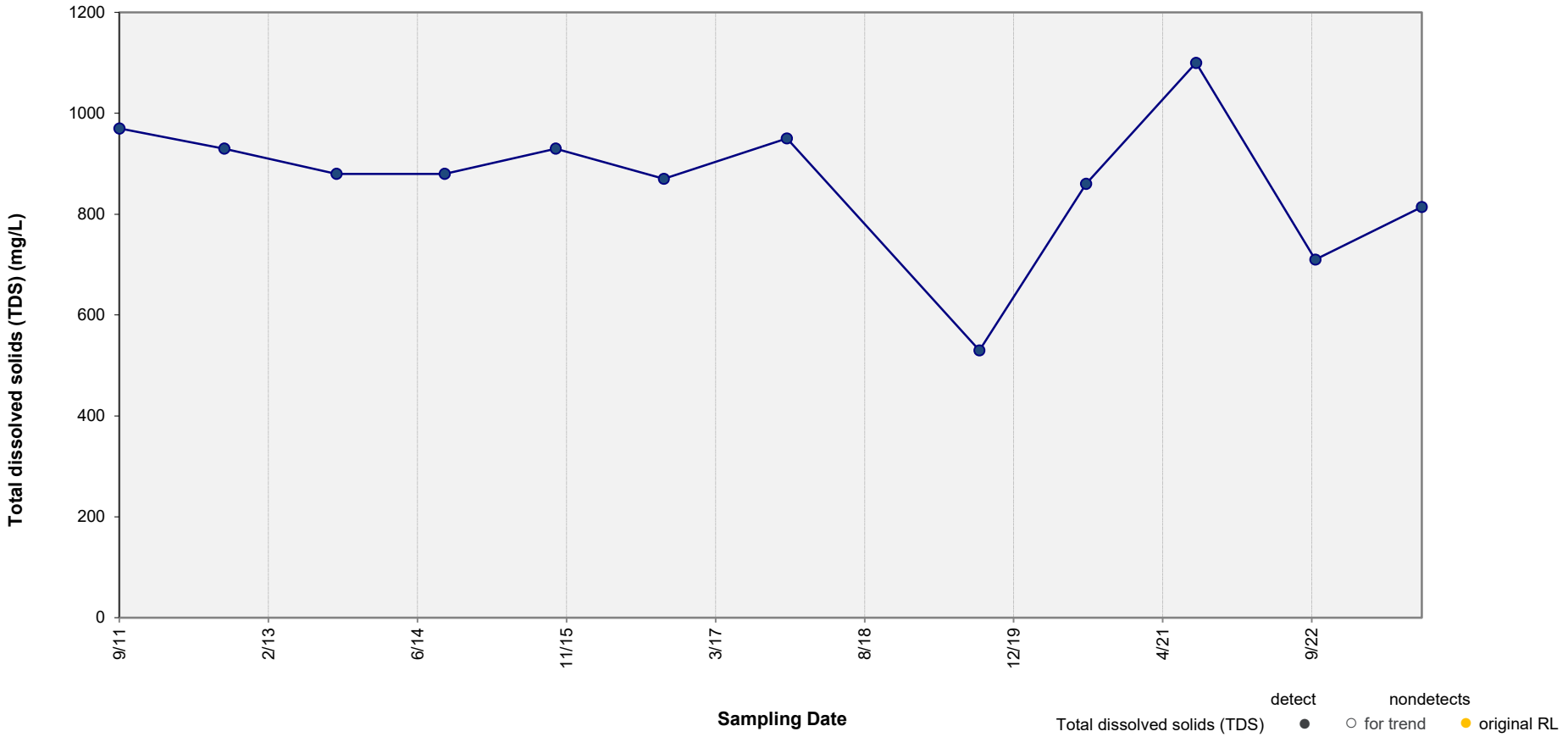
95% Confidence Interval = 0.0E+00 to 7.0E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Sulfate in Well MW-117S1

RACER Saginaw

Figure A-19



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.057 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -2.8E-02 mg/L Per Day

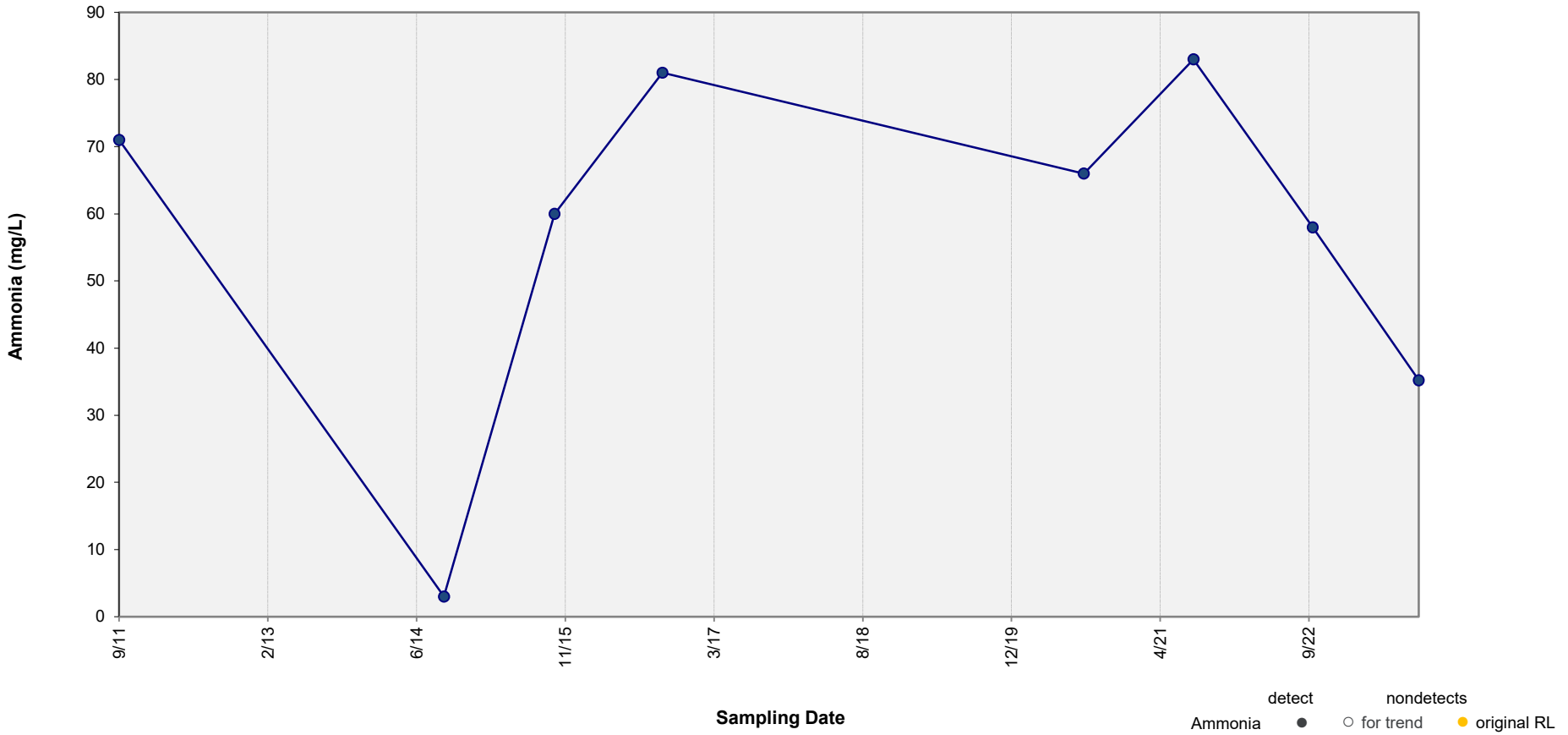
95% Confidence Interval = -7.5E-02 to 1.4E-02 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Total dissolved solids (TDS) in Well MW-117S1

RACER Saginaw

Figure A-20



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.452 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -1.2E-03 mg/L Per Day

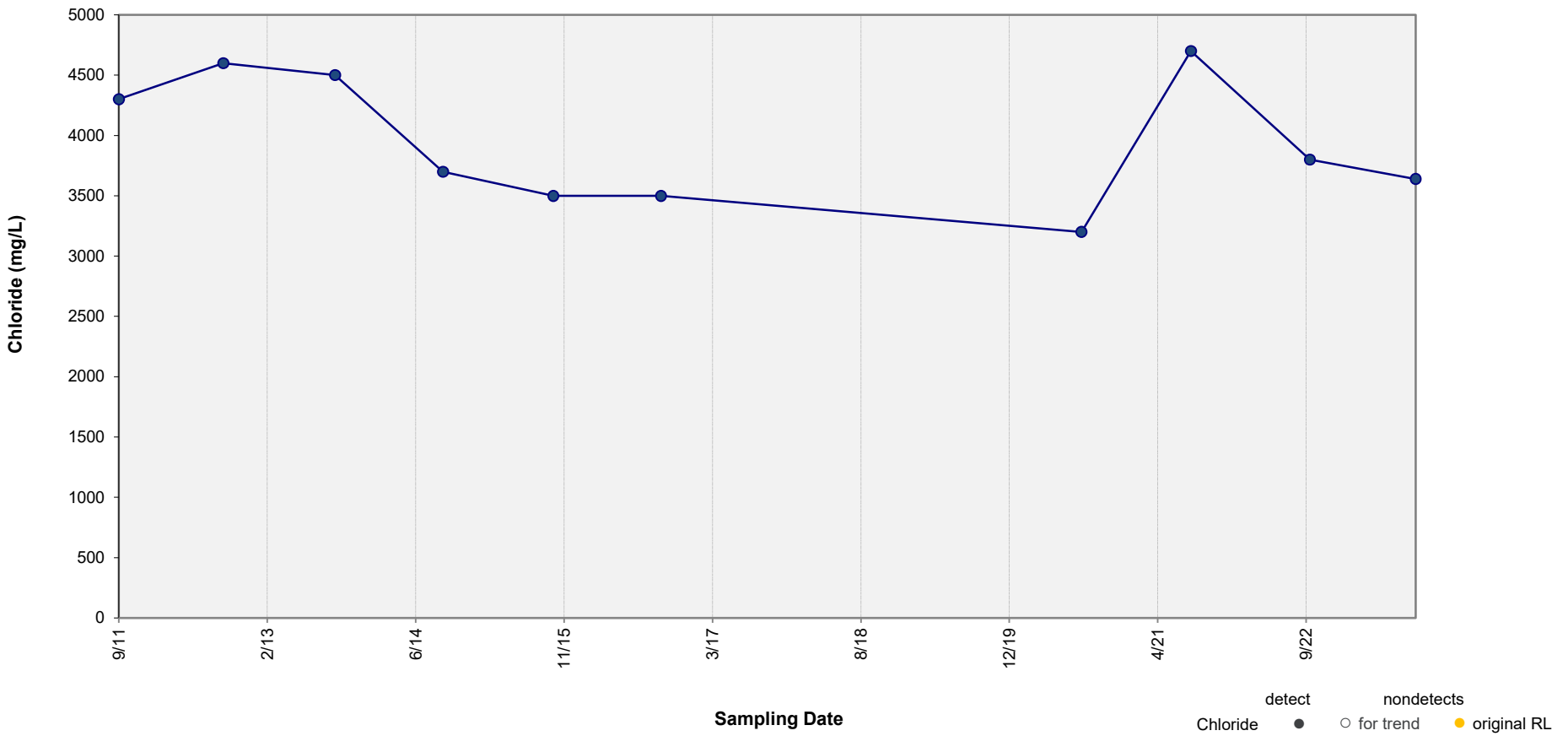
95% Confidence Interval = -1.7E-02 to 1.8E-02 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well MW-117WT

RACER Saginaw

Figure A-21



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.168 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -2.1E-01 mg/L Per Day

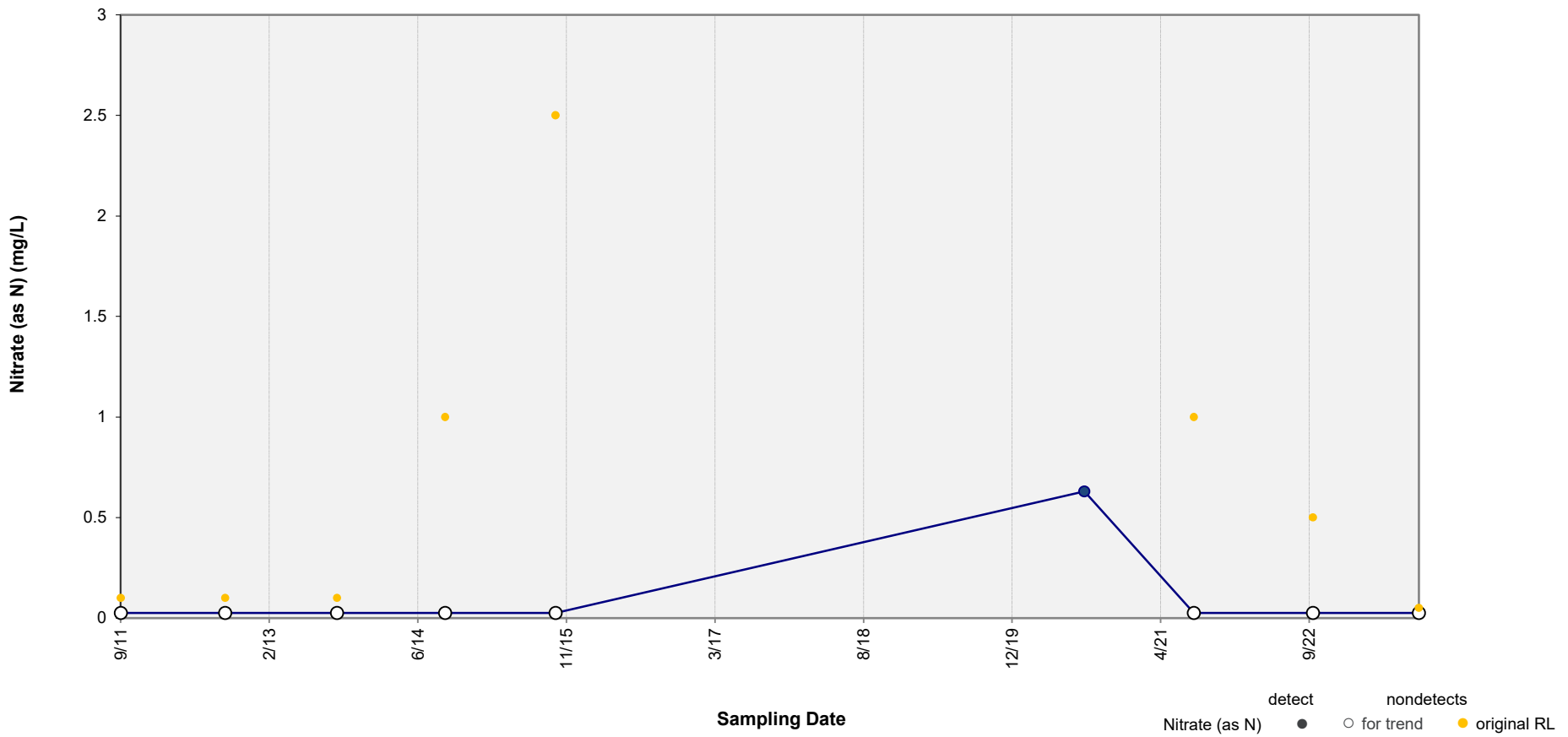
95% Confidence Interval = -5.3E-01 to 6.1E-02 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Chloride in Well MW-117WT

RACER Saginaw

Figure A-22



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.460 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

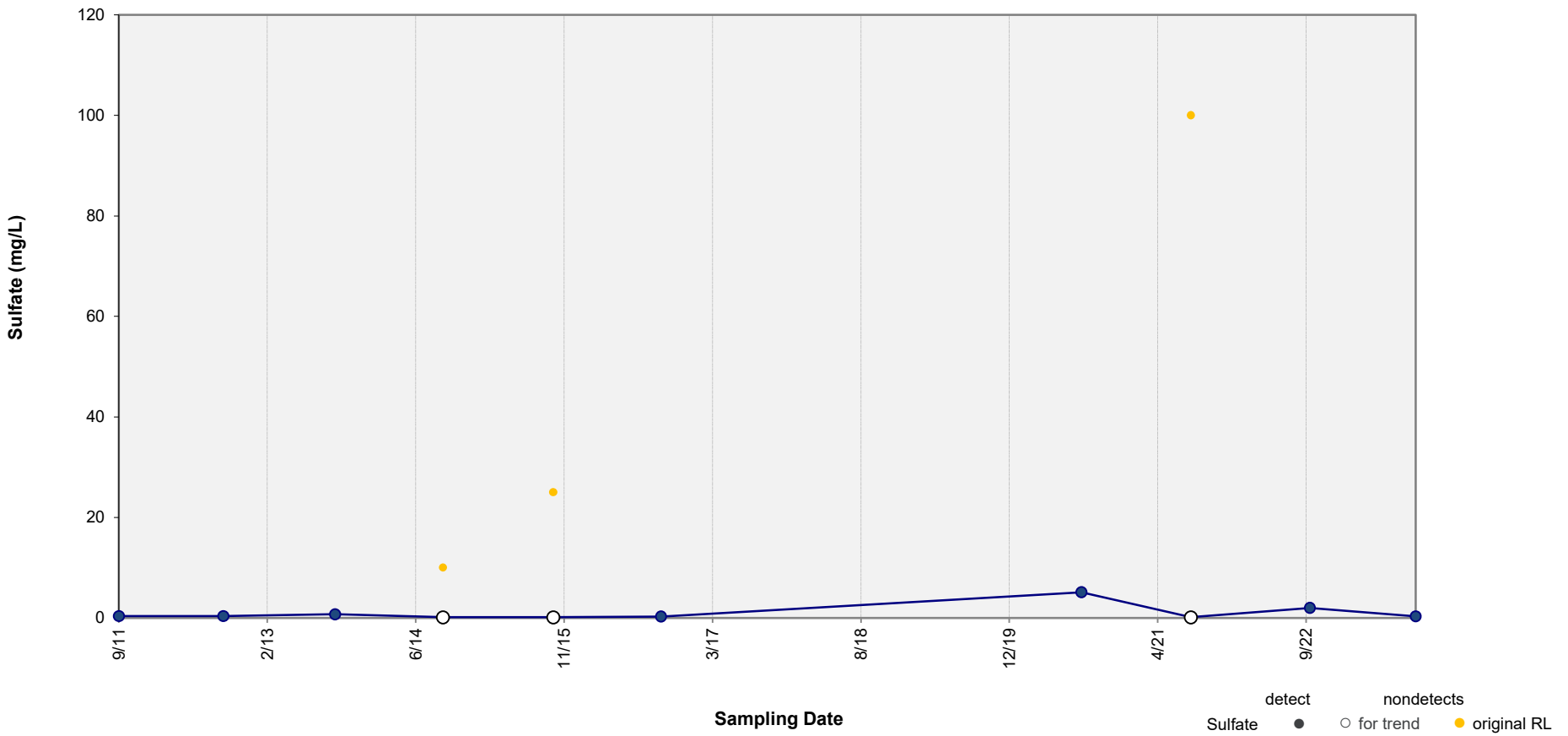
95% Confidence Interval = 0.0E+00 to 0.0E+00 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Nitrate (as N) in Well MW-117WT

RACER Saginaw

Figure A-23



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.536 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

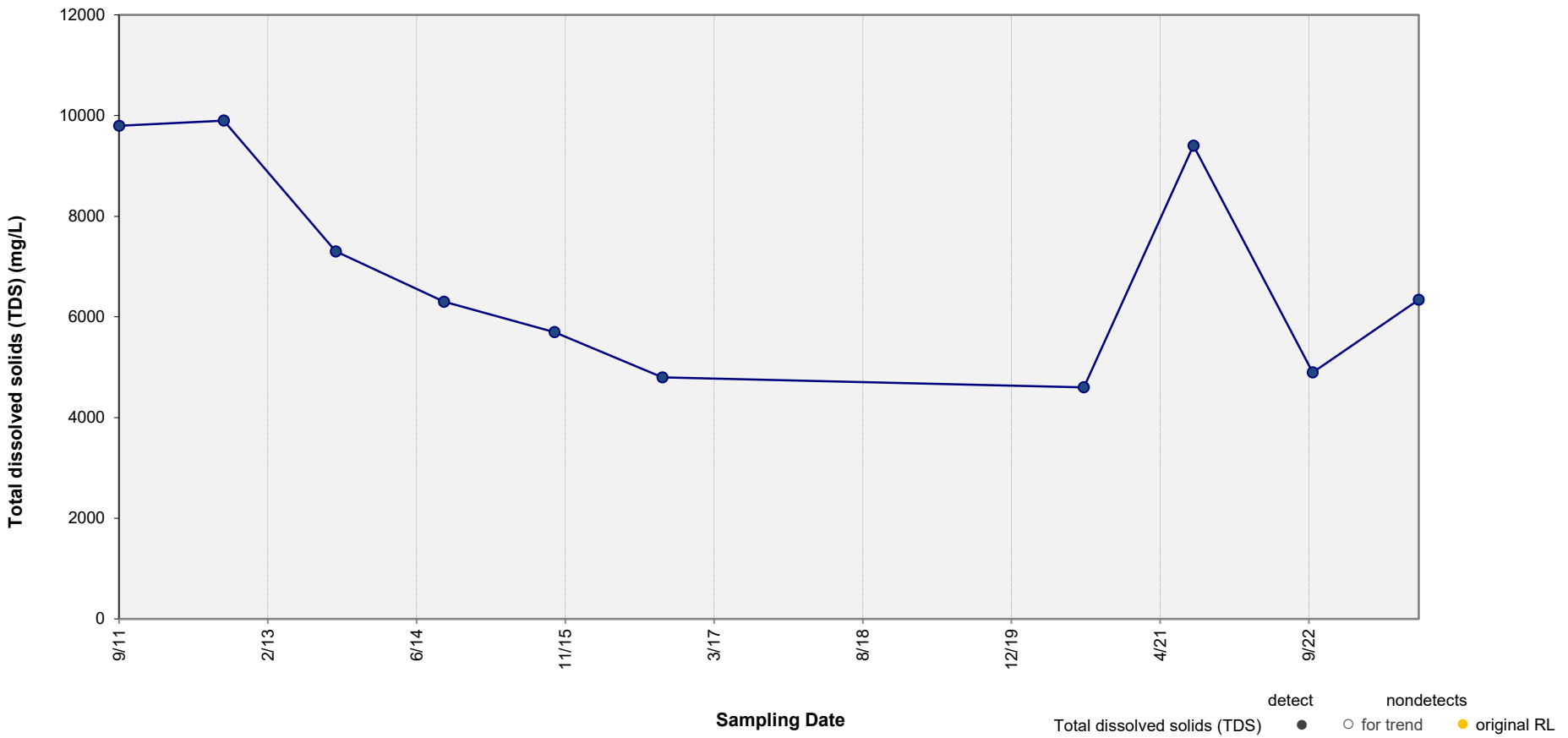
95% Confidence Interval = -1.8E-04 to 4.5E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Sulfate in Well MW-117WT

RACER Saginaw

Figure A-24



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.054 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -7.9E-01 mg/L Per Day

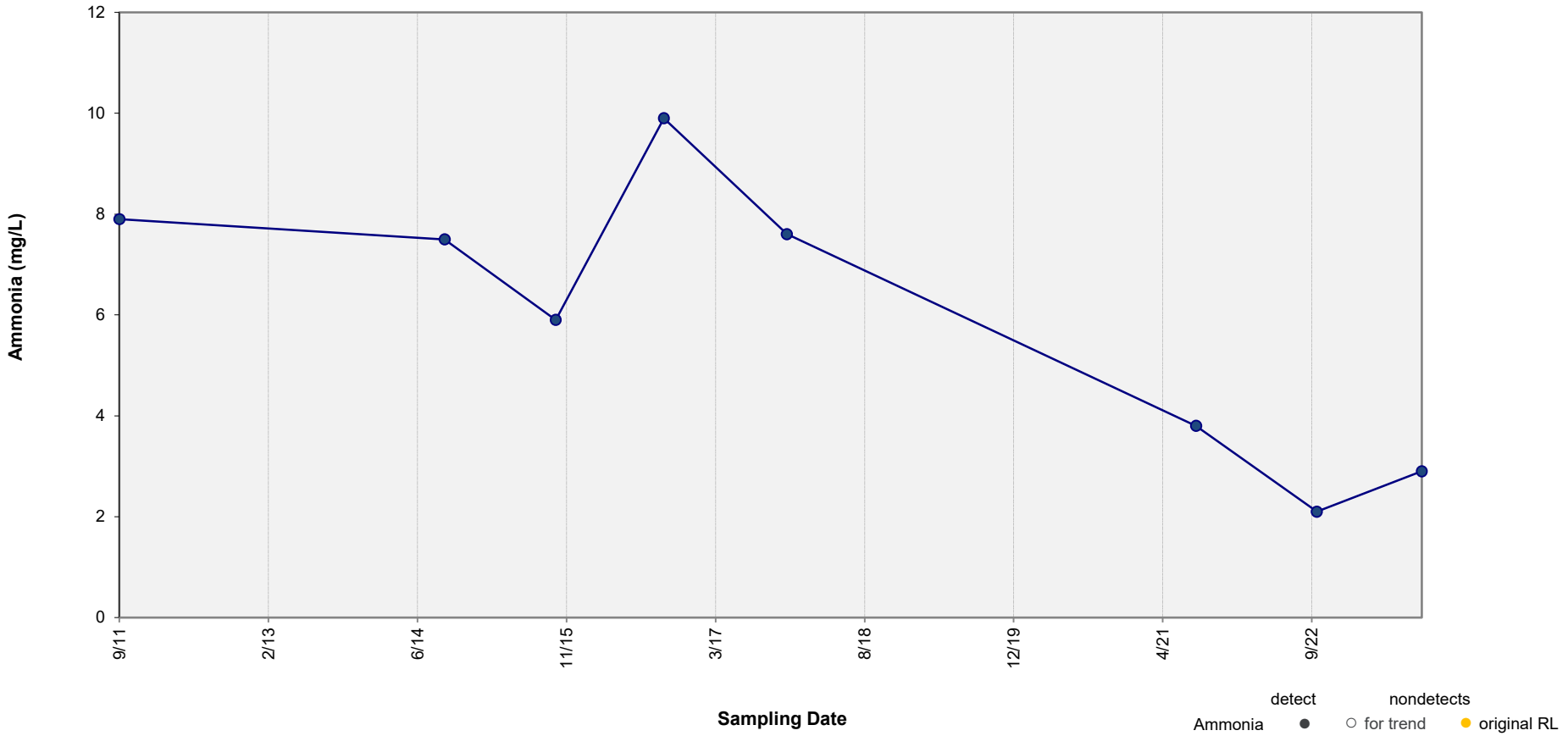
95% Confidence Interval = -2.6E+00 to 2.8E-02 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Total dissolved solids (TDS) in Well MW-117WT

RACER Saginaw

Figure A-25



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.031 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -1.4E-03 mg/L Per Day

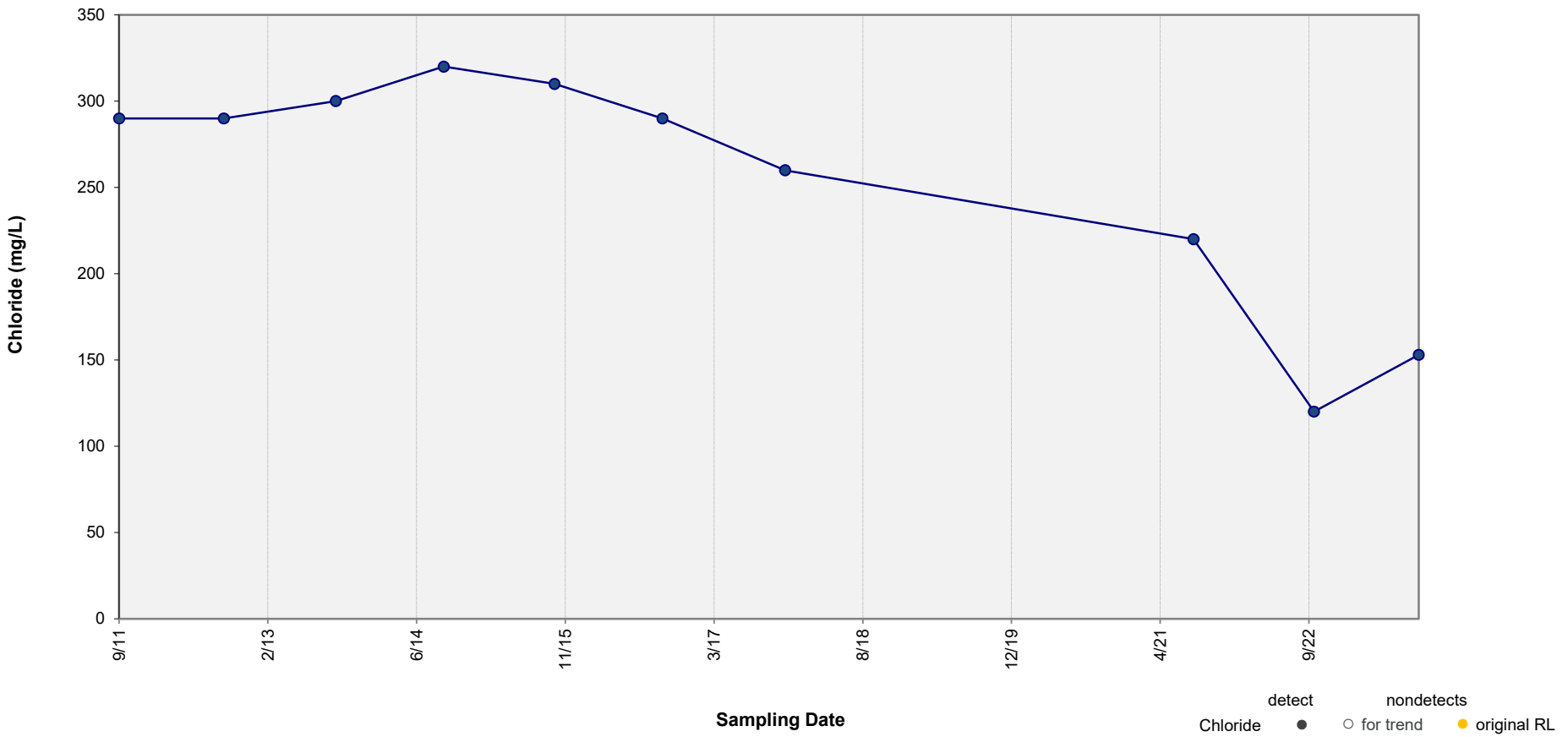
95% Confidence Interval = -3.1E-03 to -1.5E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well MW-118S1

RACER Saginaw

Figure A-26



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.019 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -3.4E-02 mg/L Per Day

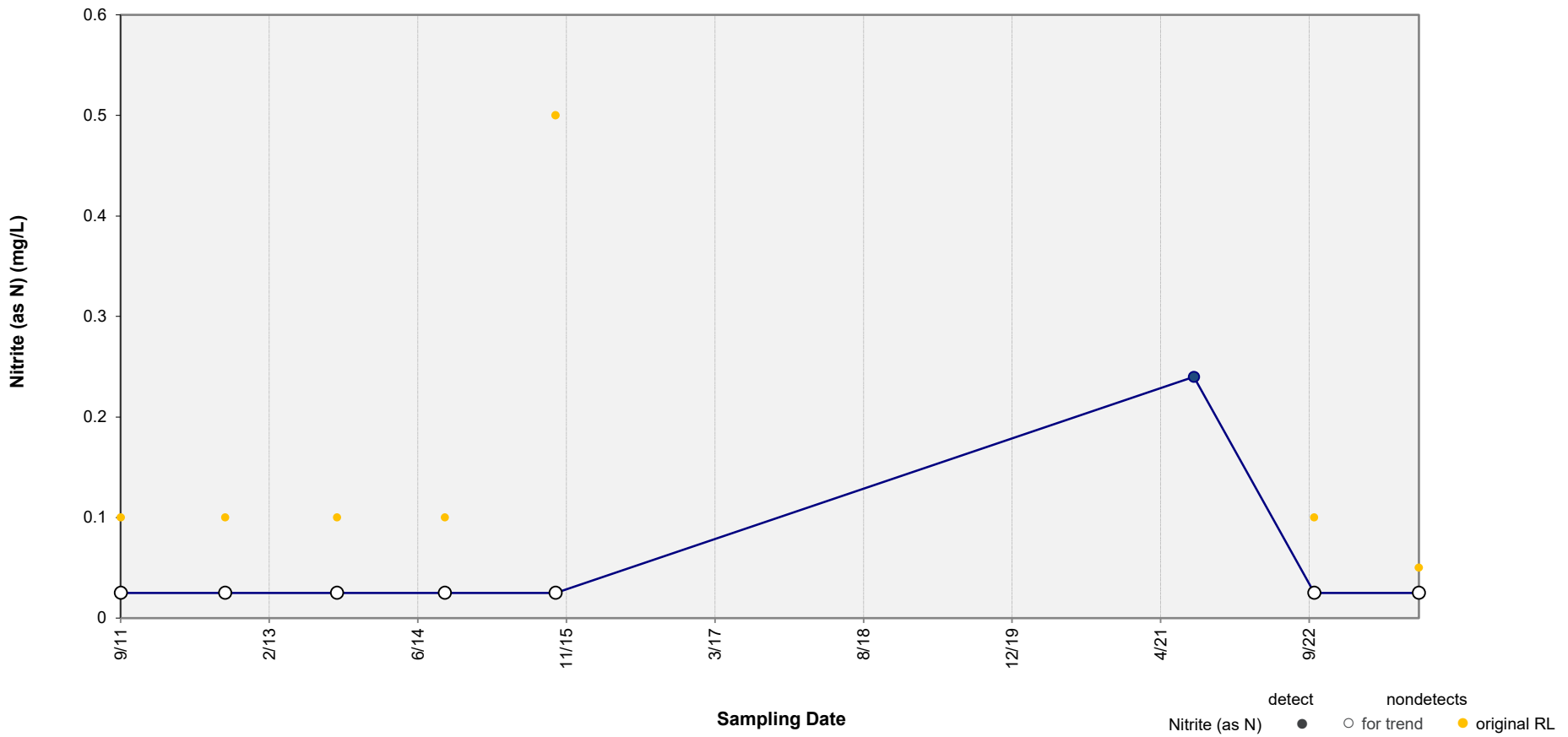
95% Confidence Interval = -5.4E-02 to -6.4E-03 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Chloride in Well MW-118S1

RACER Saginaw

Figure A-27



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.406 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

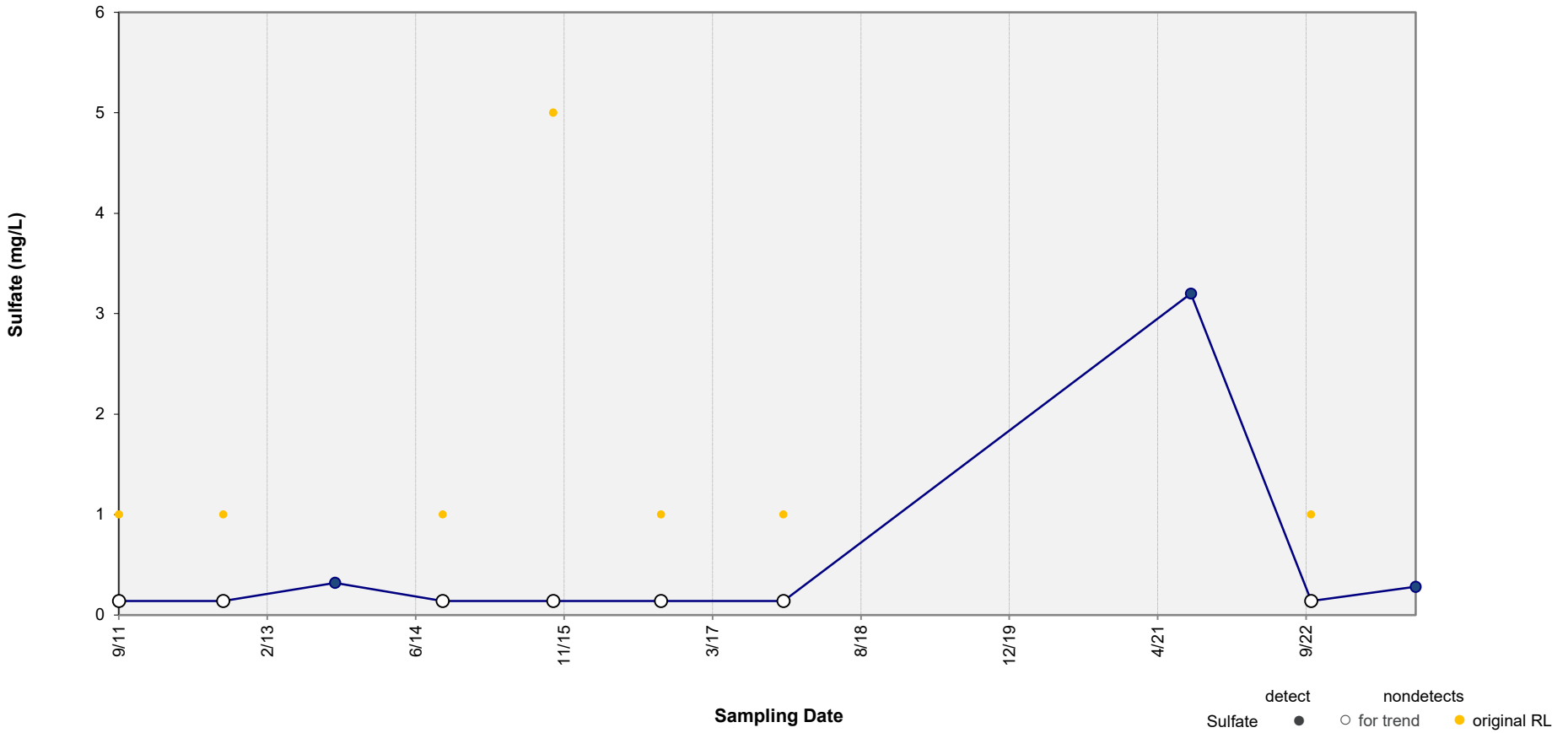
95% Confidence Interval = 0.0E+00 to 0.0E+00 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Nitrite (as N) in Well MW-118S1

RACER Saginaw

Figure A-28



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.271 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

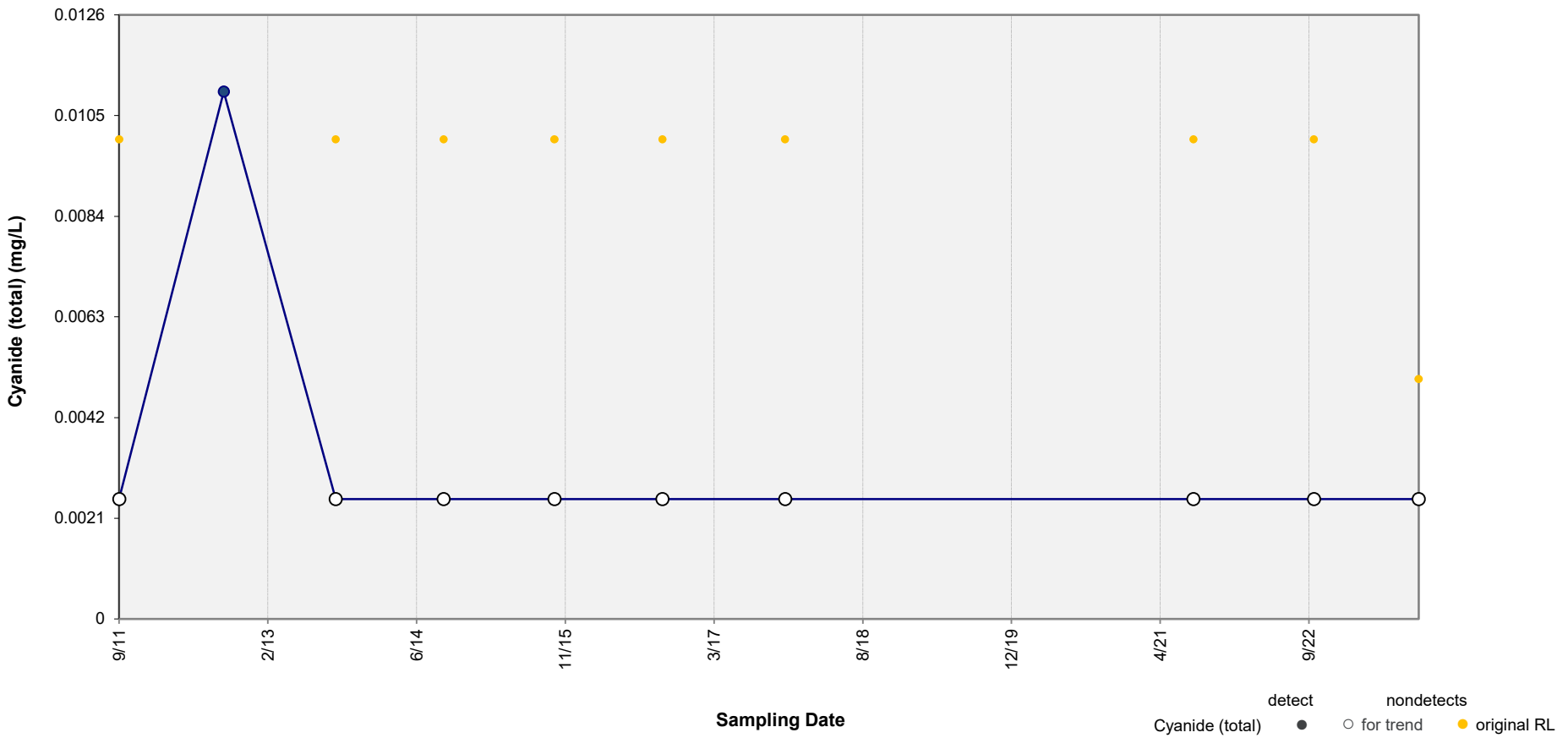
95% Confidence Interval = 0.0E+00 to 3.7E-05 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Sulfate in Well MW-118S1

RACER Saginaw

Figure A-29



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.300 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

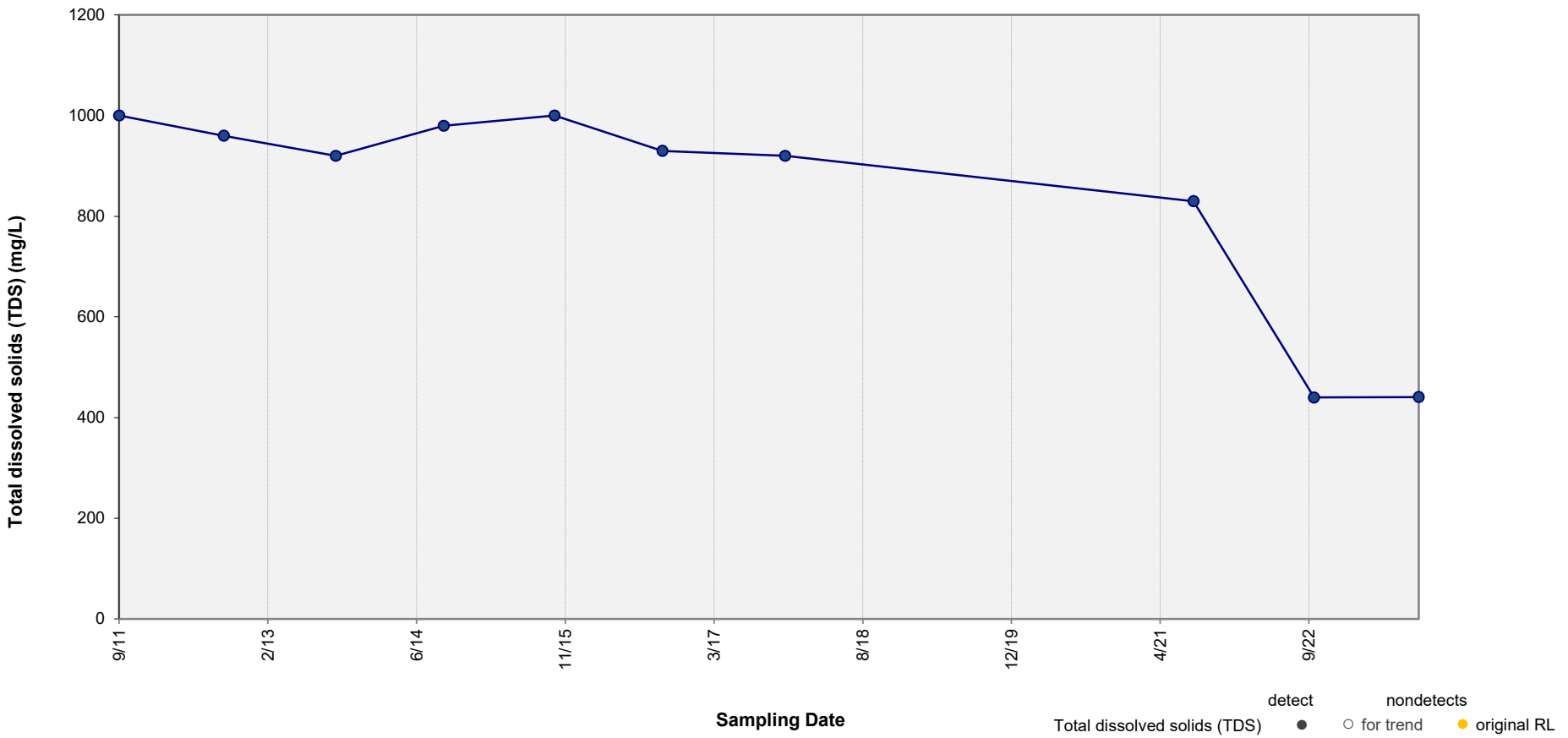
95% Confidence Interval = 0.0E+00 to 0.0E+00 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Cyanide (total) in Well MW-118S1

RACER Saginaw

Figure A-30



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.005 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -6.8E-02 mg/L Per Day

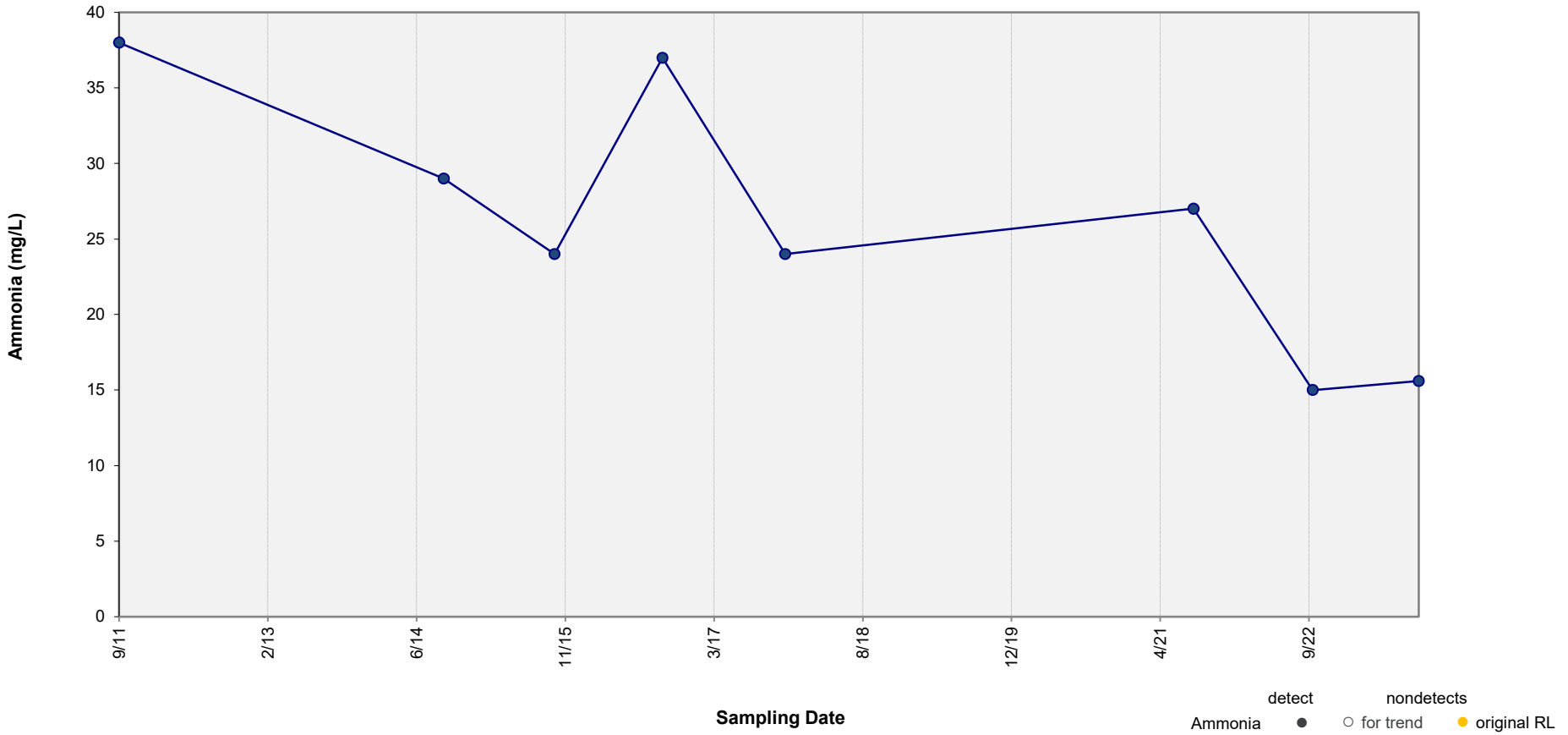
95% Confidence Interval = -1.5E-01 to -2.3E-02 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Total dissolved solids (TDS) in Well MW-118S1

RACER Saginaw

Figure A-31



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.024 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -4.6E-03 mg/L Per Day

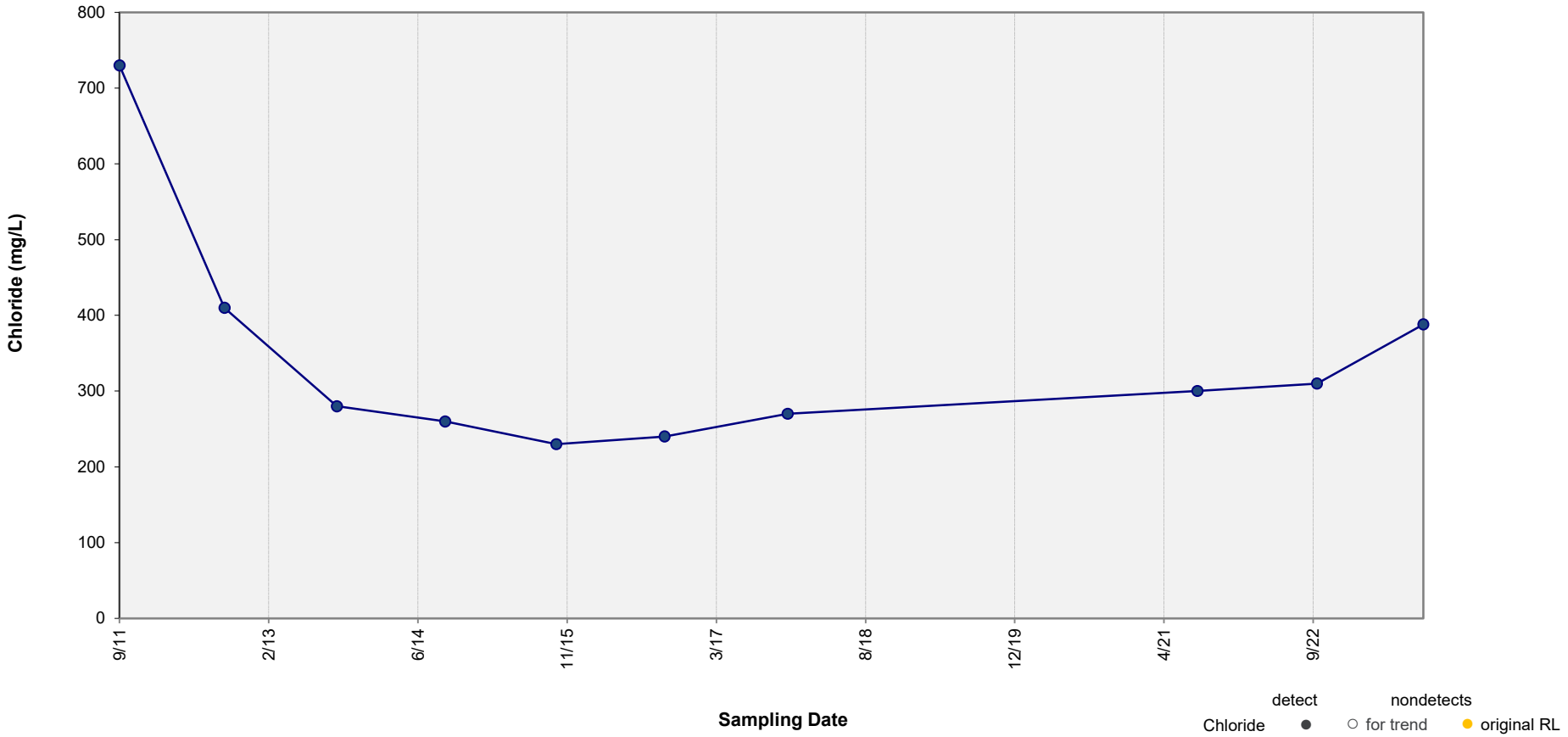
95% Confidence Interval = -9.4E-03 to -5.8E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well MW-118WT

RACER Saginaw

Figure A-32



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -5.5E-03 mg/L Per Day

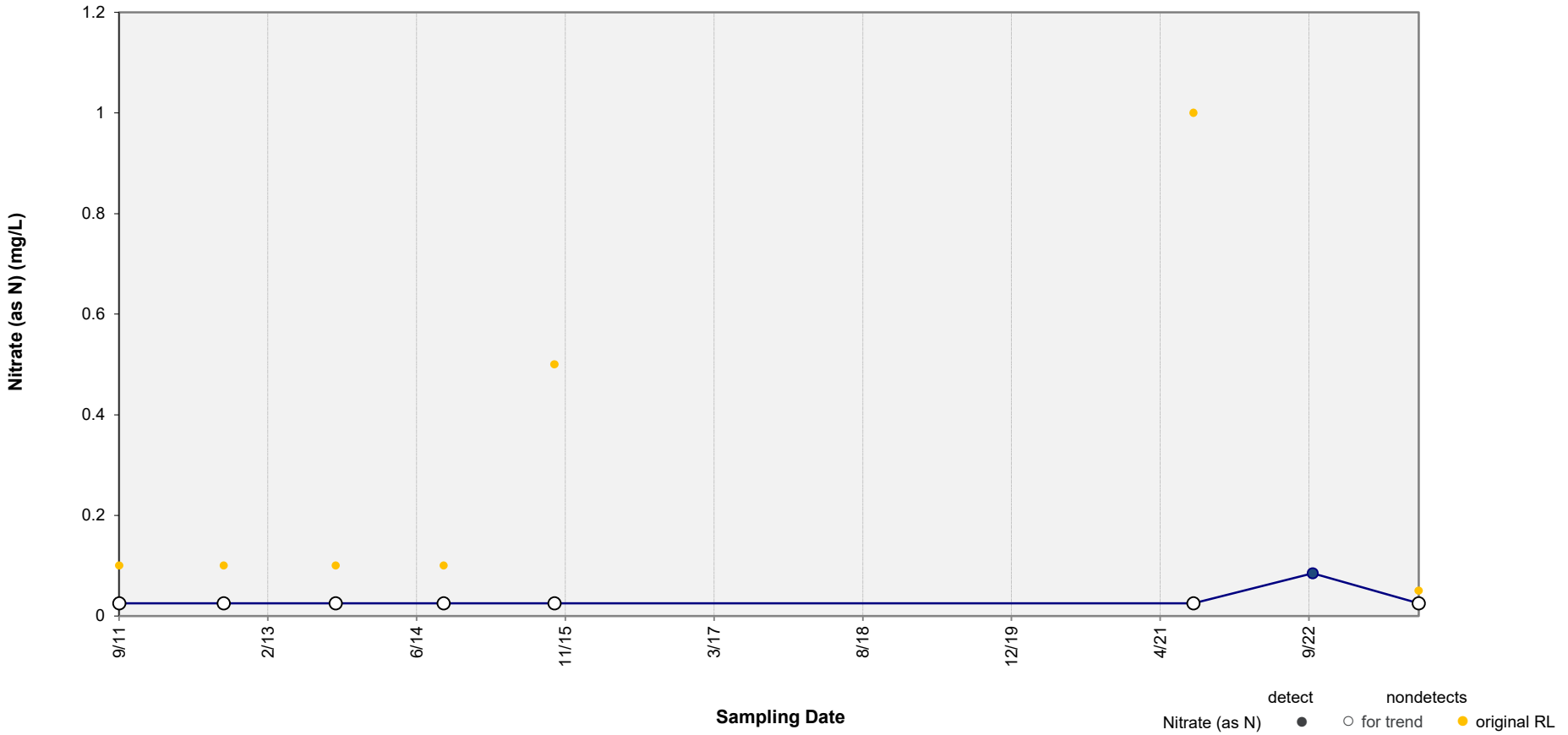
95% Confidence Interval = -1.1E-01 to 3.0E-02 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Chloride in Well MW-118WT

RACER Saginaw

Figure A-33



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.317 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

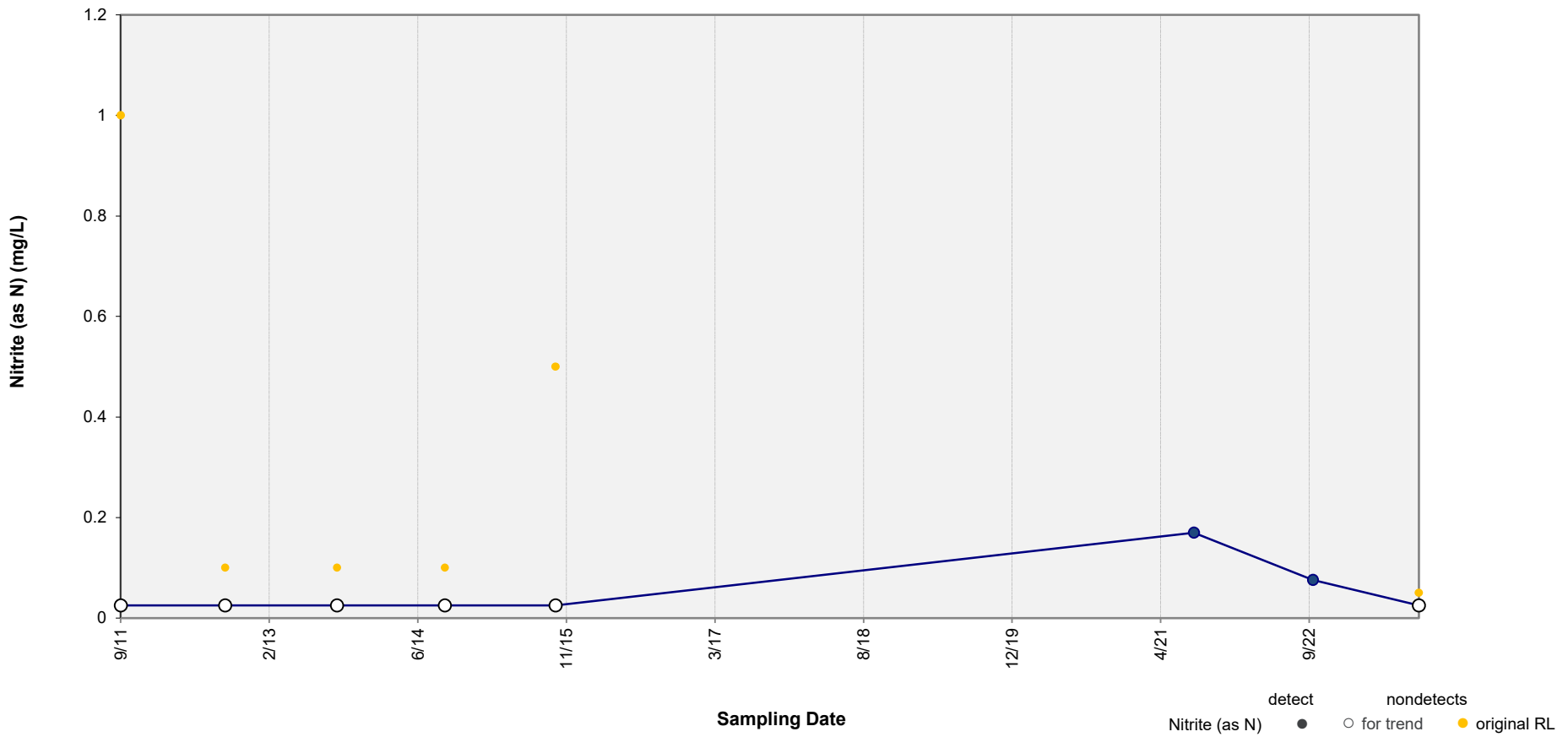
95% Confidence Interval = 0.0E+00 to 0.0E+00 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Nitrate (as N) in Well MW-118WT

RACER Saginaw

Figure A-34



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.237 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

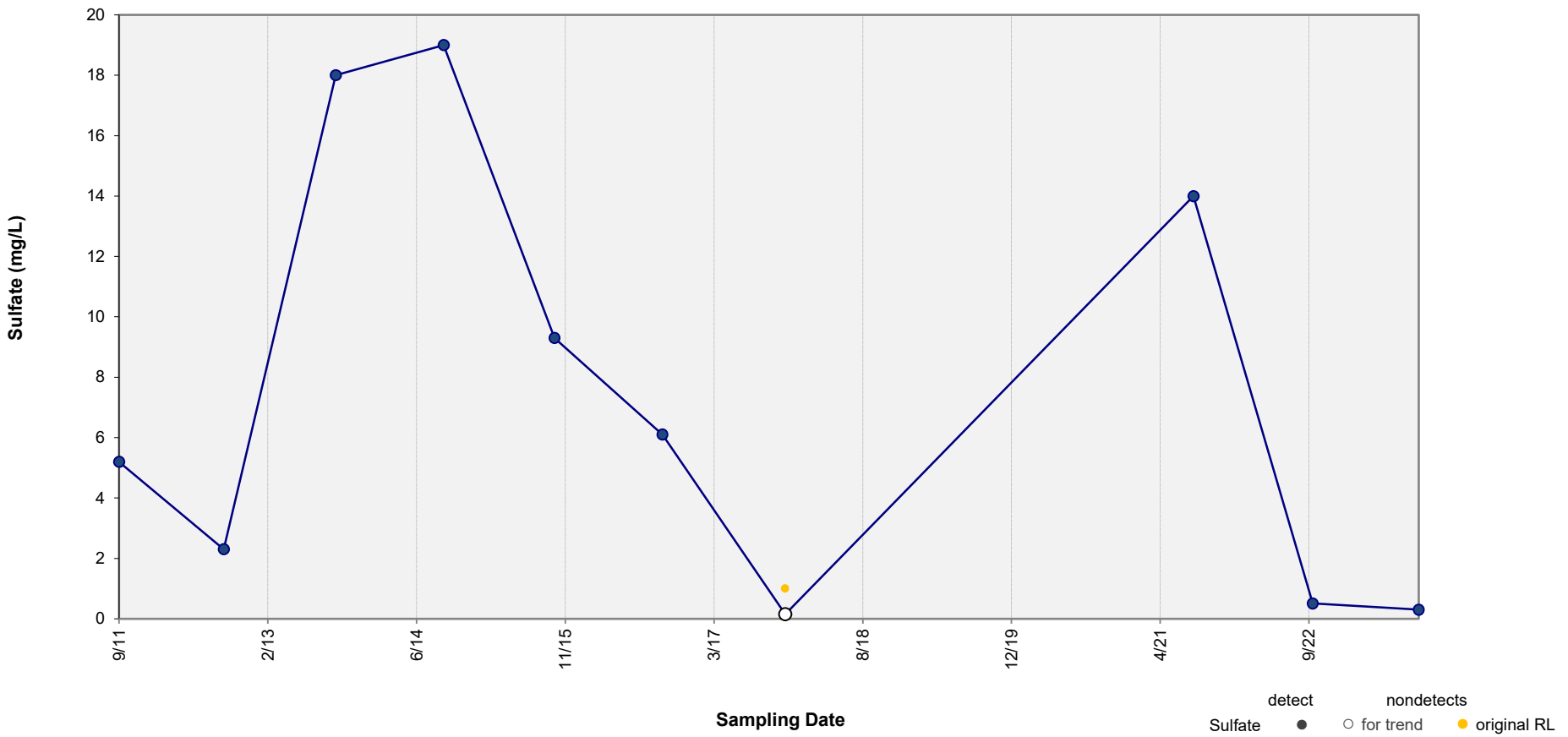
95% Confidence Interval = 0.0E+00 to 1.4E-05 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Nitrite (as N) in Well MW-118WT

RACER Saginaw

Figure A-35



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.146 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -1.4E-03 mg/L Per Day

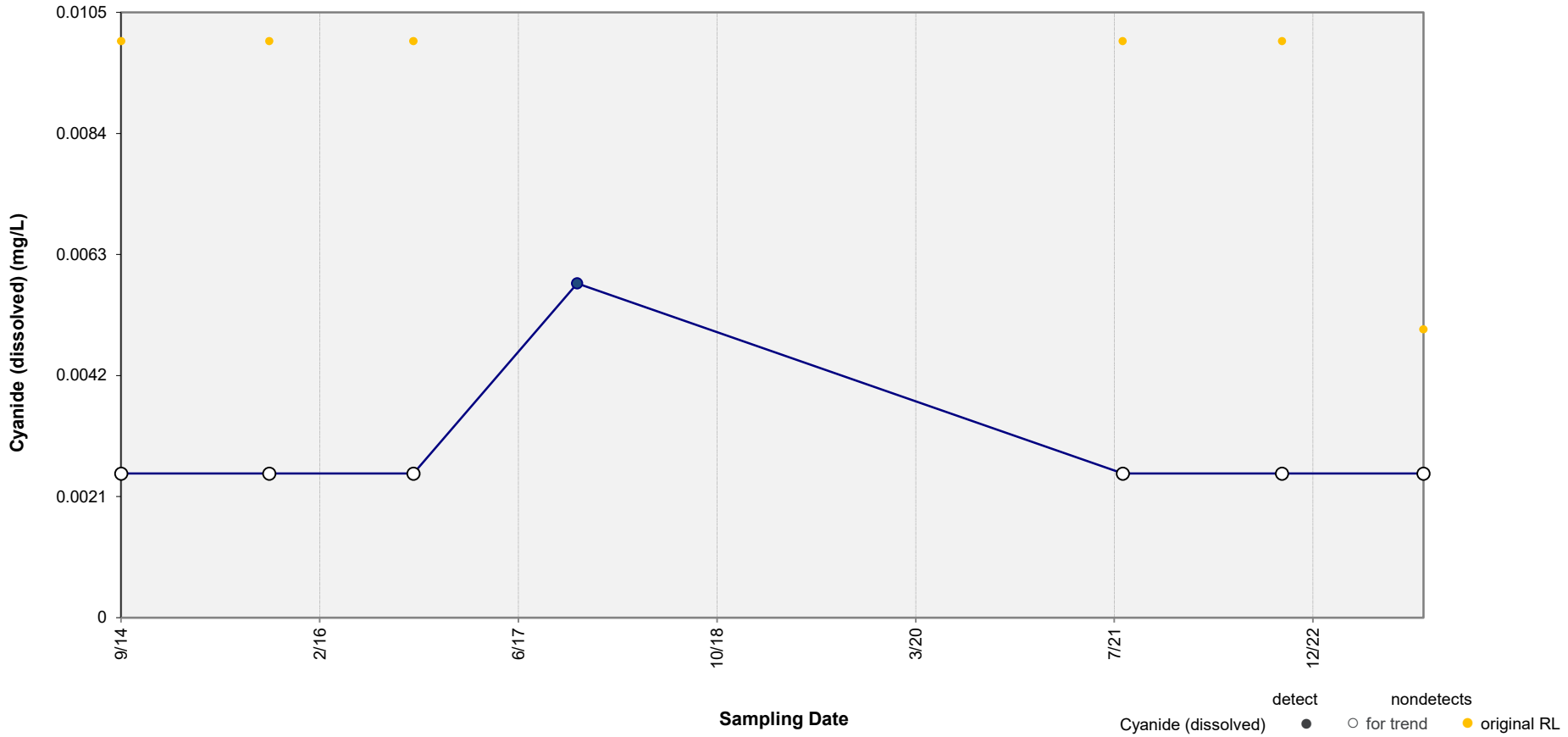
95% Confidence Interval = -8.5E-03 to 2.3E-03 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Sulfate in Well MW-118WT

RACER Saginaw

Figure A-36



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.563 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

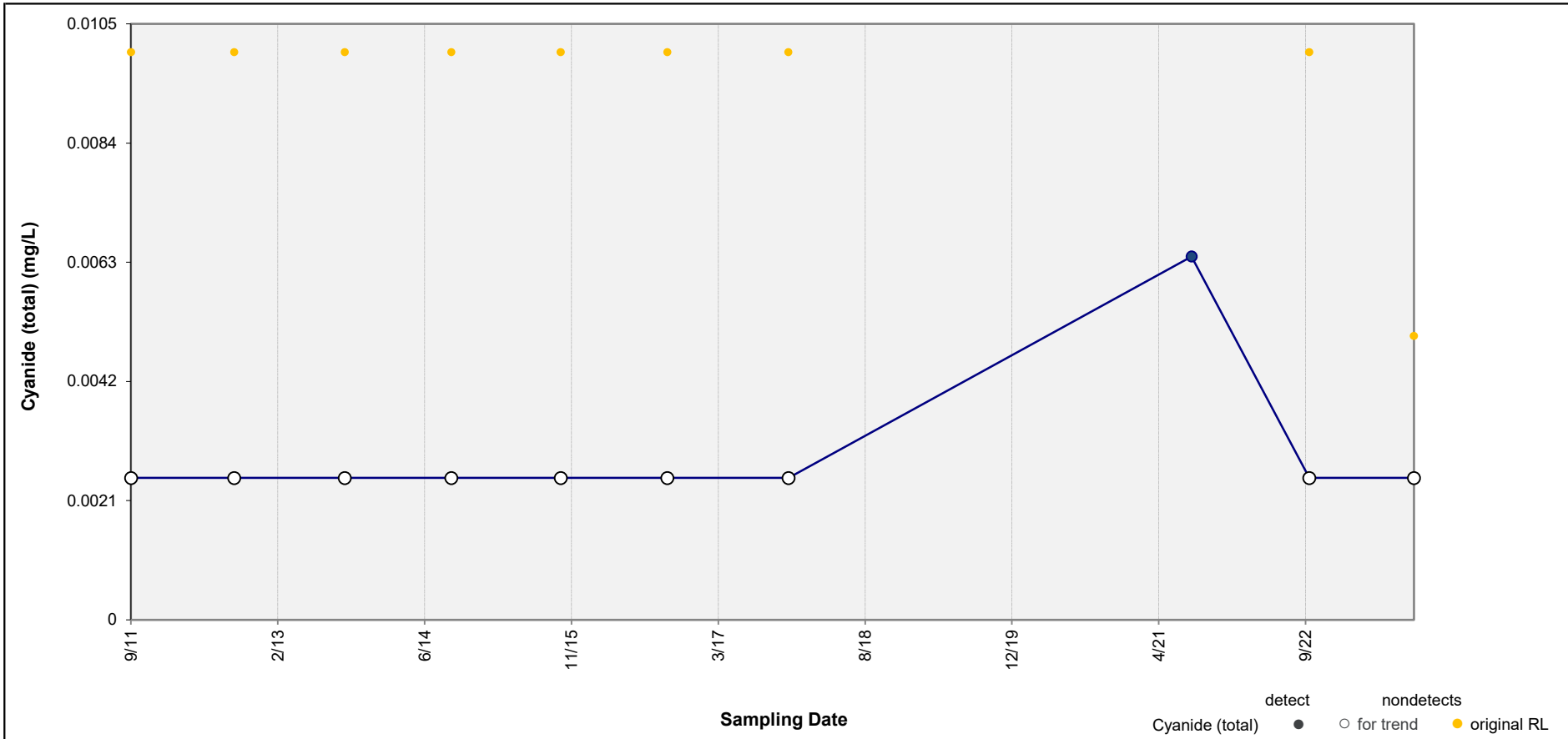
95% Confidence Interval = 0.0E+00 to 0.0E+00 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Cyanide (dissolved) in Well MW-118WT

RACER Saginaw

Figure A-37



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.364 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

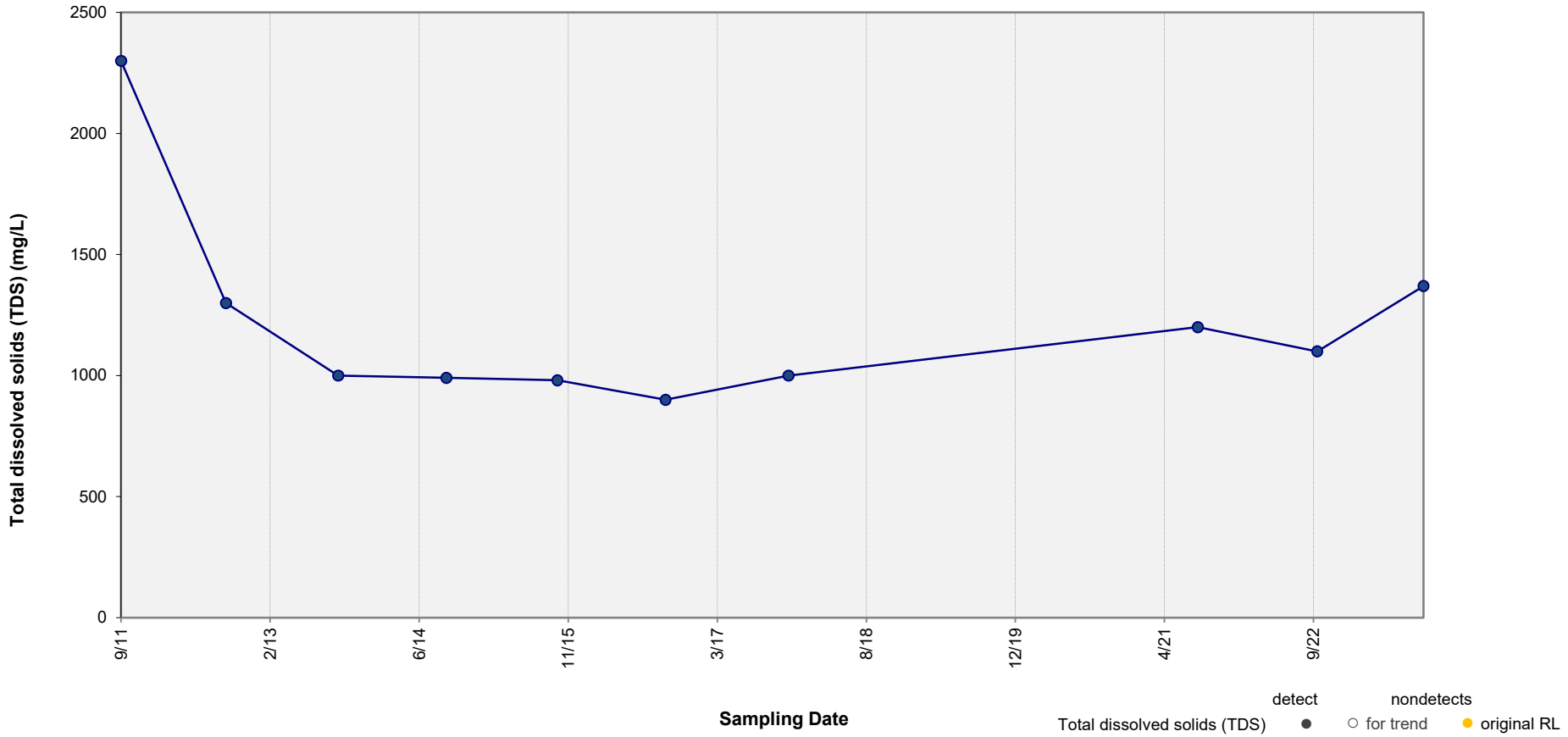
95% Confidence Interval = 0.0E+00 to 0.0E+00 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Cyanide (total) in Well MW-118WT

RACER Saginaw

Figure A-38



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.466 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -2.7E-02 mg/L Per Day

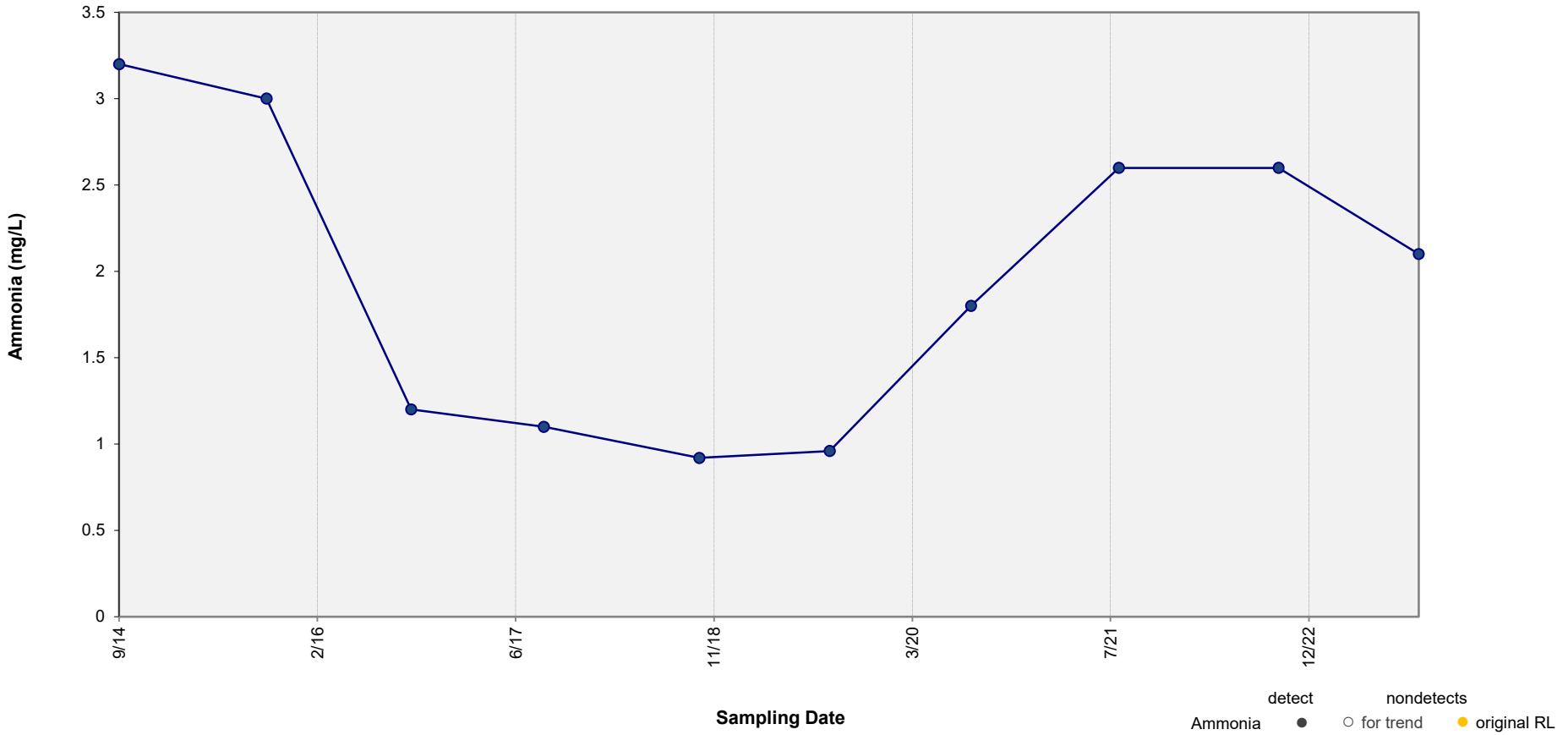
95% Confidence Interval = -2.8E-01 to 8.7E-02 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Total dissolved solids (TDS) in Well MW-118WT

RACER Saginaw

Figure A-39



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.398 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -1.9E-04 mg/L Per Day

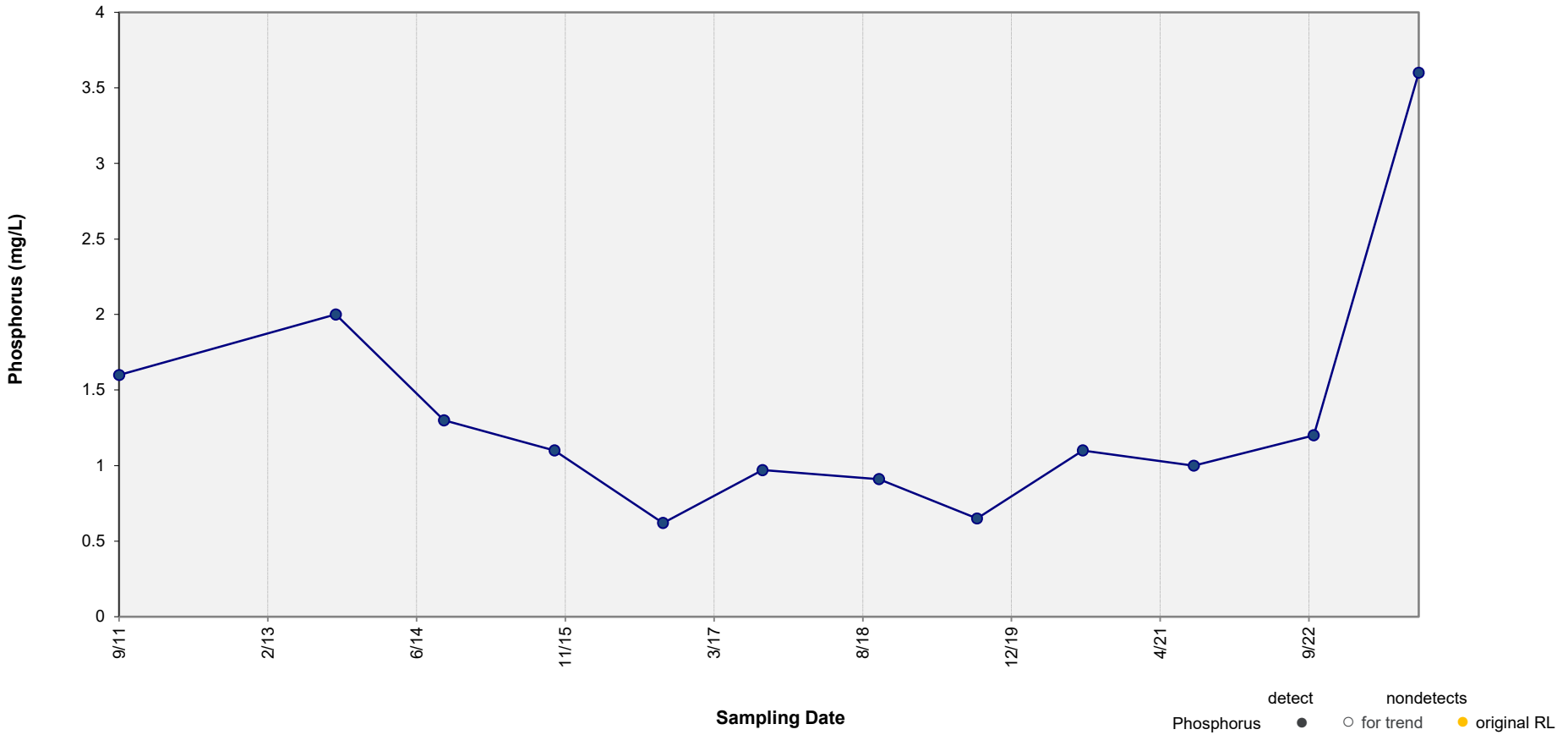
95% Confidence Interval = -6.6E-04 to 7.0E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well MW-149WT

RACER Saginaw

Figure A-40



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.392 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -7.0E-05 mg/L Per Day

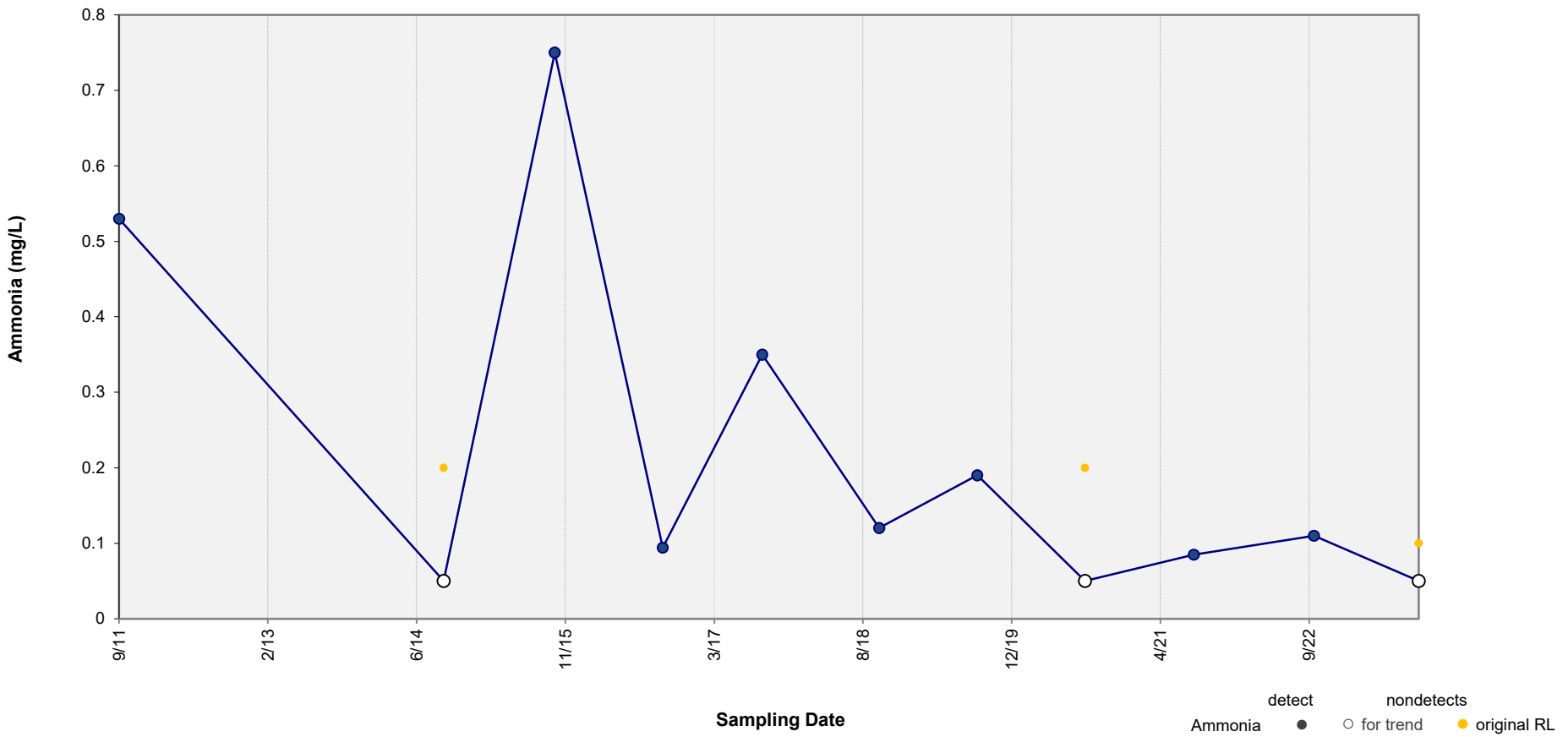
95% Confidence Interval = -3.1E-04 to 2.9E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Phosphorus in Well MW-149WT

RACER Saginaw

Figure A-41



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.067 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -8.3E-05 mg/L Per Day

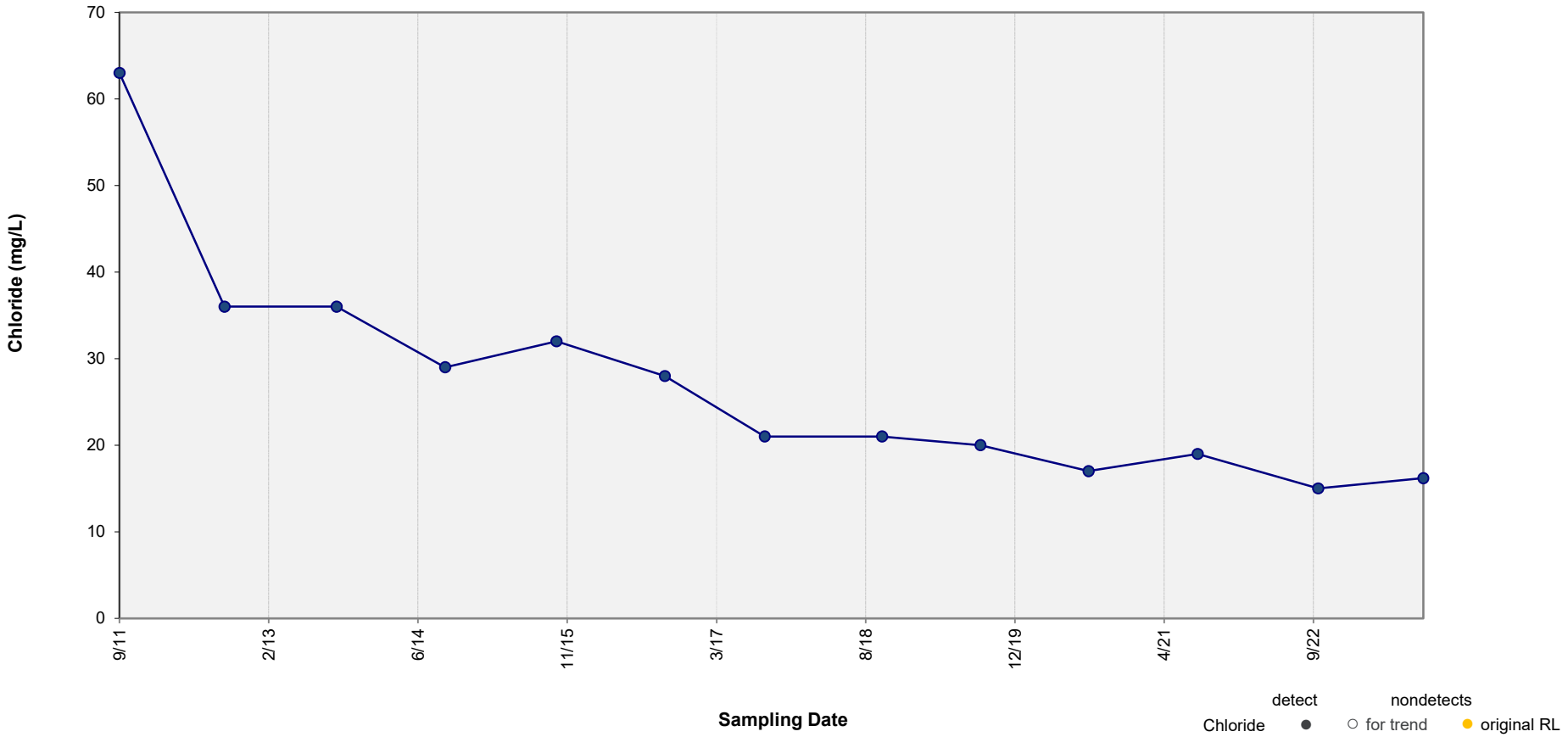
95% Confidence Interval = -1.8E-04 to 6.9E-06 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well MW-183WT

RACER Saginaw

Figure A-42



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -5.9E-03 mg/L Per Day

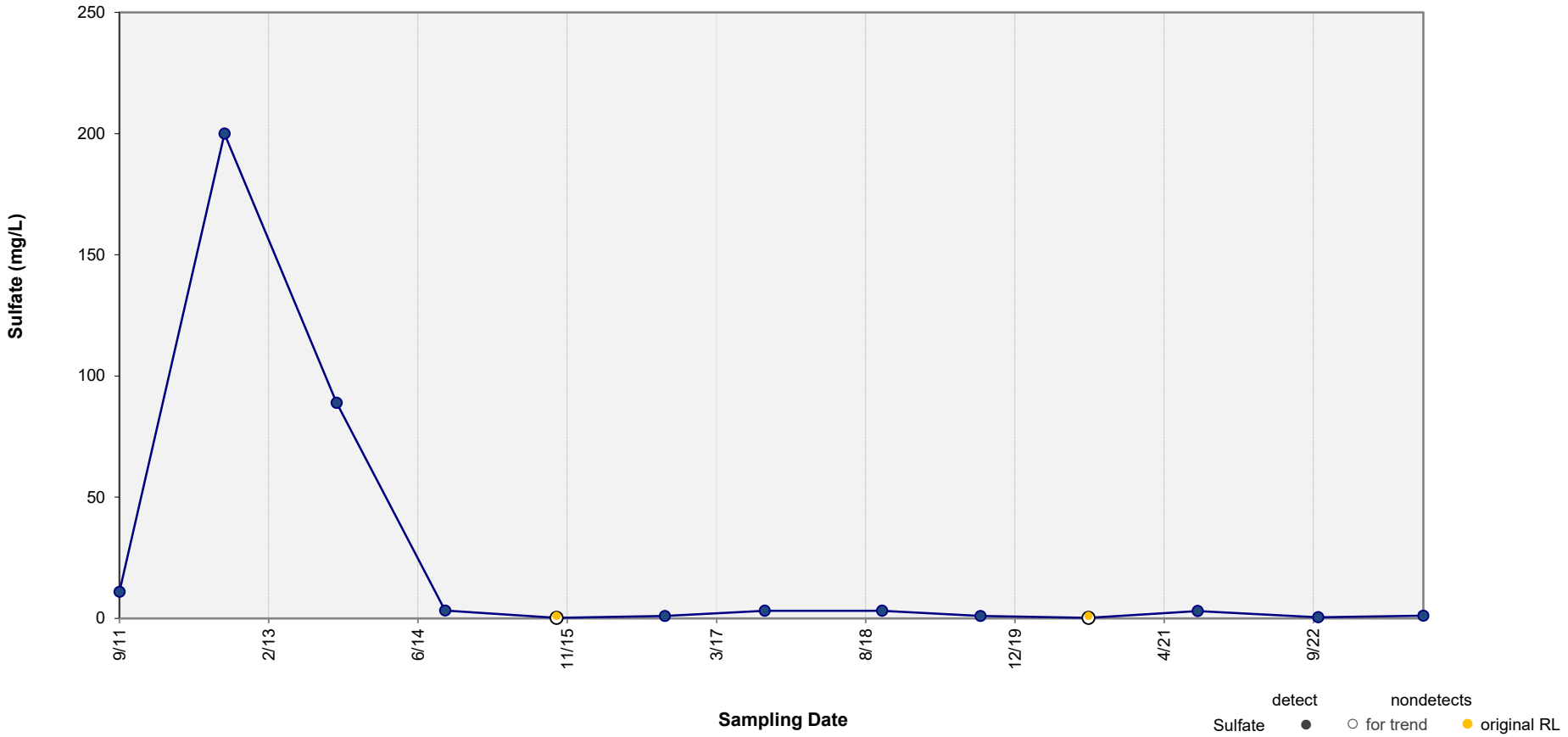
95% Confidence Interval = -8.4E-03 to -4.4E-03 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Chloride in Well MW-183WT

RACER Saginaw

Figure A-43



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.016 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -2.1E-03 mg/L Per Day

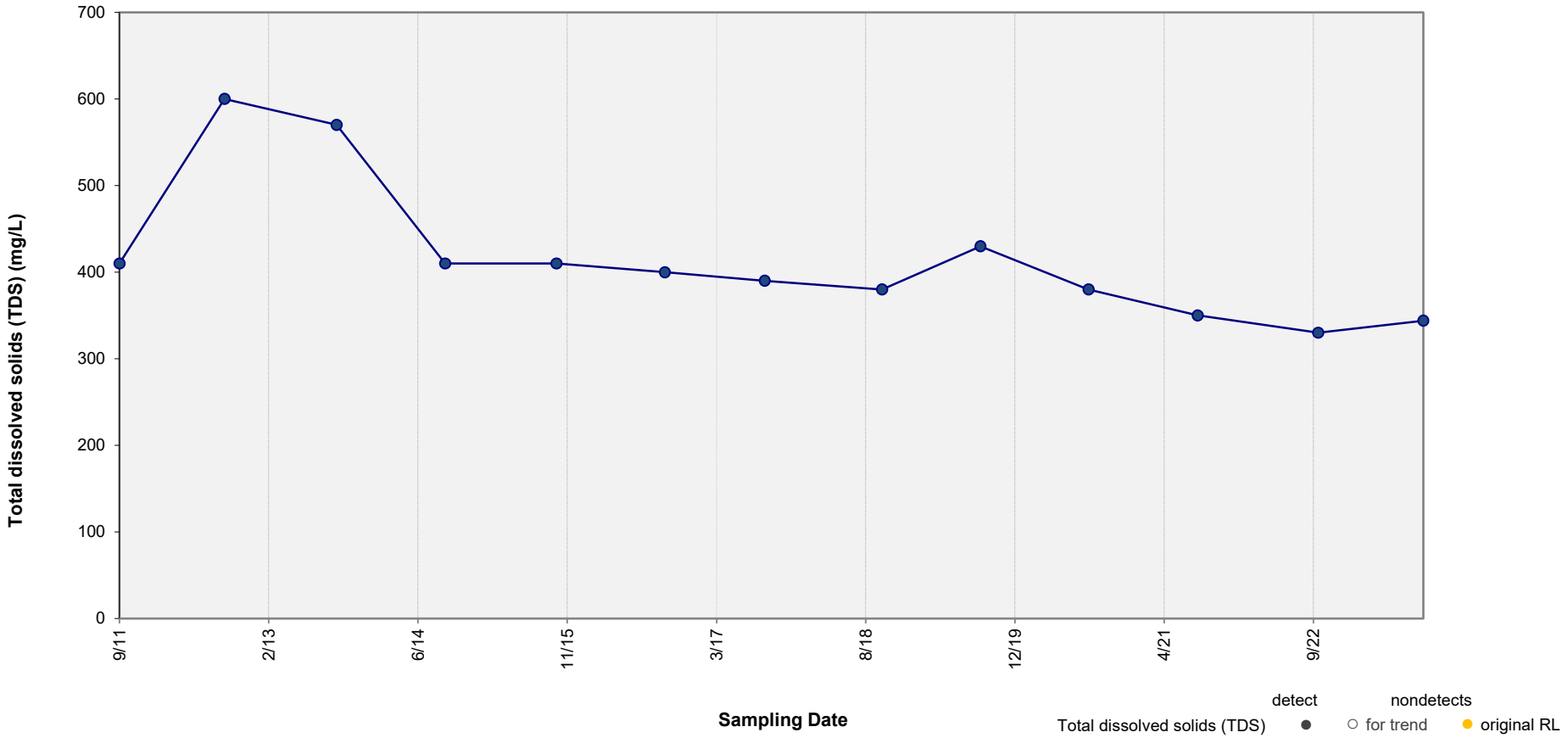
95% Confidence Interval = -7.4E-03 to -6.9E-05 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Sulfate in Well MW-183WT

RACER Saginaw

Figure A-44



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -2.8E-02 mg/L Per Day

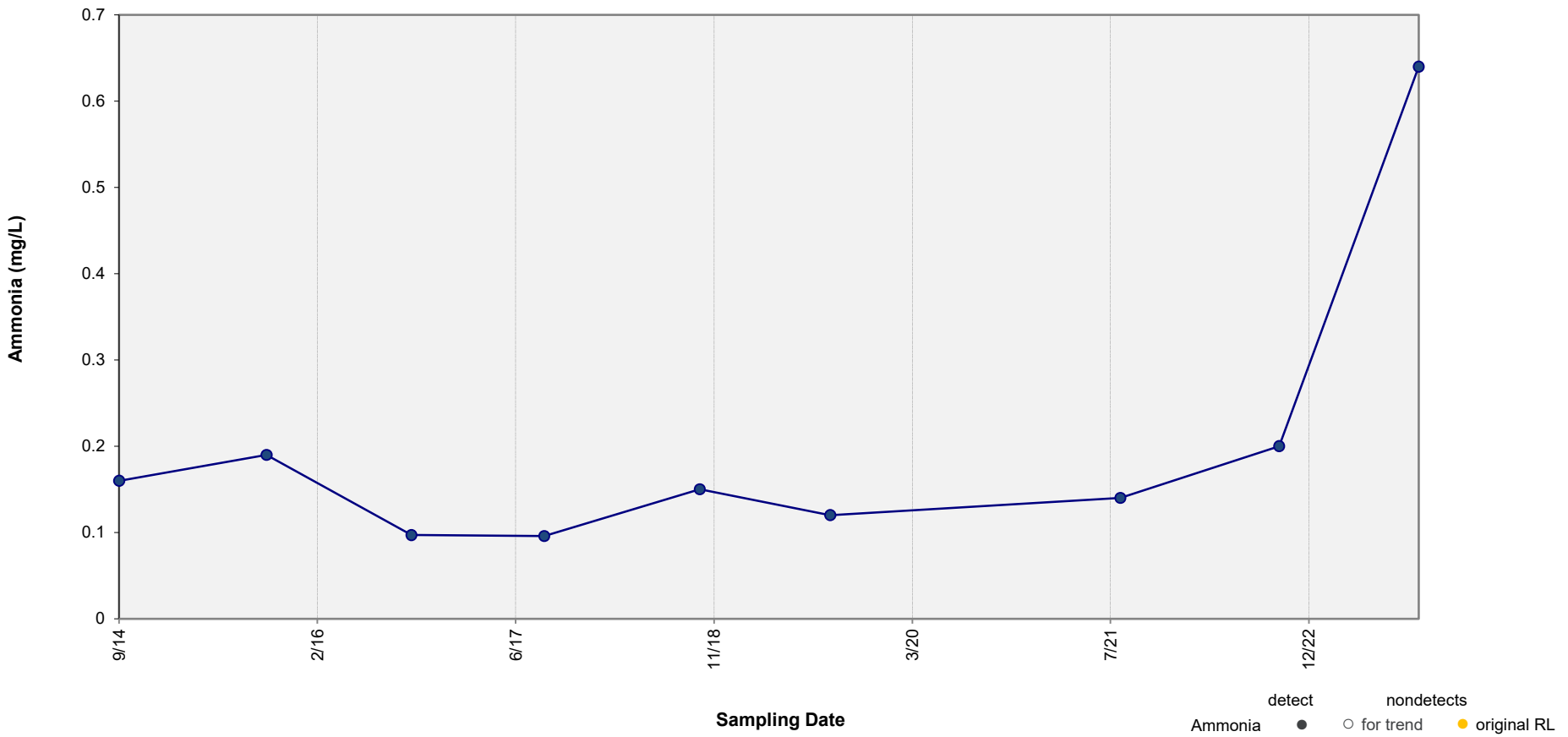
95% Confidence Interval = -6.5E-02 to -1.7E-02 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Total dissolved solids (TDS) in Well MW-183WT

RACER Saginaw

Figure A-45



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.179 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 2.9E-05 mg/L Per Day

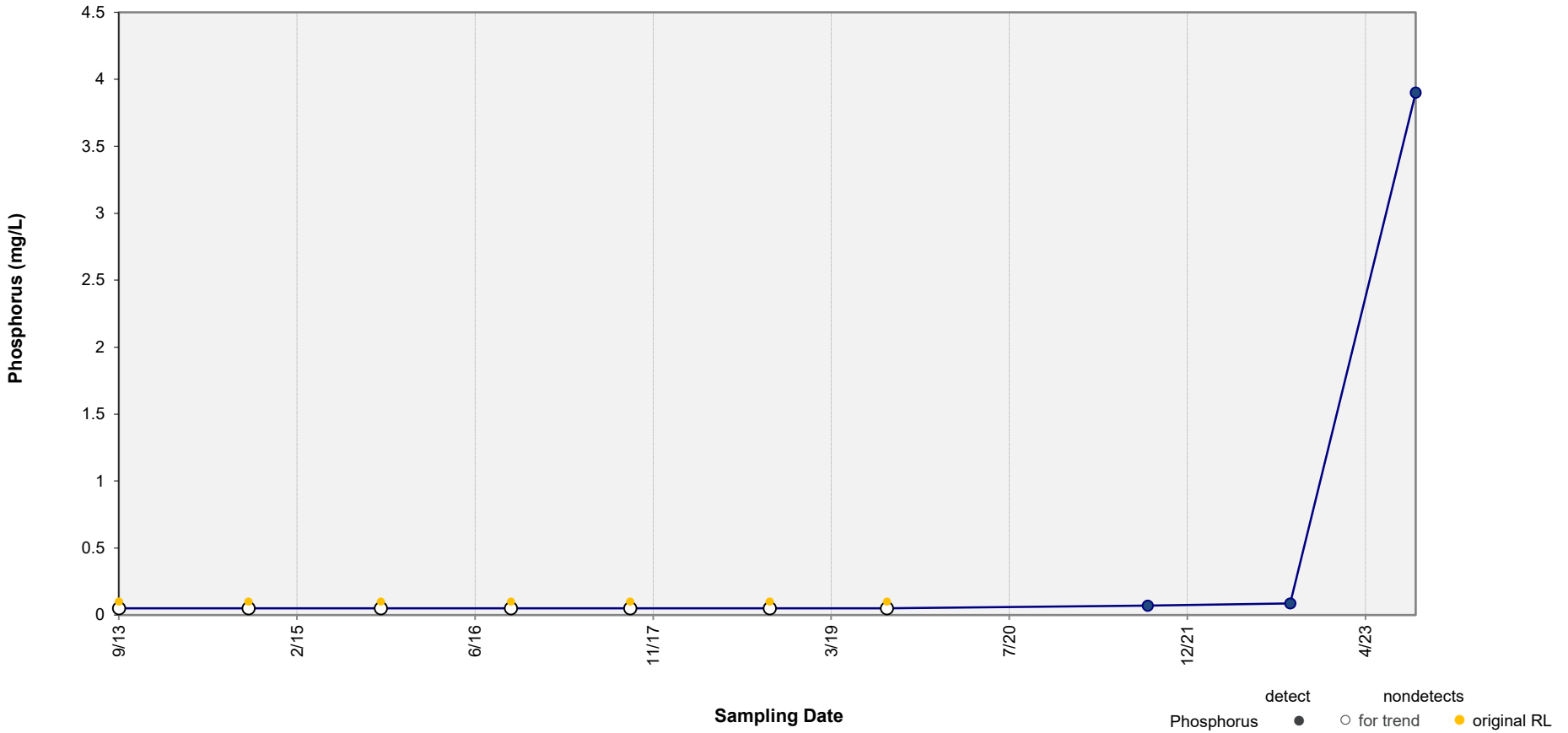
95% Confidence Interval = -2.3E-05 to 1.4E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well MW-185WT

RACER Saginaw

Figure A-46



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.019 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 7.9E-06 mg/L Per Day

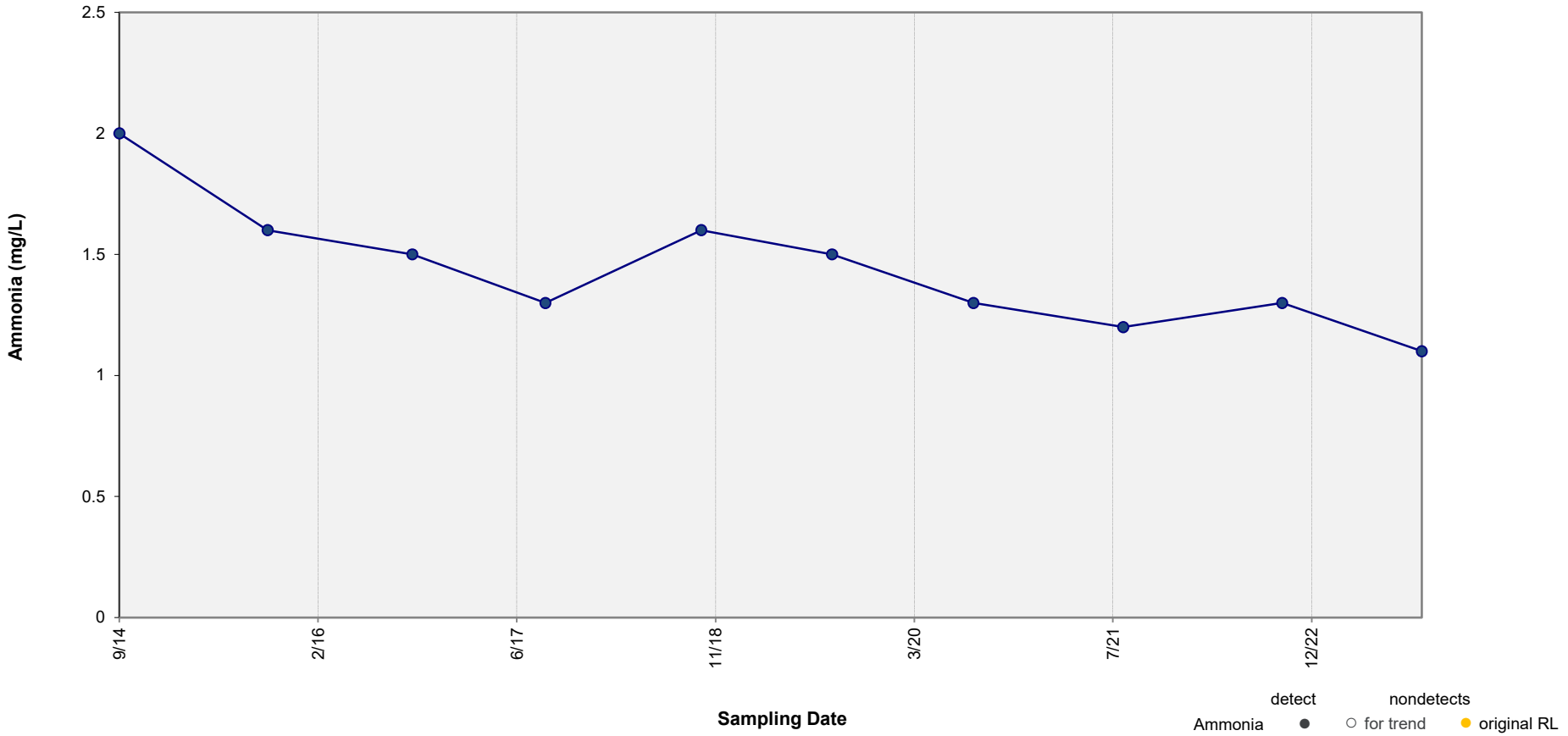
95% Confidence Interval = 0.0E+00 to 1.9E-05 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Phosphorus in Well MW-185WT

RACER Saginaw

Figure A-47



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.002 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -1.9E-04 mg/L Per Day

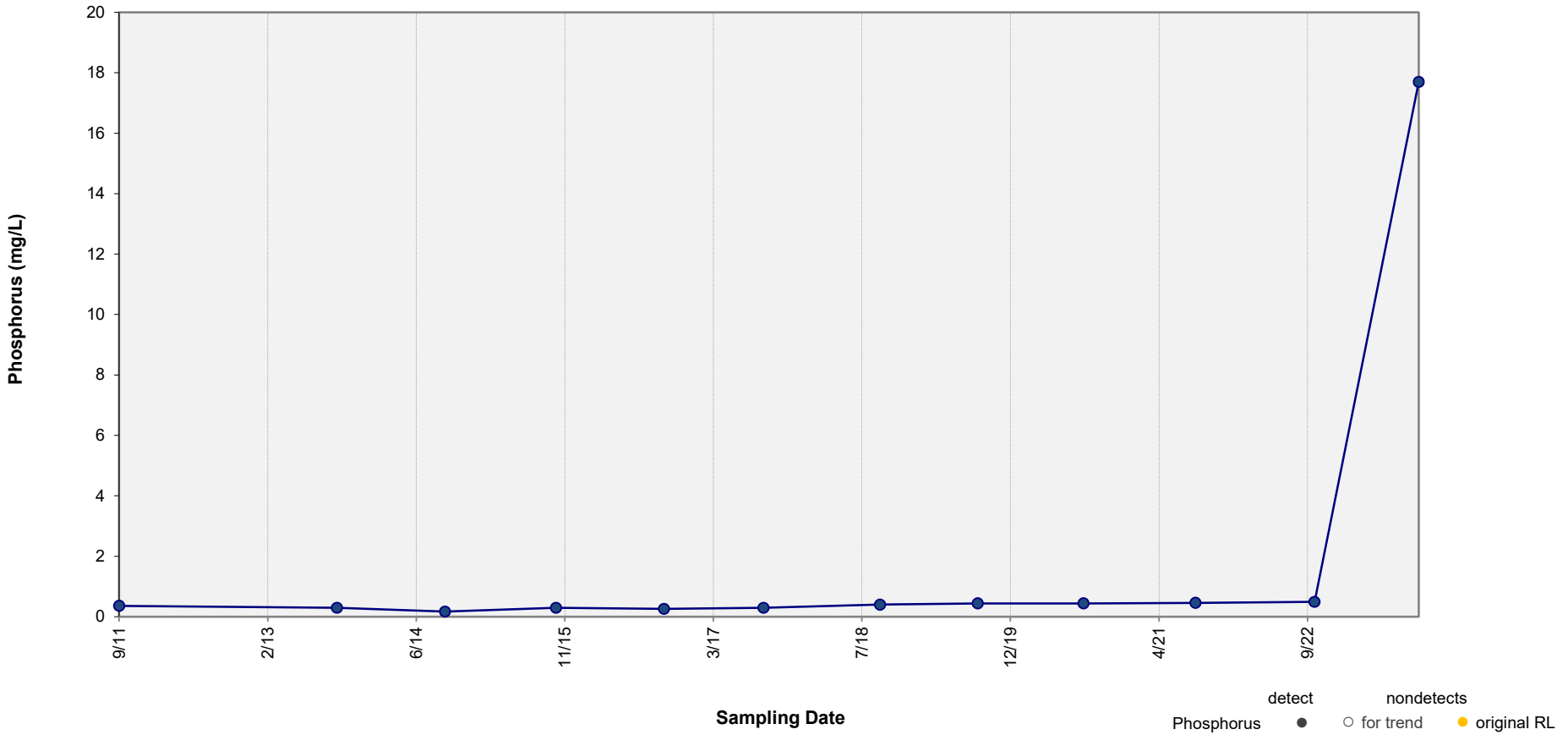
95% Confidence Interval = -3.2E-04 to -9.1E-05 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well MW-186WT

RACER Saginaw

Figure A-48



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 8.7E-05 mg/L Per Day

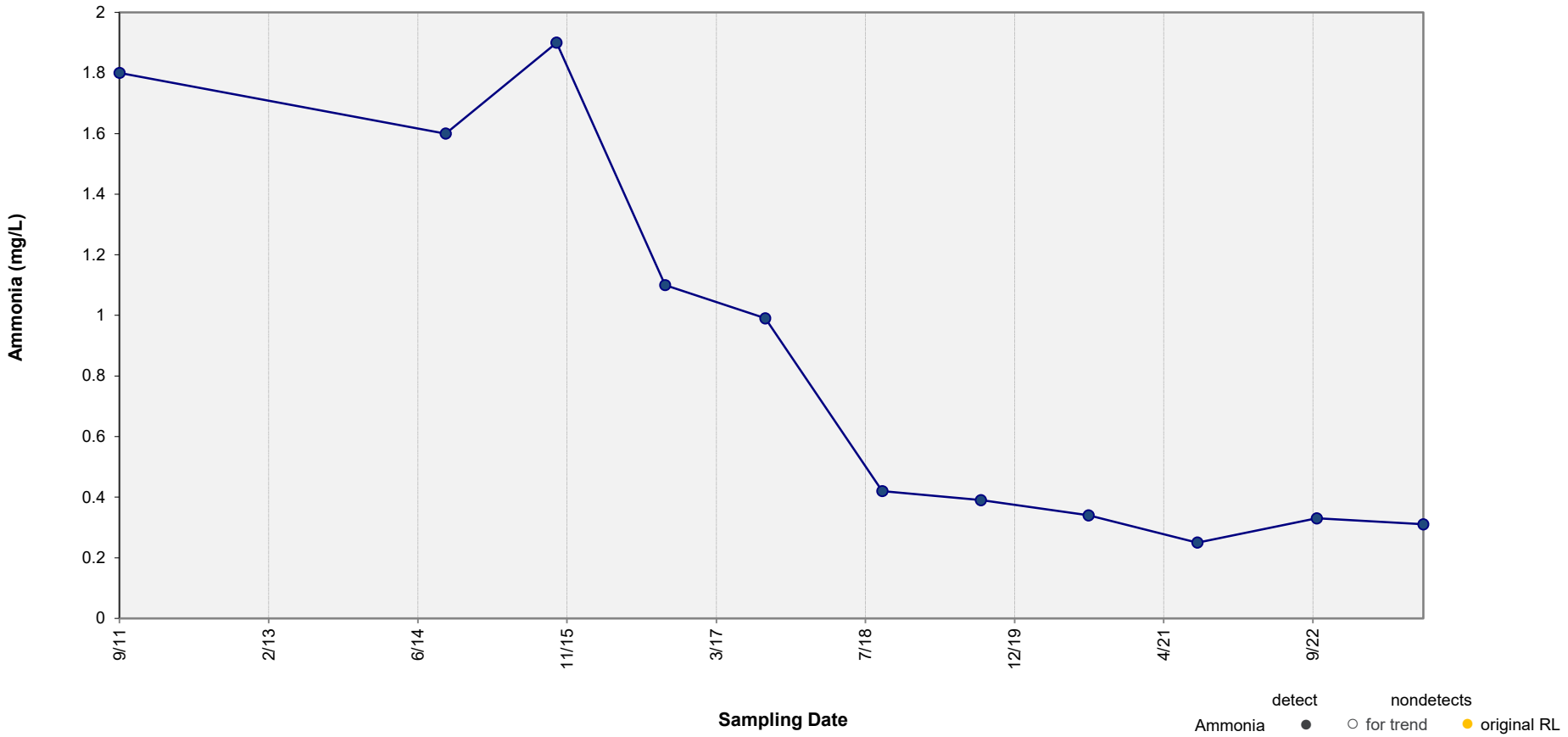
95% Confidence Interval = 4.3E-05 to 1.3E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Phosphorus in Well MW-186WT

RACER Saginaw

Figure A-49



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -3.9E-04 mg/L Per Day

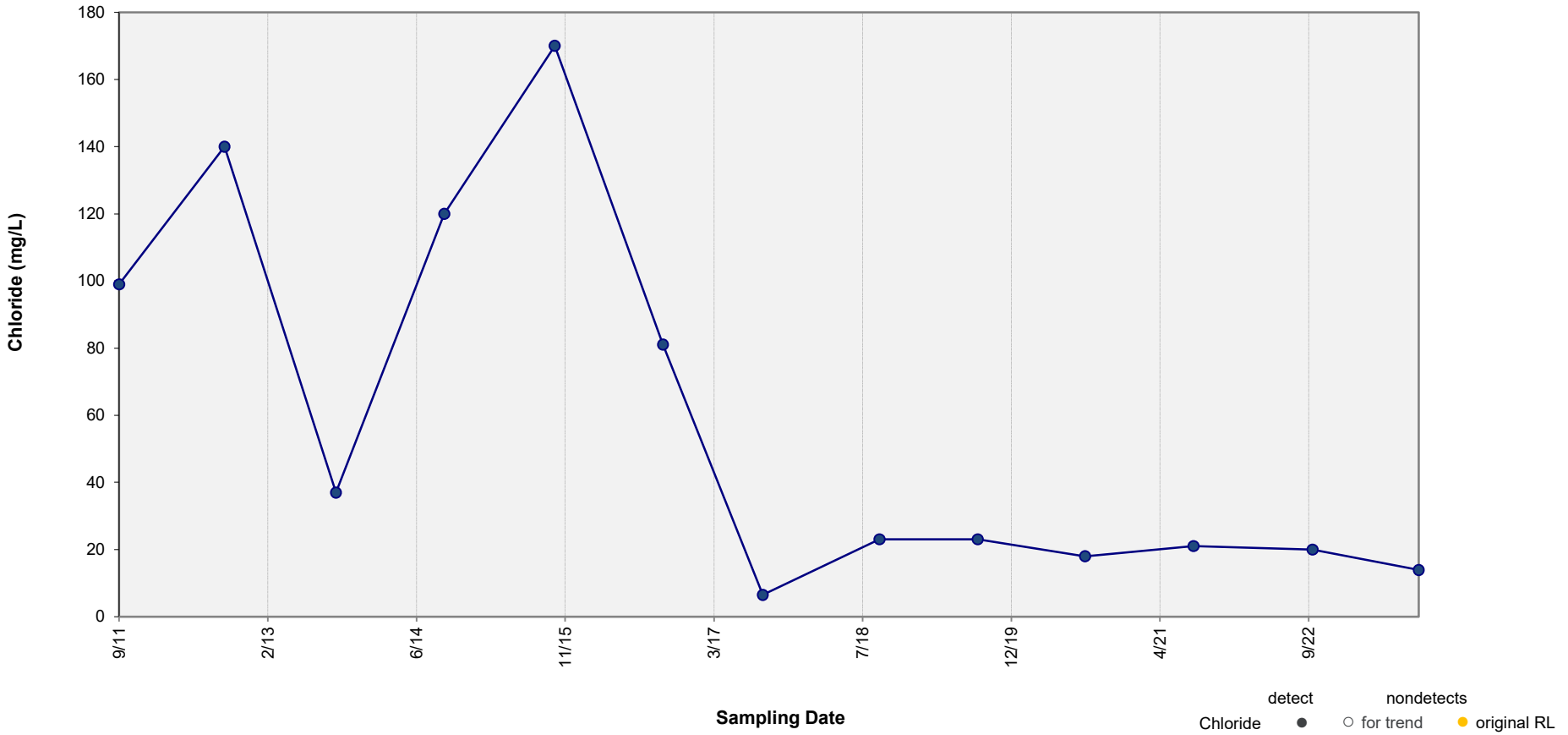
95% Confidence Interval = -6.0E-04 to -1.8E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well X-4CAUGR

RACER Saginaw

Figure A-50



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.004 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -2.1E-02 mg/L Per Day

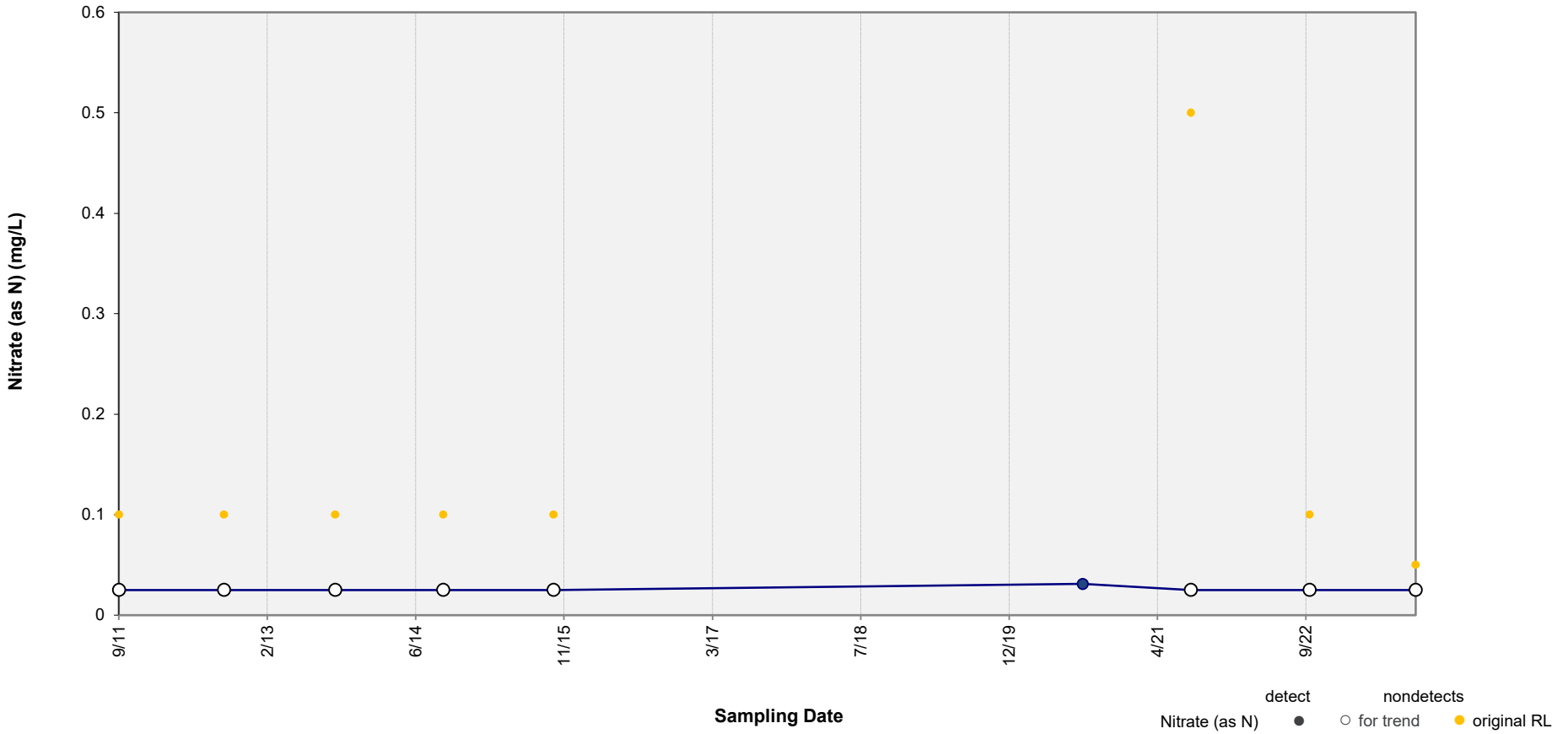
95% Confidence Interval = -4.3E-02 to -5.0E-03 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Chloride in Well X-4CAUGR

RACER Saginaw

Figure A-51



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.460 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

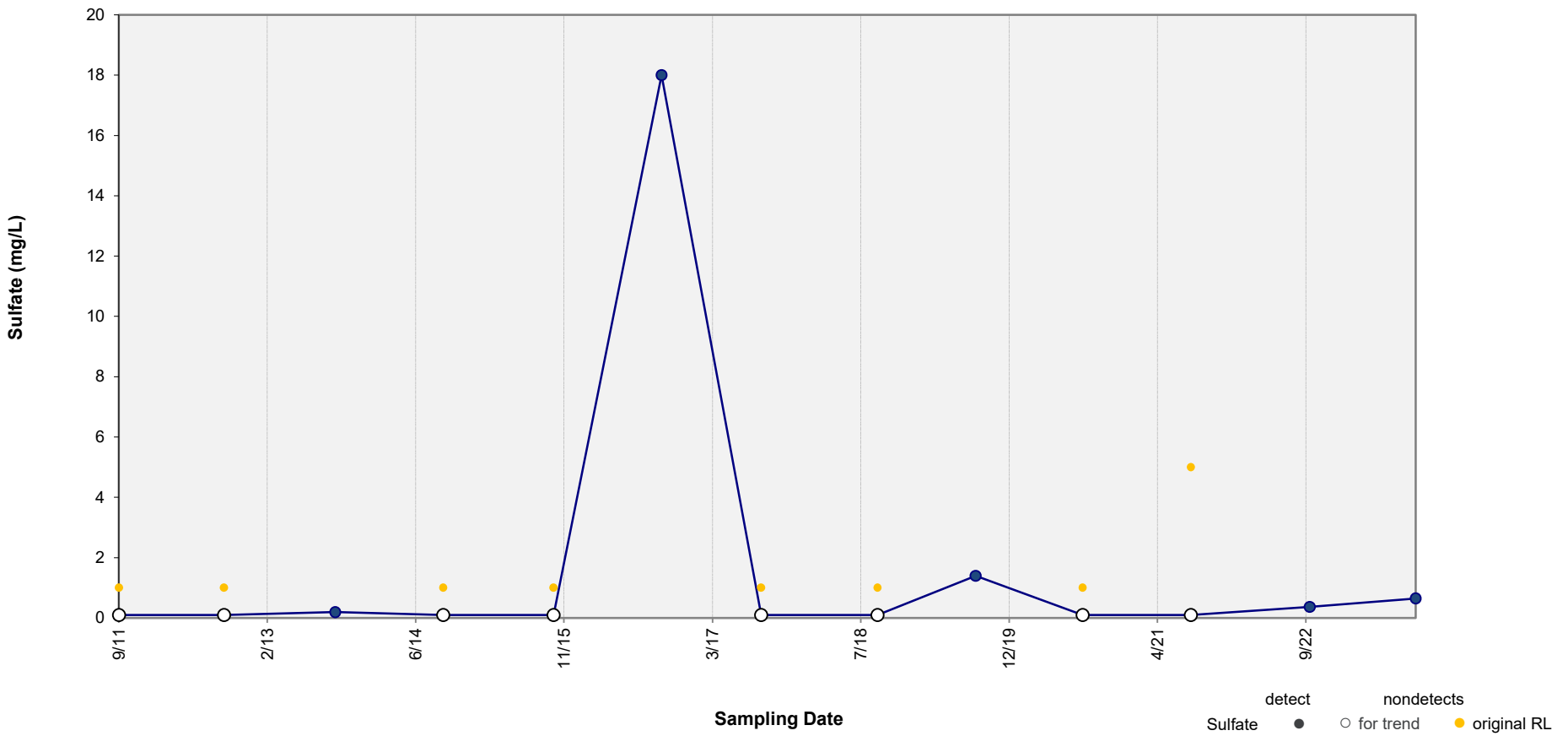
95% Confidence Interval = 0.0E+00 to 0.0E+00 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Nitrate (as N) in Well X-4CAUGR

RACER Saginaw

Figure A-52



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.146 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

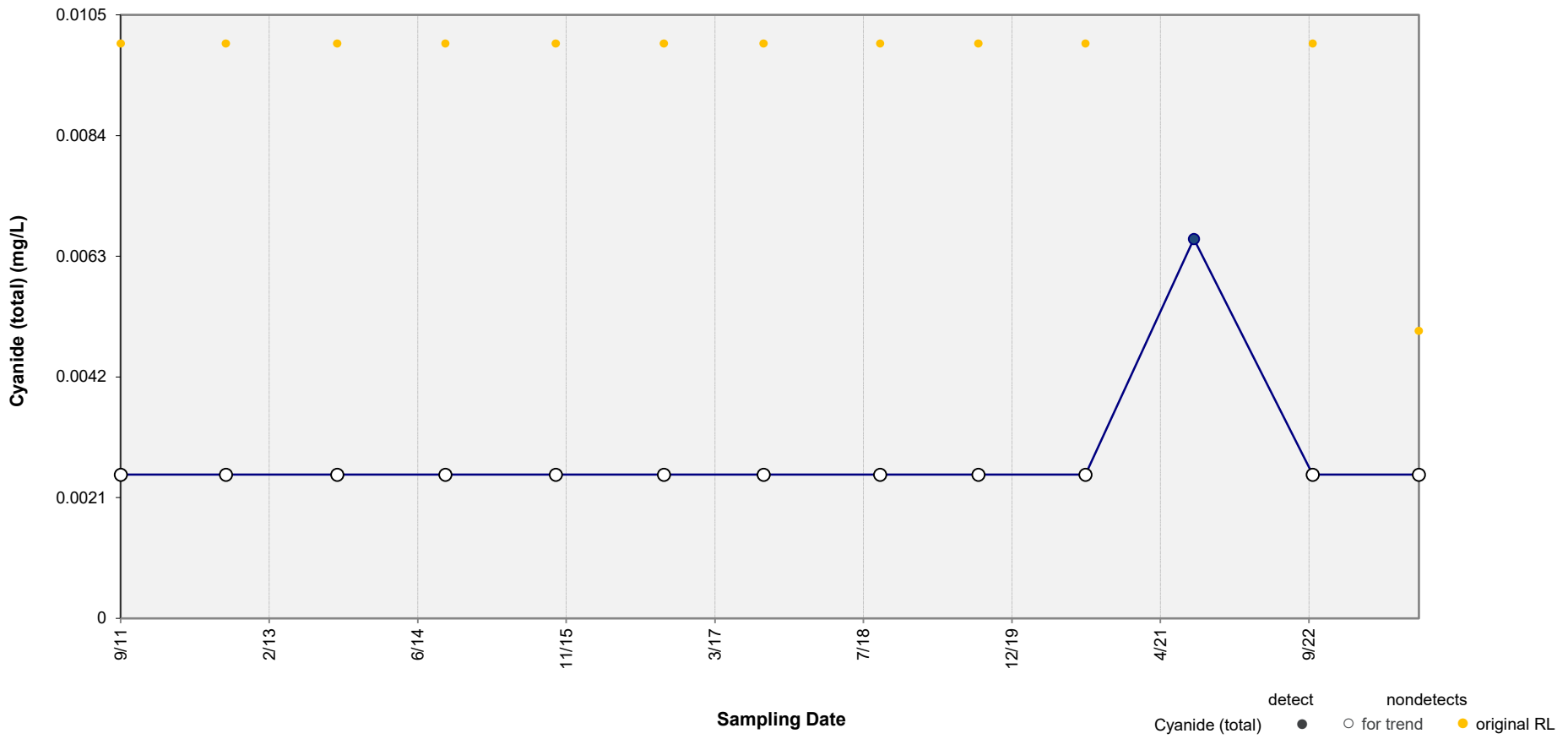
95% Confidence Interval = 0.0E+00 to 1.3E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Sulfate in Well X-4CAUGR

RACER Saginaw

Figure A-53



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.175 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

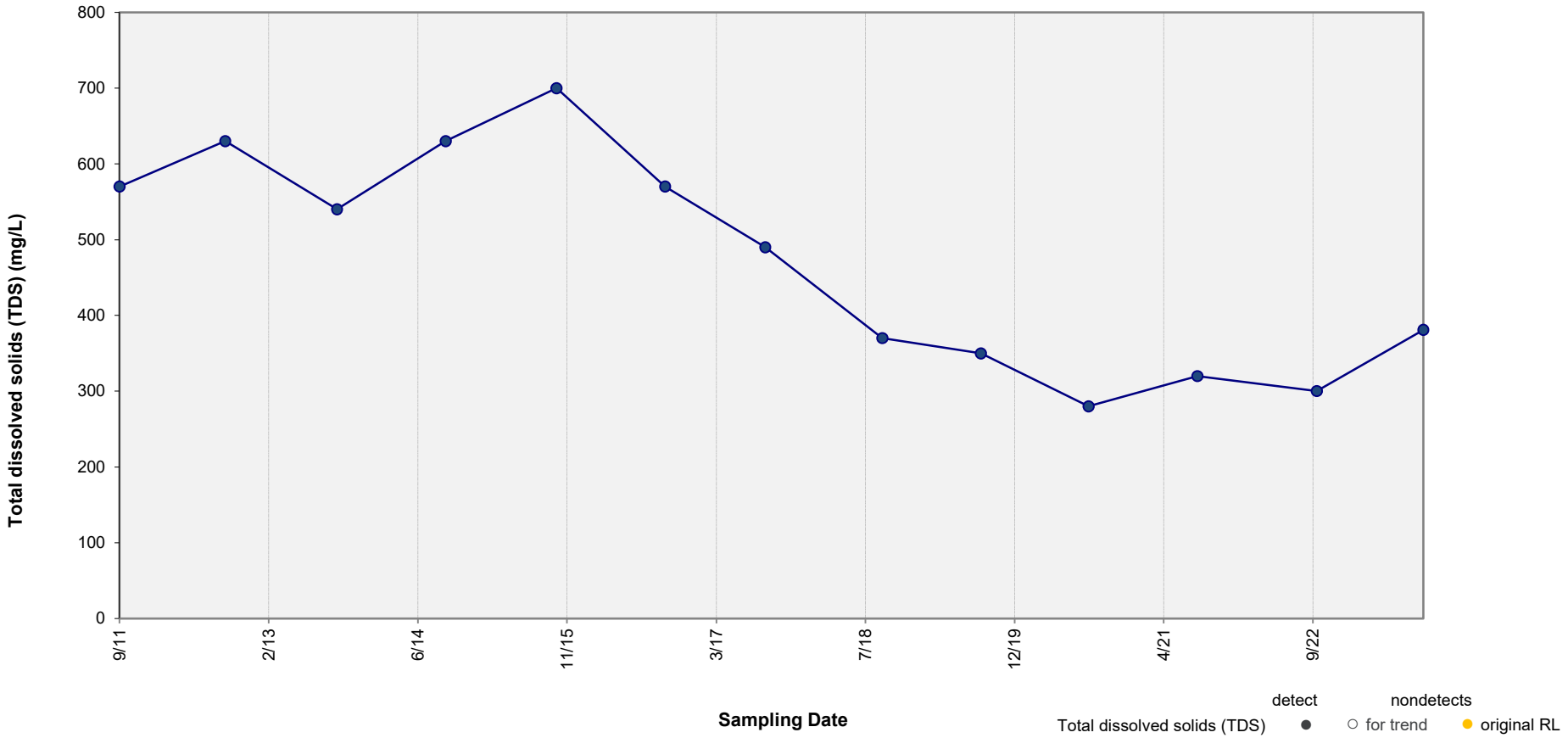
95% Confidence Interval = 0.0E+00 to 0.0E+00 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Cyanide (total) in Well X-4CAUGR

RACER Saginaw

Figure A-54



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.003 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -7.8E-02 mg/L Per Day

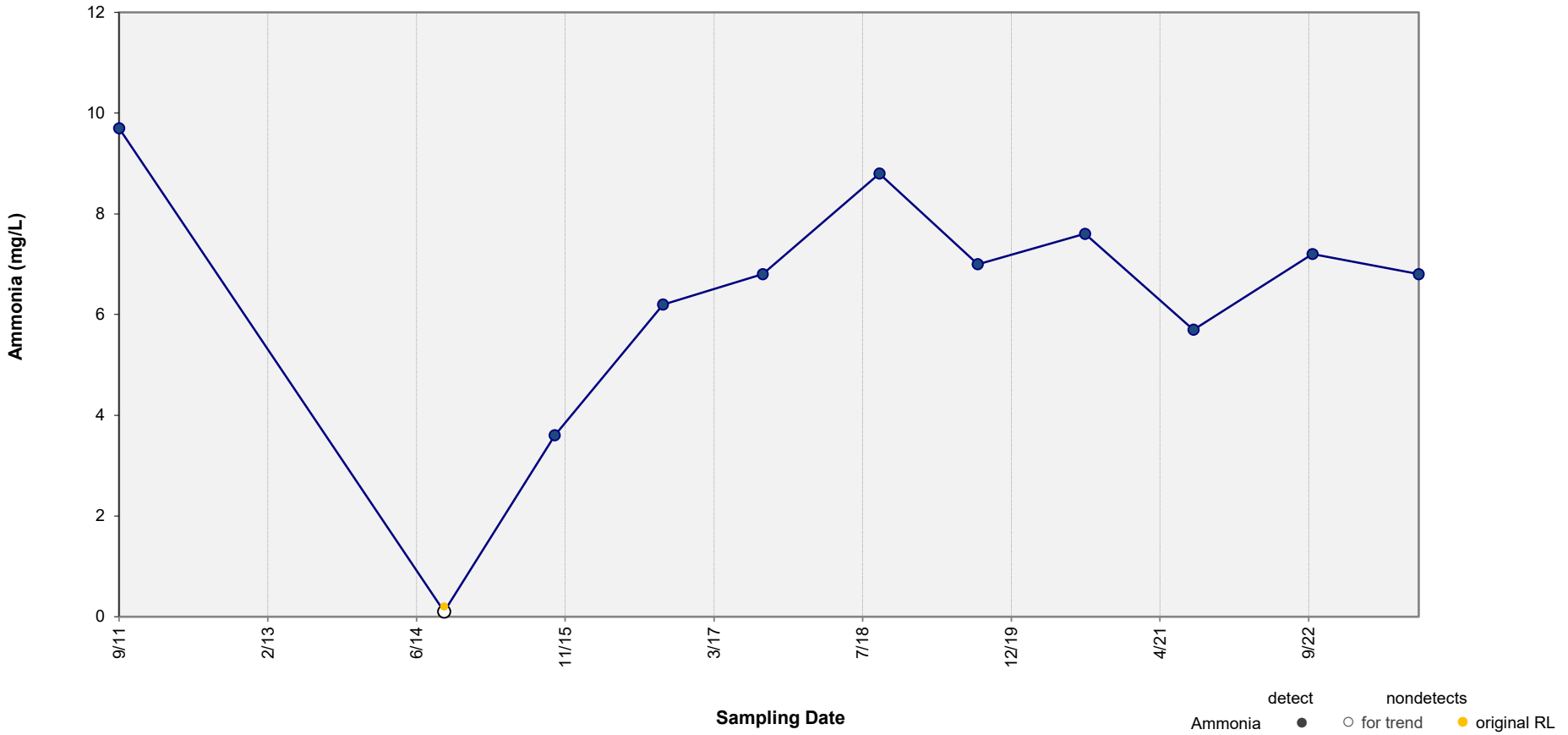
95% Confidence Interval = -1.2E-01 to -4.4E-02 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Total dissolved solids (TDS) in Well X-4CAUGR

RACER Saginaw

Figure A-55



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.292 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 2.8E-04 mg/L Per Day

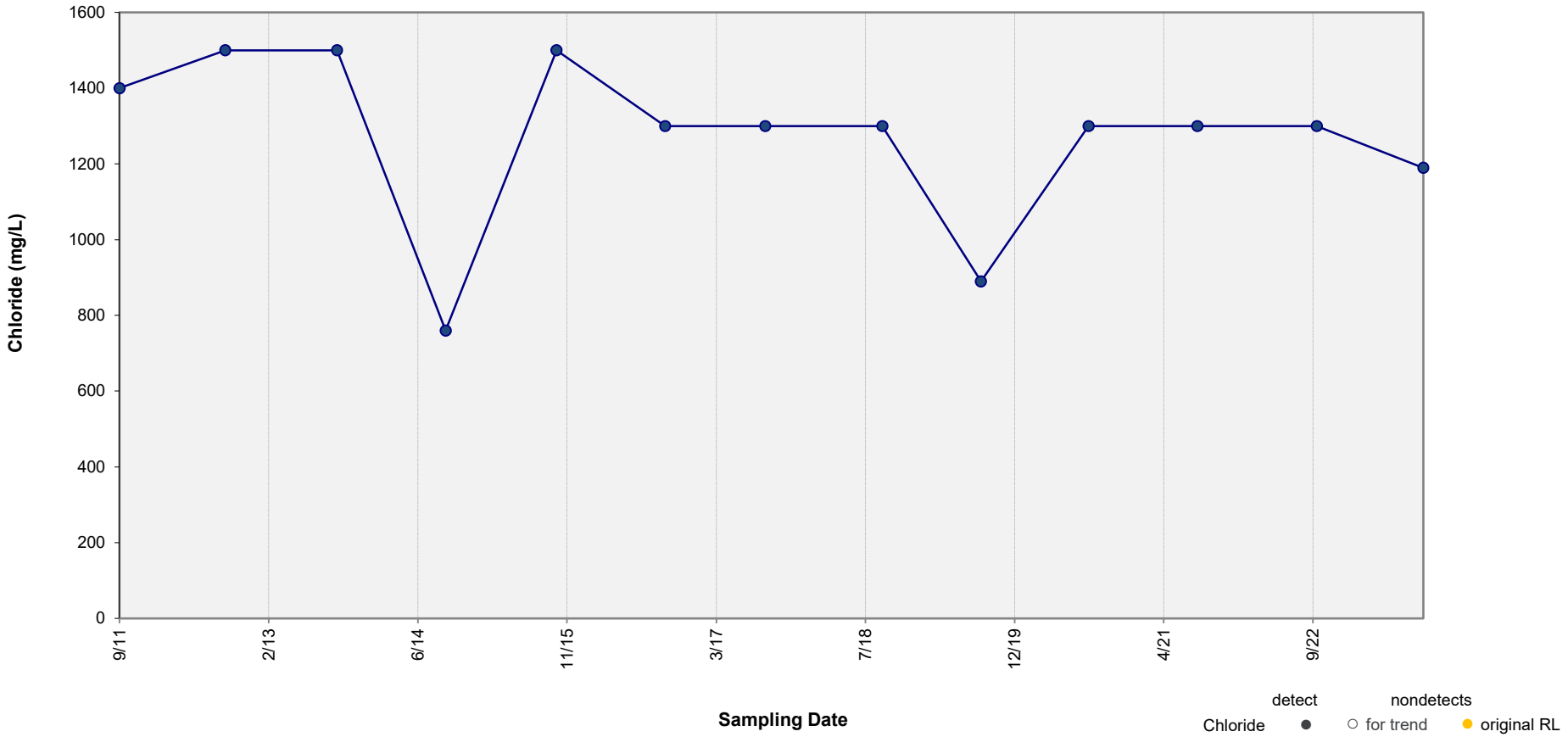
95% Confidence Interval = -7.7E-04 to 2.2E-03 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well X-4D

RACER Saginaw

Figure A-56



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.040 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = -4.5E-02 mg/L Per Day

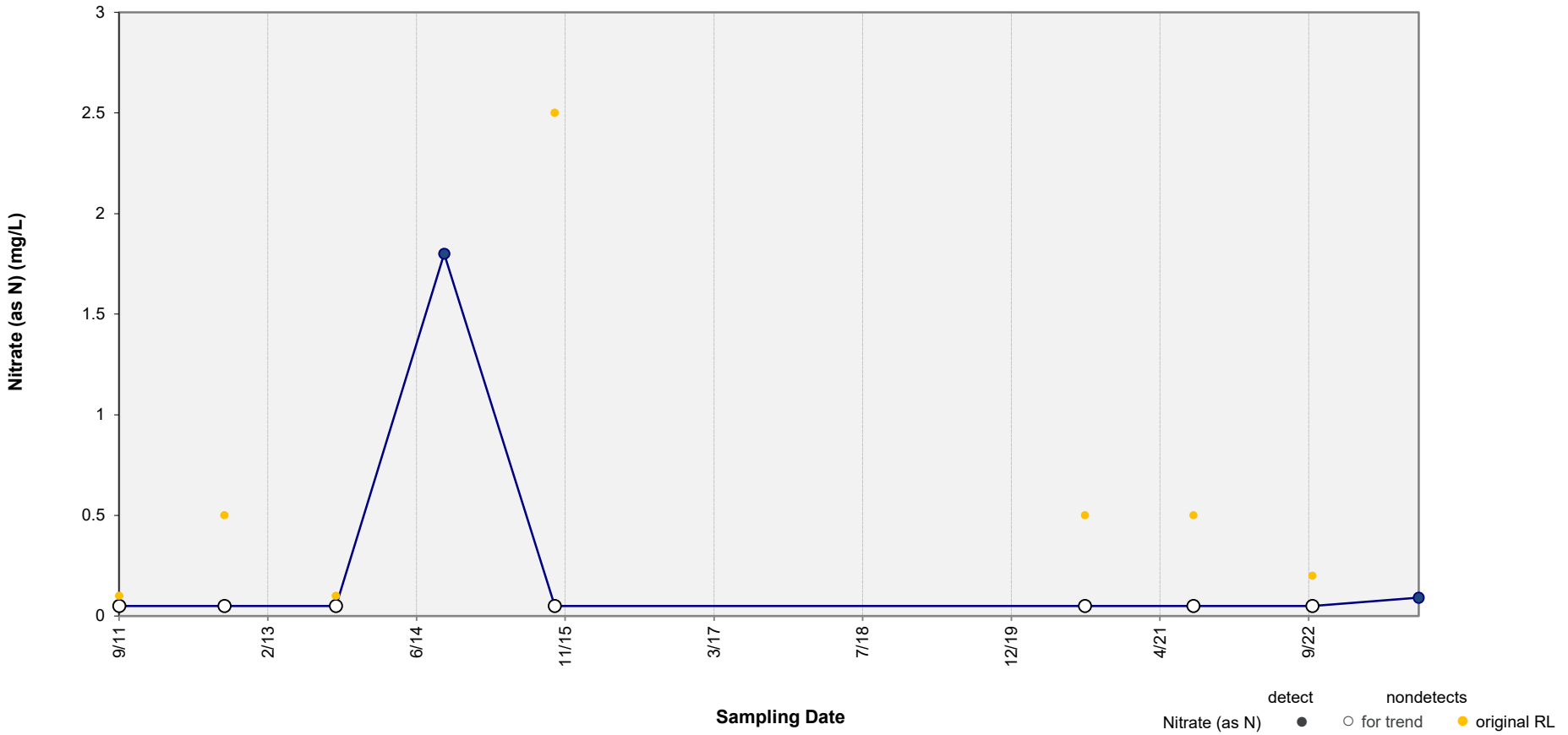
95% Confidence Interval = -9.3E-02 to 0.0E+00 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Chloride in Well X-4D

RACER Saginaw

Figure A-57



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.344 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

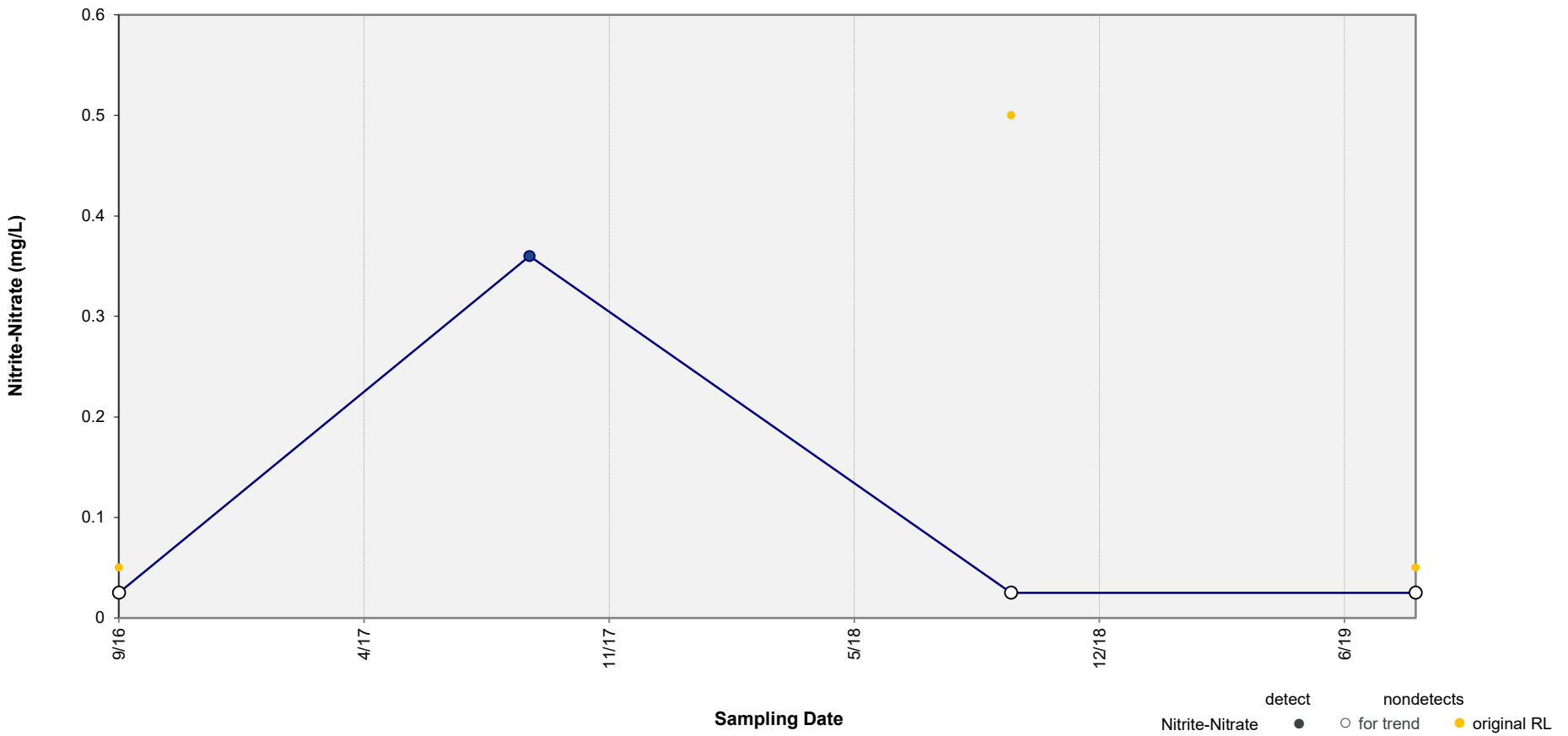
95% Confidence Interval = 0.0E+00 to 0.0E+00 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Nitrate (as N) in Well X-4D

RACER Saginaw

Figure A-58



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA mg/L Per Day

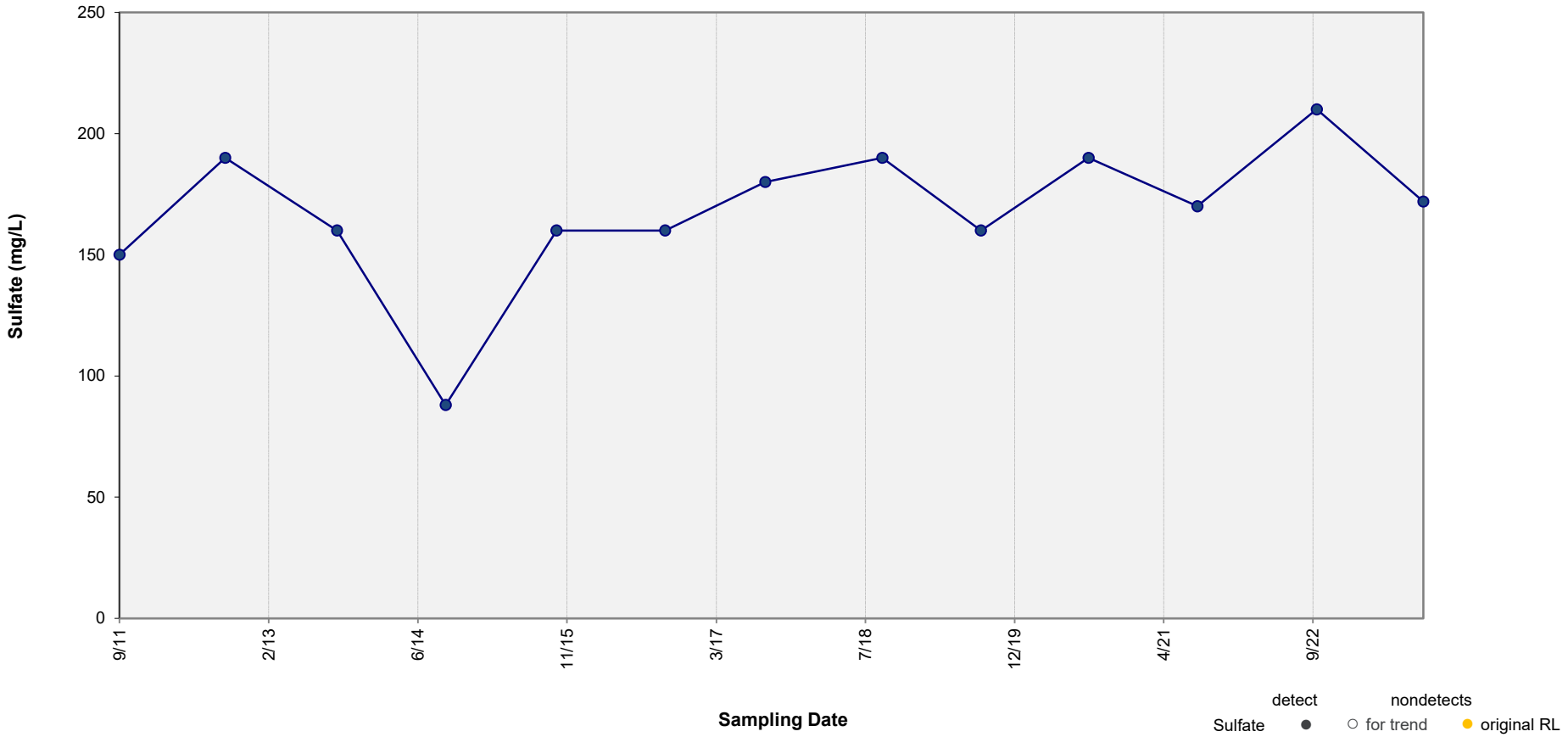
95% Confidence Interval = NA to NA mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Nitrite-Nitrate in Well X-4D

RACER Saginaw

Figure A-59



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.030 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 5.6E-03 mg/L Per Day

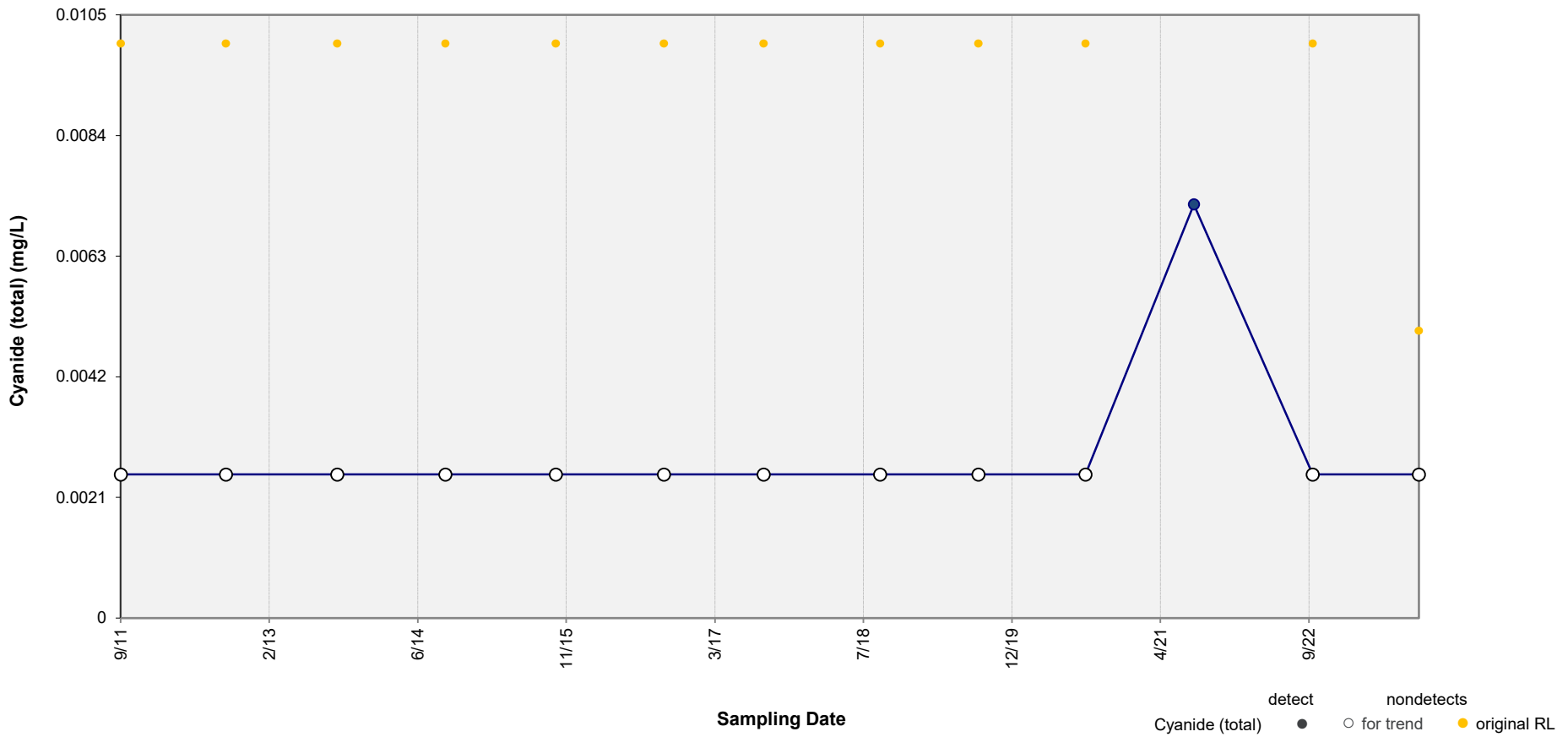
95% Confidence Interval = 0.0E+00 to 1.6E-02 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Sulfate in Well X-4D

RACER Saginaw

Figure A-60



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.175 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

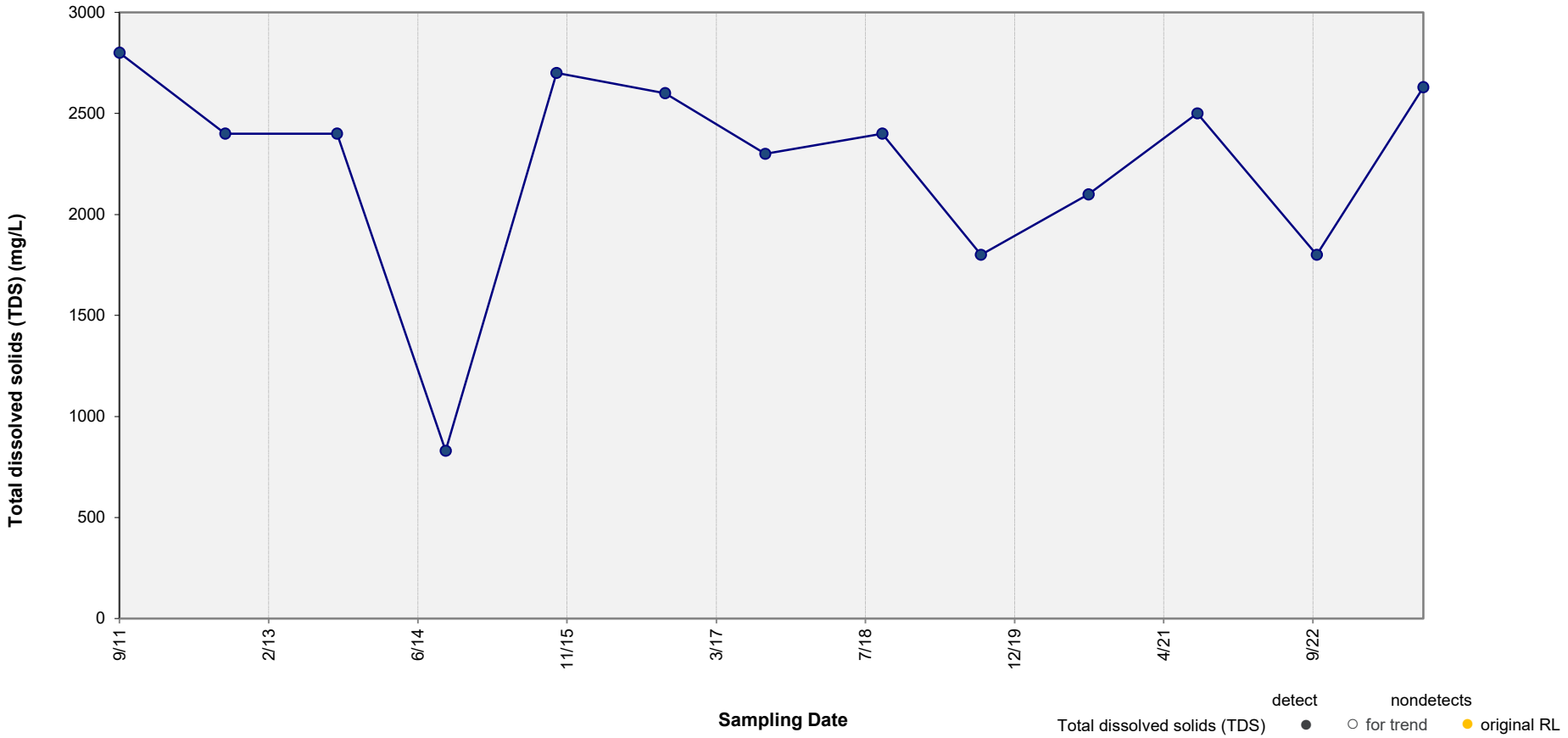
95% Confidence Interval = 0.0E+00 to 0.0E+00 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Cyanide (total) in Well X-4D

RACER Saginaw

Figure A-61



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.212 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -6.9E-02 mg/L Per Day

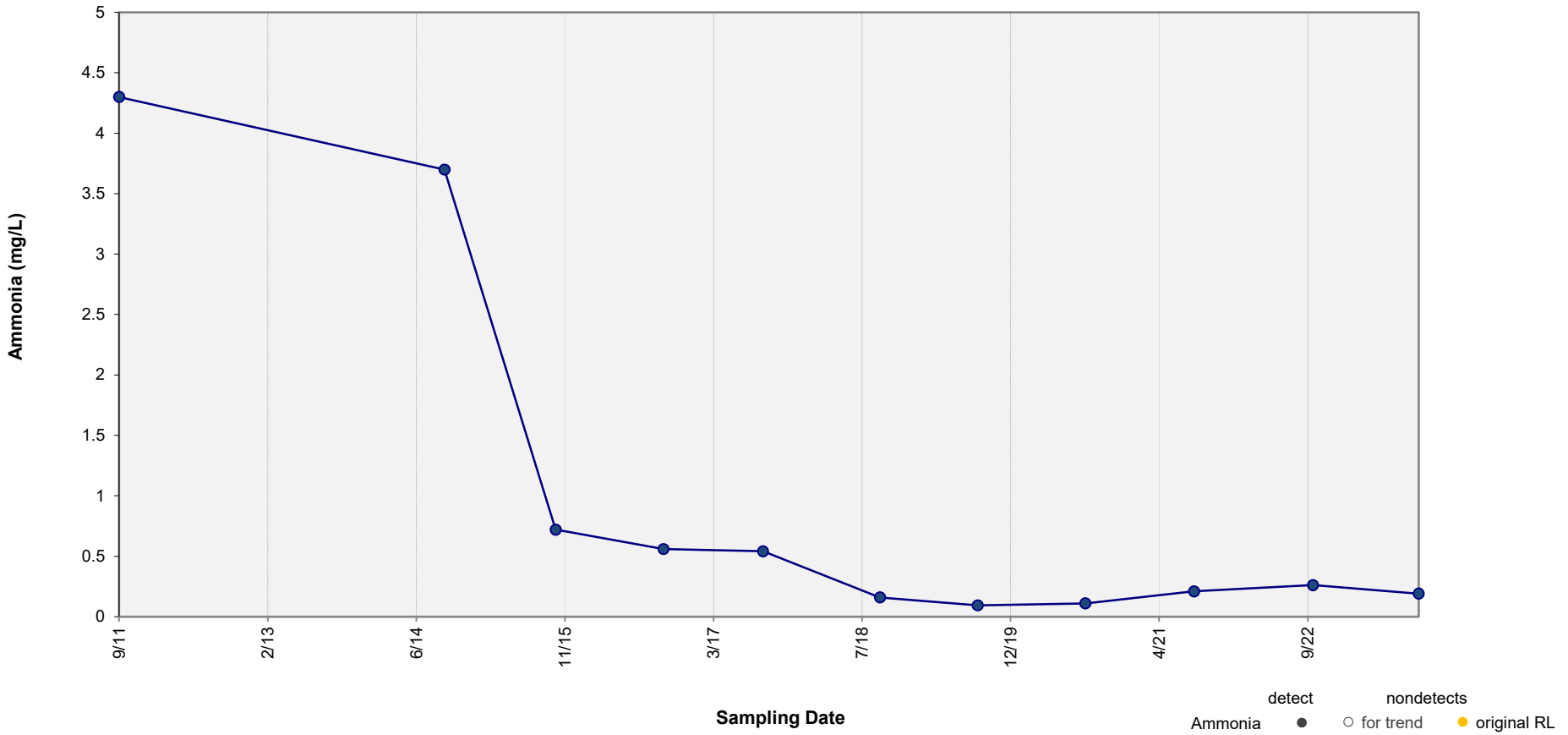
95% Confidence Interval = -2.7E-01 to 1.2E-01 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Total dissolved solids (TDS) in Well X-4D

RACER Saginaw

Figure A-62



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.006 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -3.4E-04 mg/L Per Day

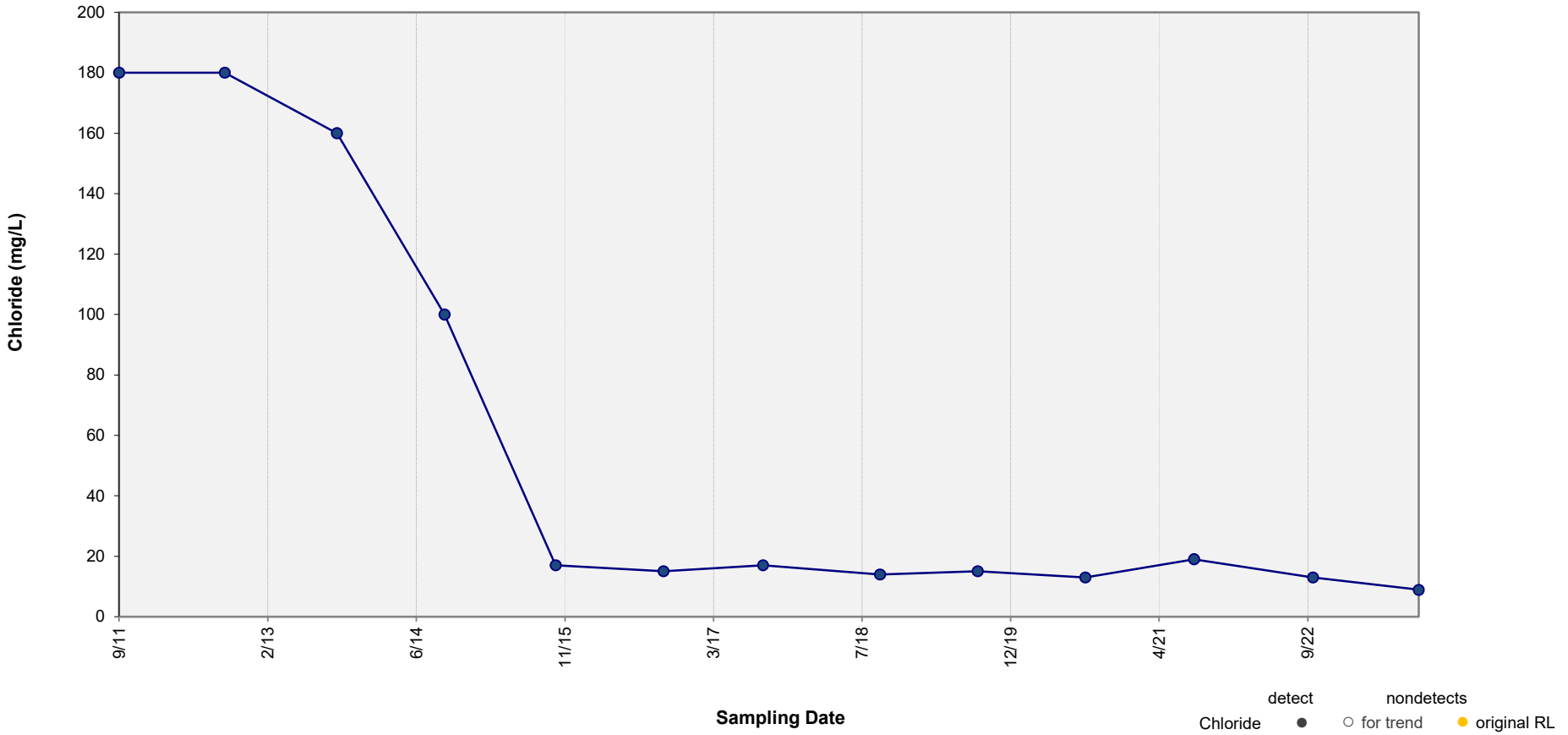
95% Confidence Interval = -1.1E-03 to -1.4E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well X-9AR

RACER Saginaw

Figure A-63



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -2.9E-02 mg/L Per Day

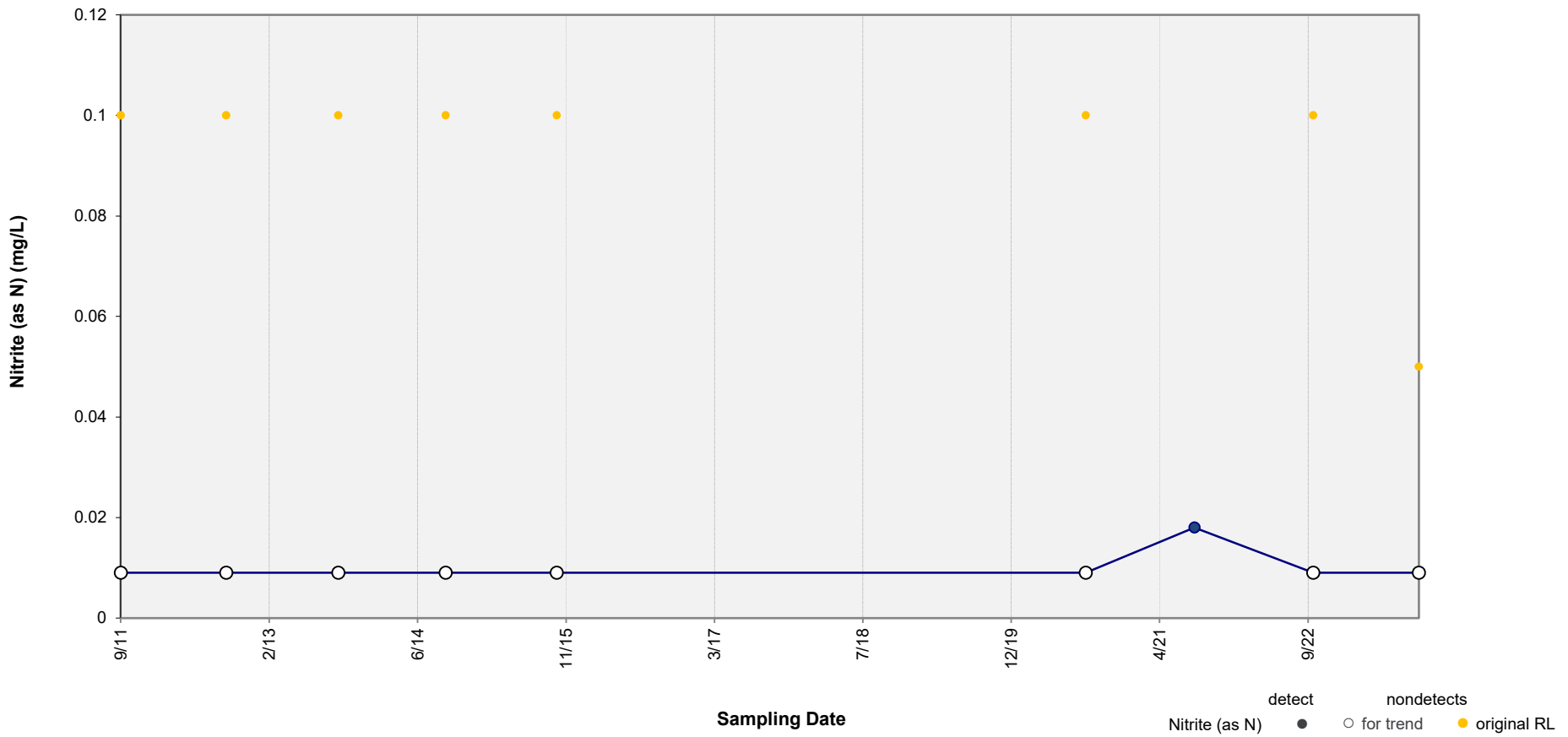
95% Confidence Interval = -5.8E-02 to -2.8E-03 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Chloride in Well X-9AR

RACER Saginaw

Figure A-64



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.381 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

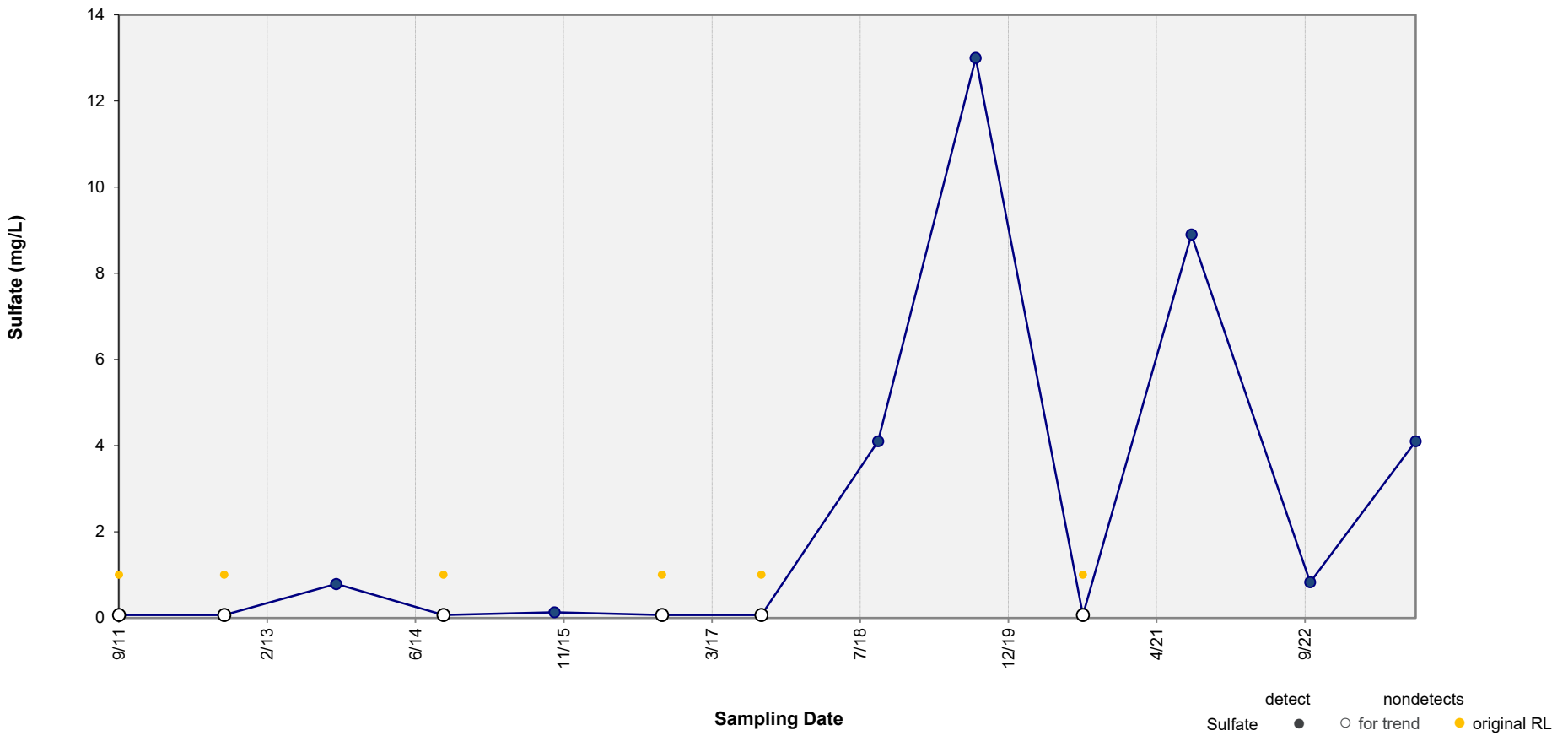
95% Confidence Interval = 0.0E+00 to 0.0E+00 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Nitrite (as N) in Well X-9AR

RACER Saginaw

Figure A-65



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.030 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 2.7E-04 mg/L Per Day

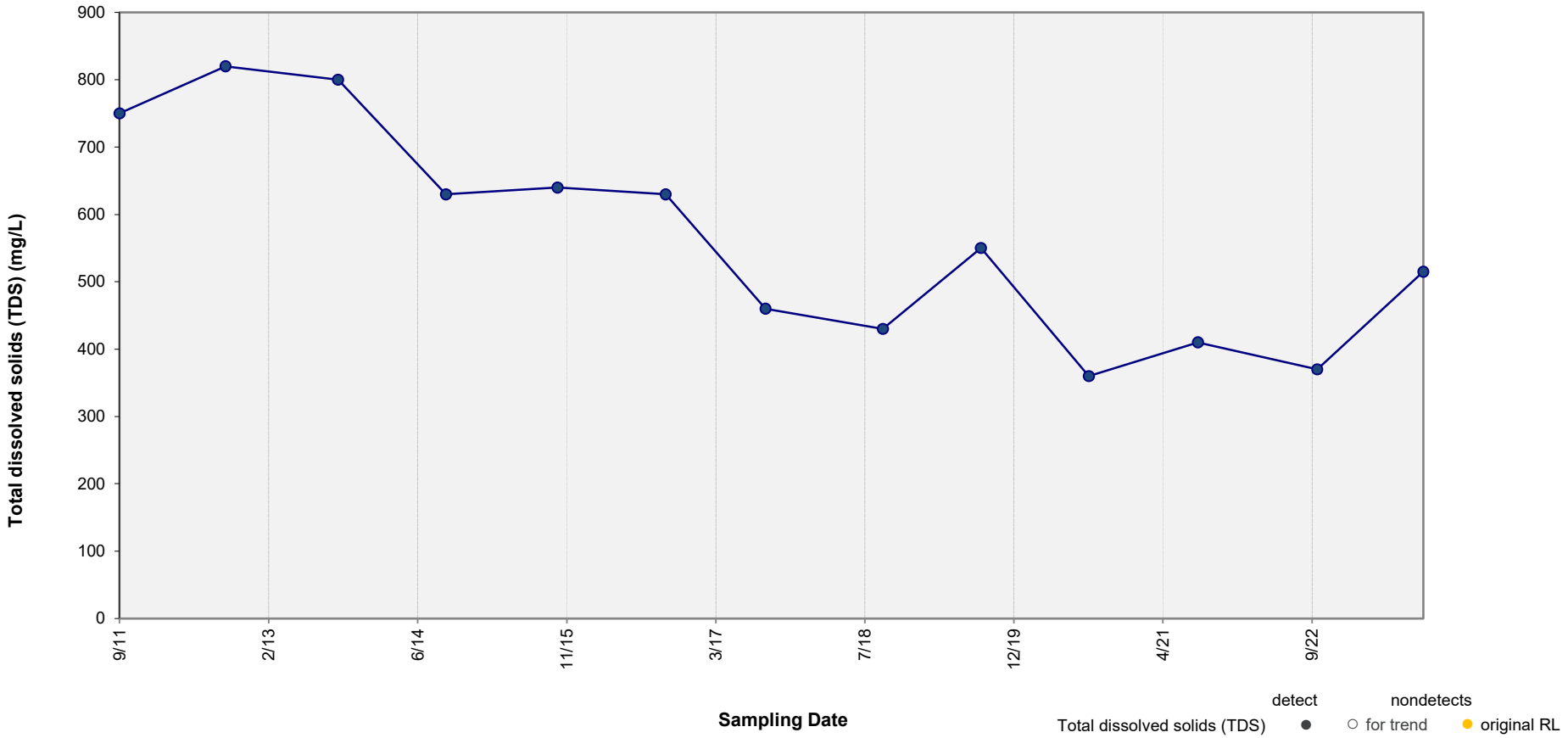
95% Confidence Interval = 0.0E+00 to 1.8E-03 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Sulfate in Well X-9AR

RACER Saginaw

Figure A-66



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -1.0E-01 mg/L Per Day

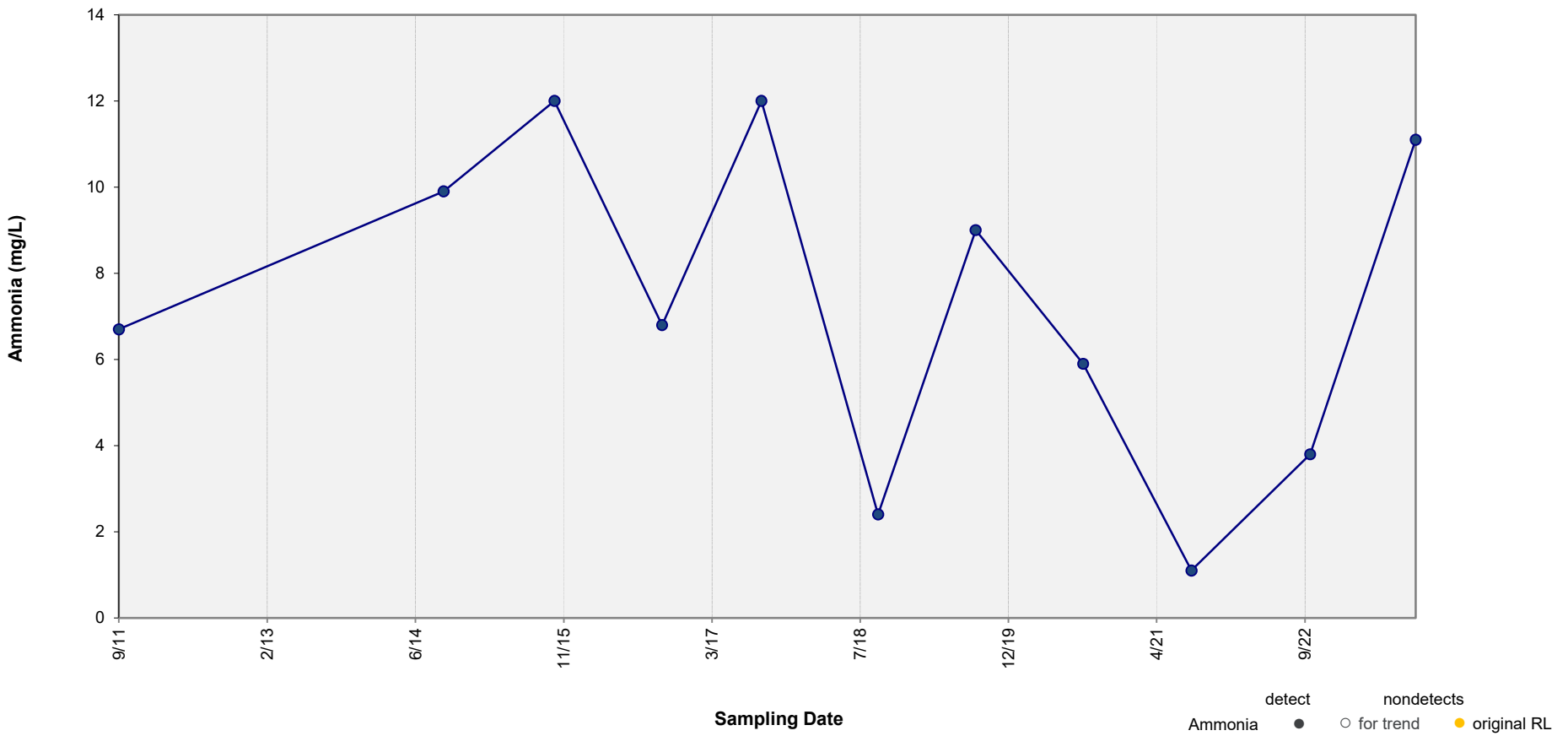
95% Confidence Interval = -1.4E-01 to -5.3E-02 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Total dissolved solids (TDS) in Well X-9AR

RACER Saginaw

Figure A-67



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.195 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -7.2E-04 mg/L Per Day

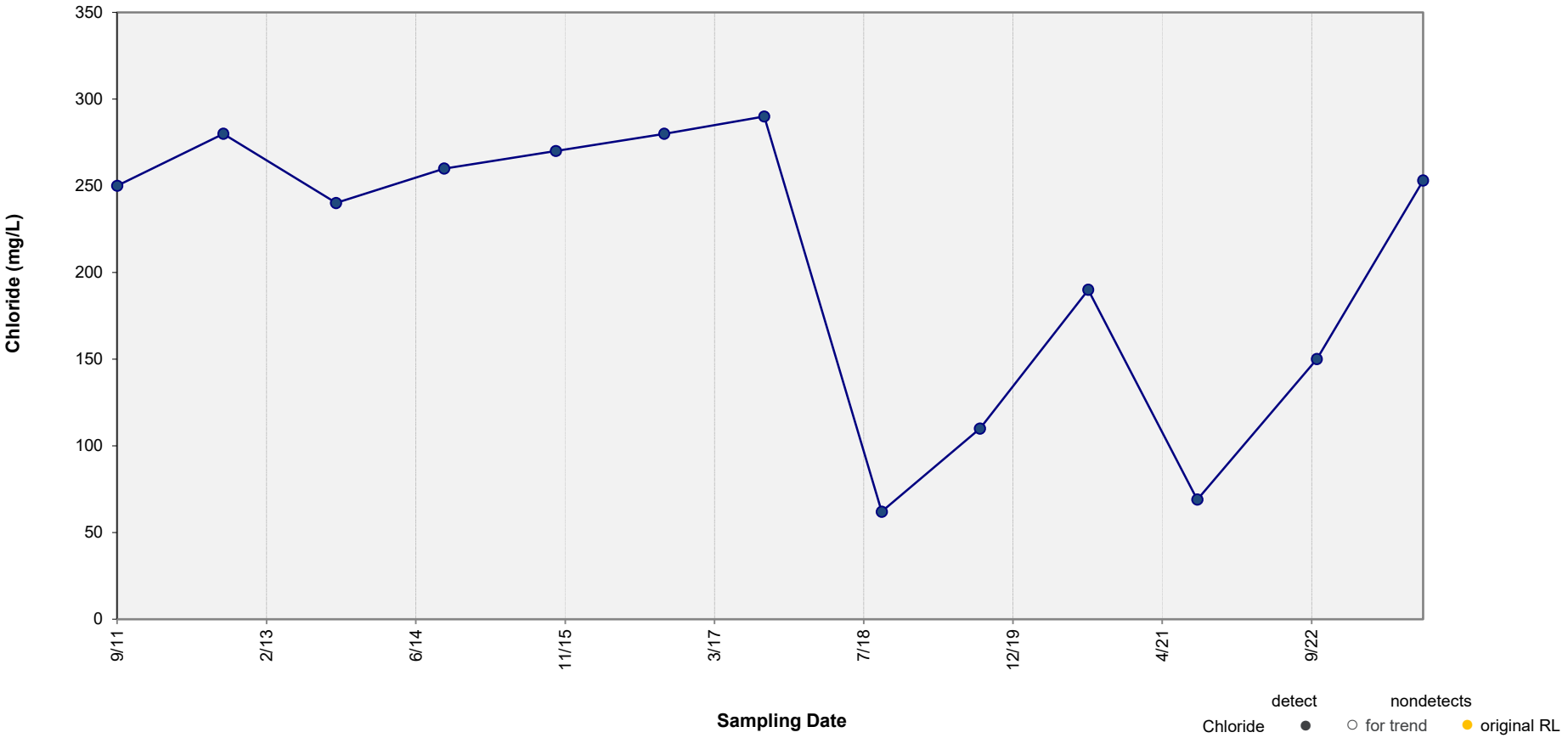
95% Confidence Interval = -4.2E-03 to 1.4E-03 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well X-9BR

RACER Saginaw

Figure A-68



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.164 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -1.9E-02 mg/L Per Day

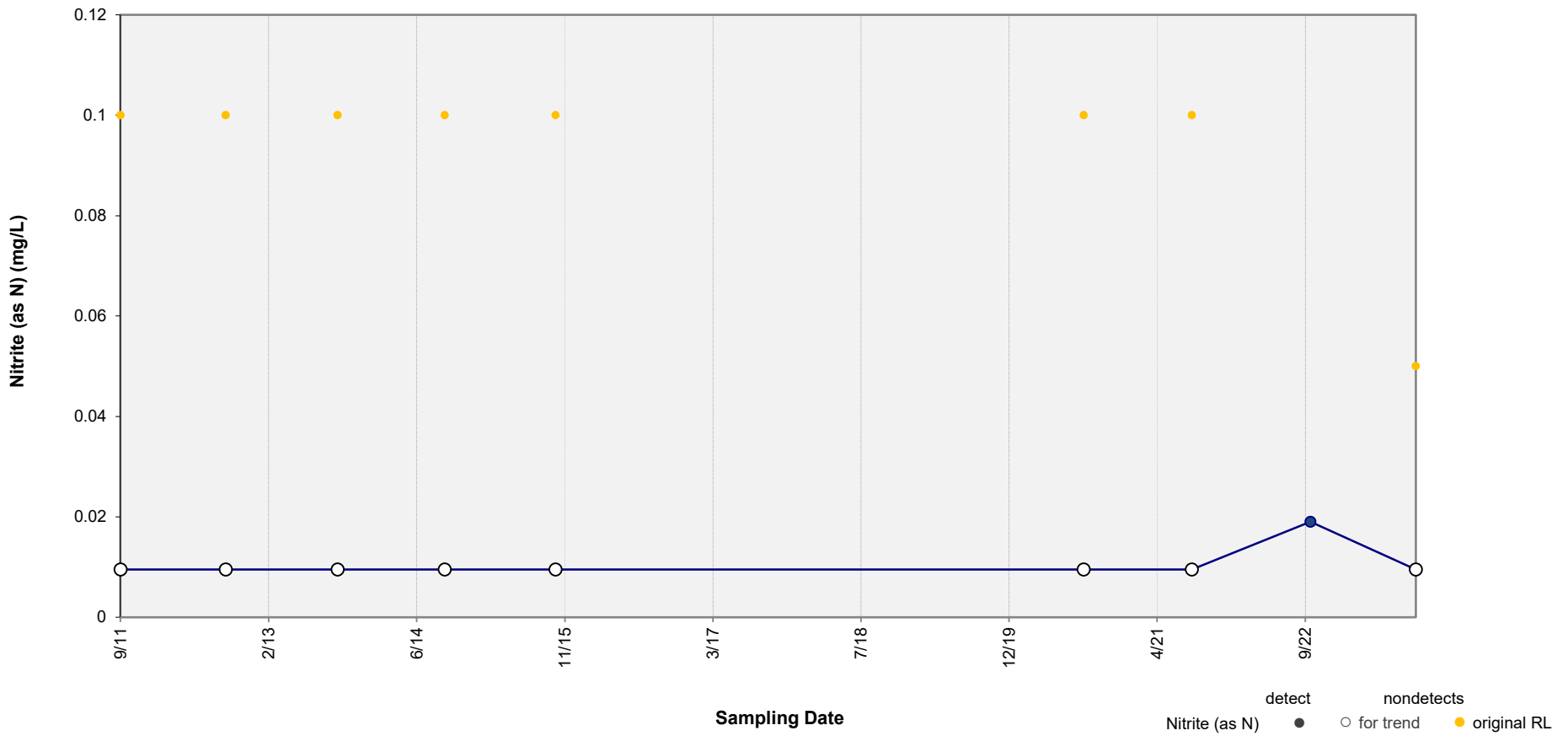
95% Confidence Interval = -6.0E-02 to 1.6E-02 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Chloride in Well X-9BR

RACER Saginaw

Figure A-69



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.306 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

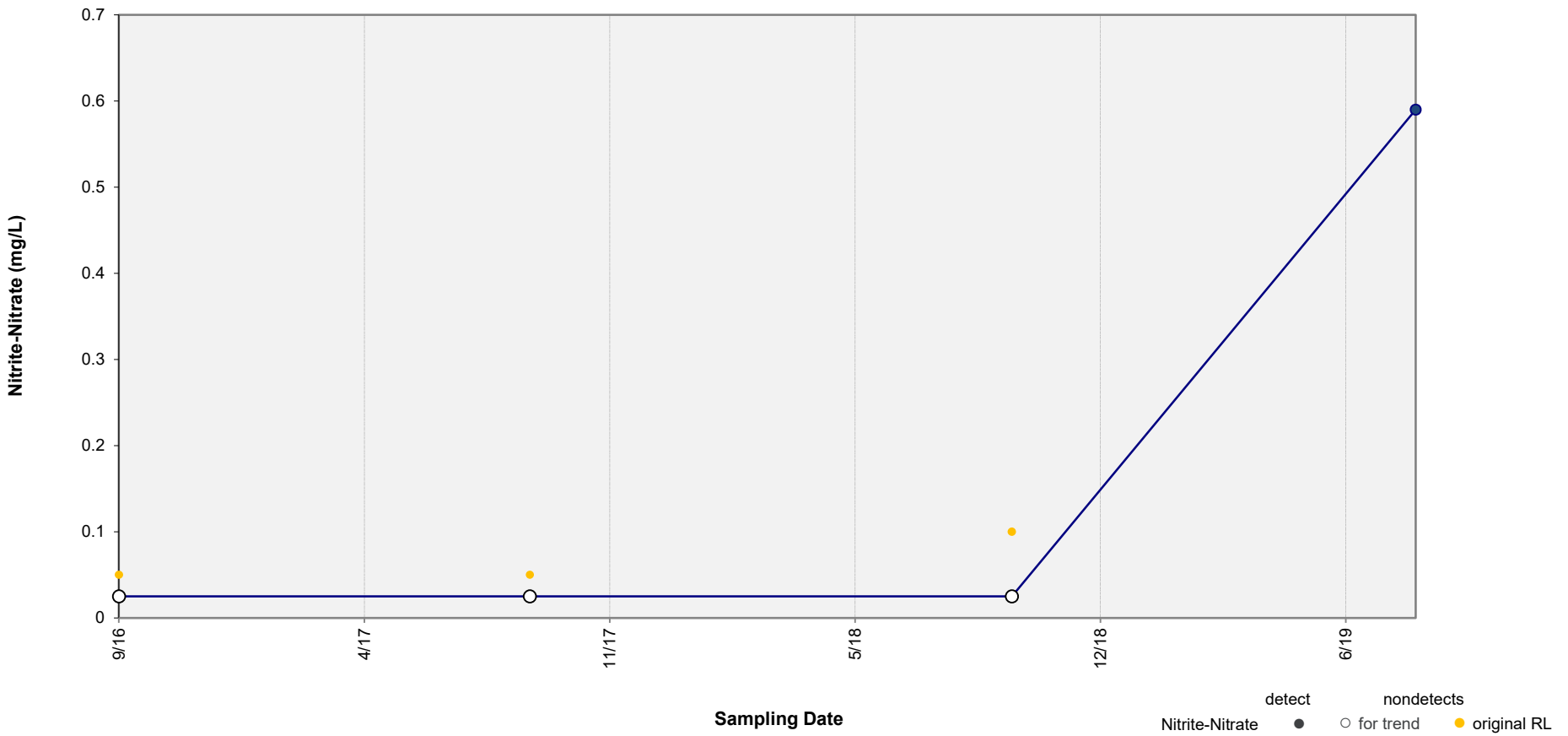
95% Confidence Interval = 0.0E+00 to 0.0E+00 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Nitrite (as N) in Well X-9BR

RACER Saginaw

Figure A-70



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.271 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA mg/L Per Day

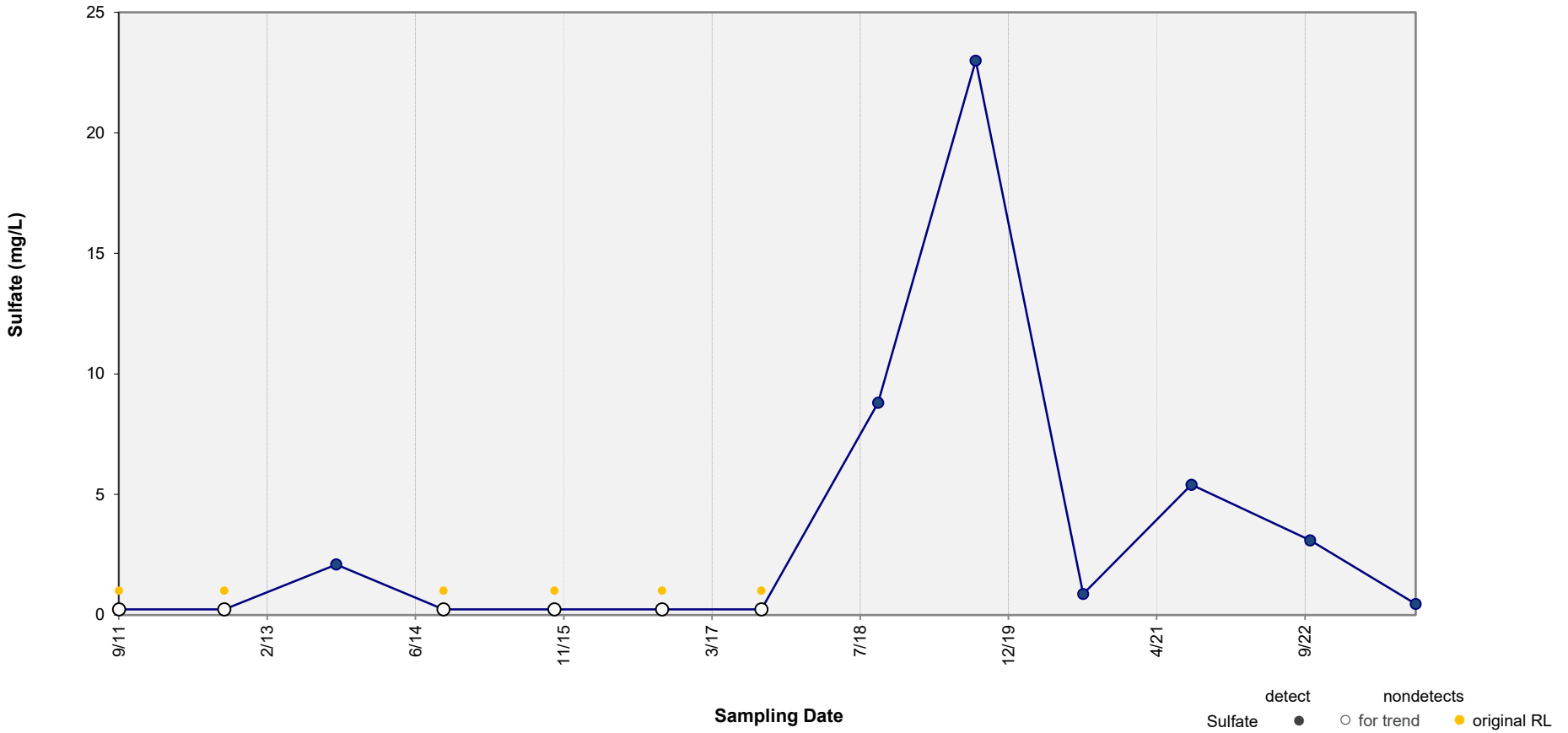
95% Confidence Interval = NA to NA mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Nitrite-Nitrate in Well X-9BR

RACER Saginaw

Figure A-71



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.047 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 1.5E-04 mg/L Per Day

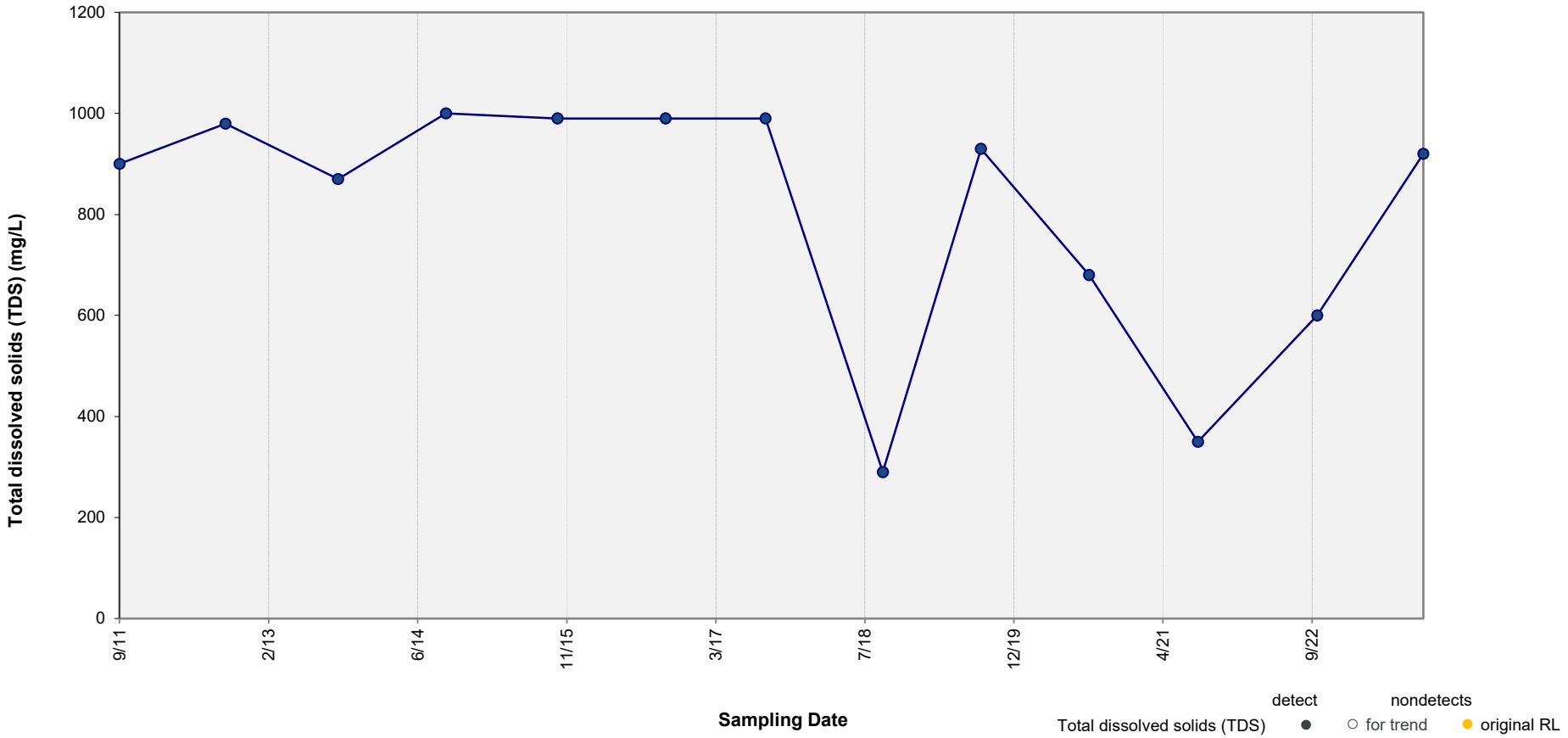
95% Confidence Interval = 0.0E+00 to 1.6E-03 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Sulfate in Well X-9BR

RACER Saginaw

Figure A-72



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.088 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -3.5E-02 mg/L Per Day

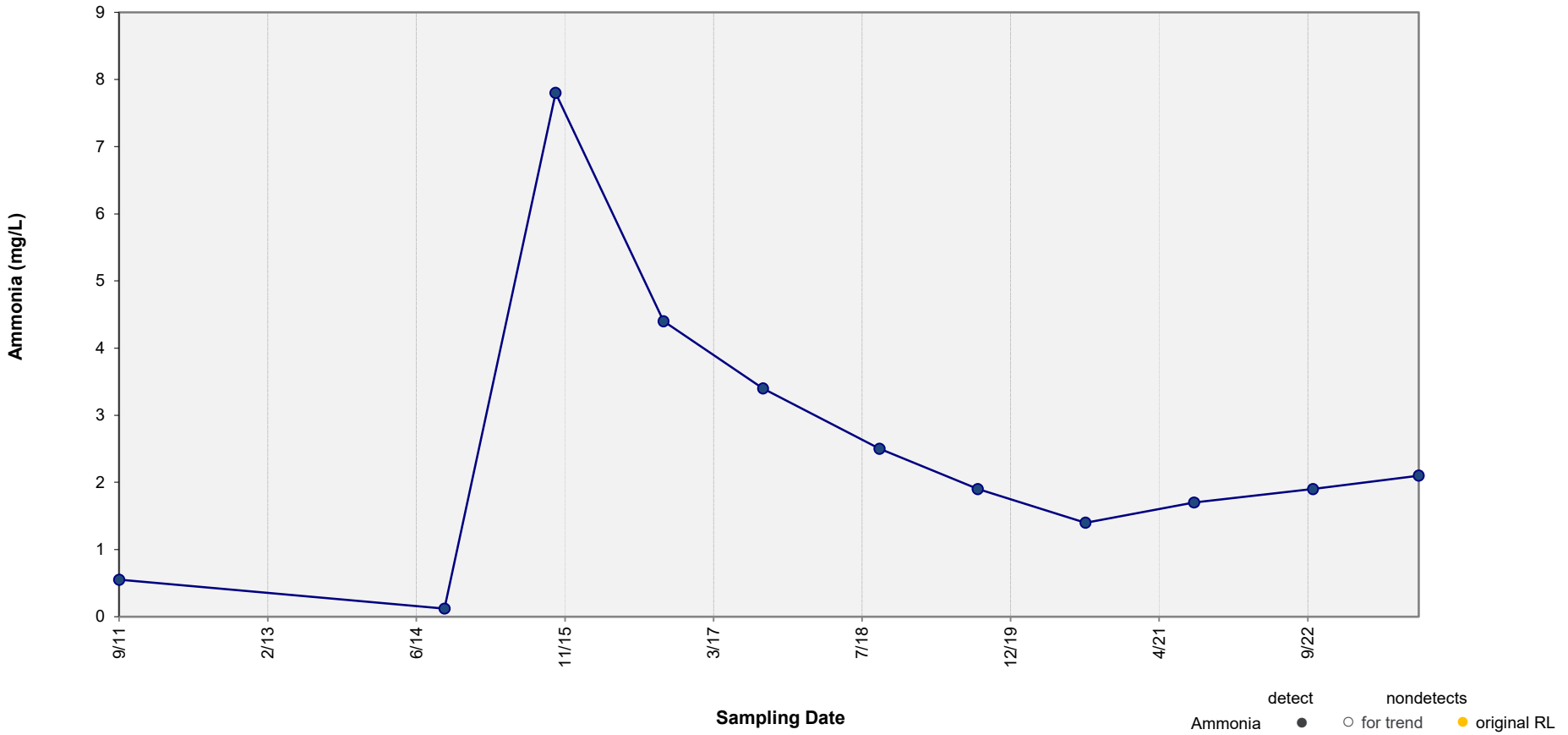
95% Confidence Interval = -1.7E-01 to 6.7E-03 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Total dissolved solids (TDS) in Well X-9BR

RACER Saginaw

Figure A-73



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.407 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -2.7E-04 mg/L Per Day

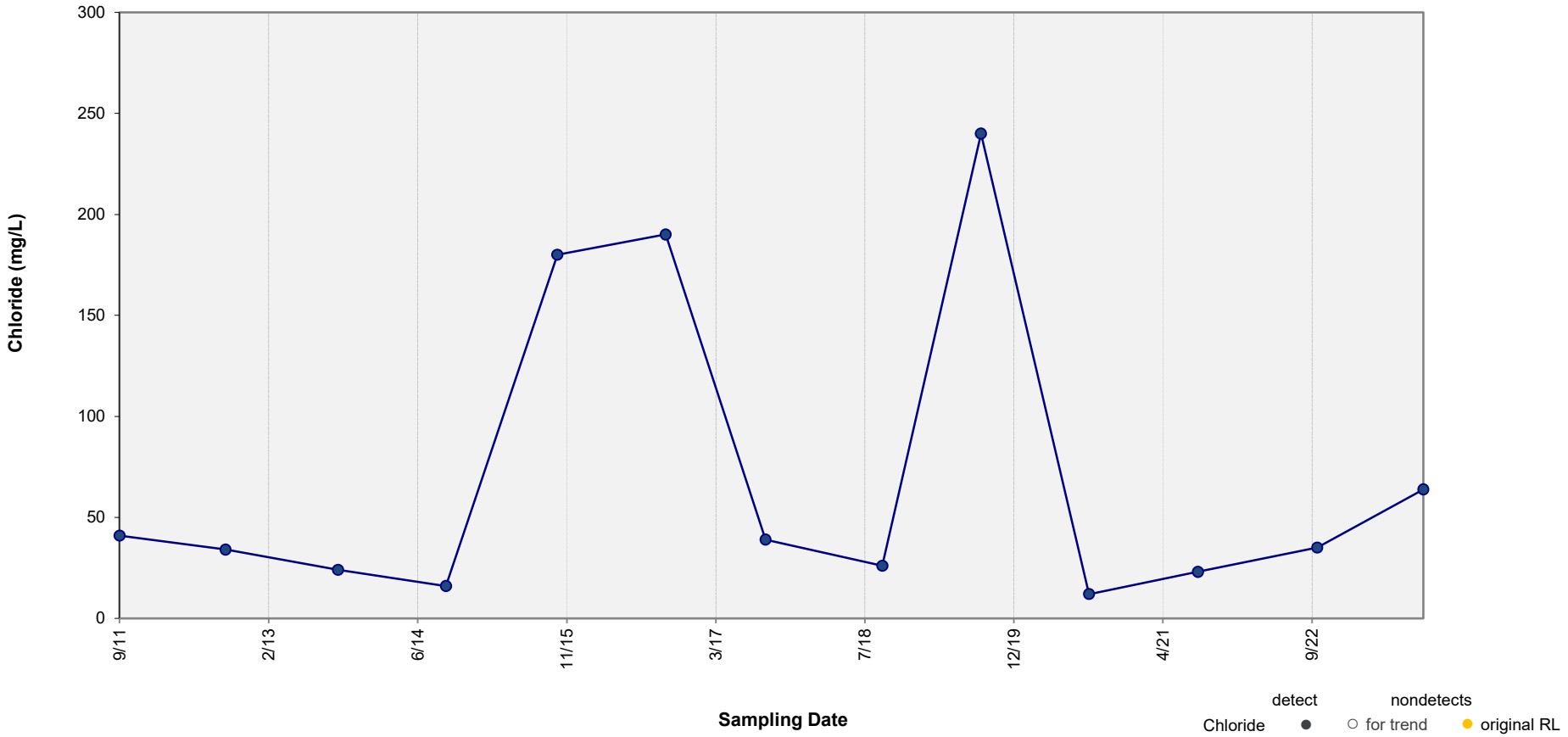
95% Confidence Interval = -1.8E-03 to 5.9E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well X-9CAUG

RACER Saginaw

Figure A-74



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.524 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -3.7E-05 mg/L Per Day

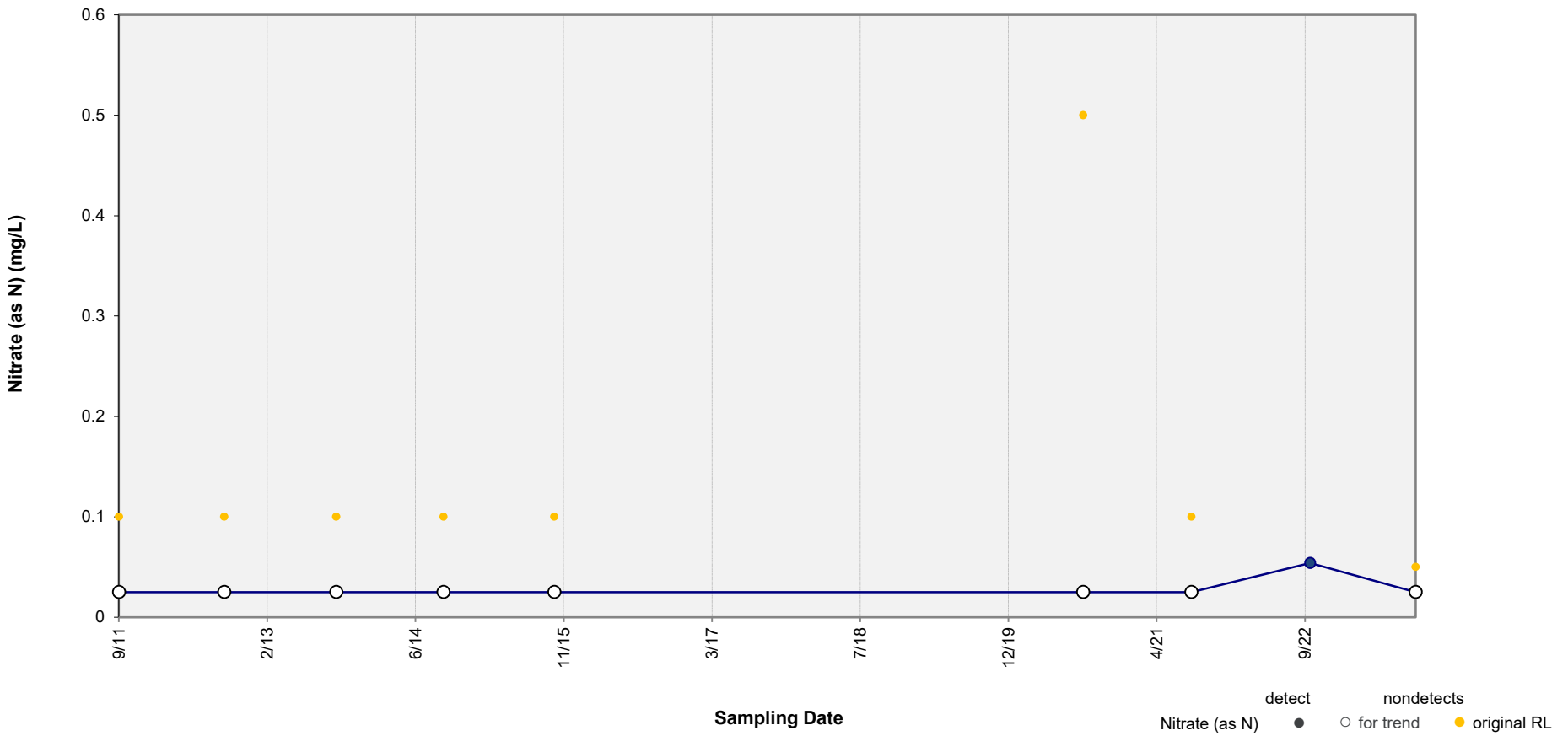
95% Confidence Interval = -2.2E-02 to 2.2E-02 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Chloride in Well X-9CAUG

RACER Saginaw

Figure A-75



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.306 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

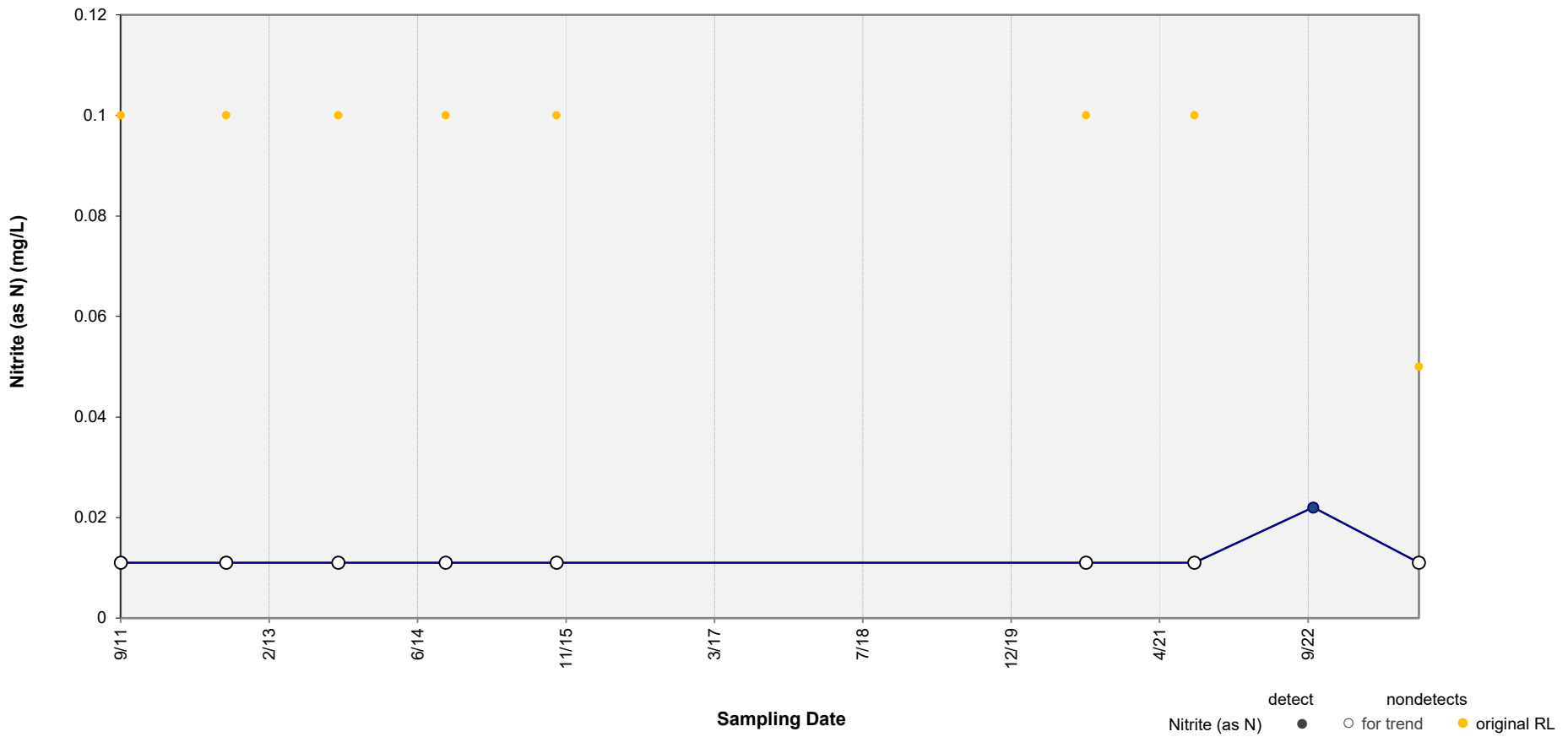
95% Confidence Interval = 0.0E+00 to 0.0E+00 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Nitrate (as N) in Well X-9CAUG

RACER Saginaw

Figure A-76



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.306 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

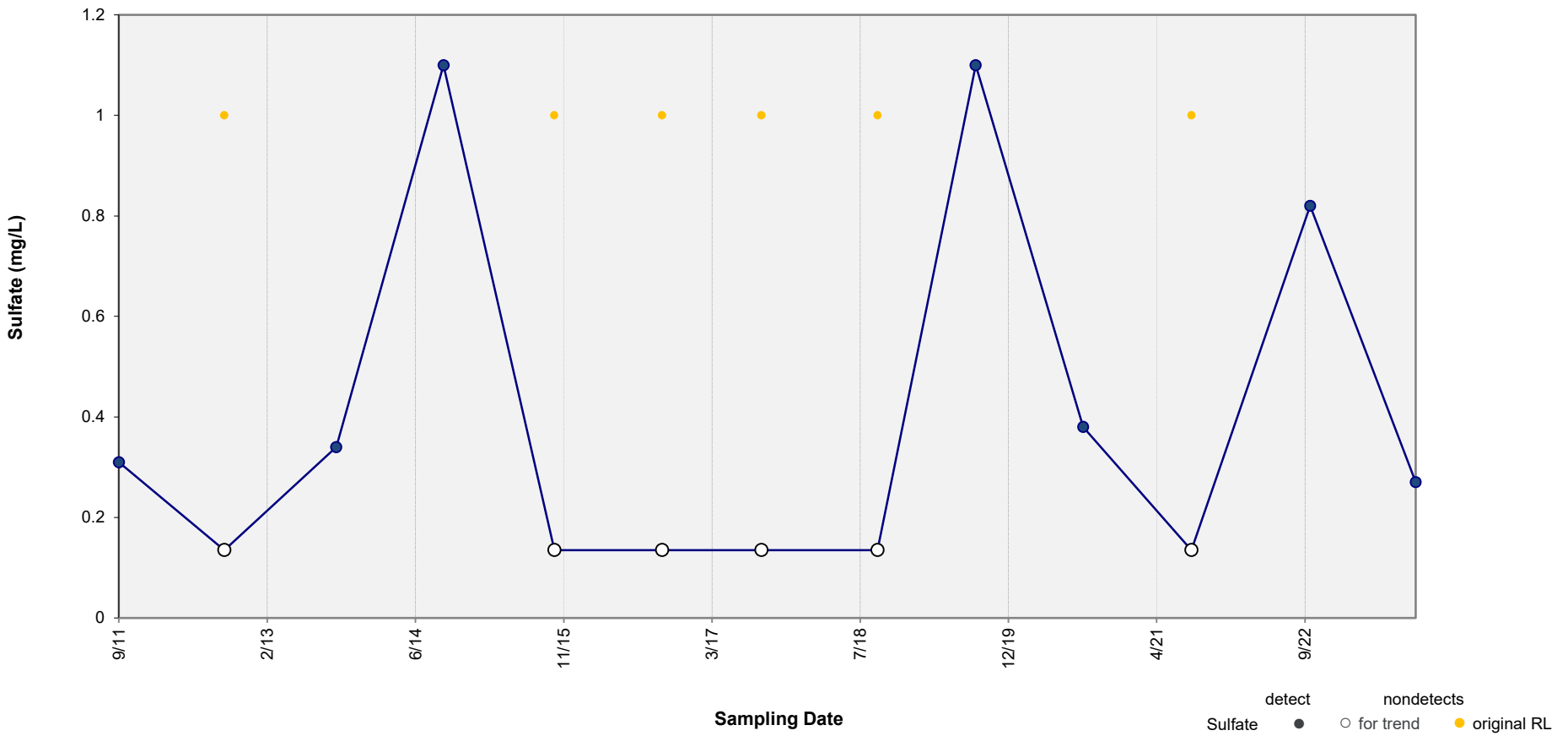
95% Confidence Interval = 0.0E+00 to 0.0E+00 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Nitrite (as N) in Well X-9CAUG

RACER Saginaw

Figure A-77



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.373 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

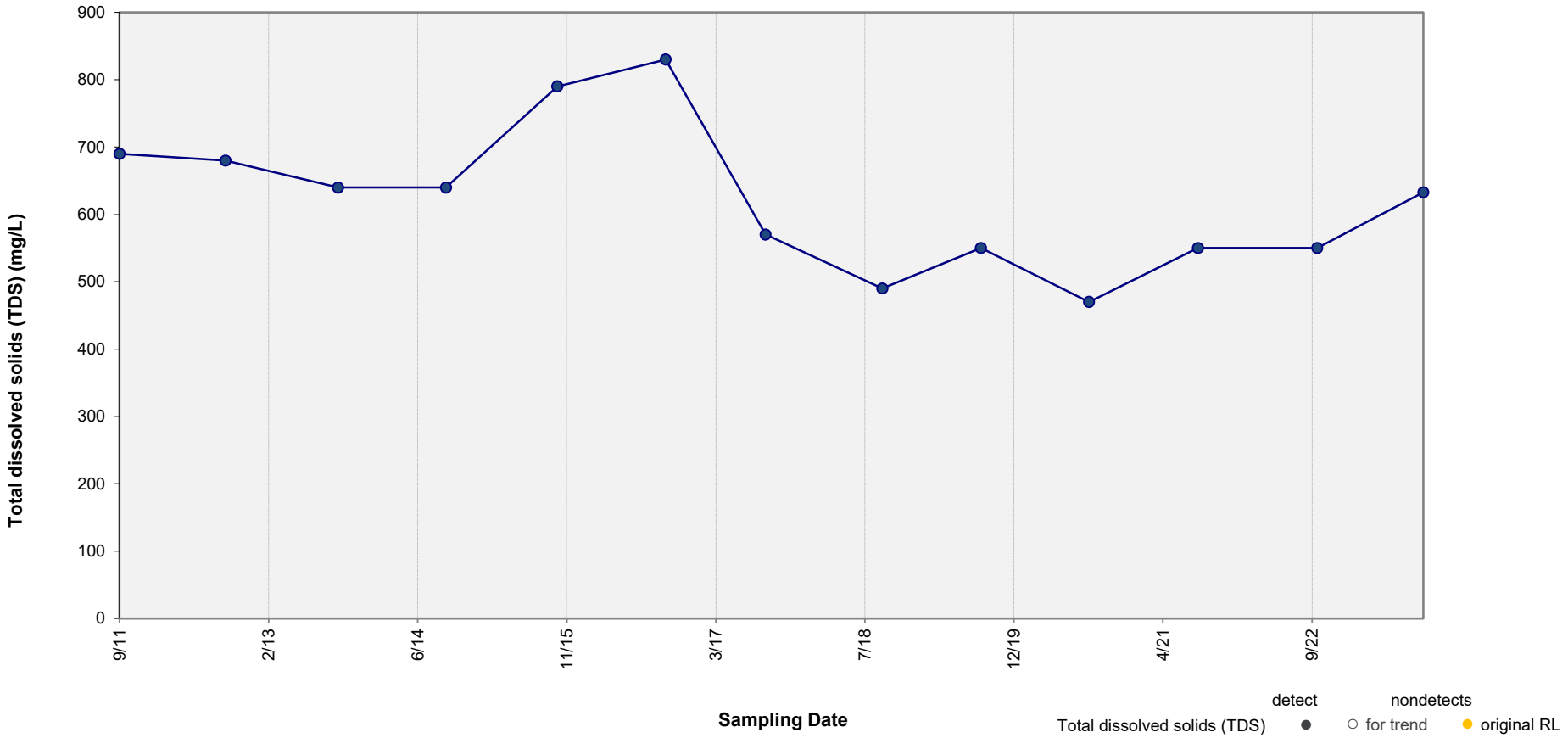
95% Confidence Interval = -7.3E-05 to 1.3E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Sulfate in Well X-9CAUG

RACER Saginaw

Figure A-78



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.021 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -3.7E-02 mg/L Per Day

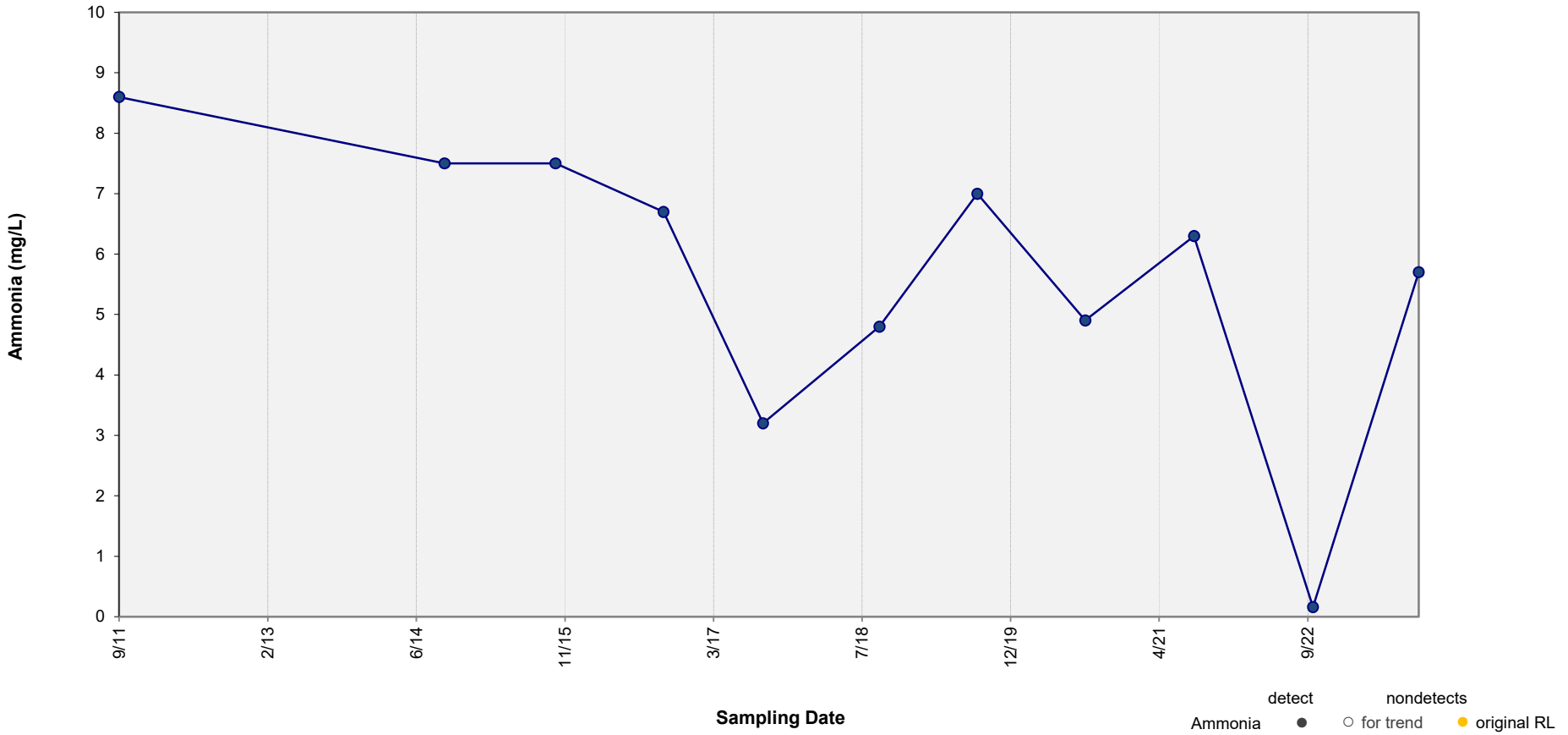
95% Confidence Interval = -7.2E-02 to -1.5E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Total dissolved solids (TDS) in Well X-9CAUG

RACER Saginaw

Figure A-79



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.018 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -8.8E-04 mg/L Per Day

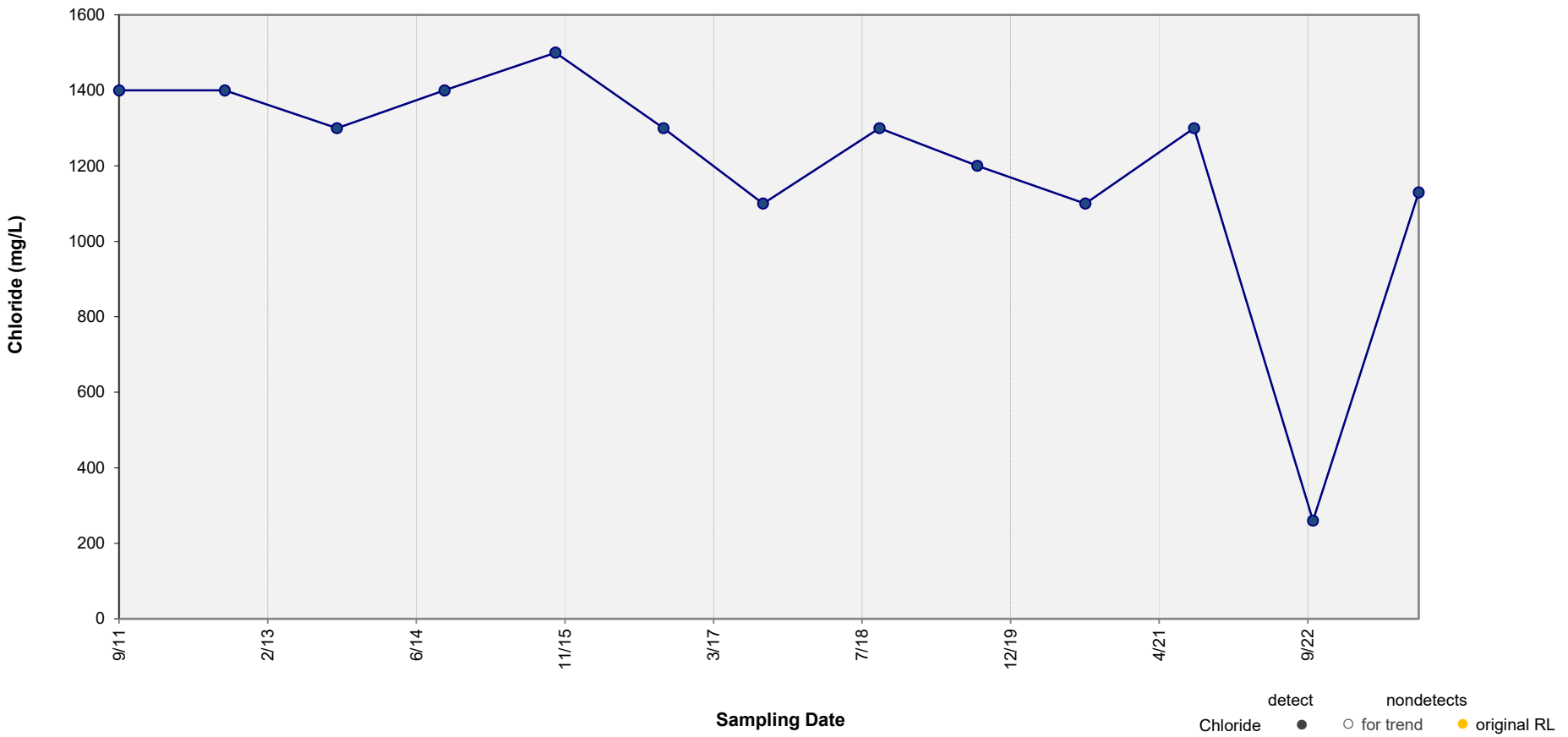
95% Confidence Interval = -2.2E-03 to -2.8E-04 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Ammonia in Well X-9D

RACER Saginaw

Figure A-80



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.005 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -7.9E-02 mg/L Per Day

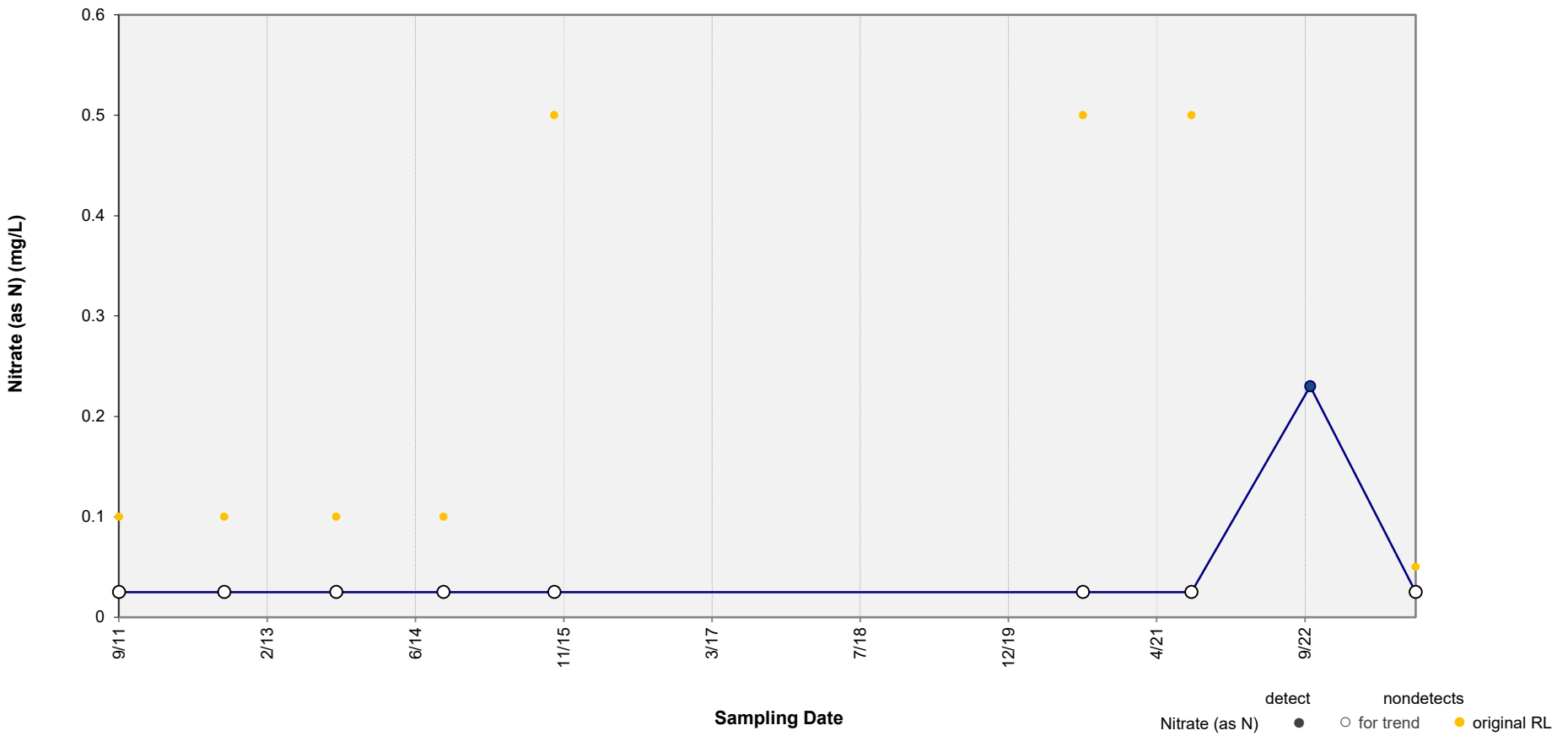
95% Confidence Interval = -1.8E-01 to -2.9E-02 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Chloride in Well X-9D

RACER Saginaw

Figure A-81



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.306 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

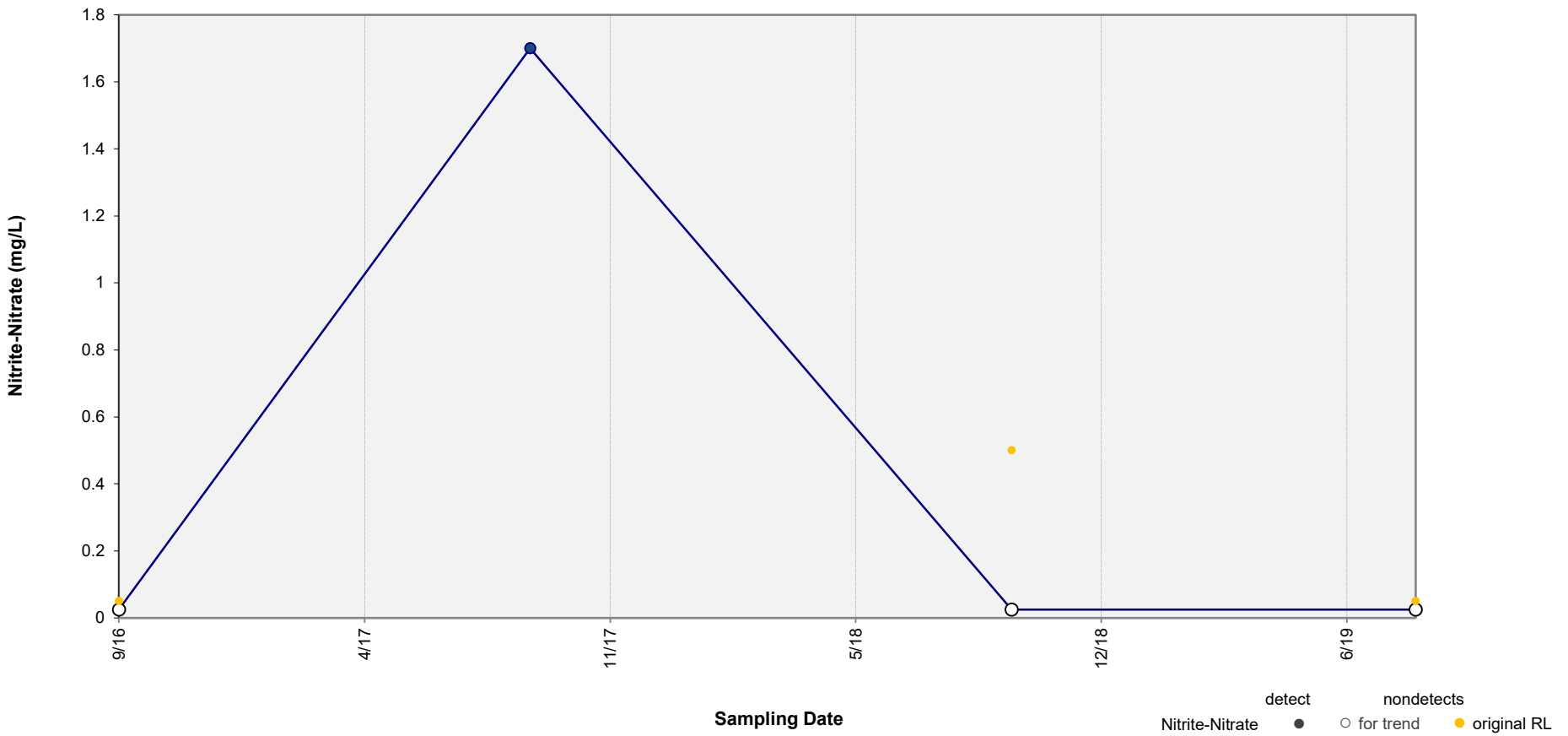
95% Confidence Interval = 0.0E+00 to 0.0E+00 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Nitrate (as N) in Well X-9D

RACER Saginaw

Figure A-82



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA mg/L Per Day

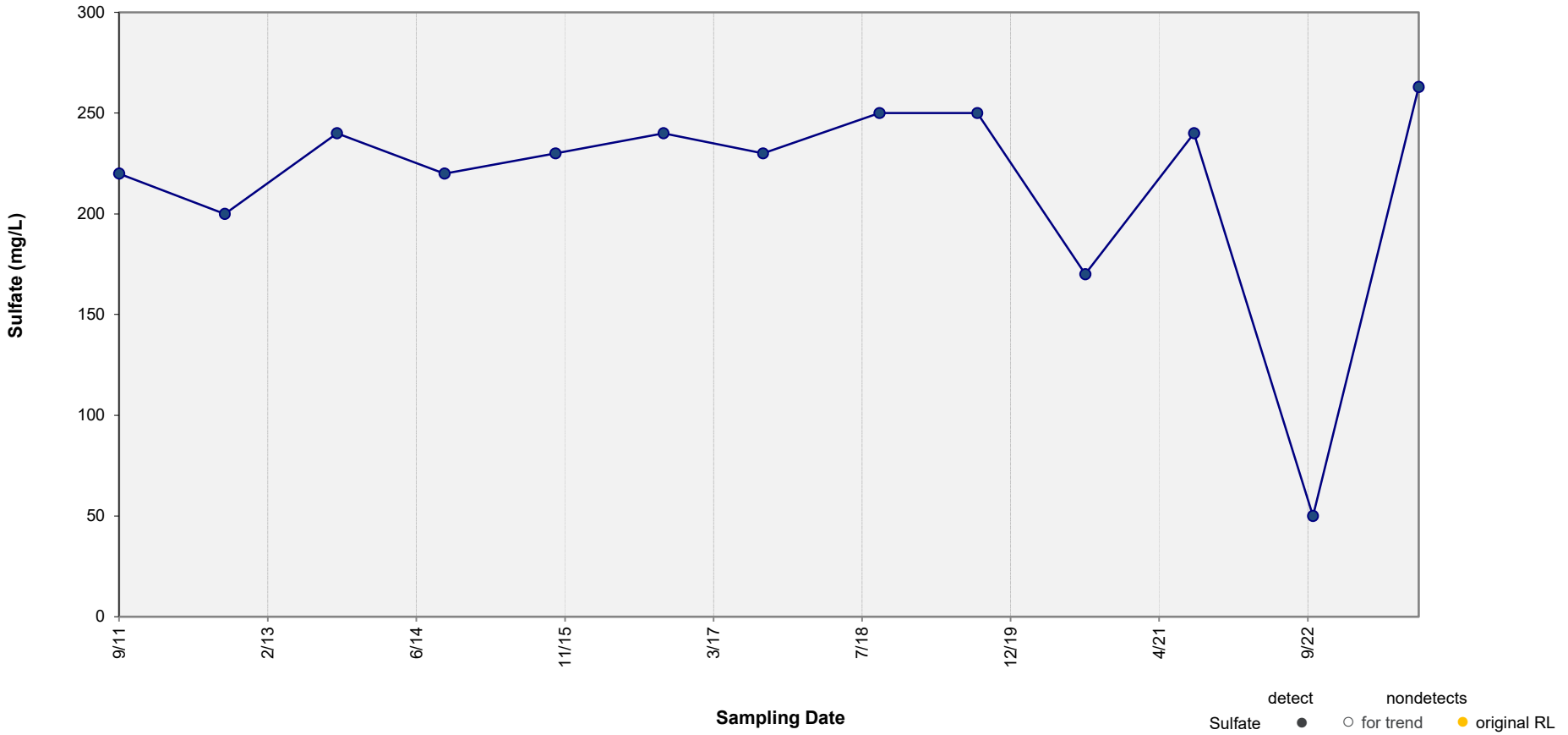
95% Confidence Interval = NA to NA mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Nitrite-Nitrate in Well X-9D

RACER Saginaw

Figure A-83



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.147 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 6.6E-03 mg/L Per Day

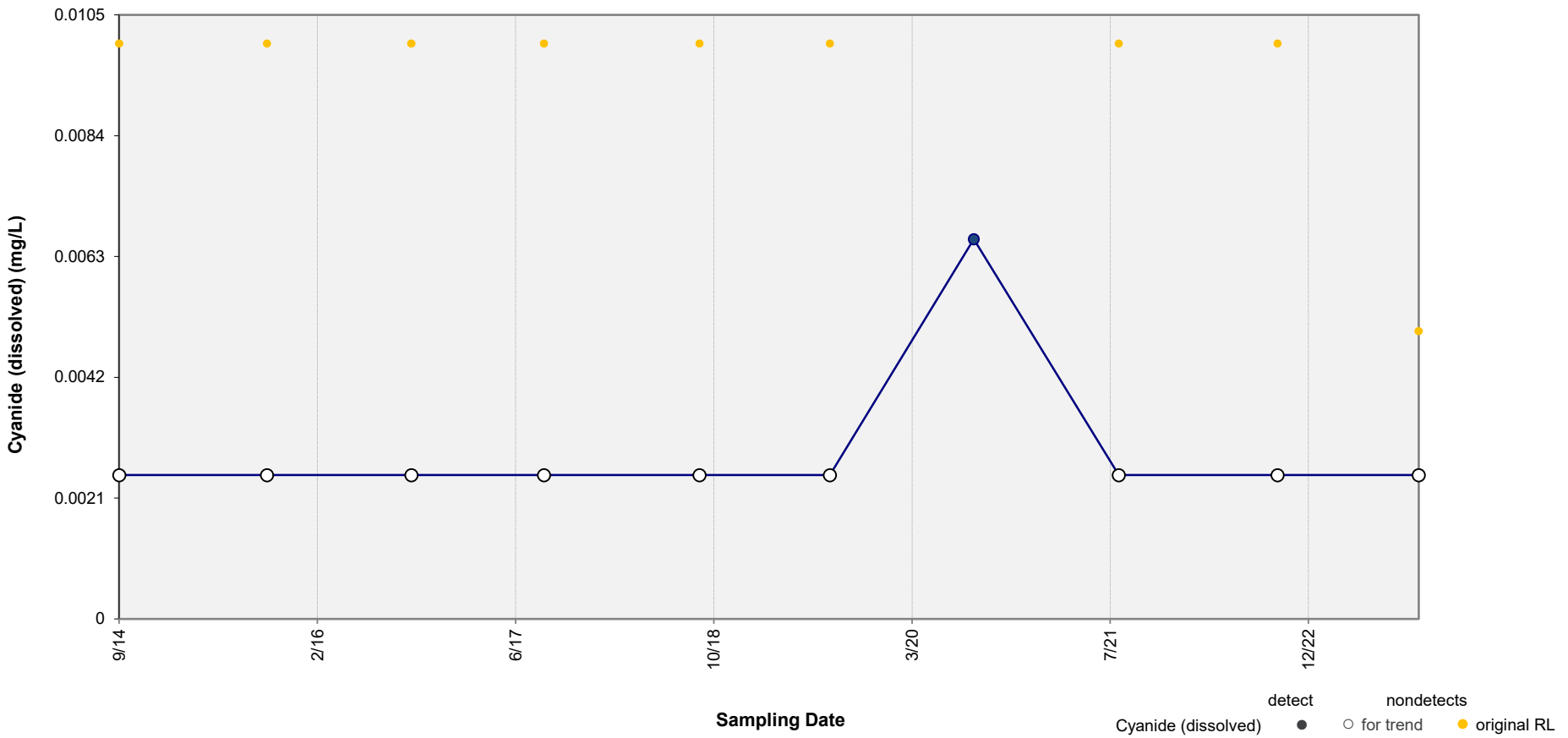
95% Confidence Interval = -1.4E-02 to 1.4E-02 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Sulfate in Well X-9D

RACER Saginaw

Figure A-84



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.431 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 mg/L Per Day

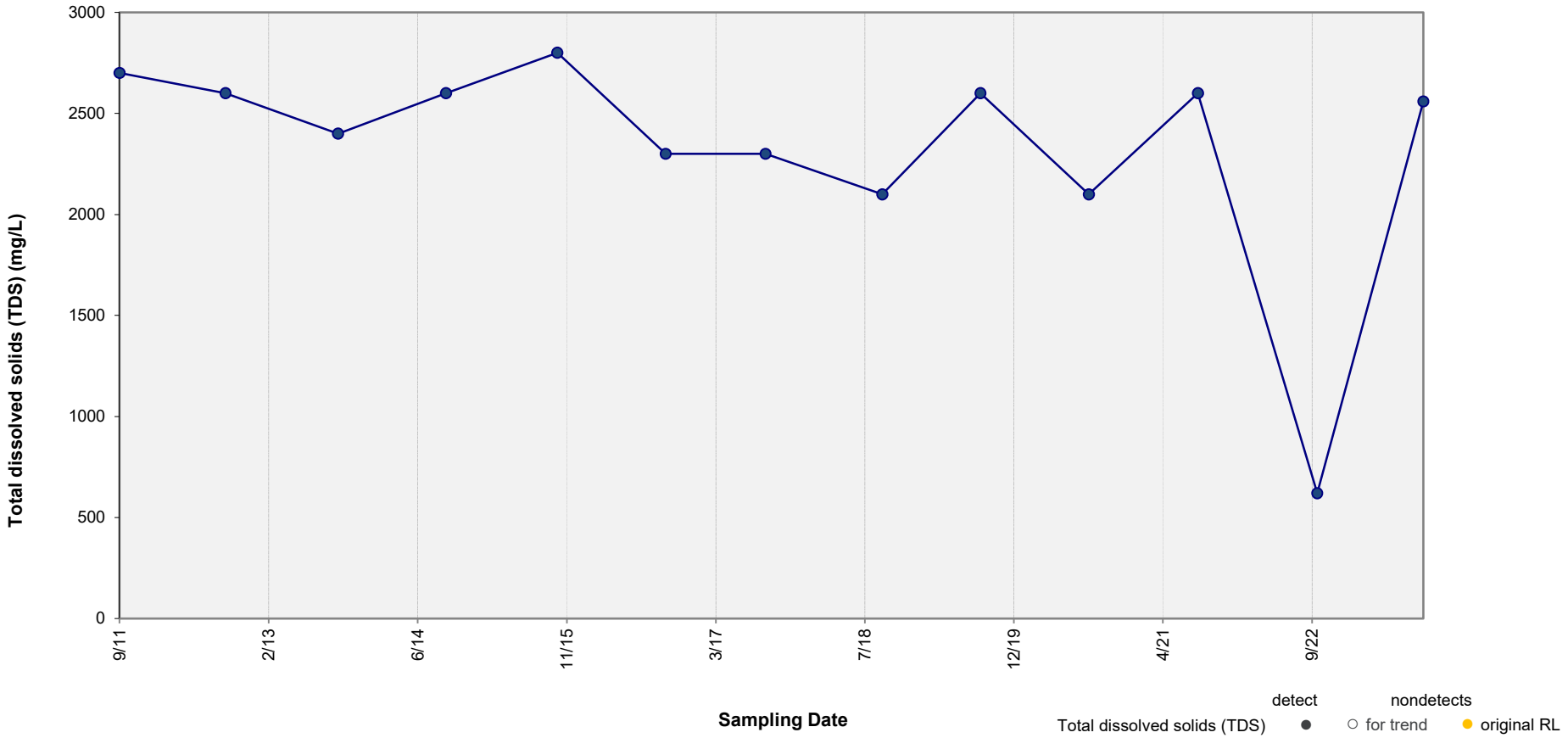
95% Confidence Interval = 0.0E+00 to 0.0E+00 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Cyanide (dissolved) in Well X-9D

RACER Saginaw

Figure A-85



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.036 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = -9.2E-02 mg/L Per Day

95% Confidence Interval = -2.8E-01 to 0.0E+00 mg/L Per Day

ARCADIS

Concentration vs. Time Plot – Total dissolved solids (TDS) in Well X-9D

RACER Saginaw

Figure A-86

TABLE B-1
Summary Statistics and Trend Results - Metals - 2011 to 2023
RACER Saginaw
November, 2023

Well ID	Analyte	Date Range	Figure	FOD	Detected Results Summary [1]				Mann-Kendall Test [2]				Sen's Estimator of Slope [2]			
					Range	Mean	Median	SD	Result[4]	MK Result Note	P-Value	S Value	Result[4]	Sen's Result Note	Slope (Units/Day)	95% CI (Units/Day)
MW-107WT	Arsenic	09/12 - 09/23	B-1	9 / 11	1.1 - 52	12.7	7.3	16	NST	--	0.121	16	NST	--	0.00282	-0.00139 to 0.0127
MW-107WT	Arsenic (dissolved)	08/20 - 09/23	B-2	2 / 4	8.2 - 9.2	8.7	8.7	0.71	NST	5a	0.500	1	NA	5a 5c	NA	NA
MW-107WT	Manganese	09/12 - 09/23	B-3	10 / 10	170 - 5900	1380	845	1710	NST	--	0.536	0	NST	--	0	-0.675 to 0.945
MW-107WT	Thallium	09/12 - 08/19	B-4	1 / 7	0.46 - 0.46	0.46	0.46	0	NST	5a 5b	0.236	-6	NT	5a 5c	0	-0.0000382 to 0
MW-108WT	Manganese	09/16 - 09/23	B-5	7 / 7	430 - 18000	4030	2000	6200	NST	5a	0.052	12	NST	5a	0.960	-0.0901 to 7.51
MW-110WTR	Manganese	09/14 - 09/23	B-6	10 / 10	2000 - 4000	2890	2740	760	DWN	--	0.014	-25	DWN	--	-0.581	-1.04 to -0.210
MW-111WT	Manganese	09/12 - 09/23	B-7	12 / 12	780 - 3600	1660	1590	720	NST	--	0.268	-10	NST	--	-0.0588	-0.517 to 0.214
MW-111WT	Thallium	09/12 - 08/19	B-8	1 / 8	0.24 - 0.24	0.24	0.24	0	NST	5b	0.237	-7	NT	5c	0	0 to 0
MW-114WT	Manganese	09/13 - 09/23	B-9	11 / 11	390 - 1400	979	1000	273	NST	--	0.067	-20	NST	--	-0.136	-0.254 to 0.00654
MW-114WT	Thallium	09/13 - 08/19	B-10	1 / 7	0.14 - 0.14	0.14	0.14	0	NST	5a 5b	0.443	-2	NT	5a 5c	0	0 to 0
MW-117S1	Arsenic (dissolved)	09/11 - 09/23	B-11	7 / 12	1.6 - 4.6	2.6	2	1.3	DWN	--	0.016	-31	NT	--	-0.000351	-0.00105 to 0
MW-117S1	Barium	08/20 - 09/23	B-12	4 / 4	910 - 1800	1480	1600	398	NST	5a	0.375	-2	NA	5a	NA	NA
MW-117S1	Barium (dissolved)	09/11 - 09/23	B-13	12 / 12	862 - 2100	1710	1750	324	DWN	--	0.040	-26	NT	--	-0.104	-0.260 to 0
MW-117S1	Iron	08/20 - 09/23	B-14	4 / 4	3560 - 8600	7090	8100	2380	NST	5a	0.167	-4	NA	5a	NA	NA
MW-117S1	Iron (dissolved)	09/11 - 09/23	B-15	12 / 12	2260 - 12000	7920	8650	2540	DWN	--	0.026	-29	NT	--	-0.450	-1.67 to 0
MW-117S1	Manganese	08/20 - 09/23	B-16	4 / 4	265 - 340	296	290	31.5	NST	5a	0.500	-1	NA	5a	NA	NA
MW-117S1	Manganese (dissolved)	09/11 - 09/23	B-17	12 / 12	211 - 510	300	280	73.4	DWN	--	0.039	-26	NT	--	-0.0185	-0.0327 to 0
MW-117S1	Selenium (dissolved)	09/11 - 09/23	B-18	3 / 12	0.29 - 0.57	0.46	0.52	0.15	NST	--	0.324	-6	NT	5c	0	0 to 0
MW-117S1	Sodium	08/20 - 09/23	B-19	4 / 4	110000 - 126000	119000	120000	6630	NST	5a	0.105	5	NA	5a	NA	NA
MW-117S1	Sodium (dissolved)	09/11 - 09/23	B-20	12 / 12	110000 - 123000	116000	120000	5430	NST	--	0.268	9	NT	--	0	0 to 2.25
MW-117WT	Arsenic	08/20 - 09/23	B-21	3 / 4	5.6 - 15.4	9.2	6.5	5.4	NST	5a	0.625	0	NA	5a	NA	NA
MW-117WT	Arsenic (dissolved)	09/11 - 09/23	B-22	8 / 10	1.4 - 4.8	3.2	3.35	1.3	NST	--	0.216	-10	NST	--	-0.000354	-0.00118 to 0.000518
MW-117WT	Barium	08/20 - 09/23	B-23	4 / 4	1540 - 3800	2410	2150	978	NST	5a	0.375	-2	NA	5a	NA	NA
MW-117WT	Barium (dissolved)	09/11 - 09/23	B-24	10 / 10	1480 - 3500	2520	2500	715	DWN	--	0.045	-20	NST	--	-0.325	-0.836 to 0.0162
MW-117WT	Iron	08/20 - 09/23	B-25	4 / 4	83400 - 130000	102000	98000	19700	NST	5a	0.375	-2	NA	5a	NA	NA
MW-117WT	Iron (dissolved)	09/11 - 09/23	B-26	10 / 10	77900 - 130000	105000	104500	18000	NST	--	0.054	-19	NST	--	-7.72	-18.8 to 0.260
MW-117WT	Manganese	08/20 - 09/23	B-27	4 / 4	3470 - 4600	3990	3950	507	NST	5a	0.375	-2	NA	5a	NA	NA
MW-117WT	Manganese (dissolved)	09/11 - 09/23	B-28	10 / 10	2900 - 7000	4130	3850	1130	NST	--	0.190	-11	NST	--	-0.199	-1.03 to 0.152
MW-117WT	Mercury (dissolved)	09/11 - 09/14	B-29	1 / 4	0.14 - 0.14	0.14	0.14	0	NST	5a	0.500	-1	NA	5a 5c	NA	NA
MW-117WT	Selenium (dissolved)	09/11 - 09/23	B-30	4 / 10	0.59 - 1.5	0.97	0.89	0.39	NST	--	0.332	-6	NT	5c	0	-0.000139 to 0
MW-117WT	Sodium	08/20 - 09/23	B-31	4 / 4	390000 - 680000	500000	465000	125000	NST	5a	0.375	-2	NA	5a	NA	NA
MW-117WT	Sodium (dissolved)	09/11 - 09/23	B-32	10 / 10	382000 - 650000	509000	505000	78300	DWN	--	0.045	-20	NST	--	-32.8	-66.2 to 5.67

TABLE B-1
Summary Statistics and Trend Results - Metals - 2011 to 2023
RACER Saginaw
November, 2023

Well ID	Analyte	Date Range	Figure	FOD	Detected Results Summary [1]				Mann-Kendall Test [2]				Sen's Estimator of Slope [2]			
					Range	Mean	Median	SD	Result[4]	MK Result Note	P-Value	S Value	Result[4]	Sen's Result Note	Slope (Units/Day)	95% CI (Units/Day)
MW-118S1	Arsenic	09/14 - 09/23	B-33	2 / 4	3 - 4.7	3.9	3.85	1.2	NST	5a	0.500	-1	NA	5a 5c	NA	NA
MW-118S1	Arsenic (dissolved)	09/11 - 09/23	B-34	8 / 11	0.58 - 18	3.7	1.5	5.9	NST	--	0.347	-6	NST	--	-0.0000803	-0.000799 to 0.000721
MW-118S1	Barium	09/14 - 09/23	B-35	4 / 4	72 - 830	325	199.95	351	NST	5a	0.167	-4	NA	5a	NA	NA
MW-118S1	Barium (dissolved)	09/11 - 09/23	B-36	11 / 11	47.3 - 970	565	730	361	DWN	--	0.031	-25	DWN	--	-0.181	-0.291 to -0.0230
MW-118S1	Iron	09/14 - 09/23	B-37	4 / 4	5400 - 13000	9200	9200	3130	NST	5a	0.375	-2	NA	5a	NA	NA
MW-118S1	Iron (dissolved)	09/11 - 09/23	B-38	10 / 11	3900 - 12000	7230	7200	2400	NST	--	0.195	12	NST	--	0.764	-1.10 to 1.90
MW-118S1	Manganese	09/14 - 09/23	B-39	4 / 4	187 - 2100	894	645	866	NST	5a	0.375	-2	NA	5a	NA	NA
MW-118S1	Manganese (dissolved)	09/11 - 09/23	B-40	11 / 11	190 - 2100	583	410	528	NST	--	0.267	9	NST	--	0.0318	-0.0517 to 0.158
MW-118S1	Selenium	09/14 - 09/23	B-41	1 / 4	0.29 - 0.29	0.29	0.29	0	NST	5a	0.271	-3	NA	5a 5c	NA	NA
MW-118S1	Selenium (dissolved)	09/11 - 09/23	B-42	3 / 11	0.47 - 1	0.68	0.58	0.28	NST	--	0.344	-5	NT	5c	0	0 to 0
MW-118S1	Sodium	09/14 - 09/23	B-43	4 / 4	30100 - 120000	73000	71000	42500	DWN	5a	0.042	-6	NA	5a	NA	NA
MW-118S1	Sodium (dissolved)	09/11 - 09/23	B-44	11 / 11	13000 - 150000	97900	120000	46600	DWN	--	0.002	-37	DWN	--	-24.6	-37.1 to -9.38
MW-118WT	Arsenic (dissolved)	09/11 - 09/23	B-45	8 / 10	0.37 - 12.8	3.5	0.925	5	NST	--	0.398	4	NST	--	0.000136	-0.000316 to 0.00311
MW-118WT	Barium (dissolved)	09/11 - 09/23	B-46	10 / 10	266 - 600	367	360	91.3	DWN	--	0.005	-29	DWN	--	-0.0309	-0.0812 to -0.00715
MW-118WT	Iron (dissolved)	09/11 - 09/23	B-47	10 / 10	7100 - 18000	12000	11000	3910	NST	--	0.300	7	NST	--	0.798	-2.45 to 2.88
MW-118WT	Manganese (dissolved)	09/11 - 09/23	B-48	10 / 10	270 - 850	461	365	210	NST	--	0.168	12	NST	--	0.0559	-0.0578 to 0.158
MW-118WT	Mercury (dissolved)	09/11 - 11/17	B-49	1 / 5	0.17 - 0.17	0.17	0.17	0	NST	5a 5b	0.408	-2	NT	5a 5c	0	-0.0000816 to 0
MW-118WT	Selenium (dissolved)	09/11 - 09/23	B-50	3 / 10	0.27 - 1.6	0.96	1	0.67	NST	--	0.466	-2	NT	5c	0	-0.0000124 to 0
MW-118WT	Sodium (dissolved)	09/11 - 09/23	B-51	10 / 10	70000 - 200000	106000	91000	39000	NST	--	0.078	-17	NST	--	-13.5	-46.5 to 1.31
MW-149WT	Arsenic	09/11 - 09/23	B-52	13 / 13	30 - 190	87.2	60	57.6	DWN	--	0.004	-44	DWN	--	-0.0222	-0.0413 to -0.00694
MW-149WT	Arsenic (dissolved)	08/20 - 09/23	B-53	4 / 4	8.7 - 37	16	9.1	14	NST	5a	0.500	1	NA	5a	NA	NA
MW-149WT	Thallium	09/11 - 09/22	B-54	4 / 10	0.28 - 0.84	0.6	0.635	0.23	DWN	--	0.030	-22	NT	5c	-0.000164	-0.000280 to 0
MW-183WT	Arsenic	09/11 - 09/23	B-55	13 / 13	1 - 26.4	7.1	5.8	6.9	UP	--	<0.001	55	UP	--	0.00286	0.00173 to 0.00452
MW-183WT	Arsenic (dissolved)	09/11 - 09/23	B-56	13 / 13	1.4 - 11	5.1	4.8	3	UP	--	<0.001	54	UP	--	0.00203	0.00115 to 0.00272
MW-183WT	Barium	09/11 - 09/23	B-57	13 / 13	35 - 94.1	53.1	46	19.8	NST	--	0.500	1	NST	--	0.000342	-0.0107 to 0.00575
MW-183WT	Barium (dissolved)	09/11 - 09/23	B-58	13 / 13	34 - 82	48.8	44	14.8	NST	--	0.100	-22	NST	--	-0.00275	-0.0110 to 0.00145
MW-183WT	Iron	09/11 - 09/23	B-59	13 / 13	2200 - 19700	5370	4500	4540	UP	--	0.002	48	UP	--	1.10	0.450 to 1.80
MW-183WT	Iron (dissolved)	09/11 - 09/23	B-60	13 / 13	2100 - 5900	3910	3800	1250	UP	--	0.014	37	UP	--	0.516	0.0903 to 0.953
MW-183WT	Manganese	09/11 - 09/23	B-61	13 / 13	240 - 1700	1050	1200	580	UP	--	<0.001	52	UP	--	0.360	0.213 to 0.465
MW-183WT	Manganese (dissolved)	09/11 - 09/23	B-62	13 / 13	250 - 1800	1020	1200	535	UP	--	0.003	46	UP	--	0.294	0.215 to 0.466
MW-183WT	Selenium	09/11 - 09/23	B-63	3 / 13	0.32 - 0.82	0.61	0.69	0.26	NST	--	0.252	-9	NT	5c	0	0 to 0
MW-183WT	Selenium (dissolved)	09/11 - 09/23	B-64	4 / 13	0.27 - 1.5	0.82	0.75	0.51	NST	--	0.076	-20	NT	5c	0	-0.0000757 to 0
MW-183WT	Sodium	09/11 - 09/23	B-65	13 / 13	14000 - 96000	46100	38000	28500	DWN	--	0.001	-50	DWN	--	-15.8	-24.3 to -7.89
MW-183WT	Sodium (dissolved)	09/11 - 09/23	B-66	13 / 13	15000 - 100000	47900	37000	29300	DWN	--	<0.001	-52	DWN	--	-16.4	-24.9 to -7.83
MW-185WT	Manganese	09/12 - 09/23	B-67	11 / 11	140 - 34300	3540	400	10200	NST	--	0.348	6	NST	--	0.0269	-0.227 to 0.476
MW-185WT	Thallium	09/12 - 08/19	B-68	3 / 8	0.15 - 0.71	0.36	0.22	0.31	NST	--	0.138	-10	NT	5c	-0.0000148	-0.000206 to 0
MW-186WT	Manganese	09/11 - 09/23	B-69	13 / 13	400 - 6190	1370	920	1540	NST	--	0.312	9	NST	--	0.0878	-0.275 to 0.648
MW-186WT	Thallium	09/11 - 08/19	B-70	5 / 9	0.076 - 0.56	0.33	0.39	0.19	NST	--	0.130	12	NST	--	0.0000429	-0.0000329 to 0.000205

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RACER Saginaw
November, 2023

Well ID	Analyte	Date Range	Figure	FOD	Detected Results Summary [1]				Mann-Kendall Test [2]				Sen's Estimator of Slope [2]			
					Range	Mean	Median	SD	Result[4]	MK Result Note	P-Value	S Value	Result[4]	Sen's Result Note	Slope (Units/Day)	95% CI (Units/Day)
X-4CAUGR	Arsenic	09/11 - 09/23	B-71	8 / 13	0.42 - 7.2	2.7	1.65	2.7	DWN	--	0.034	-30	NT	--	-0.000246	-0.00111 to 0
X-4CAUGR	Arsenic (dissolved)	09/11 - 09/23	B-72	8 / 13	0.4 - 6.9	2.3	1.6	2.3	DWN	--	0.025	-32	NT	--	-0.000205	-0.000967 to 0
X-4CAUGR	Barium	09/11 - 09/23	B-73	13 / 13	52 - 140	89.4	89	32.2	DWN	--	0.001	-51	DWN	--	-0.0191	-0.0286 to -0.0119
X-4CAUGR	Barium (dissolved)	09/11 - 09/23	B-74	13 / 13	41.5 - 140	88.6	89	36.3	DWN	--	<0.001	-55	DWN	--	-0.0204	-0.0311 to -0.0125
X-4CAUGR	Iron	09/11 - 09/23	B-75	13 / 13	2400 - 9100	4770	4800	1950	DWN	--	0.029	-32	DWN	--	-0.804	-1.75 to -0.189
X-4CAUGR	Iron (dissolved)	09/11 - 09/23	B-76	12 / 13	2300 - 9000	4600	4550	2170	DWN	--	0.002	-49	DWN	--	-1.24	-2.10 to -0.552
X-4CAUGR	Manganese	09/11 - 09/23	B-77	13 / 13	270 - 730	433	420	151	DWN	--	0.003	-46	DWN	--	-0.0898	-0.125 to -0.0350
X-4CAUGR	Manganese (dissolved)	09/11 - 09/23	B-78	13 / 13	280 - 760	435	370	158	DWN	--	0.001	-50	DWN	--	-0.0840	-0.127 to -0.0493
X-4CAUGR	Selenium	09/11 - 09/23	B-79	3 / 13	0.36 - 0.92	0.61	0.56	0.28	NST	--	0.252	-9	NT	5c	0	0 to 0
X-4CAUGR	Selenium (dissolved)	09/11 - 09/23	B-80	1 / 13	0.35 - 0.35	0.35	0.35	0	NST	5b	0.344	-4	NT	5c	0	0 to 0
X-4CAUGR	Sodium	09/11 - 09/23	B-81	13 / 13	9200 - 78000	32700	22000	24300	NST	--	0.213	-14	NST	--	-3.84	-16.2 to 3.51
X-4CAUGR	Sodium (dissolved)	09/11 - 09/23	B-82	13 / 13	10000 - 75000	33900	26000	24800	NST	--	0.121	-20	NST	--	-4.83	-16.0 to 2.02
X-4D	Arsenic	09/11 - 09/23	B-83	7 / 13	0.49 - 6.3	1.7	1.1	2	DWN	--	0.016	-34	NT	--	-0.000189	-0.000335 to 0
X-4D	Arsenic (dissolved)	09/11 - 09/23	B-84	7 / 13	0.53 - 5.8	1.6	0.94	1.9	DWN	--	0.035	-29	NT	--	-0.000155	-0.000279 to 0
X-4D	Barium	09/11 - 09/23	B-85	13 / 13	28 - 115	80.2	83	21.6	NST	--	0.111	-21	NST	--	-0.00435	-0.00894 to 0.00478
X-4D	Barium (dissolved)	09/11 - 09/23	B-86	13 / 13	61 - 99	84.1	84	9.5	NST	--	0.089	-23	NST	--	-0.00260	-0.00675 to 0.000675
X-4D	Iron	09/11 - 09/23	B-87	12 / 13	29 - 8920	1550	1000	2360	NST	--	0.476	-2	NST	--	-0.00187	-0.273 to 0.543
X-4D	Iron (dissolved)	09/11 - 09/23	B-88	12 / 13	35 - 1300	984	1050	343	NST	--	0.333	-8	NST	--	-0.0217	-0.0993 to 0.175
X-4D	Manganese	09/11 - 09/23	B-89	13 / 13	34 - 324	203	190	73.3	UP	--	0.018	35	UP	--	0.0260	0.000148 to 0.0500
X-4D	Manganese (dissolved)	09/11 - 09/23	B-90	13 / 13	160 - 280	196	189	31.8	NST	--	0.060	26	NT	--	0.0113	0 to 0.0272
X-4D	Selenium	09/11 - 09/23	B-91	2 / 13	0.42 - 2	1.2	1.21	1.1	NST	5b	0.216	-9	NT	5c	0	0 to 0
X-4D	Selenium (dissolved)	09/11 - 09/23	B-92	2 / 13	0.31 - 1.8	1.1	1.055	1.1	NST	5b	0.216	-9	NT	5c	0	0 to 0
X-4D	Sodium	09/11 - 09/23	B-93	13 / 13	85000 - 1600000	627000	630000	351000	DWN	--	0.038	-30	NST	--	-21.3	-102 to 0.0596
X-4D	Sodium (dissolved)	09/11 - 09/23	B-94	13 / 13	420000 - 1600000	695000	640000	281000	NST	--	0.149	-18	NST	--	-14.4	-45.4 to 14.1

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RACER Saginaw
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Well ID	Analyte	Date Range	Figure	FOD	Detected Results Summary [1]				Mann-Kendall Test [2]				Sen's Estimator of Slope [2]			
					Range	Mean	Median	SD	Result[4]	MK Result Note	P-Value	S Value	Result[4]	Sen's Result Note	Slope (Units/Day)	95% CI (Units/Day)
X-9AR	Arsenic	09/11 - 09/23	B-95	12 / 13	0.4 - 117	15	3.4	32.9	UP	--	0.004	44	UP	--	0.00356	0.000696 to 0.00786
X-9AR	Arsenic (dissolved)	09/11 - 09/23	B-96	9 / 13	0.61 - 24	9.1	5.5	8.5	UP	--	0.004	44	UP	--	0.00343	0.000854 to 0.00663
X-9AR	Barium	09/11 - 09/23	B-97	13 / 13	56 - 757	161	91	189	NST	--	0.080	-24	NST	--	-0.0311	-0.0518 to 0.00596
X-9AR	Barium (dissolved)	09/11 - 09/23	B-98	13 / 13	53 - 220	111	87	61	DWN	--	0.050	-28	NST	--	-0.0288	-0.0527 to 0.00318
X-9AR	Iron	09/11 - 09/23	B-99	13 / 13	2100 - 82300	12100	6400	21300	NST	--	0.251	12	NST	--	0.626	-1.38 to 4.60
X-9AR	Iron (dissolved)	09/11 - 09/23	B-100	13 / 13	1900 - 23600	7510	5600	5720	NST	--	0.232	13	NST	--	0.907	-1.29 to 3.89
X-9AR	Manganese	09/11 - 09/23	B-101	13 / 13	310 - 3600	1720	1300	1240	UP	--	0.033	31	NST	--	0.473	-0.184 to 0.911
X-9AR	Manganese (dissolved)	09/11 - 09/23	B-102	13 / 13	300 - 4000	1720	1400	1280	NST	--	0.080	24	NST	--	0.432	-0.258 to 0.834
X-9AR	Selenium	09/11 - 09/23	B-103	2 / 13	0.55 - 0.62	0.59	0.585	0.049	NST	5b	0.347	-5	NT	5c	0	0 to 0
X-9AR	Selenium (dissolved)	09/11 - 09/23	B-104	3 / 13	0.25 - 0.67	0.47	0.5	0.21	NST	--	0.252	-9	NT	5c	0	0 to 0
X-9AR	Sodium	09/11 - 09/23	B-105	13 / 13	9600 - 120000	42600	16300	42700	DWN	--	0.002	-48	DWN	--	-22.0	-34.1 to -4.09
X-9AR	Sodium (dissolved)	09/11 - 09/23	B-106	13 / 13	9700 - 120000	41300	13000	41100	DWN	--	0.003	-46	DWN	--	-22.7	-33.9 to -5.75
X-9BR	Arsenic	09/11 - 09/23	B-107	8 / 13	0.65 - 6.2	2.5	1.85	2	NST	--	0.172	-16	NST	--	-0.000106	-0.000774 to 0.000409
X-9BR	Arsenic (dissolved)	09/11 - 09/23	B-108	8 / 13	0.63 - 6.6	2.5	1.85	2	NST	--	0.093	-22	NT	--	-0.000142	-0.000822 to 0
X-9BR	Barium	09/11 - 09/23	B-109	13 / 13	50 - 265	139	150	60.4	NST	--	0.062	-26	NST	--	-0.0150	-0.0366 to 0.00758
X-9BR	Barium (dissolved)	09/11 - 09/23	B-110	13 / 13	53 - 180	126	150	47.3	DWN	--	0.007	-41	DWN	--	-0.0193	-0.0394 to -0.00464
X-9BR	Iron	09/11 - 09/23	B-111	13 / 13	3700 - 22900	8120	7500	4960	NST	--	0.451	3	NST	--	0.0464	-1.54 to 2.22
X-9BR	Iron (dissolved)	09/11 - 09/23	B-112	13 / 13	3500 - 10000	6990	7200	2290	NST	--	0.251	-12	NST	--	-0.478	-1.24 to 1.10
X-9BR	Manganese	09/11 - 09/23	B-113	13 / 13	220 - 960	564	560	205	DWN	--	0.004	-44	DWN	--	-0.0910	-0.174 to -0.0139
X-9BR	Manganese (dissolved)	09/11 - 09/23	B-114	13 / 13	180 - 960	559	530	217	DWN	--	<0.001	-53	DWN	--	-0.119	-0.203 to -0.0612
X-9BR	Selenium	09/11 - 09/23	B-115	3 / 13	0.25 - 0.74	0.57	0.72	0.28	NST	--	0.202	-11	NT	5c	0	0 to 0
X-9BR	Selenium (dissolved)	09/11 - 09/23	B-116	3 / 13	0.39 - 0.76	0.62	0.7	0.2	NST	--	0.202	-11	NT	5c	0	0 to 0
X-9BR	Sodium	09/11 - 09/23	B-117	13 / 13	49000 - 279000	174000	200000	73600	NST	--	0.524	0	NST	--	0	-50.3 to 27.9
X-9BR	Sodium (dissolved)	09/11 - 09/23	B-118	13 / 13	40000 - 250000	179000	209000	65100	NST	--	0.403	-5	NST	--	-0.310	-28.1 to 27.3

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Well ID	Analyte	Date Range	Figure	FOD	Detected Results Summary [1]				Mann-Kendall Test [2]				Sen's Estimator of Slope [2]			
					Range	Mean	Median	SD	Result[4]	MK Result Note	P-Value	S Value	Result[4]	Sen's Result Note	Slope (Units/Day)	95% CI (Units/Day)
X-9CAUG	Arsenic	09/11 - 09/23	B-119	6 / 13	0.97 - 1.9	1.4	1.4	0.37	DWN	--	<0.001	-51	DWN	5c	-0.000301	-0.000457 to -0.000149
X-9CAUG	Arsenic (dissolved)	09/11 - 09/23	B-120	6 / 13	1 - 1.8	1.3	1.15	0.34	DWN	--	<0.001	-52	DWN	5c	-0.000258	-0.000385 to -0.000106
X-9CAUG	Barium	09/11 - 09/23	B-121	13 / 13	73 - 263	148	130	66.2	NST	--	0.121	20	NST	--	0.00689	-0.0137 to 0.0346
X-9CAUG	Barium (dissolved)	09/11 - 09/23	B-122	13 / 13	69 - 250	137	130	54.8	NST	--	0.249	12	NST	--	0.00475	-0.0276 to 0.0173
X-9CAUG	Iron	09/11 - 09/23	B-123	13 / 13	4500 - 21200	8660	7700	4300	UP	--	0.019	35	UP	--	1.17	0.0542 to 3.15
X-9CAUG	Iron (dissolved)	09/11 - 09/23	B-124	13 / 13	4400 - 12000	7600	7600	2110	NST	--	0.180	16	NST	--	0.422	-0.978 to 1.04
X-9CAUG	Manganese	09/11 - 09/23	B-125	13 / 13	290 - 745	500	500	149	UP	--	0.029	32	NST	--	0.0662	-0.0135 to 0.105
X-9CAUG	Manganese (dissolved)	09/11 - 09/23	B-126	13 / 13	300 - 690	477	500	118	UP	--	0.022	34	NT	--	0.0538	0 to 0.0992
X-9CAUG	Mercury (dissolved)	09/11 - 09/14	B-127	2 / 4	0.12 - 0.15	0.14	0.135	0.021	NST	5a	0.105	-5	NA	5a 5c	NA	NA
X-9CAUG	Selenium	09/11 - 09/23	B-128	4 / 13	0.32 - 0.89	0.57	0.54	0.26	NST	--	0.057	-22	NT	5c	0	-0.0000956 to 0
X-9CAUG	Selenium (dissolved)	09/11 - 09/23	B-129	3 / 13	0.42 - 0.57	0.47	0.43	0.084	NST	--	0.252	-9	NT	5c	0	0 to 0
X-9CAUG	Sodium	09/11 - 09/23	B-130	13 / 13	16000 - 120000	43600	38000	30300	DWN	--	0.016	-36	DWN	--	-9.07	-14.4 to -2.04
X-9CAUG	Sodium (dissolved)	09/11 - 09/23	B-131	13 / 13	14000 - 110000	40800	38000	27300	DWN	--	0.009	-40	DWN	--	-9.46	-14.9 to -3.48
X-9D	Arsenic	09/11 - 09/23	B-132	11 / 13	0.64 - 38	10.9	5.7	11.5	NST	--	0.451	-3	NST	--	-0.0000764	-0.00477 to 0.00444
X-9D	Arsenic (dissolved)	09/11 - 09/23	B-133	8 / 13	0.63 - 22	9.3	6.15	9.3	DWN	--	0.029	-31	NT	--	-0.000203	-0.00568 to 0
X-9D	Barium	09/11 - 09/23	B-134	13 / 13	33 - 200	106	100	45.5	NST	--	0.476	-2	NST	--	-0.00164	-0.0263 to 0.0194
X-9D	Barium (dissolved)	09/11 - 09/23	B-135	13 / 13	30 - 160	99.6	95	34.4	NST	--	0.357	-7	NST	--	-0.00445	-0.0216 to 0.0146
X-9D	Iron	09/11 - 09/23	B-136	12 / 13	820 - 22000	5150	3050	6130	NST	--	0.271	11	NST	--	0.172	-0.571 to 1.68
X-9D	Iron (dissolved)	09/11 - 09/23	B-137	11 / 13	1900 - 13000	3780	2800	3170	NST	--	0.403	-5	NST	--	-0.0173	-0.712 to 0.725
X-9D	Manganese	09/11 - 09/23	B-138	13 / 13	75 - 3400	613	200	1040	UP	--	0.049	28	NST	--	0.0360	-0.0223 to 0.173
X-9D	Manganese (dissolved)	09/11 - 09/23	B-139	13 / 13	120 - 2200	385	190	561	UP	--	0.025	33	NT	--	0.0322	0 to 0.119
X-9D	Selenium	09/11 - 09/23	B-140	3 / 13	0.49 - 0.58	0.53	0.52	0.046	NST	--	0.158	-13	NT	5c	0	0 to 0
X-9D	Selenium (dissolved)	09/11 - 09/23	B-141	3 / 13	0.5 - 0.7	0.62	0.66	0.11	NST	--	0.252	-9	NT	5c	0	0 to 0
X-9D	Sodium	09/11 - 09/23	B-142	13 / 13	110000 - 690000	540000	630000	173000	DWN	--	<0.001	-56	DWN	--	-68.2	-119 to -30.5
X-9D	Sodium (dissolved)	09/11 - 09/23	B-143	13 / 13	110000 - 1500000	655000	640000	294000	DWN	--	0.005	-43	DWN	--	-30.7	-56.7 to -9.13

Abbreviations:

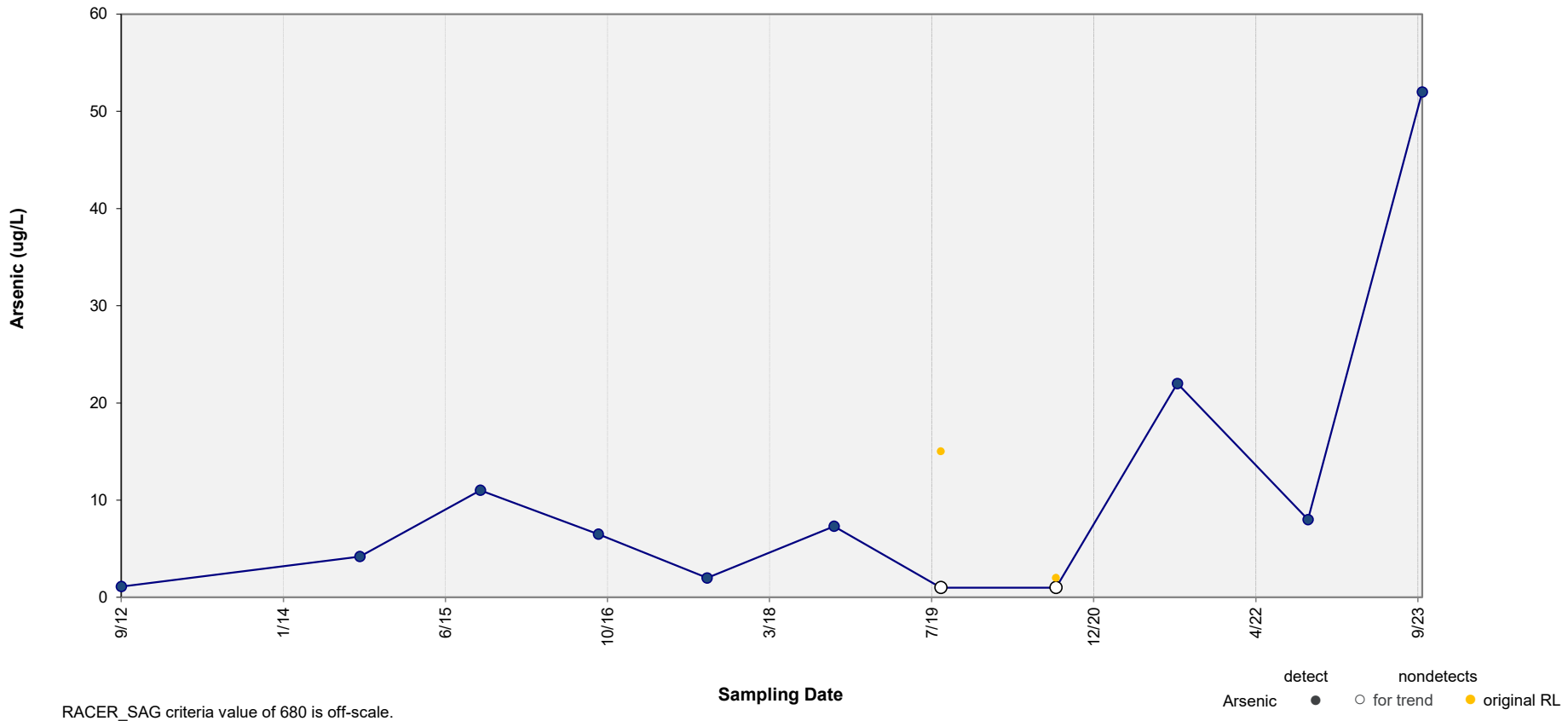
-- insufficient data for calculating statistics (n < 4) or not available
FOD = frequency of detection (# detects / # samples)
mean = arithmetic mean
SD = standard deviation
NST = no significant trend
NT = no trend
DWN = downward trend
UP = upward trend
H_0 = null hypothesis: no significant trend (slope = 0)
H_a = alternative hypothesis: significant trend (slope ≠ 0)
95% CI = 95% confidence interval

Notes:

1. All analytical results are in µg/L. Result values less than 10 are reported to 2 significant figures; values greater than 10 are reported to 3 significant figures.
P-values are reported to 3 decimal places.
2. Trend results are presented when at least four samples and one detected value are available. Significance of trends evaluated at 95% confidence (alpha = 0.05).
3. Non-detects were assigned a common value less than the minimum detected value, equal to half the minimum reporting limit (RL) in the dataset (USEPA, 2009).
If half the minimum RL was greater than the minimum detected value, then half the minimum detect was assigned.
4. Statistically significant trend defined as having p-value ≤ 0.05, or 95% confidence.
5a. MK and Sen's Trend results for datasets with fewer than 8 samples may not be reliable and should be treated with caution.
5b. MK Trend results for datasets with an FOD <=20% may not be reliable and should be treated with caution.
5c. Sen's Trend results for datasets with an FOD <=50% may not be reliable and should be treated with caution.
5d. MK and Sen's Trend results for datasets with more than 100 samples are not shown.

Reference:

USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities. Unified Guidance. EPA/530/R-09/007, 2009.



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.121 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 2.8E-03 ug/L Per Day

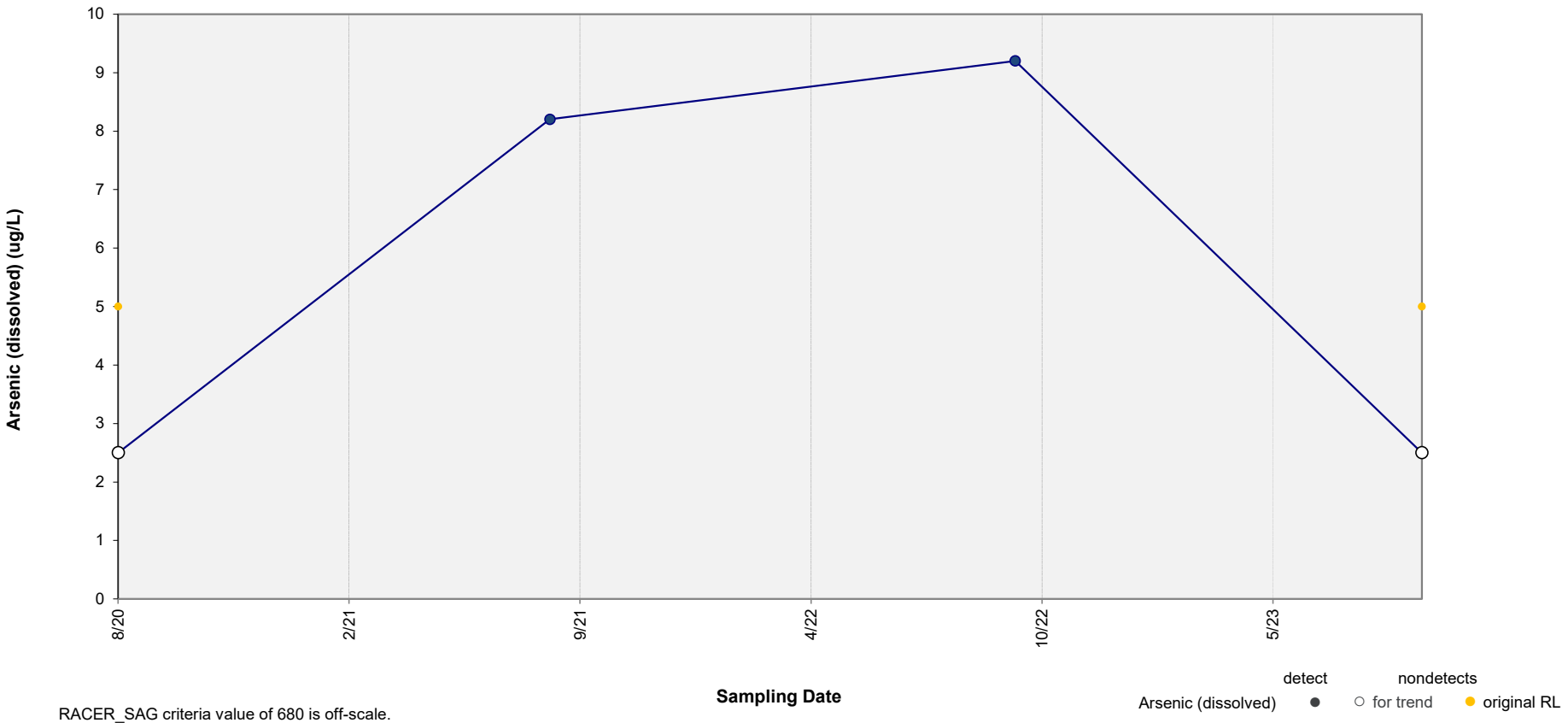
95% Confidence Interval = -1.4E-03 to 1.3E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic in Well MW-107WT

RACER Saginaw

Figure B-1



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ug/L Per Day

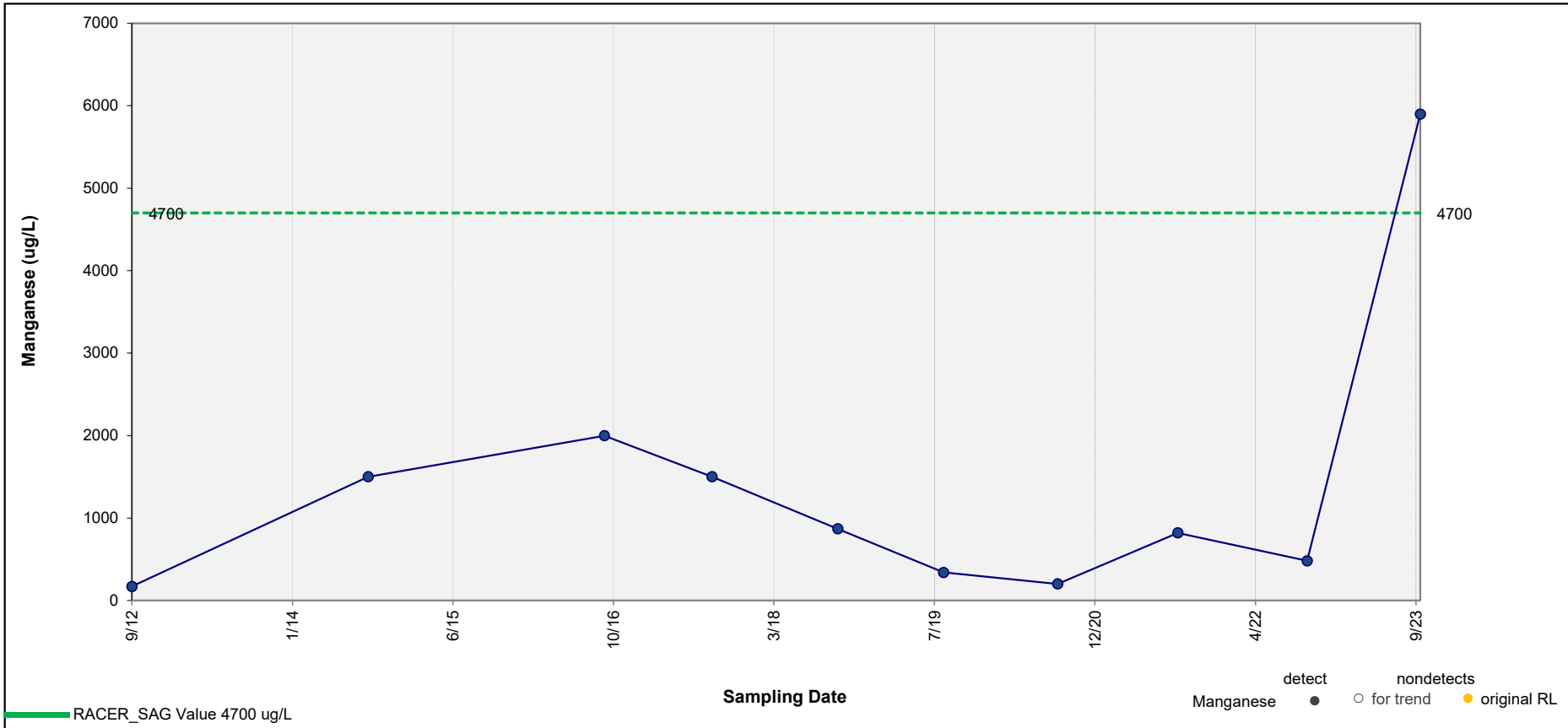
95% Confidence Interval = NA to NA ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic (dissolved) in Well MW-107WT

RACER Saginaw

Figure B-2



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.536 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

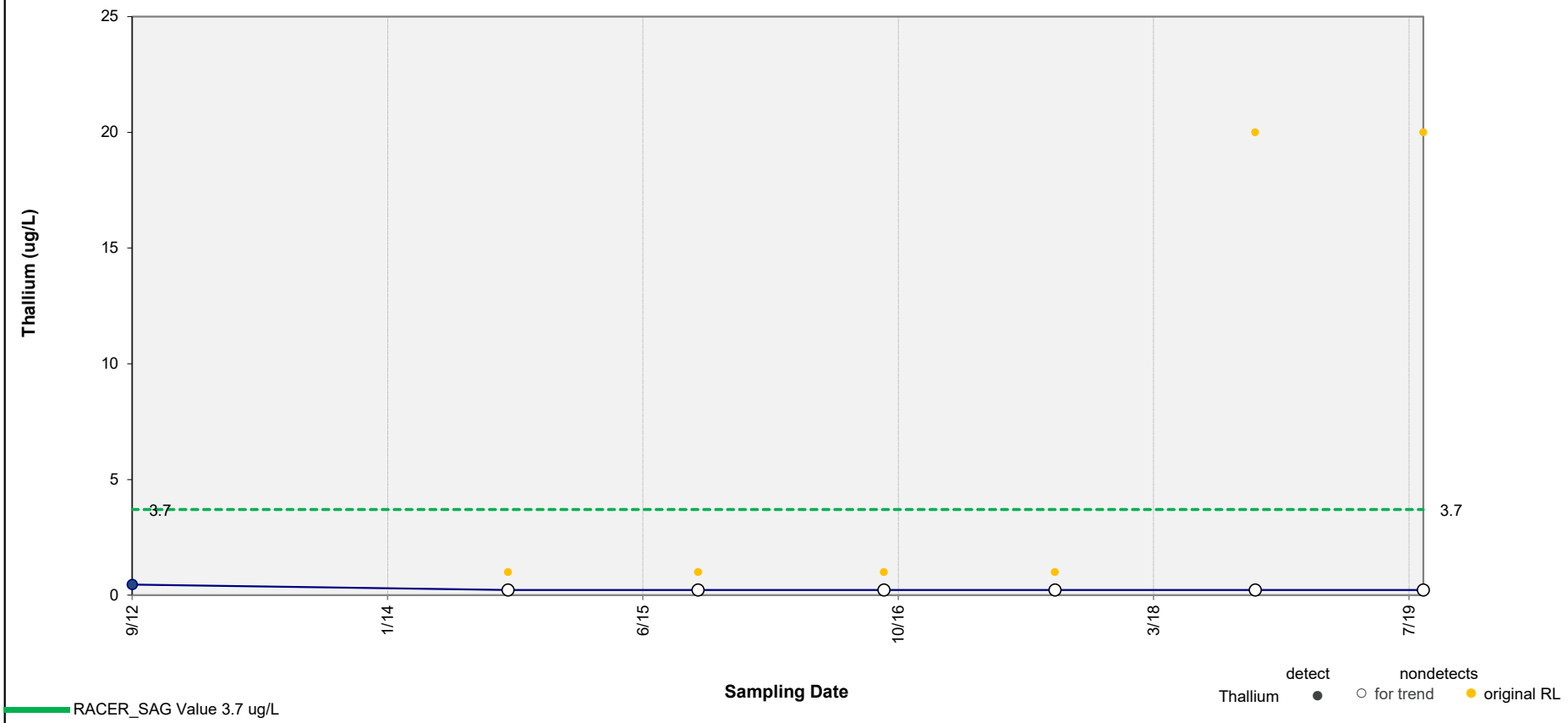
95% Confidence Interval = -6.7E-01 to 9.5E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese in Well MW-107WT

RACER Saginaw

Figure B-3



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.236 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

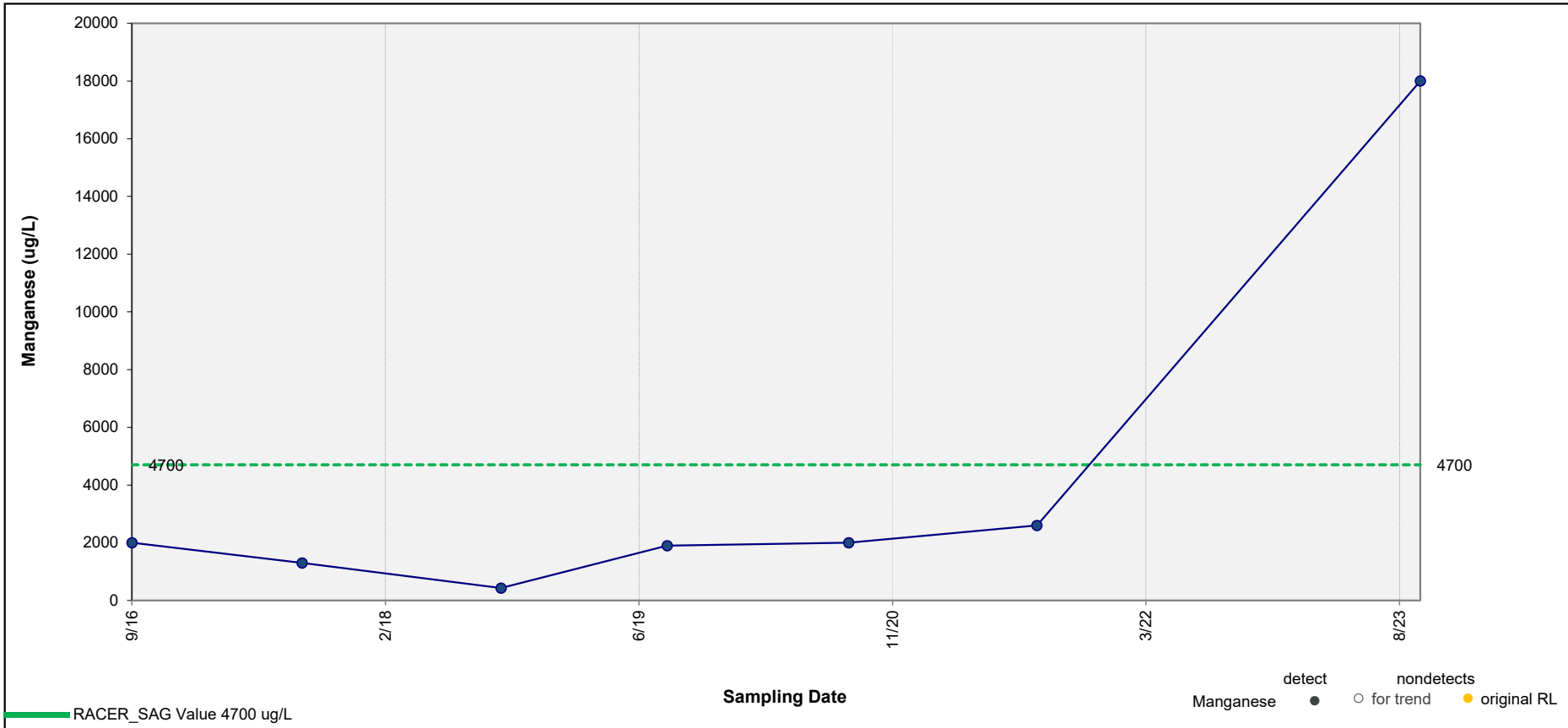
95% Confidence Interval = -3.8E-05 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Thallium in Well MW-107WT

RACER Saginaw

Figure B-4



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.052 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 9.6E-01 ug/L Per Day

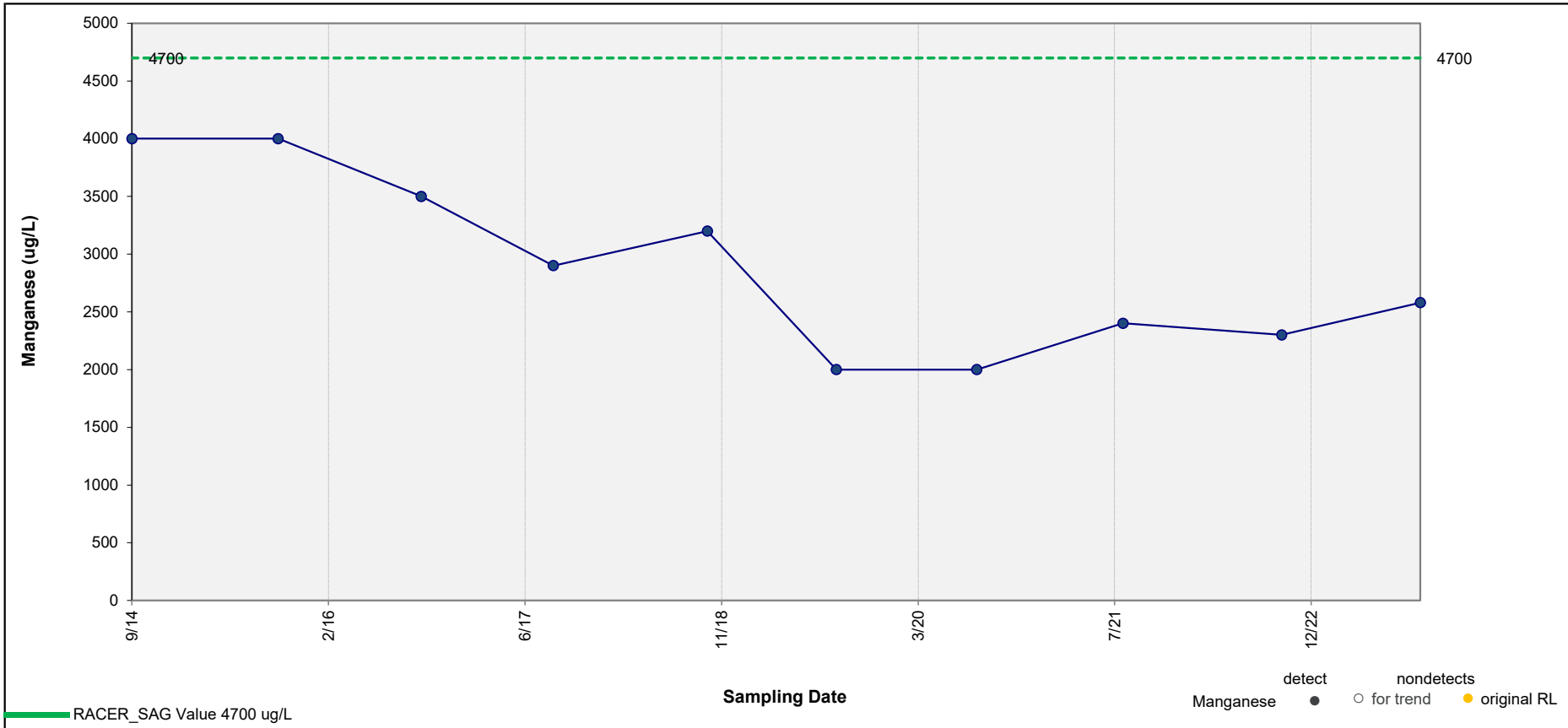
95% Confidence Interval = -9.0E-02 to 7.5E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese in Well MW-108WT

RACER Saginaw

Figure B-5



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.014 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -5.8E-01 ug/L Per Day

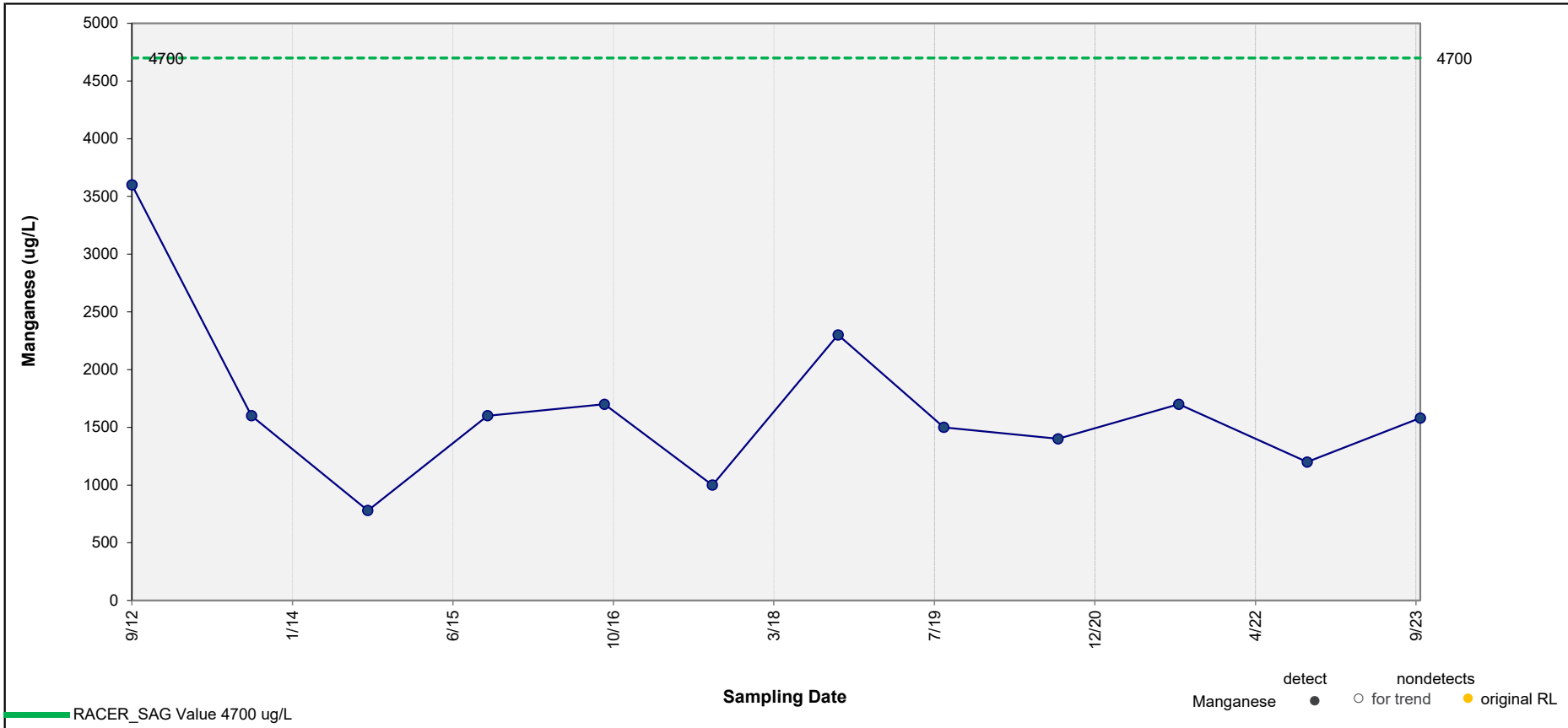
95% Confidence Interval = -1.0E+00 to -2.1E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese in Well MW-110WTR

RACER Saginaw

Figure B-6



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.268 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -5.9E-02 ug/L Per Day

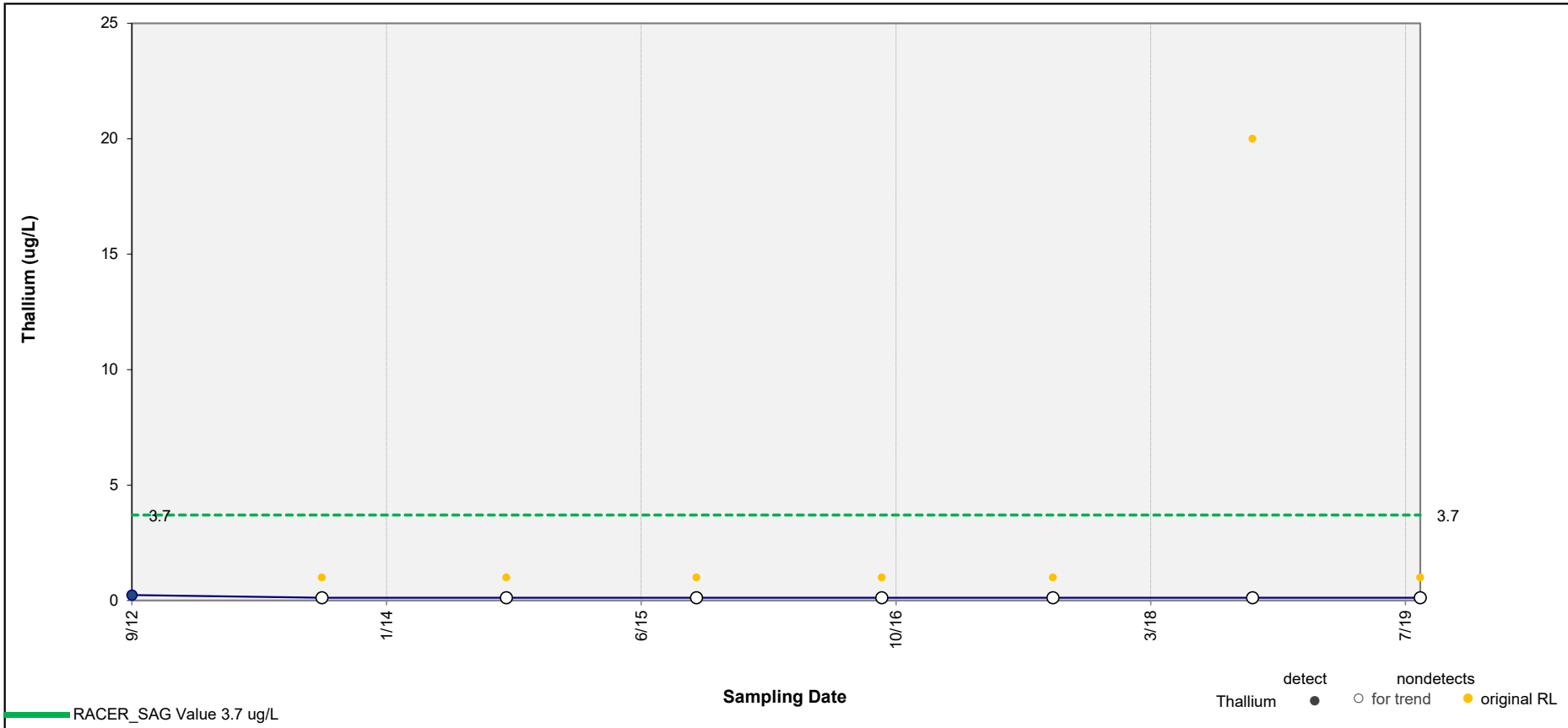
95% Confidence Interval = -5.2E-01 to 2.1E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese in Well MW-111WT

RACER Saginaw

Figure B-7



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.237 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

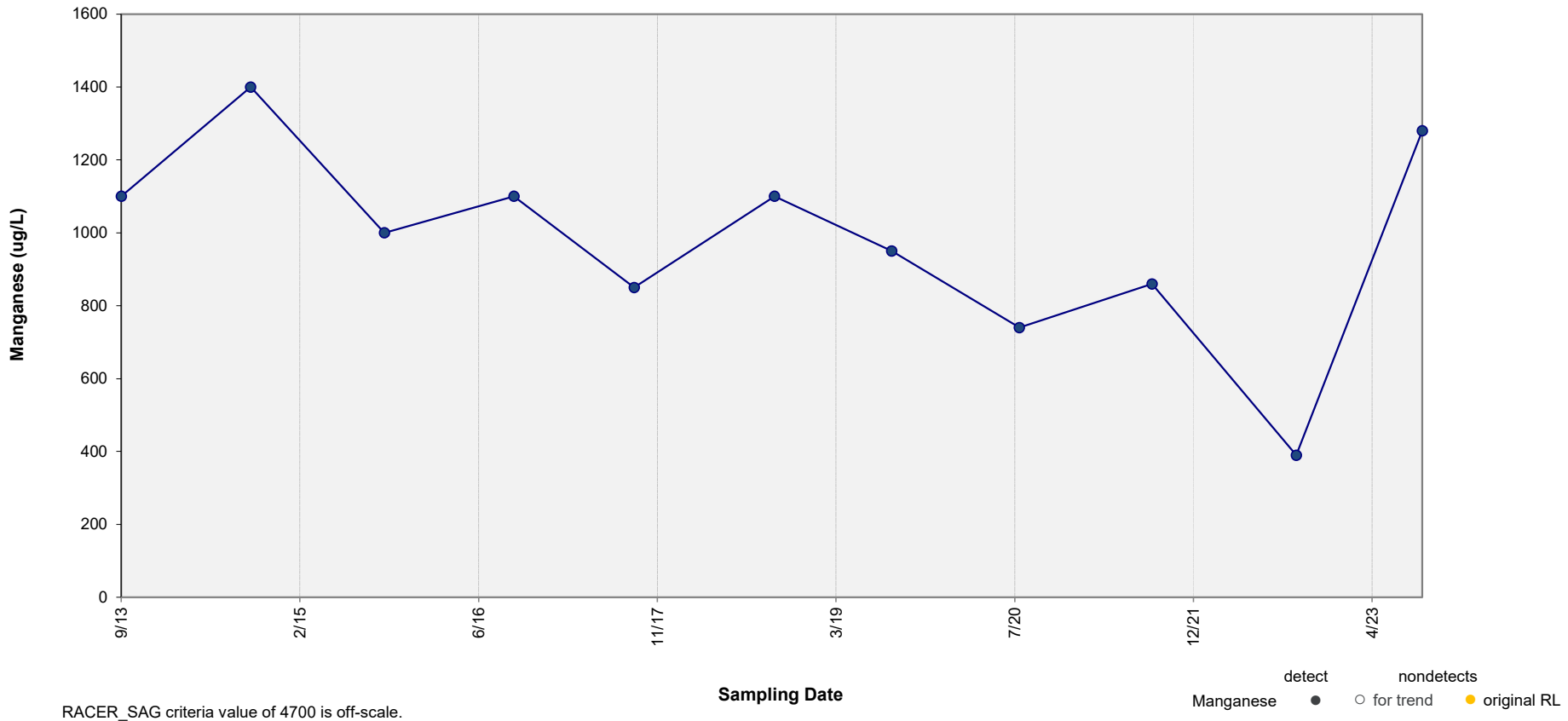
95% Confidence Interval = 0.0E+00 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Thallium in Well MW-111WT

RACER Saginaw

Figure B-8



RACER_SAG criteria value of 4700 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.067 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -1.4E-01 ug/L Per Day

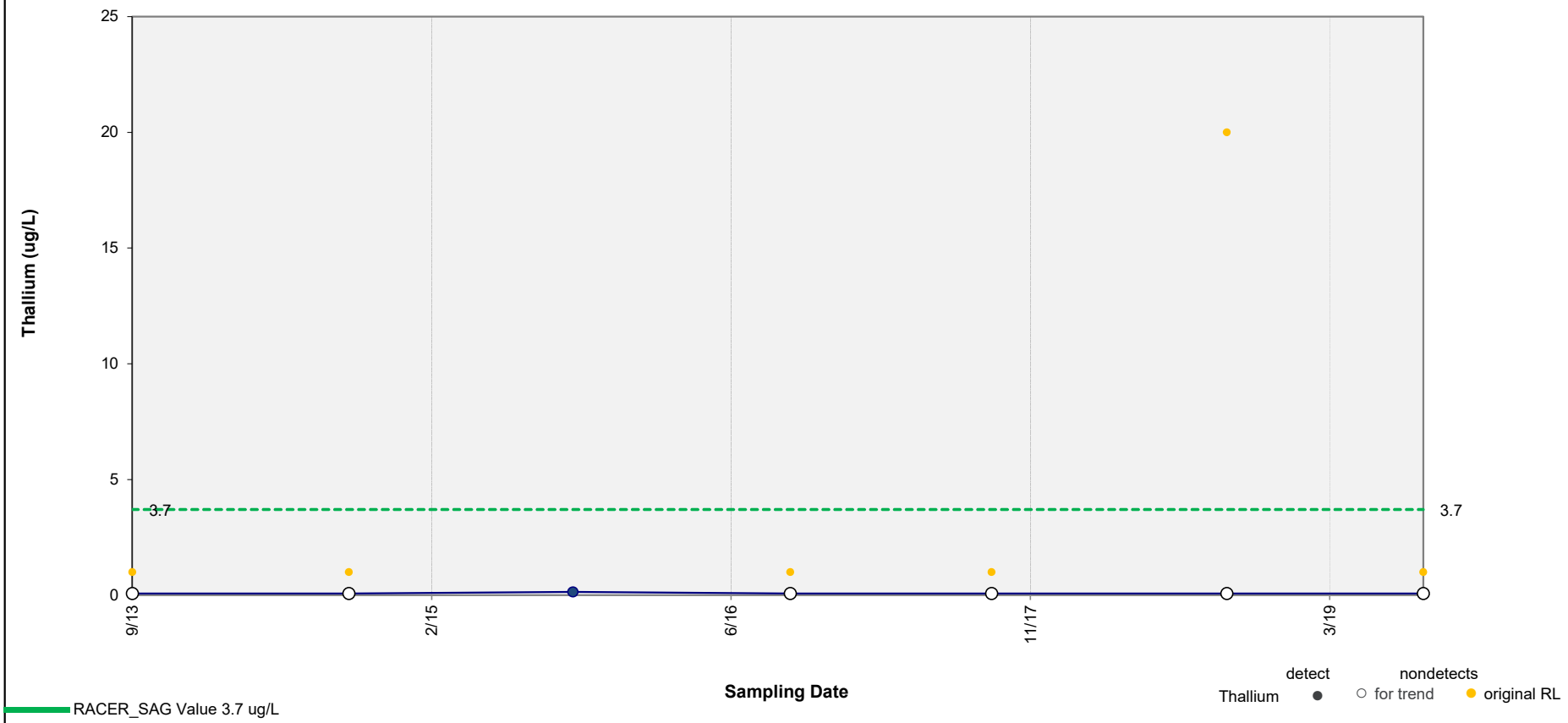
95% Confidence Interval = -2.5E-01 to 6.5E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese in Well MW-114WT

RACER Saginaw

Figure B-9



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.443 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

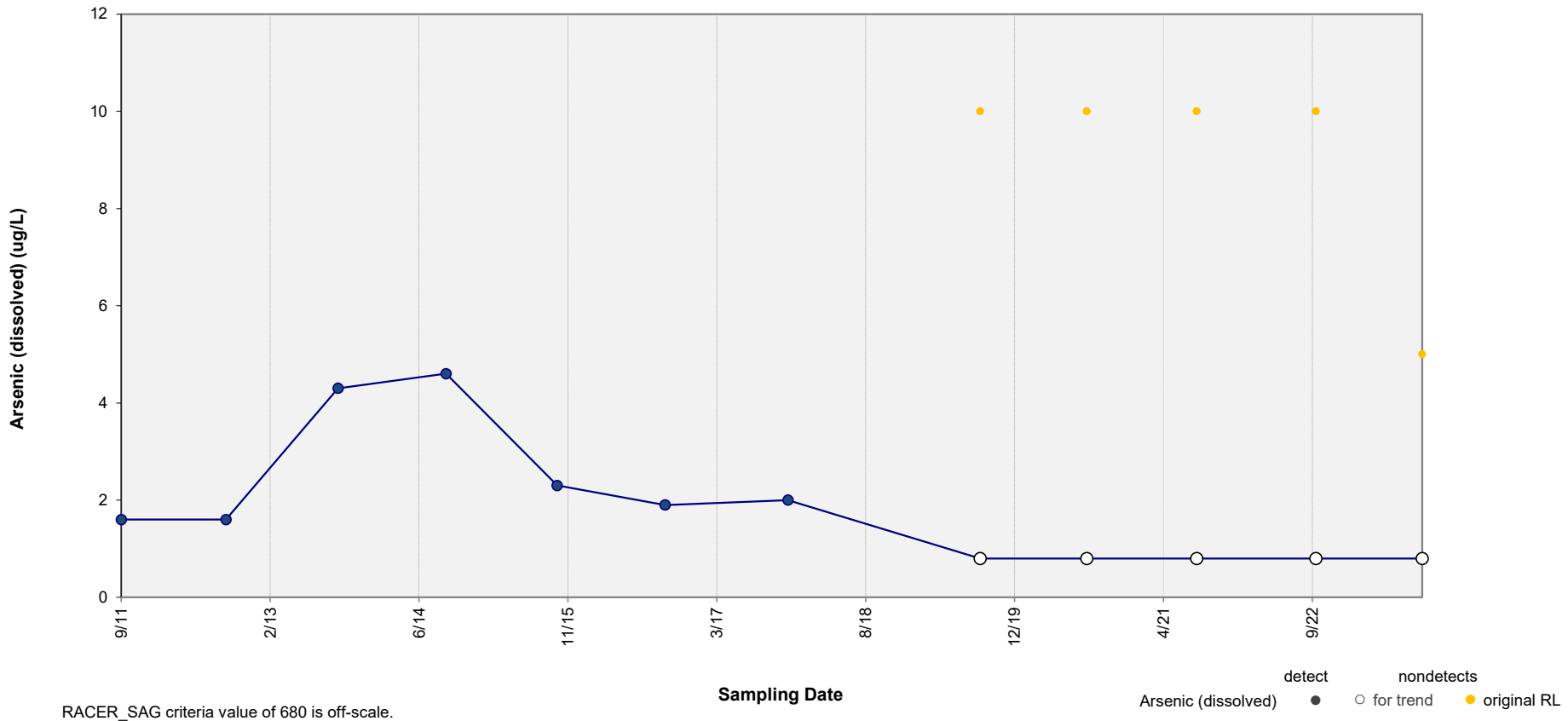
95% Confidence Interval = 0.0E+00 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Thallium in Well MW-114WT

RACER Saginaw

Figure B-10



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.016 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = -3.5E-04 ug/L Per Day

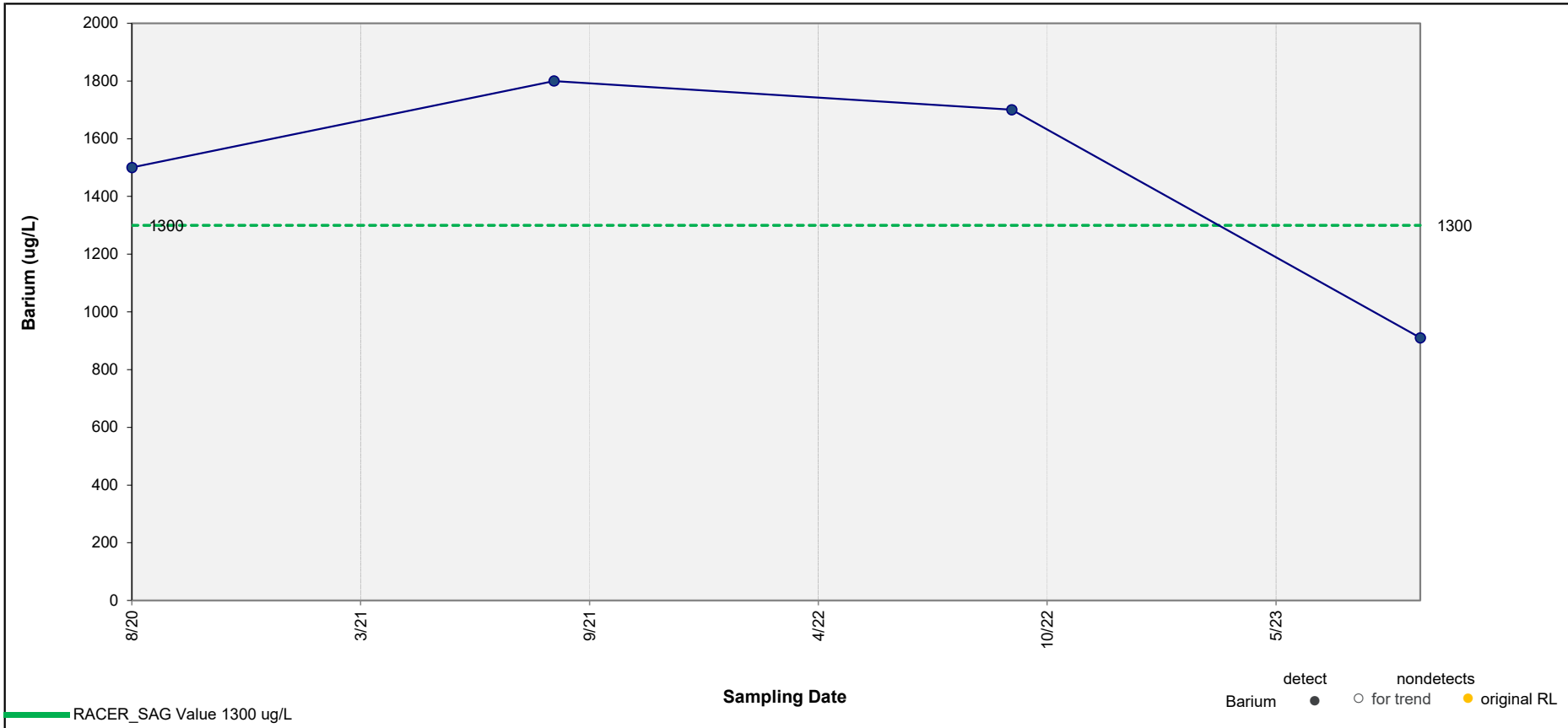
95% Confidence Interval = -1.1E-03 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic (dissolved) in Well MW-117S1

RACER Saginaw

Figure B-11



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.375 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ug/L Per Day

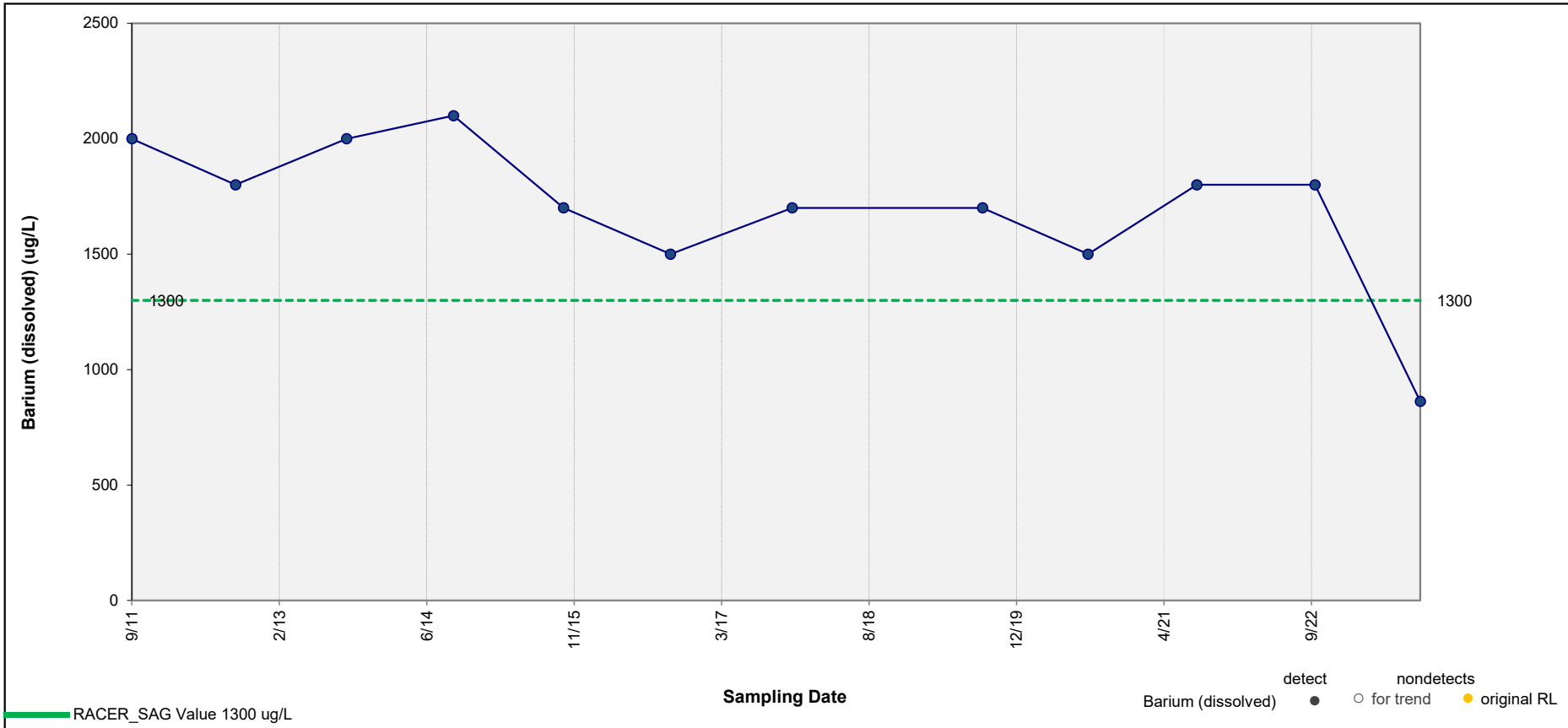
95% Confidence Interval = NA to NA ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium in Well MW-117S1

RACER Saginaw

Figure B-12



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.040 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = -1.0E-01 ug/L Per Day

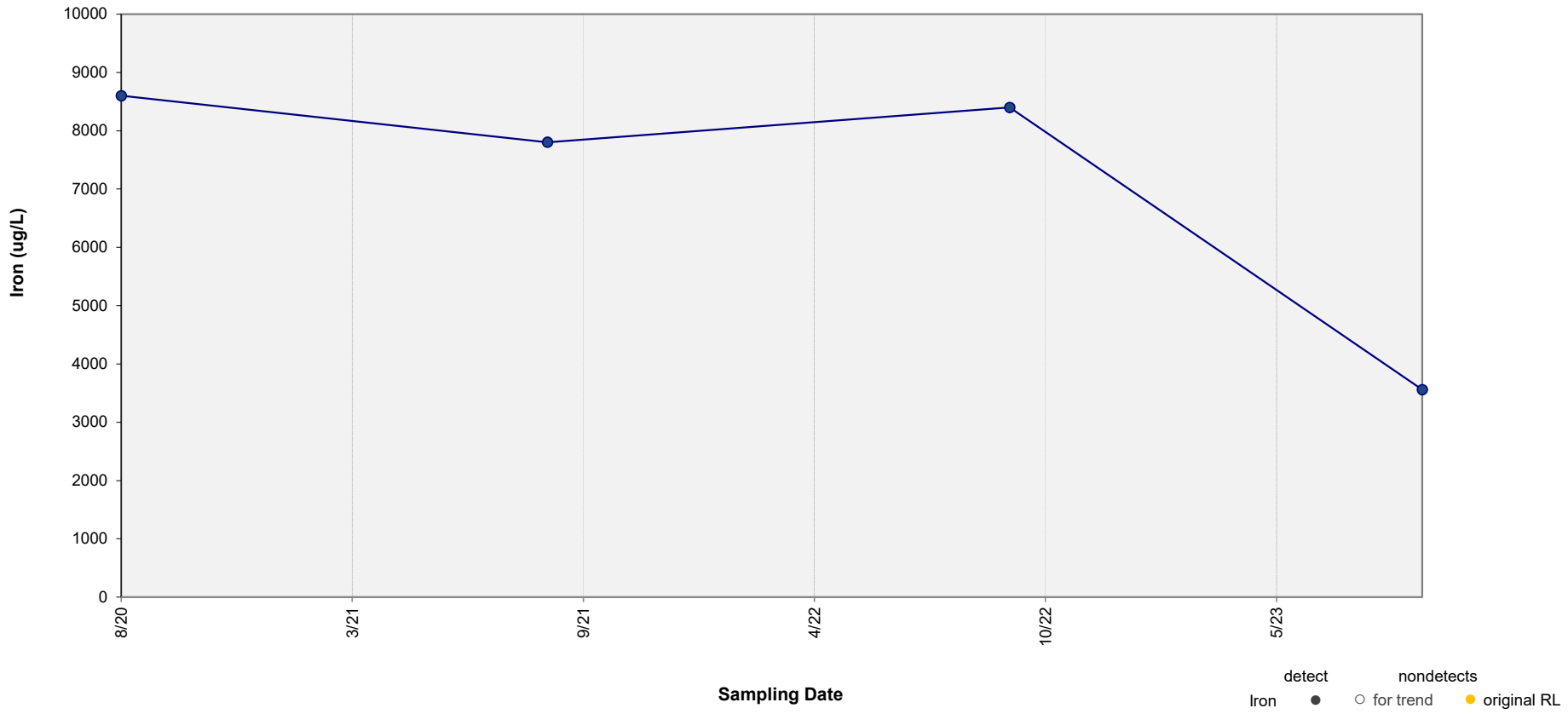
95% Confidence Interval = -2.6E-01 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium (dissolved) in Well MW-117S1

RACER Saginaw

Figure B-13



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.167 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ug/L Per Day

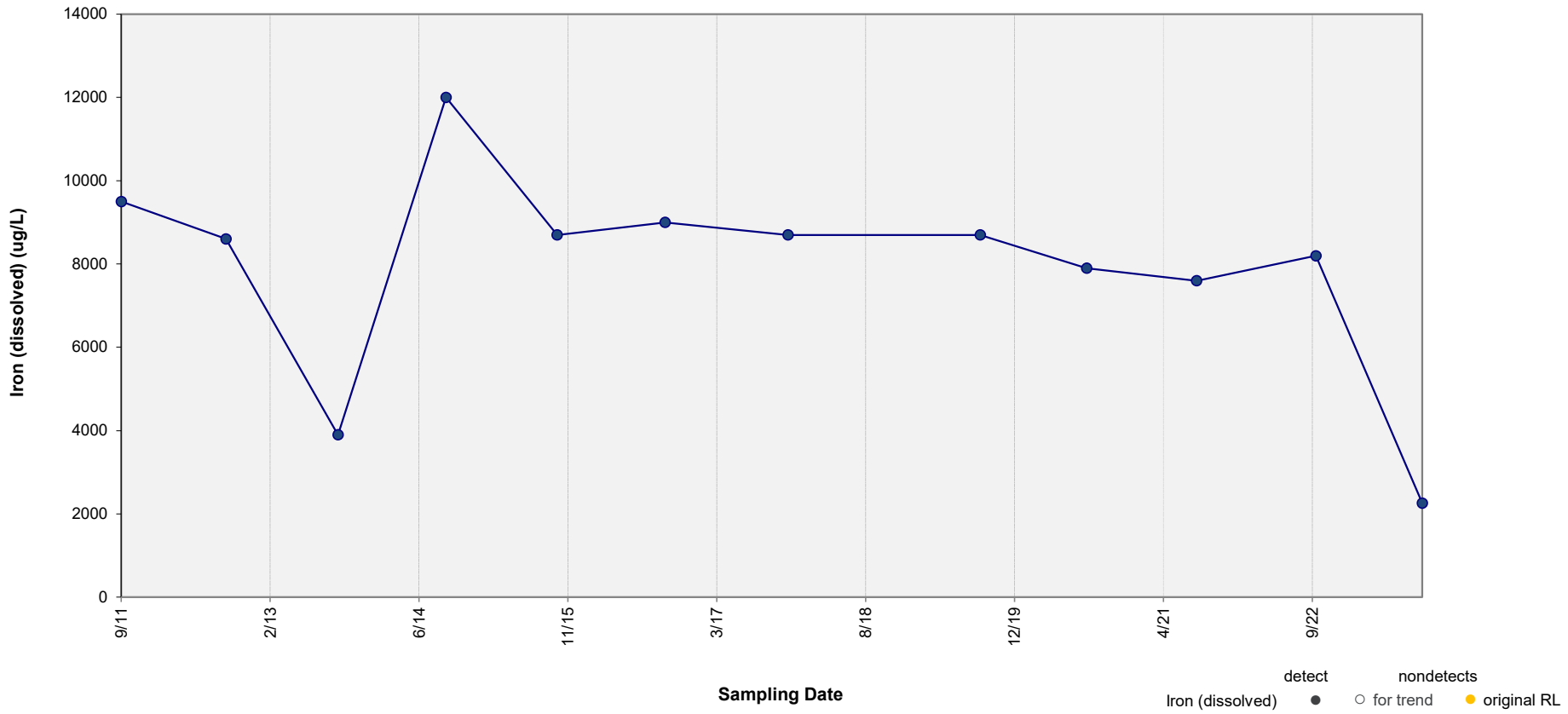
95% Confidence Interval = NA to NA ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron in Well MW-117S1

RACER Saginaw

Figure B-14



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.026 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = -4.5E-01 ug/L Per Day

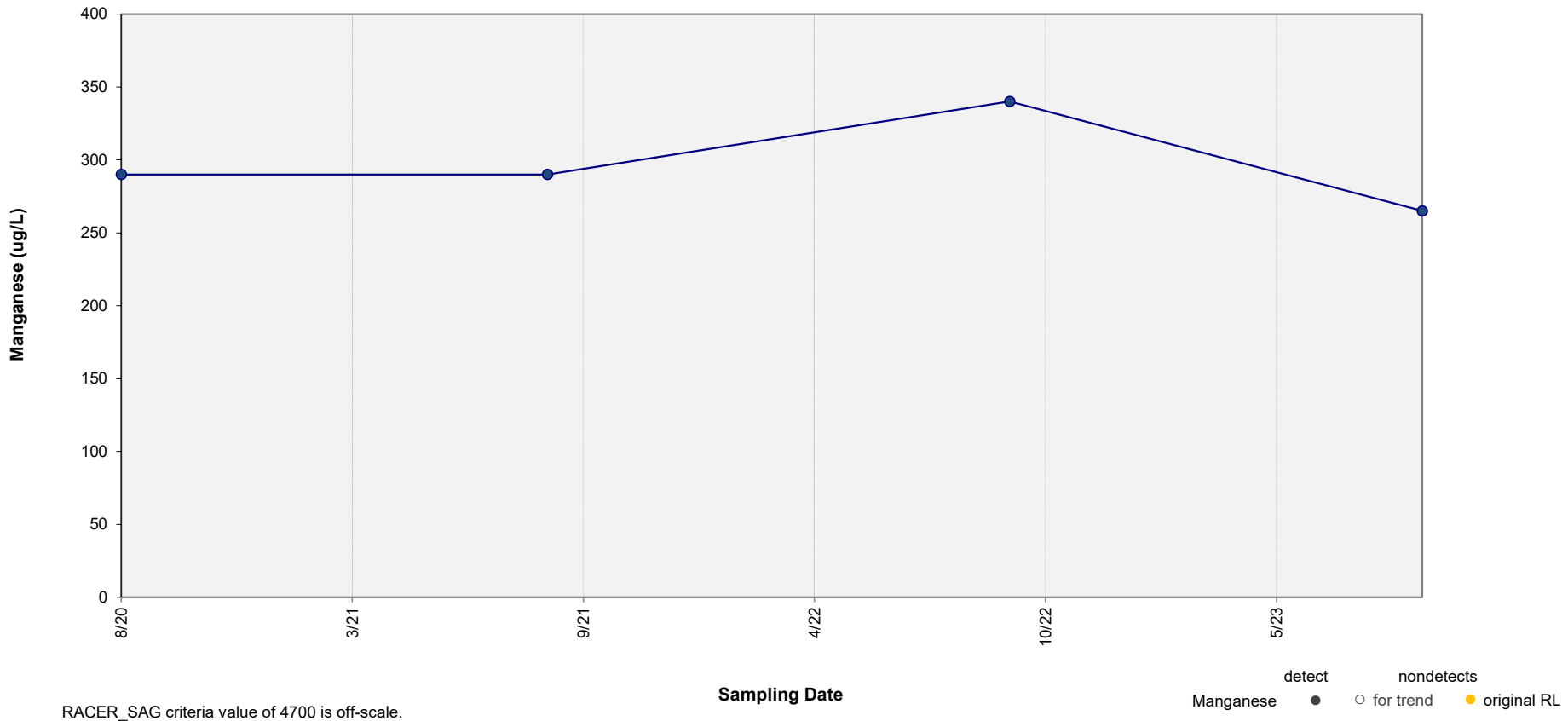
95% Confidence Interval = -1.7E+00 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron (dissolved) in Well MW-117S1

RACER Saginaw

Figure B-15



RACER_SAG criteria value of 4700 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ug/L Per Day

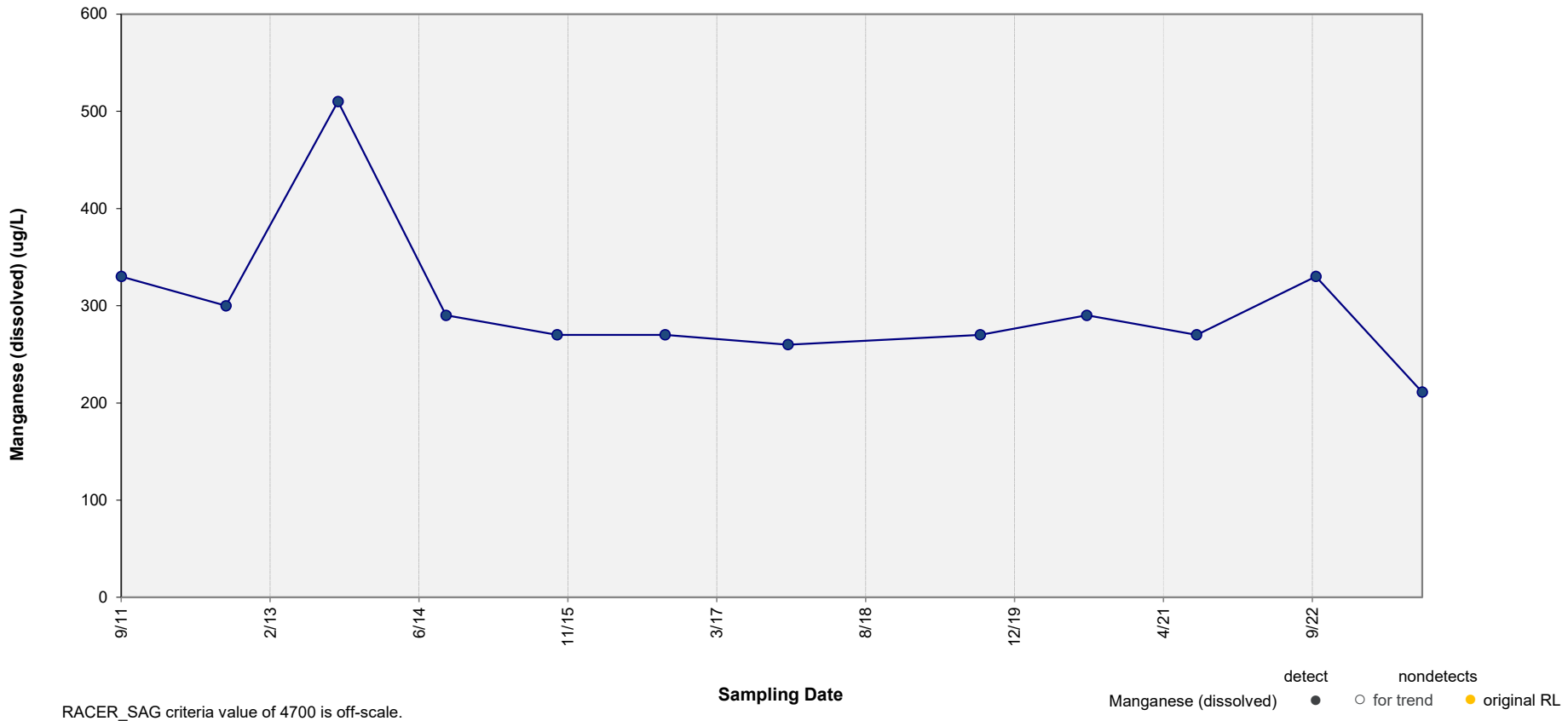
95% Confidence Interval = NA to NA ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese in Well MW-117S1

RACER Saginaw

Figure B-16



RACER_SAG criteria value of 4700 is off-scale.

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.039 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = -1.8E-02 ug/L Per Day

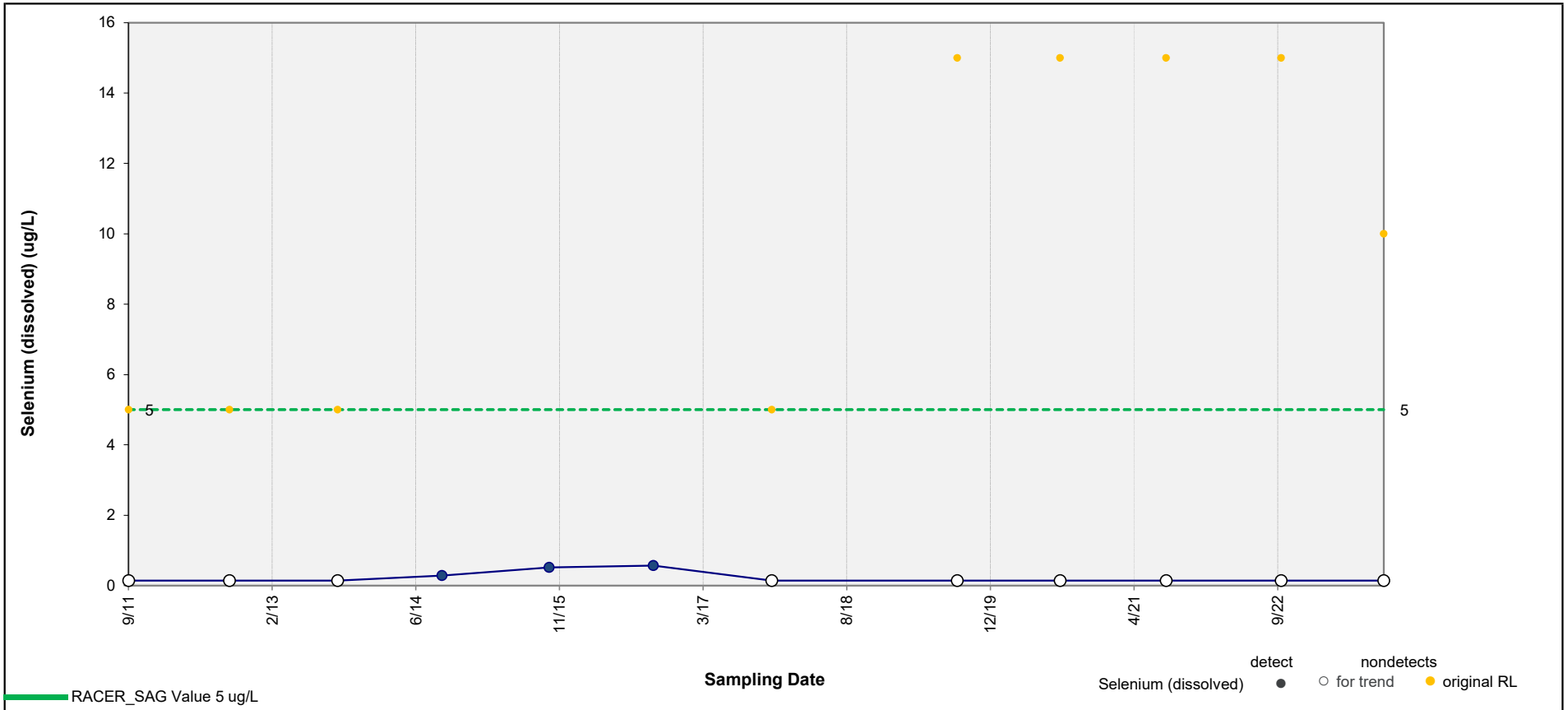
95% Confidence Interval = -3.3E-02 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese (dissolved) in Well MW-117S1

RACER Saginaw

Figure B-17



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.324 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

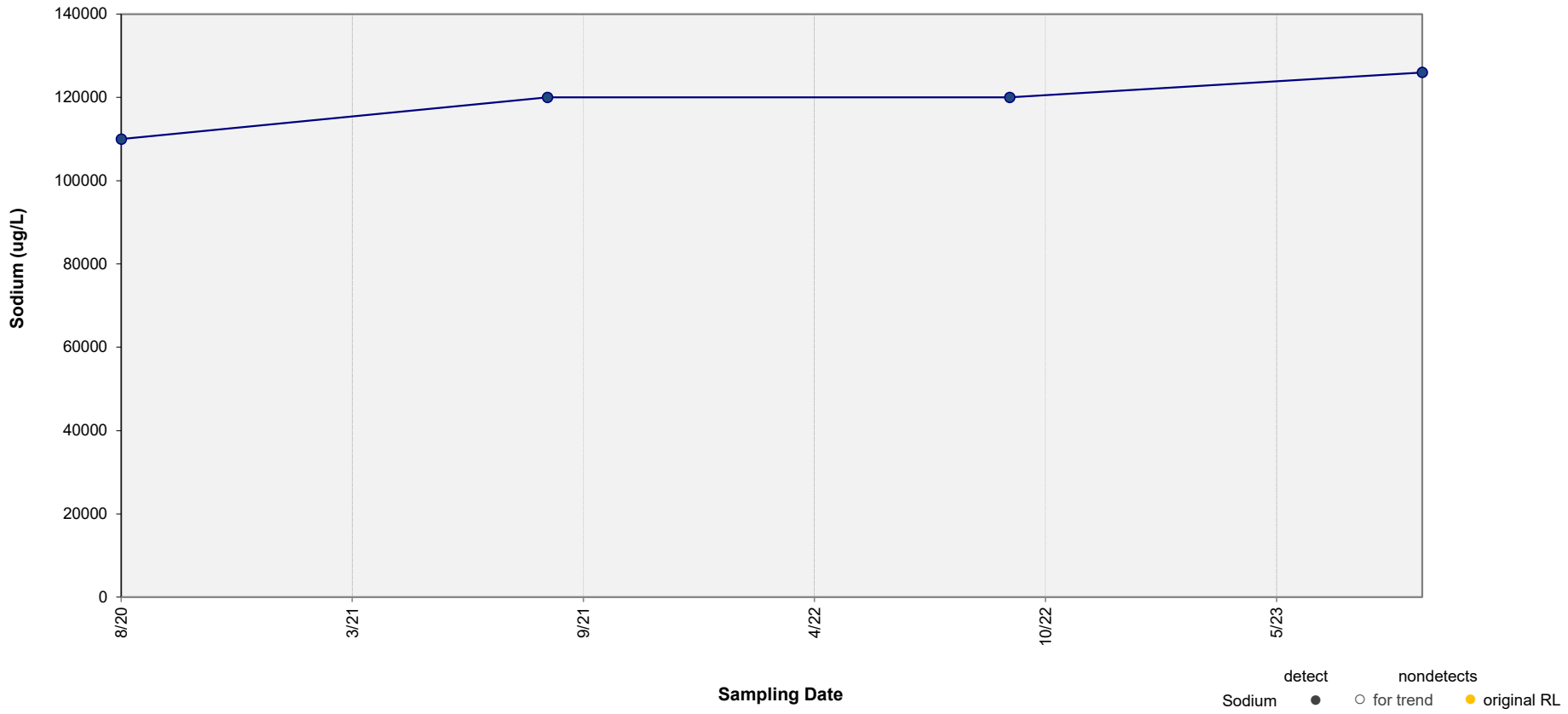
95% Confidence Interval = 0.0E+00 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Selenium (dissolved) in Well MW-117S1

RACER Saginaw

Figure B-18



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.105 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ug/L Per Day

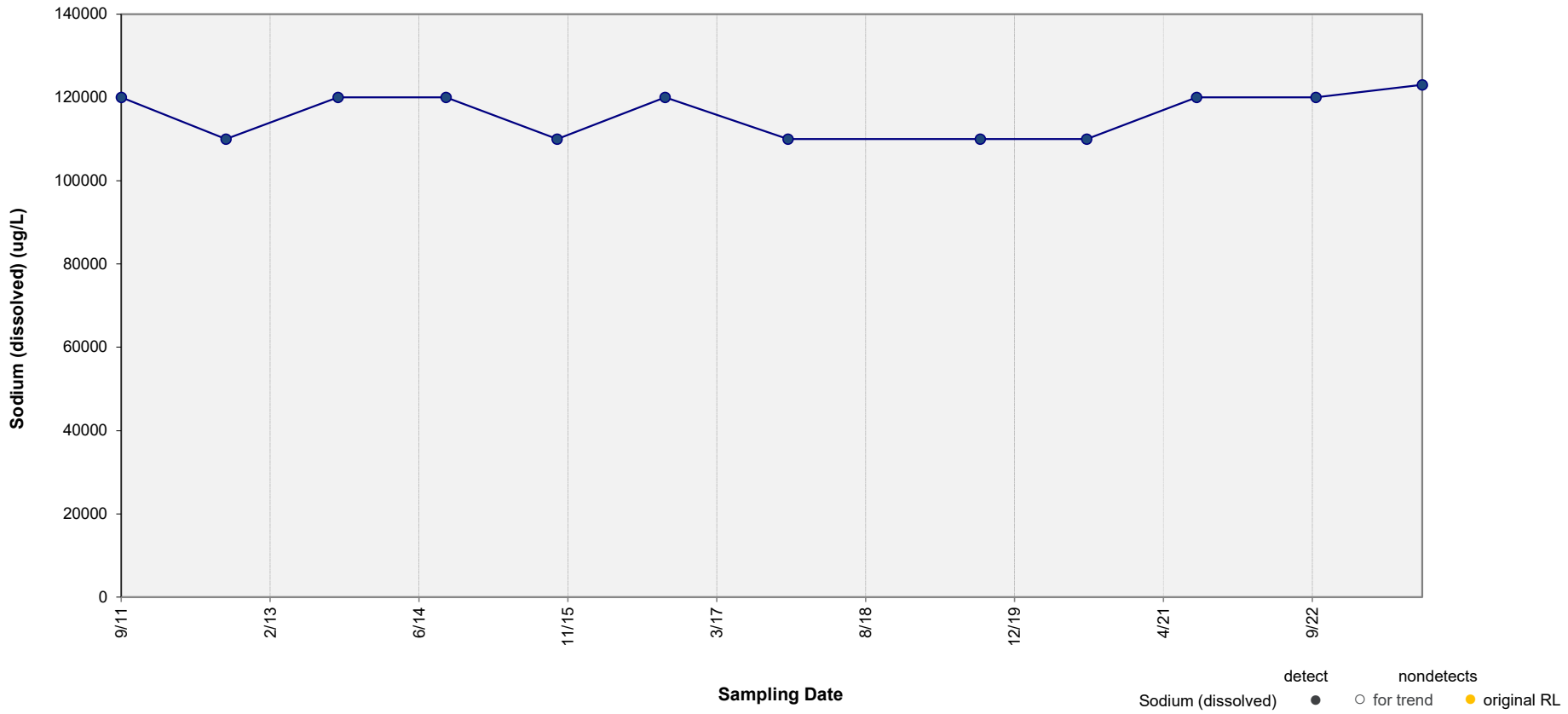
95% Confidence Interval = NA to NA ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium in Well MW-117S1

RACER Saginaw

Figure B-19



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.268 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

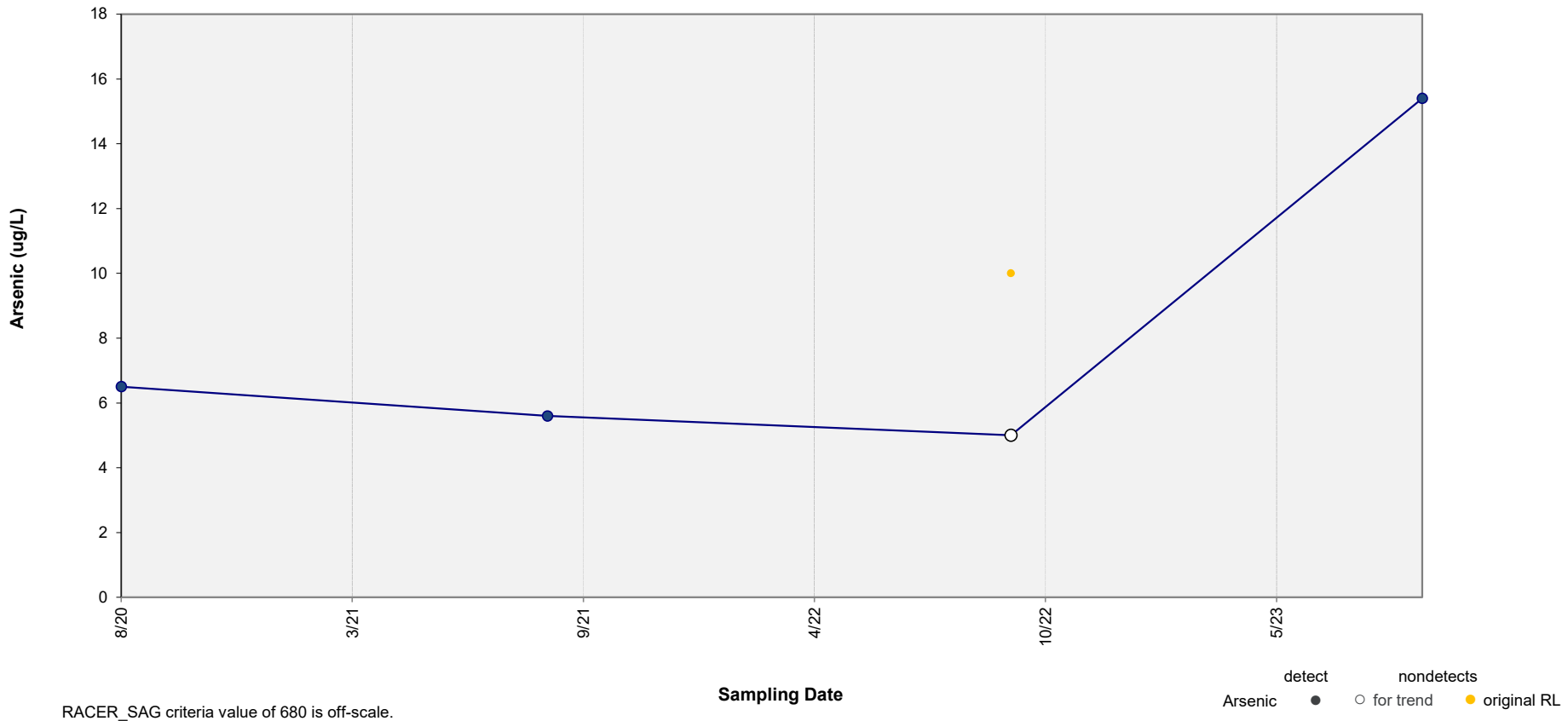
95% Confidence Interval = 0.0E+00 to 2.3E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium (dissolved) in Well MW-117S1

RACER Saginaw

Figure B-20



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.625 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ug/L Per Day

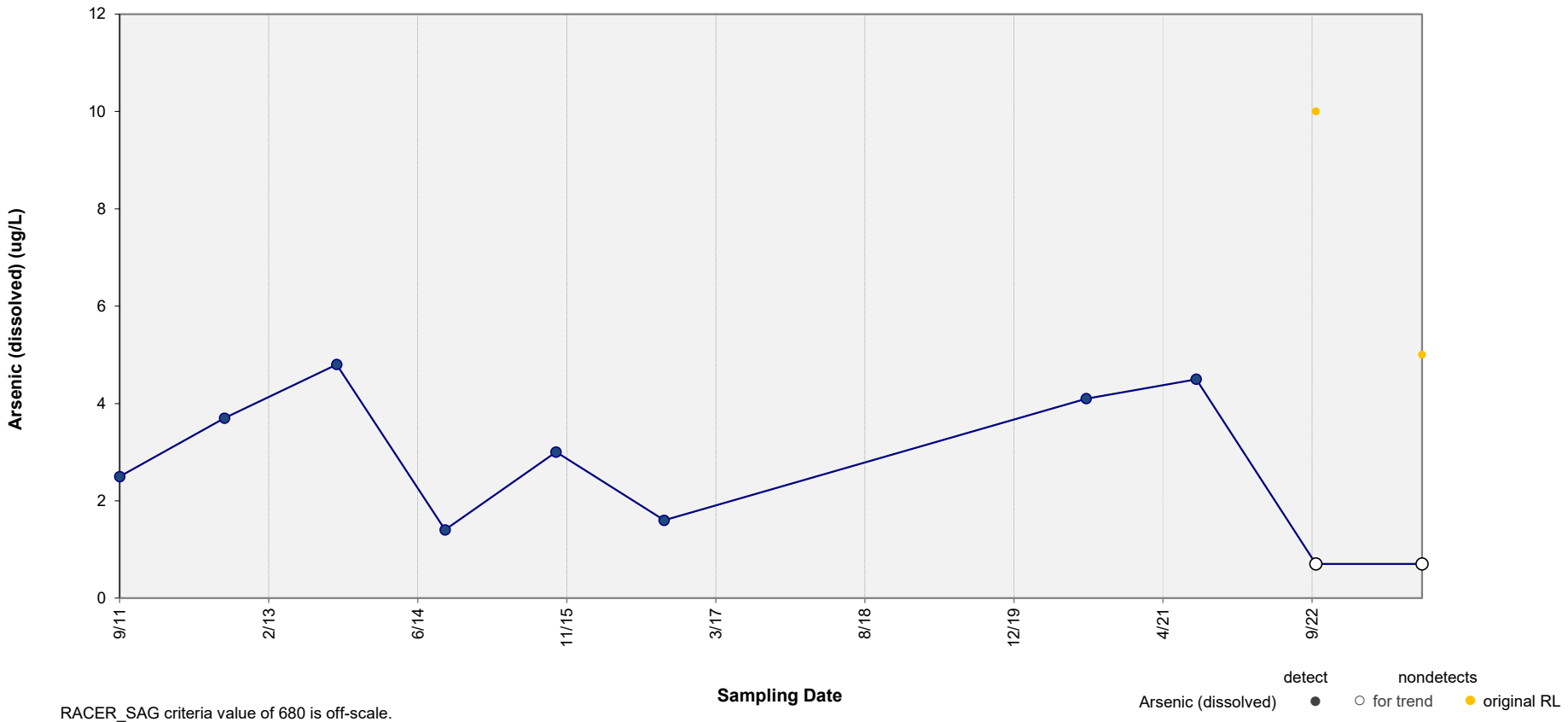
95% Confidence Interval = NA to NA ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic in Well MW-117WT

RACER Saginaw

Figure B-21



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.216 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -3.5E-04 ug/L Per Day

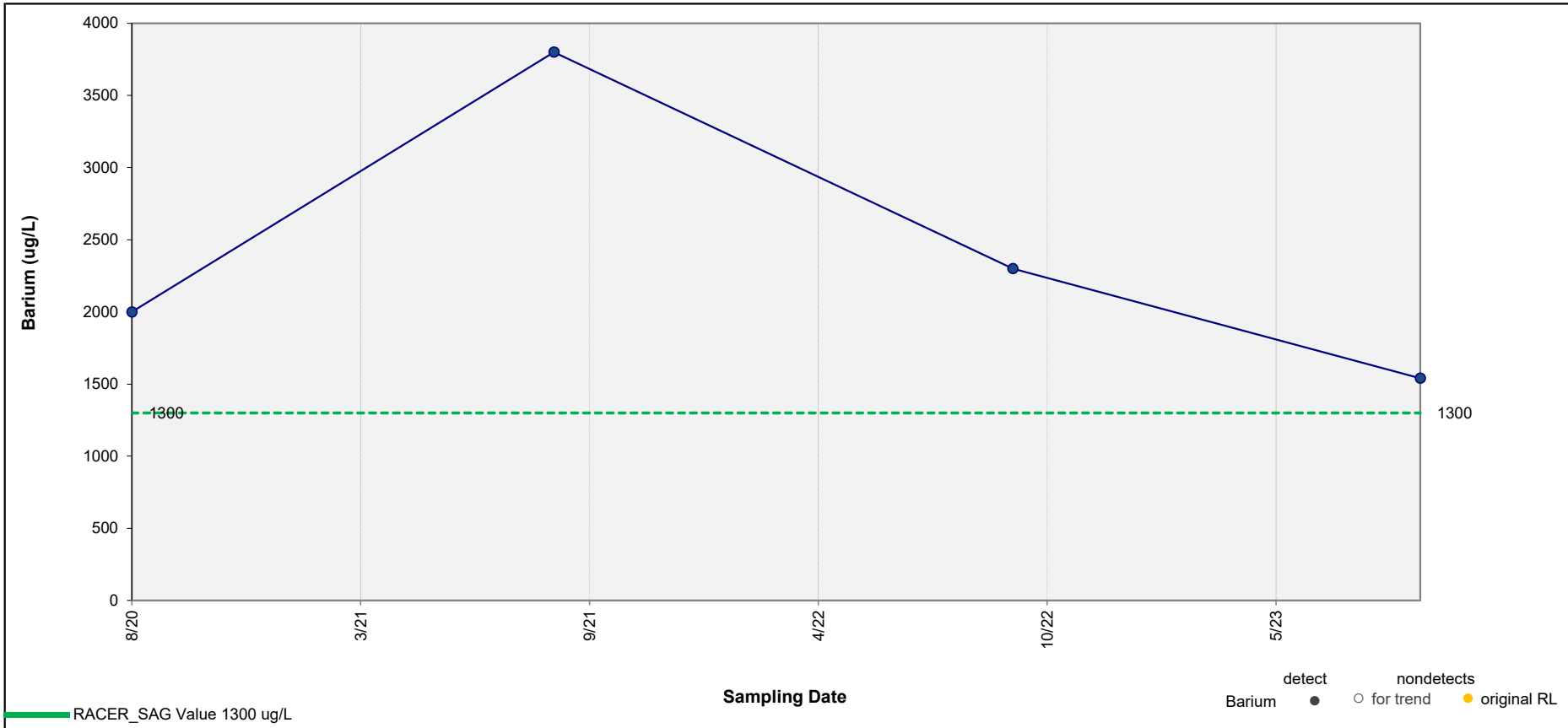
95% Confidence Interval = -1.2E-03 to 5.2E-04 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic (dissolved) in Well MW-117WT

RACER Saginaw

Figure B-22



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.375 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ug/L Per Day

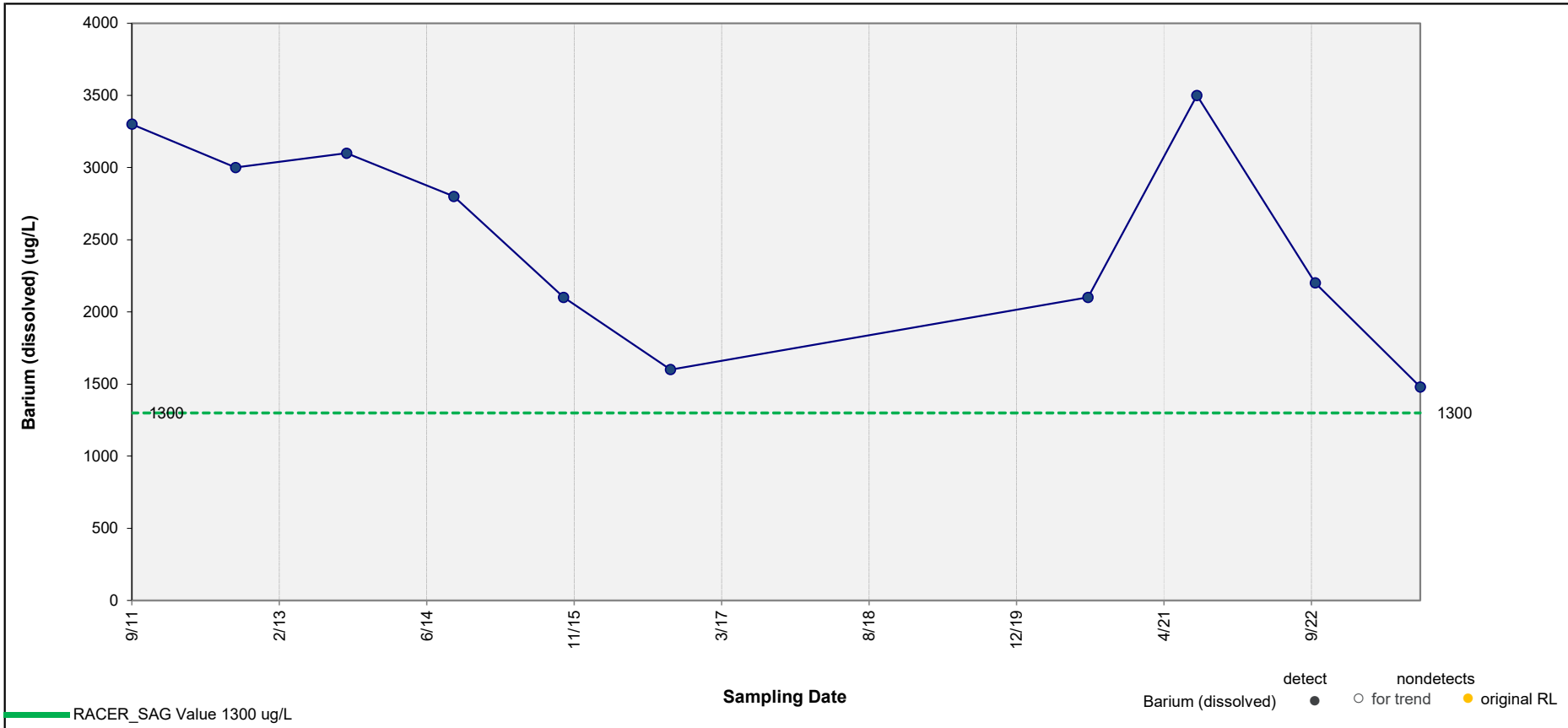
95% Confidence Interval = NA to NA ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium in Well MW-117WT

RACER Saginaw

Figure B-23



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.045 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -3.3E-01 ug/L Per Day

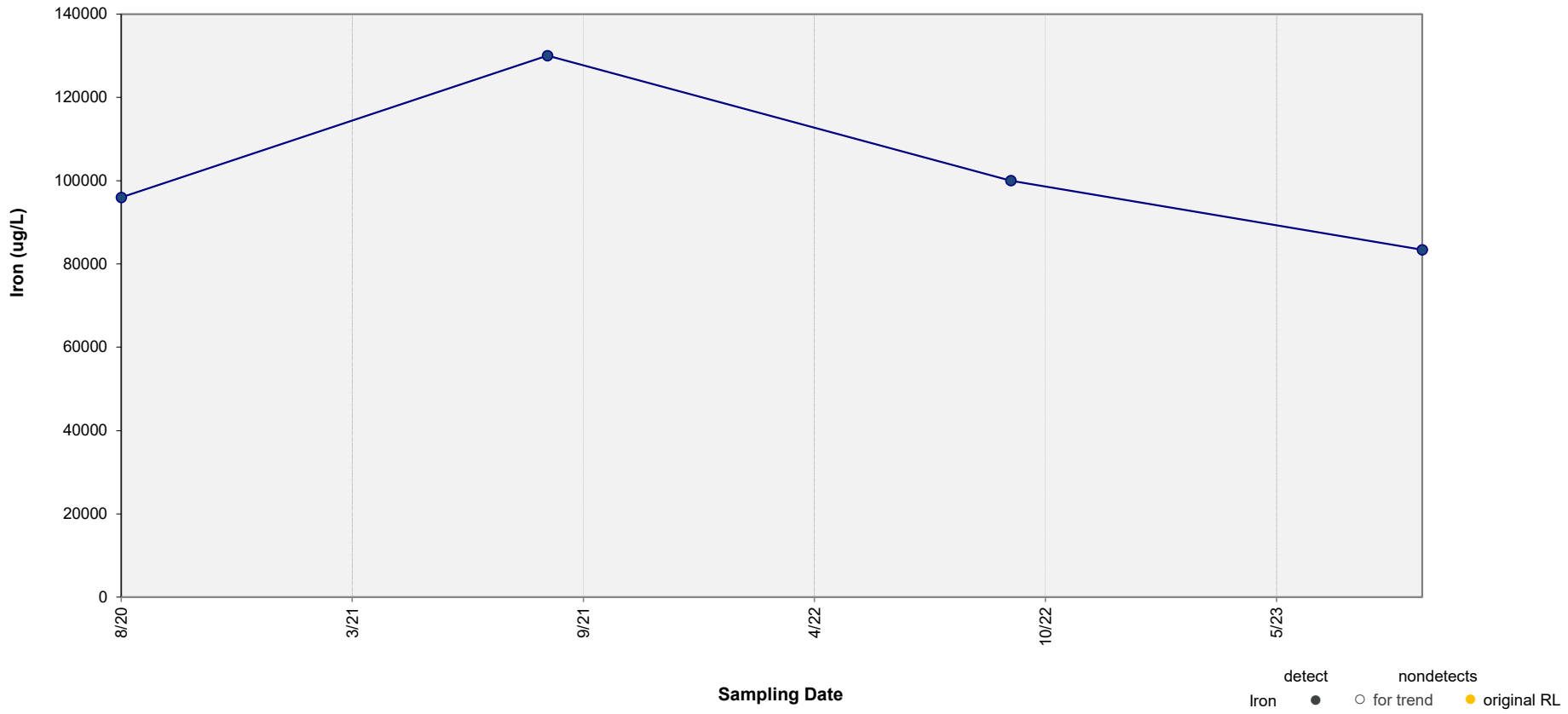
95% Confidence Interval = -8.4E-01 to 1.6E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium (dissolved) in Well MW-117WT

RACER Saginaw

Figure B-24



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.375 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ug/L Per Day

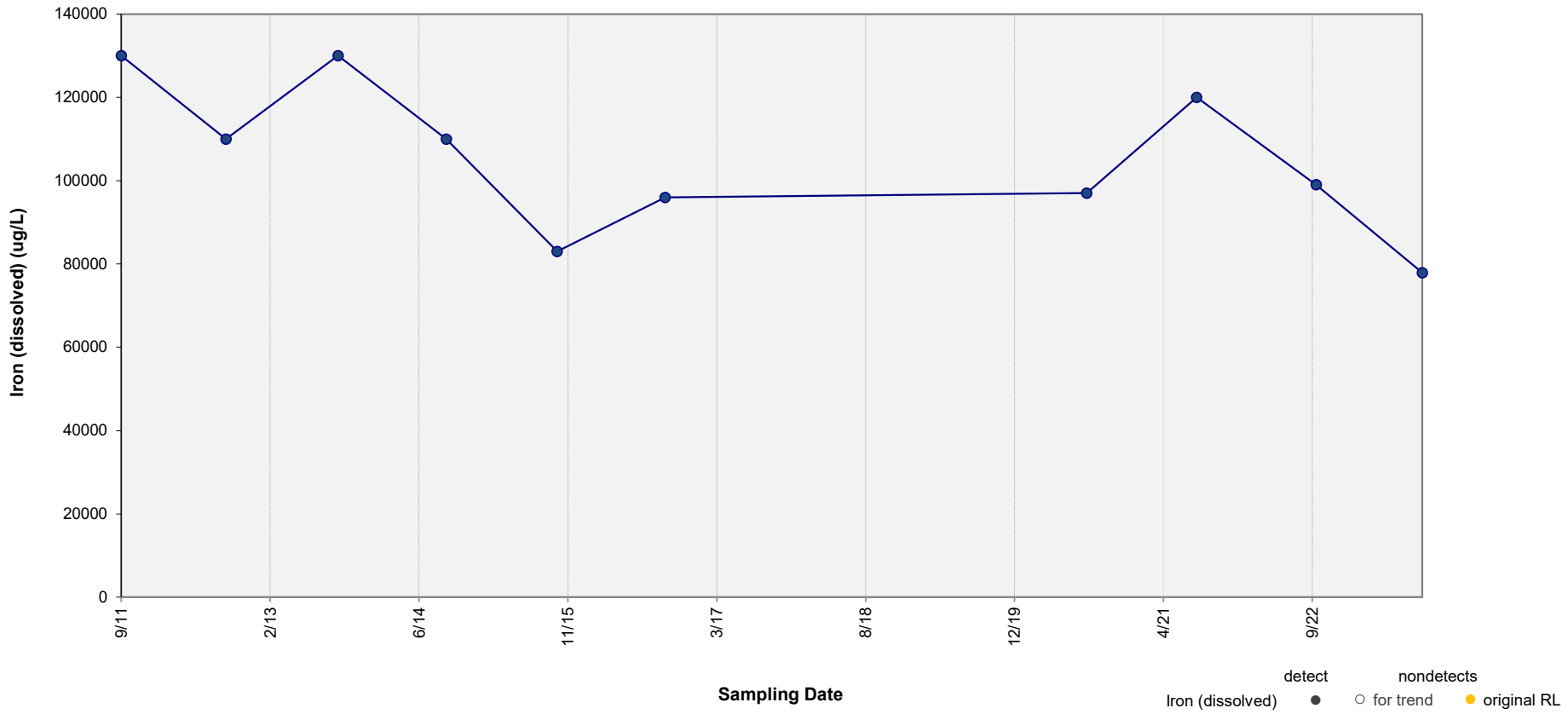
95% Confidence Interval = NA to NA ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron in Well MW-117WT

RACER Saginaw

Figure B-25



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.054 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -7.7E+00 ug/L Per Day

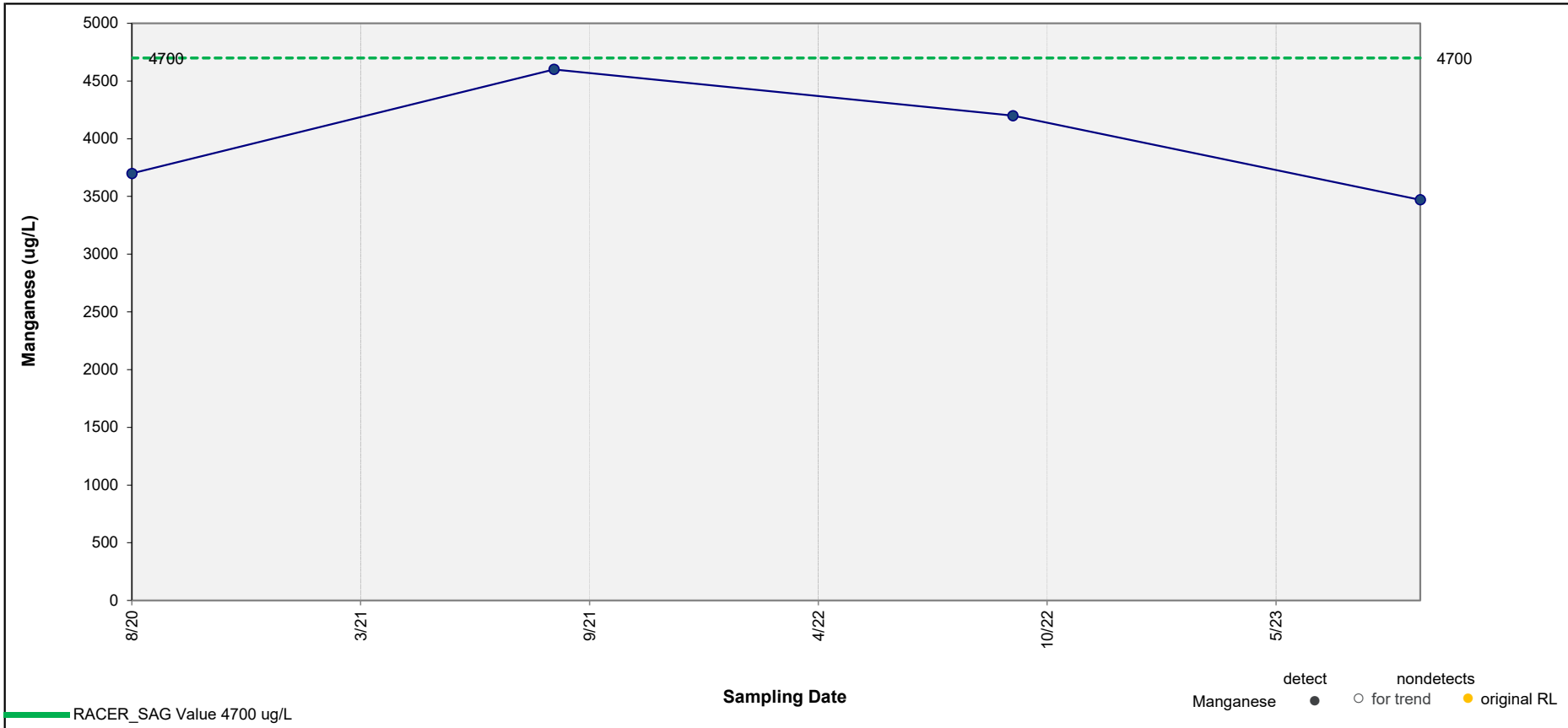
95% Confidence Interval = -1.9E+01 to 2.6E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron (dissolved) in Well MW-117WT

RACER Saginaw

Figure B-26



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.375 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ug/L Per Day

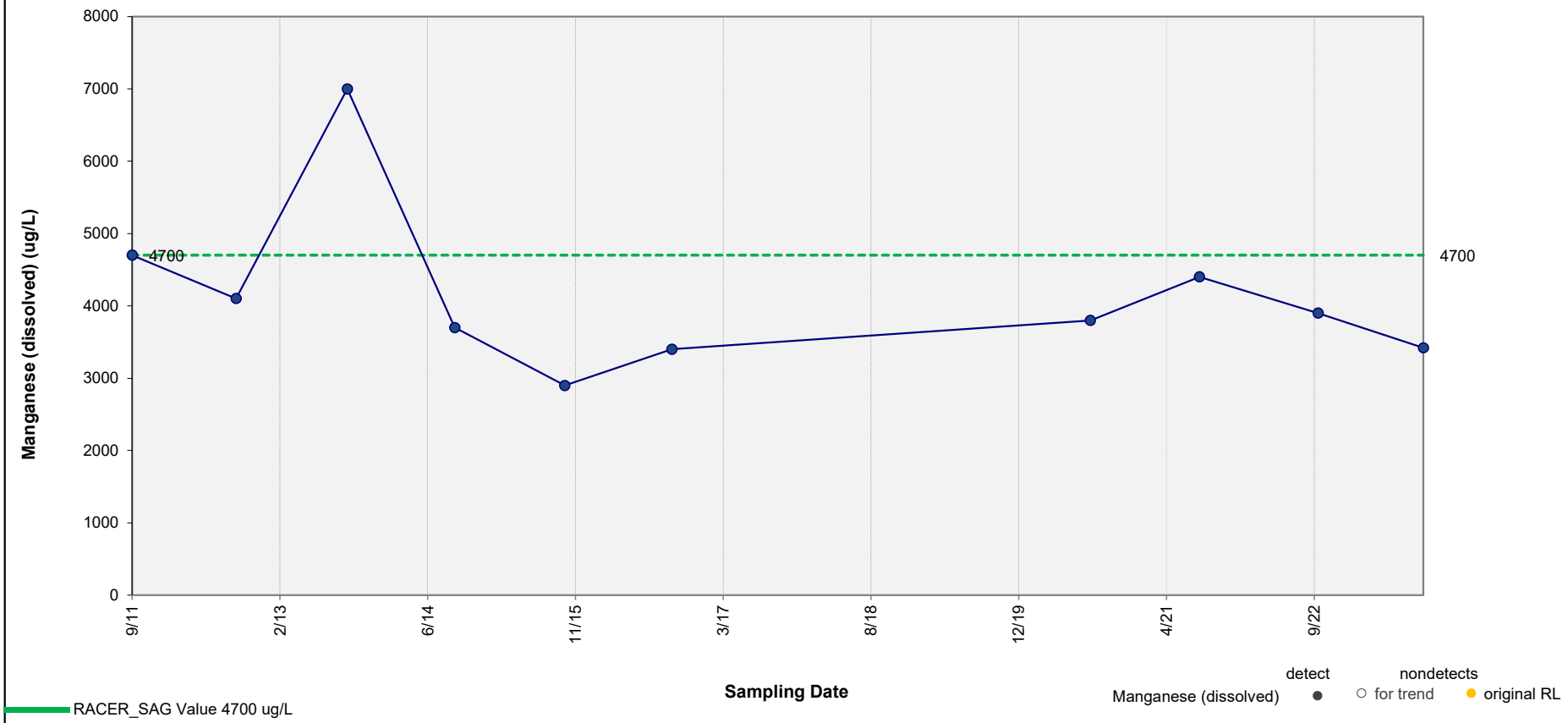
95% Confidence Interval = NA to NA ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese in Well MW-117WT

RACER Saginaw

Figure B-27



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.190 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -2.0E-01 ug/L Per Day

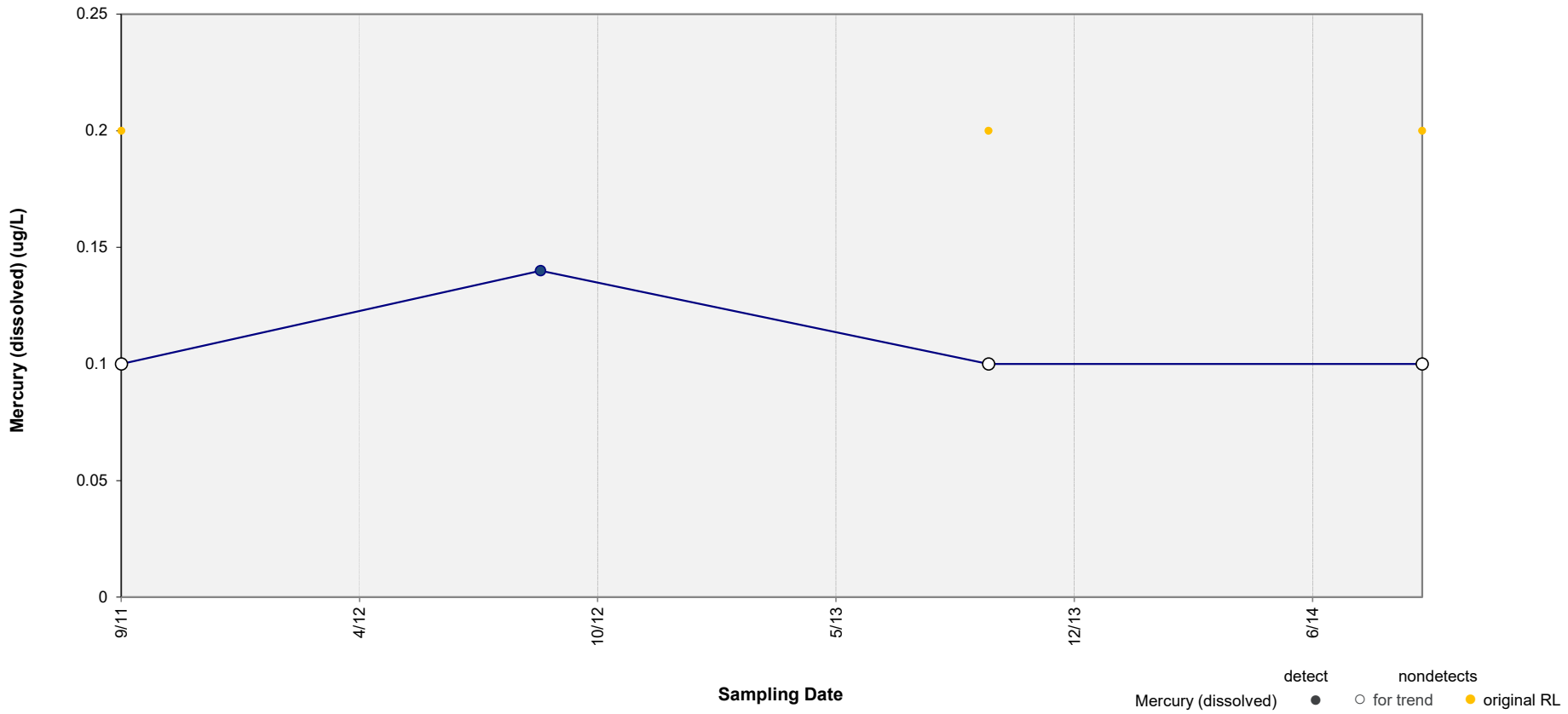
95% Confidence Interval = -1.0E+00 to 1.5E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese (dissolved) in Well MW-117WT

RACER Saginaw

Figure B-28



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ug/L Per Day

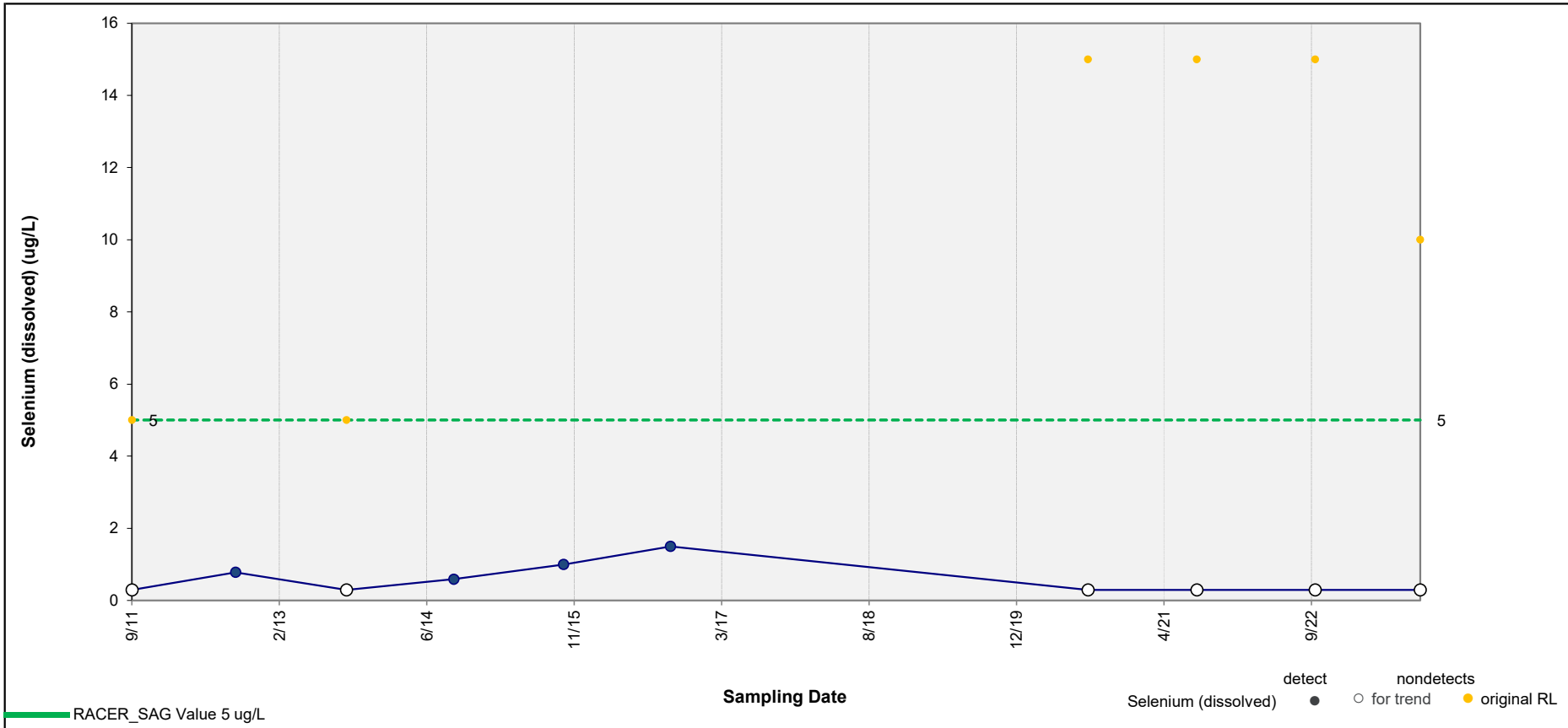
95% Confidence Interval = NA to NA ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Mercury (dissolved) in Well MW-117WT

RACER Saginaw

Figure B-29



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.332 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

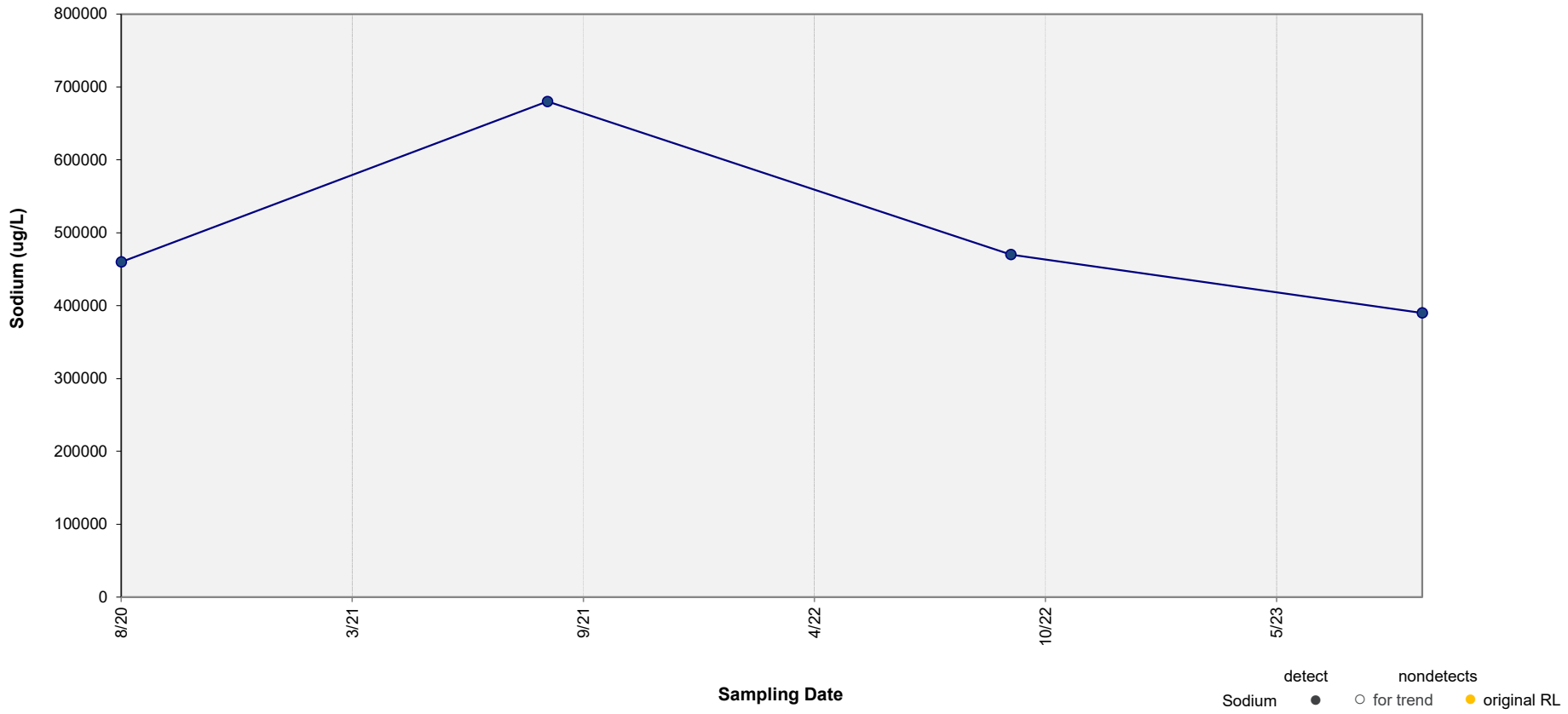
95% Confidence Interval = -1.4E-04 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Selenium (dissolved) in Well MW-117WT

RACER Saginaw

Figure B-30



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.375 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ug/L Per Day

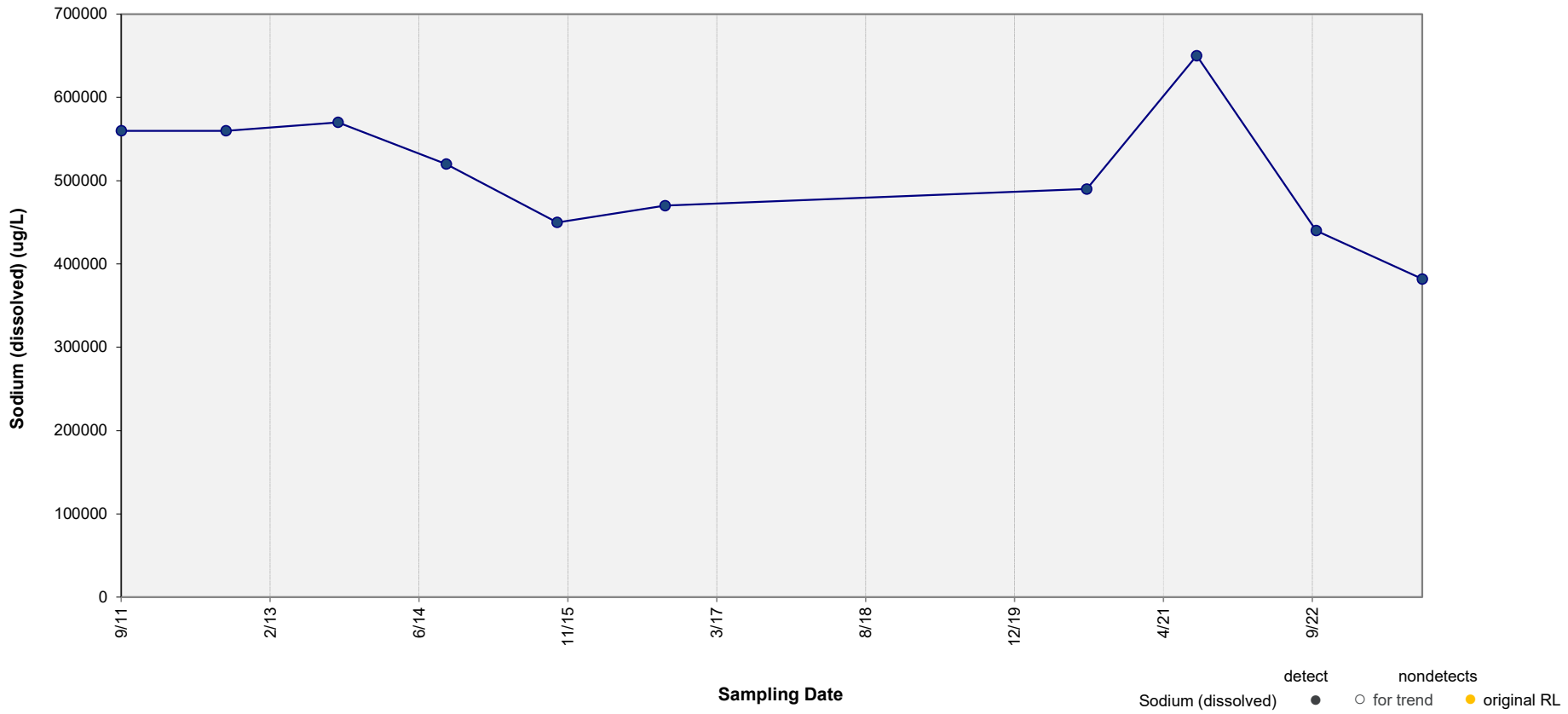
95% Confidence Interval = NA to NA ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium in Well MW-117WT

RACER Saginaw

Figure B-31



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.045 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -3.3E+01 ug/L Per Day

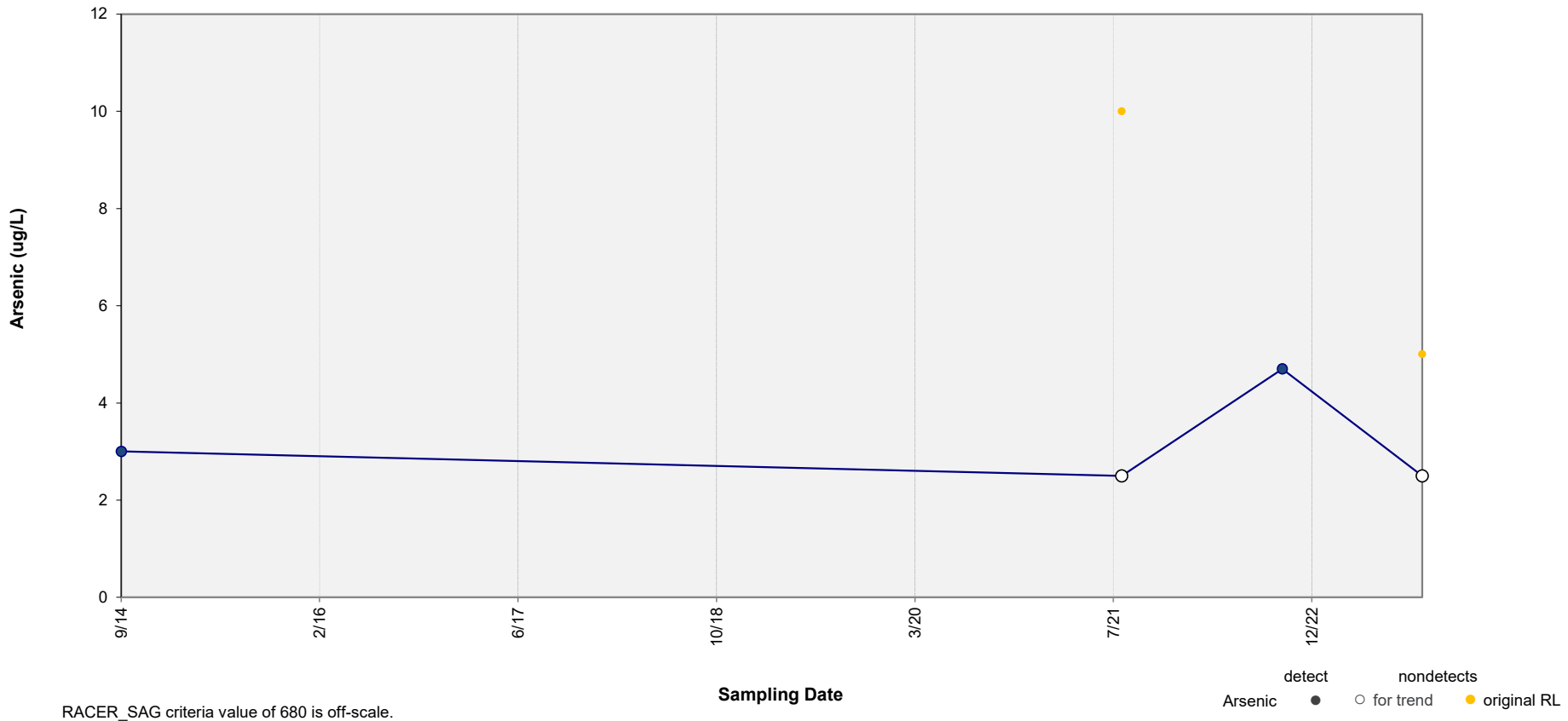
95% Confidence Interval = -6.6E+01 to 5.7E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium (dissolved) in Well MW-117WT

RACER Saginaw

Figure B-32



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ug/L Per Day

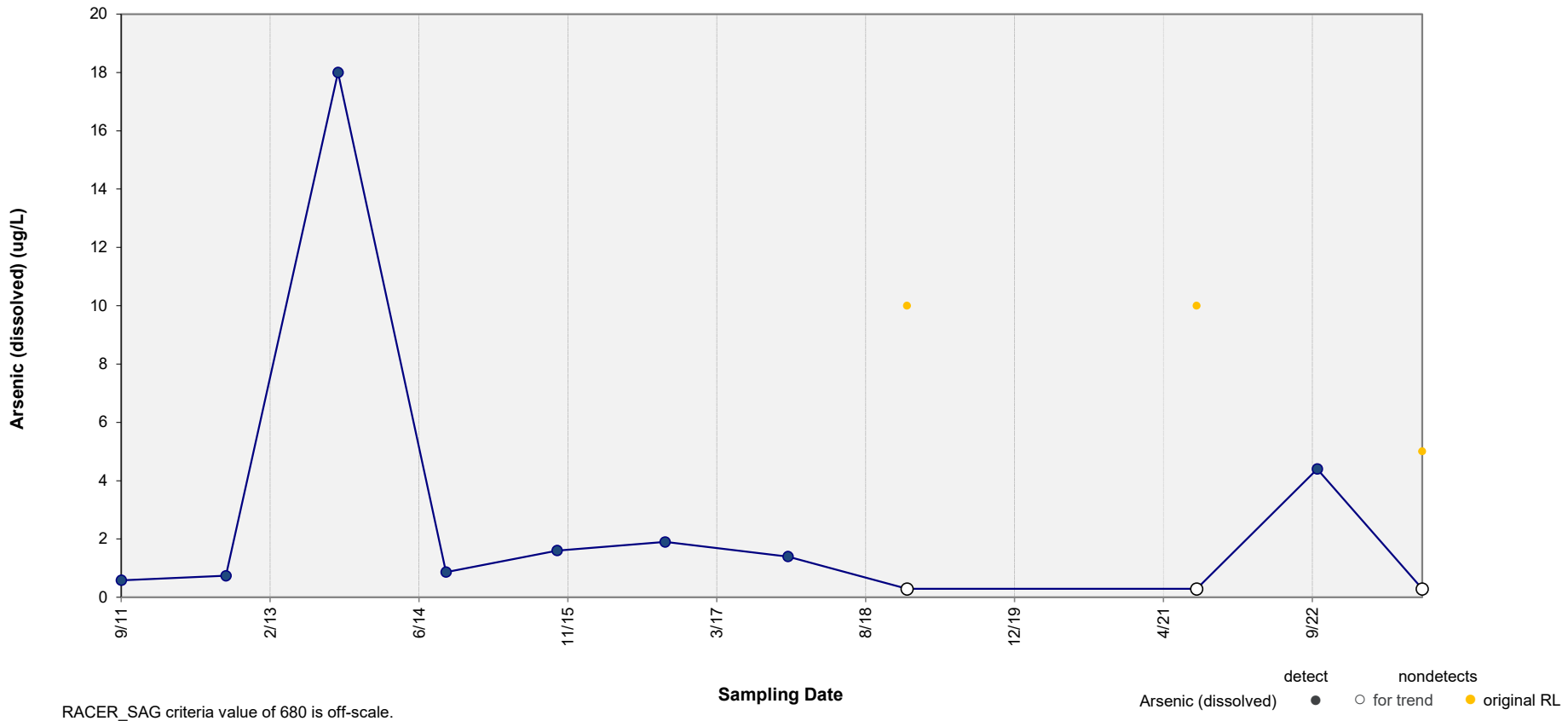
95% Confidence Interval = NA to NA ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic in Well MW-118S1

RACER Saginaw

Figure B-33



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.347 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -8.0E-05 ug/L Per Day

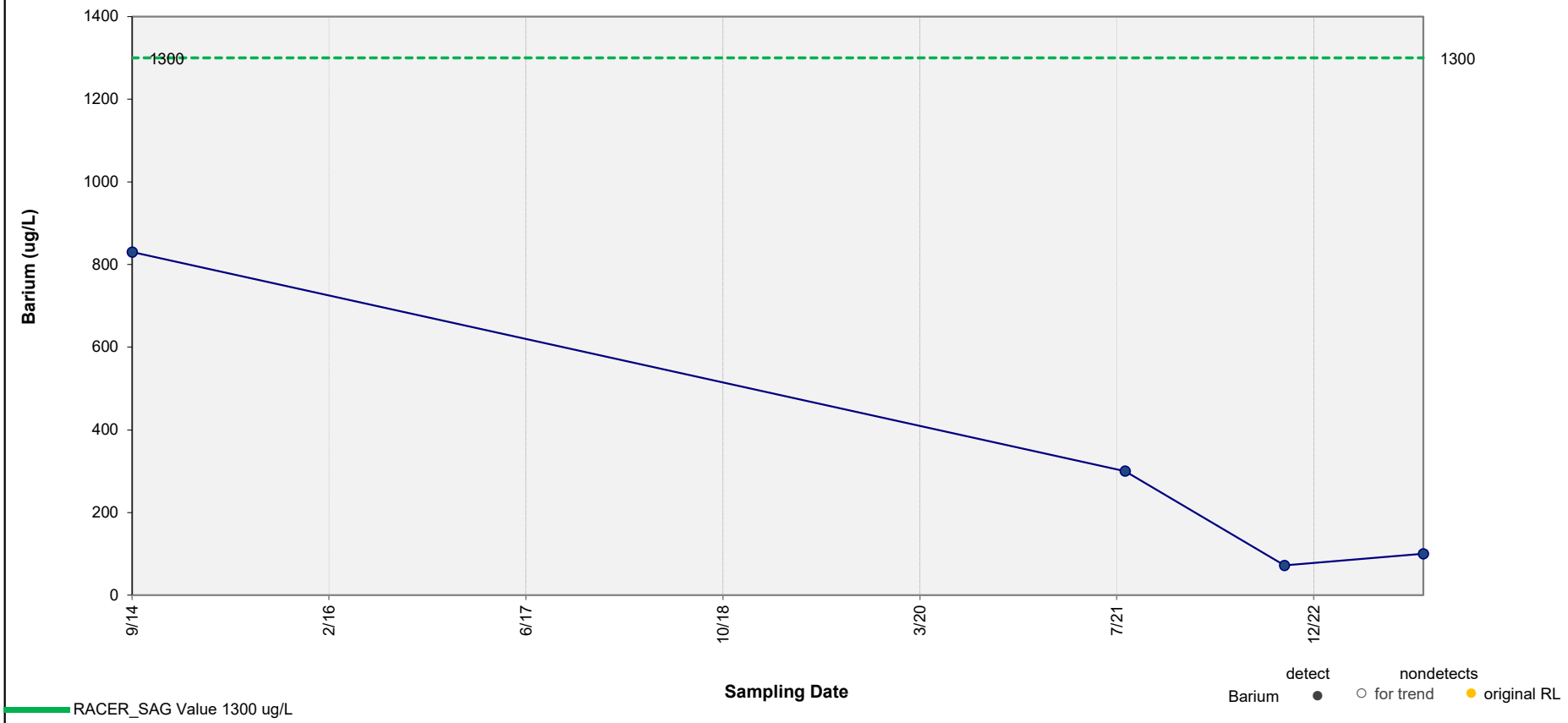
95% Confidence Interval = -8.0E-04 to 7.2E-04 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic (dissolved) in Well MW-118S1

RACER Saginaw

Figure B-34



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.167 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ug/L Per Day

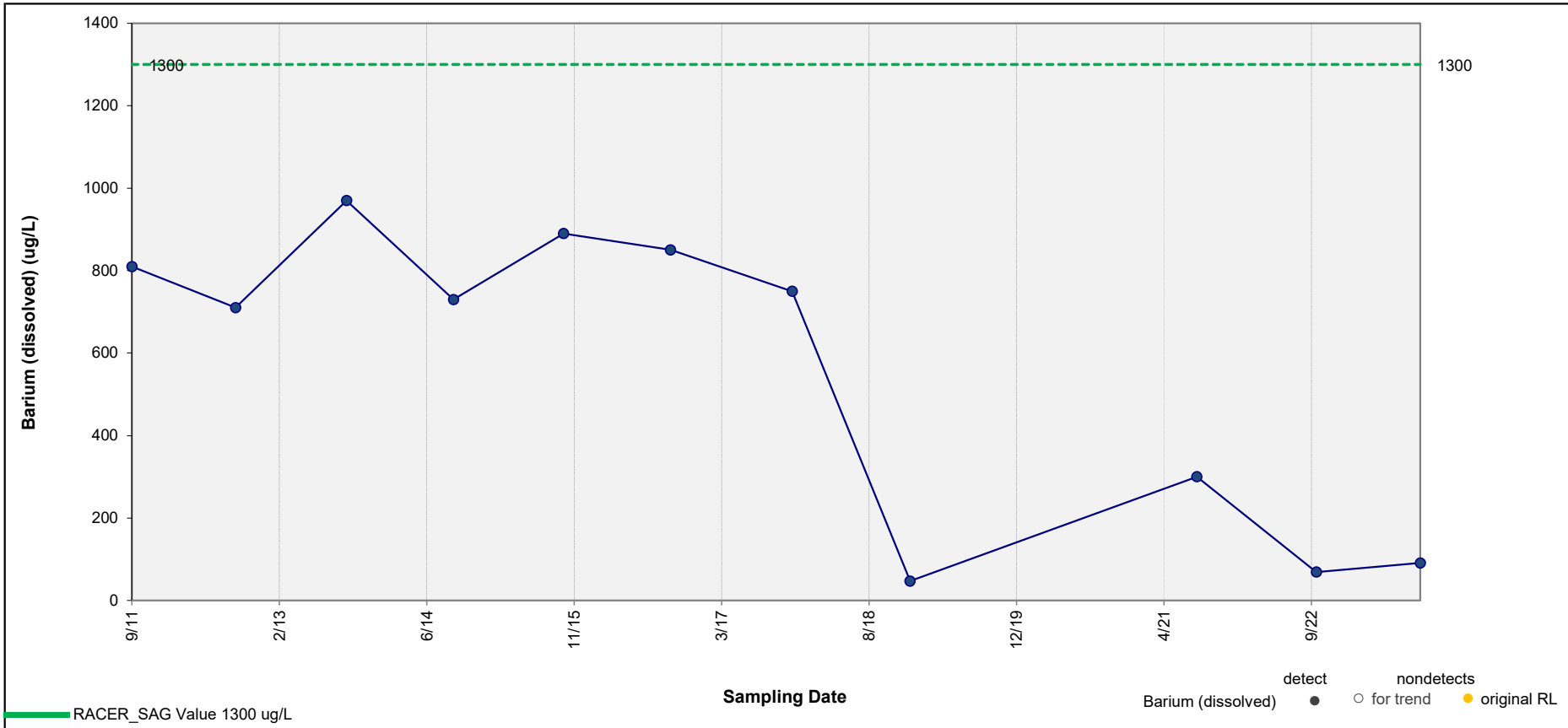
95% Confidence Interval = NA to NA ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium in Well MW-118S1

RACER Saginaw

Figure B-35



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.031 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -1.8E-01 ug/L Per Day

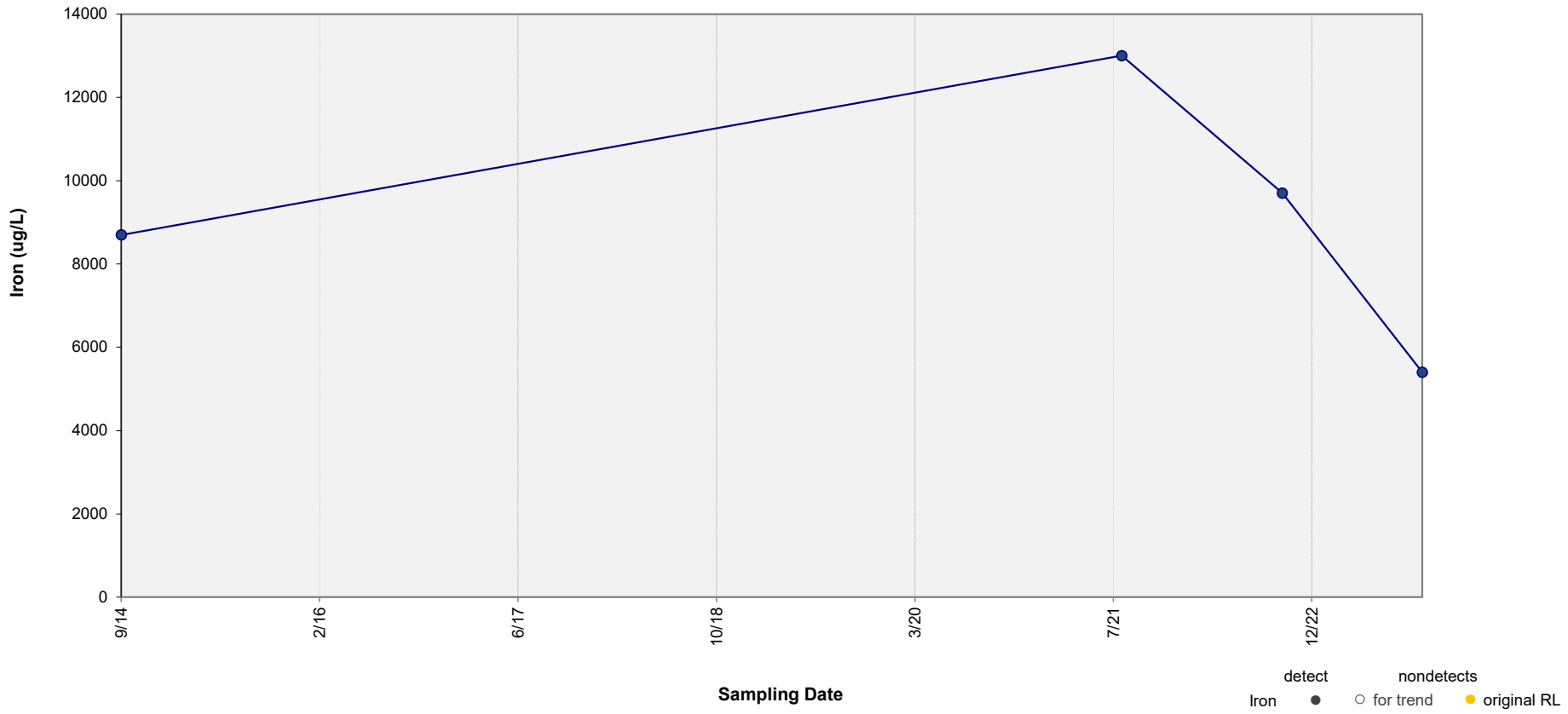
95% Confidence Interval = -2.9E-01 to -2.3E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium (dissolved) in Well MW-118S1

RACER Saginaw

Figure B-36



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.375 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ug/L Per Day

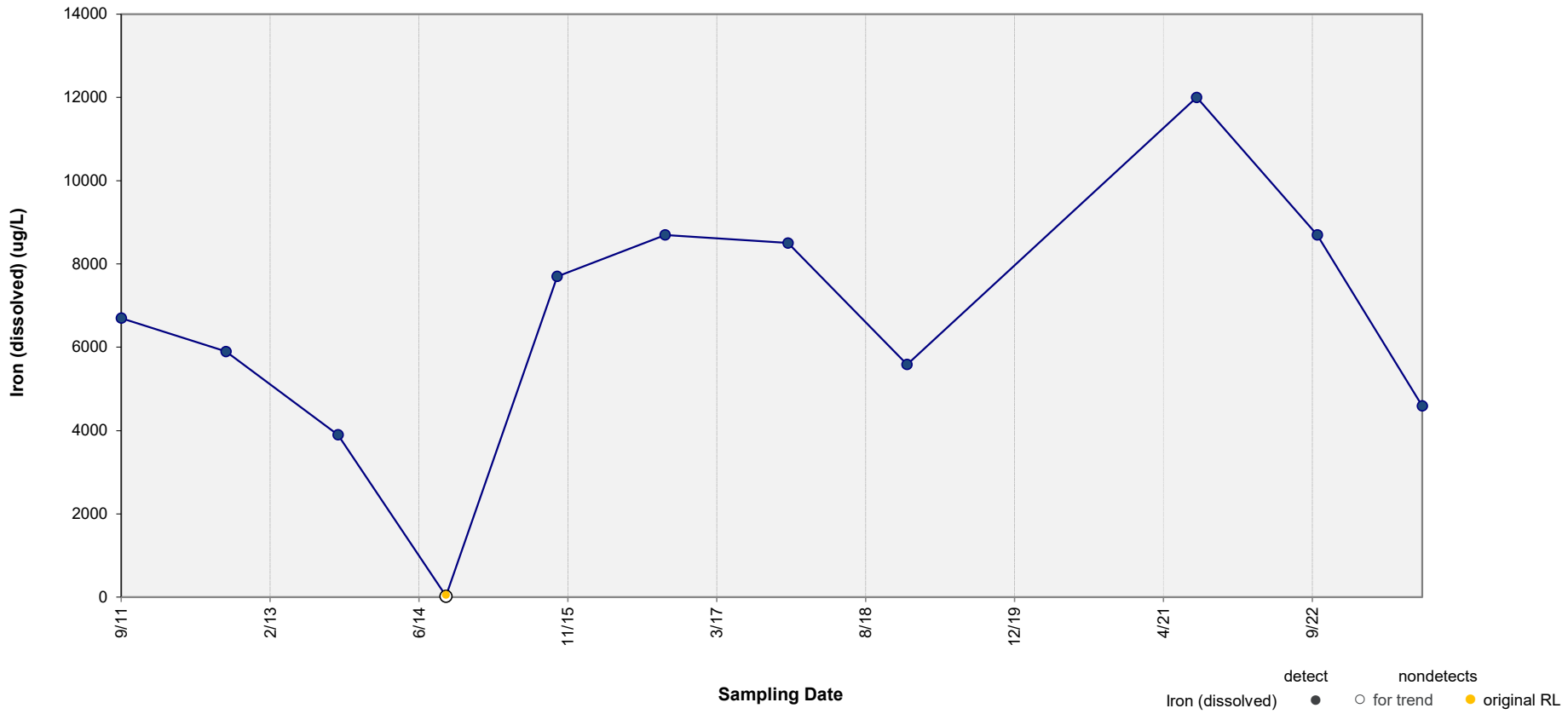
95% Confidence Interval = NA to NA ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron in Well MW-118S1

RACER Saginaw

Figure B-37



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.195 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 7.6E-01 ug/L Per Day

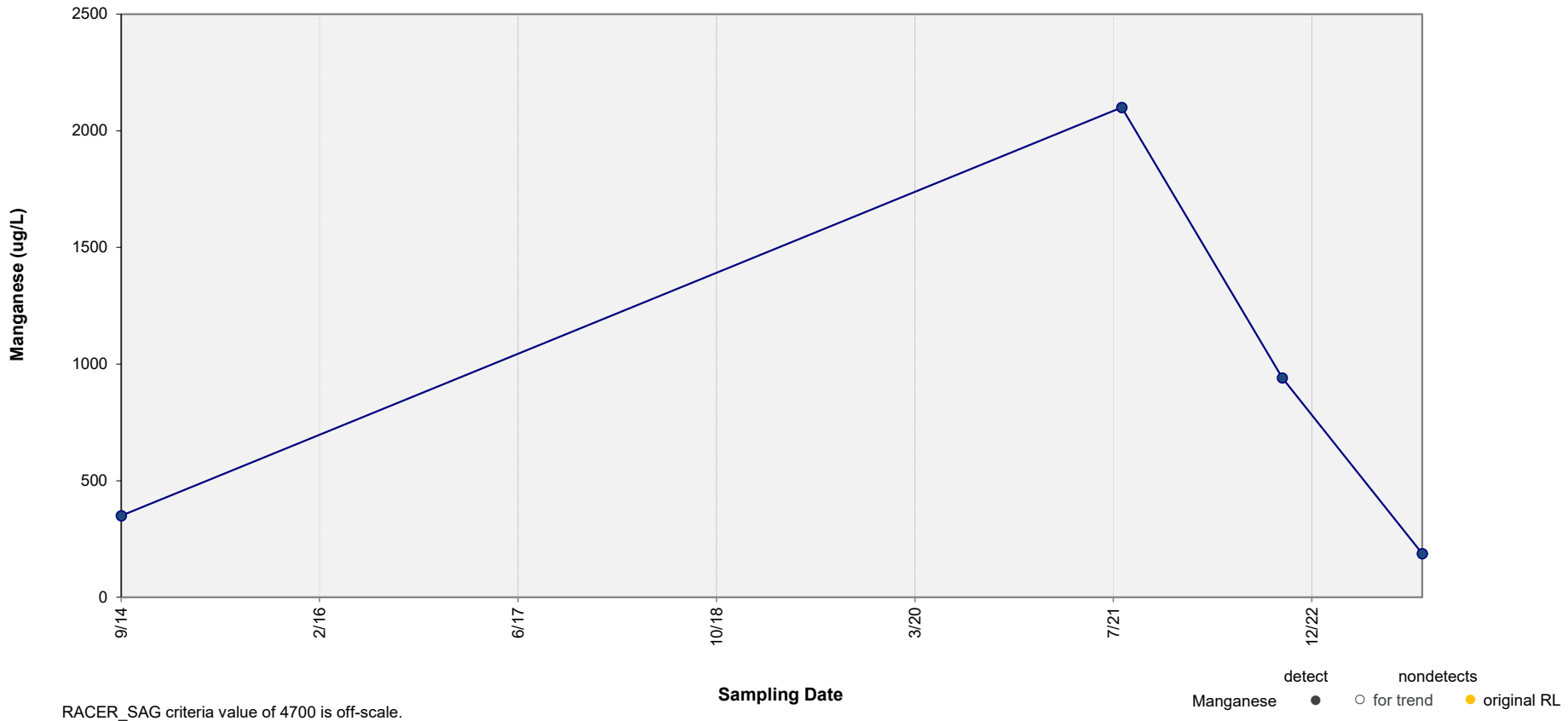
95% Confidence Interval = -1.1E+00 to 1.9E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron (dissolved) in Well MW-118S1

RACER Saginaw

Figure B-38



RACER_SAG criteria value of 4700 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.375 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ug/L Per Day

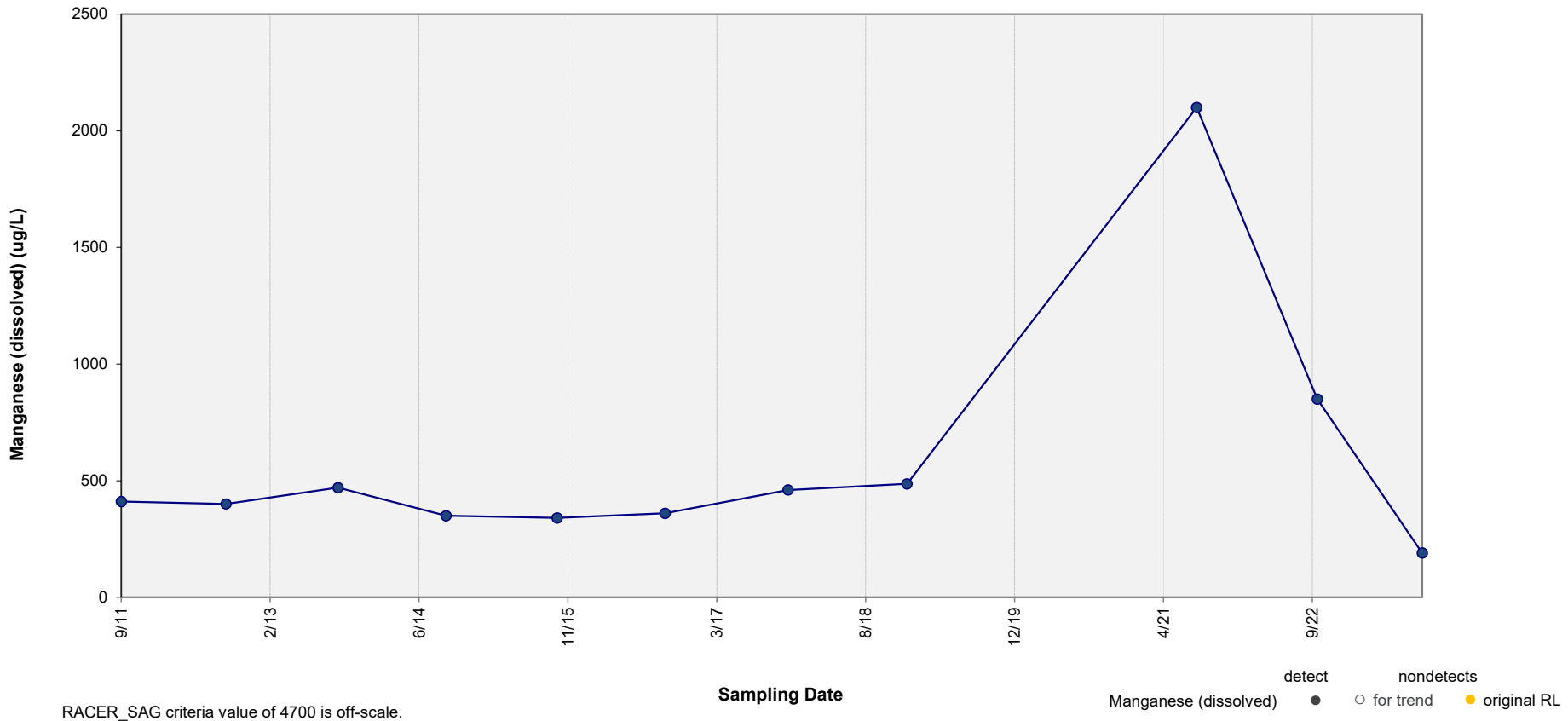
95% Confidence Interval = NA to NA ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese in Well MW-118S1

RACER Saginaw

Figure B-39



RACER_SAG criteria value of 4700 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.267 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 3.2E-02 ug/L Per Day

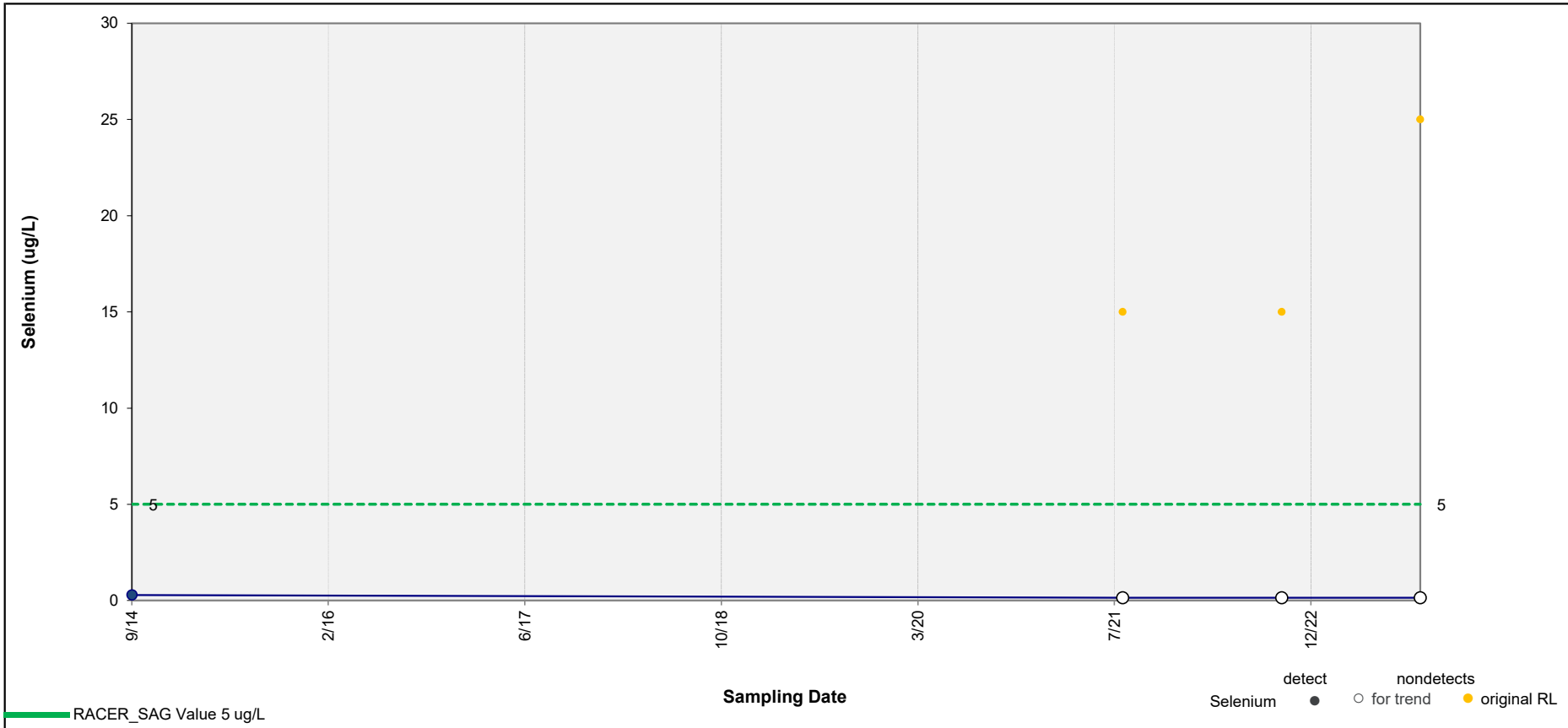
95% Confidence Interval = -5.2E-02 to 1.6E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese (dissolved) in Well MW-118S1

RACER Saginaw

Figure B-40



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.271 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ug/L Per Day

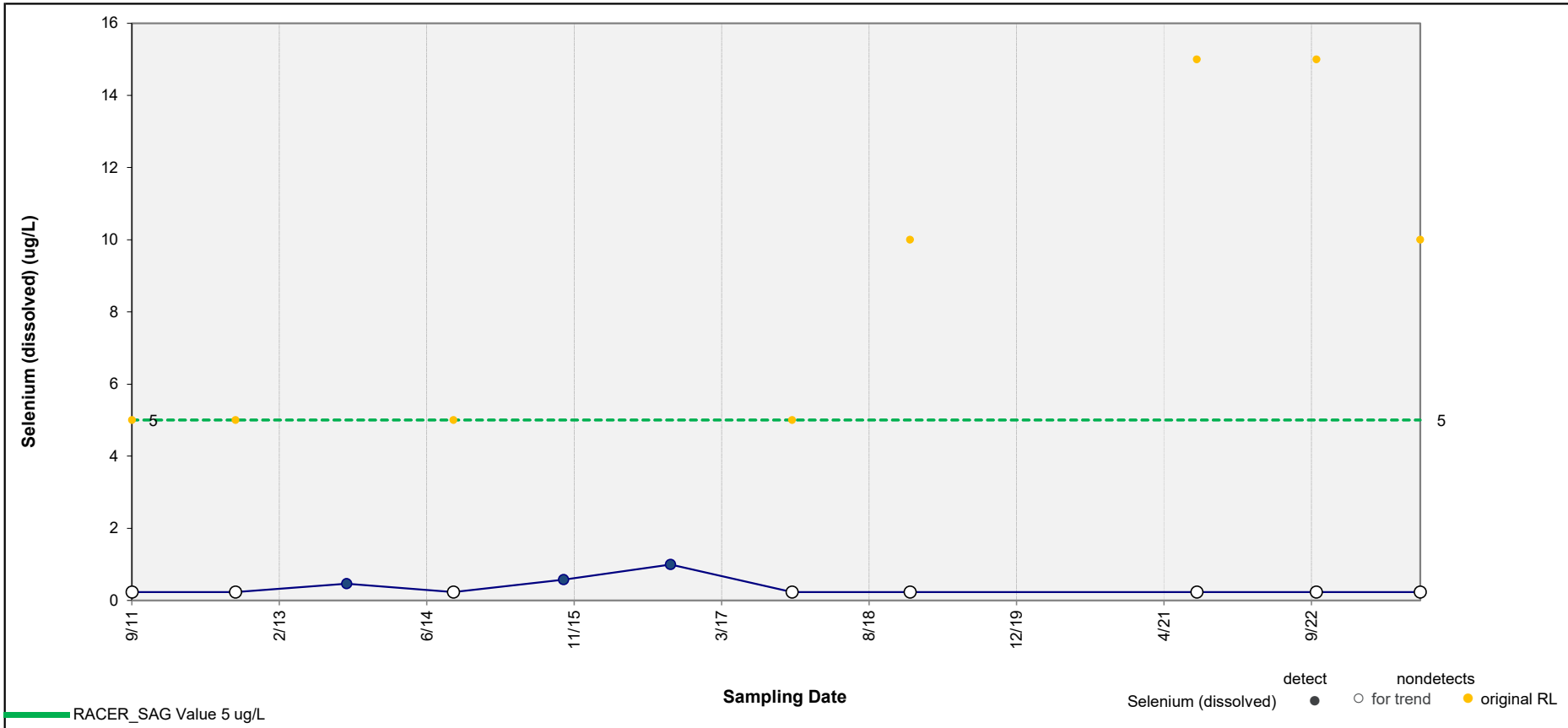
95% Confidence Interval = NA to NA ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Selenium in Well MW-118S1

RACER Saginaw

Figure B-41



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.344 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

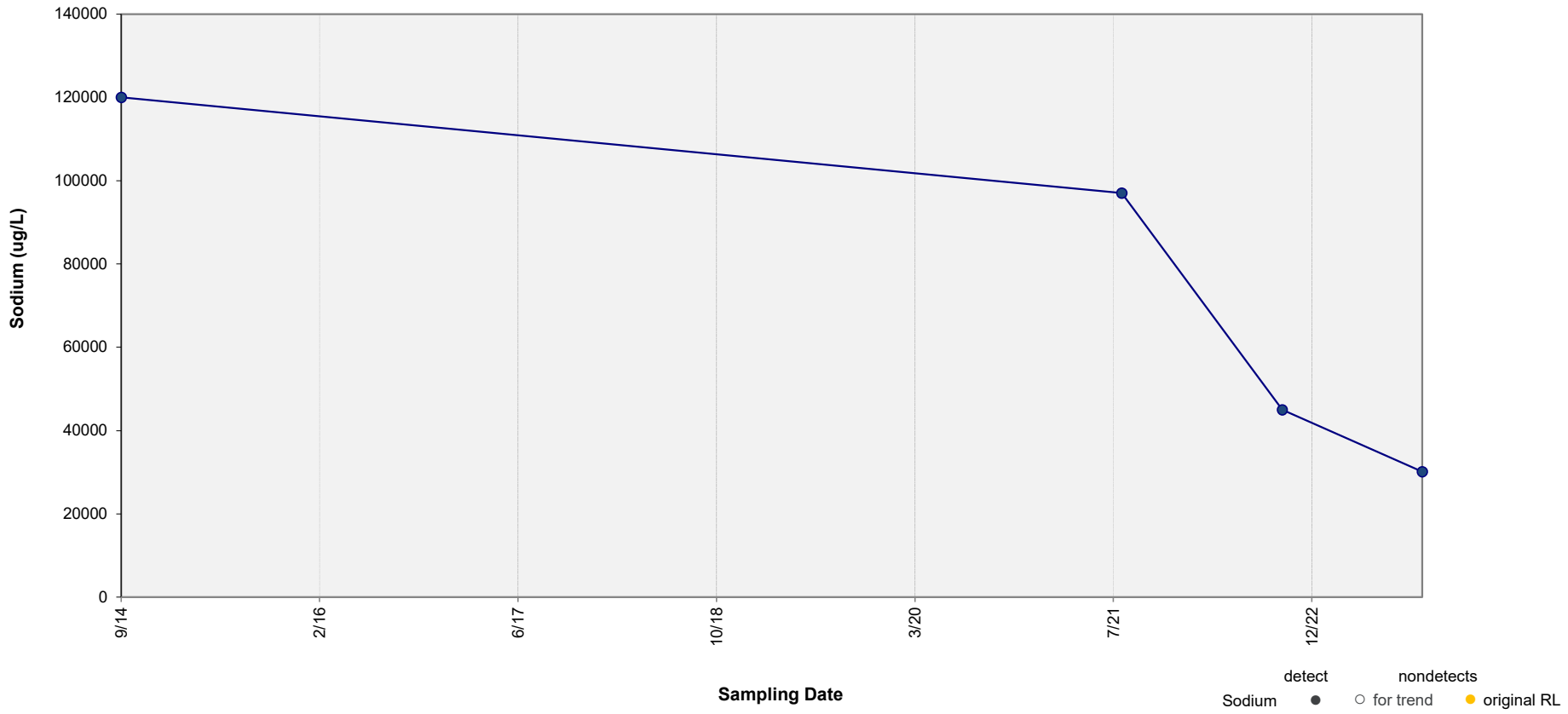
95% Confidence Interval = 0.0E+00 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Selenium (dissolved) in Well MW-118S1

RACER Saginaw

Figure B-42



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.042 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ug/L Per Day

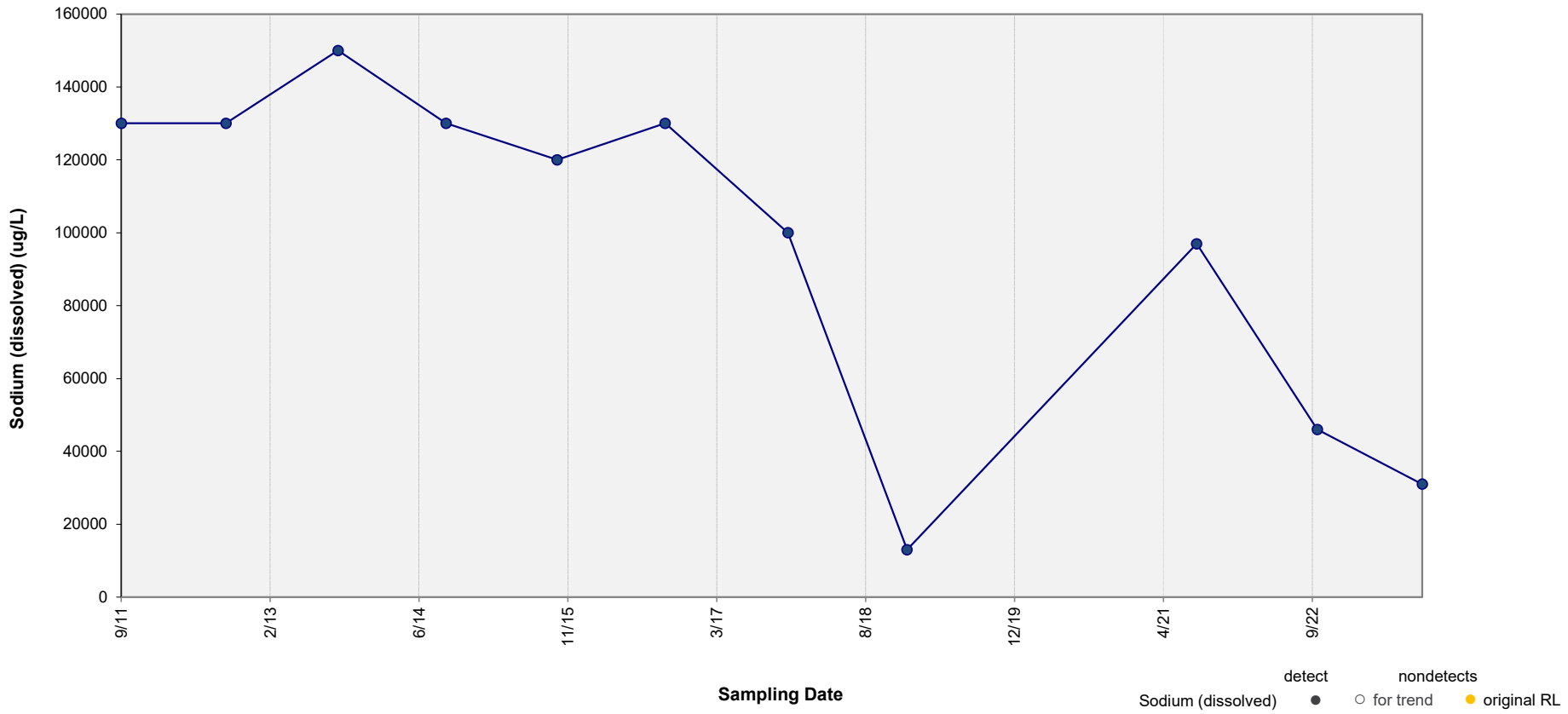
95% Confidence Interval = NA to NA ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium in Well MW-118S1

RACER Saginaw

Figure B-43



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.002 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -2.5E+01 ug/L Per Day

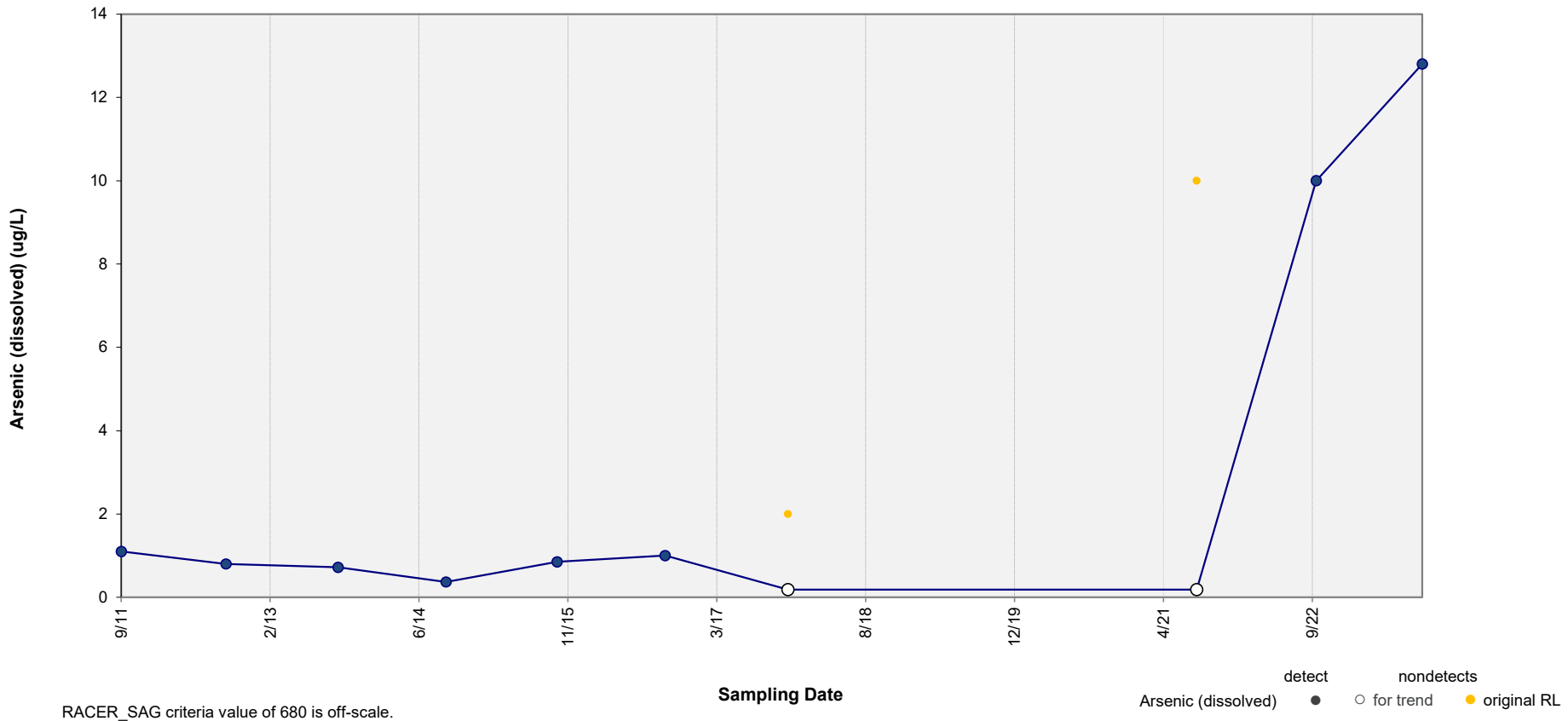
95% Confidence Interval = -3.7E+01 to -9.4E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium (dissolved) in Well MW-118S1

RACER Saginaw

Figure B-44



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.398 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 1.4E-04 ug/L Per Day

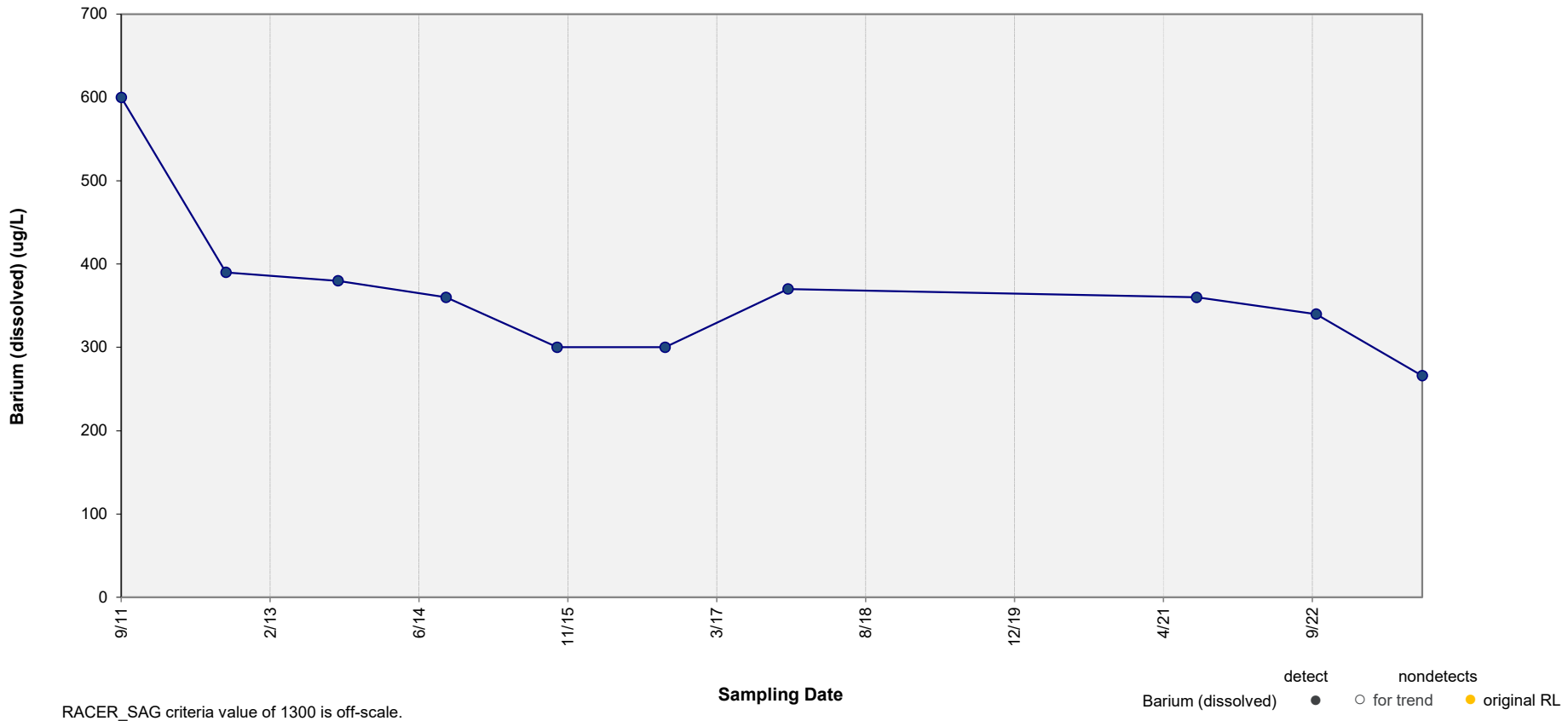
95% Confidence Interval = -3.2E-04 to 3.1E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic (dissolved) in Well MW-118WT

RACER Saginaw

Figure B-45



RACER_SAG criteria value of 1300 is off-scale.

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.005 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -3.1E-02 ug/L Per Day

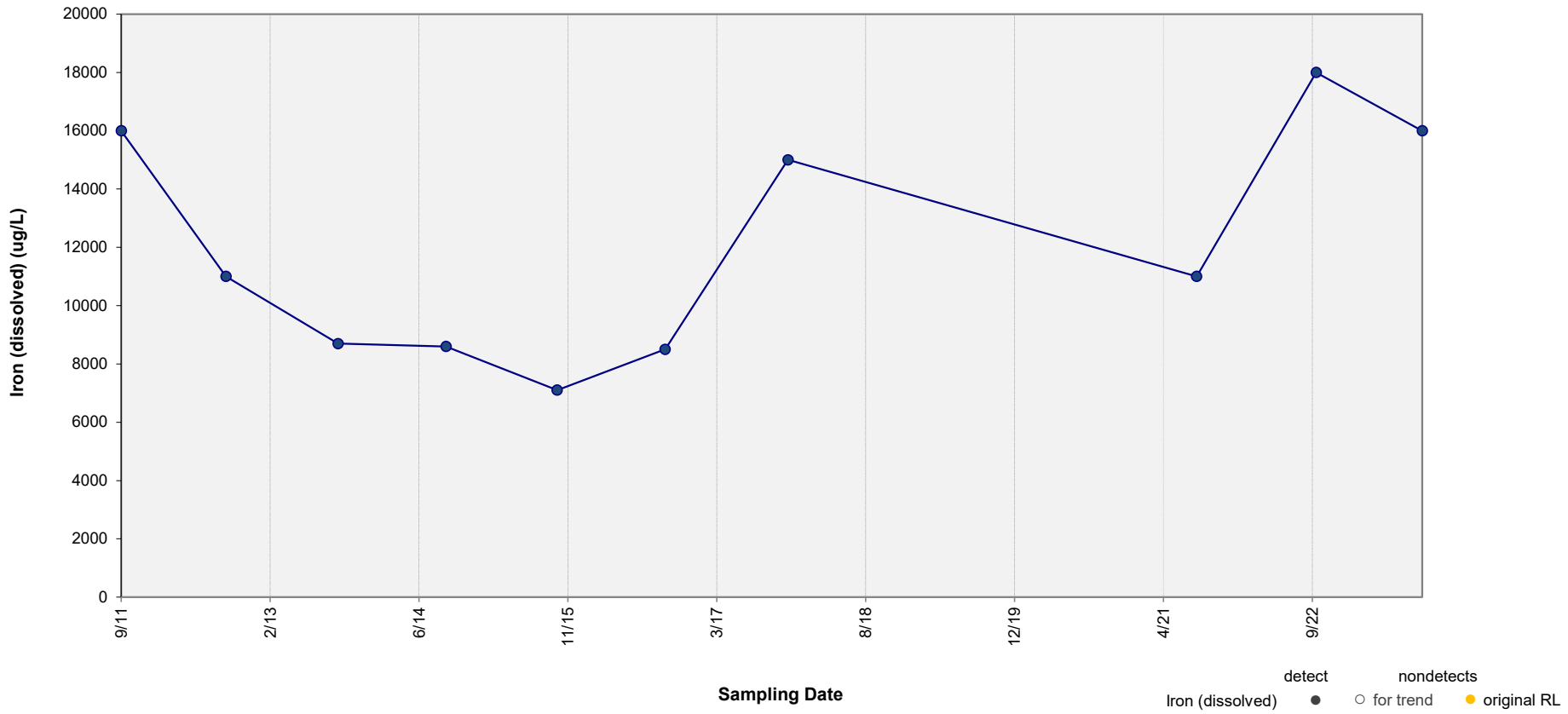
95% Confidence Interval = -8.1E-02 to -7.2E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium (dissolved) in Well MW-118WT

RACER Saginaw

Figure B-46



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.300 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 8.0E-01 ug/L Per Day

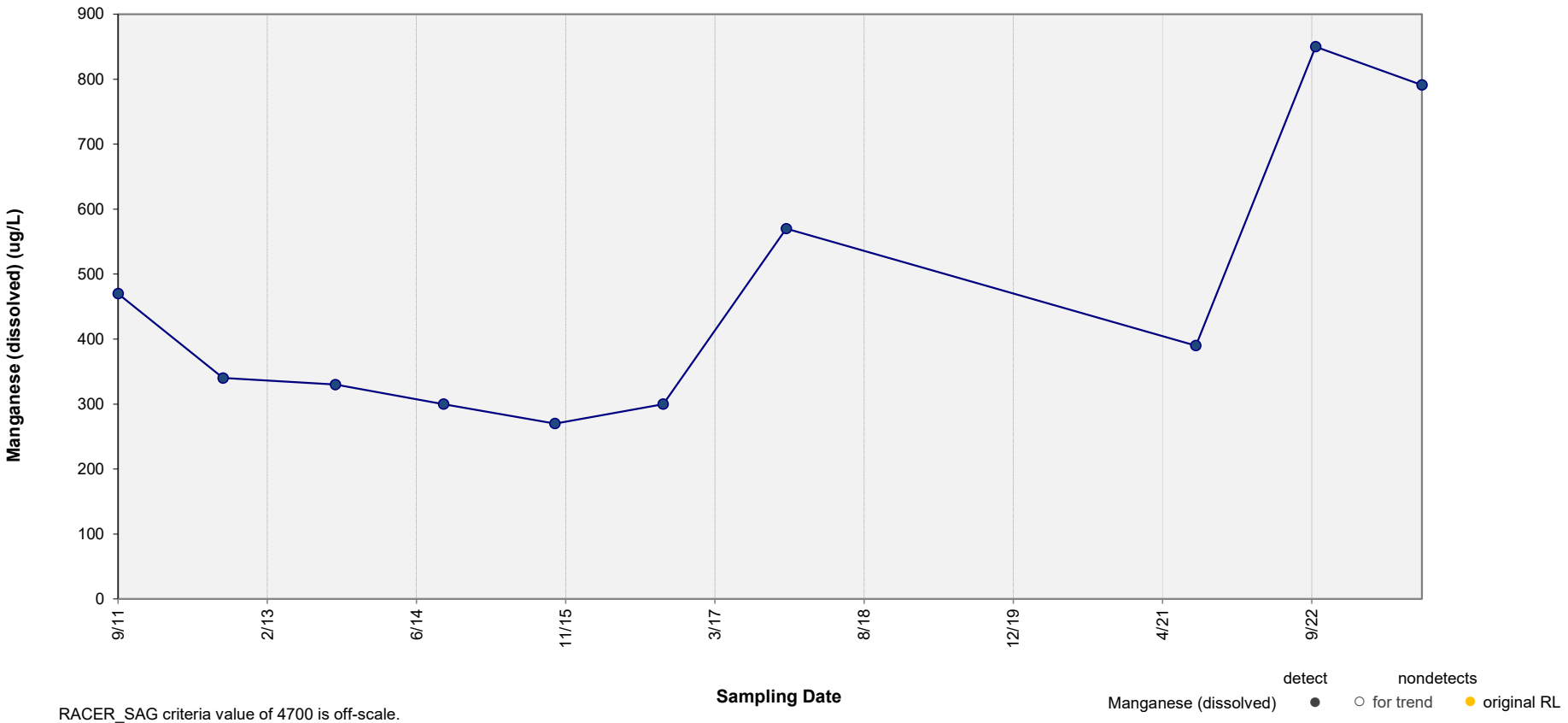
95% Confidence Interval = -2.4E+00 to 2.9E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron (dissolved) in Well MW-118WT

RACER Saginaw

Figure B-47



RACER_SAG criteria value of 4700 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.168 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 5.6E-02 ug/L Per Day

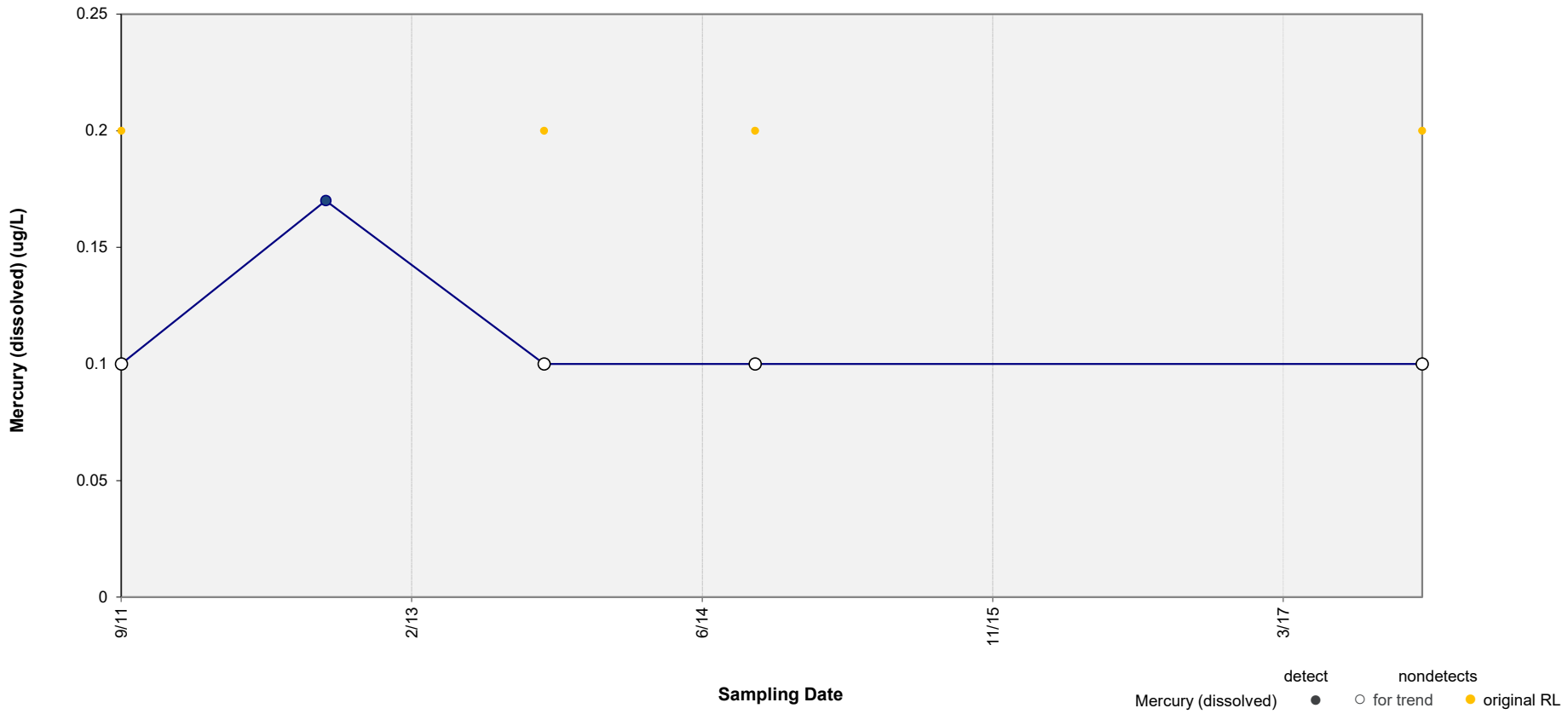
95% Confidence Interval = -5.8E-02 to 1.6E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese (dissolved) in Well MW-118WT

RACER Saginaw

Figure B-48



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.408 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

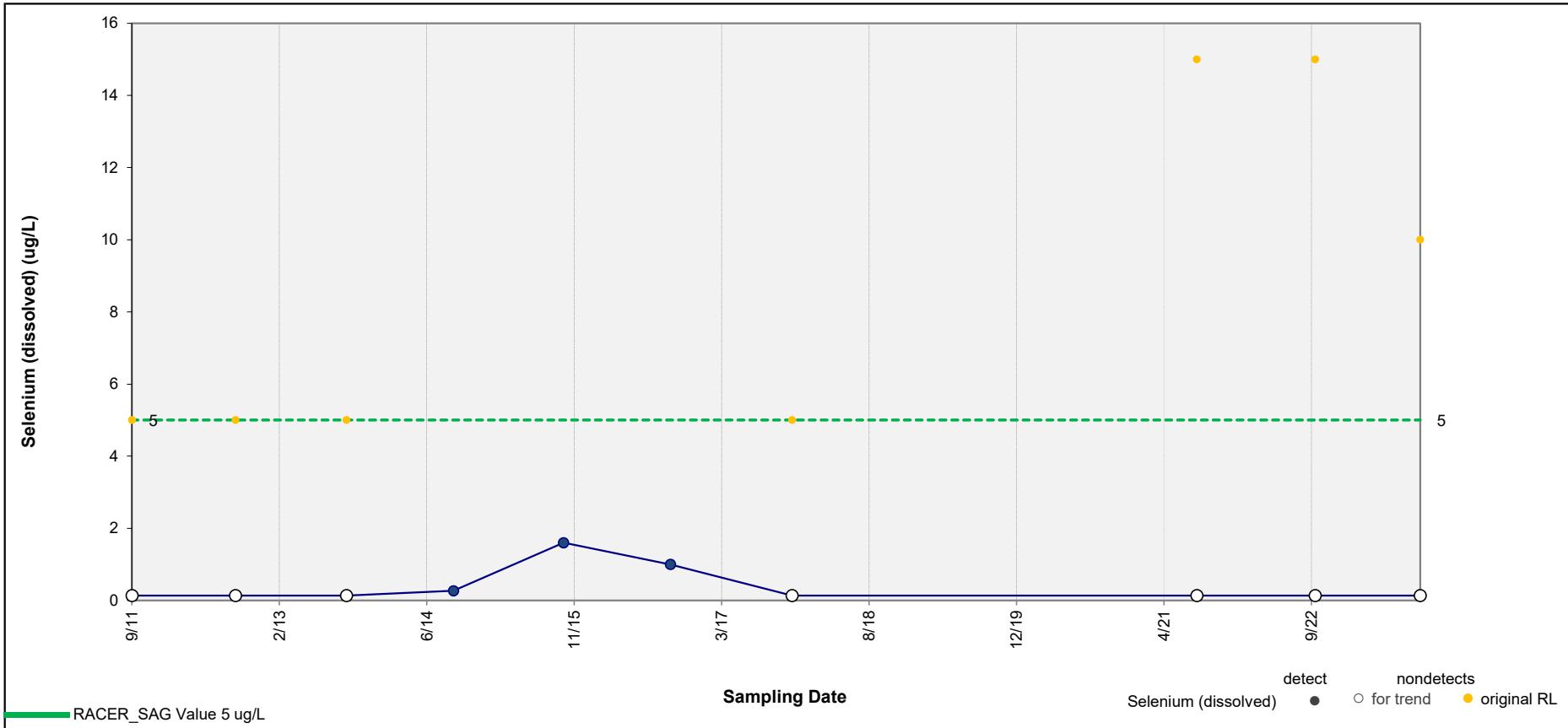
95% Confidence Interval = -8.2E-05 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Mercury (dissolved) in Well MW-118WT

RACER Saginaw

Figure B-49



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.466 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

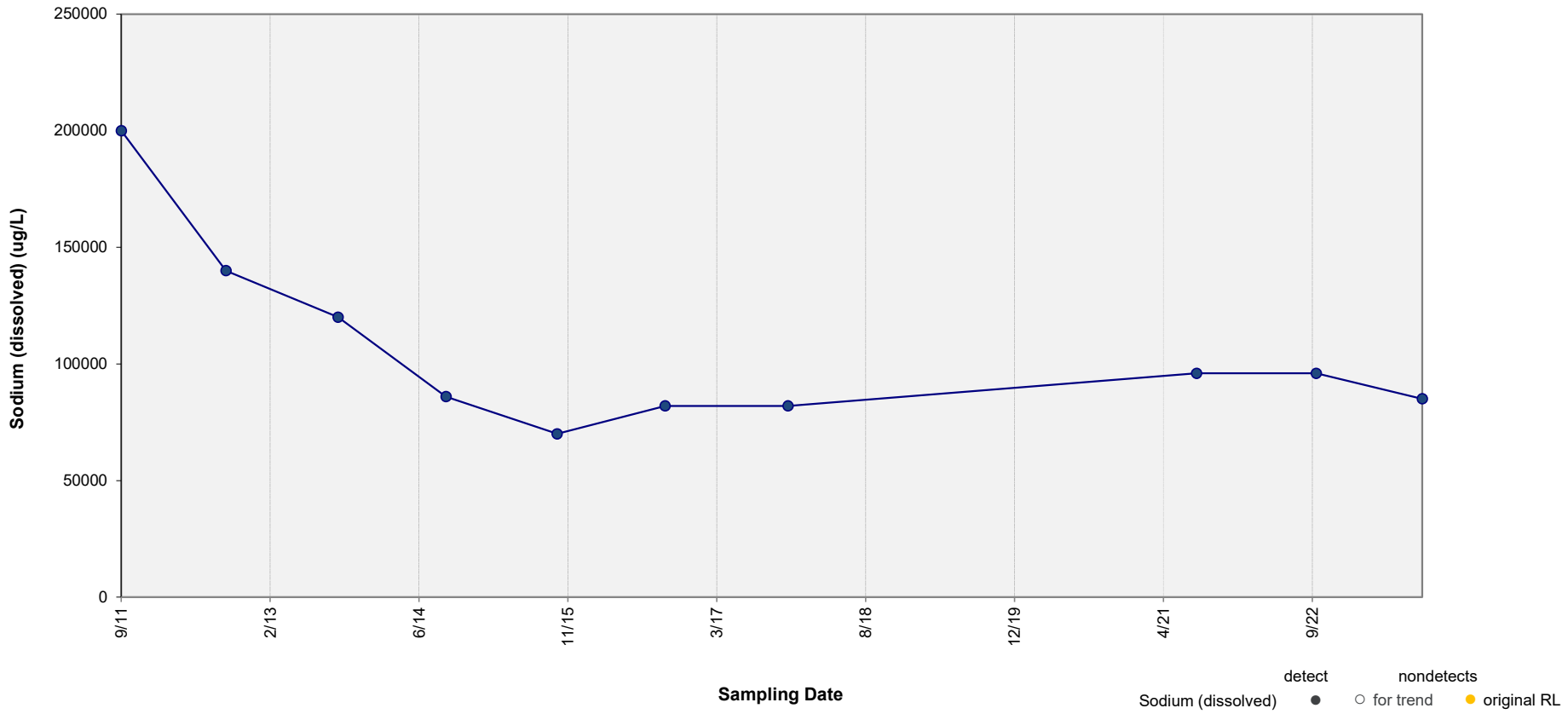
95% Confidence Interval = -1.2E-05 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Selenium (dissolved) in Well MW-118WT

RACER Saginaw

Figure B-50



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.078 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -1.3E+01 ug/L Per Day

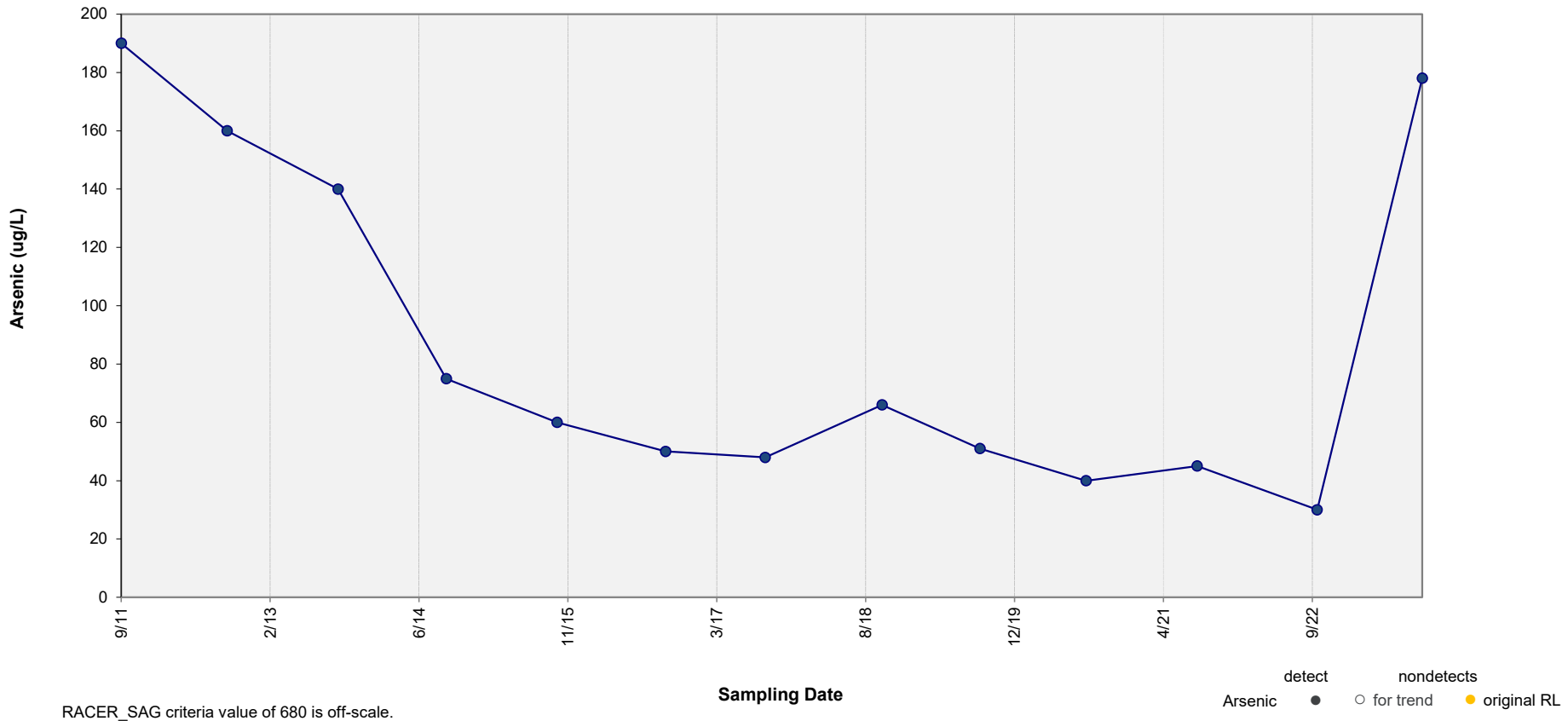
95% Confidence Interval = -4.7E+01 to 1.3E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium (dissolved) in Well MW-118WT

RACER Saginaw

Figure B-51



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.004 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -2.2E-02 ug/L Per Day

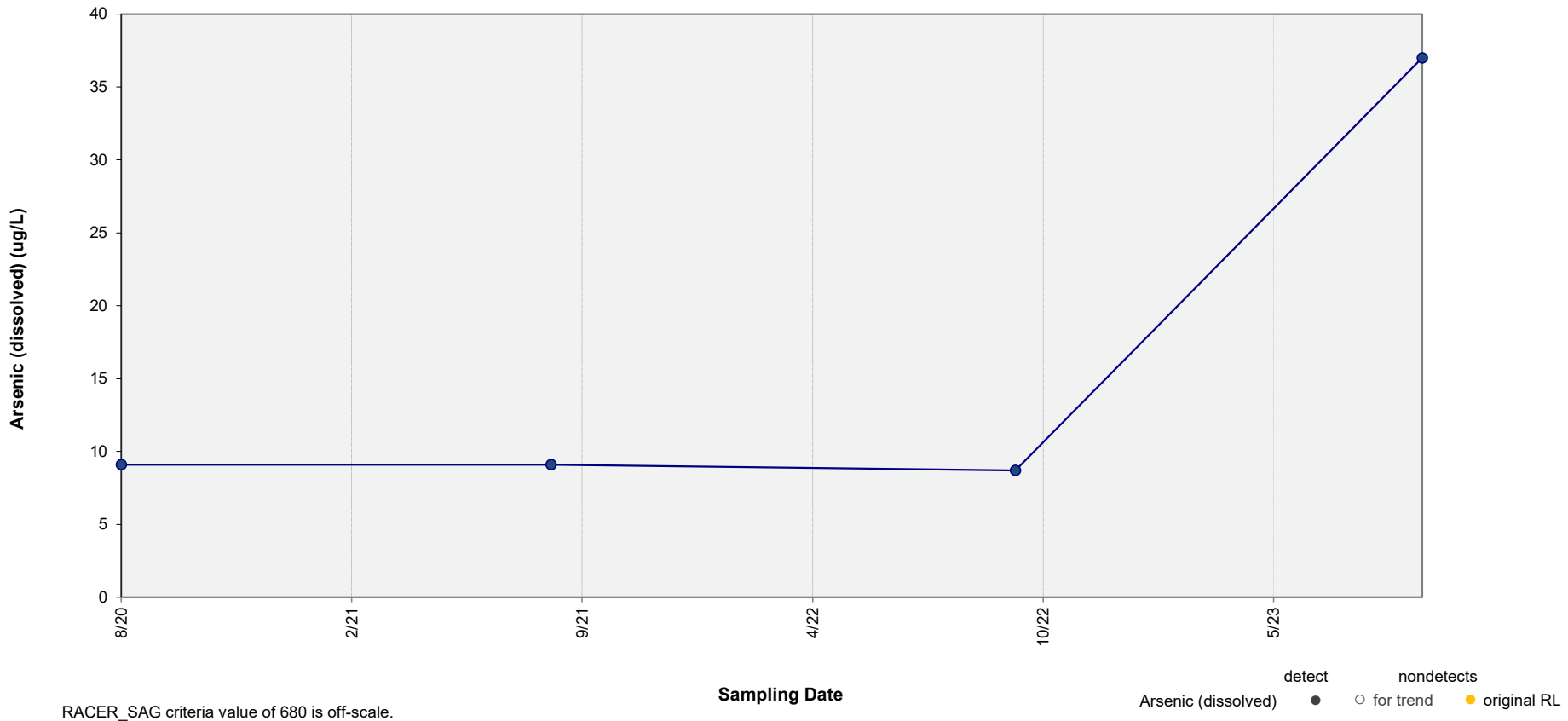
95% Confidence Interval = -4.1E-02 to -6.9E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic in Well MW-149WT

RACER Saginaw

Figure B-52



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ug/L Per Day

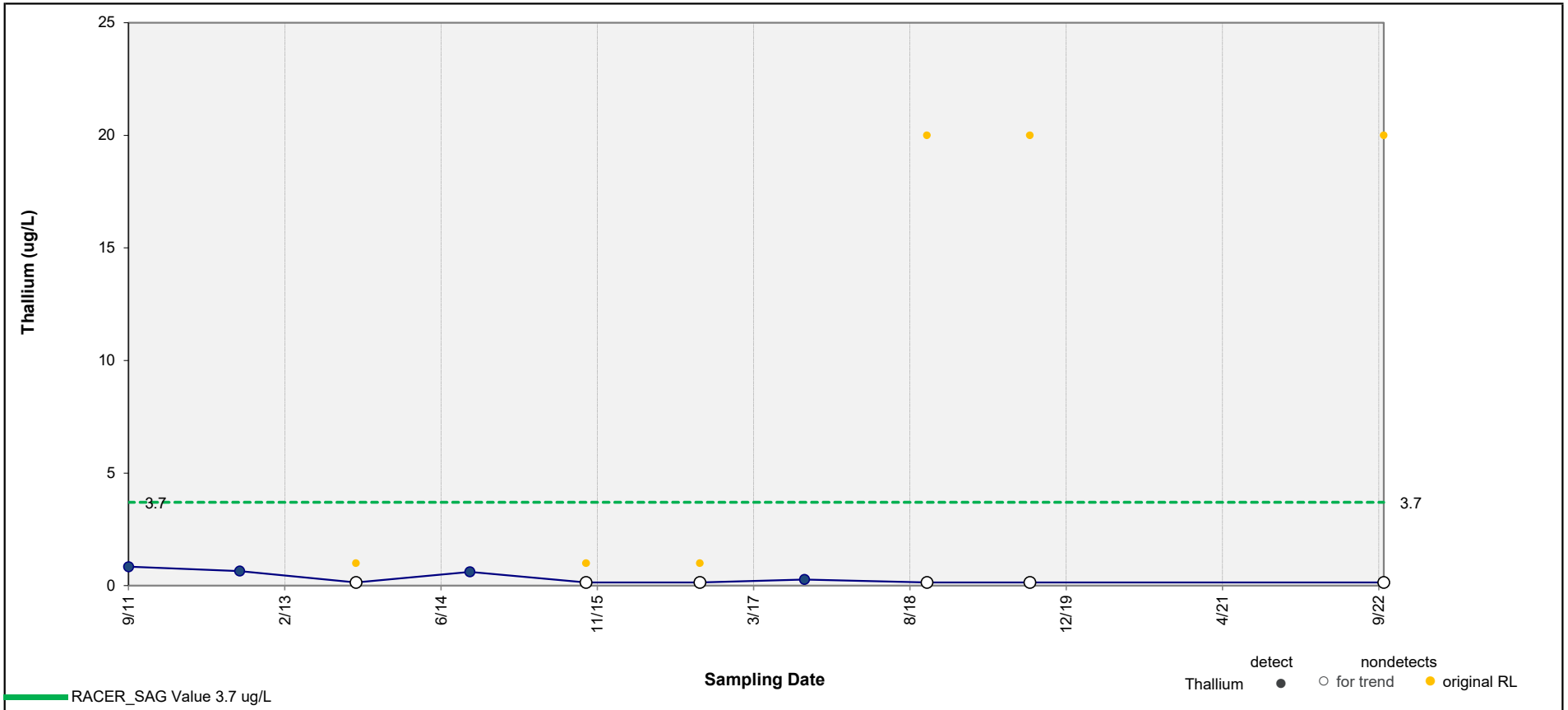
95% Confidence Interval = NA to NA ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic (dissolved) in Well MW-149WT

RACER Saginaw

Figure B-53



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.030 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = -1.6E-04 ug/L Per Day

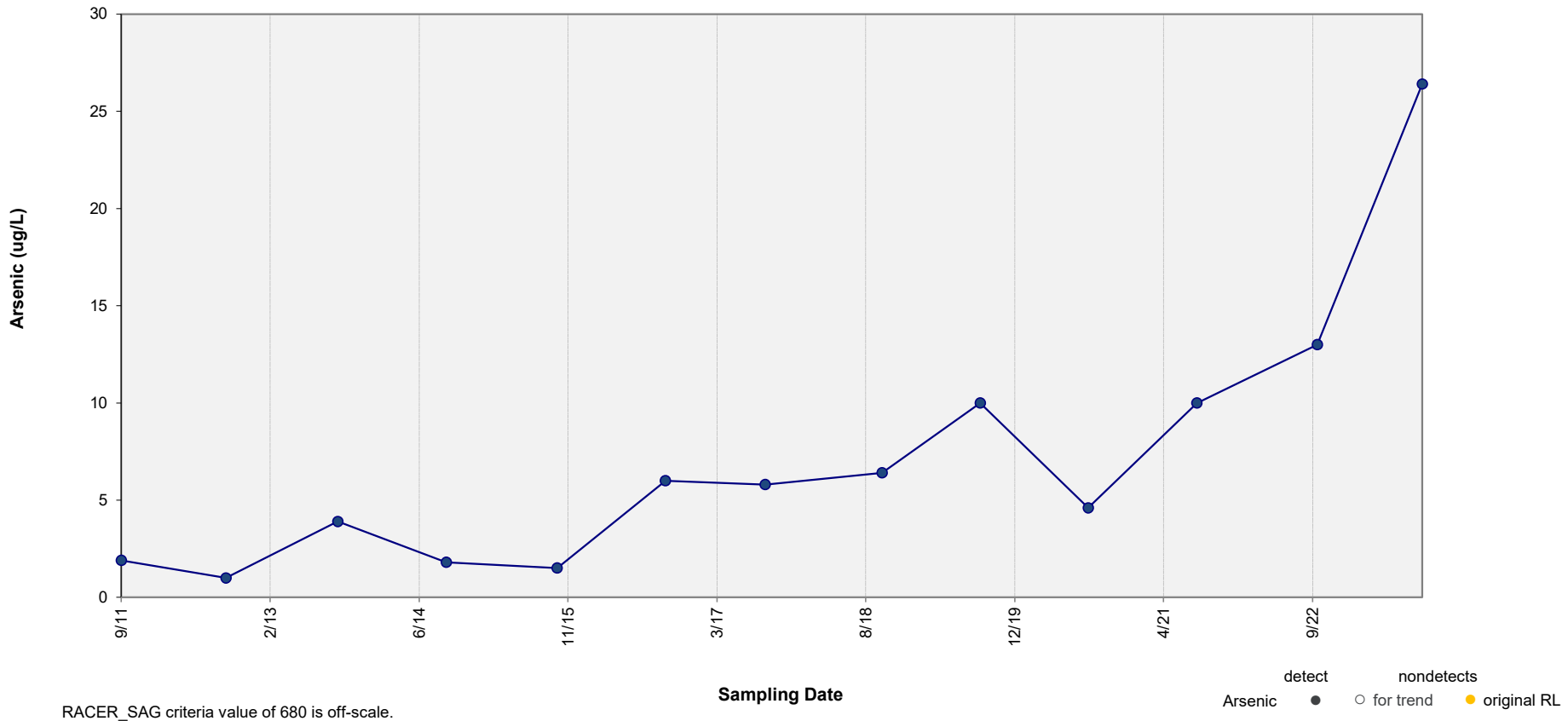
95% Confidence Interval = -2.8E-04 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Thallium in Well MW-149WT

RACER Saginaw

Figure B-54



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 2.9E-03 ug/L Per Day

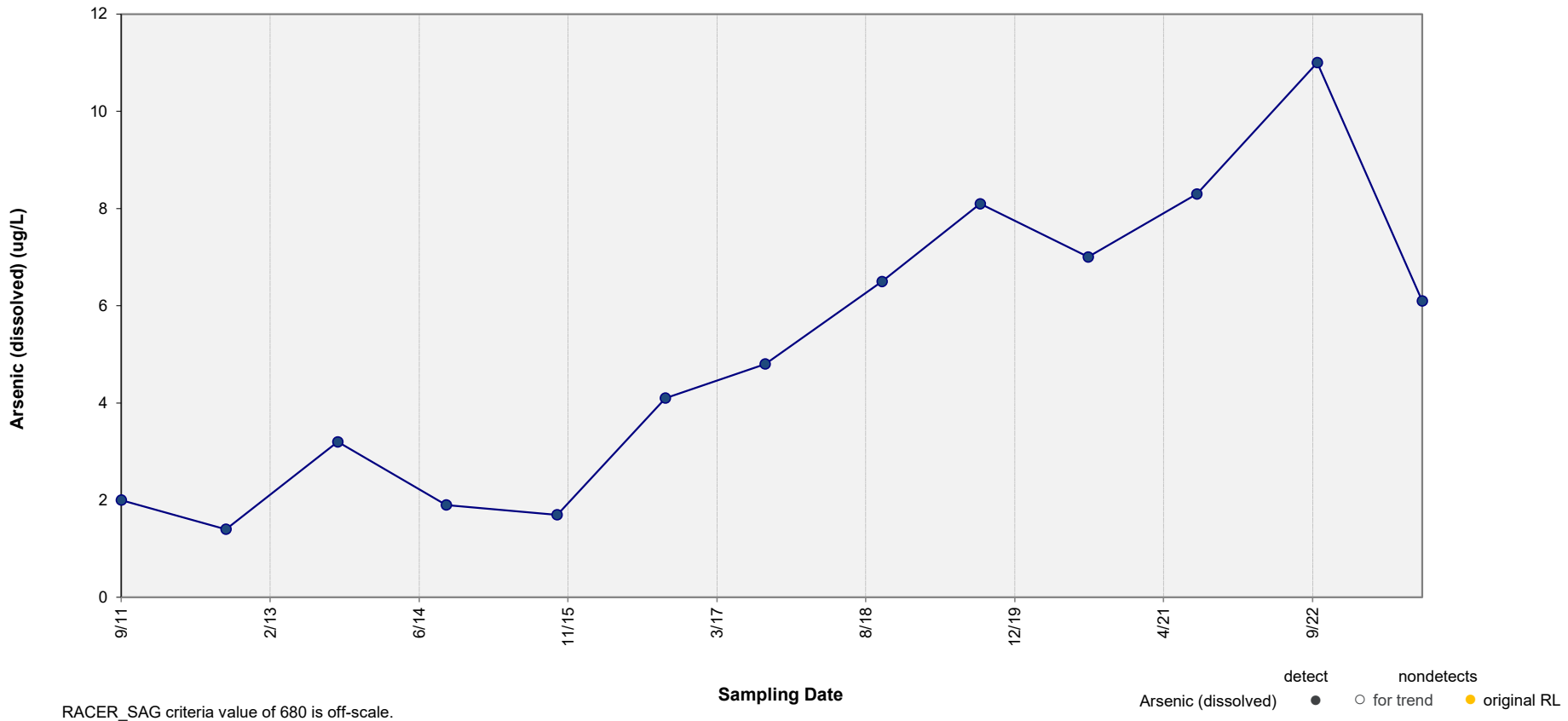
95% Confidence Interval = 1.7E-03 to 4.5E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic in Well MW-183WT

RACER Saginaw

Figure B-55



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 2.0E-03 ug/L Per Day

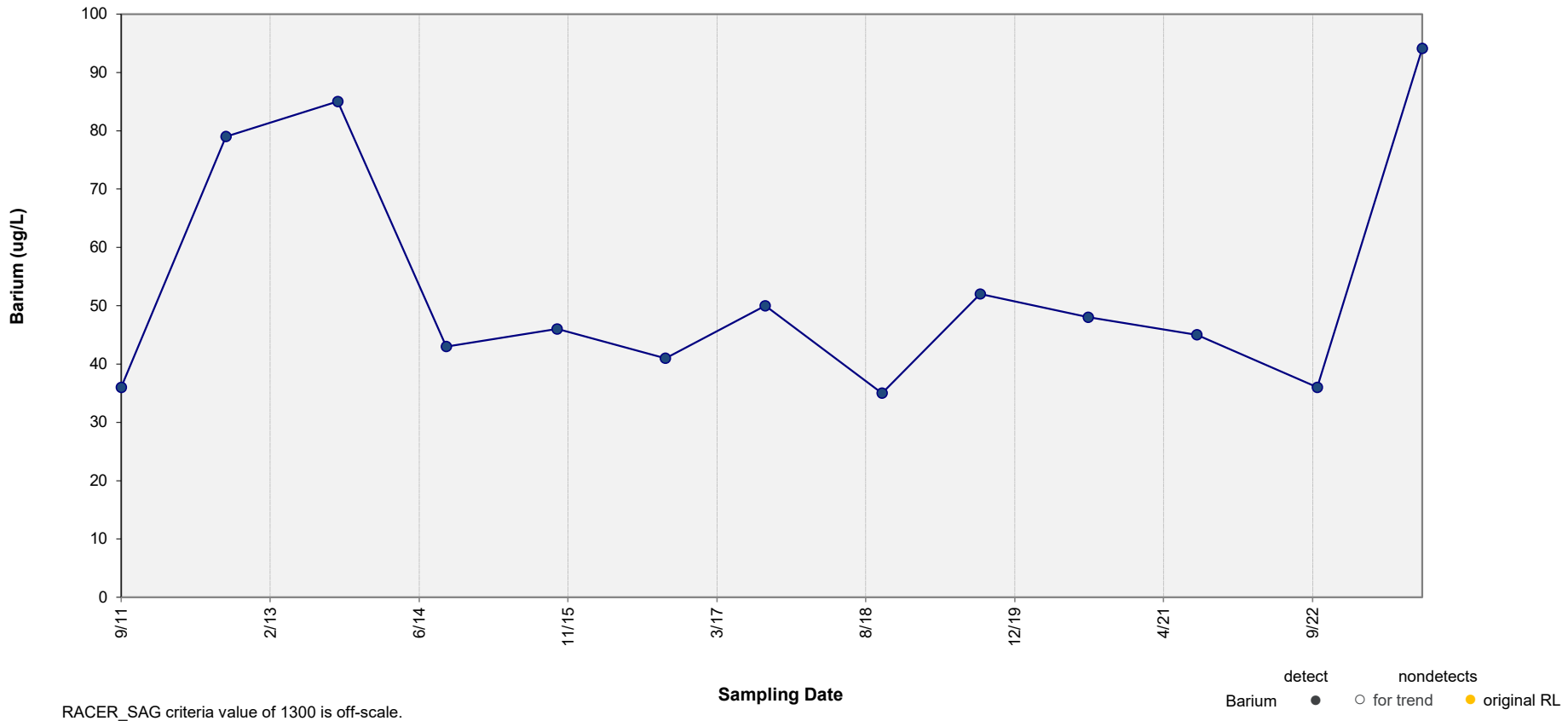
95% Confidence Interval = 1.1E-03 to 2.7E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic (dissolved) in Well MW-183WT

RACER Saginaw

Figure B-56



RACER_SAG criteria value of 1300 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 3.4E-04 ug/L Per Day

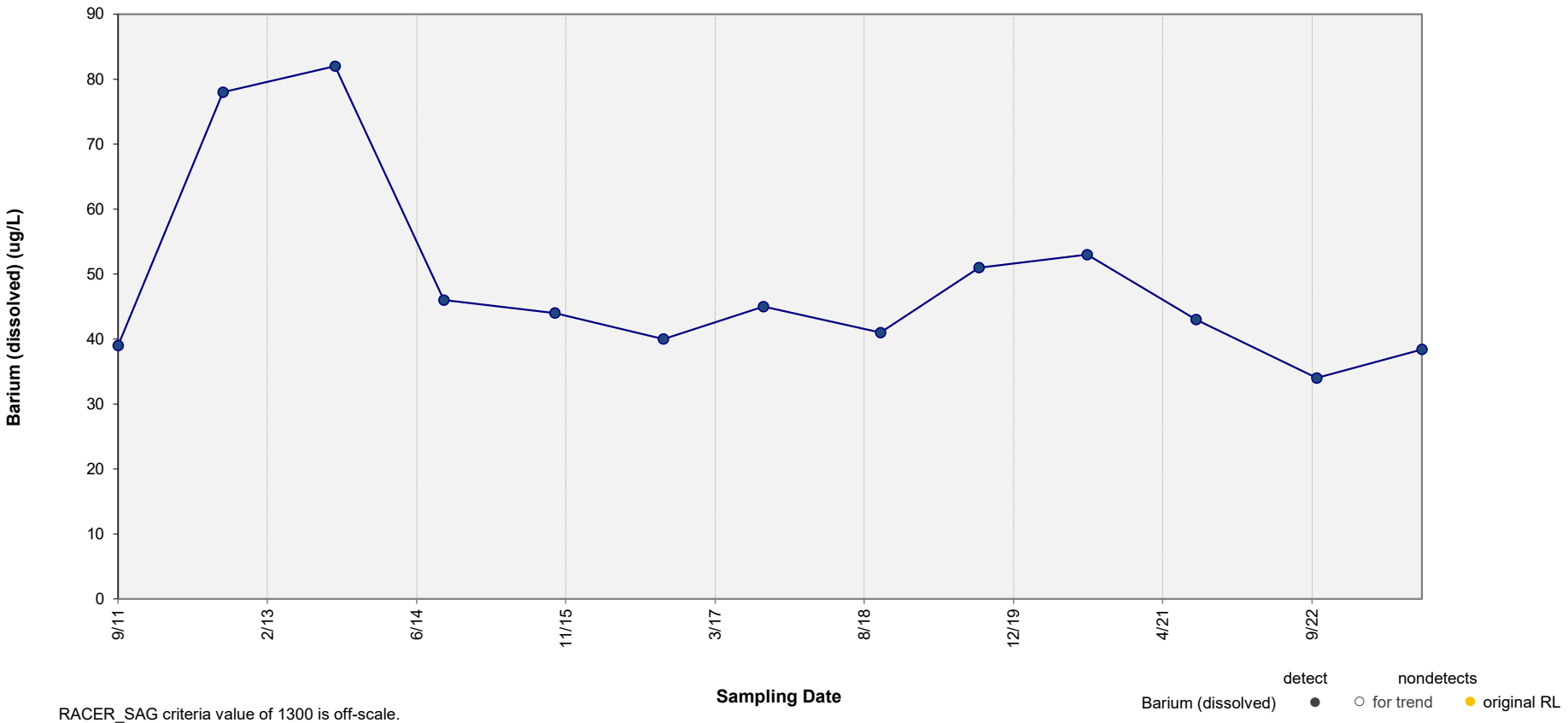
95% Confidence Interval = -1.1E-02 to 5.8E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium in Well MW-183WT

RACER Saginaw

Figure B-57



RACER_SAG criteria value of 1300 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.100 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -2.7E-03 ug/L Per Day

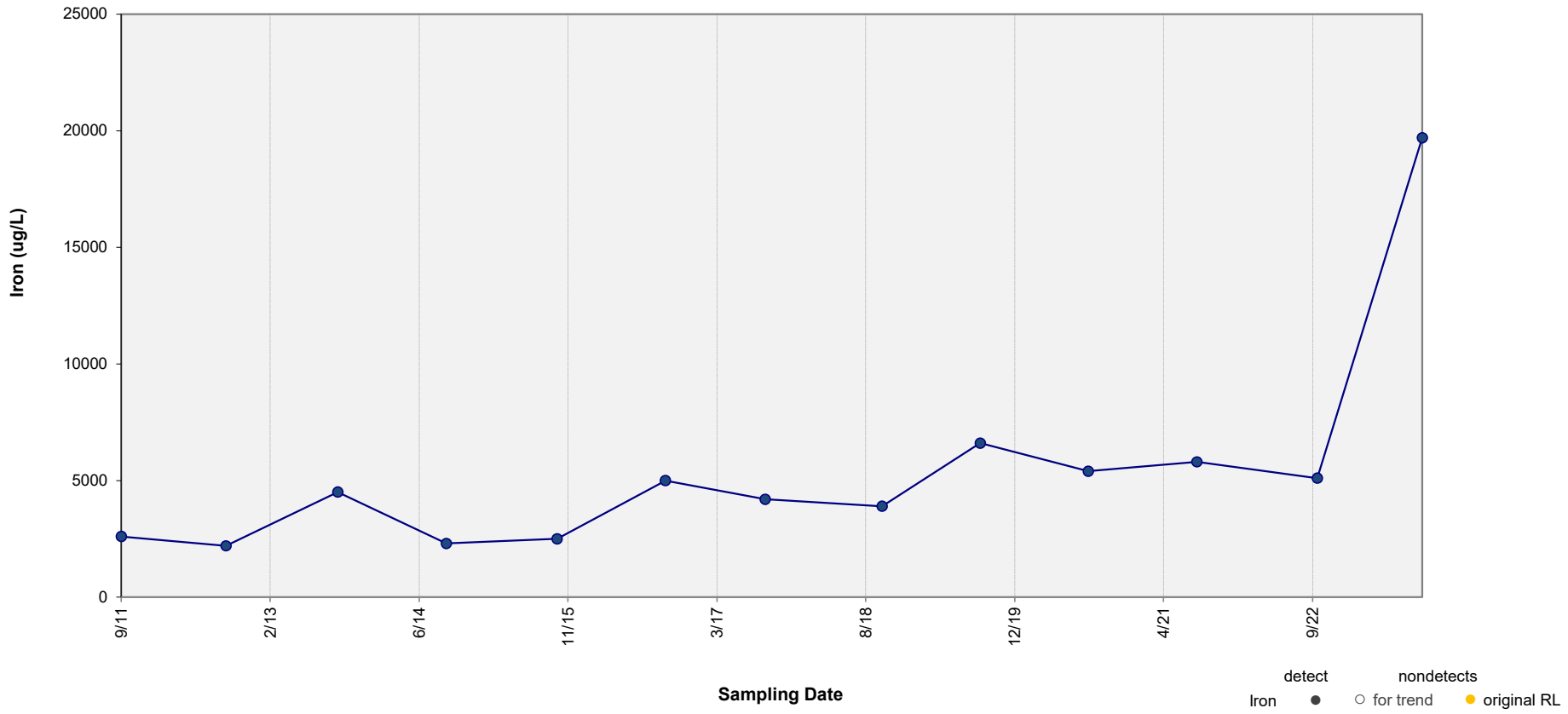
95% Confidence Interval = -1.1E-02 to 1.4E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium (dissolved) in Well MW-183WT

RACER Saginaw

Figure B-58



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.002 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 1.1E+00 ug/L Per Day

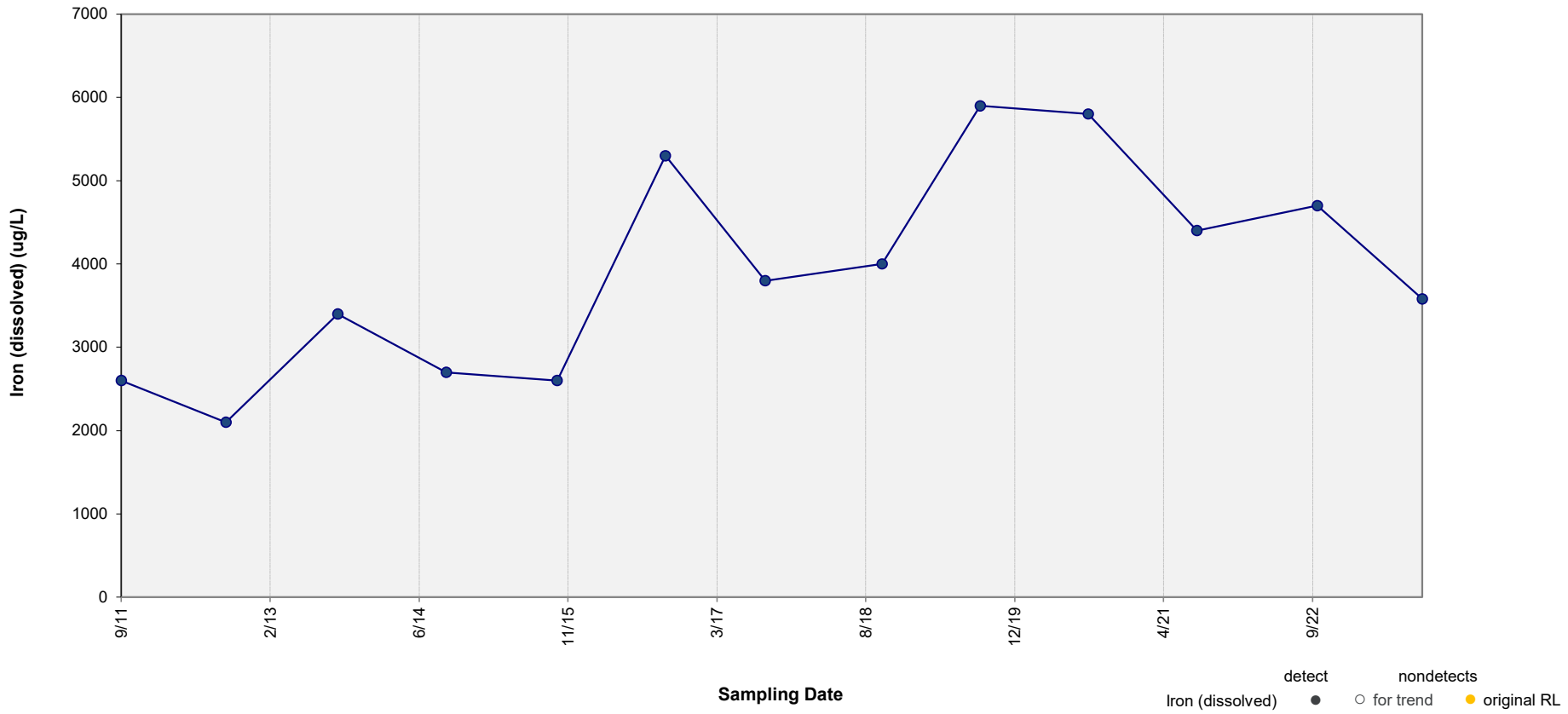
95% Confidence Interval = 4.5E-01 to 1.8E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron in Well MW-183WT

RACER Saginaw

Figure B-59



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.014 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 5.2E-01 ug/L Per Day

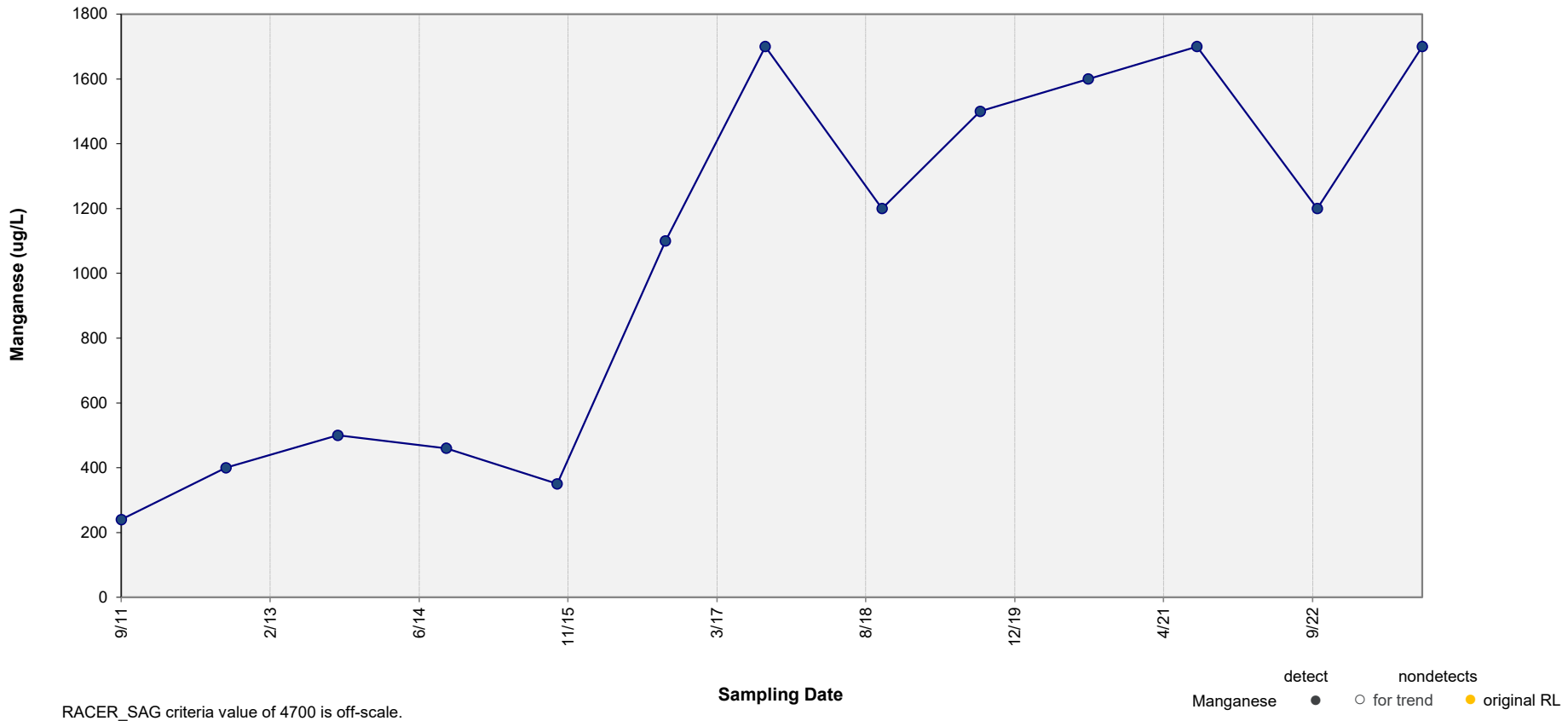
95% Confidence Interval = 9.0E-02 to 9.5E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron (dissolved) in Well MW-183WT

RACER Saginaw

Figure B-60



RACER_SAG criteria value of 4700 is off-scale.

Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 3.6E-01 ug/L Per Day

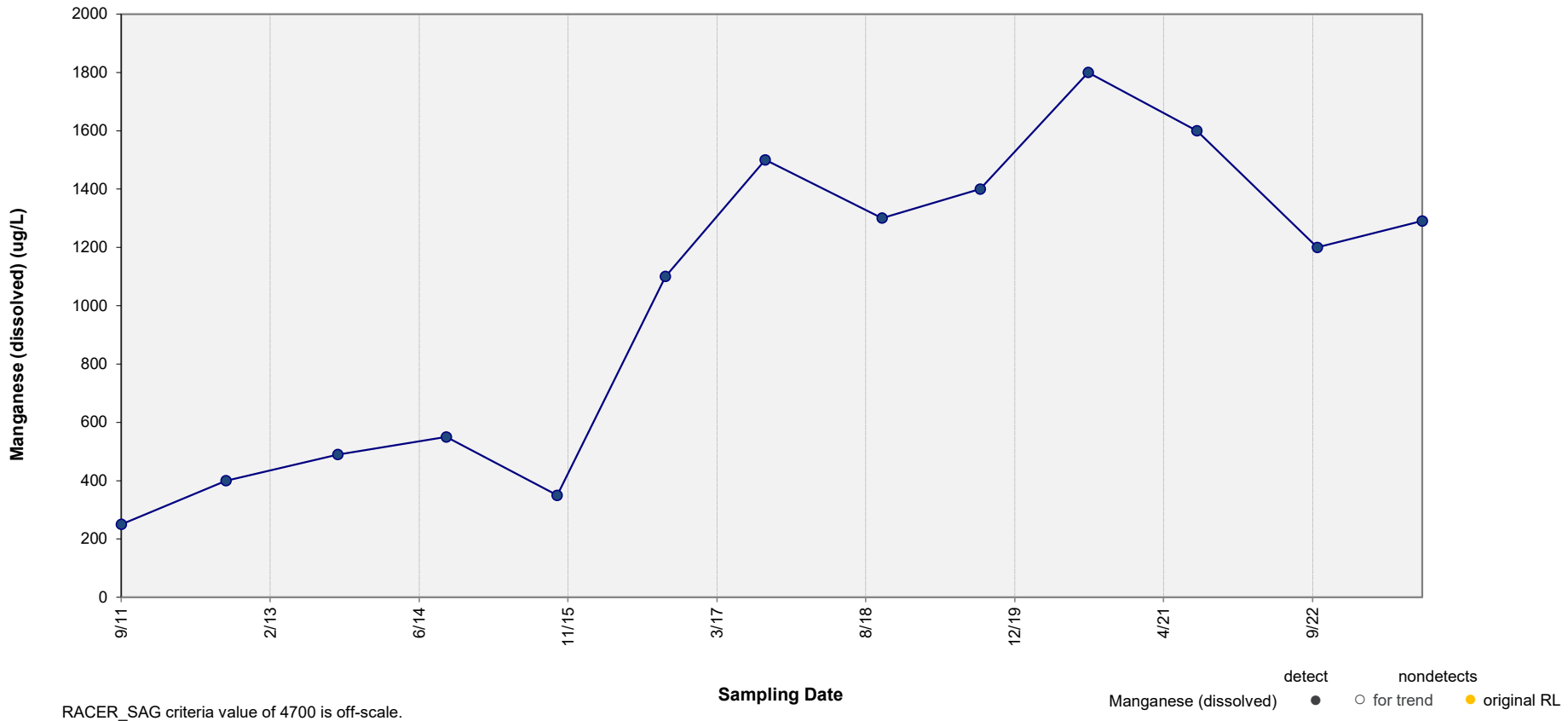
95% Confidence Interval = 2.1E-01 to 4.6E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese in Well MW-183WT

RACER Saginaw

Figure B-61



RACER_SAG criteria value of 4700 is off-scale.

Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.003 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 2.9E-01 ug/L Per Day

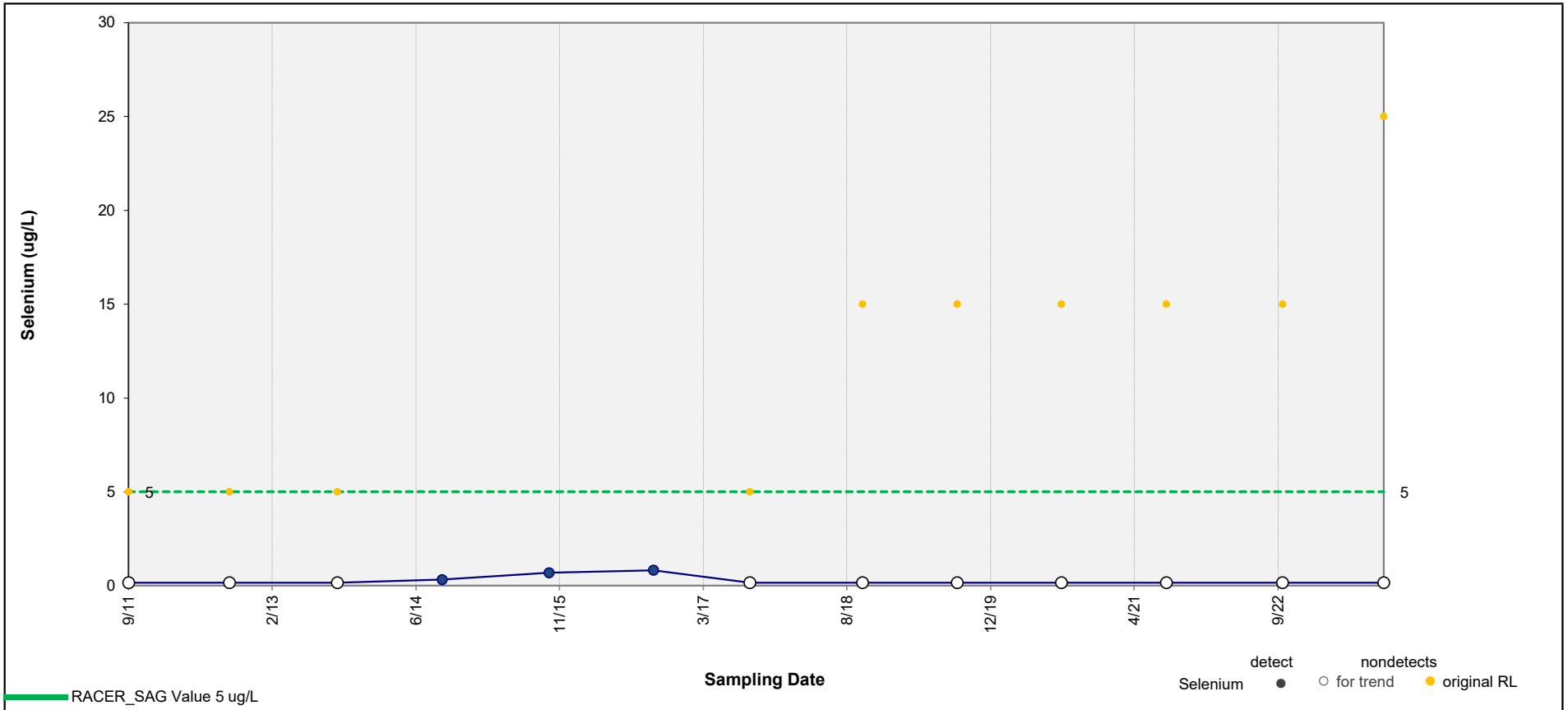
95% Confidence Interval = 2.2E-01 to 4.7E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese (dissolved) in Well MW-183WT

RACER Saginaw

Figure B-62



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.252 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

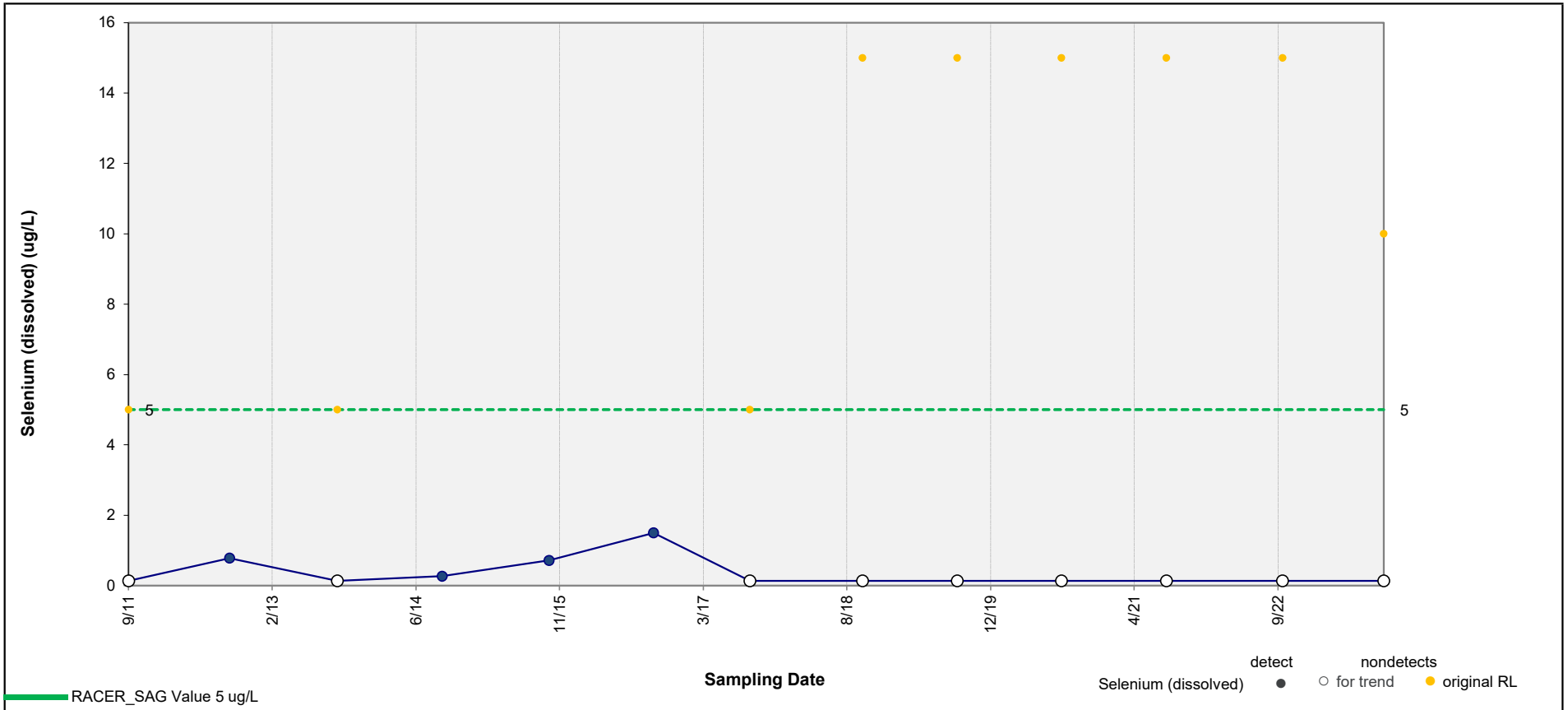
95% Confidence Interval = 0.0E+00 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Selenium in Well MW-183WT

RACER Saginaw

Figure B-63



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.076 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

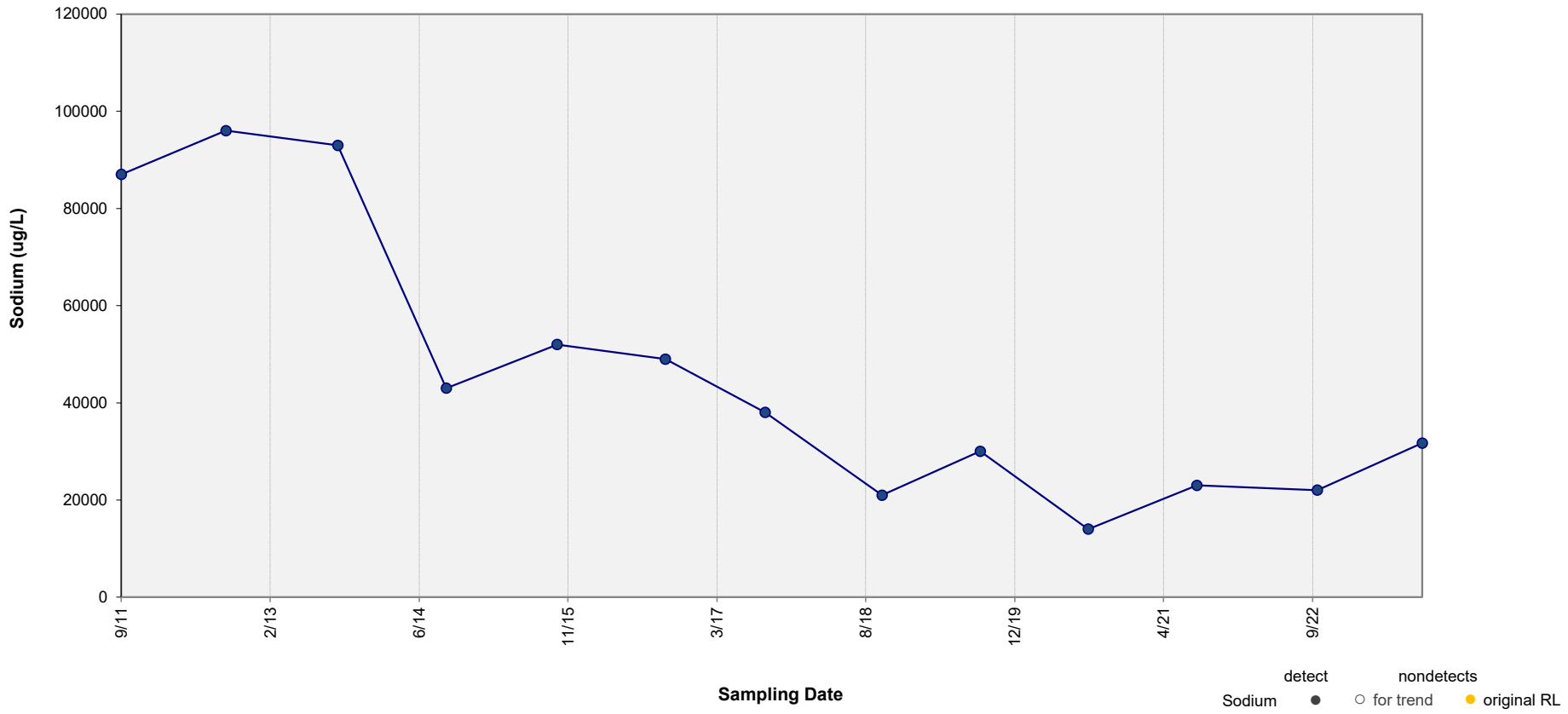
95% Confidence Interval = -7.6E-05 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Selenium (dissolved) in Well MW-183WT

RACER Saginaw

Figure B-64



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -1.6E+01 ug/L Per Day

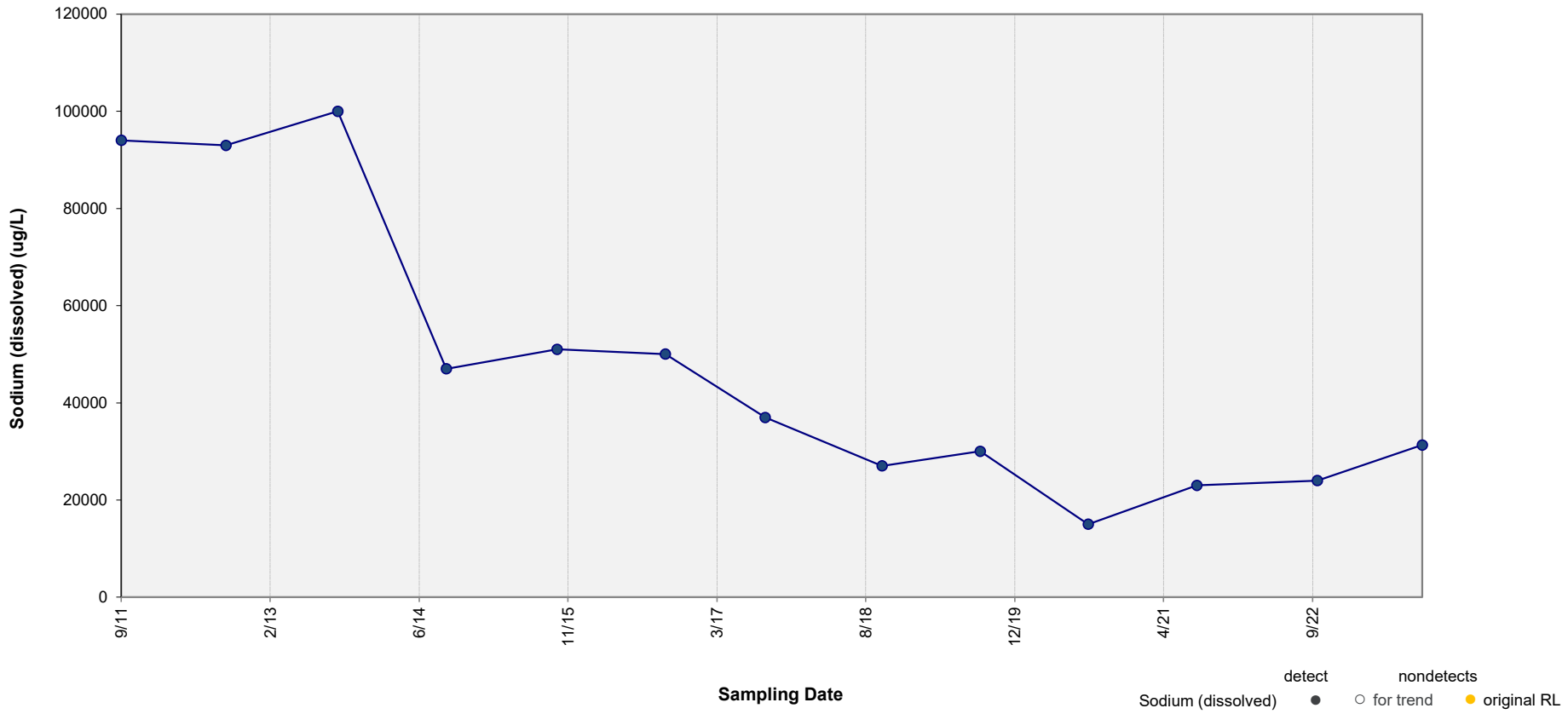
95% Confidence Interval = -2.4E+01 to -7.9E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium in Well MW-183WT

RACER Saginaw

Figure B-65



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -1.6E+01 ug/L Per Day

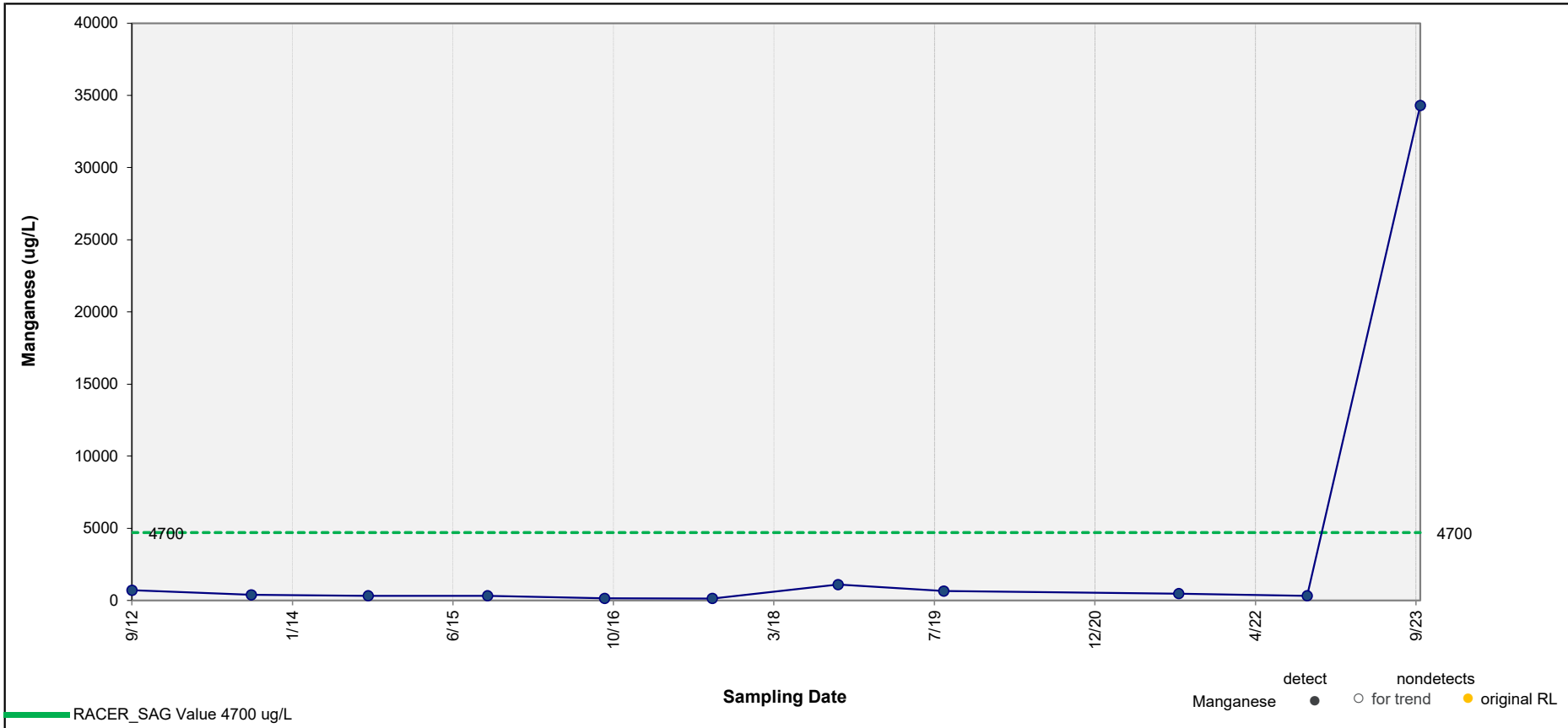
95% Confidence Interval = -2.5E+01 to -7.8E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium (dissolved) in Well MW-183WT

RACER Saginaw

Figure B-66



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.348 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 2.7E-02 ug/L Per Day

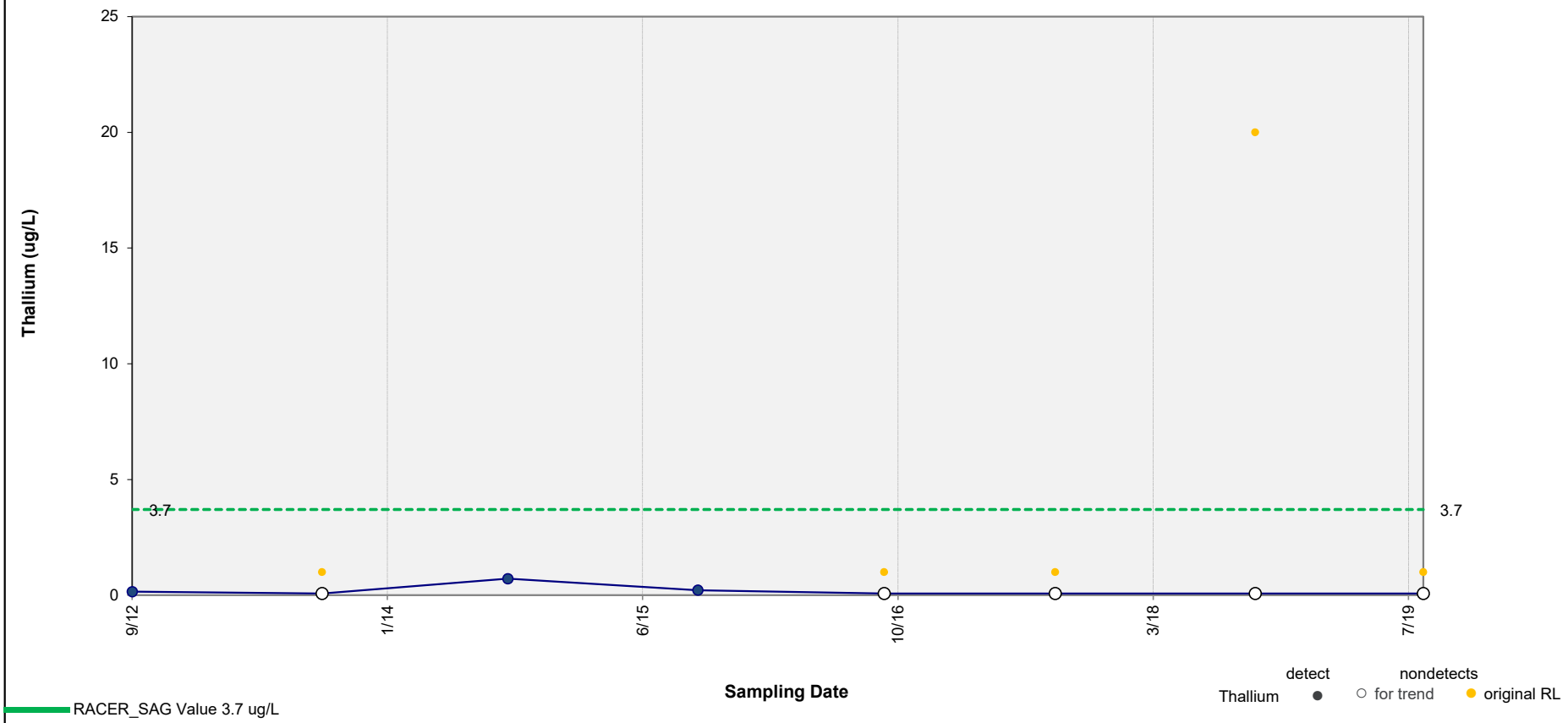
95% Confidence Interval = -2.3E-01 to 4.8E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese in Well MW-185WT

RACER Saginaw

Figure B-67



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.138 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = -1.5E-05 ug/L Per Day

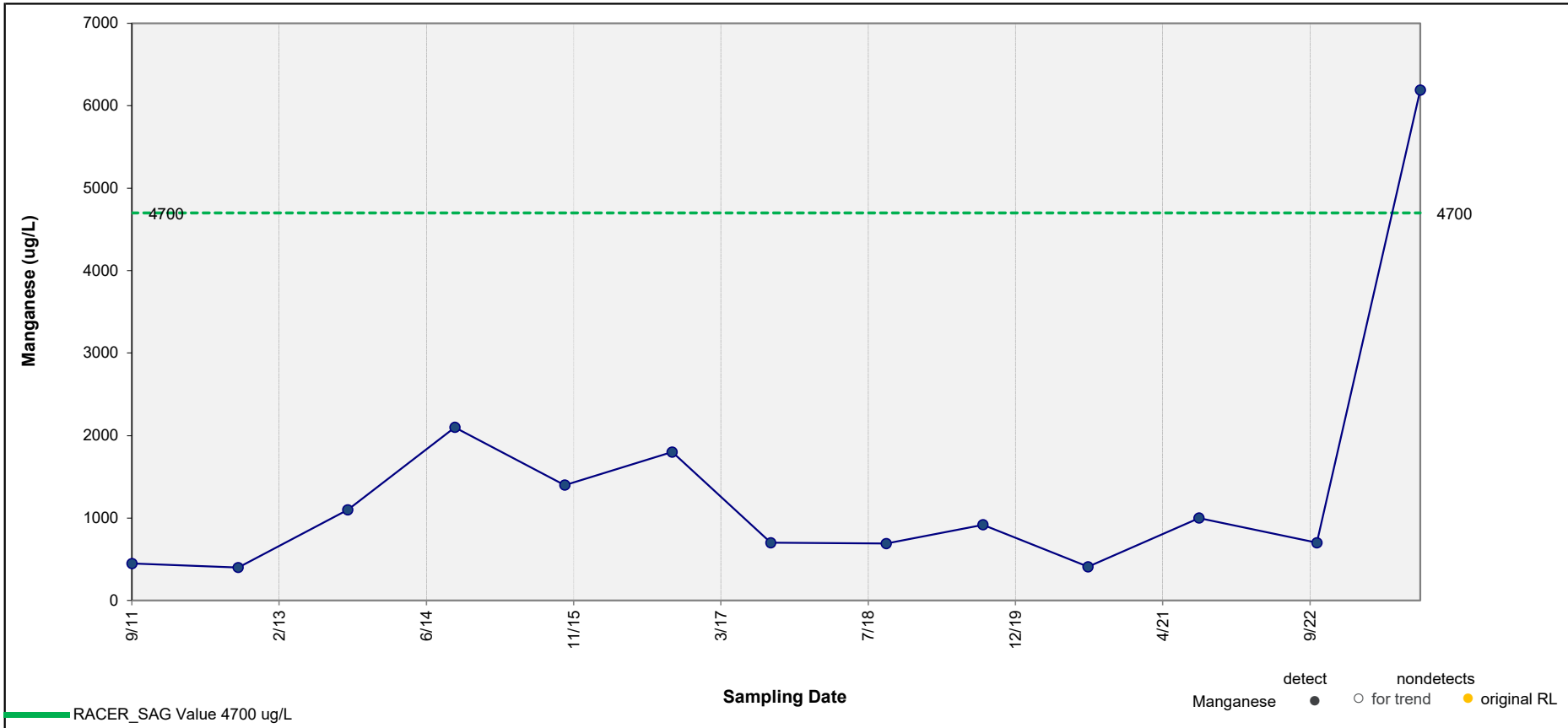
95% Confidence Interval = -2.1E-04 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Thallium in Well MW-185WT

RACER Saginaw

Figure B-68



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.312 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 8.8E-02 ug/L Per Day

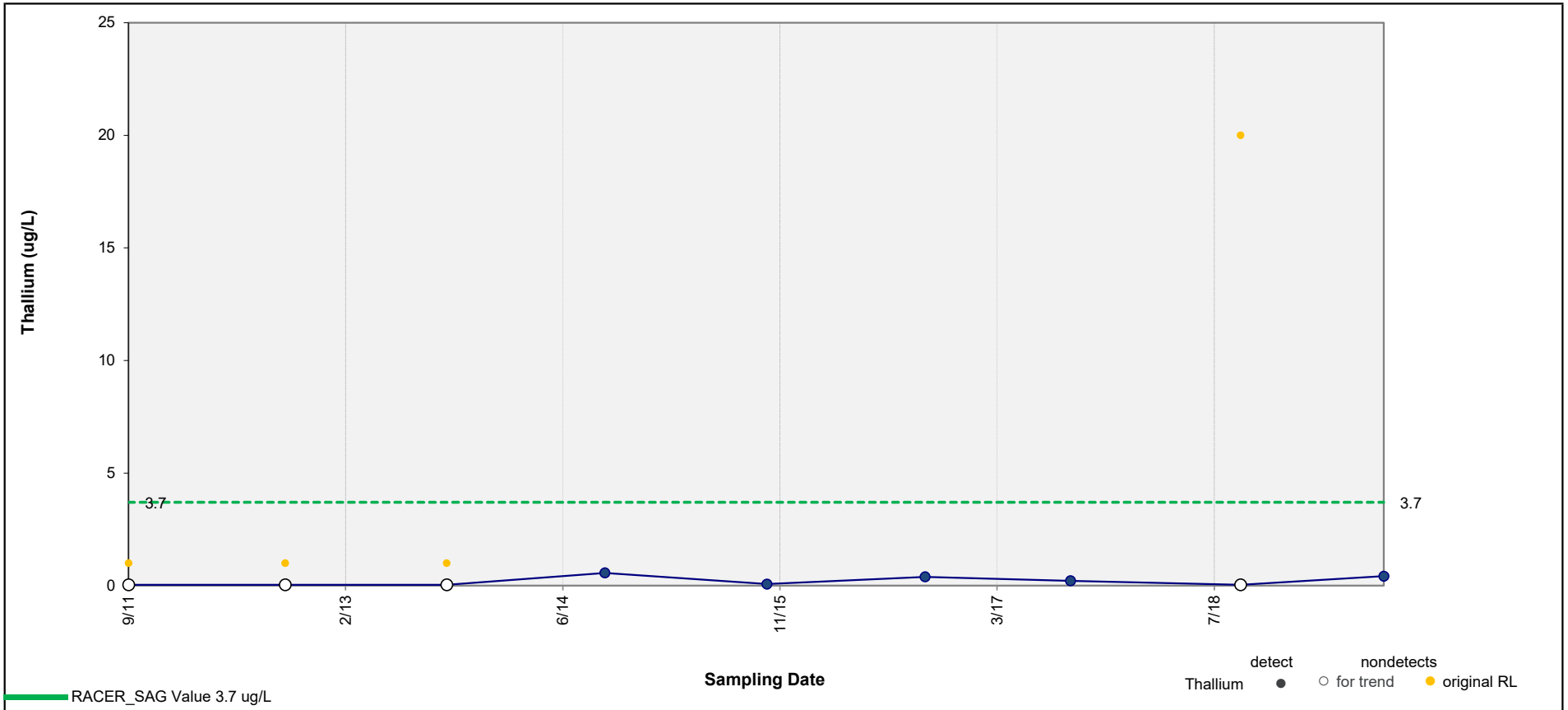
95% Confidence Interval = -2.7E-01 to 6.5E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese in Well MW-186WT

RACER Saginaw

Figure B-69



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.130 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 4.3E-05 ug/L Per Day

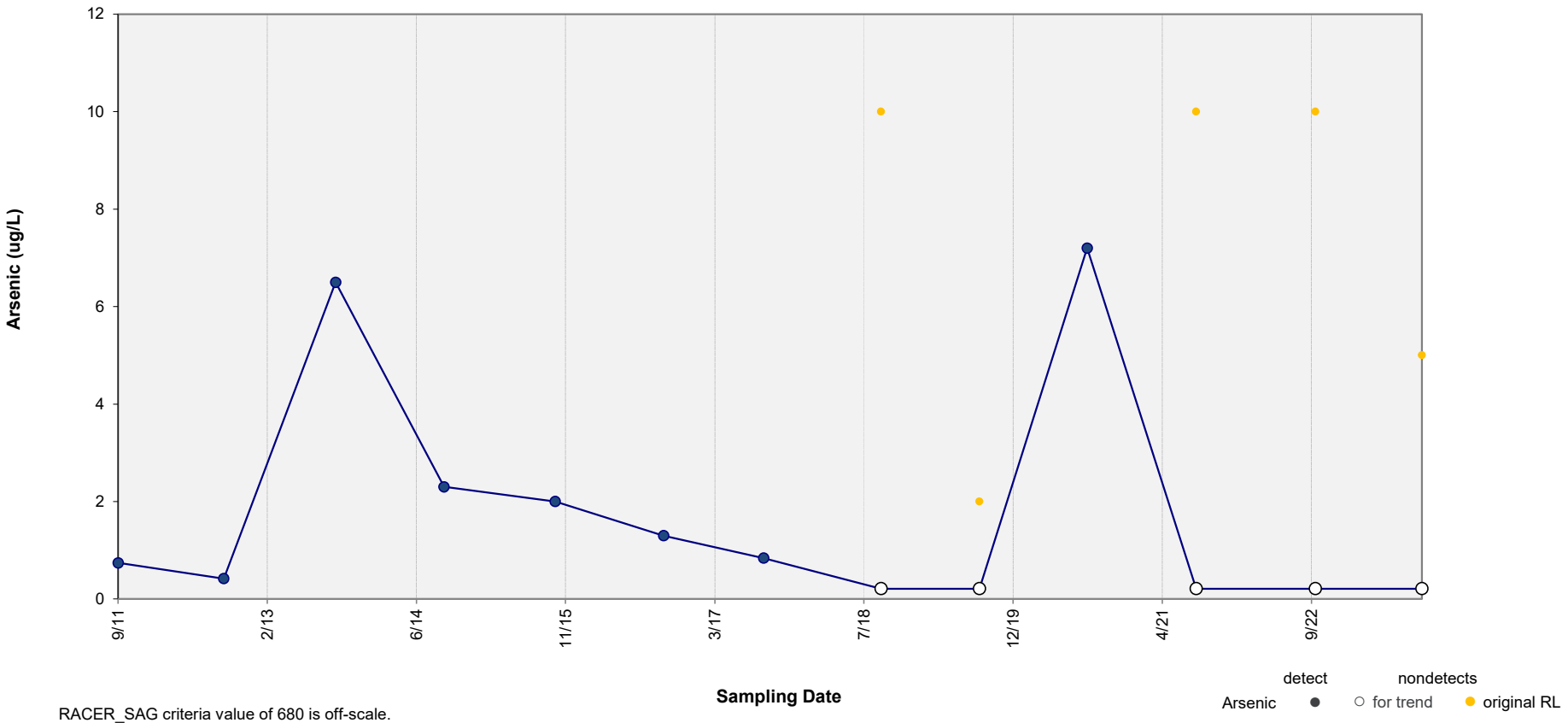
95% Confidence Interval = -3.3E-05 to 2.1E-04 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Thallium in Well MW-186WT

RACER Saginaw

Figure B-70



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.034 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = -2.5E-04 ug/L Per Day

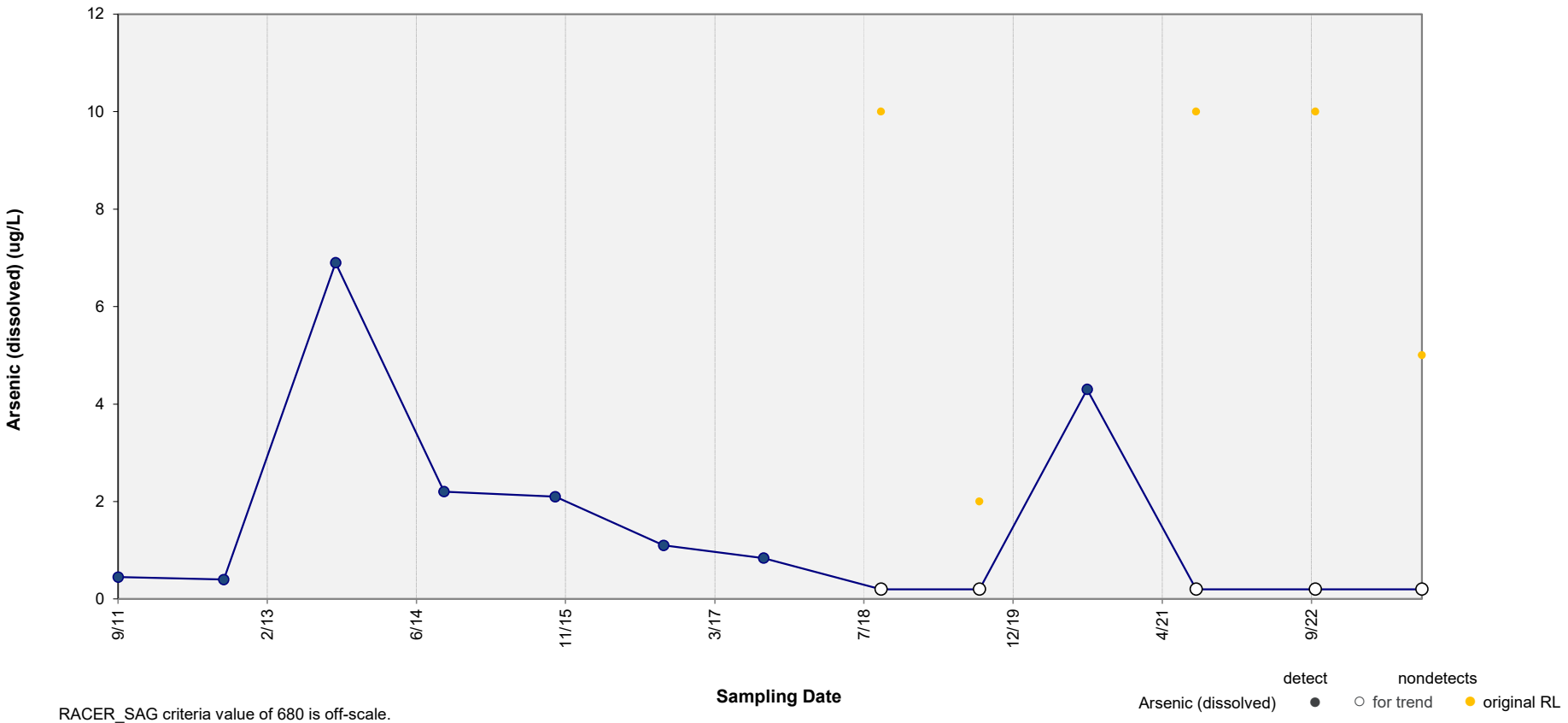
95% Confidence Interval = -1.1E-03 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic in Well X-4CAUGR

RACER Saginaw

Figure B-71



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.025 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = -2.1E-04 ug/L Per Day

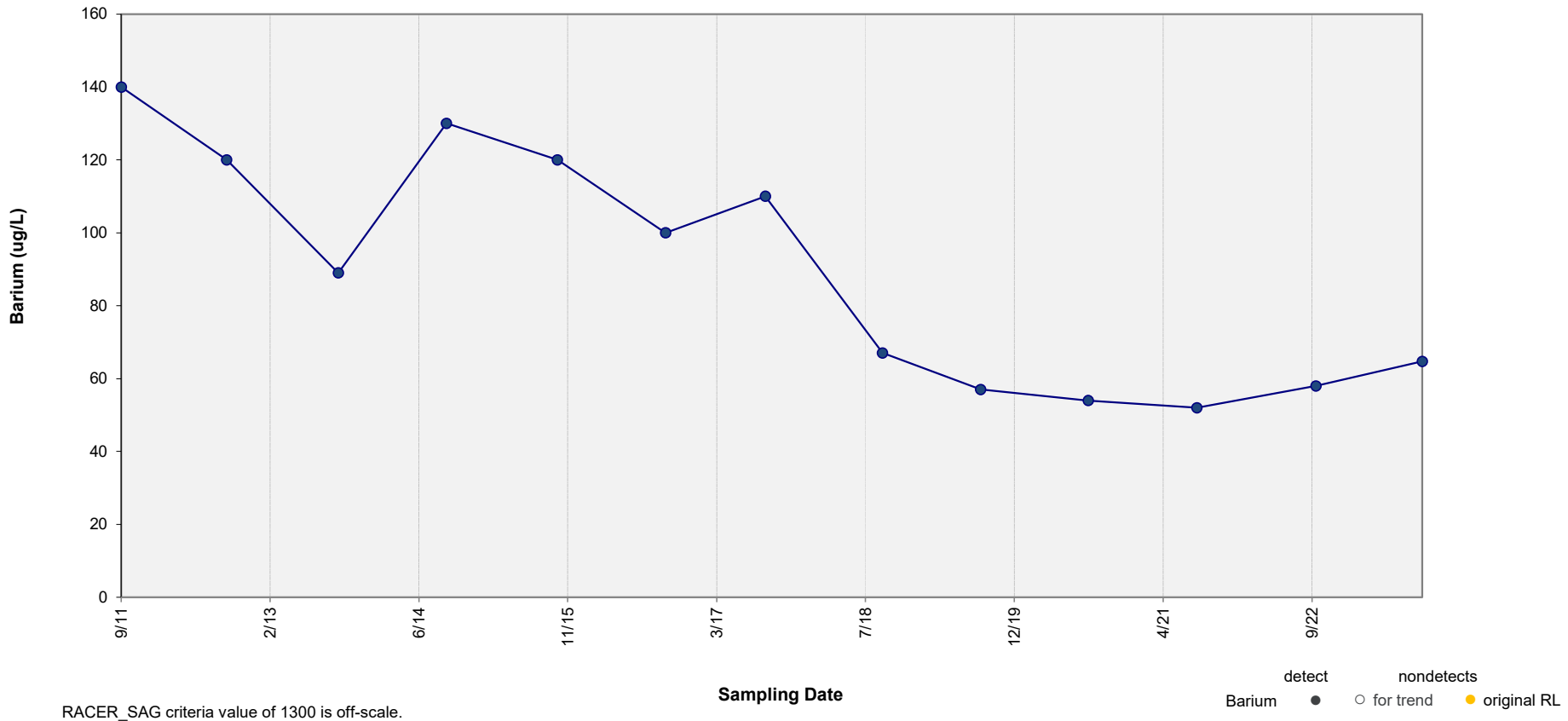
95% Confidence Interval = -9.7E-04 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic (dissolved) in Well X-4CAUGR

RACER Saginaw

Figure B-72



RACER_SAG criteria value of 1300 is off-scale.

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -1.9E-02 ug/L Per Day

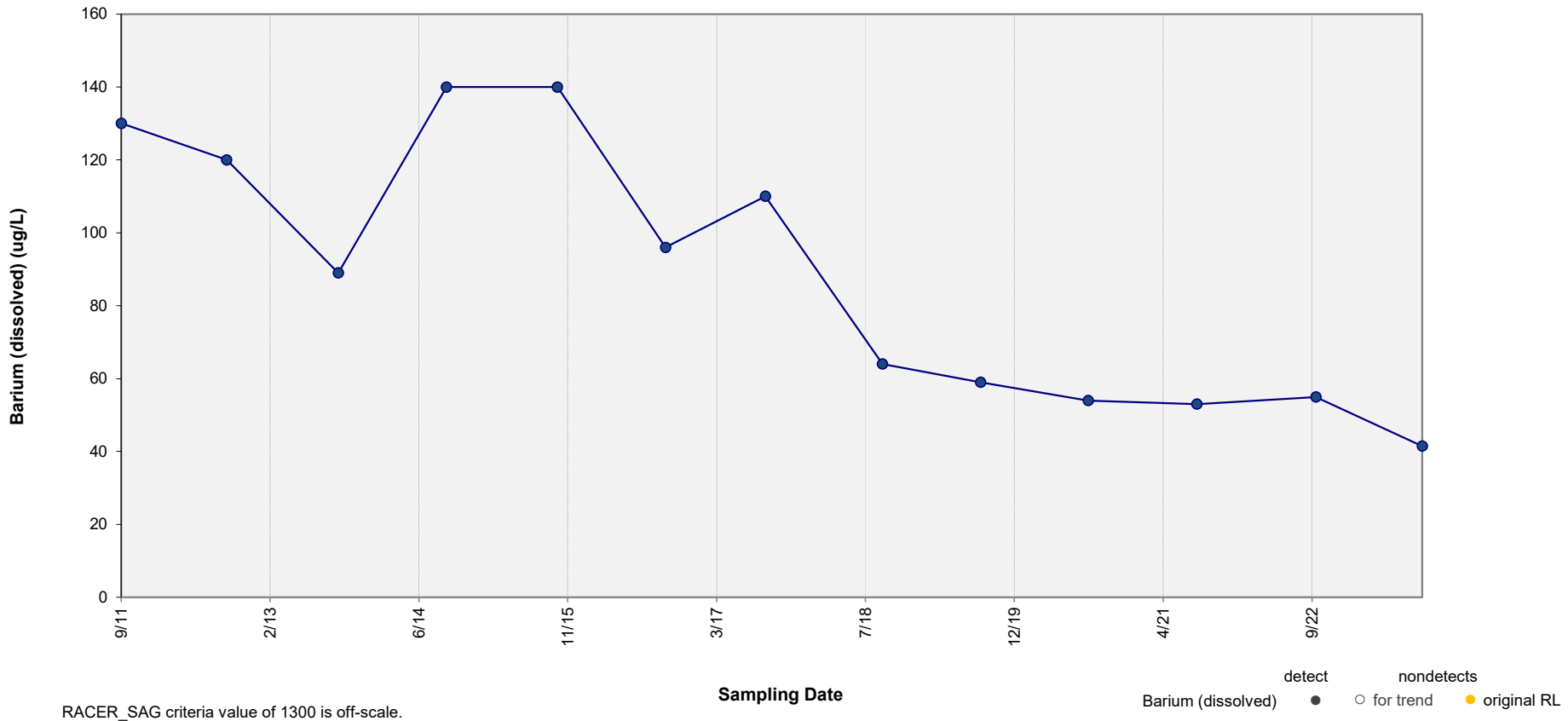
95% Confidence Interval = -2.9E-02 to -1.2E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium in Well X-4CAUGR

RACER Saginaw

Figure B-73



RACER_SAG criteria value of 1300 is off-scale.

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -2.0E-02 ug/L Per Day

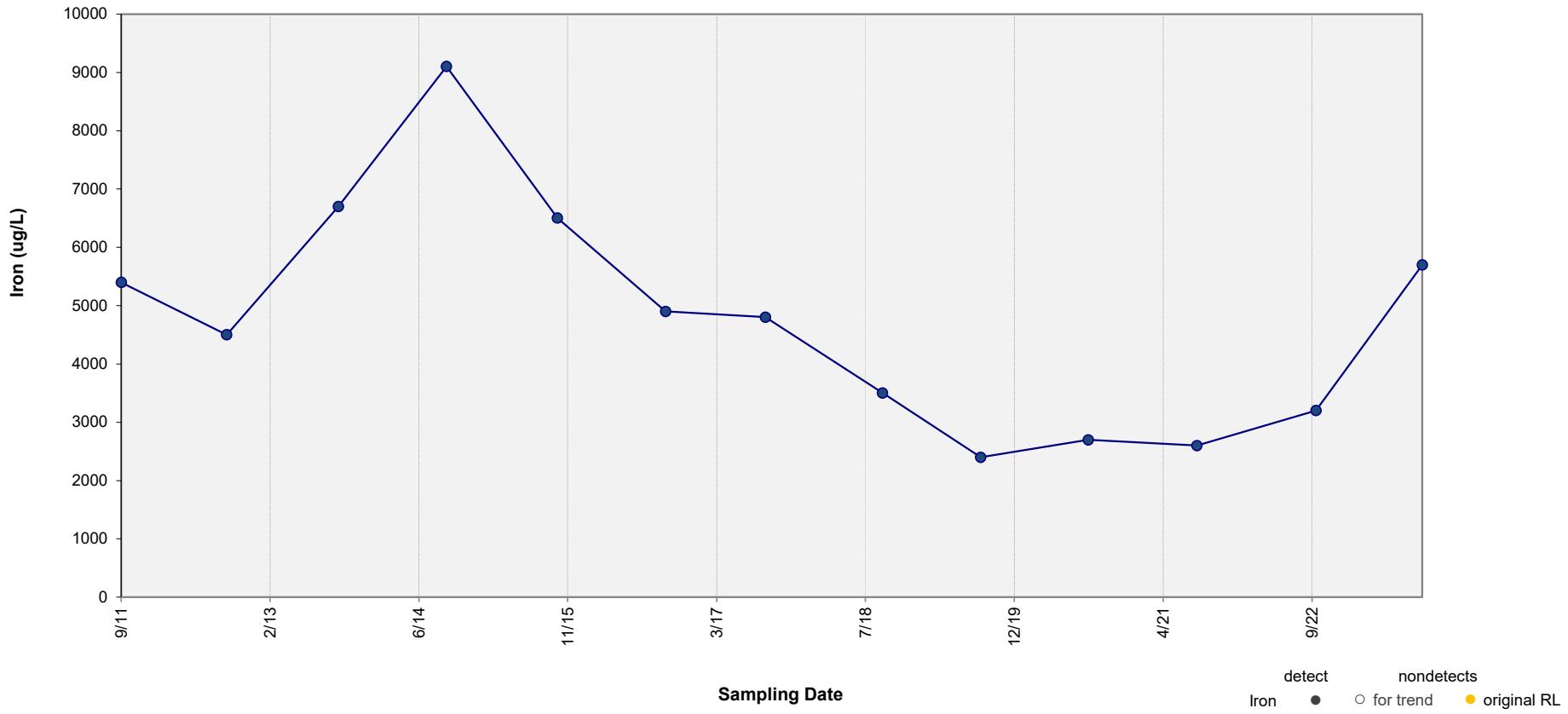
95% Confidence Interval = -3.1E-02 to -1.2E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium (dissolved) in Well X-4CAUGR

RACER Saginaw

Figure B-74



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.029 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -8.0E-01 ug/L Per Day

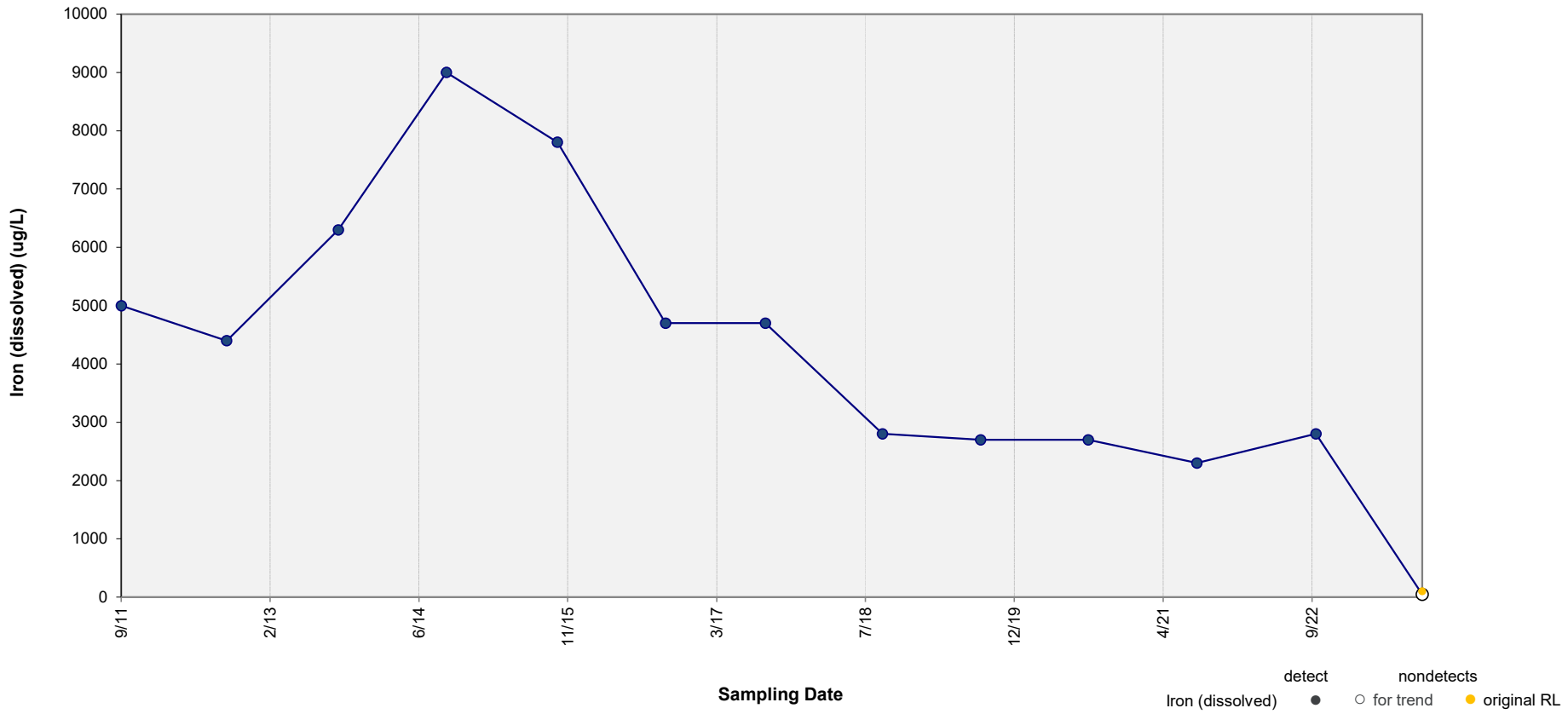
95% Confidence Interval = -1.8E+00 to -1.9E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron in Well X-4CAUGR

RACER Saginaw

Figure B-75



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.002 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -1.2E+00 ug/L Per Day

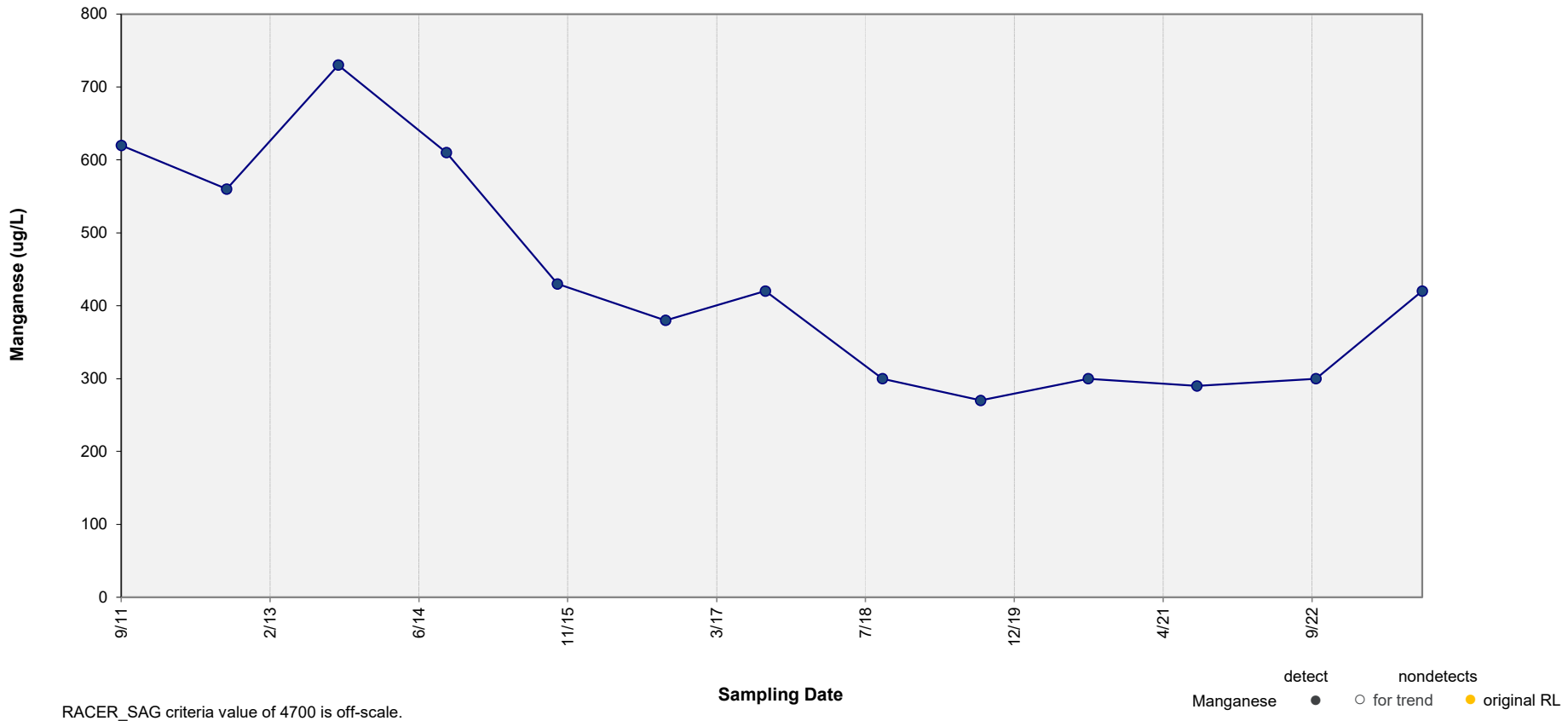
95% Confidence Interval = -2.1E+00 to -5.5E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron (dissolved) in Well X-4CAUGR

RACER Saginaw

Figure B-76



RACER_SAG criteria value of 4700 is off-scale.

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.003 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -9.0E-02 ug/L Per Day

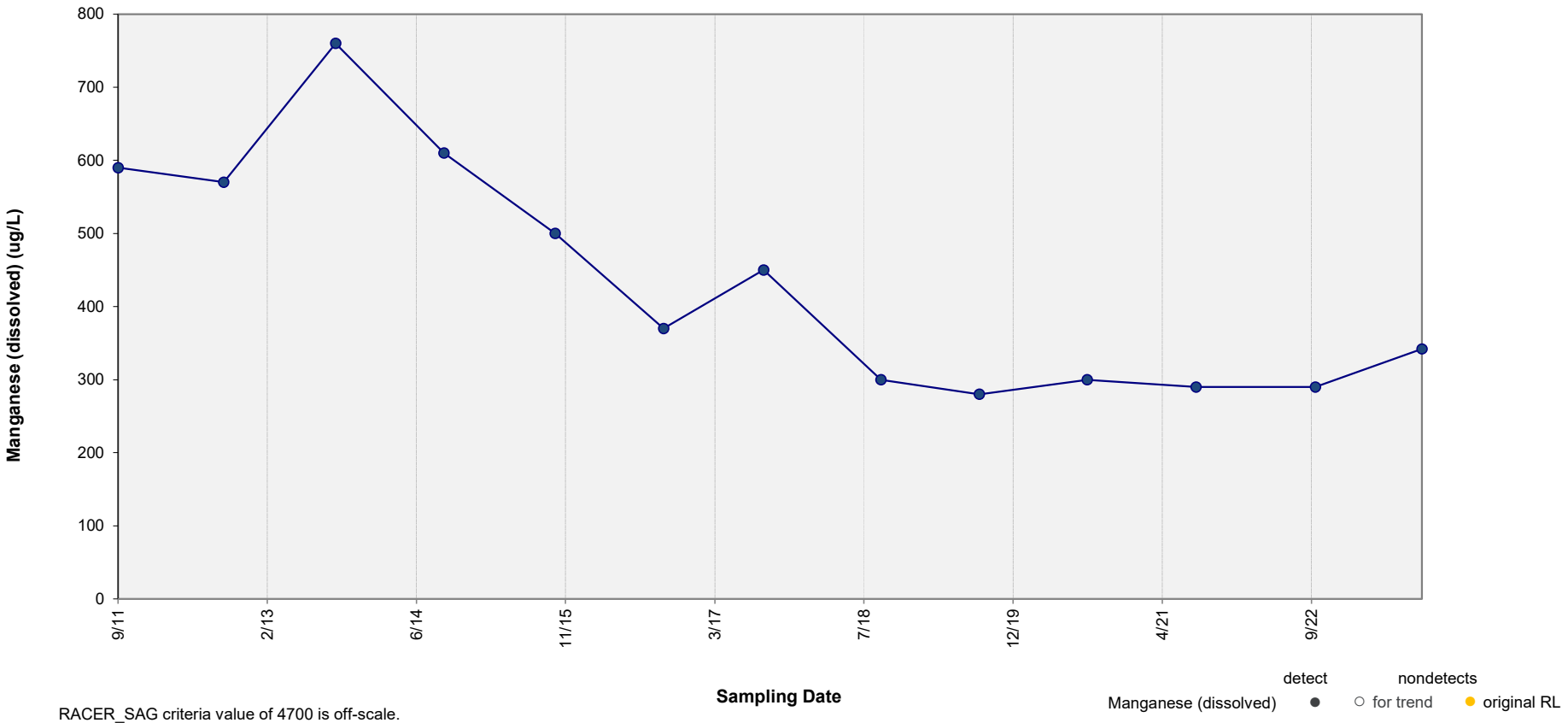
95% Confidence Interval = -1.2E-01 to -3.5E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese in Well X-4CAUGR

RACER Saginaw

Figure B-77



RACER_SAG criteria value of 4700 is off-scale.

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -8.4E-02 ug/L Per Day

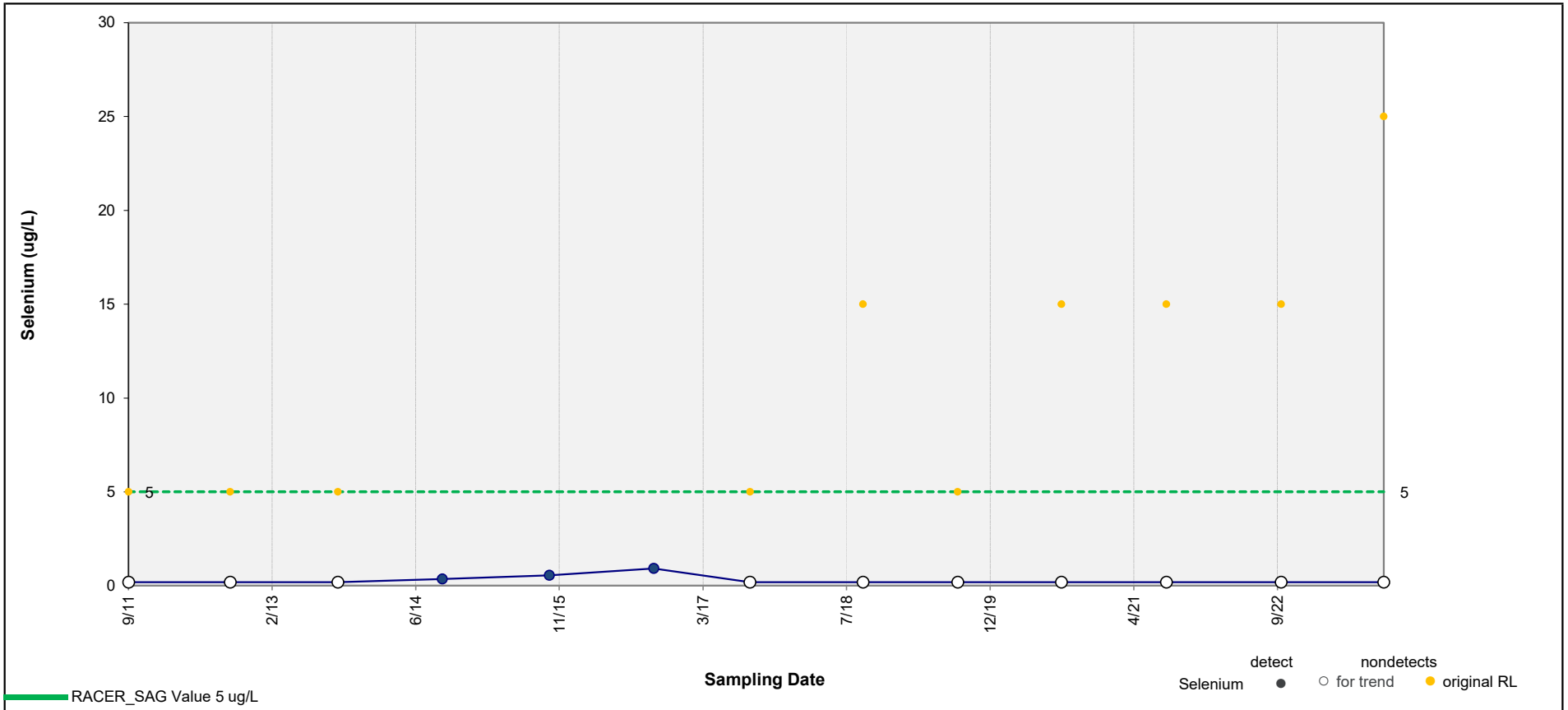
95% Confidence Interval = -1.3E-01 to -4.9E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese (dissolved) in Well X-4CAUGR

RACER Saginaw

Figure B-78



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.252 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

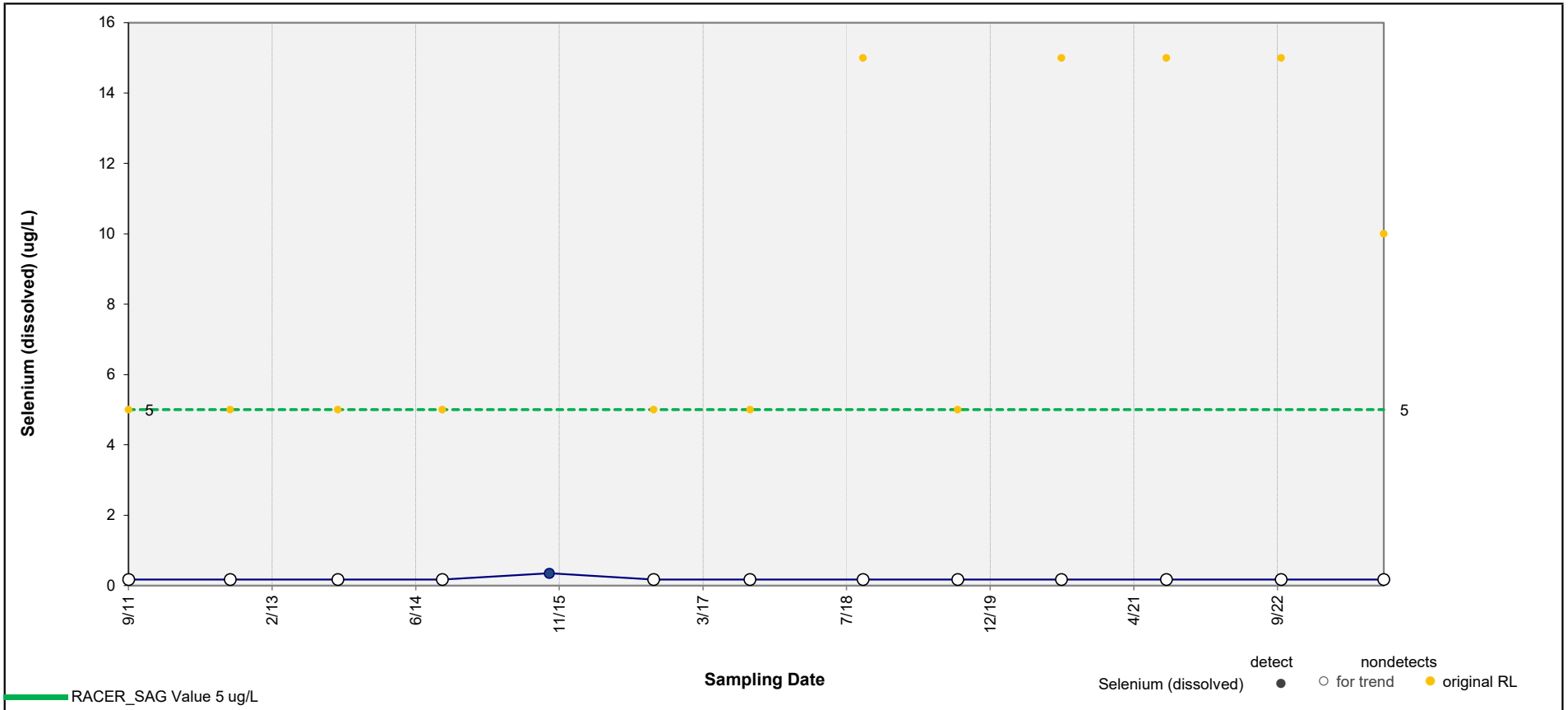
95% Confidence Interval = 0.0E+00 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Selenium in Well X-4CAUGR

RACER Saginaw

Figure B-79



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.344 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

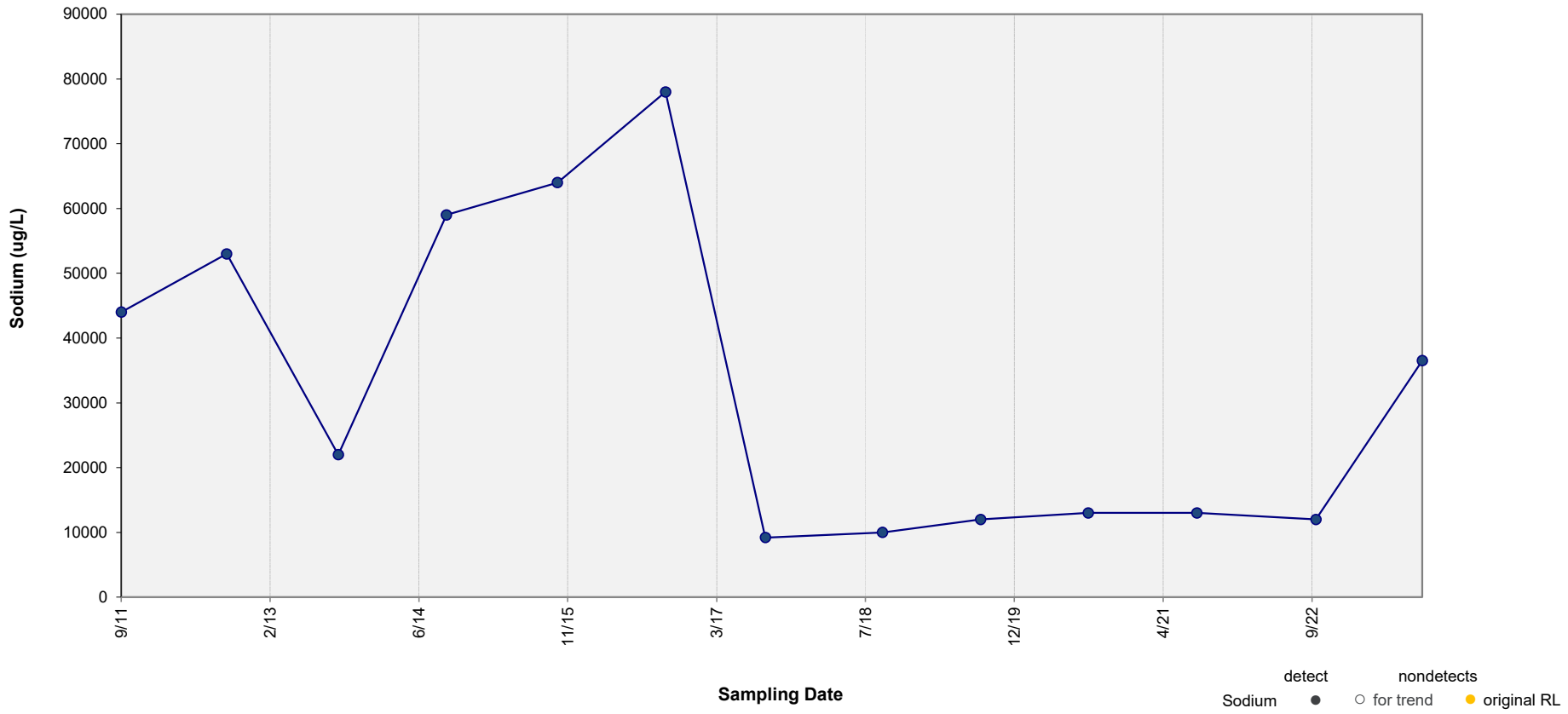
95% Confidence Interval = 0.0E+00 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Selenium (dissolved) in Well X-4CAUGR

RACER Saginaw

Figure B-80



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.213 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -3.8E+00 ug/L Per Day

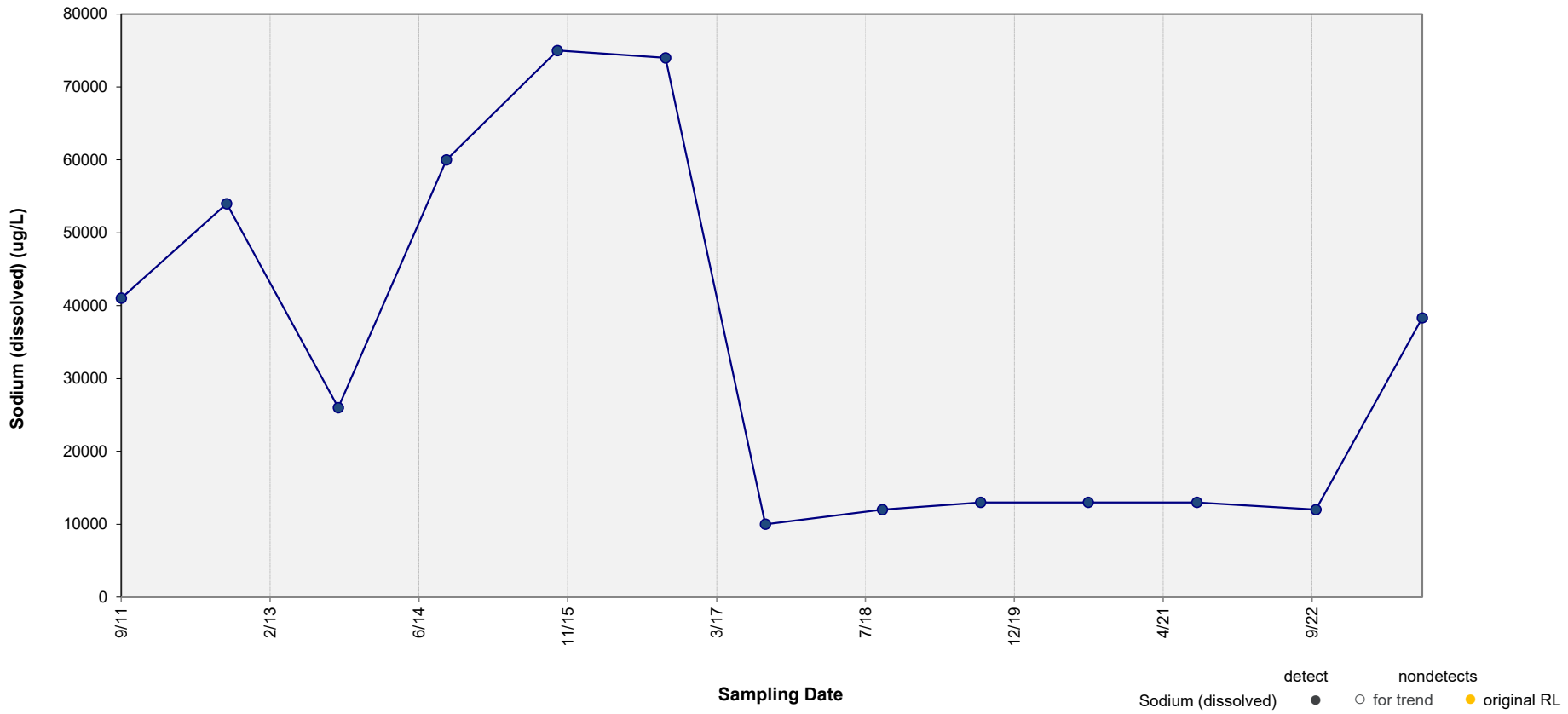
95% Confidence Interval = -1.6E+01 to 3.5E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium in Well X-4CAUGR

RACER Saginaw

Figure B-81



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.121 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -4.8E+00 ug/L Per Day

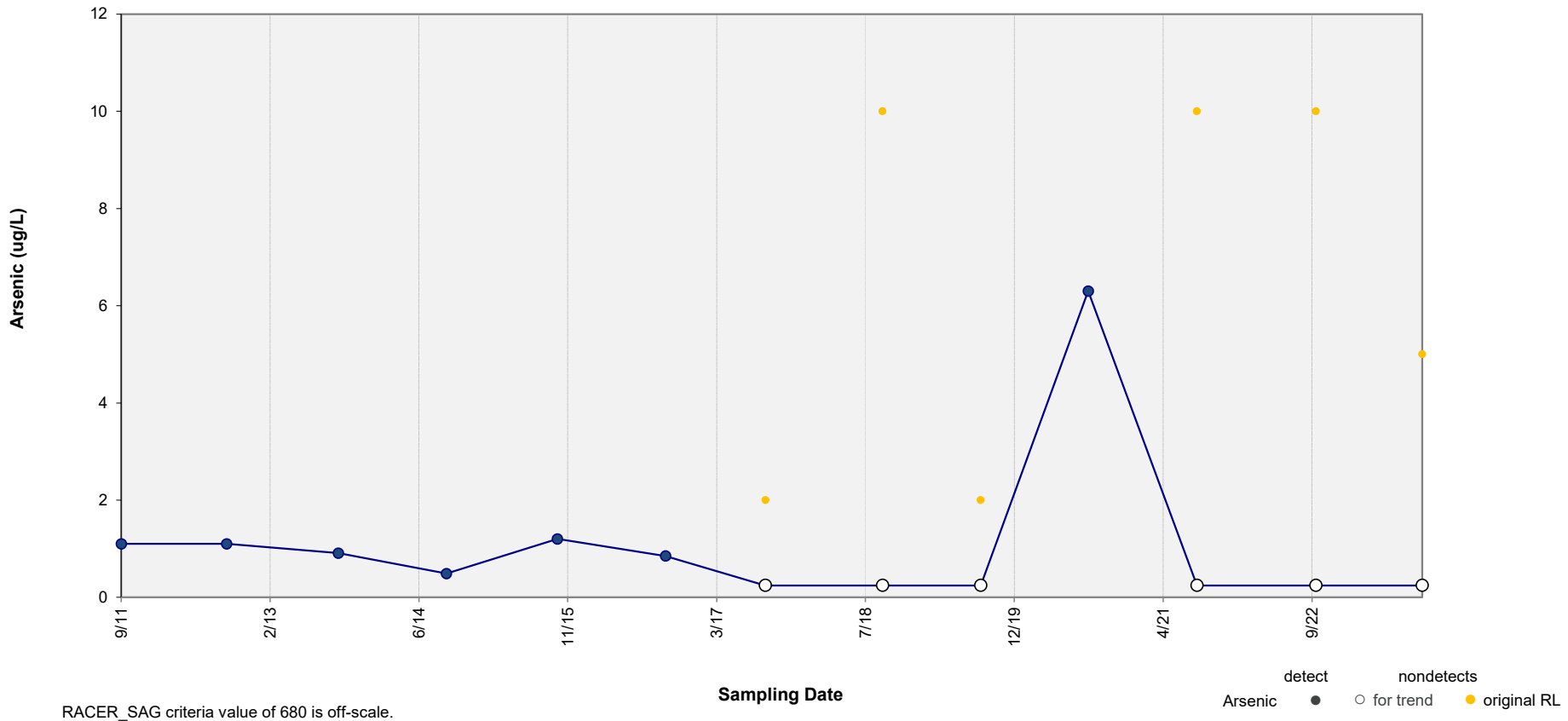
95% Confidence Interval = -1.6E+01 to 2.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium (dissolved) in Well X-4CAUGR

RACER Saginaw

Figure B-82



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.016 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = -1.9E-04 ug/L Per Day

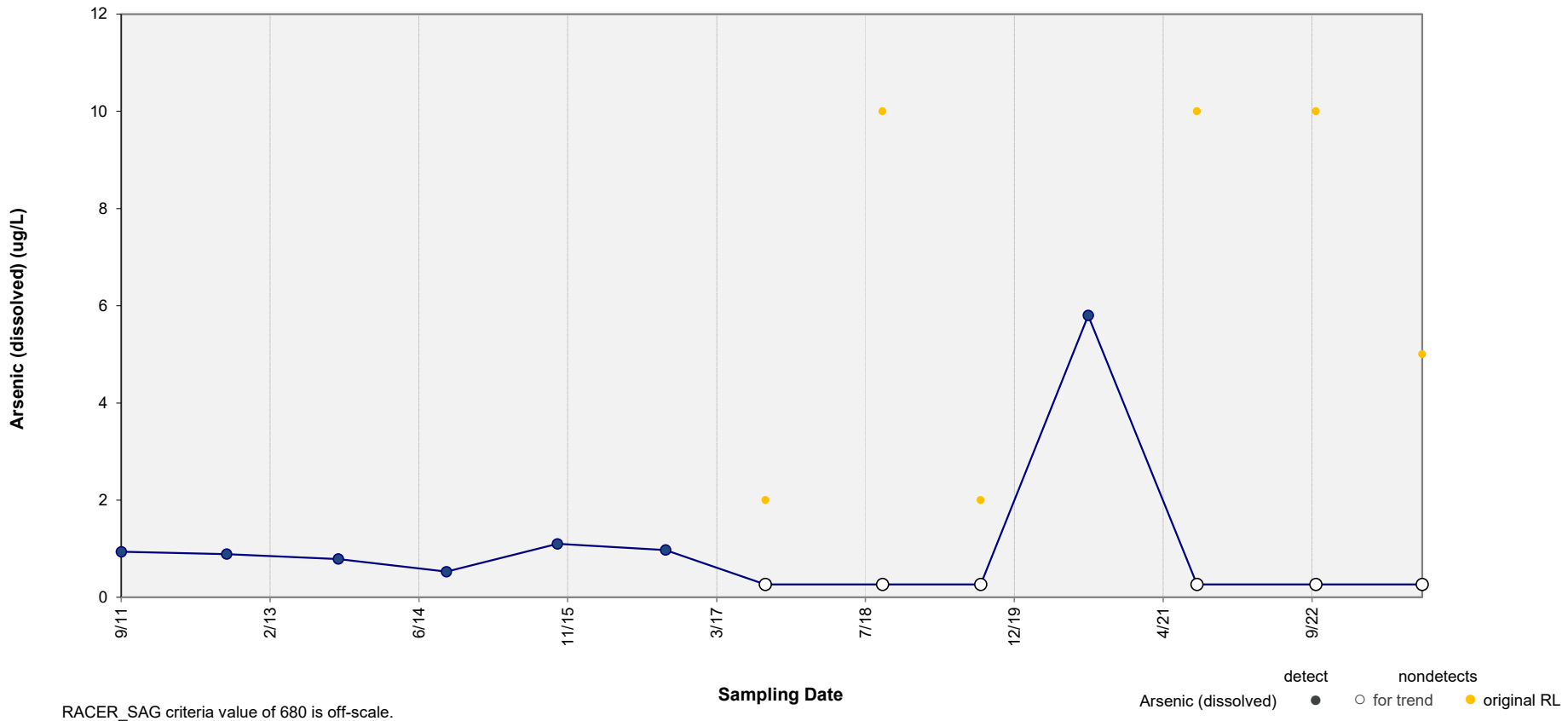
95% Confidence Interval = -3.3E-04 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic in Well X-4D

RACER Saginaw

Figure B-83



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.035 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = -1.6E-04 ug/L Per Day

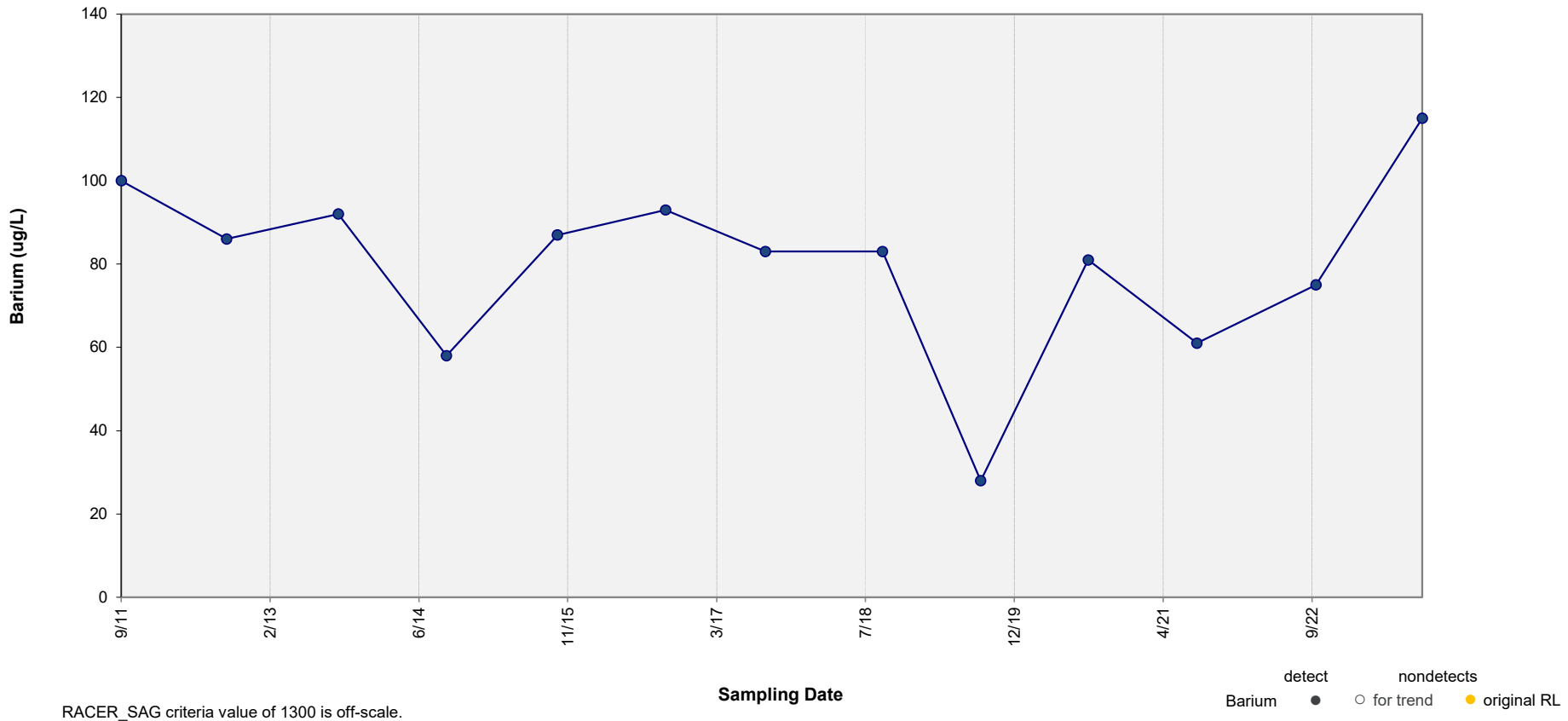
95% Confidence Interval = -2.8E-04 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic (dissolved) in Well X-4D

RACER Saginaw

Figure B-84



RACER_SAG criteria value of 1300 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.111 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -4.3E-03 ug/L Per Day

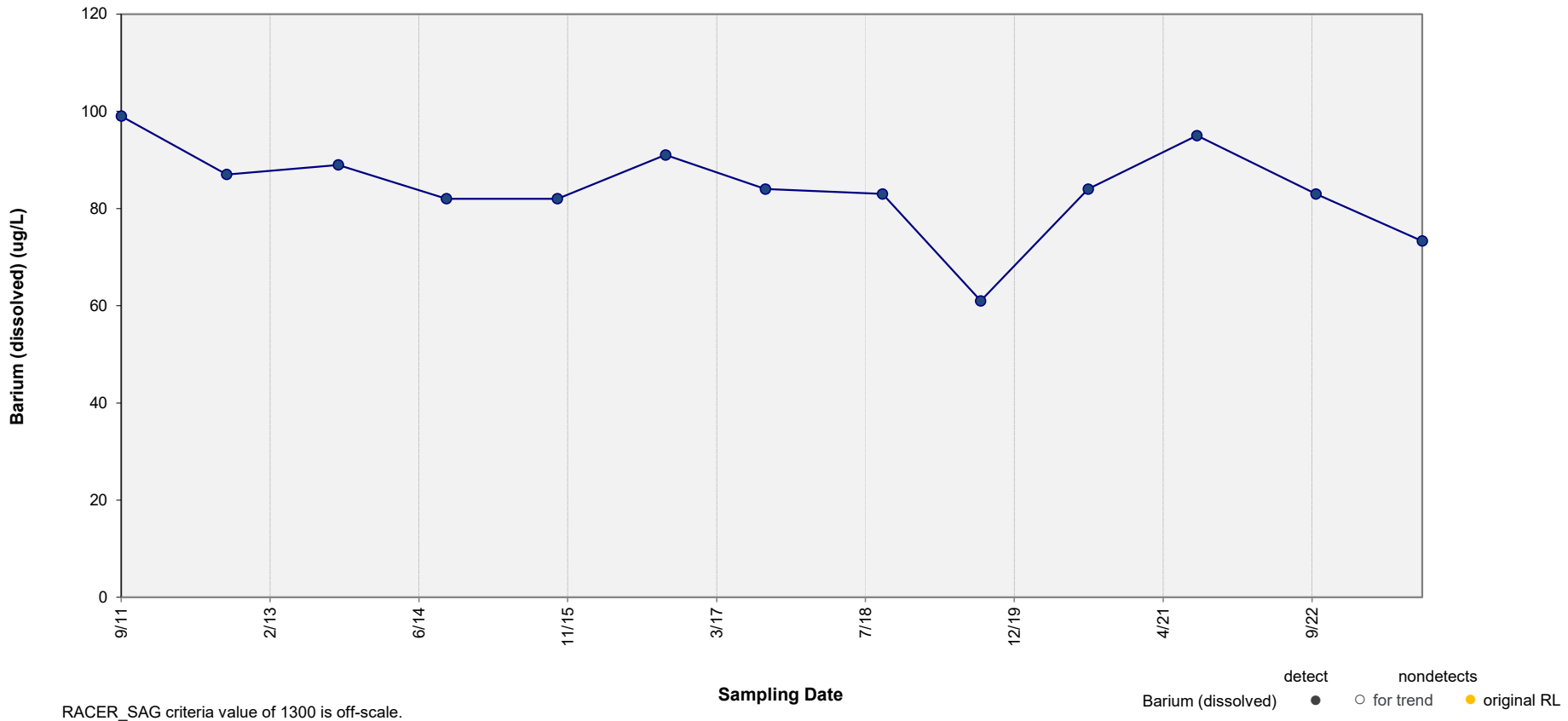
95% Confidence Interval = -8.9E-03 to 4.8E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium in Well X-4D

RACER Saginaw

Figure B-85



RACER_SAG criteria value of 1300 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.089 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -2.6E-03 ug/L Per Day

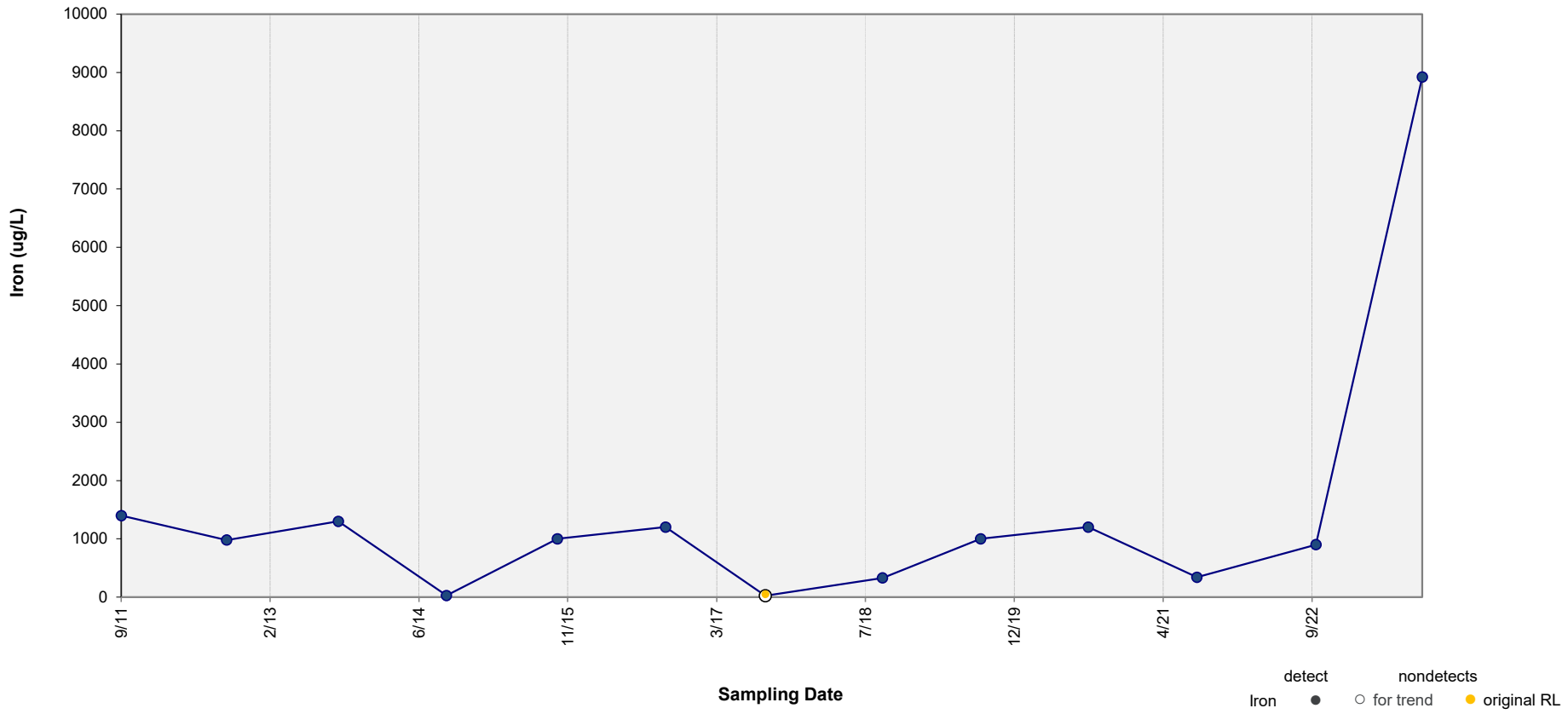
95% Confidence Interval = -6.8E-03 to 6.8E-04 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium (dissolved) in Well X-4D

RACER Saginaw

Figure B-86



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.476 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -1.9E-03 ug/L Per Day

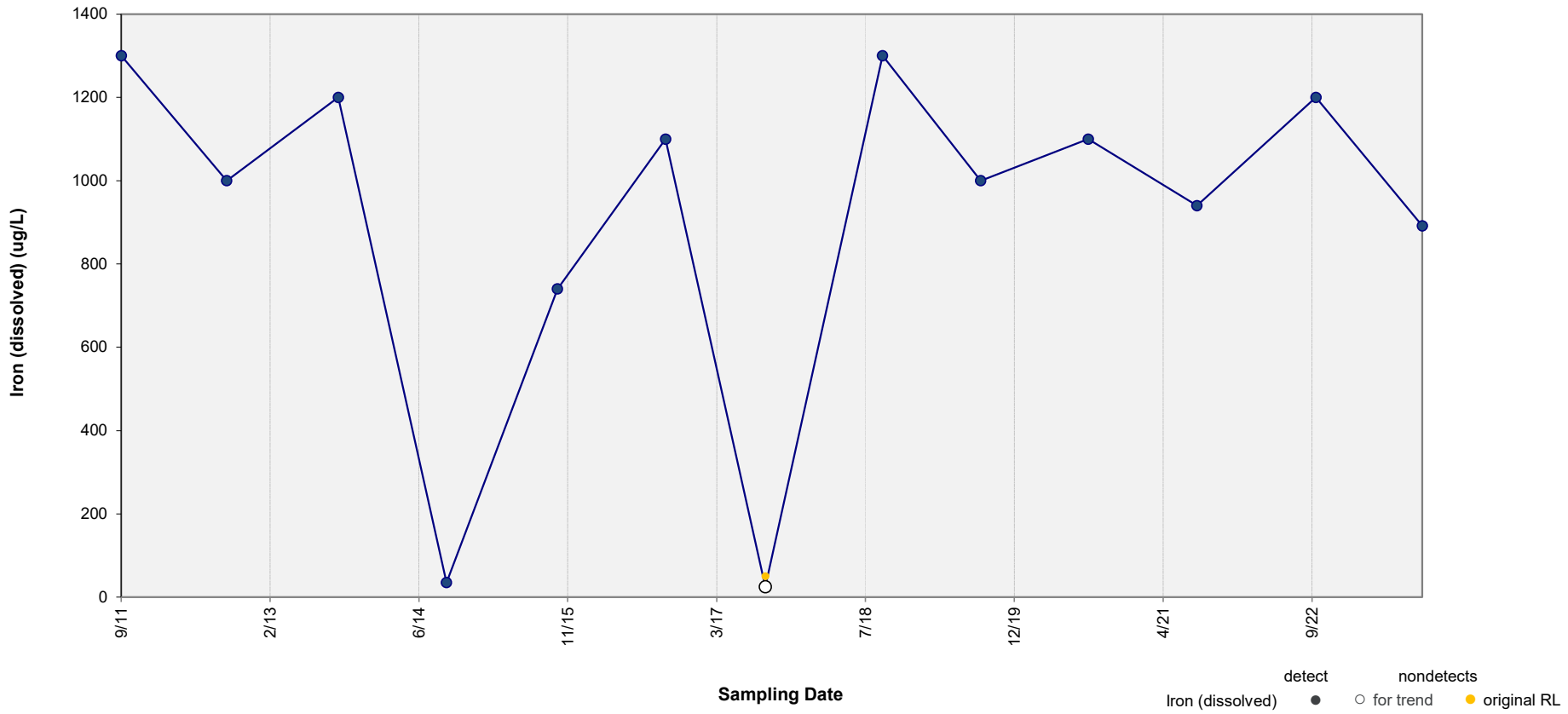
95% Confidence Interval = -2.7E-01 to 5.4E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron in Well X-4D

RACER Saginaw

Figure B-87



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.333 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -2.2E-02 ug/L Per Day

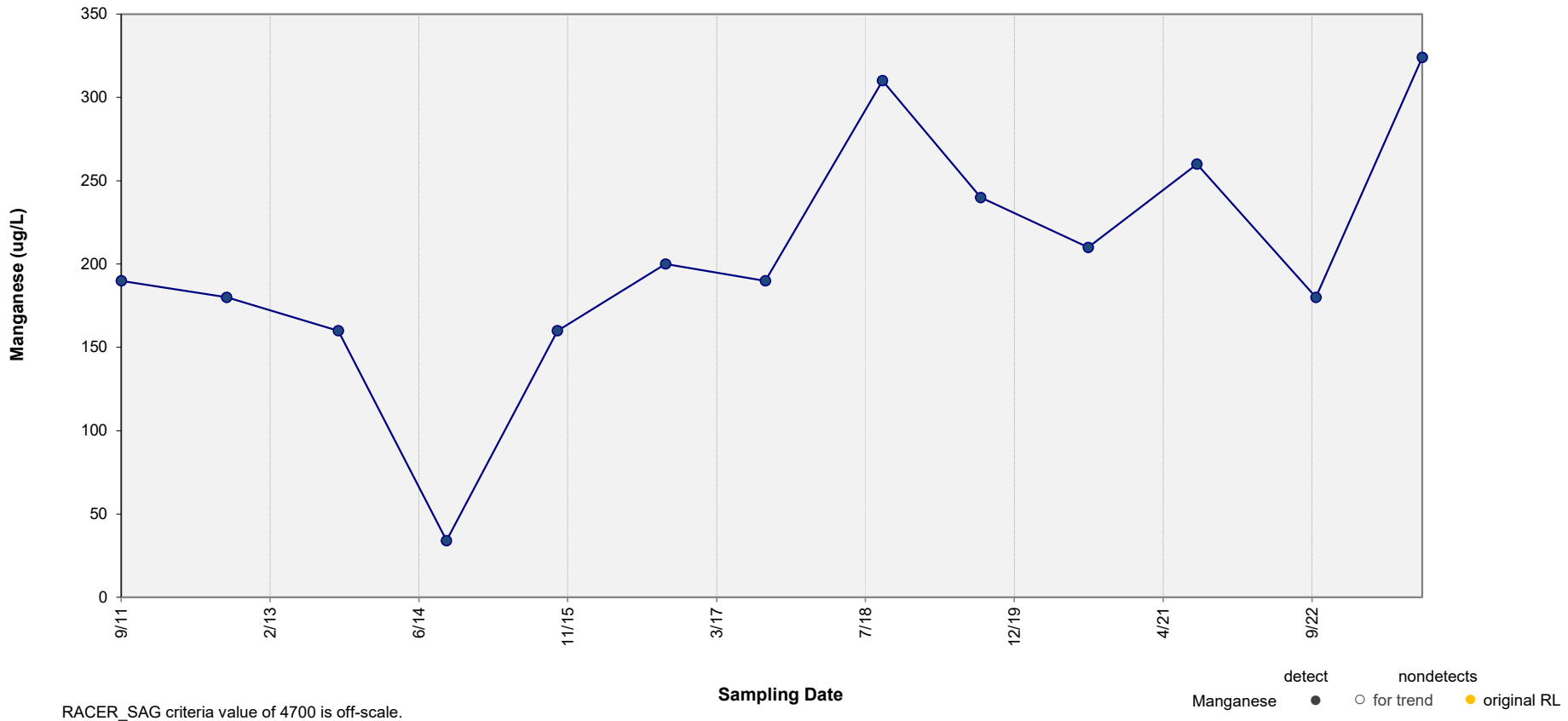
95% Confidence Interval = -9.9E-02 to 1.8E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron (dissolved) in Well X-4D

RACER Saginaw

Figure B-88



RACER_SAG criteria value of 4700 is off-scale.

Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.018 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 2.6E-02 ug/L Per Day

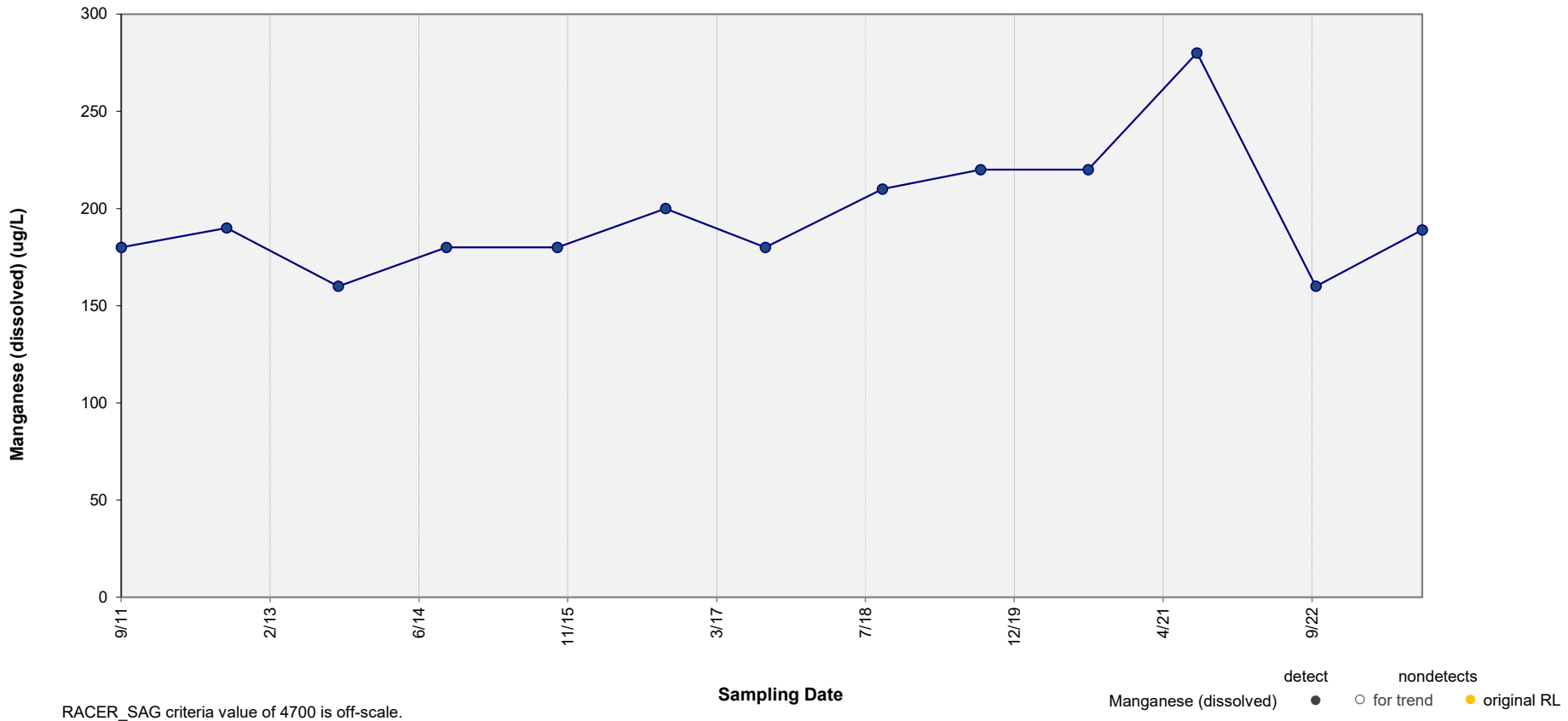
95% Confidence Interval = 1.5E-04 to 5.0E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese in Well X-4D

RACER Saginaw

Figure B-89



RACER_SAG criteria value of 4700 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.060 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 1.1E-02 ug/L Per Day

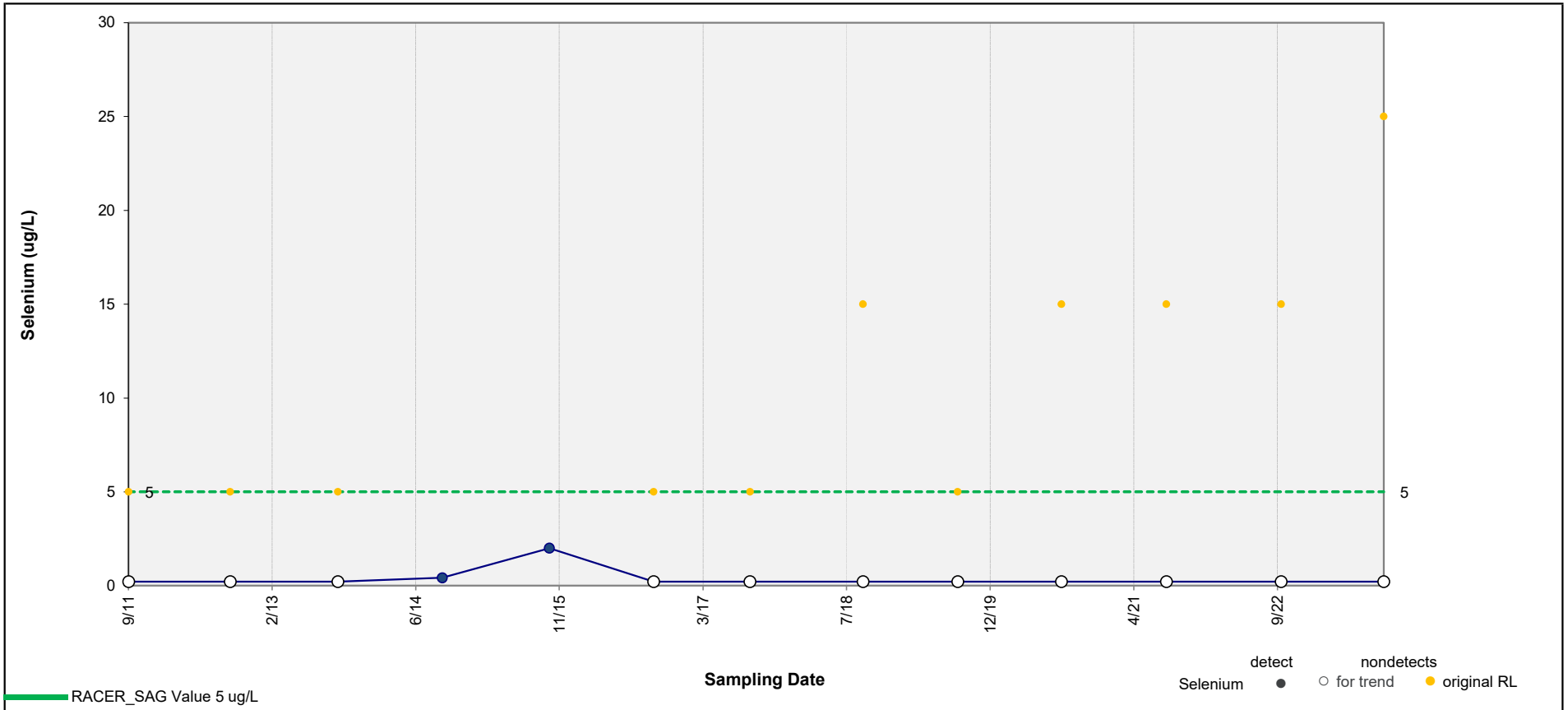
95% Confidence Interval = 0.0E+00 to 2.7E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese (dissolved) in Well X-4D

RACER Saginaw

Figure B-90



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.216 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

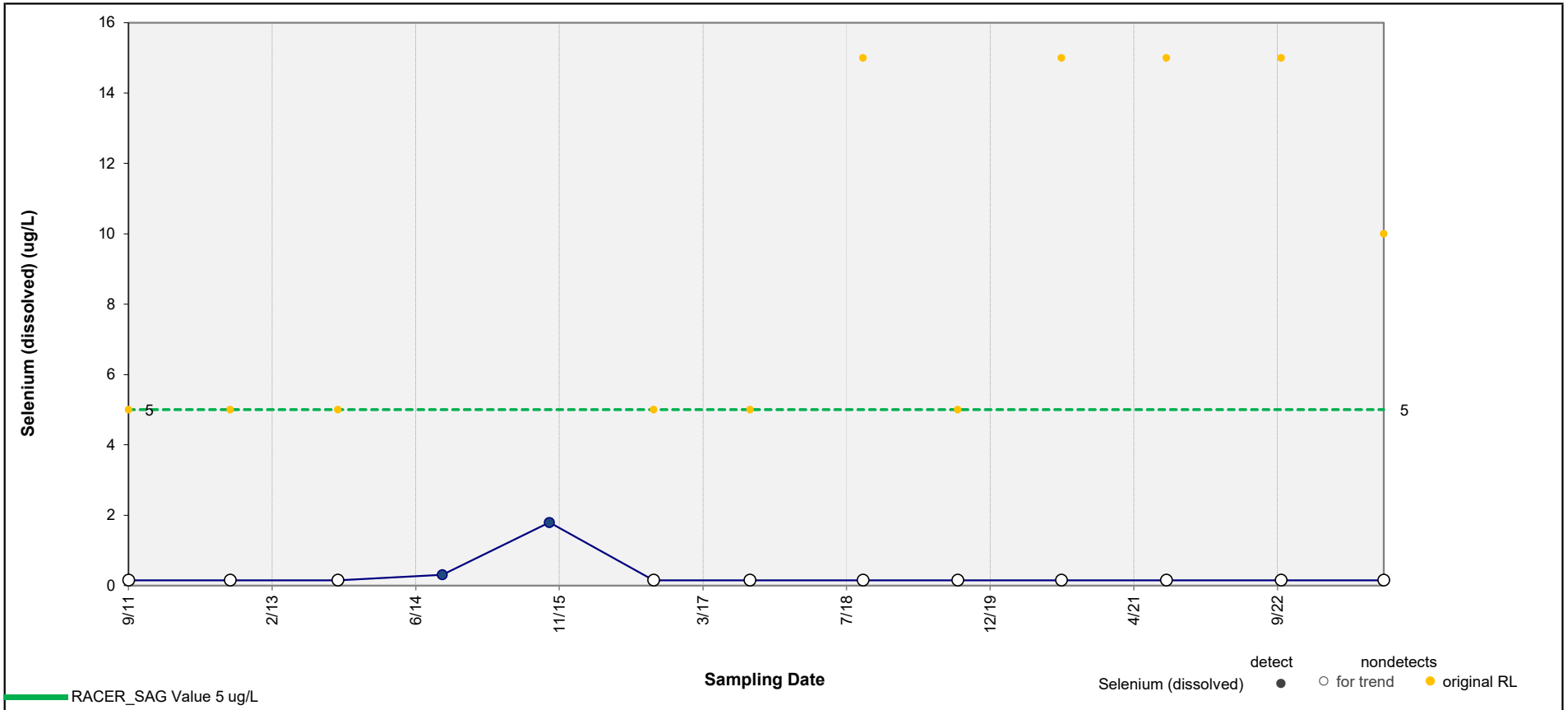
95% Confidence Interval = 0.0E+00 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Selenium in Well X-4D

RACER Saginaw

Figure B-91



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.216 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

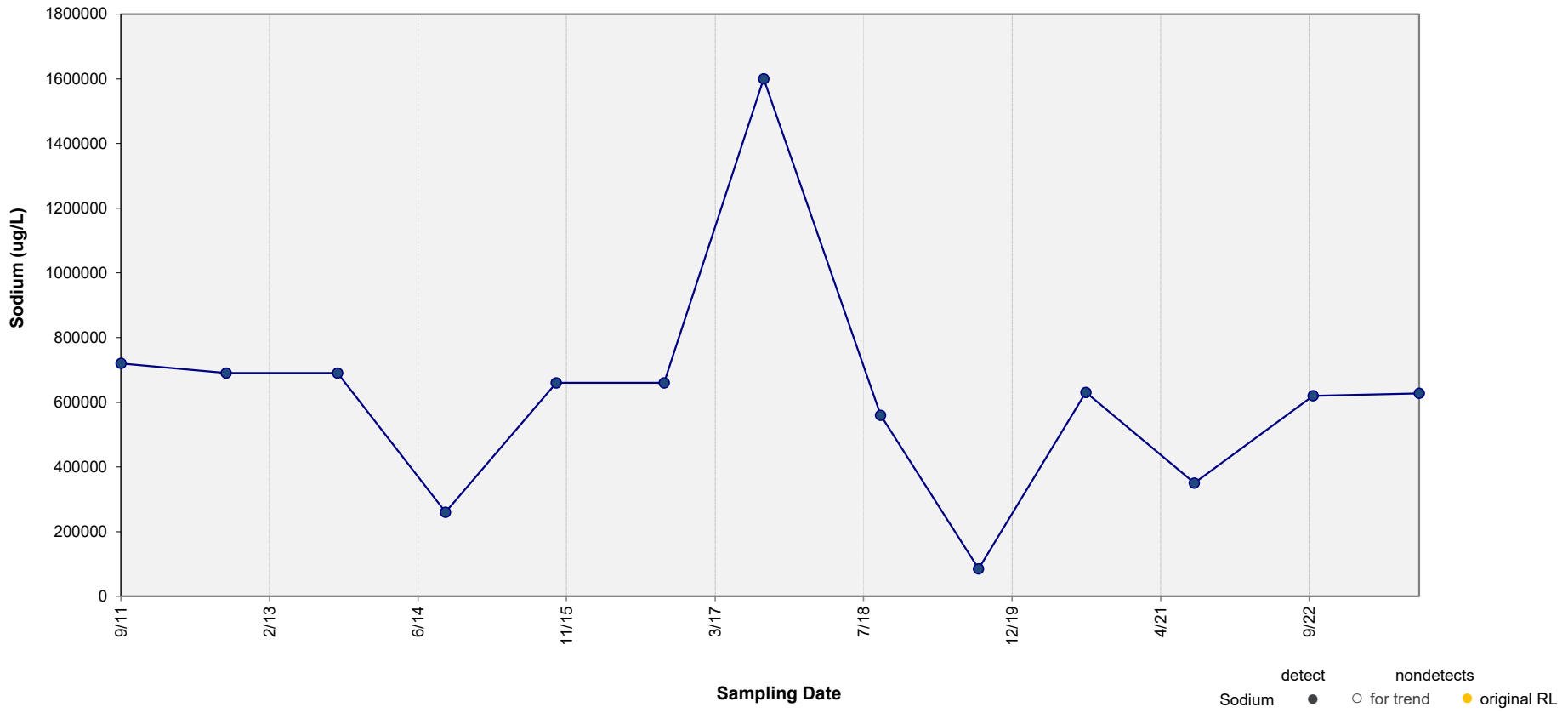
95% Confidence Interval = 0.0E+00 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Selenium (dissolved) in Well X-4D

RACER Saginaw

Figure B-92



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.038 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -2.1E+01 ug/L Per Day

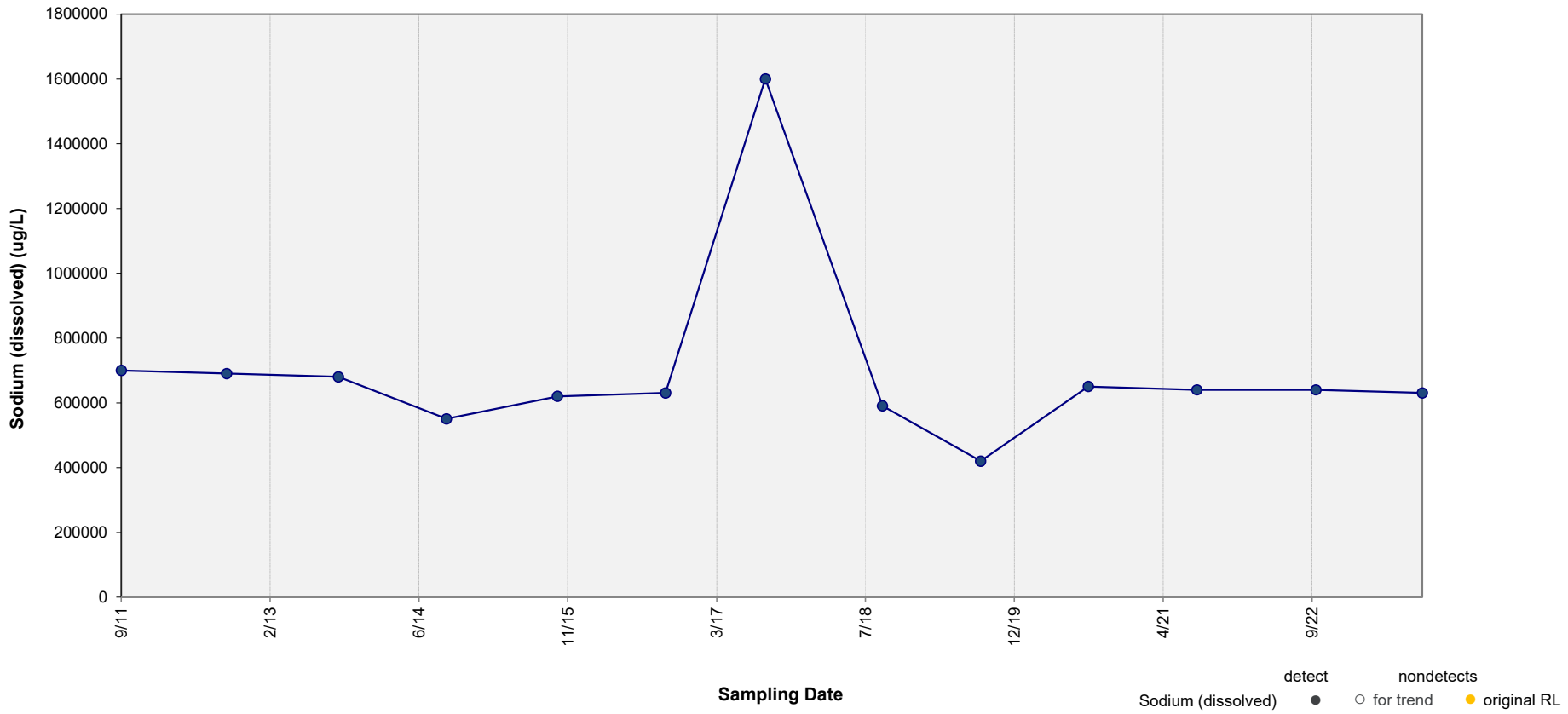
95% Confidence Interval = -1.0E+02 to 6.0E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium in Well X-4D

RACER Saginaw

Figure B-93



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.149 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -1.4E+01 ug/L Per Day

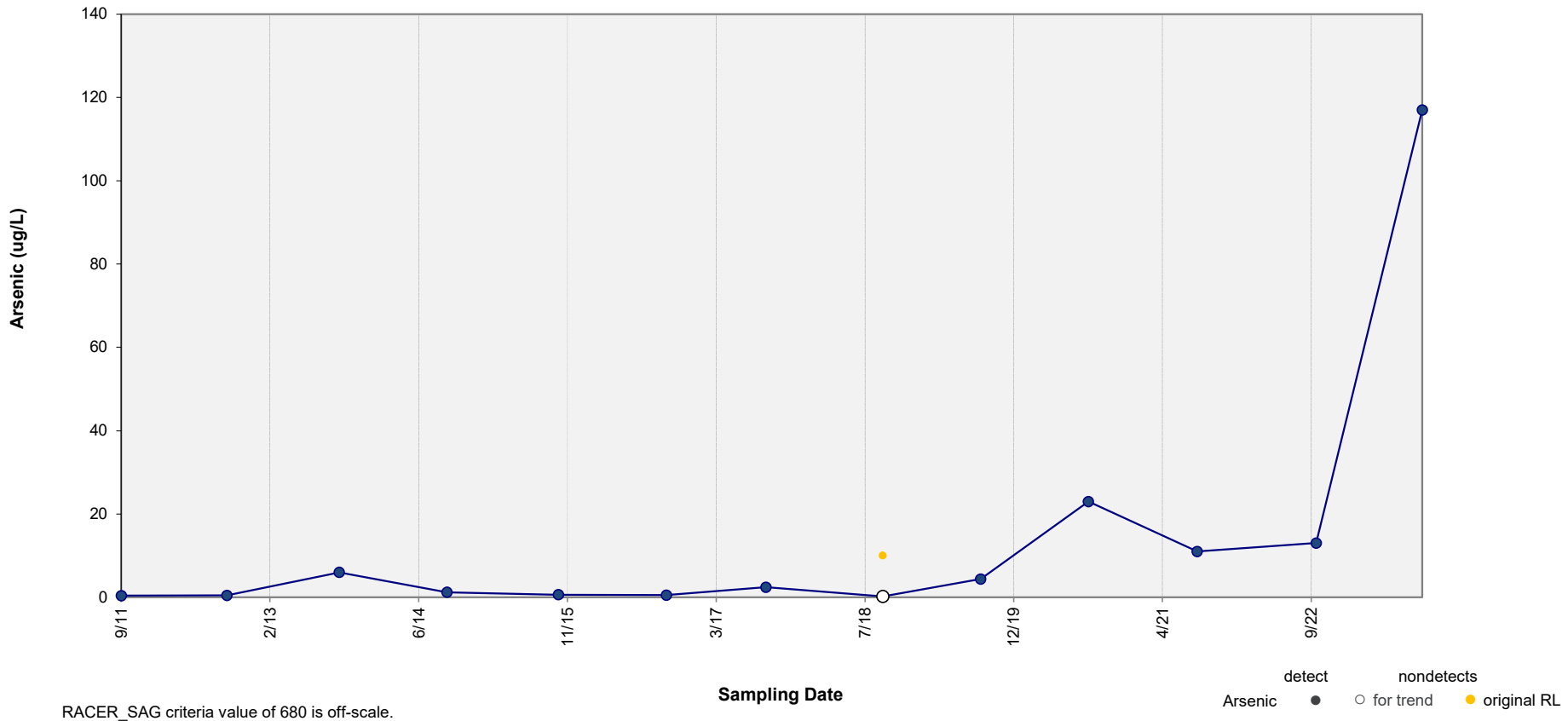
95% Confidence Interval = -4.5E+01 to 1.4E+01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium (dissolved) in Well X-4D

RACER Saginaw

Figure B-94



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.004 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 3.6E-03 ug/L Per Day

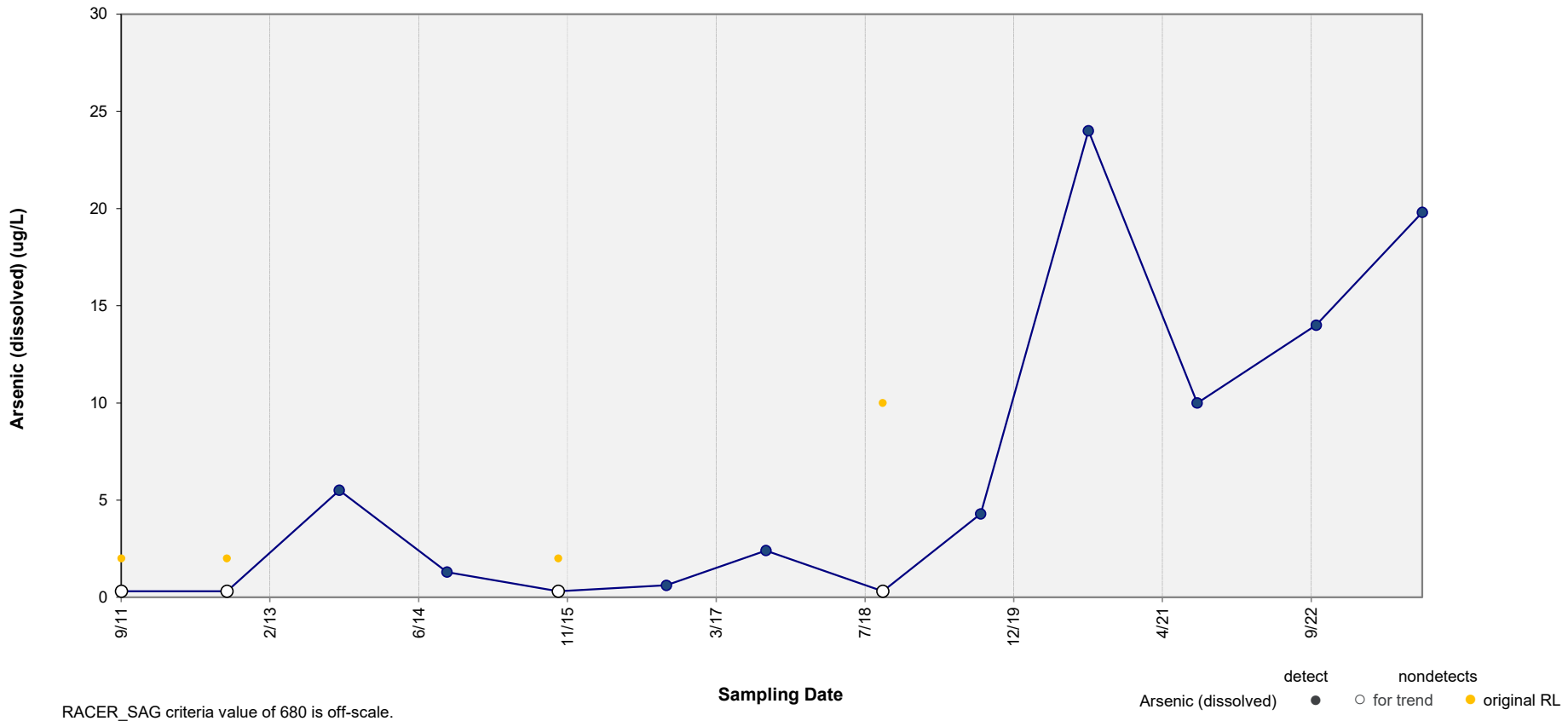
95% Confidence Interval = 7.0E-04 to 7.9E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic in Well X-9AR

RACER Saginaw

Figure B-95



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.004 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 3.4E-03 ug/L Per Day

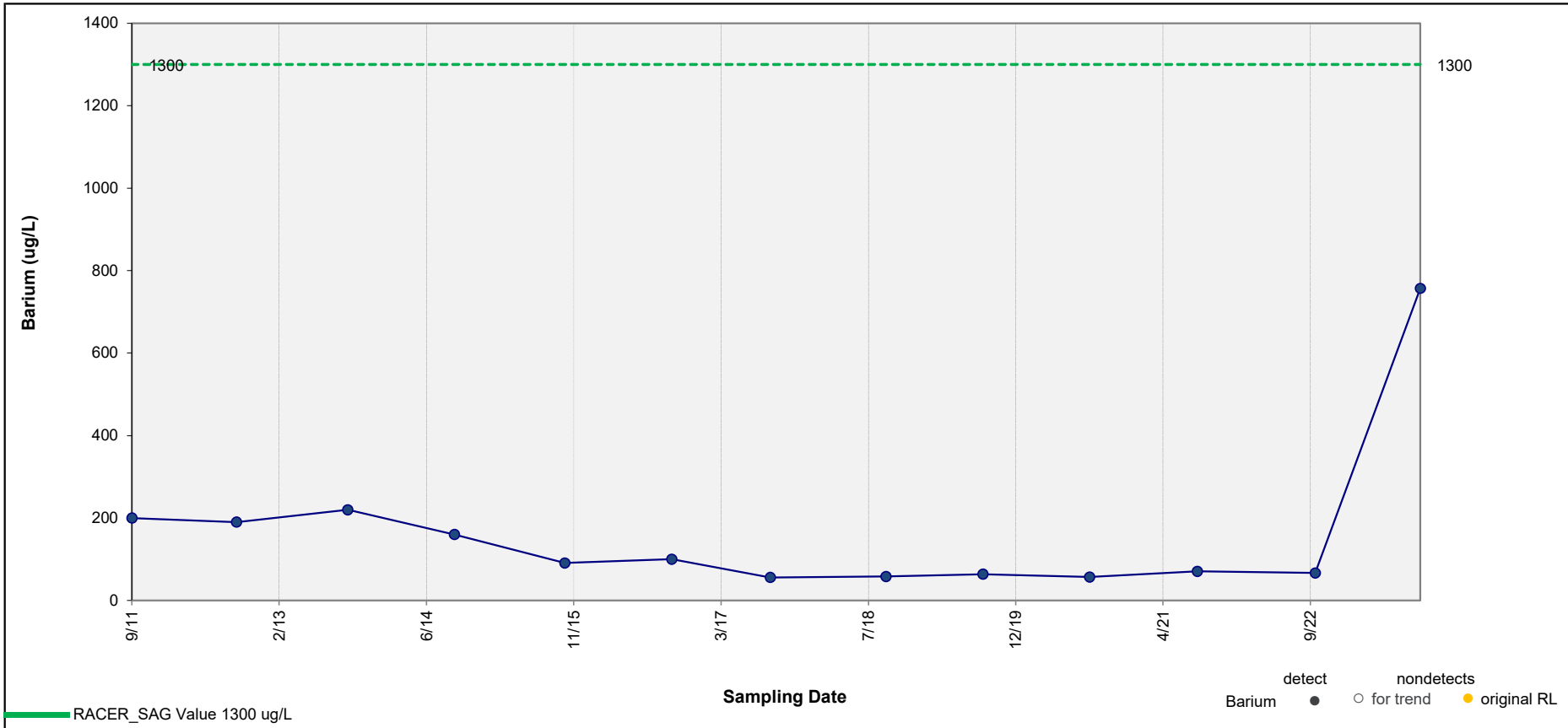
95% Confidence Interval = 8.5E-04 to 6.6E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic (dissolved) in Well X-9AR

RACER Saginaw

Figure B-96



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.080 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -3.1E-02 ug/L Per Day

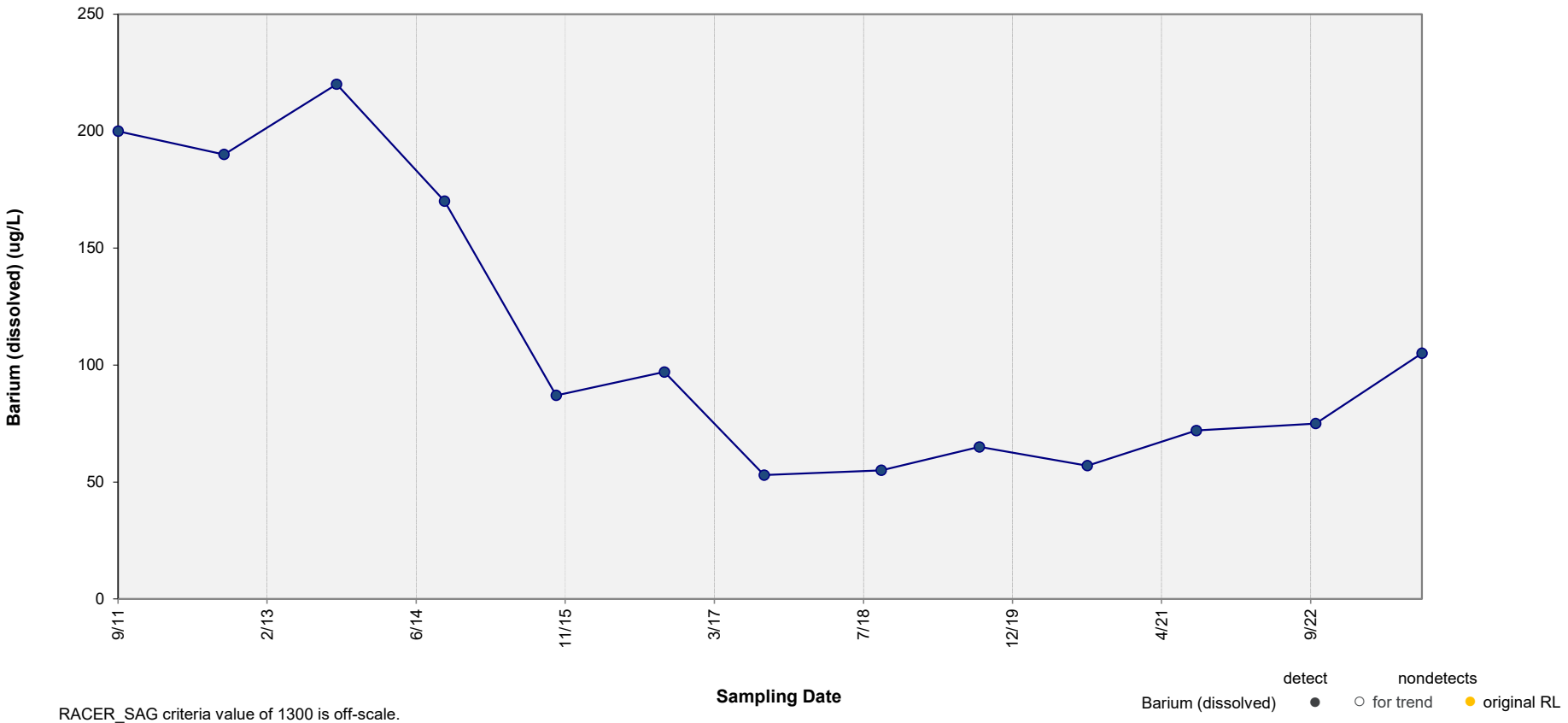
95% Confidence Interval = -5.2E-02 to 6.0E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium in Well X-9AR

RACER Saginaw

Figure B-97



RACER_SAG criteria value of 1300 is off-scale.

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.050 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -2.9E-02 ug/L Per Day

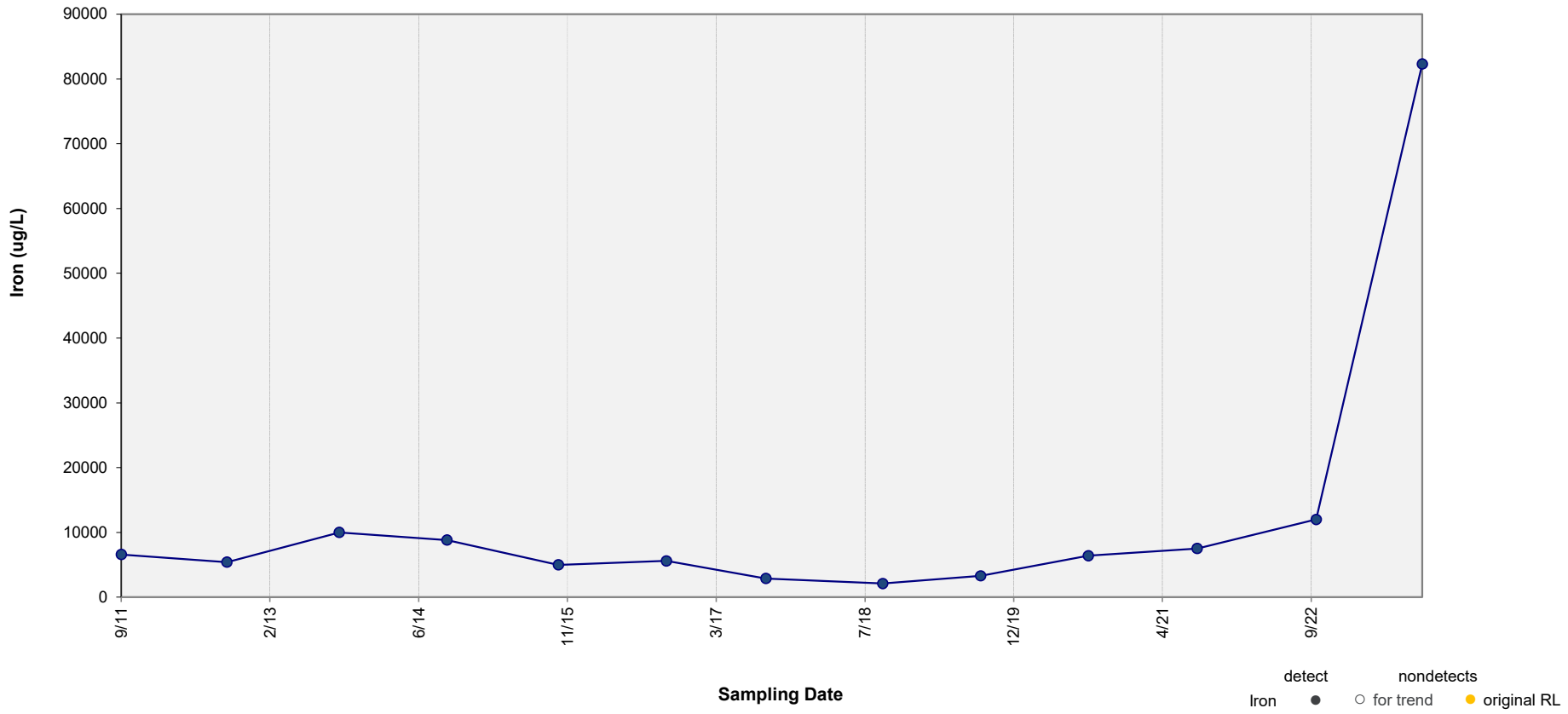
95% Confidence Interval = -5.3E-02 to 3.2E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium (dissolved) in Well X-9AR

RACER Saginaw

Figure B-98



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.251 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 6.3E-01 ug/L Per Day

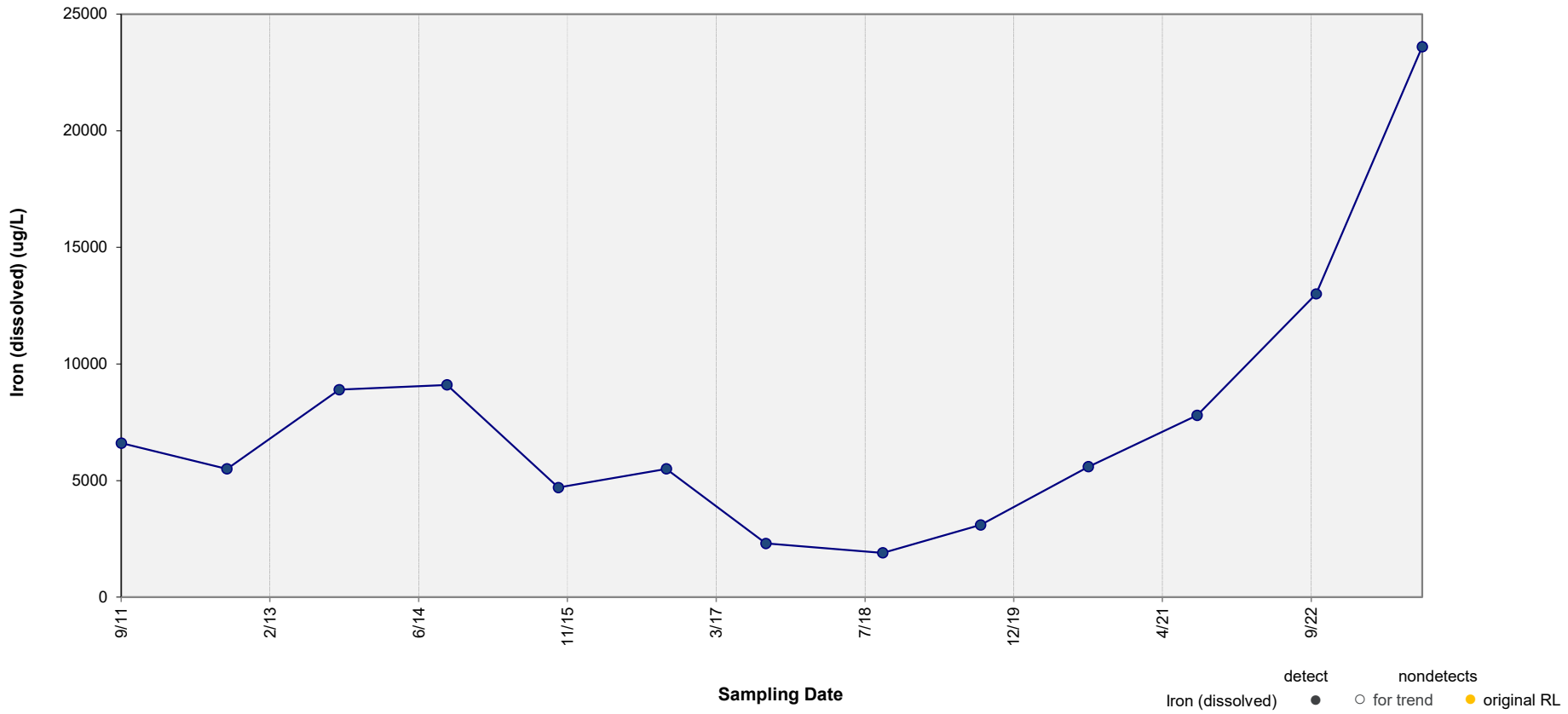
95% Confidence Interval = -1.4E+00 to 4.6E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron in Well X-9AR

RACER Saginaw

Figure B-99



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.232 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 9.1E-01 ug/L Per Day

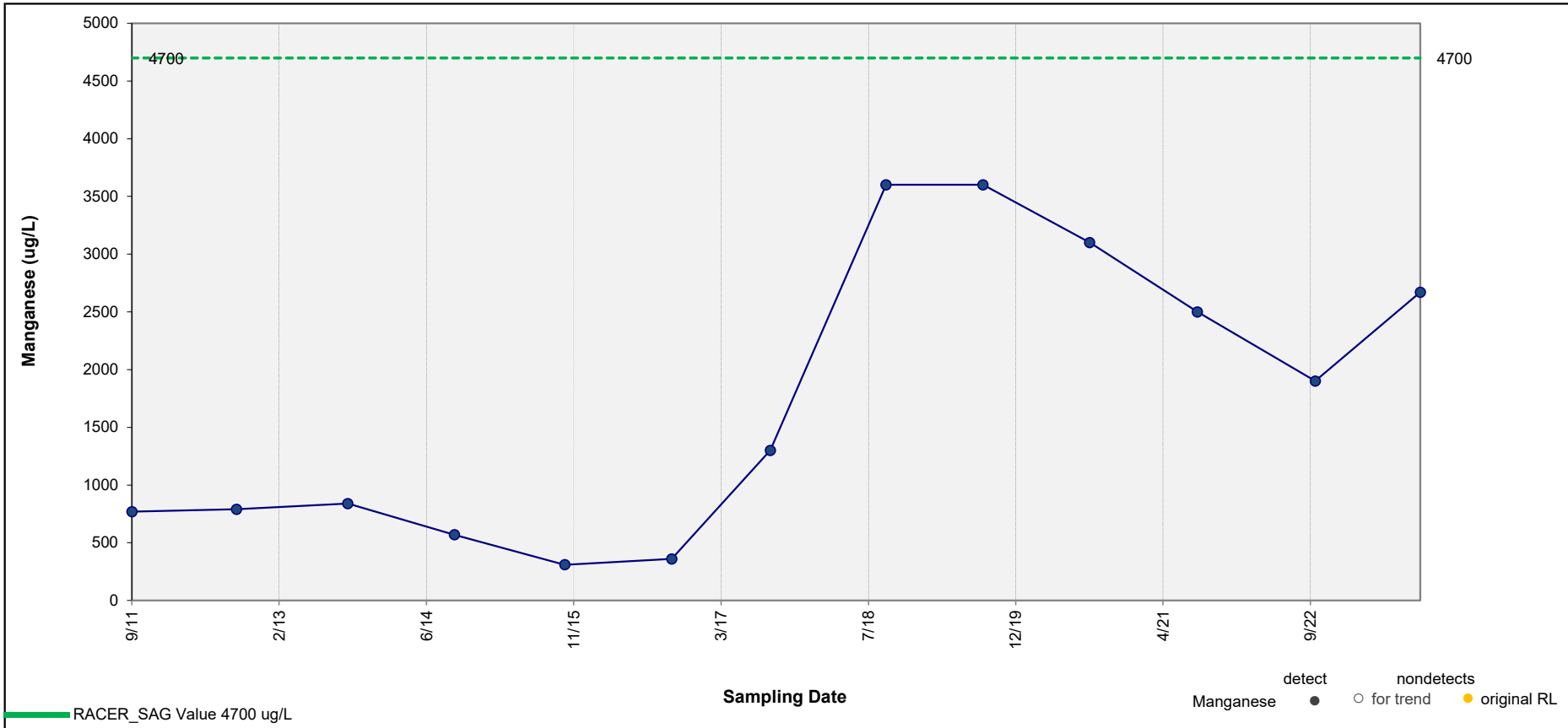
95% Confidence Interval = -1.3E+00 to 3.9E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron (dissolved) in Well X-9AR

RACER Saginaw

Figure B-100



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.033 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 4.7E-01 ug/L Per Day

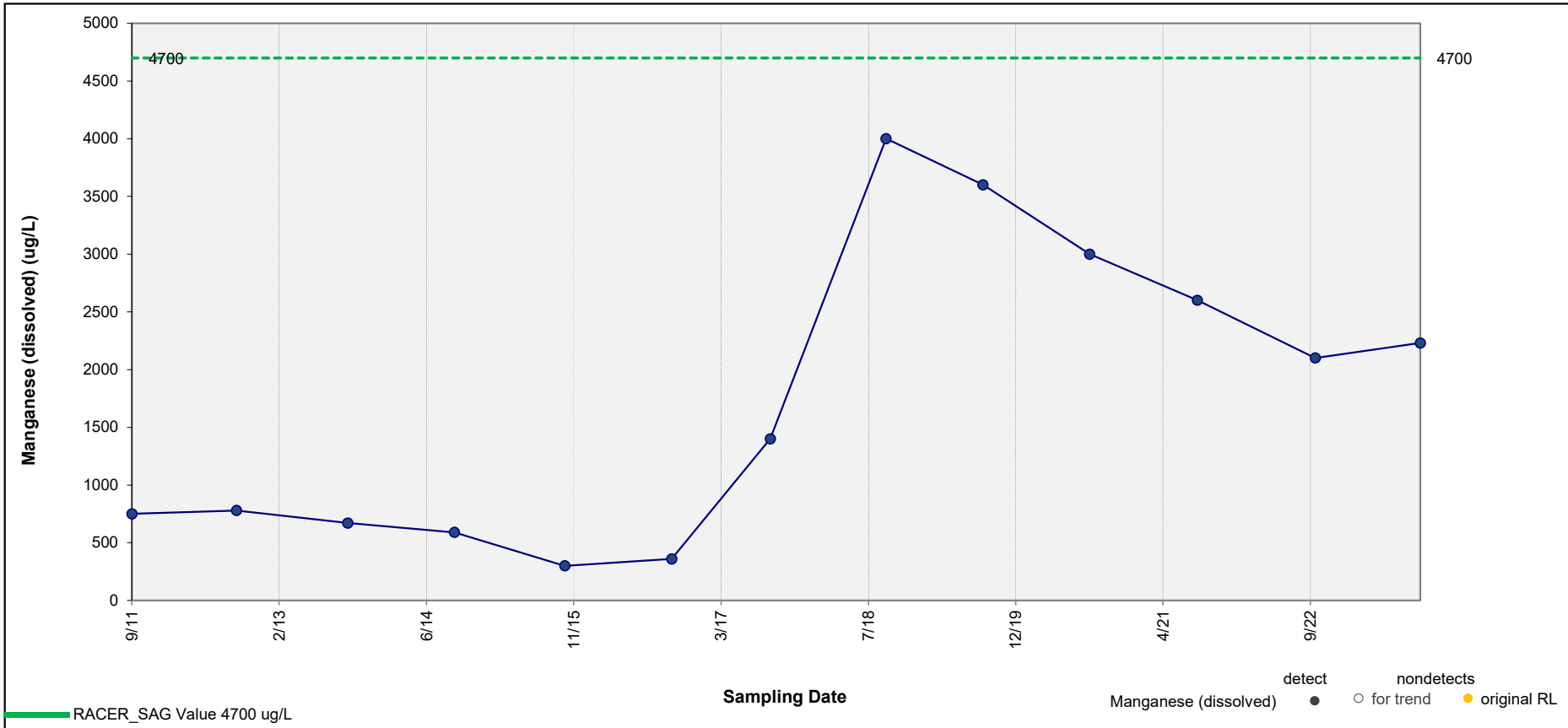
95% Confidence Interval = -1.8E-01 to 9.1E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese in Well X-9AR

RACER Saginaw

Figure B-101



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.080 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 4.3E-01 ug/L Per Day

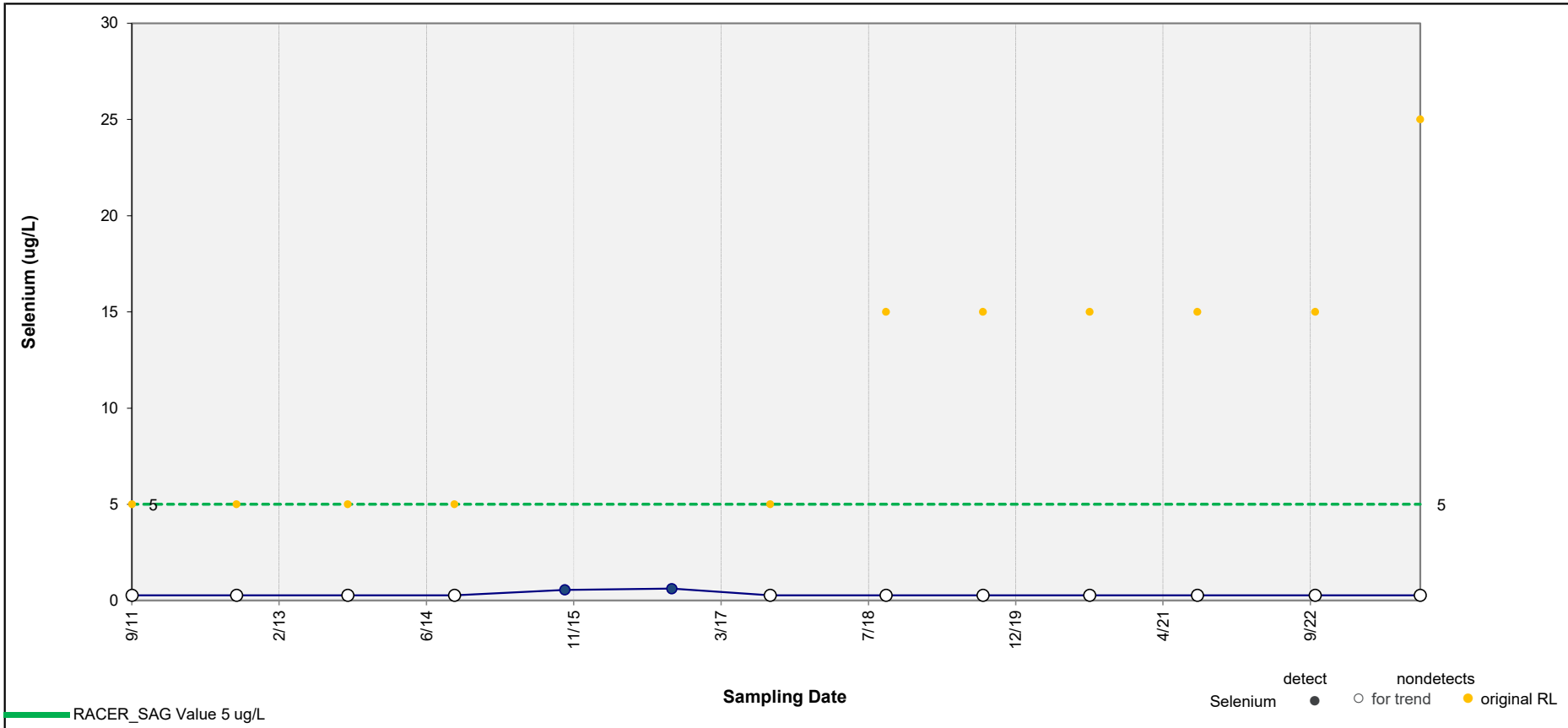
95% Confidence Interval = -2.6E-01 to 8.3E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese (dissolved) in Well X-9AR

RACER Saginaw

Figure B-102



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.347 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

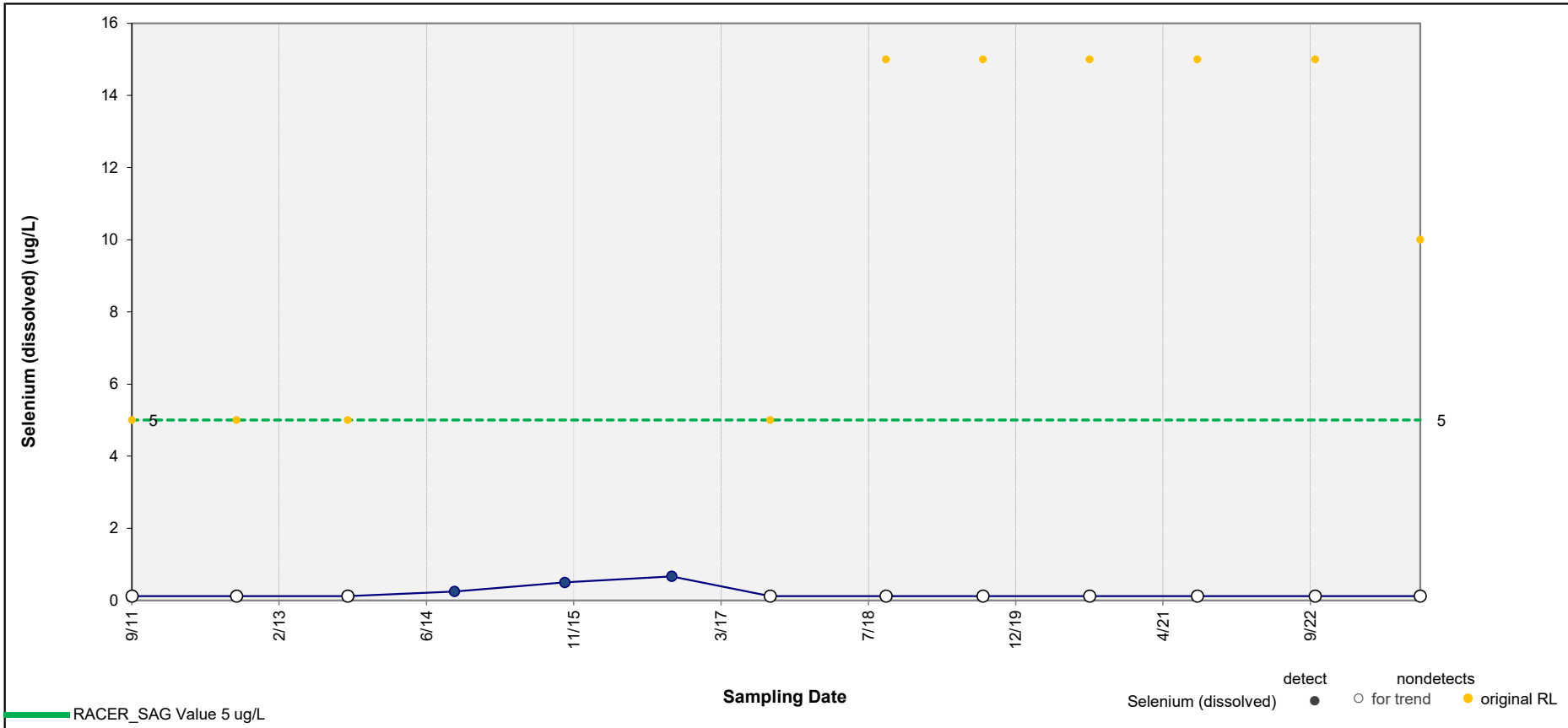
95% Confidence Interval = 0.0E+00 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Selenium in Well X-9AR

RACER Saginaw

Figure B-103



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.252 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

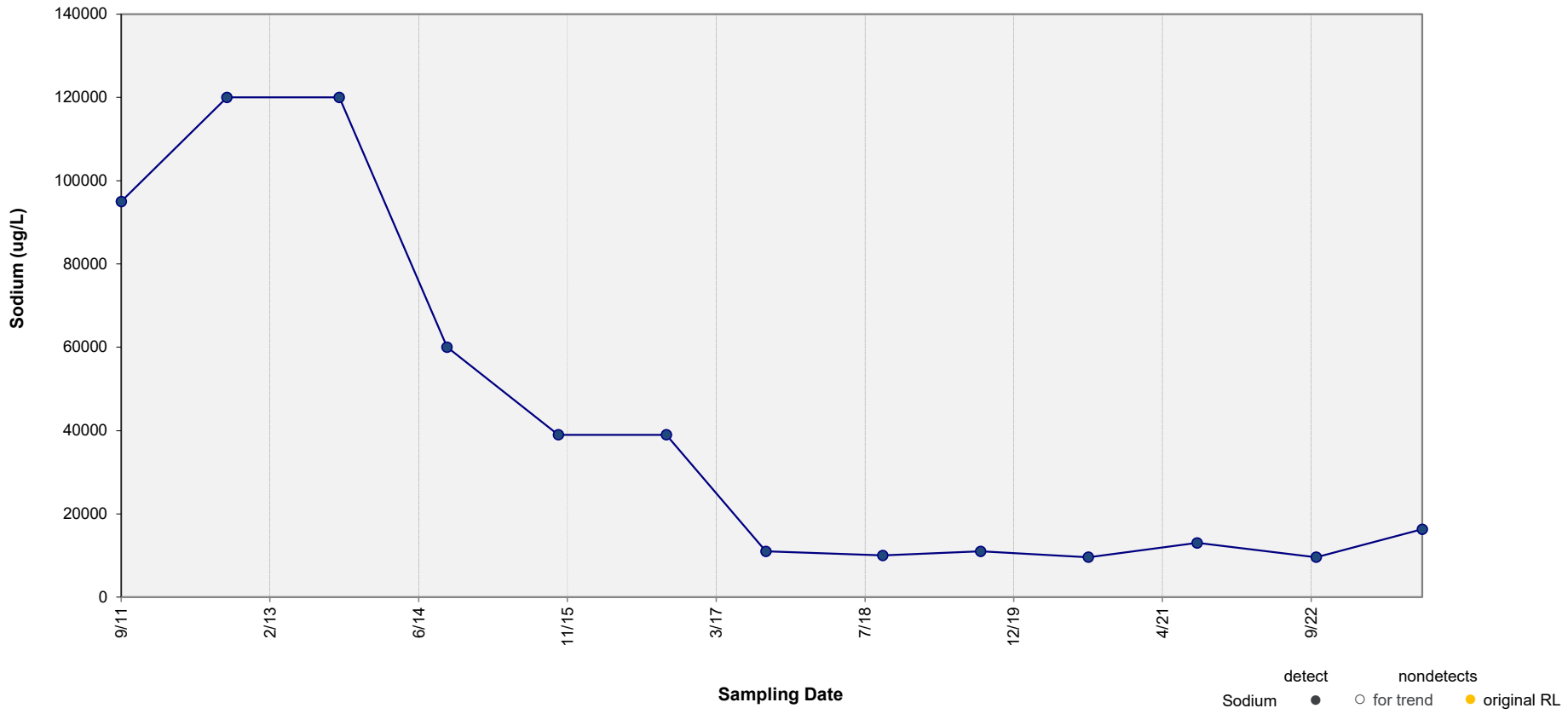
95% Confidence Interval = 0.0E+00 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Selenium (dissolved) in Well X-9AR

RACER Saginaw

Figure B-104



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.002 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -2.2E+01 ug/L Per Day

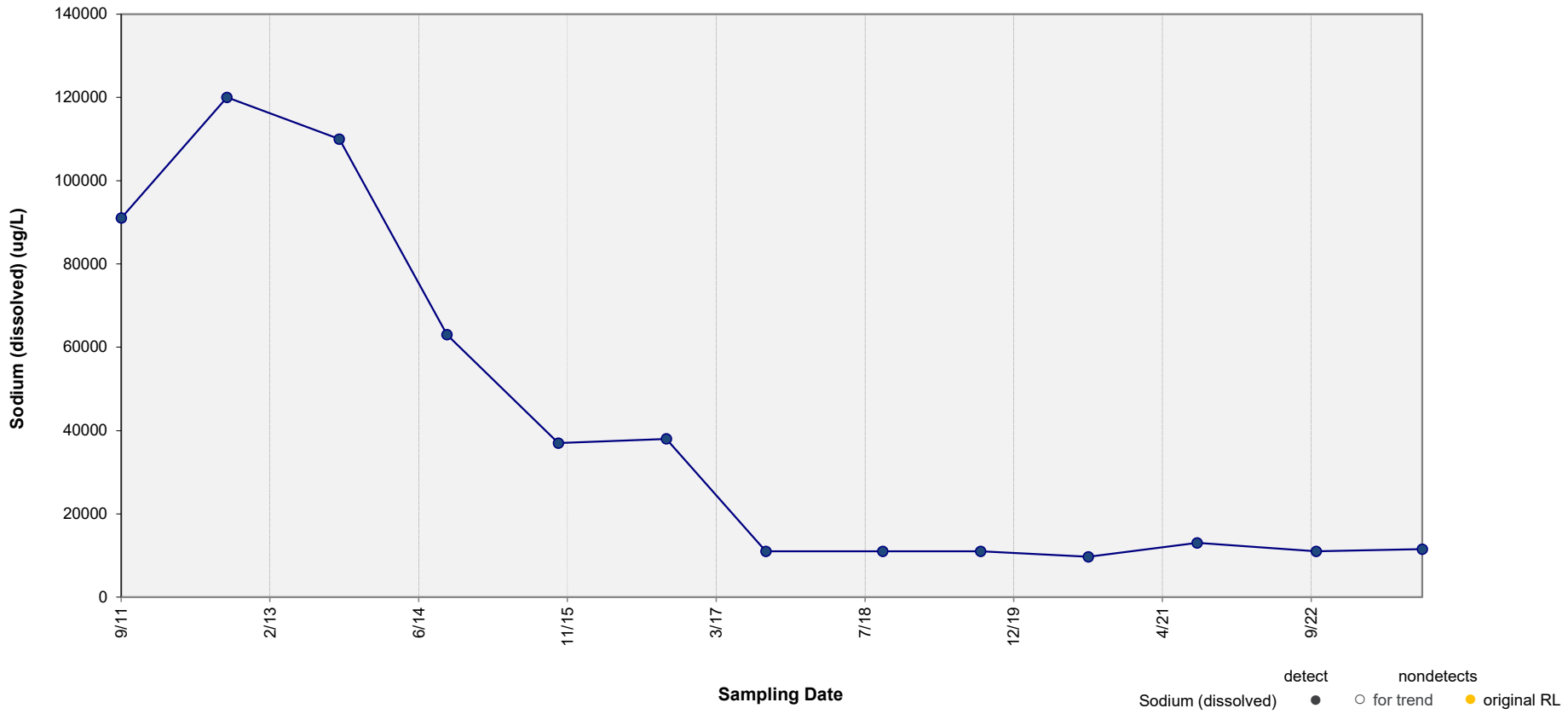
95% Confidence Interval = -3.4E+01 to -4.1E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium in Well X-9AR

RACER Saginaw

Figure B-105



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.003 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -2.3E+01 ug/L Per Day

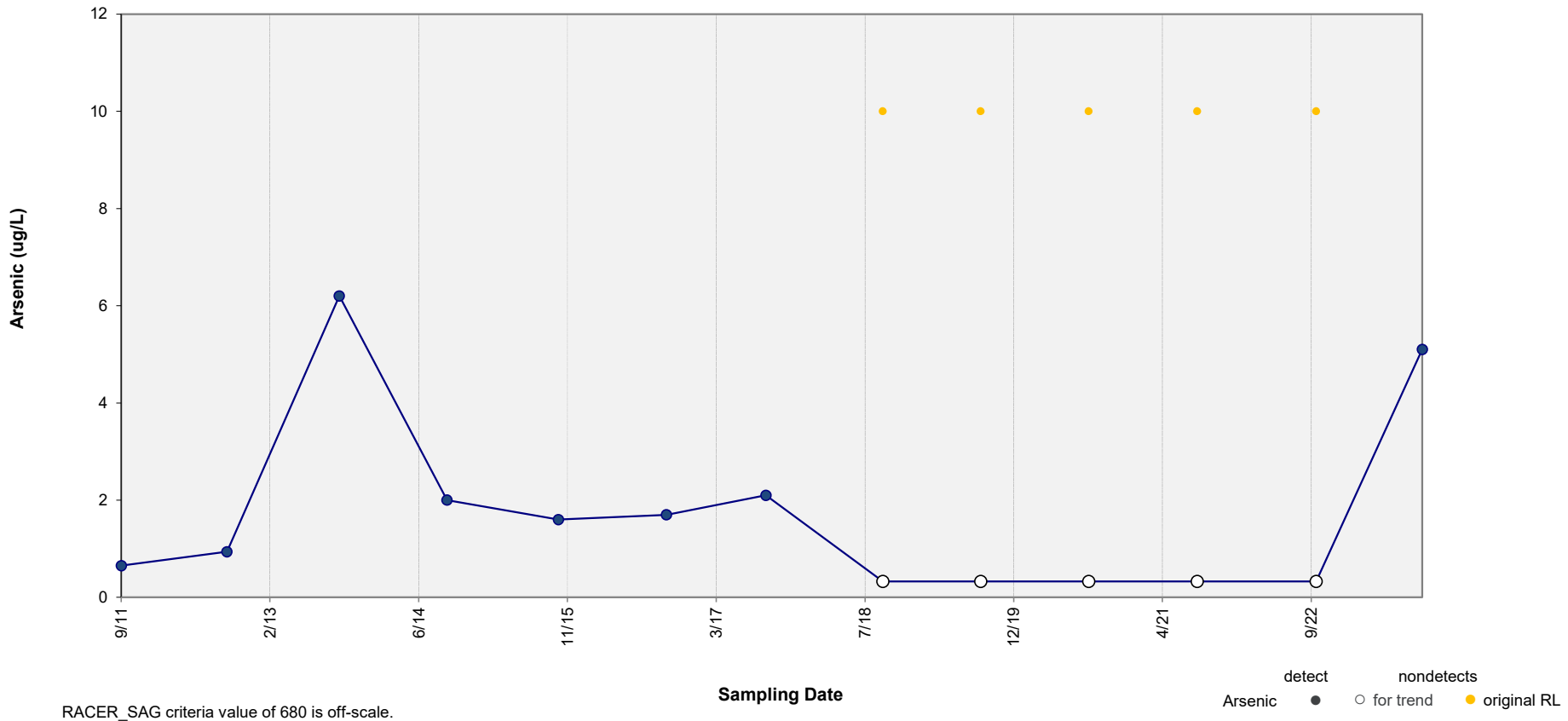
95% Confidence Interval = -3.4E+01 to -5.7E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium (dissolved) in Well X-9AR

RACER Saginaw

Figure B-106



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.172 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -1.1E-04 ug/L Per Day

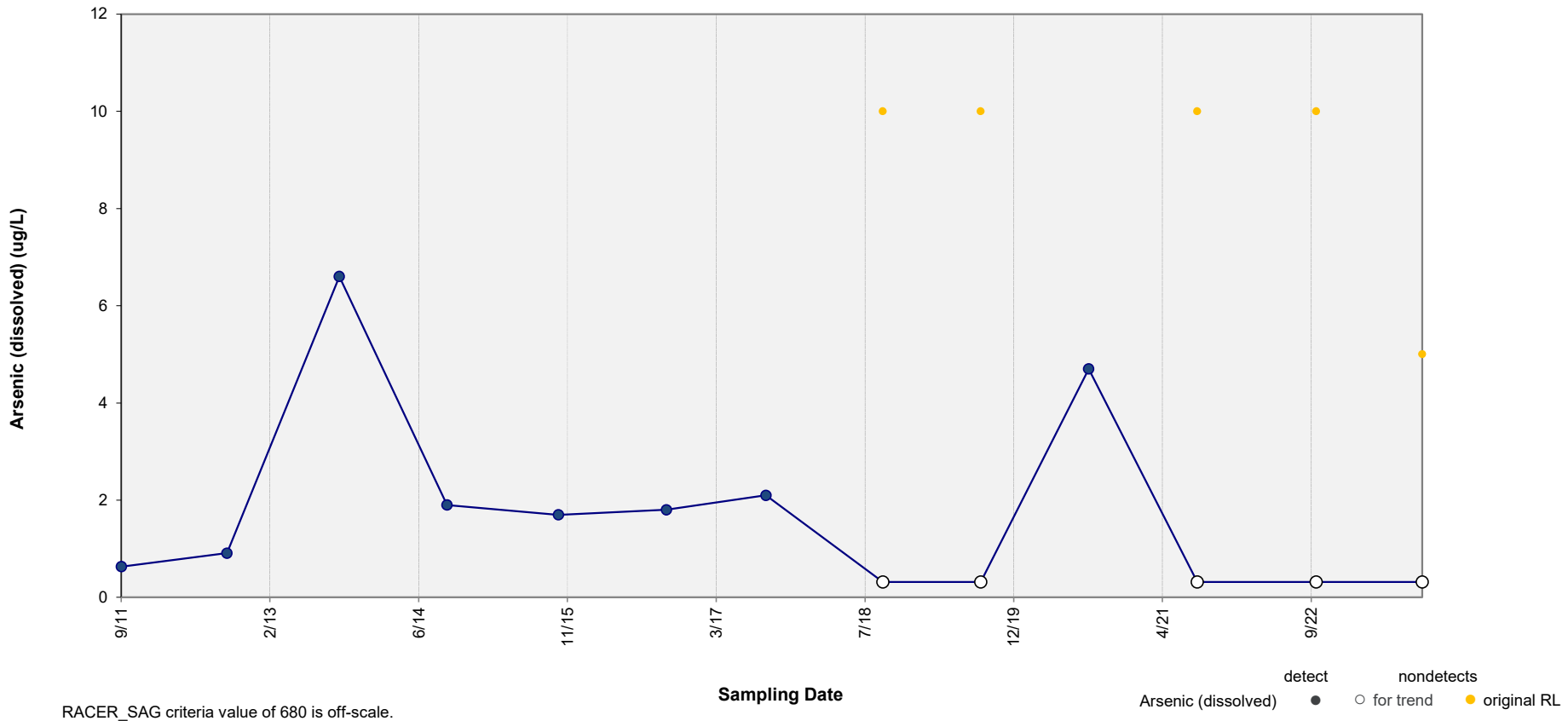
95% Confidence Interval = -7.7E-04 to 4.1E-04 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic in Well X-9BR

RACER Saginaw

Figure B-107



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.093 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = -1.4E-04 ug/L Per Day

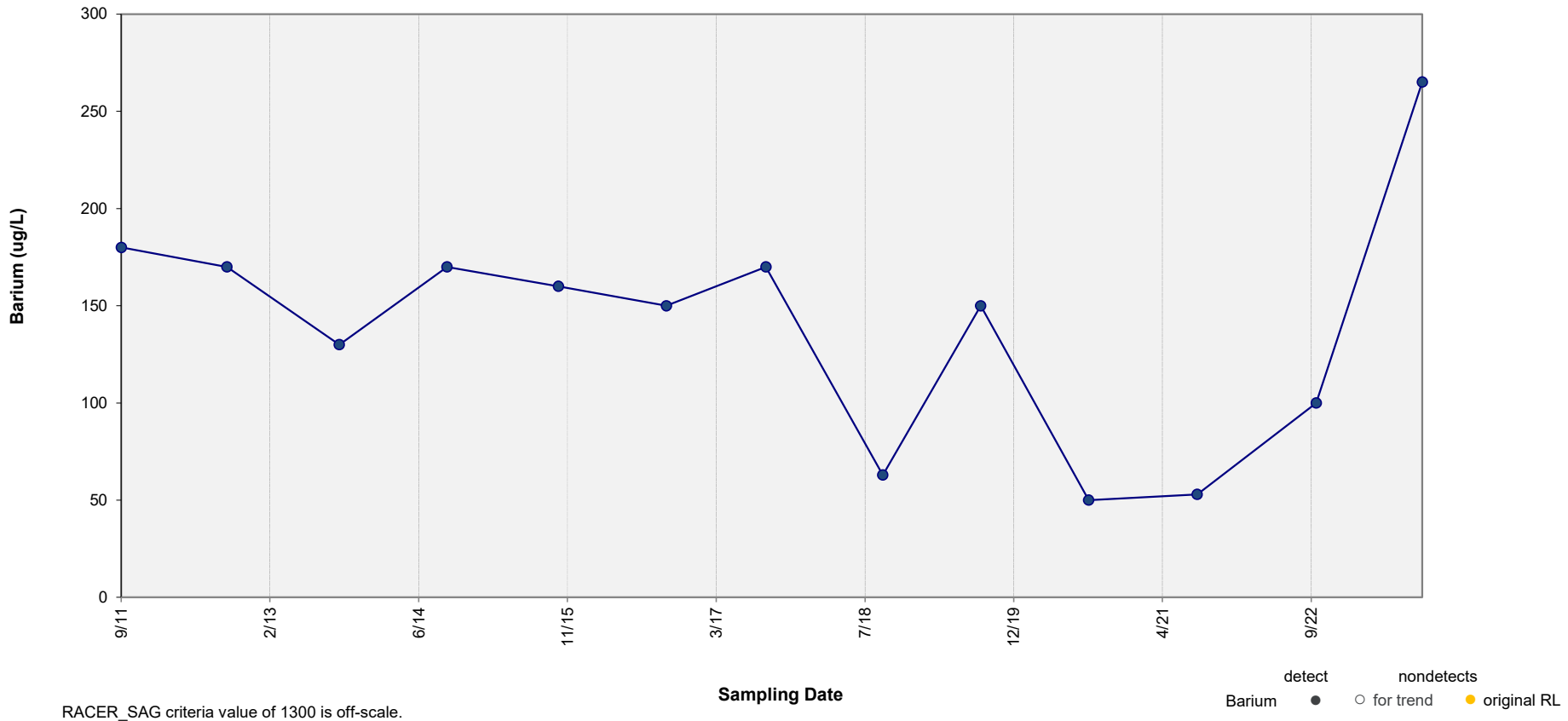
95% Confidence Interval = -8.2E-04 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic (dissolved) in Well X-9BR

RACER Saginaw

Figure B-108



RACER_SAG criteria value of 1300 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.062 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -1.5E-02 ug/L Per Day

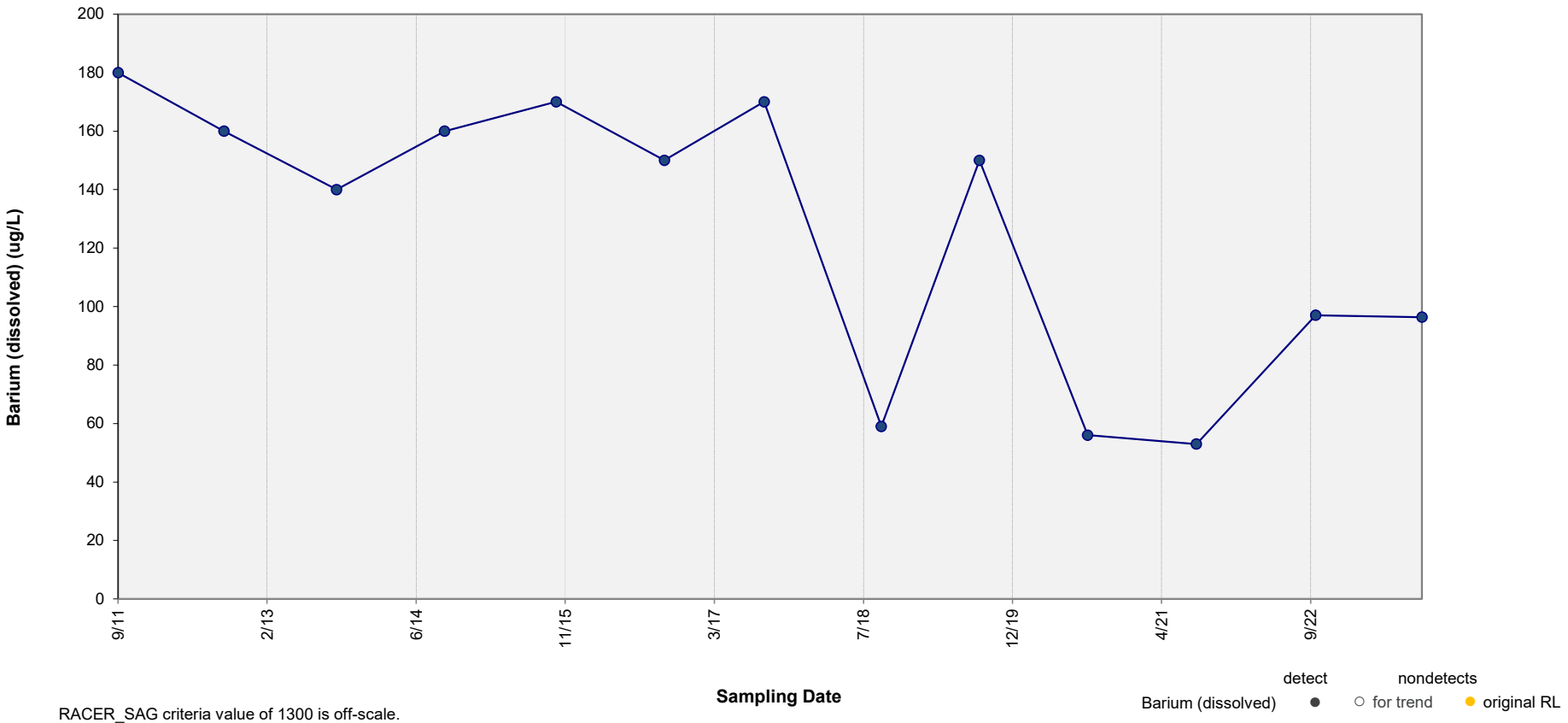
95% Confidence Interval = -3.7E-02 to 7.6E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium in Well X-9BR

RACER Saginaw

Figure B-109



RACER_SAG criteria value of 1300 is off-scale.

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.007 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -1.9E-02 ug/L Per Day

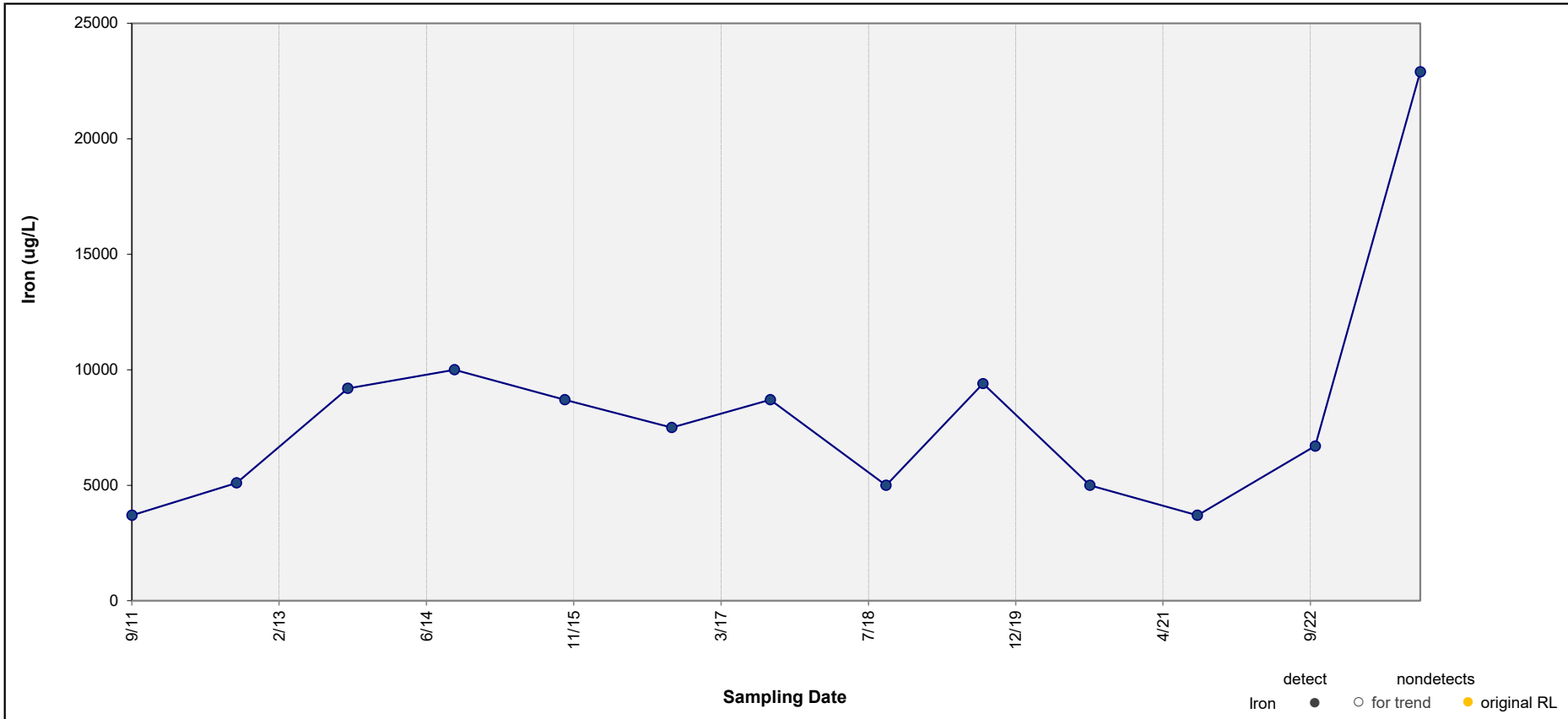
95% Confidence Interval = -3.9E-02 to -4.6E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium (dissolved) in Well X-9BR

RACER Saginaw

Figure B-110



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.451 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 4.6E-02 ug/L Per Day

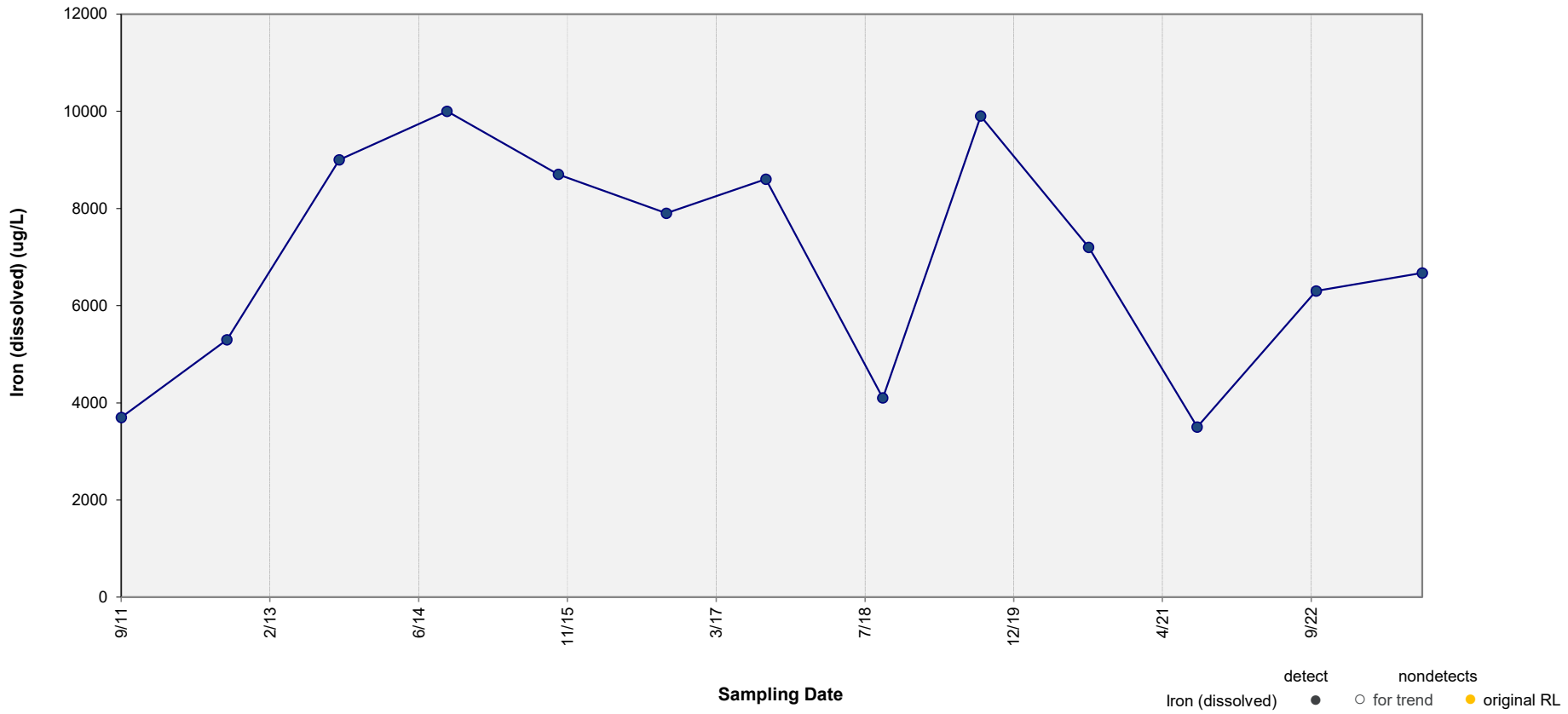
95% Confidence Interval = -1.5E+00 to 2.2E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron in Well X-9BR

RACER Saginaw

Figure B-111



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.251 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -4.8E-01 ug/L Per Day

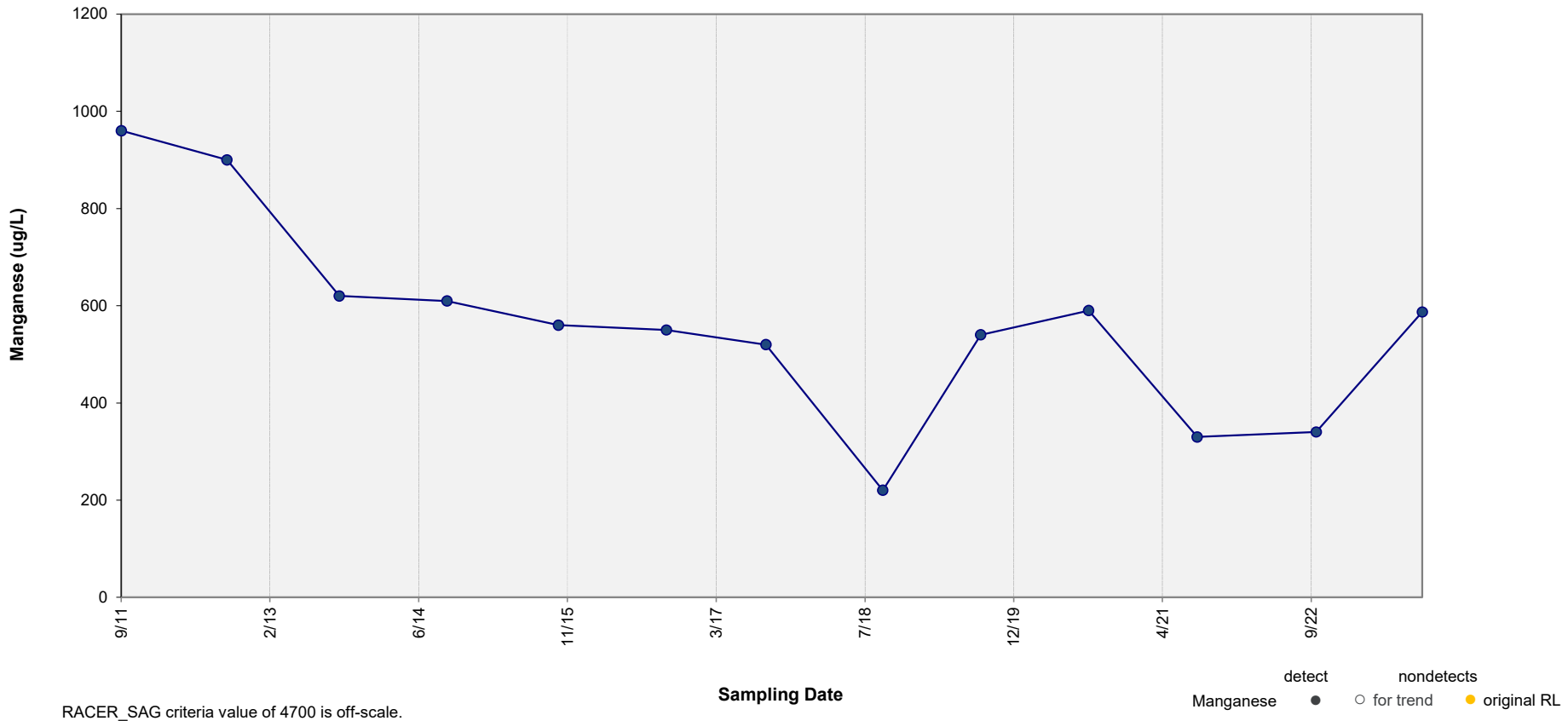
95% Confidence Interval = -1.2E+00 to 1.1E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron (dissolved) in Well X-9BR

RACER Saginaw

Figure B-112



RACER_SAG criteria value of 4700 is off-scale.

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.004 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -9.1E-02 ug/L Per Day

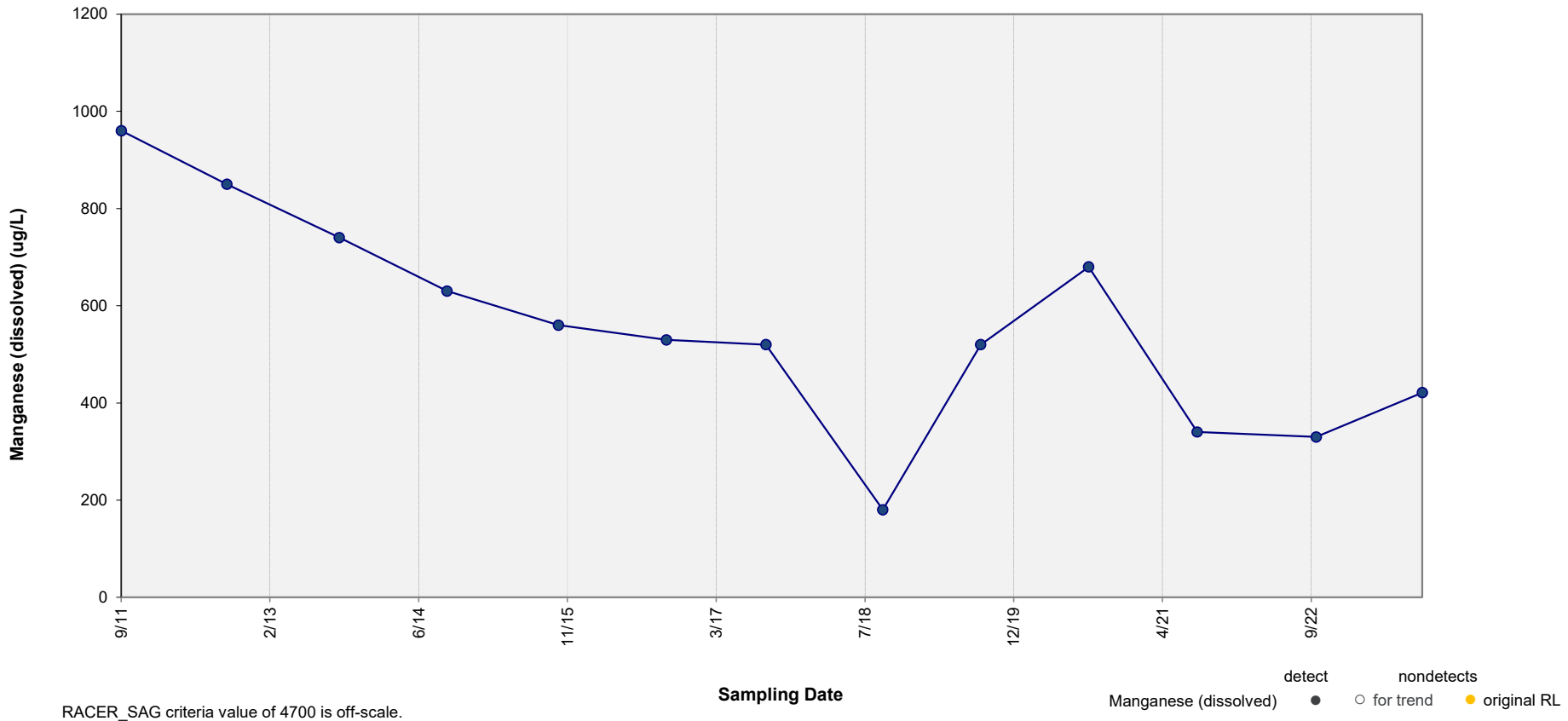
95% Confidence Interval = -1.7E-01 to -1.4E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese in Well X-9BR

RACER Saginaw

Figure B-113



RACER_SAG criteria value of 4700 is off-scale.

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -1.2E-01 ug/L Per Day

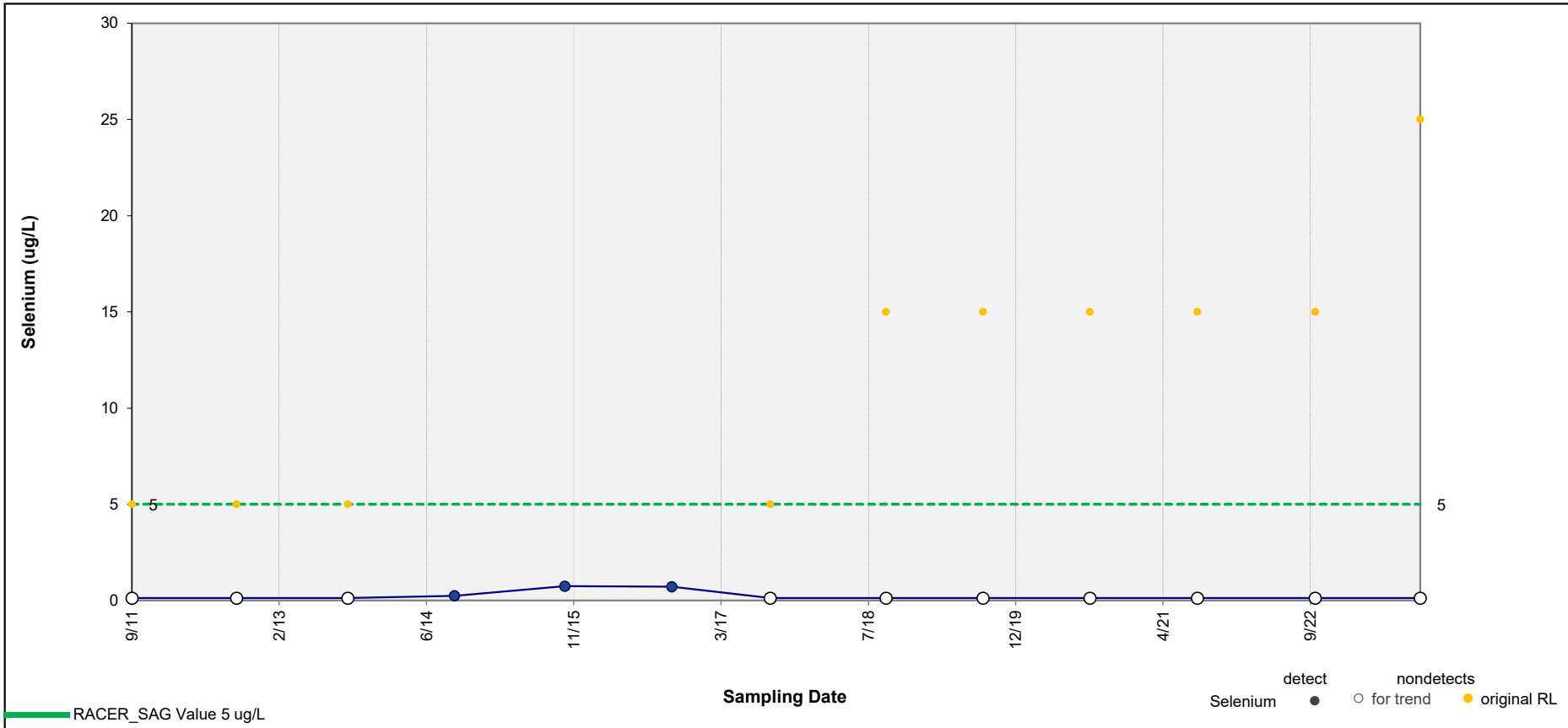
95% Confidence Interval = -2.0E-01 to -6.1E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese (dissolved) in Well X-9BR

RACER Saginaw

Figure B-114



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.202 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

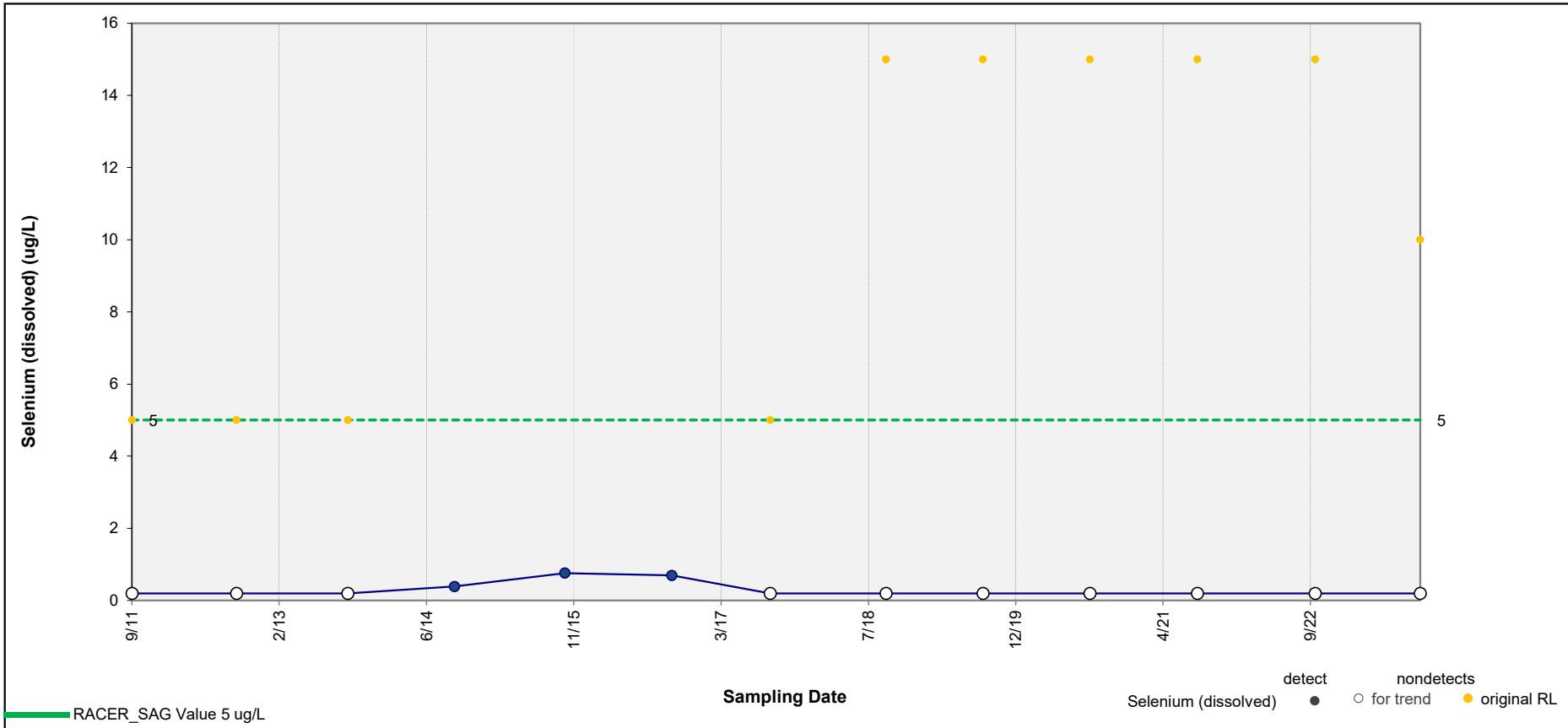
95% Confidence Interval = 0.0E+00 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Selenium in Well X-9BR

RACER Saginaw

Figure B-115



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.202 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

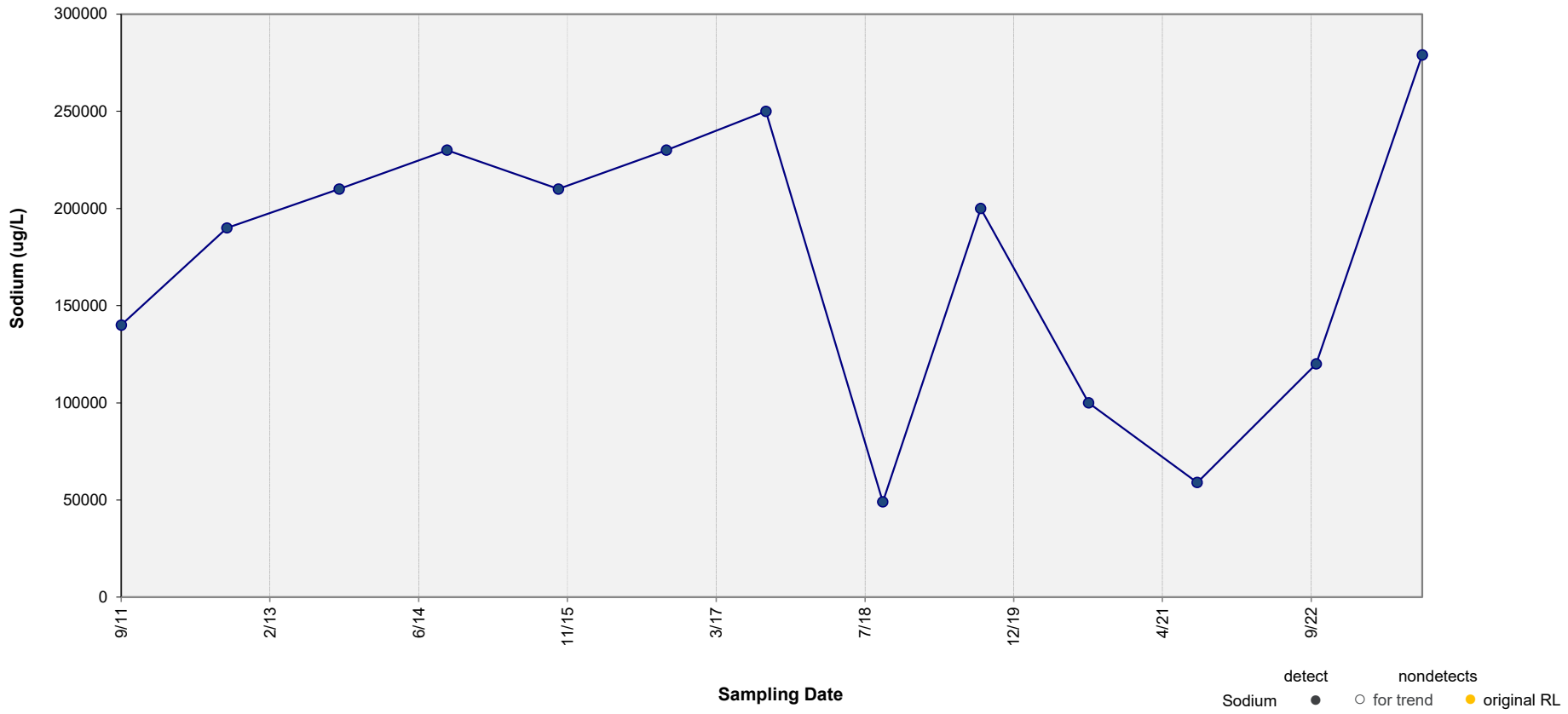
95% Confidence Interval = 0.0E+00 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Selenium (dissolved) in Well X-9BR

RACER Saginaw

Figure B-116



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.524 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

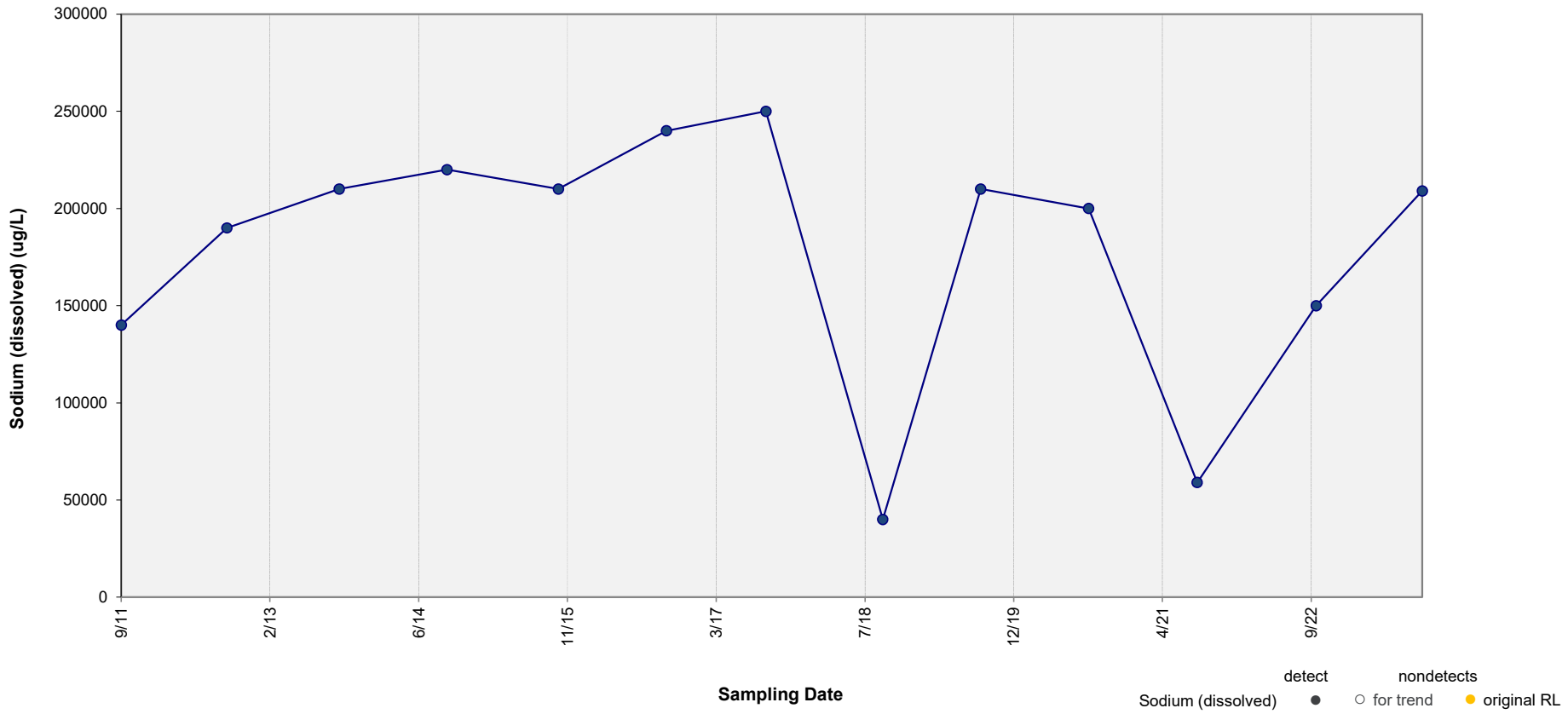
95% Confidence Interval = -5.0E+01 to 2.8E+01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium in Well X-9BR

RACER Saginaw

Figure B-117



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.403 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -3.1E-01 ug/L Per Day

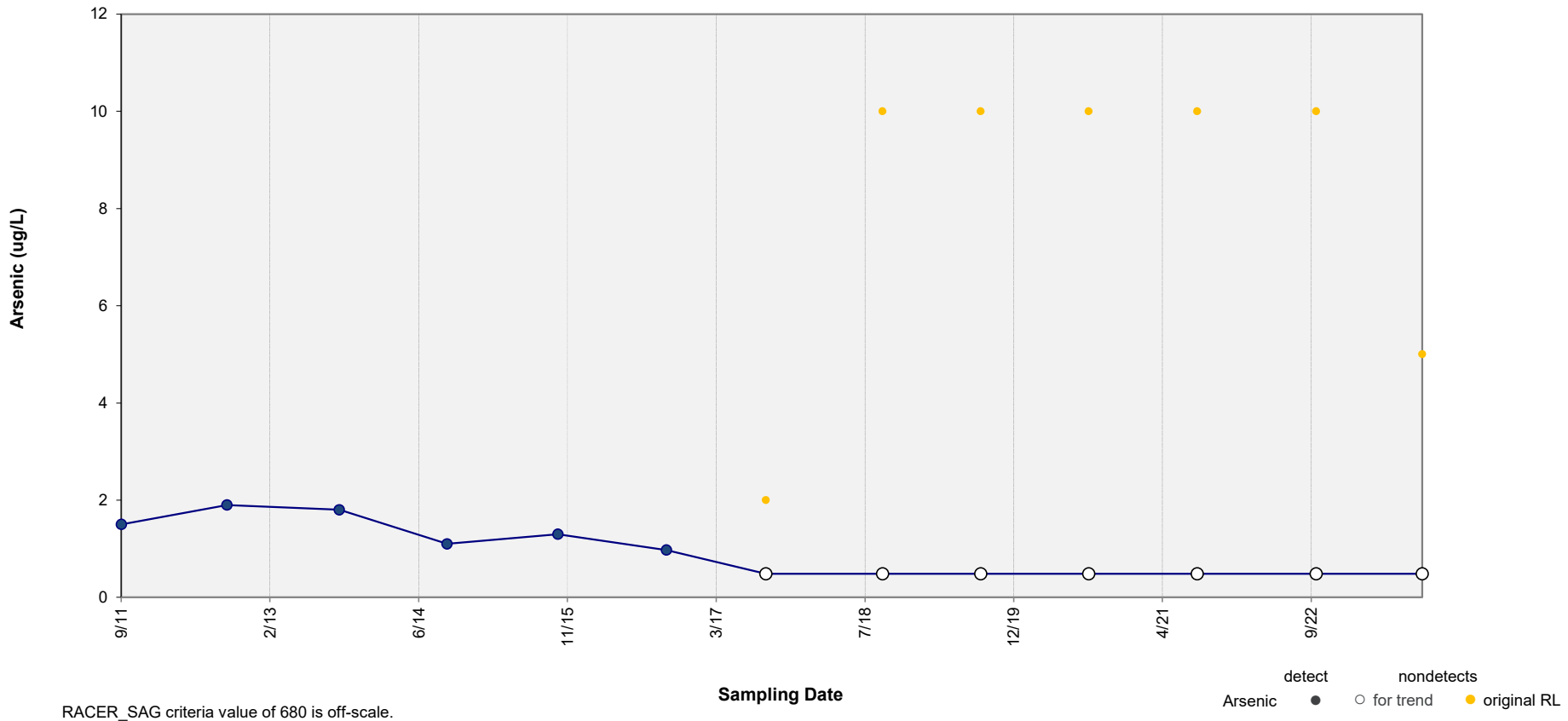
95% Confidence Interval = -2.8E+01 to 2.7E+01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium (dissolved) in Well X-9BR

RACER Saginaw

Figure B-118



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -3.0E-04 ug/L Per Day

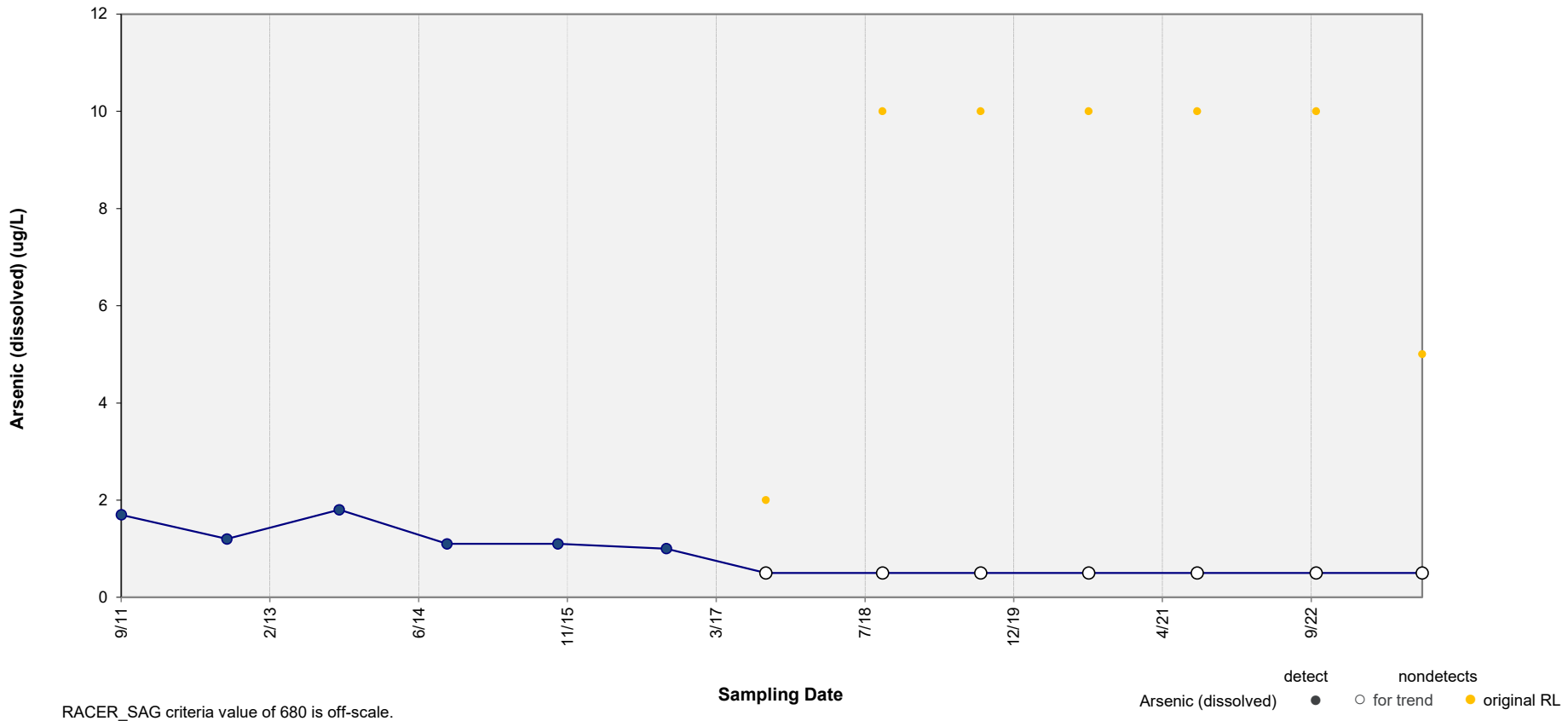
95% Confidence Interval = -4.6E-04 to -1.5E-04 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic in Well X-9CAUG

RACER Saginaw

Figure B-119



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -2.6E-04 ug/L Per Day

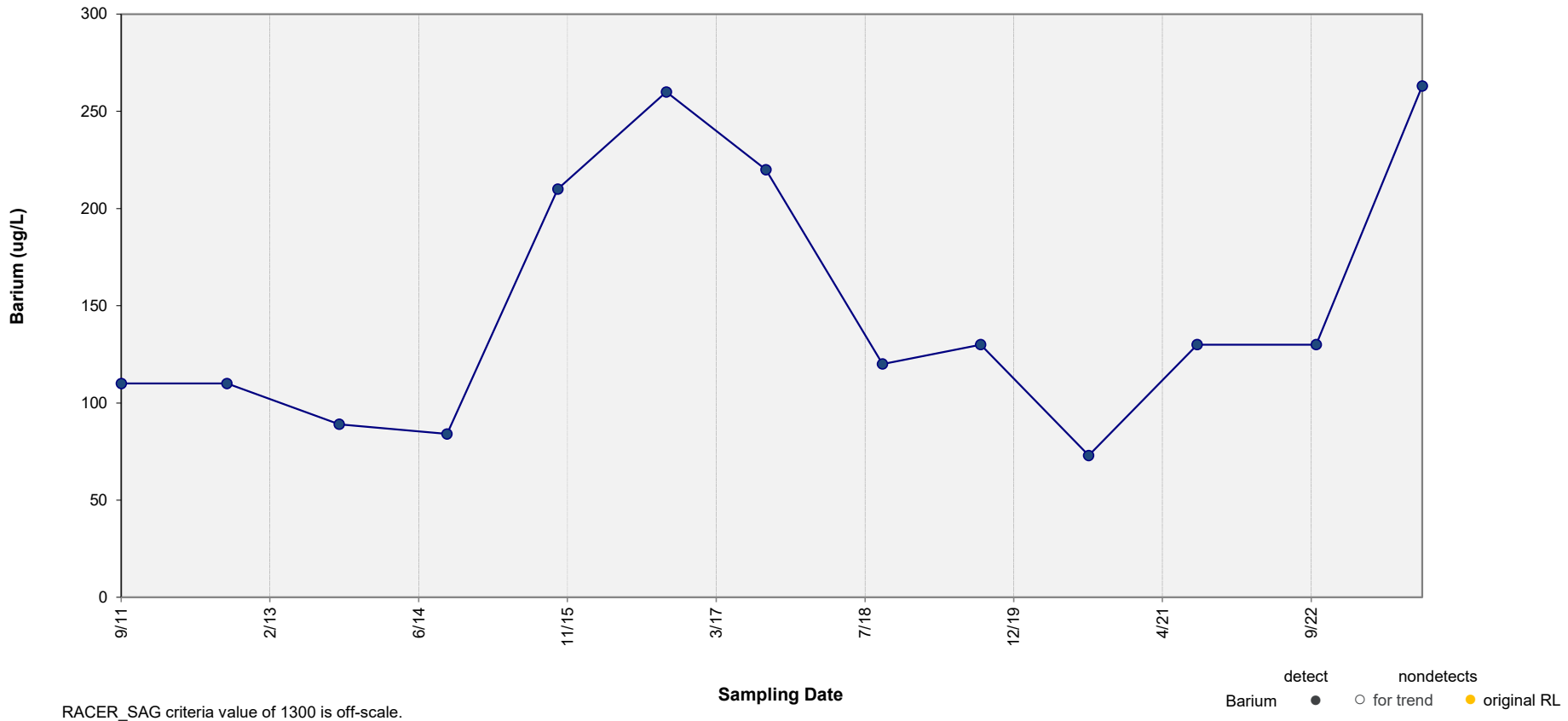
95% Confidence Interval = -3.8E-04 to -1.1E-04 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic (dissolved) in Well X-9CAUG

RACER Saginaw

Figure B-120



RACER_SAG criteria value of 1300 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.121 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 6.9E-03 ug/L Per Day

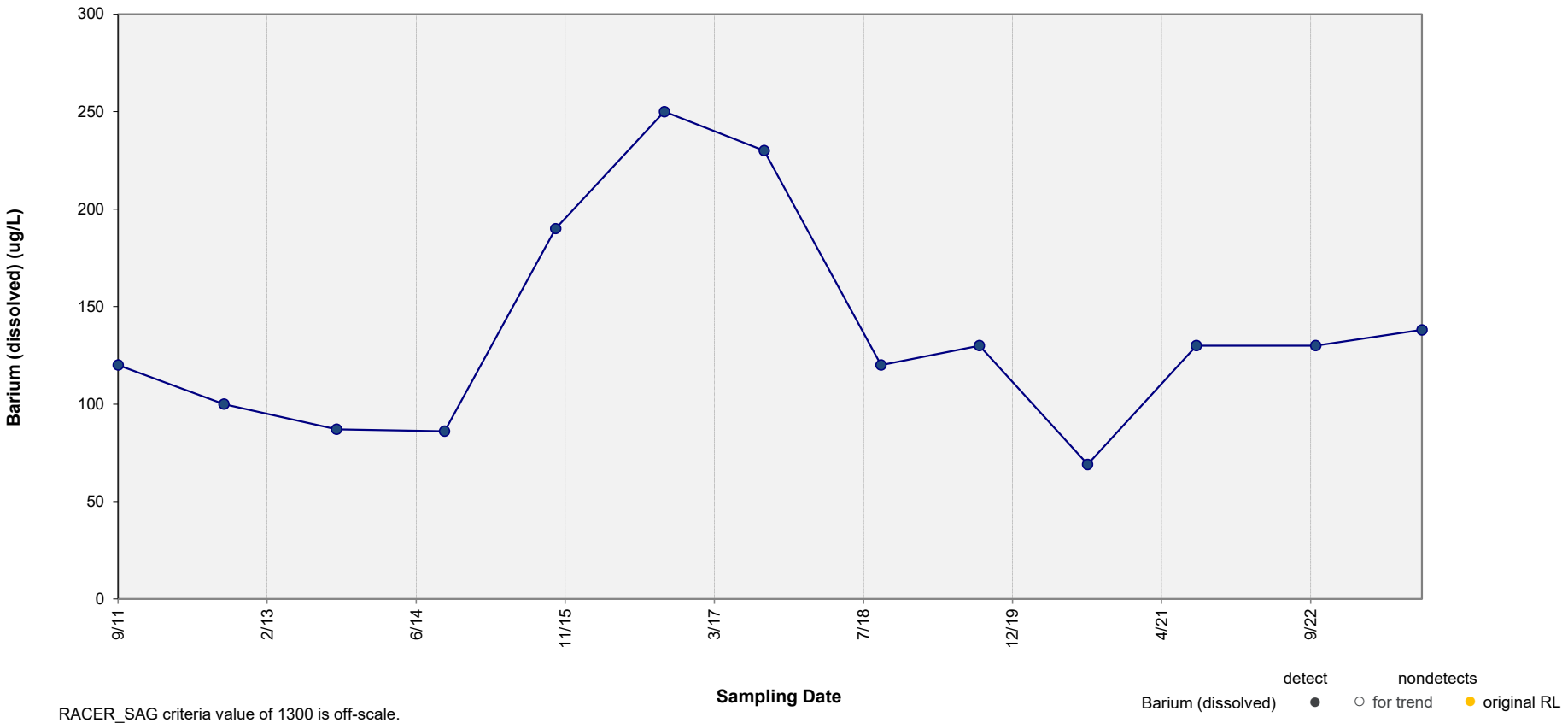
95% Confidence Interval = -1.4E-02 to 3.5E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium in Well X-9CAUG

RACER Saginaw

Figure B-121



RACER_SAG criteria value of 1300 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.249 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 4.8E-03 ug/L Per Day

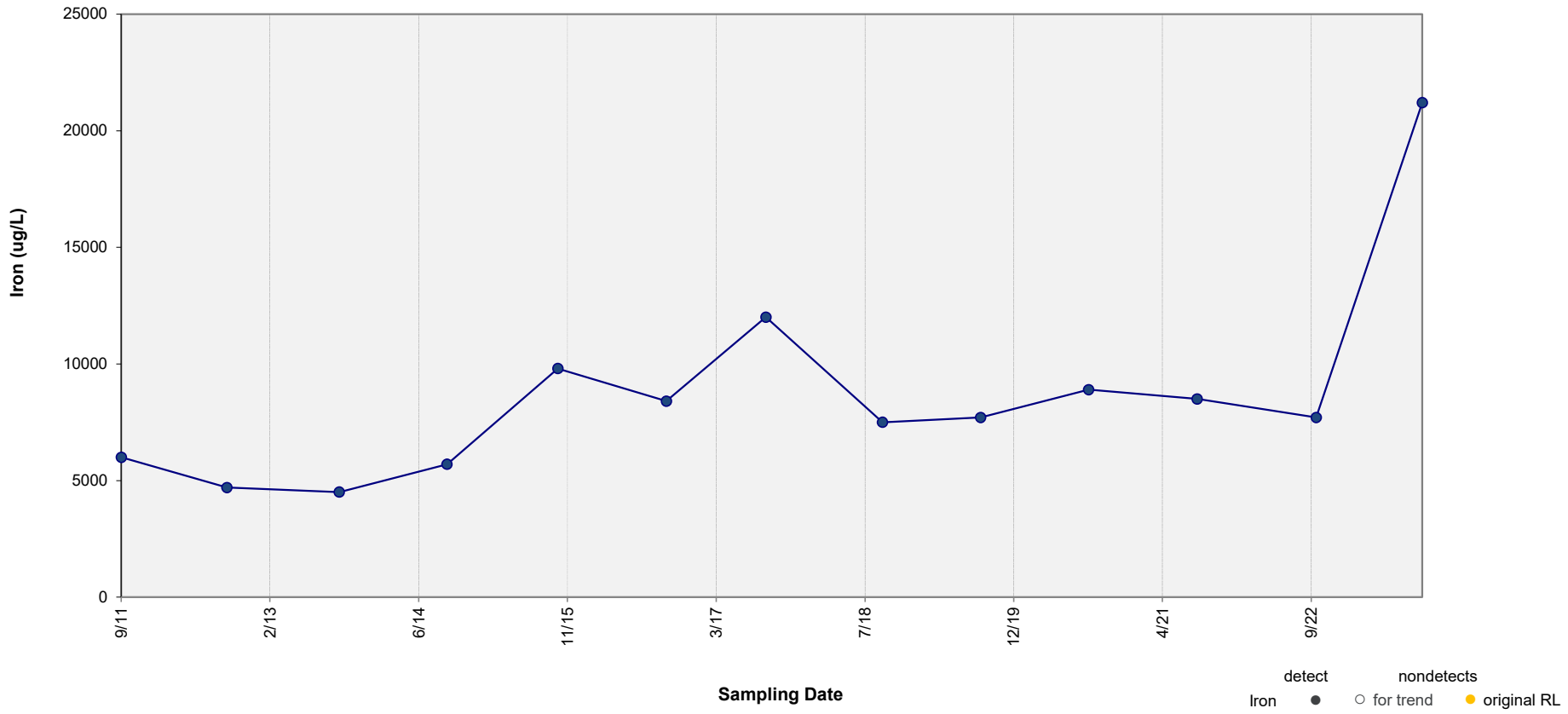
95% Confidence Interval = -2.8E-02 to 1.7E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium (dissolved) in Well X-9CAUG

RACER Saginaw

Figure B-122



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.019 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 1.2E+00 ug/L Per Day

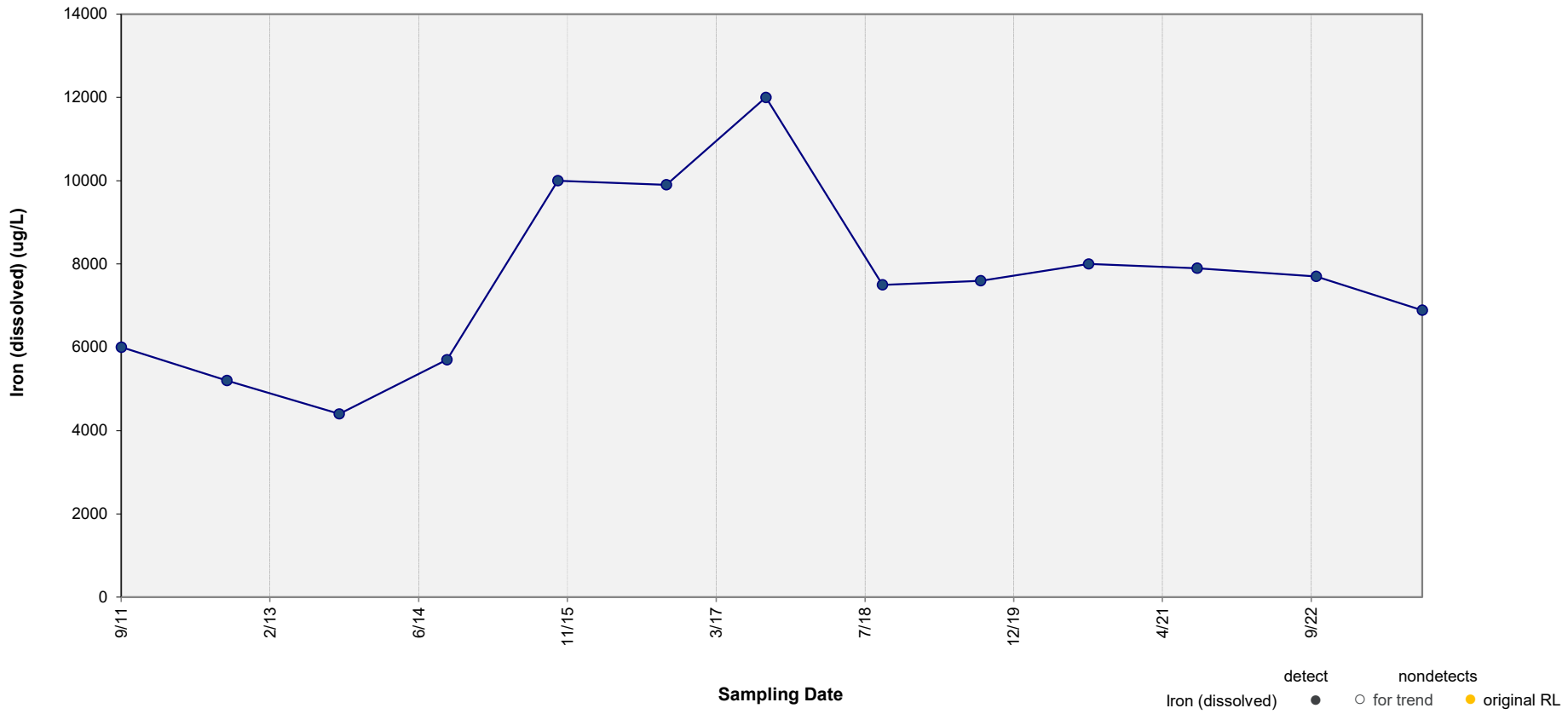
95% Confidence Interval = 5.4E-02 to 3.2E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron in Well X-9CAUG

RACER Saginaw

Figure B-123



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.180 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 4.2E-01 ug/L Per Day

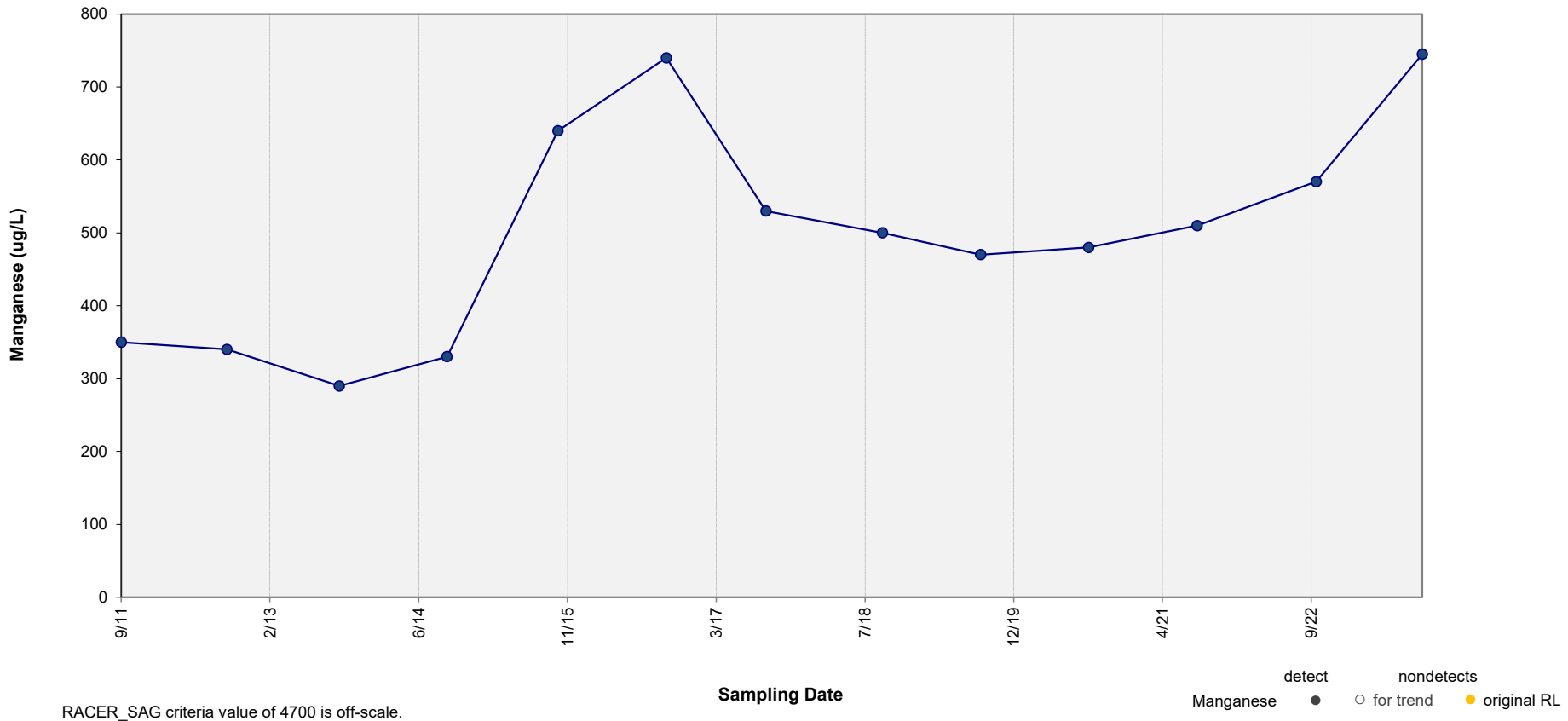
95% Confidence Interval = -9.8E-01 to 1.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron (dissolved) in Well X-9CAUG

RACER Saginaw

Figure B-124



RACER_SAG criteria value of 4700 is off-scale.

Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.029 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 6.6E-02 ug/L Per Day

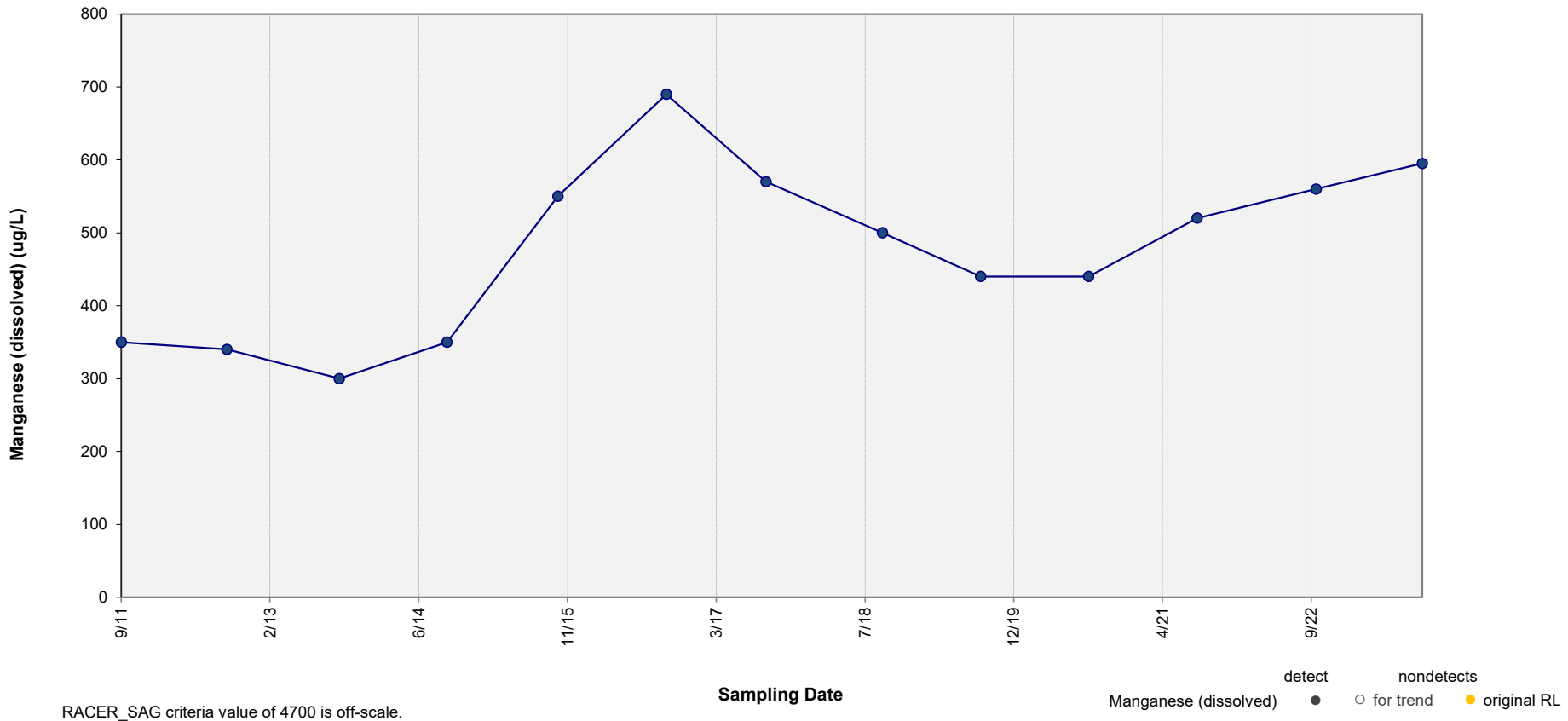
95% Confidence Interval = -1.4E-02 to 1.1E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese in Well X-9CAUG

RACER Saginaw

Figure B-125



RACER_SAG criteria value of 4700 is off-scale.

Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.022 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 5.4E-02 ug/L Per Day

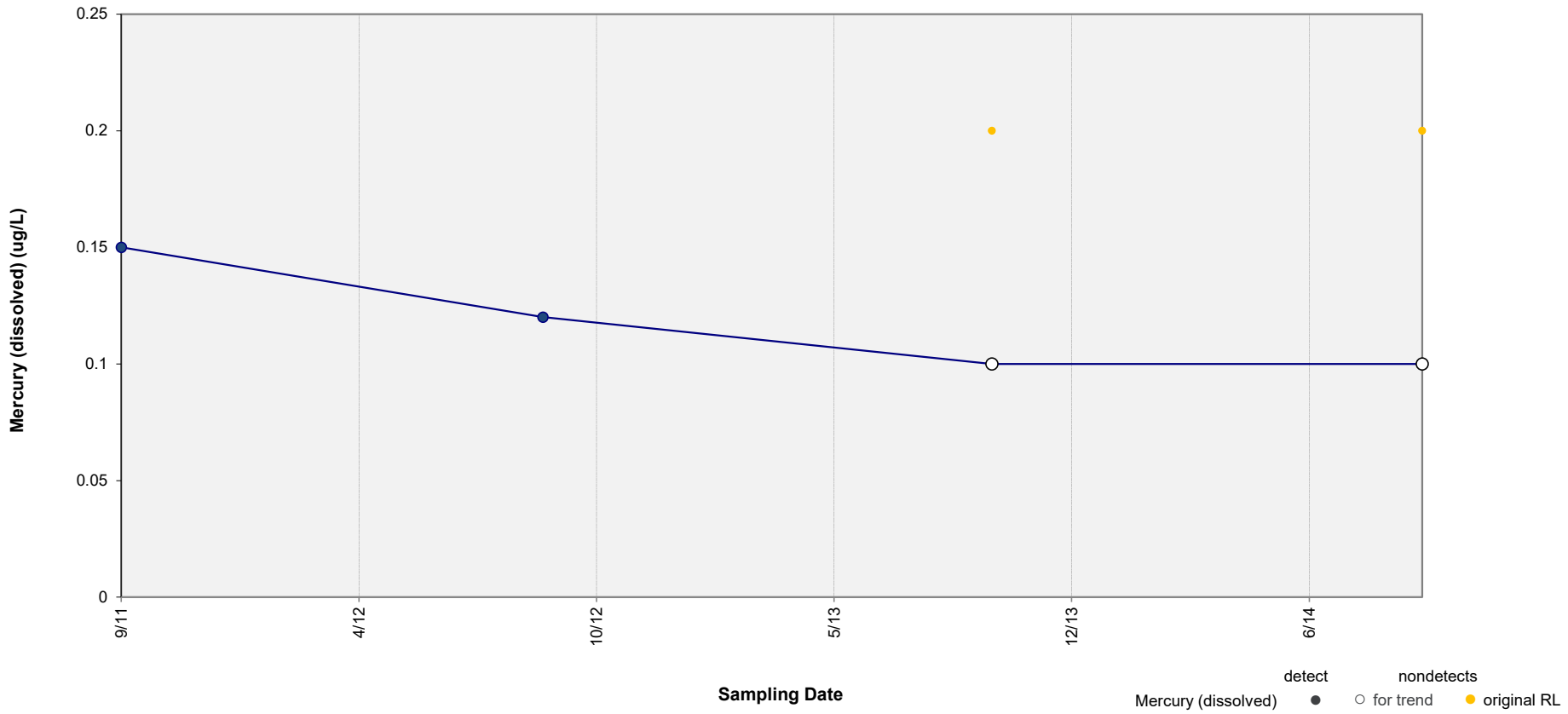
95% Confidence Interval = 0.0E+00 to 9.9E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese (dissolved) in Well X-9CAUG

RACER Saginaw

Figure B-126



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.105 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ug/L Per Day

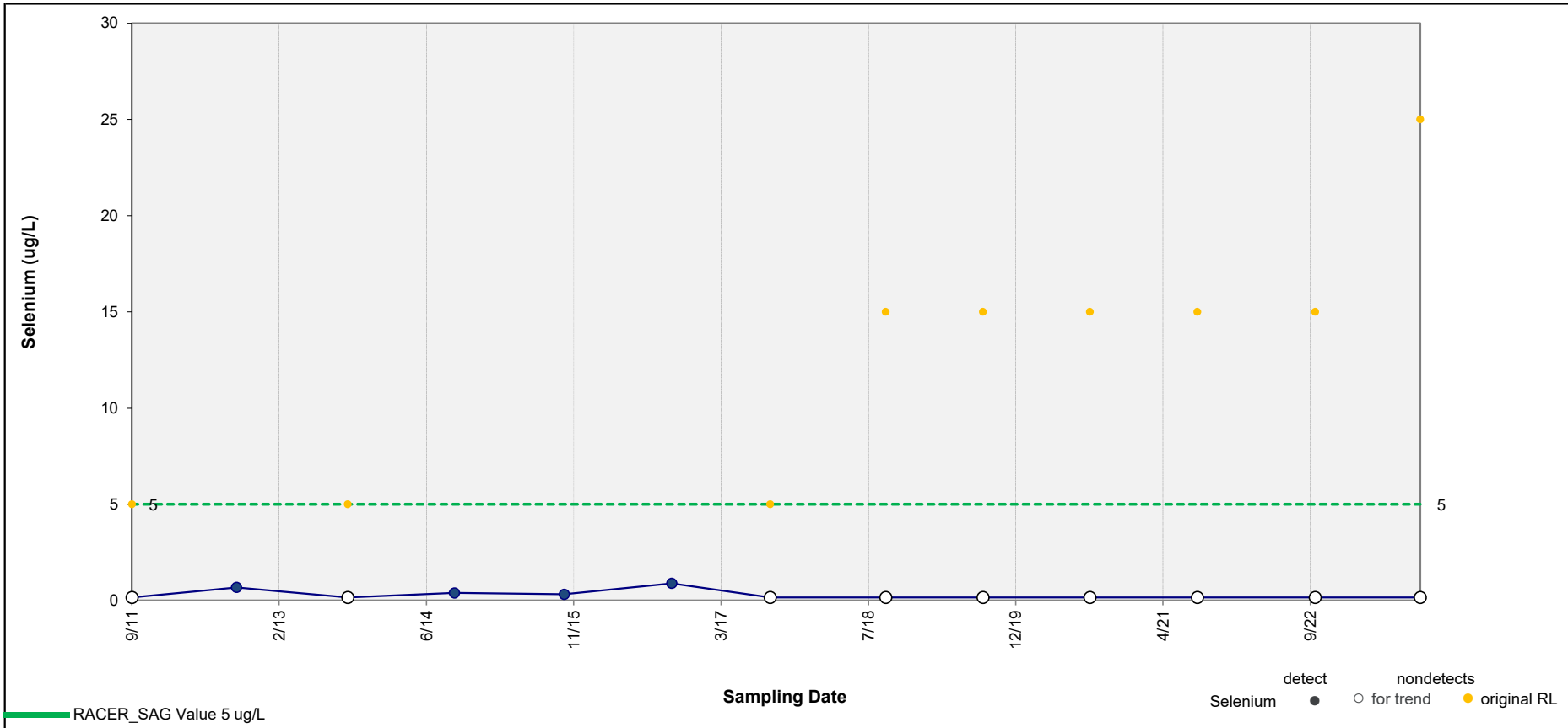
95% Confidence Interval = NA to NA ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Mercury (dissolved) in Well X-9CAUG

RACER Saginaw

Figure B-127



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.057 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

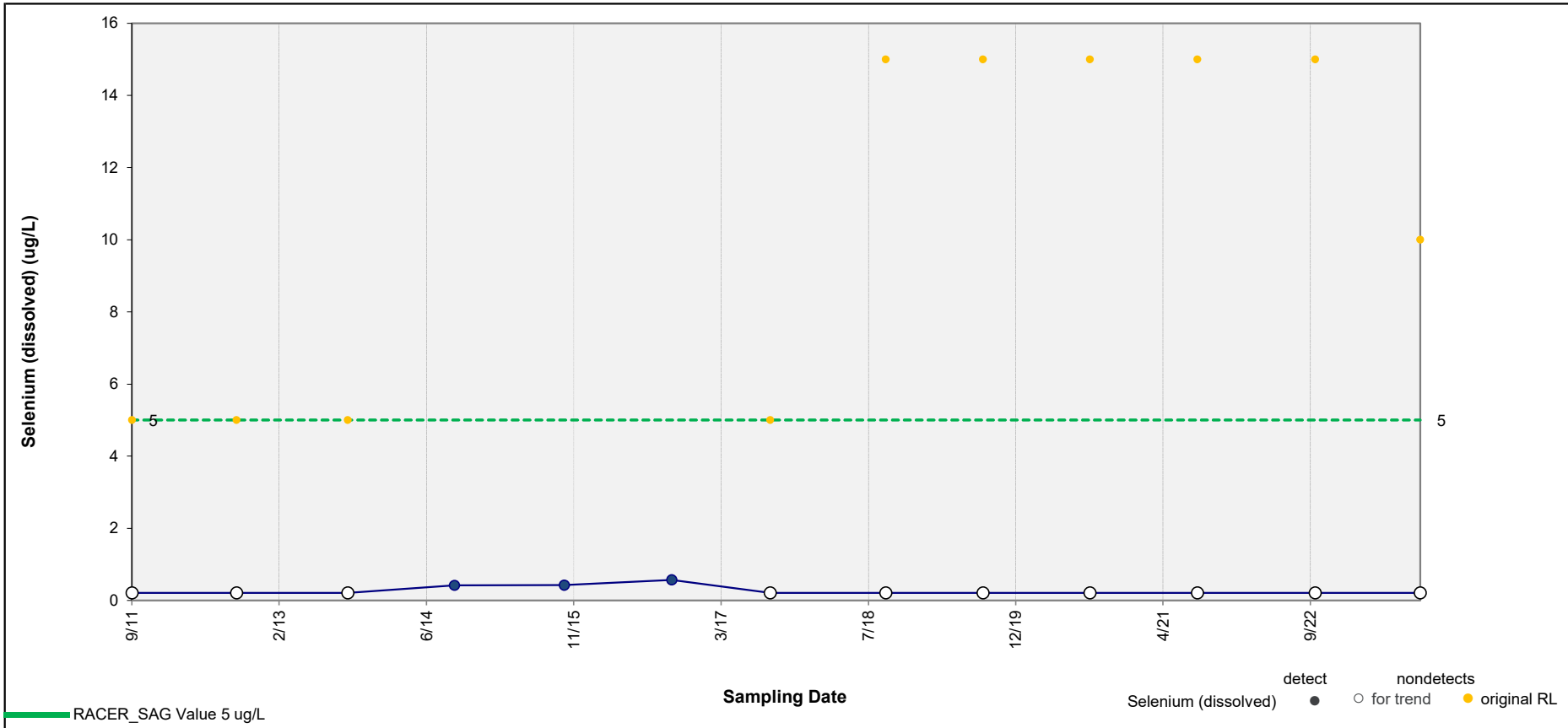
95% Confidence Interval = -9.6E-05 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Selenium in Well X-9CAUG

RACER Saginaw

Figure B-128



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.252 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

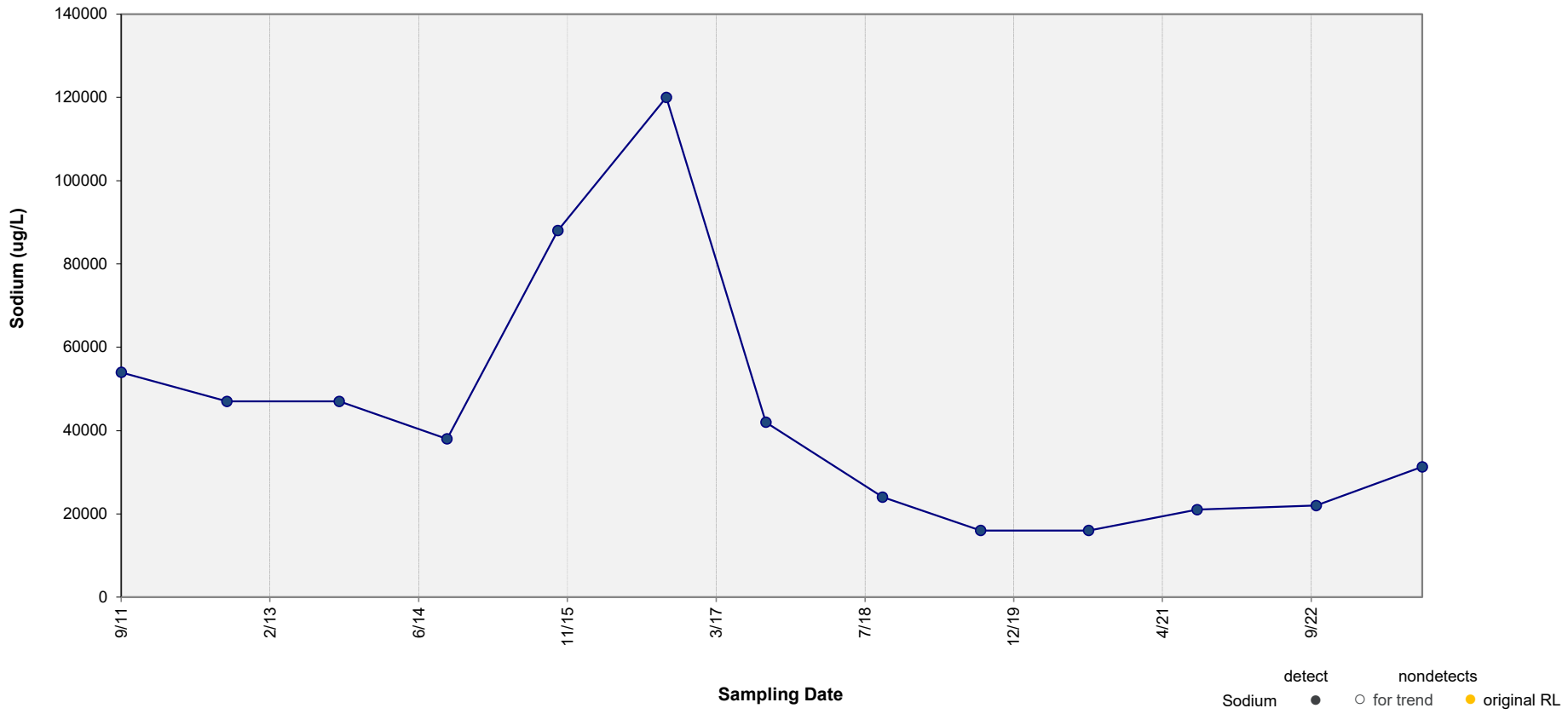
95% Confidence Interval = 0.0E+00 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Selenium (dissolved) in Well X-9CAUG

RACER Saginaw

Figure B-129



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.016 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -9.1E+00 ug/L Per Day

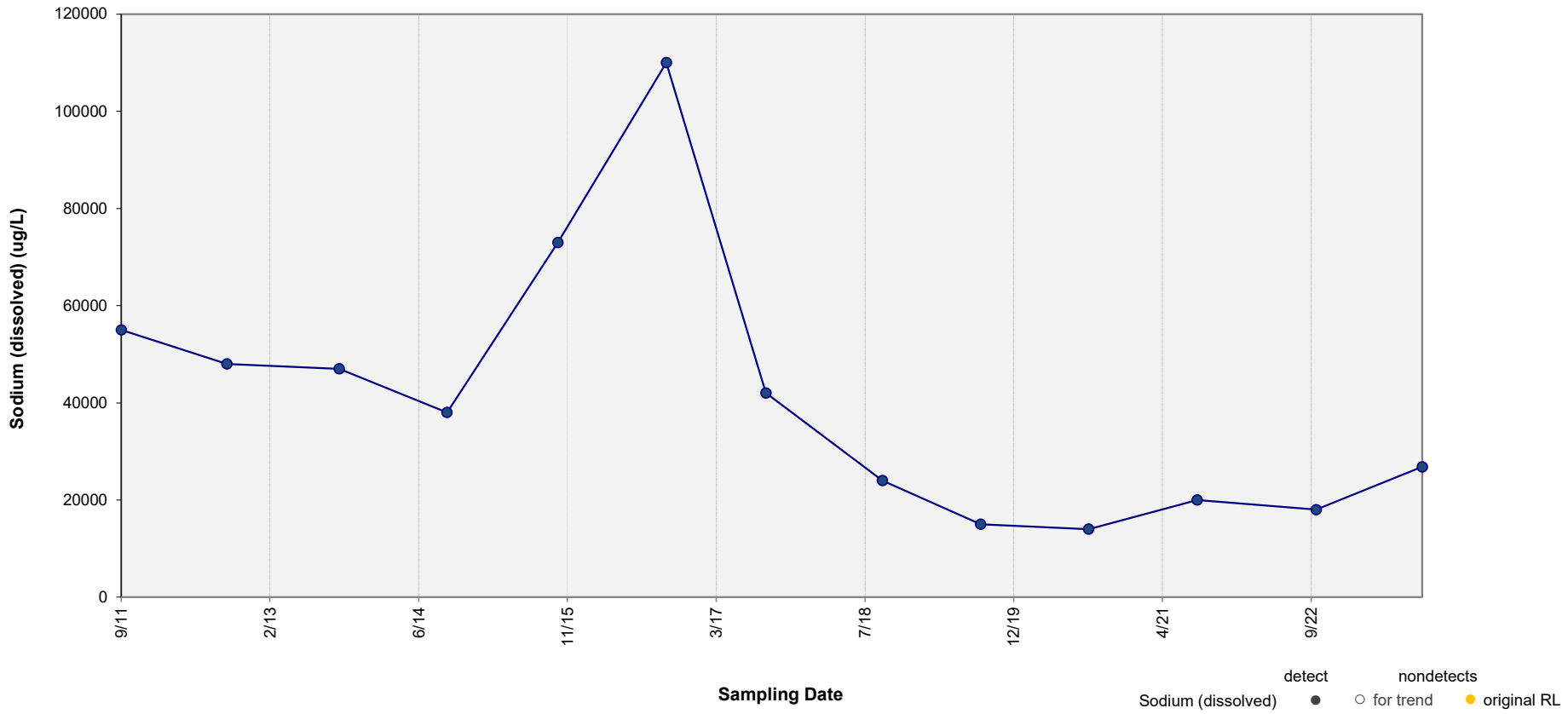
95% Confidence Interval = -1.4E+01 to -2.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium in Well X-9CAUG

RACER Saginaw

Figure B-130



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.009 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -9.5E+00 ug/L Per Day

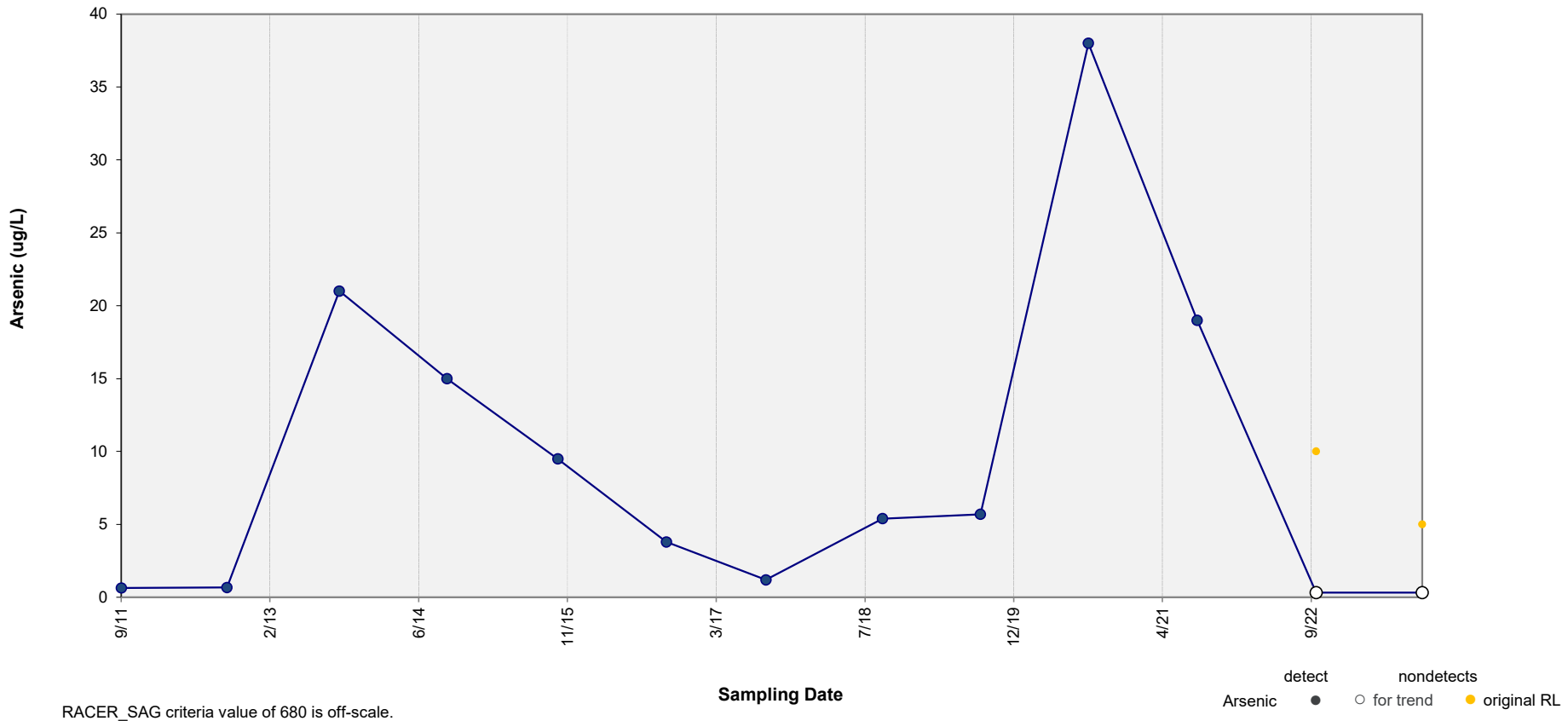
95% Confidence Interval = -1.5E+01 to -3.5E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium (dissolved) in Well X-9CAUG

RACER Saginaw

Figure B-131



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.451 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -7.6E-05 ug/L Per Day

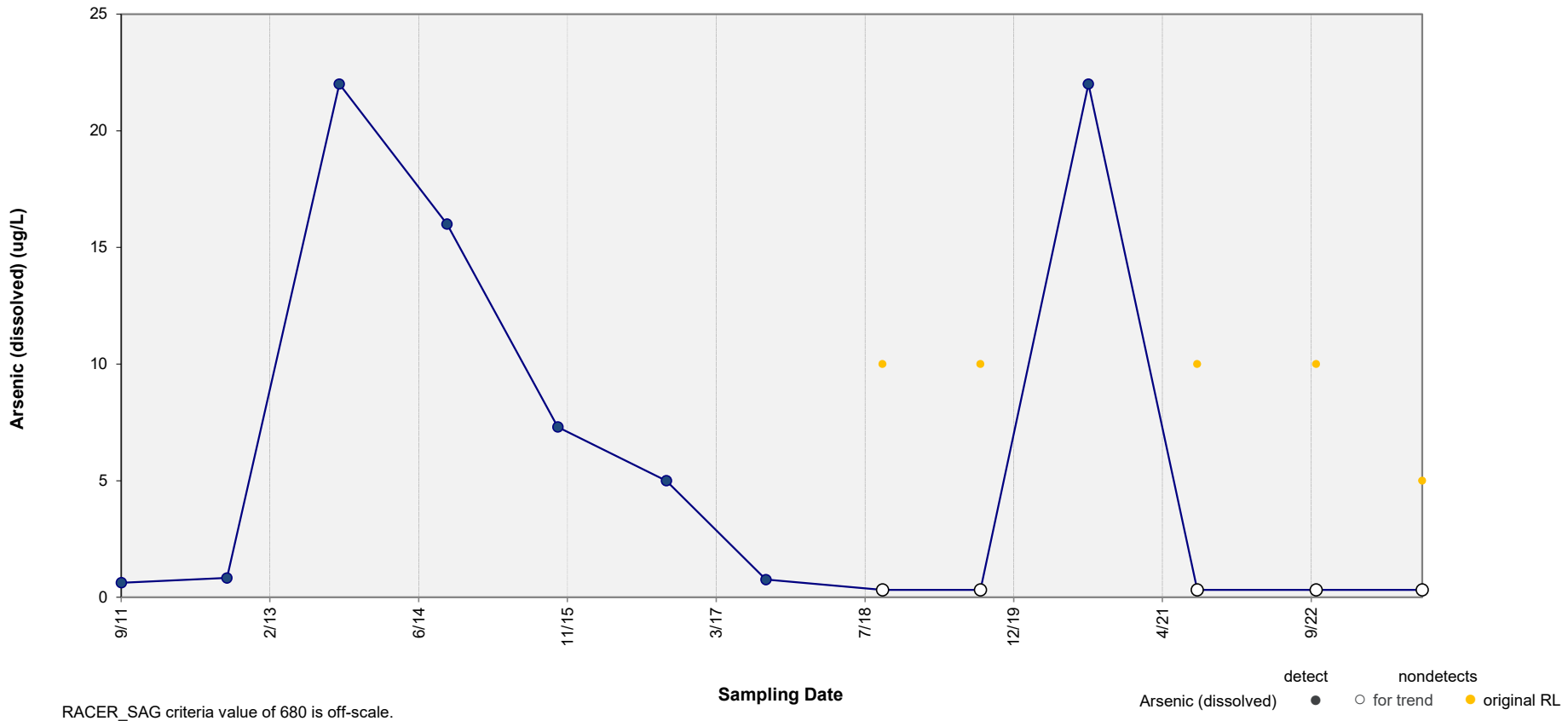
95% Confidence Interval = -4.8E-03 to 4.4E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic in Well X-9D

RACER Saginaw

Figure B-132



RACER_SAG criteria value of 680 is off-scale.

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.029 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = -2.0E-04 ug/L Per Day

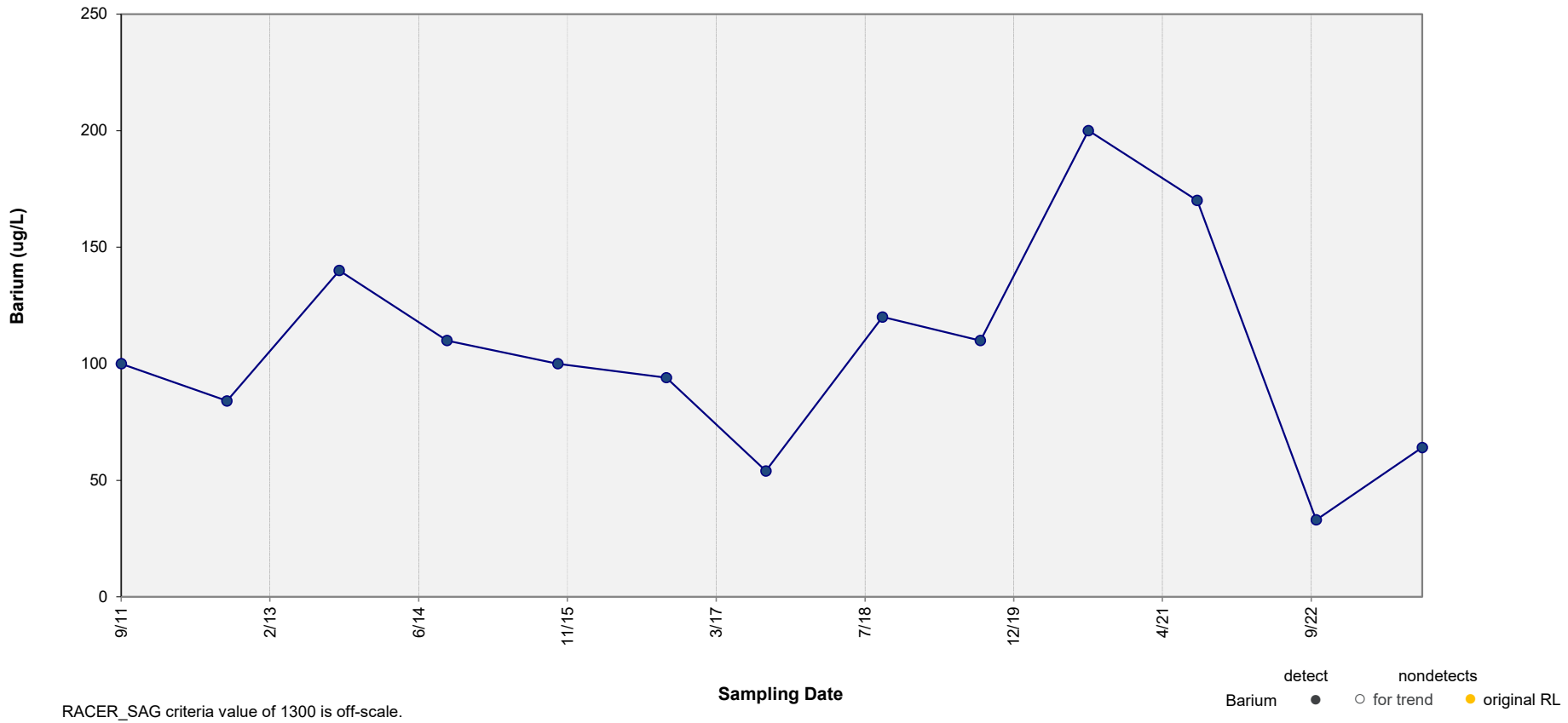
95% Confidence Interval = -5.7E-03 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Arsenic (dissolved) in Well X-9D

RACER Saginaw

Figure B-133



RACER_SAG criteria value of 1300 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.476 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -1.6E-03 ug/L Per Day

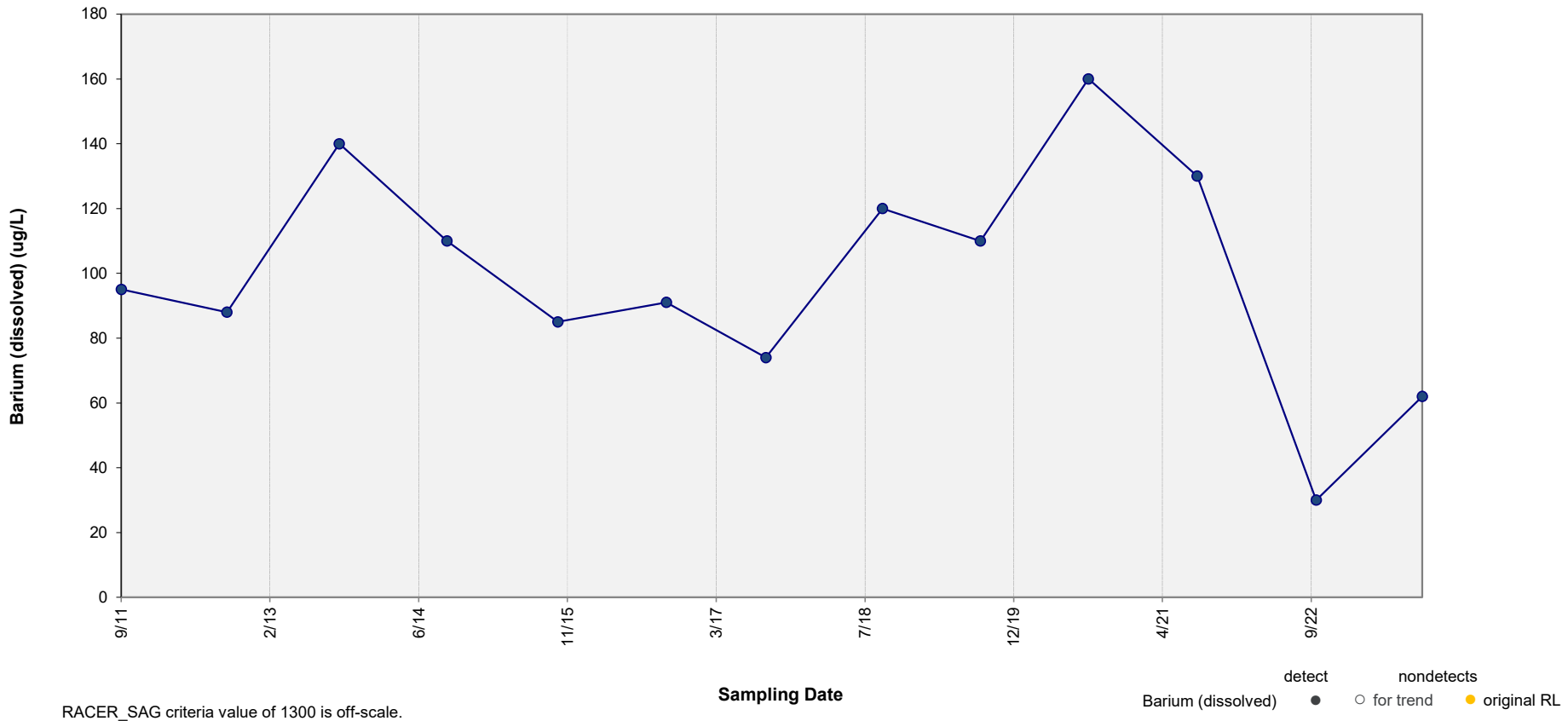
95% Confidence Interval = -2.6E-02 to 1.9E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium in Well X-9D

RACER Saginaw

Figure B-134



RACER_SAG criteria value of 1300 is off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.357 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -4.5E-03 ug/L Per Day

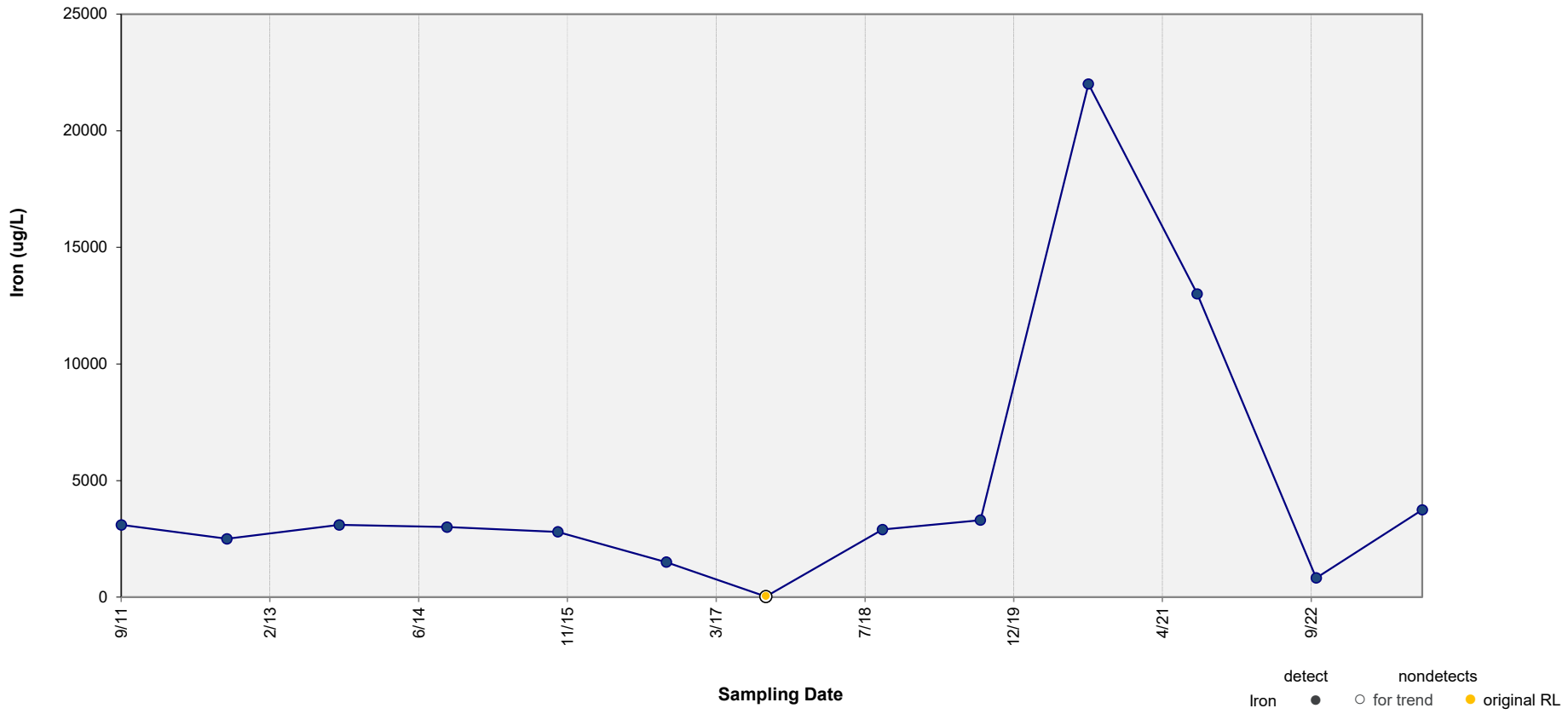
95% Confidence Interval = -2.2E-02 to 1.5E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Barium (dissolved) in Well X-9D

RACER Saginaw

Figure B-135



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.271 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 1.7E-01 ug/L Per Day

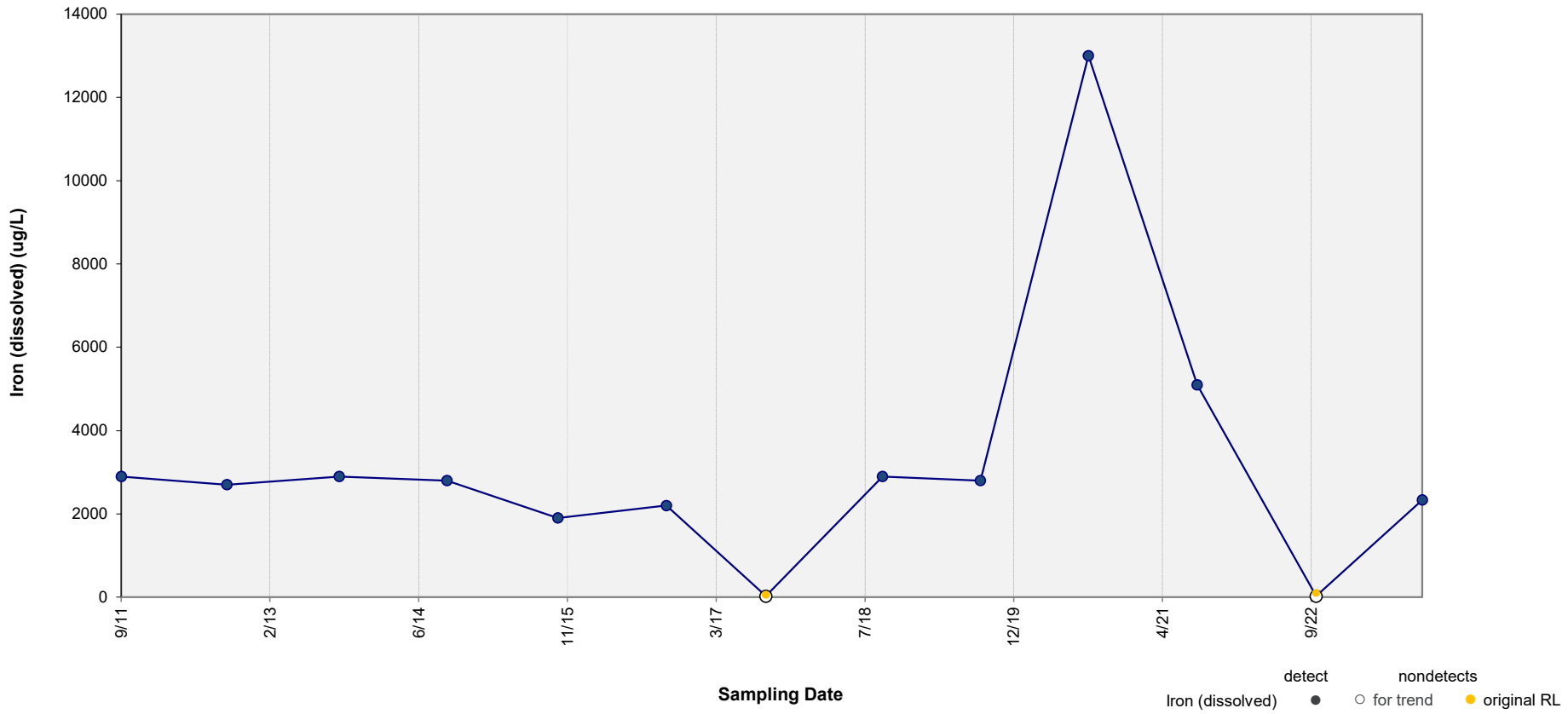
95% Confidence Interval = -5.7E-01 to 1.7E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron in Well X-9D

RACER Saginaw

Figure B-136



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.403 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -1.7E-02 ug/L Per Day

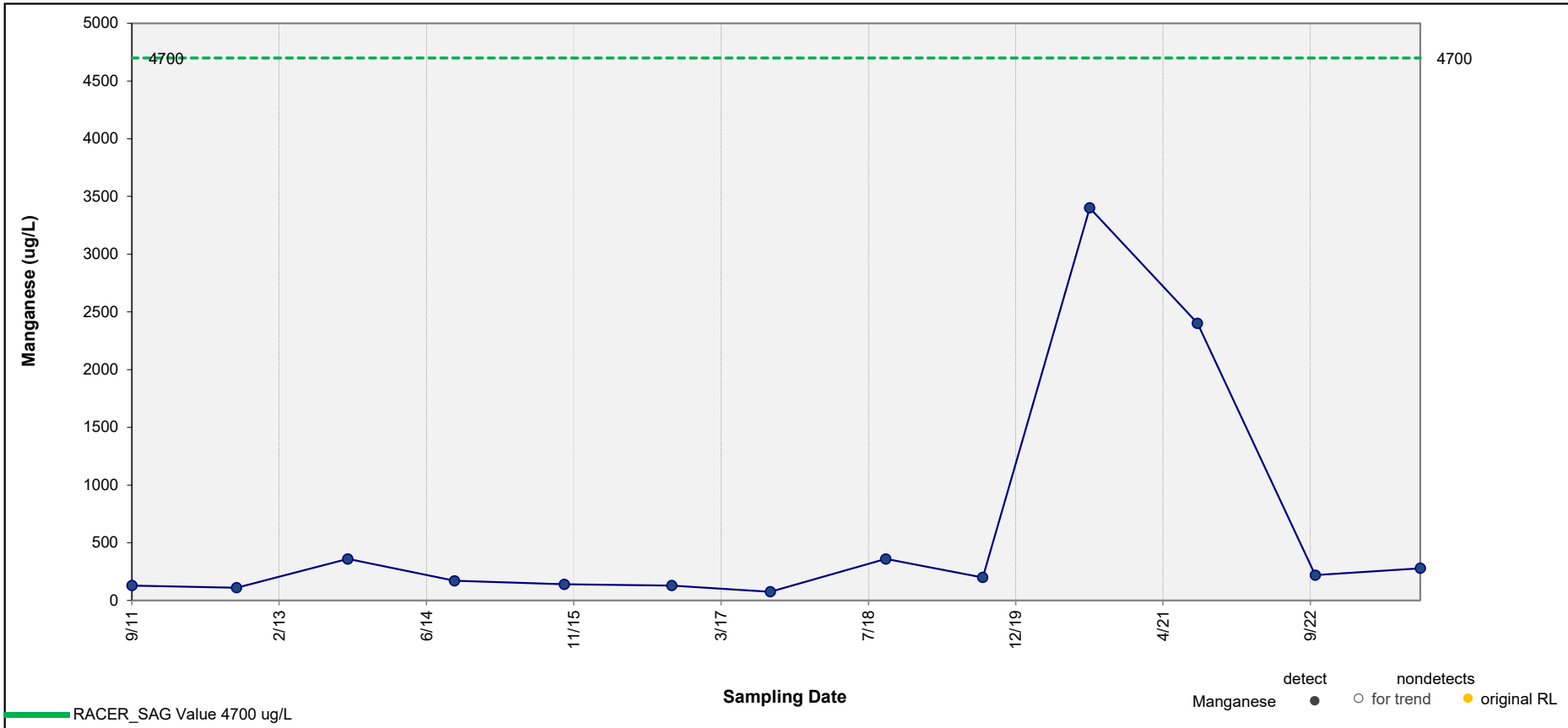
95% Confidence Interval = -7.1E-01 to 7.2E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Iron (dissolved) in Well X-9D

RACER Saginaw

Figure B-137



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.049 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 3.6E-02 ug/L Per Day

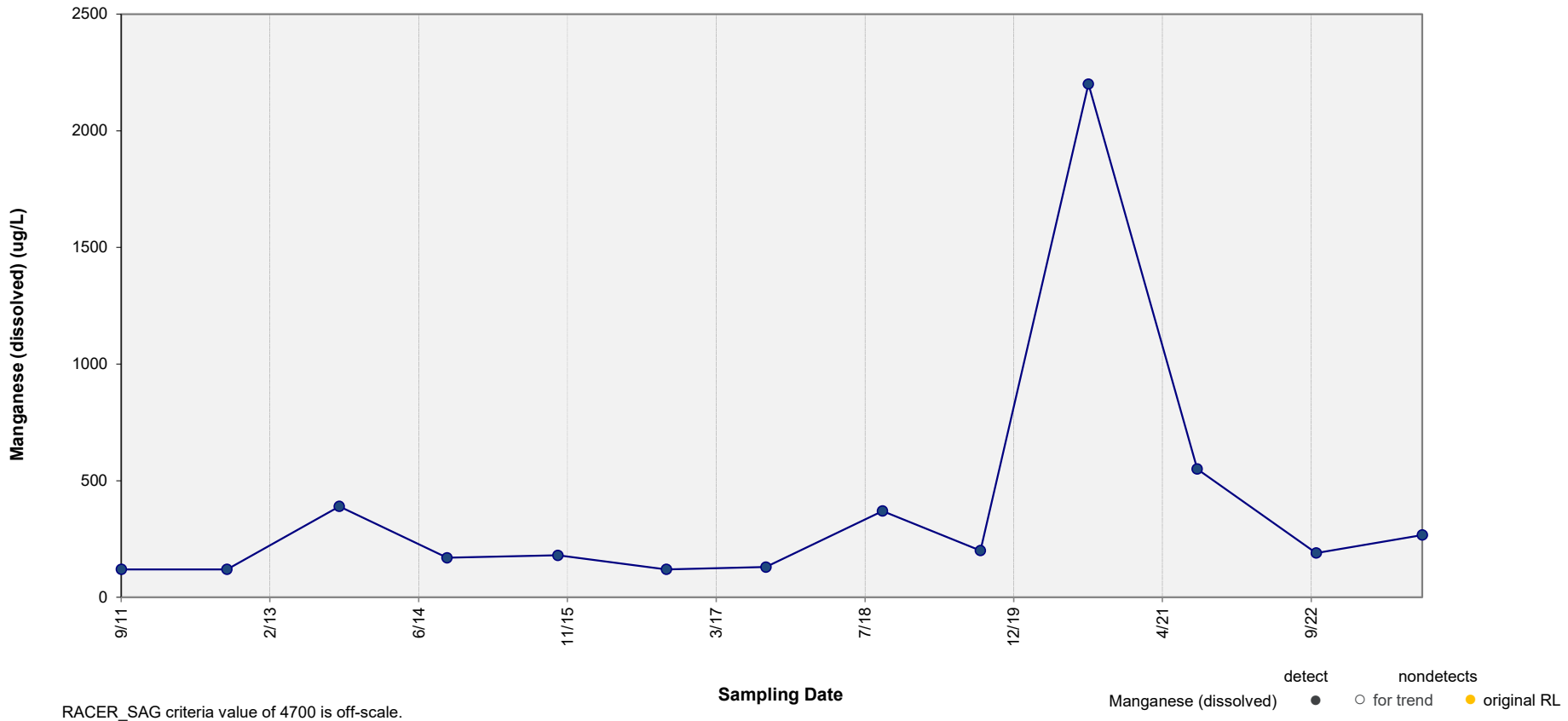
95% Confidence Interval = -2.2E-02 to 1.7E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese in Well X-9D

RACER Saginaw

Figure B-138



RACER_SAG criteria value of 4700 is off-scale.

Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.025 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 3.2E-02 ug/L Per Day

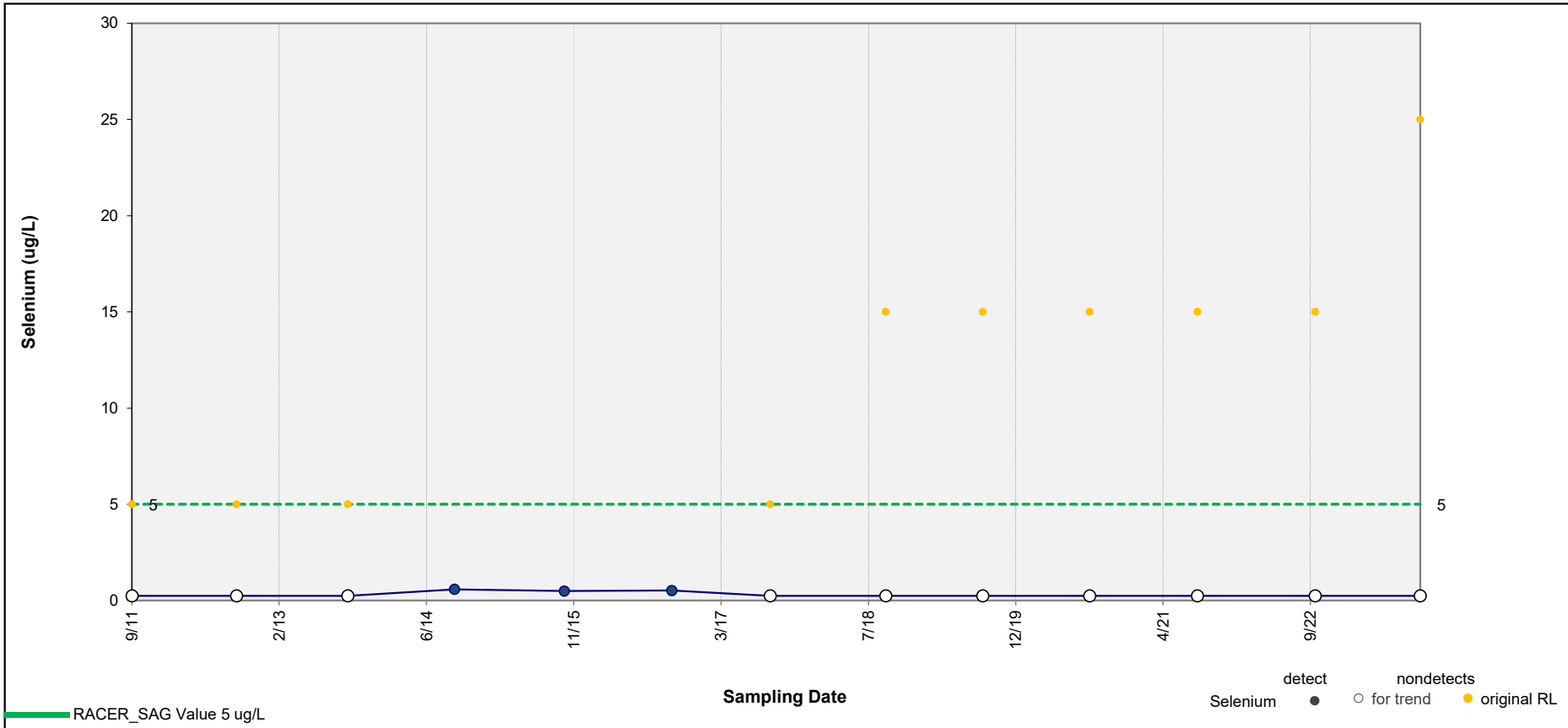
95% Confidence Interval = 0.0E+00 to 1.2E-01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Manganese (dissolved) in Well X-9D

RACER Saginaw

Figure B-139



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.158 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

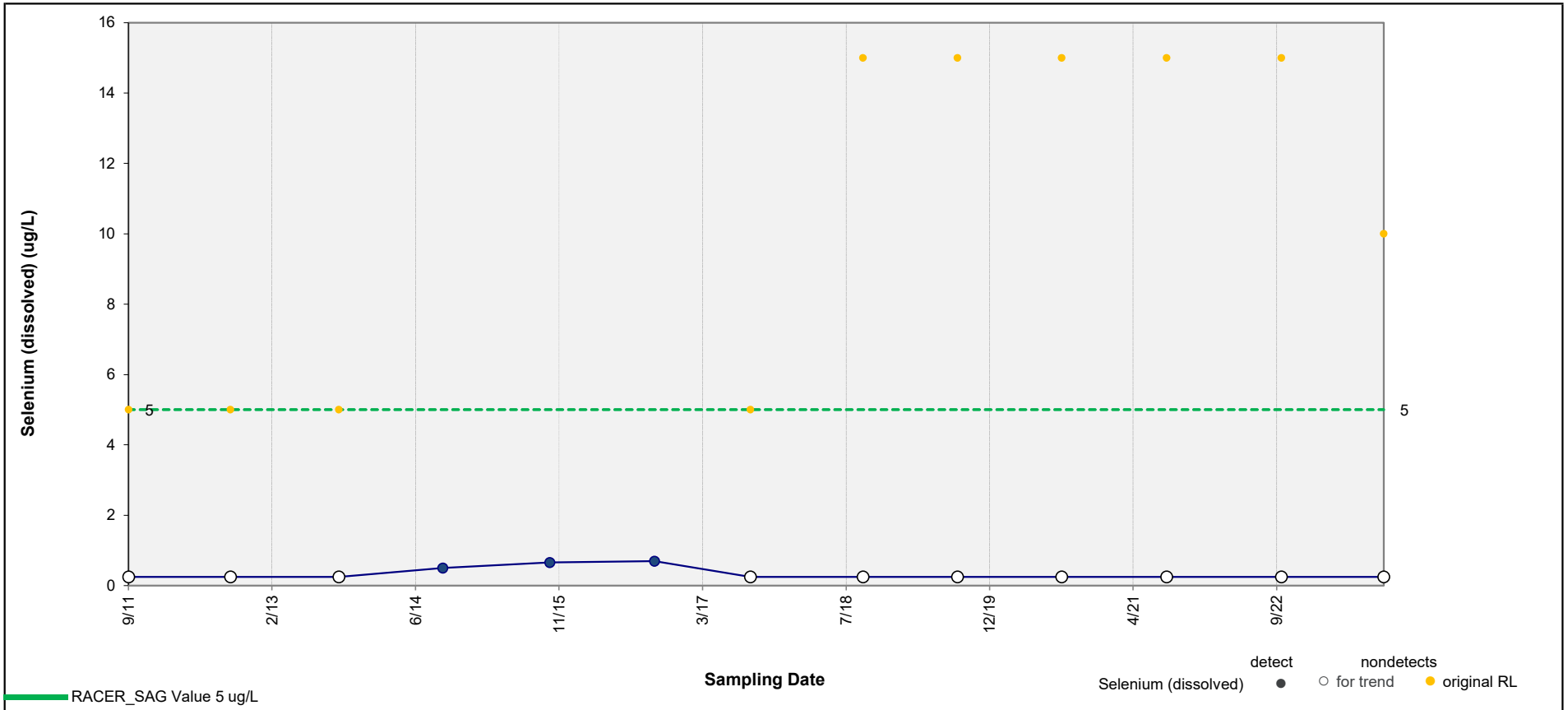
95% Confidence Interval = 0.0E+00 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Selenium in Well X-9D

RACER Saginaw

Figure B-140



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.252 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

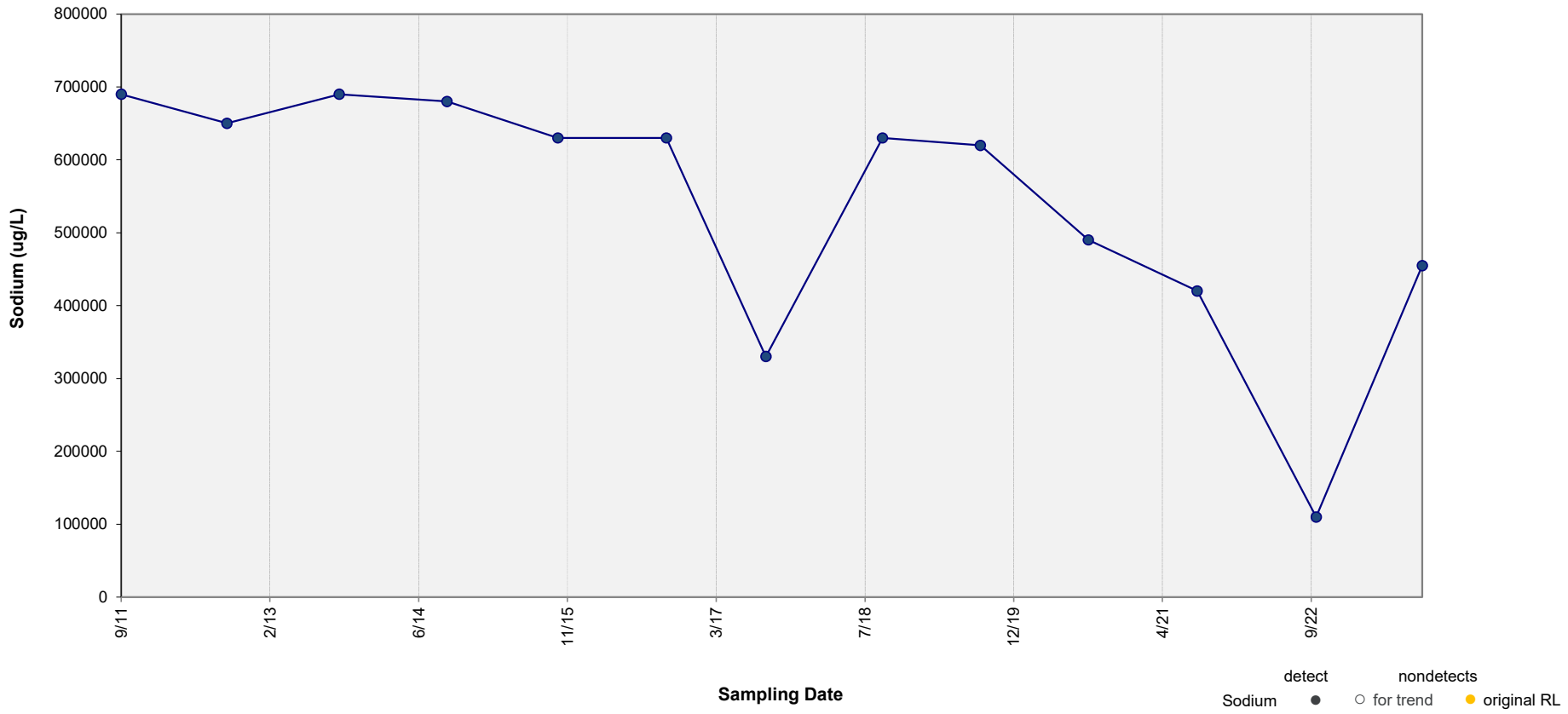
95% Confidence Interval = 0.0E+00 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Selenium (dissolved) in Well X-9D

RACER Saginaw

Figure B-141



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -6.8E+01 ug/L Per Day

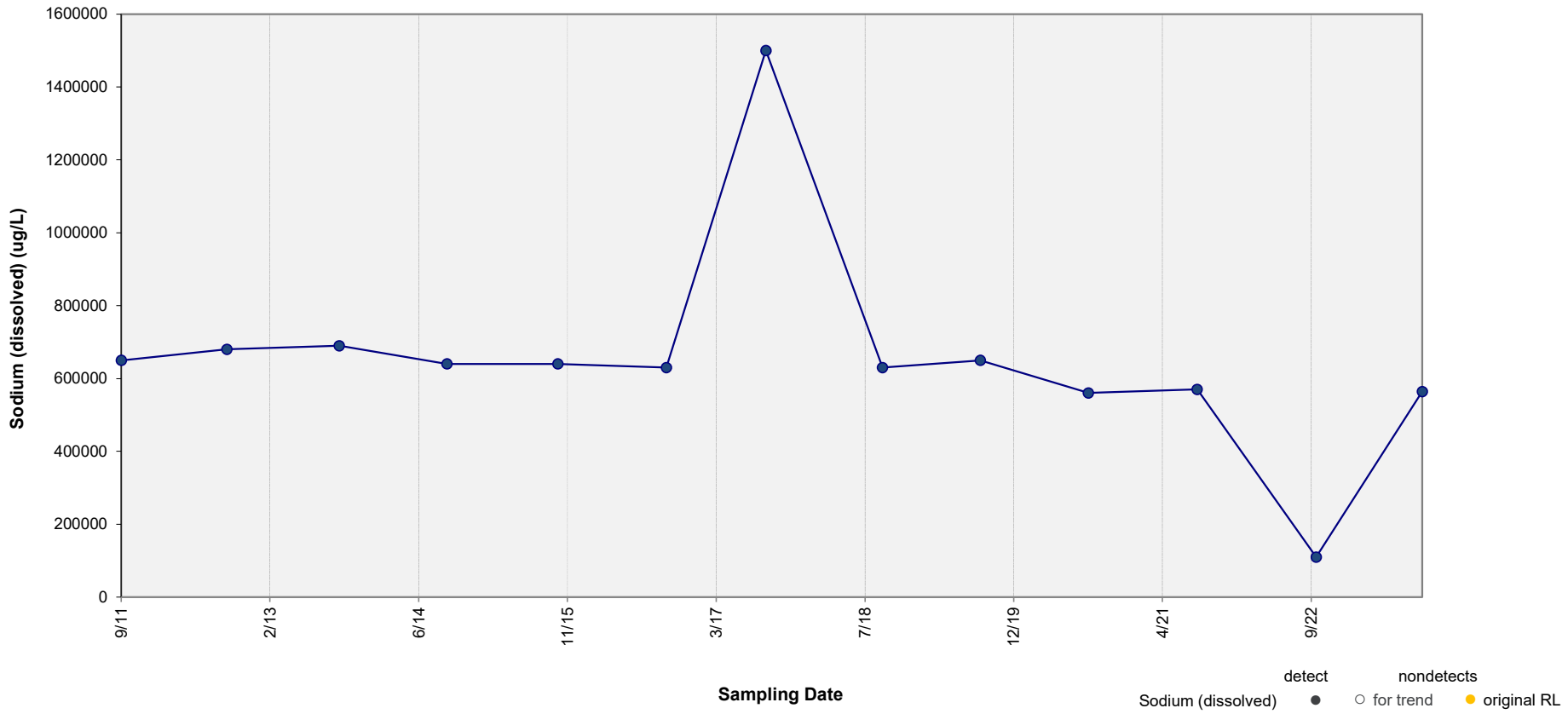
95% Confidence Interval = -1.2E+02 to -3.0E+01 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium in Well X-9D

RACER Saginaw

Figure B-142



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.005 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -3.1E+01 ug/L Per Day

95% Confidence Interval = -5.7E+01 to -9.1E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Sodium (dissolved) in Well X-9D

RACER Saginaw

Figure B-143

TABLE C-1
Summary Statistics and Trend Results - PCBs - 2011 to 2023
RACER Saginaw
November, 2023

Well ID	Analyte	Date Range	Figure	FOD	Detected Results Summary [1]				Mann-Kendall Test [2]				Sen's Estimator of Slope [2]			
					Range	Mean	Median	SD	Result[4]	MK Result Note	P-Value	S Value	Result[4]	Sen's Result Note	Slope (Units/Day)	95% CI (Units/Day)
MW-110WTR	Aroclor-1248 (PCB-1248)	09/14 - 09/23	C-1	1 / 10	0.14 - 0.14	0.14	0.14	0	NST	5b	0.242	9	NA	5c	NA	NA
MW-111WT	Aroclor-1248 (PCB-1248)	09/12 - 09/23	C-2	6 / 12	0.068 - 0.82	0.33	0.22	0.27	NST	--	0.471	2	NST	5c	0	-0.0000951 to 0.0000296
MW-111WT	Aroclor-1248 (PCB-1248) (dissolved)	09/12 - 09/23	C-3	4 / 12	0.067 - 12.9	3.4	0.301	6.3	NST	--	0.182	12	NT	5c	0	0 to 0.0000549
MW-185WT	Aroclor-1260 (PCB-1260) (dissolved)	09/12 - 09/23	C-4	1 / 11	0.041 - 0.041	0.041	0.041	0	NST	5b	0.077	-10	NT	5c	0	0 to 0

Abbreviations:

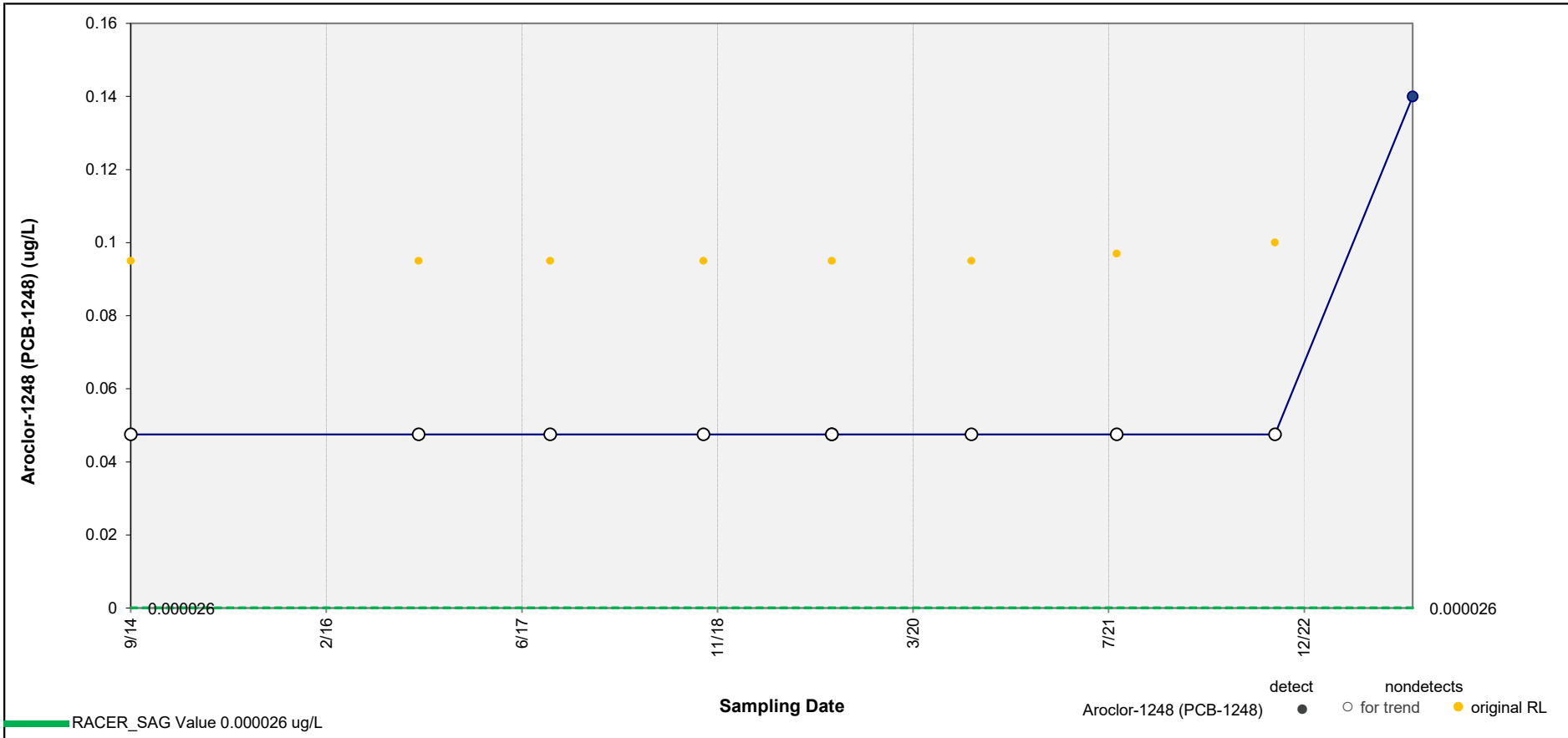
-- = insufficient data for calculating statistics (n < 4) or not available
FOD = frequency of detection (# detects / # samples)
mean = arithmetic mean
SD = standard deviation
NST = no significant trend
NT = no trend
DWN = downward trend
UP = upward trend
H_0 = null hypothesis: no significant trend (slope = 0)
H_a = alternative hypothesis: significant trend (slope ≠ 0)
95% CI = 95% confidence interval

Notes:

1. All analytical results are in µg/L. Result values less than 10 are reported to 2 significant figures; values greater than 10 are reported to 3 significant figures.
   P-values are reported to 3 decimal places.
2. Trend results are presented when at least four samples and one detected value are available. Significance of trends evaluated at 95% confidence (alpha = 0.05).
3. Non-detects were assigned a common value less than the minimum detected value, equal to half the minimum reporting limit (RL) in the dataset (USEPA, 2009).
   If half the minimum RL was greater than the minimum detected value, then half the minimum detect was assigned.
4. Statistically significant trend defined as having p-value ≤ 0.05, or 95% confidence.
5a. MK and Sen's Trend results for datasets with fewer than 8 samples may not be reliable and should be treated with caution.
5b. MK Trend results for datasets with an FOD <=20% may not be reliable and should be treated with caution.
5c. Sen's Trend results for datasets with an FOD <=50% may not be reliable and should be treated with caution.
5d. MK and Sen's Trend results for datasets with more than 100 samples are not shown.

Reference:

USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities. Unified Guidance. EPA/530/R-09/007, 2009.



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.242 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ug/L Per Day

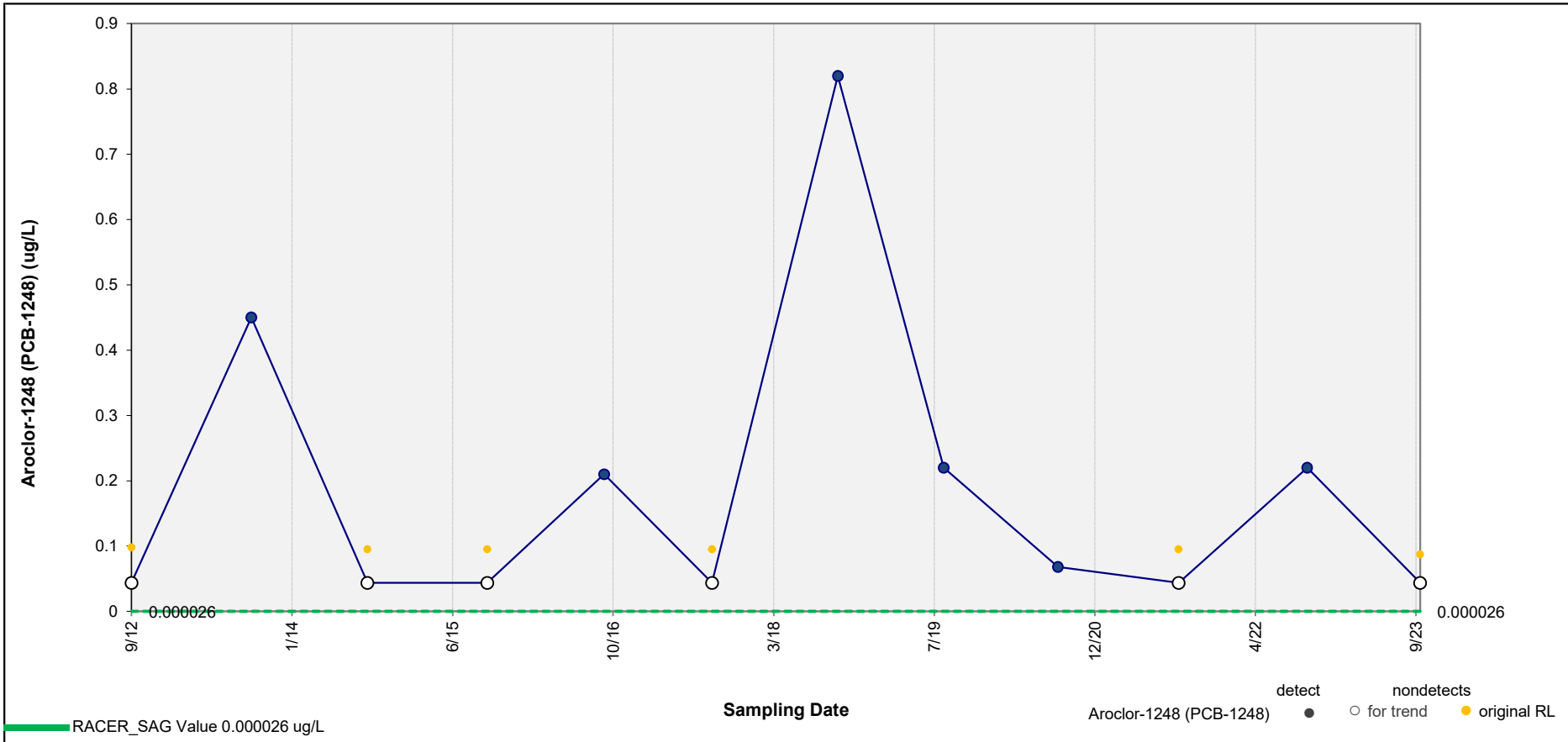
95% Confidence Interval = NA to NA ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Aroclor-1248 (PCB-1248) in Well MW-110WTR

RACER Saginaw

Figure C-1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.471 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

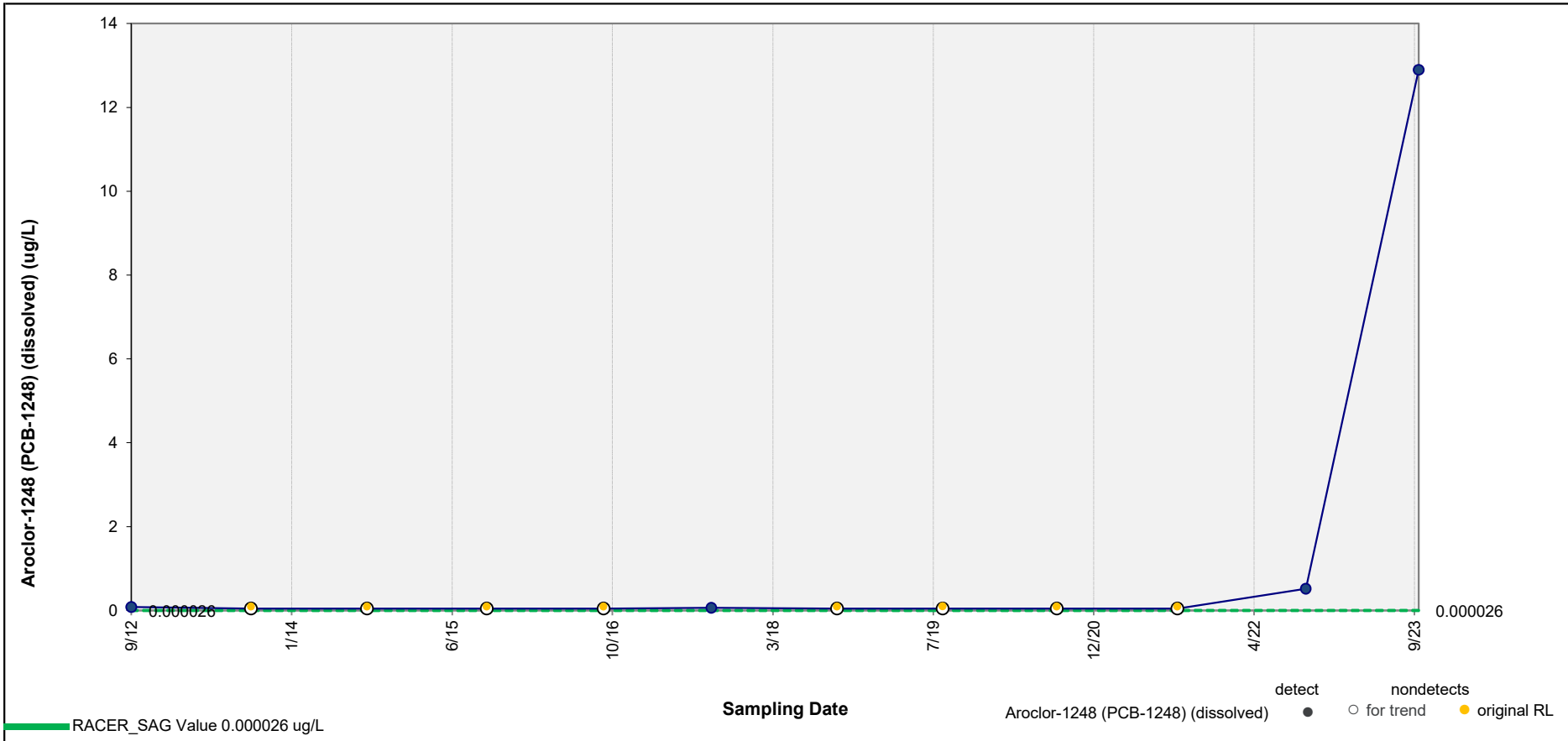
95% Confidence Interval = -9.5E-05 to 3.0E-05 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Aroclor-1248 (PCB-1248) in Well MW-111WT

RACER Saginaw

Figure C-2



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.182 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

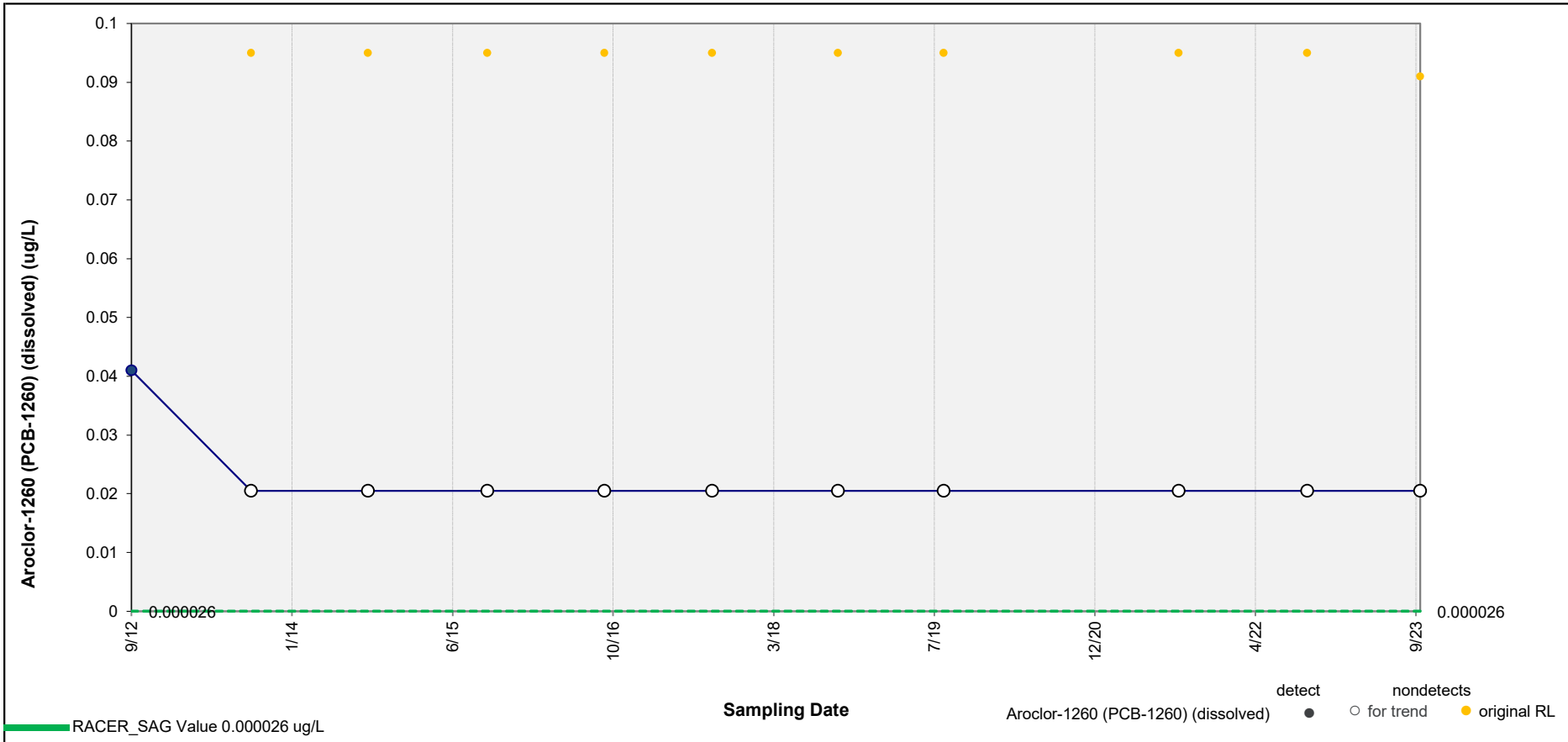
95% Confidence Interval = 0.0E+00 to 5.5E-05 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Aroclor-1248 (PCB-1248) (dissolved) in Well MW-111WT

RACER Saginaw

Figure C-3



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.077 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

95% Confidence Interval = 0.0E+00 to 0.0E+00 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Aroclor-1260 (PCB-1260) (dissolved) in Well MW-185WT

RACER Saginaw

Figure C-4

TABLE D-1
Summary Statistics and Trend Results - PFAS
RACER Saginaw
November, 2023

Well ID	Analyte	Date Range	Figure	FOD	Detected Results Summary [1]				Mann-Kendall Test [2]				Sen's Estimator of Slope [2]			
					Range	Mean	Median	SD	Result[4]	MK Result Note	P-Value	S Value	Result[4]	Sen's Result Note	Slope (Units/Day)	95% CI (Units/Day)
B-3R	Perfluorobutanoic acid (PFBA)	12/18 - 09/23	D-1	2 / 4	2.3 - 11.3	6.8	6.8	6.4	NST	5a	0.271	-3	NA	5a 5c	NA	NA
B-3R	Perfluoroheptanoic acid (PFHpA)	12/18 - 09/23	D-2	1 / 4	2.1 - 2.1	2.1	2.1	0	NST	5a	0.500	-1	NA	5a 5c	NA	NA
B-3R	Perfluorohexanesulfonic acid (PFHxS)	12/18 - 09/23	D-3	2 / 4	1.1 - 1.9	1.5	1.515	0.54	NST	5a	0.500	1	NA	5a 5c	NA	NA
B-3R	Perfluorohexanoic acid (PFHxA)	12/18 - 09/23	D-4	2 / 4	1.3 - 2.1	1.7	1.68	0.59	NST	5a	0.500	-1	NA	5a 5c	NA	NA
B-3R	Perfluorooctane sulfonic acid (PFOS)	12/18 - 09/23	D-5	4 / 4	13 - 15.6	14.3	14.35	1.1	DWN	5a	0.042	-6	NA	5a	NA	NA
B-3R	Perfluorooctanoic acid (PFOA)	12/18 - 09/23	D-6	4 / 4	2.7 - 5.6	3.6	3	1.4	NST	5a	0.500	-1	NA	5a	NA	NA
B-3R	Perfluoropentanoic acid (PFPeA)	12/18 - 09/23	D-7	2 / 4	1.7 - 13.4	7.5	7.54	8.3	NST	5a	0.271	-3	NA	5a 5c	NA	NA
MW-131WT	Perfluorobutanesulfonic acid (PFBS)	12/18 - 09/23	D-8	4 / 4	1.4 - 3	2.3	2.36	0.84	NST	5a	0.500	-1	NA	5a	NA	NA
MW-131WT	Perfluorobutanoic acid (PFBA)	12/18 - 09/23	D-9	4 / 4	2.5 - 11.1	6.3	5.77	3.8	NST	5a	0.375	-2	NA	5a	NA	NA
MW-131WT	Perfluoroheptanoic acid (PFHpA)	12/18 - 09/23	D-10	1 / 4	1.2 - 1.2	1.2	1.2	0	NST	5a	0.271	-3	NA	5a 5c	NA	NA
MW-131WT	Perfluorohexanesulfonic acid (PFHxS)	12/18 - 09/23	D-11	4 / 4	4.2 - 8.3	5.8	5.4	1.8	NST	5a	0.167	4	NA	5a	NA	NA
MW-131WT	Perfluorohexanoic acid (PFHxA)	12/18 - 09/23	D-12	3 / 4	0.99 - 1.6	1.2	1.14	0.32	NST	5a	0.375	-2	NA	5a	NA	NA
MW-131WT	Perfluorooctane sulfonic acid (PFOS)	12/18 - 09/23	D-13	4 / 4	4.9 - 14.6	8.7	7.65	4.2	NST	5a	0.375	2	NA	5a	NA	NA
MW-131WT	Perfluorooctanoic acid (PFOA)	12/18 - 09/23	D-14	4 / 4	2.1 - 3.6	2.8	2.84	0.72	NST	5a	0.375	-2	NA	5a	NA	NA
MW-131WT	Perfluoropentanesulfonic acid (PFPeS)	12/18 - 09/23	D-15	3 / 4	1 - 2.8	1.6	1.1	1	NST	5a	0.375	2	NA	5a	NA	NA
MW-131WT	Perfluoropentanoic acid (PFPeA)	12/18 - 09/23	D-16	2 / 4	2.2 - 5.9	4.1	4.07	2.6	NST	5a	0.500	-1	NA	5a 5c	NA	NA
MW-134WT	Perfluorobutanesulfonic acid (PFBS)	12/18 - 09/23	D-17	1 / 4	2 - 2	2	1.99	0	NST	5a	0.271	-3	NA	5a 5c	NA	NA
MW-134WT	Perfluorobutanoic acid (PFBA)	12/18 - 09/23	D-18	4 / 4	5.6 - 6.4	6.1	6.15	0.38	NST	5a	0.105	5	NA	5a	NA	NA
MW-134WT	Perfluoroheptanoic acid (PFHpA)	12/18 - 09/23	D-19	3 / 4	1.3 - 2.2	1.7	1.5	0.48	NST	5a	0.625	0	NA	5a	NA	NA
MW-134WT	Perfluorohexanesulfonic acid (PFHxS)	12/18 - 09/23	D-20	1 / 4	1.7 - 1.7	1.7	1.7	0	NST	5a	0.271	3	NA	5a 5c	NA	NA
MW-134WT	Perfluorohexanoic acid (PFHxA)	12/18 - 09/23	D-21	3 / 4	1.7 - 2.4	2	1.9	0.38	NST	5a	0.625	0	NA	5a	NA	NA
MW-134WT	Perfluorooctanoic acid (PFOA)	12/18 - 09/23	D-22	4 / 4	2 - 3.7	3.1	3.3	0.78	NST	5a	0.167	4	NA	5a	NA	NA
MW-134WT	Perfluoropentanoic acid (PFPeA)	12/18 - 09/23	D-23	3 / 4	2.7 - 5	3.7	3.54	1.2	NST	5a	0.375	-2	NA	5a	NA	NA
MW-183WT	Perfluorobutanesulfonic acid (PFBS)	12/18 - 09/23	D-24	4 / 4	1.1 - 2.2	1.8	1.93	0.53	NST	5a	0.500	1	NA	5a	NA	NA
MW-183WT	Perfluorobutanoic acid (PFBA)	12/18 - 09/23	D-25	4 / 4	6.7 - 15.2	10.4	9.85	3.7	NST	5a	0.167	-4	NA	5a	NA	NA
MW-183WT	Perfluoroheptanoic acid (PFHpA)	12/18 - 09/23	D-26	3 / 4	1.1 - 2.5	1.6	1.3	0.76	NST	5a	0.375	2	NA	5a	NA	NA
MW-183WT	Perfluorohexanesulfonic acid (PFHxS)	12/18 - 09/23	D-27	4 / 4	1.5 - 3.7	2.2	1.85	1	NST	5a	0.167	4	NA	5a	NA	NA
MW-183WT	Perfluorohexanoic acid (PFHxA)	12/18 - 09/23	D-28	3 / 4	1 - 2.5	1.7	1.5	0.76	NST	5a	0.375	2	NA	5a	NA	NA
MW-183WT	Perfluorononanoic acid (PFNA)	12/18 - 09/23	D-29	2 / 4	0.55 - 1.1	0.83	0.825	0.39	NST	5a	0.500	1	NA	5a 5c	NA	NA
MW-183WT	Perfluorooctane sulfonic acid (PFOS)	12/18 - 09/23	D-30	3 / 4	1.5 - 3.5	2.4	2.1	1	NST	5a	0.375	2	NA	5a	NA	NA
MW-183WT	Perfluorooctanoic acid (PFOA)	12/18 - 09/23	D-31	4 / 4	2.1 - 4.6	3.3	3.2	1.1	NST	5a	0.375	2	NA	5a	NA	NA
MW-183WT	Perfluoropentanesulfonic acid (PFPeS)	12/18 - 09/23	D-32	1 / 4	0.95 - 0.95	0.95	0.95	0	NST	5a	0.271	3	NA	5a 5c	NA	NA
MW-183WT	Perfluoropentanoic acid (PFPeA)	12/18 - 09/23	D-33	3 / 4	0.83 - 2.4	1.4	1	0.86	NST	5a	0.375	2	NA	5a	NA	NA
QPTW-13R	Perfluorobutanesulfonic acid (PFBS)	12/18 - 09/23	D-34	1 / 4	3.5 - 3.5	3.5	3.54	0	NST	5a	0.271	-3	NA	5a 5c	NA	NA
QPTW-13R	Perfluorobutanoic acid (PFBA)	12/18 - 09/23	D-35	3 / 4	16.2 - 17	16.6	16.6	0.4	DWN	5a	0.042	-6	NA	5a	NA	NA
QPTW-13R	Perfluoroheptanoic acid (PFHpA)	12/18 - 09/23	D-36	1 / 4	5.1 - 5.1	5.1	5.1	0	NST	5a	0.500	1	NA	5a 5c	NA	NA
QPTW-13R	Perfluorohexanesulfonic acid (PFHxS)	12/18 - 09/23	D-37	3 / 4	1.9 - 3.7	2.9	3	0.9	NST	5a	0.625	0	NA	5a	NA	NA
QPTW-13R	Perfluorohexanoic acid (PFHxA)	12/18 - 09/23	D-38	2 / 4	2.7 - 2.9	2.8	2.805	0.15	NST	5a	0.105	-5	NA	5a 5c	NA	NA

TABLE D-1
Summary Statistics and Trend Results - PFAS
RACER Saginaw
November, 2023

Well ID	Analyte	Date Range	Figure	FOD	Detected Results Summary [1]				Mann-Kendall Test [2]				Sen's Estimator of Slope [2]			
					Range	Mean	Median	SD	Result[4]	MK Result Note	P-Value	S Value	Result[4]	Sen's Result Note	Slope (Units/Day)	95% CI (Units/Day)
QPTW-13R	Perfluorooctane sulfonic acid	12/18 - 09/23	D-39	4 / 4	8.5 - 11	10.4	11	1.3	NST	5a	0.271	3	NA	5a	NA	NA
QPTW-13R	Perfluorooctanoic acid (PFOA)	12/18 - 09/23	D-40	4 / 4	3.9 - 8.4	5.5	4.9	2	NST	5a	0.375	-2	NA	5a	NA	NA
QPTW-13R	Perfluoropentanoic acid (PFPeA)	12/18 - 09/23	D-41	2 / 4	16.4 - 38.4	27.4	27.4	15.6	NST	5a	0.271	-3	NA	5a 5c	NA	NA
X-10AR2	Perfluorobutanesulfonic acid (PFBS)	12/18 - 09/23	D-42	3 / 4	1.1 - 1.3	1.2	1.2	0.1	NST	5a	0.167	4	NA	5a	NA	NA
X-10AR2	Perfluorobutanoic acid (PFBA)	12/18 - 09/23	D-43	3 / 4	2.9 - 6.5	4.6	4.4	1.8	UP	5a	0.042	6	NA	5a	NA	NA
X-10AR2	Perfluoroheptanoic acid (PFHpA)	12/18 - 09/23	D-44	1 / 4	0.56 - 0.56	0.56	0.56	0	NST	5a	0.271	3	NA	5a 5c	NA	NA
X-10AR2	Perfluorohexanoic acid (PFHxA)	12/18 - 09/23	D-45	2 / 4	1 - 1.1	1.1	1.05	0.071	NST	5a	0.271	3	NA	5a 5c	NA	NA
X-10AR2	Perfluorooctanoic acid (PFOA)	12/18 - 09/23	D-46	4 / 4	2.1 - 7.3	5.3	5.95	2.2	UP	5a	0.042	6	NA	5a	NA	NA
X-10AR2	Perfluoropentanoic acid (PFPeA)	12/18 - 09/23	D-47	2 / 4	0.72 - 1.4	1.1	1.06	0.48	NST	5a	0.271	3	NA	5a 5c	NA	NA
X-2A	Perfluorobutanesulfonic acid (PFBS)	12/18 - 09/23	D-48	1 / 4	3.4 - 3.4	3.4	3.4	0	NST	5a	0.500	-1	NA	5a 5c	NA	NA
X-2A	Perfluorobutanoic acid (PFBA)	12/18 - 09/23	D-49	4 / 4	6.7 - 34.1	18.9	17.35	11.6	DWN	5a	0.042	-6	NA	5a	NA	NA
X-2A	Perfluoroheptanoic acid (PFHpA)	12/18 - 09/23	D-50	4 / 4	2 - 4.9	3.5	3.45	1.2	NST	5a	0.167	-4	NA	5a	NA	NA
X-2A	Perfluorohexanesulfonic acid (PFHxS)	12/18 - 09/23	D-51	4 / 4	3.3 - 7.7	5.3	5.15	1.9	NST	5a	0.167	-4	NA	5a	NA	NA
X-2A	Perfluorohexanoic acid (PFHxA)	12/18 - 09/23	D-52	4 / 4	2.9 - 6.5	4.8	4.95	1.5	NST	5a	0.375	-2	NA	5a	NA	NA
X-2A	Perfluorononanoic acid (PFNA)	12/18 - 09/23	D-53	1 / 4	1.9 - 1.9	1.9	1.9	0	NST	5a	0.500	-1	NA	5a 5c	NA	NA
X-2A	Perfluorooctane sulfonic acid (PFOS)	12/18 - 09/23	D-54	4 / 4	14.5 - 16.5	15.7	15.9	0.85	NST	5a	0.625	0	NA	5a	NA	NA
X-2A	Perfluorooctanoic acid (PFOA)	12/18 - 09/23	D-55	4 / 4	22 - 50.6	33	29.75	12.3	DWN	5a	0.042	-6	NA	5a	NA	NA
X-2A	Perfluoropentanoic acid (PFPeA)	12/18 - 09/23	D-56	1 / 4	18.1 - 18.1	18.1	18.1	0	NST	5a	0.271	-3	NA	5a 5c	NA	NA
X-9AR	Perfluorobutanesulfonic acid (PFBS)	12/18 - 09/23	D-57	3 / 4	0.69 - 1.6	1.3	1.5	0.5	NST	5a	0.625	0	NA	5a	NA	NA
X-9AR	Perfluorobutanoic acid (PFBA)	12/18 - 09/23	D-58	4 / 4	4 - 18.6	10.7	10.19	6.9	NST	5a	0.625	0	NA	5a	NA	NA
X-9AR	Perfluoroheptanoic acid (PFHpA)	12/18 - 09/23	D-59	3 / 4	0.45 - 2.5	1.6	1.8	1	NST	5a	0.625	0	NA	5a	NA	NA
X-9AR	Perfluorohexanoic acid (PFHxA)	12/18 - 09/23	D-60	3 / 4	0.79 - 2.7	1.6	1.4	0.98	NST	5a	0.625	0	NA	5a	NA	NA
X-9AR	Perfluorooctanoic acid (PFOA)	12/18 - 09/23	D-61	3 / 4	0.89 - 2.5	1.6	1.5	0.81	NST	5a	0.625	0	NA	5a	NA	NA
X-9AR	Perfluoropentanoic acid (PFPeA)	12/18 - 09/23	D-62	3 / 4	0.56 - 4.4	2.1	1.3	2	NST	5a	0.625	0	NA	5a	NA	NA

Abbreviations:

-- insufficient data for calculating statistics (n < 4) or not available
FOD = frequency of detection (# detects / # samples)
mean = arithmetic mean
SD = standard deviation
NST = no significant trend
NT = no trend
DWN = downward trend
UP = upward trend
H_0 = null hypothesis: no significant trend (slope = 0)
H_a = alternative hypothesis: significant trend (slope ≠ 0)
95% CI = 95% confidence interval

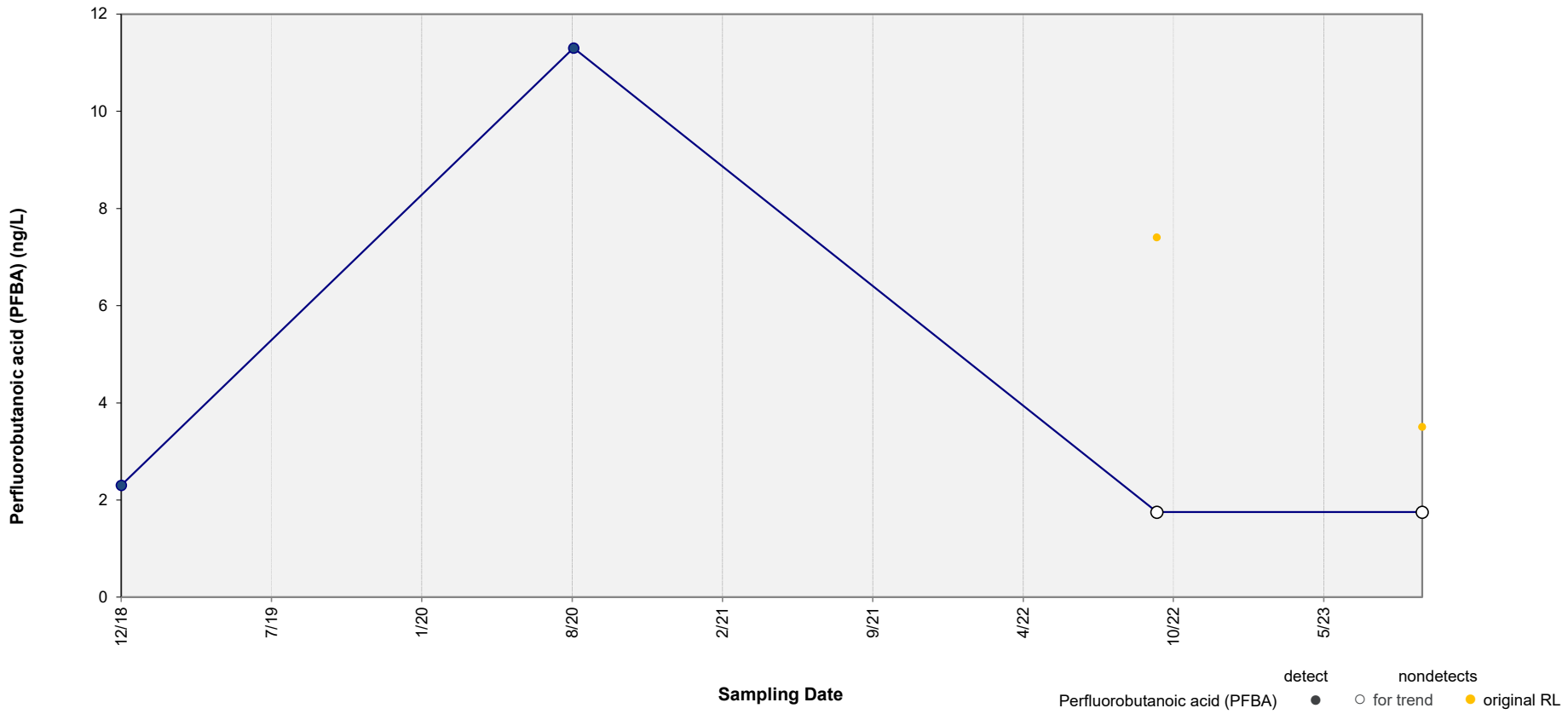
Notes:

1. All analytical results are in µg/L. Result values less than 10 are reported to 2 significant figures; values greater than 10 are reported to 3 significant figures. P-values are reported to 3 decimal places.
2. Trend results are presented when at least four samples and one detected value are available. Significance of trends evaluated at 95% confidence (alpha = 0.05).
3. Non-detects were assigned a common value less than the minimum detected value, equal to half the minimum reporting limit (RL) in the dataset (USEPA, 2009). If half the minimum RL was greater than the minimum detected value, then half the minimum detect was assigned.
4. Statistically significant trend defined as having p-value ≤ 0.05, or 95% confidence.

5a. MK and Sen's Trend results for datasets with fewer than 8 samples may not be reliable and should be treated with caution.
5b. MK Trend results for datasets with an FOD <=20% may not be reliable and should be treated with caution.
5c. Sen's Trend results for datasets with an FOD <=50% may not be reliable and should be treated with caution.
5d. MK and Sen's Trend results for datasets with more than 100 samples are not shown.

Reference:

USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities. Unified Guidance. EPA/530/R-09/007, 2009.



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.271 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

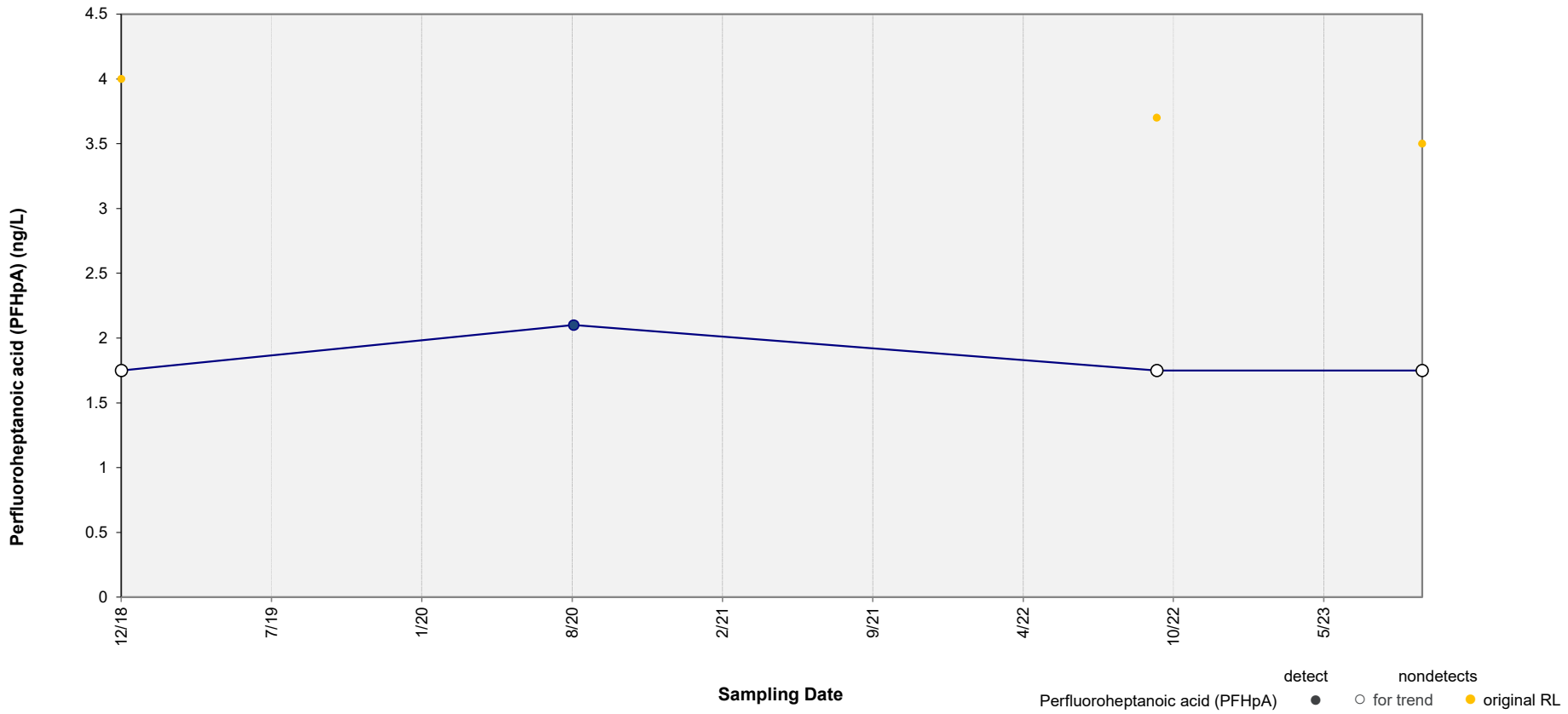
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorobutanoic acid (PFBA) in Well B-3R

RACER Saginaw

Figure D-1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

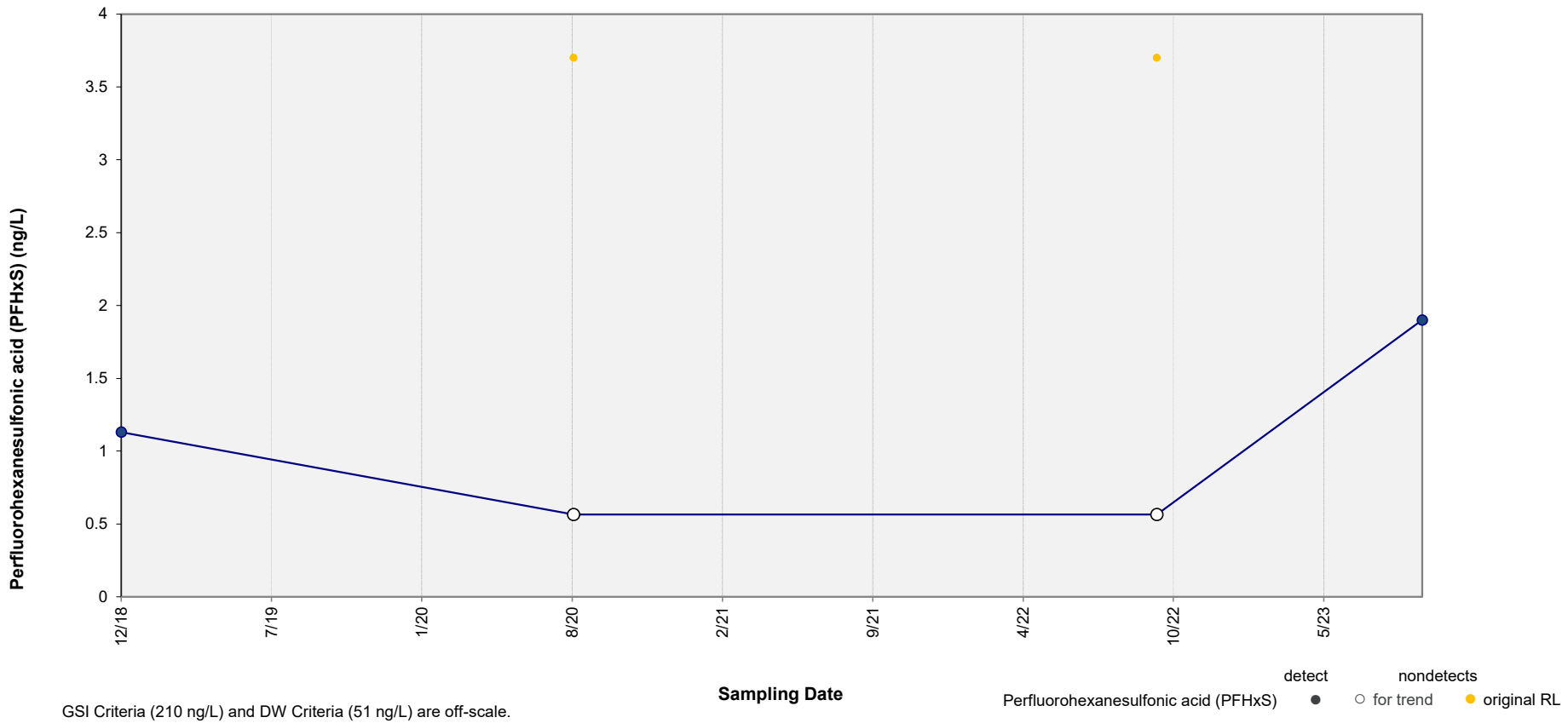
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluoroheptanoic acid (PFHpA) in Well B-3R

RACER Saginaw

Figure D-2



GSI Criteria (210 ng/L) and DW Criteria (51 ng/L) are off-scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

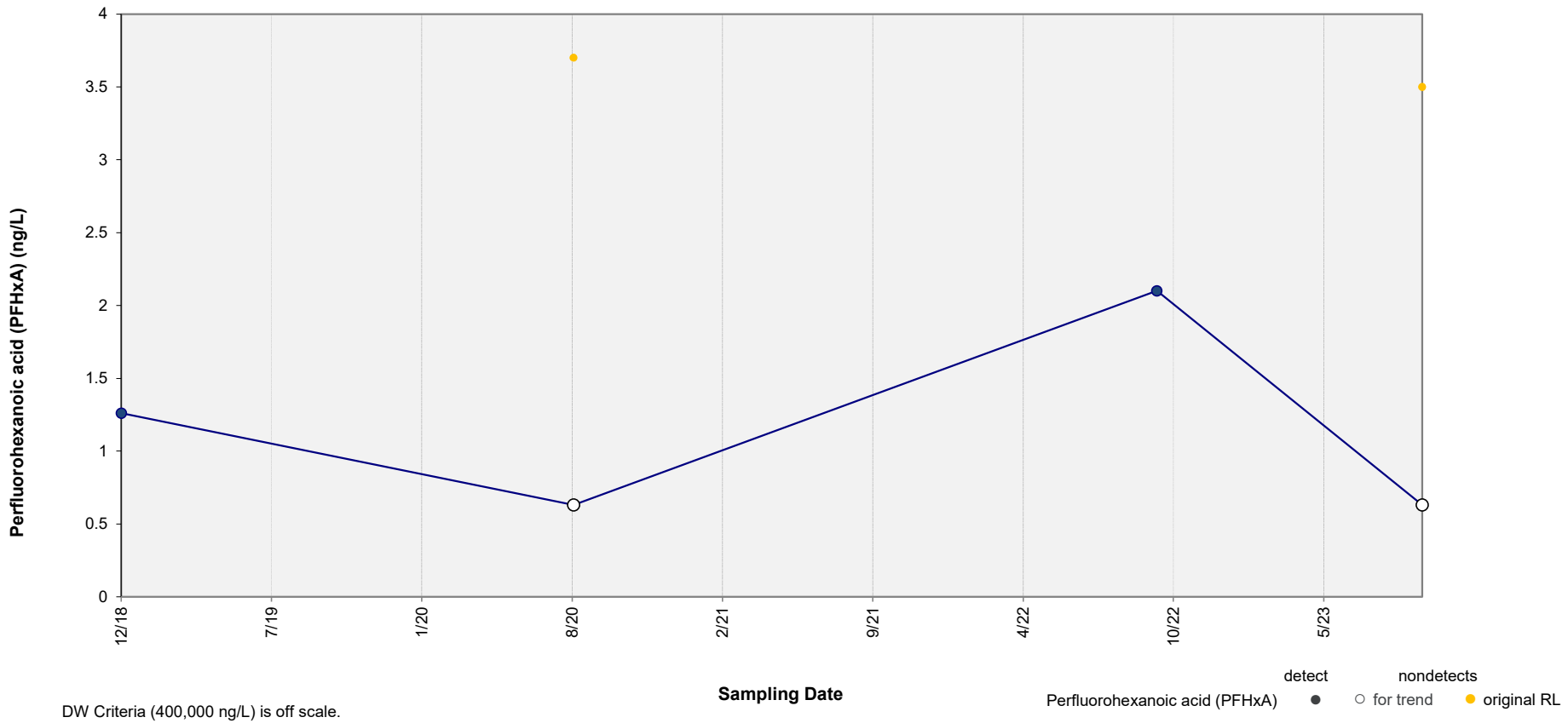
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorohexanesulfonic acid (PFHxS) in Well B-3R

RACER Saginaw

Figure D-3



DW Criteria (400,000 ng/L) is off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

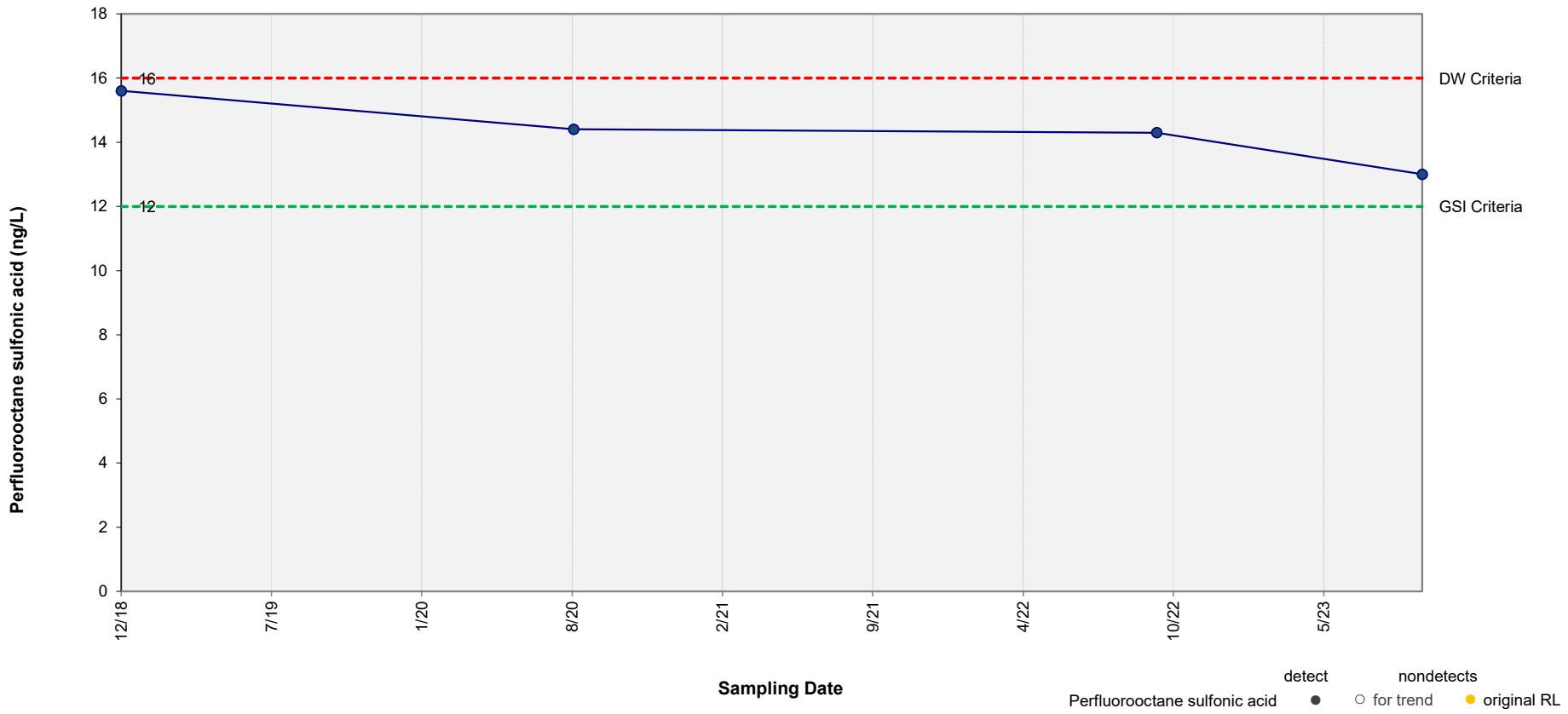
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorohexanoic acid (PFHxA) in Well B-3R

RACER Saginaw

Figure D-4



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.042 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

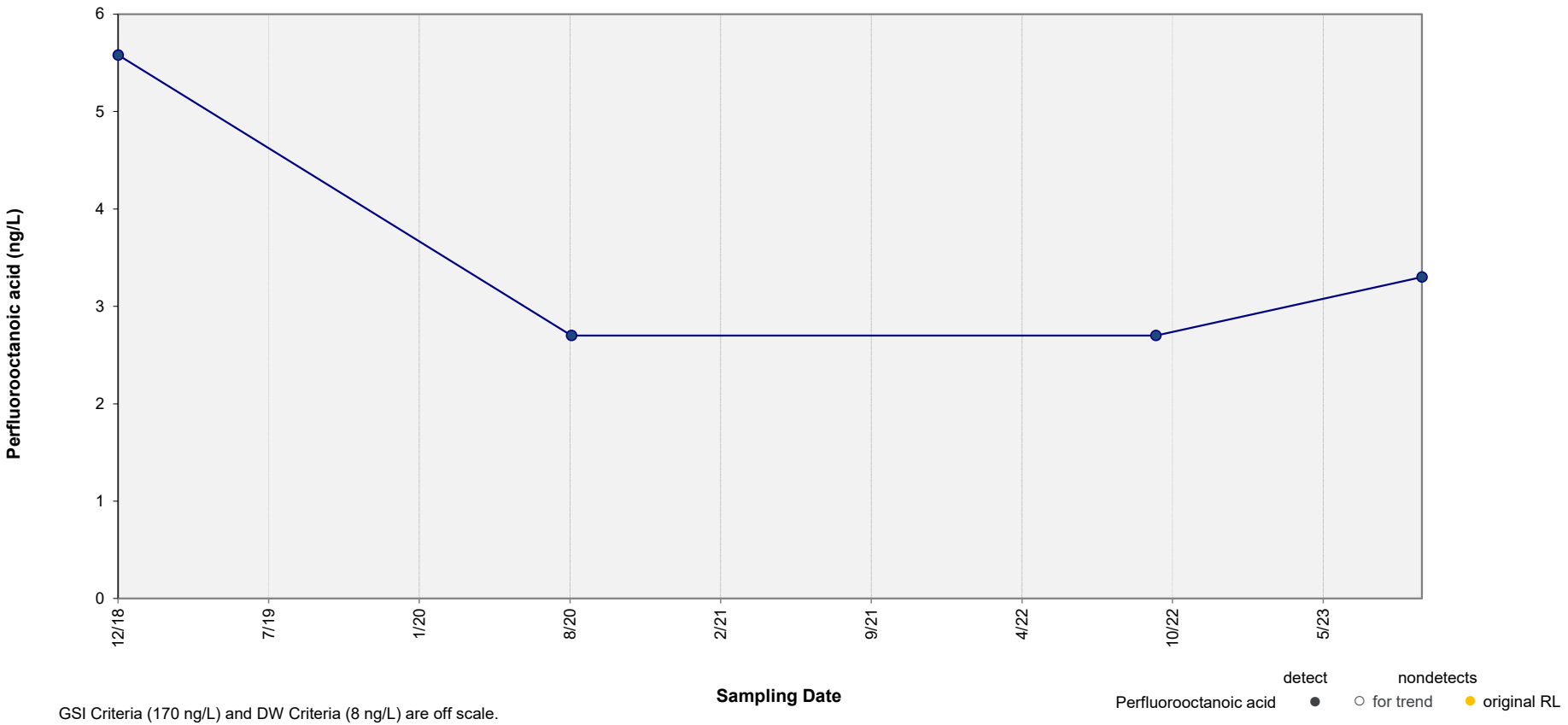
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well B-3R

RACER Saginaw

Figure D-5



GSI Criteria (170 ng/L) and DW Criteria (8 ng/L) are off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

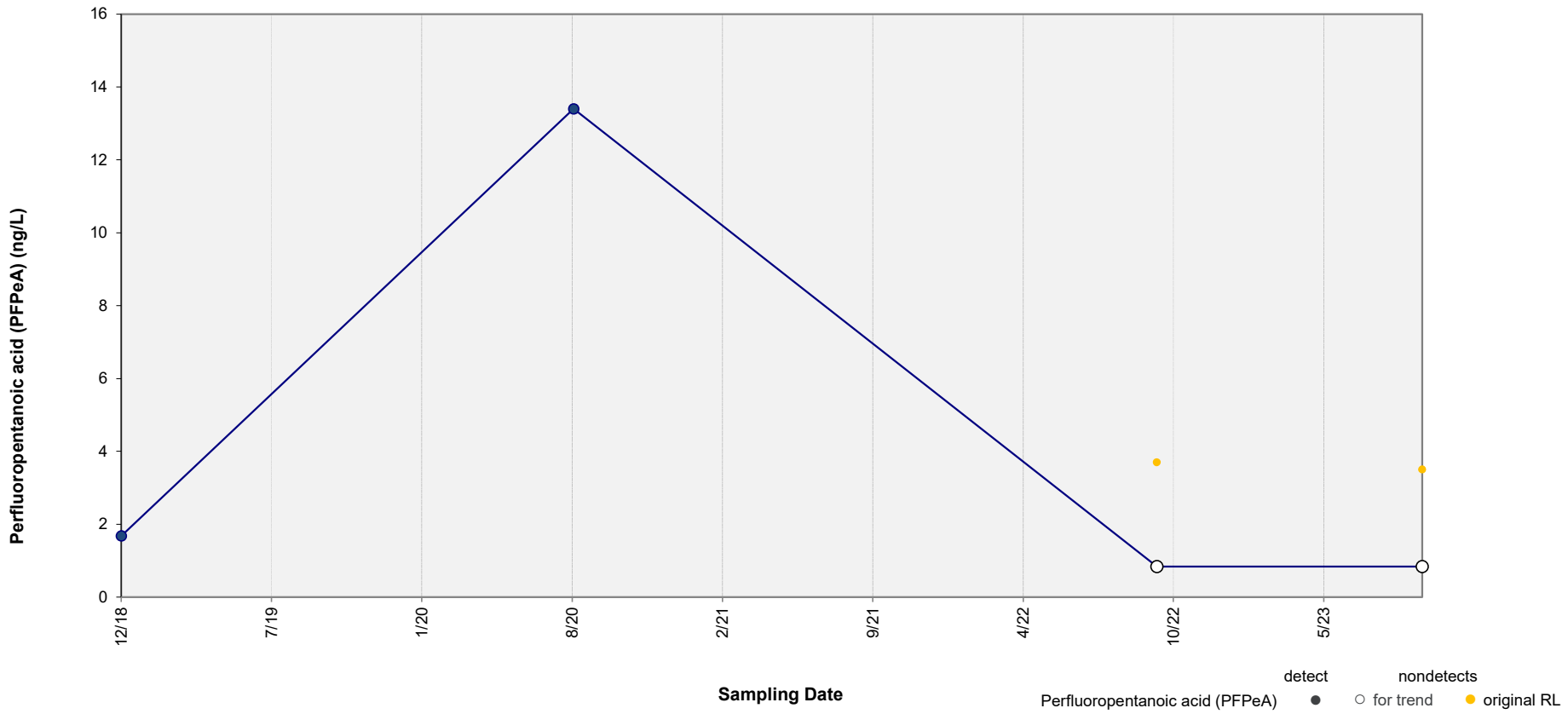
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well B-3R

RACER Saginaw

Figure D-6



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.271 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

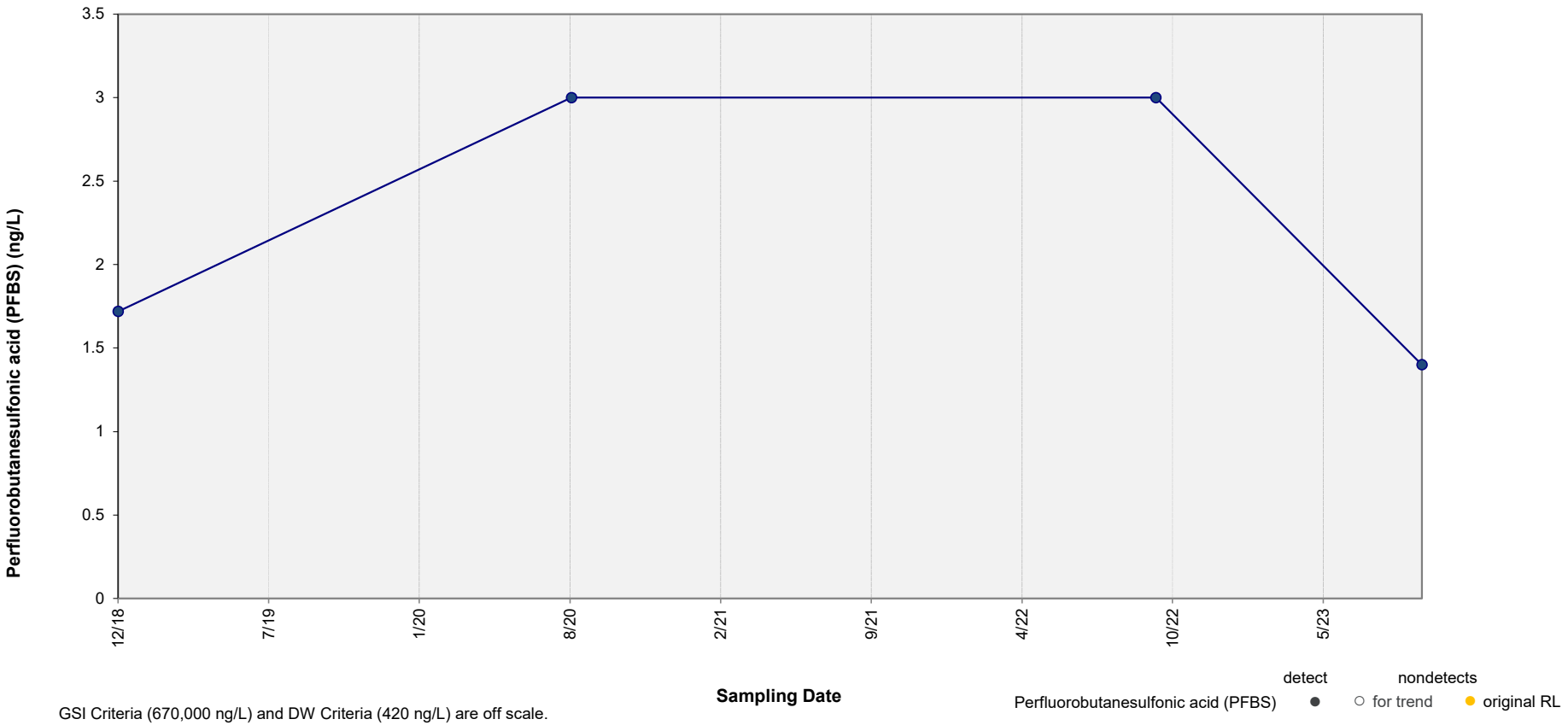
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluoropentanoic acid (PFPeA) in Well B-3R

RACER Saginaw

Figure D-7



GSI Criteria (670,000 ng/L) and DW Criteria (420 ng/L) are off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

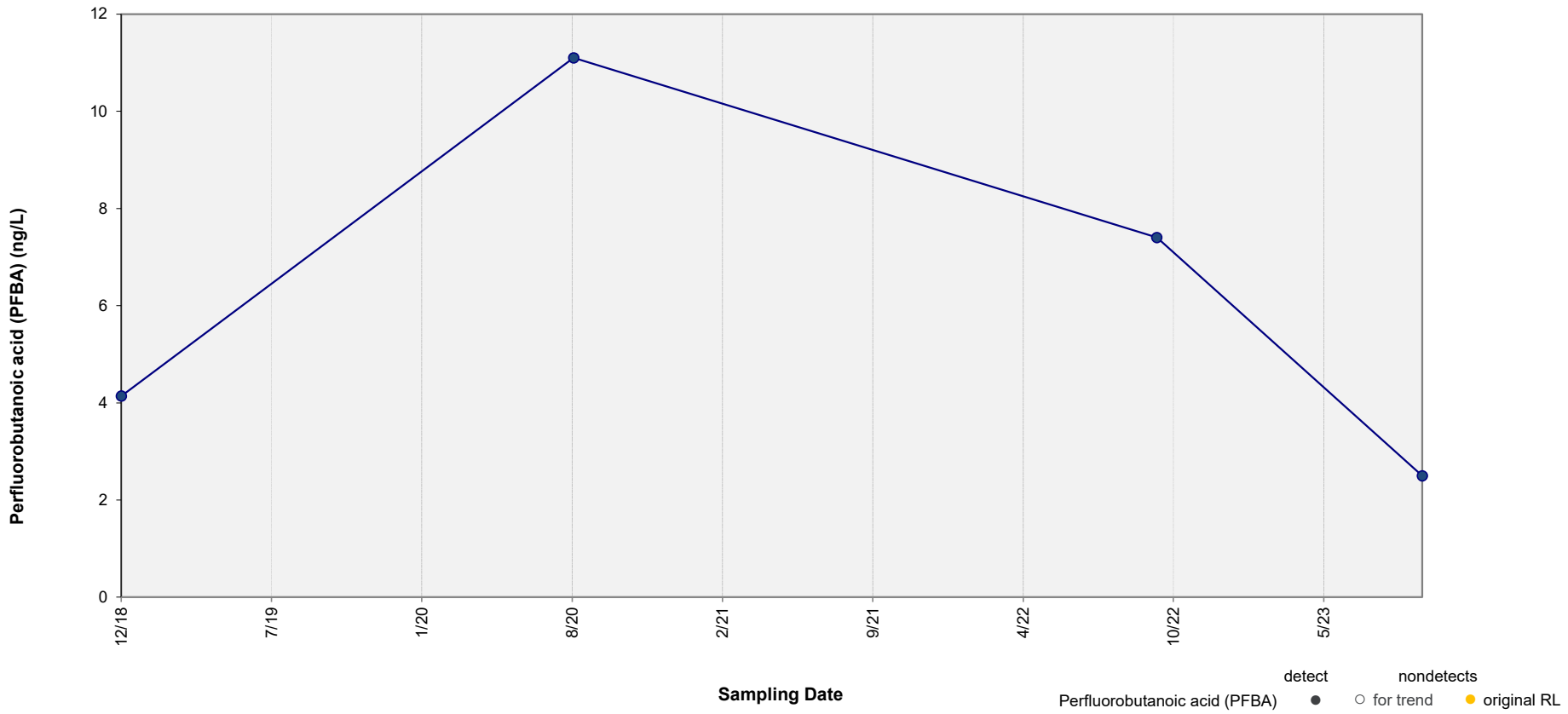
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorobutanesulfonic acid (PFBS) in Well MW-131WT

RACER Saginaw

Figure D-8



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.375 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

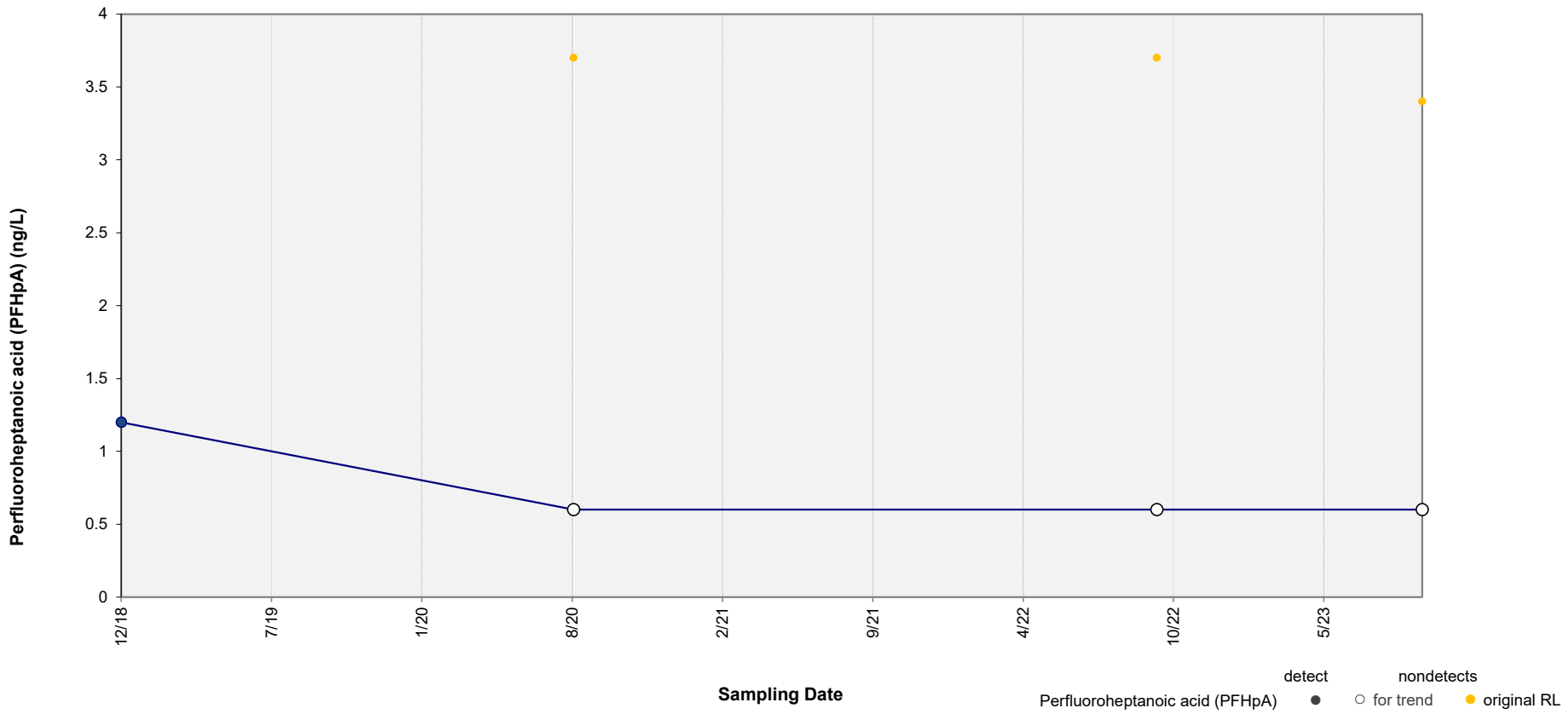
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorobutanoic acid (PFBA) in Well MW-131WT

RACER Saginaw

Figure D-9



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.271 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

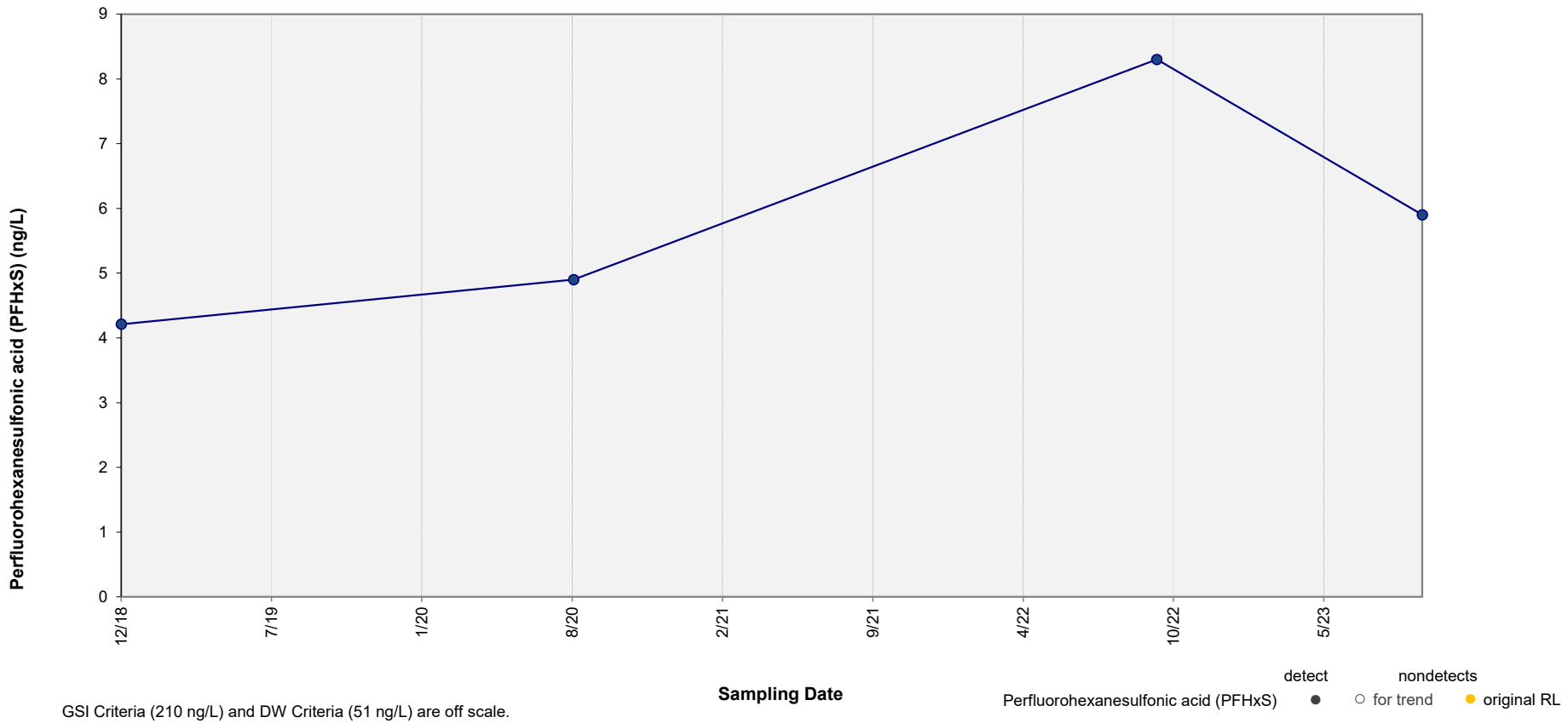
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluoroheptanoic acid (PFHpA) in Well MW-131WT

RACER Saginaw

Figure D-10



GSI Criteria (210 ng/L) and DW Criteria (51 ng/L) are off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.167 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

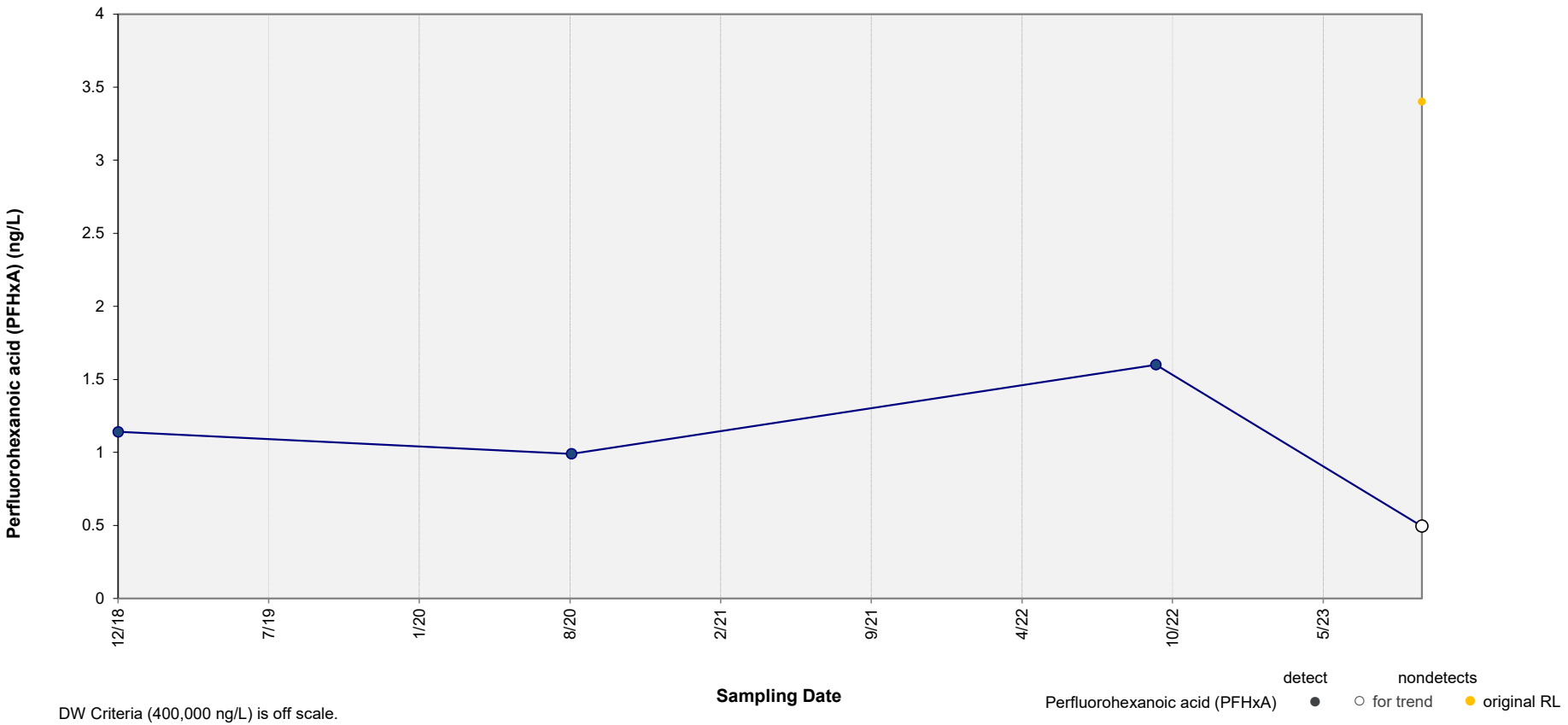
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorohexanesulfonic acid (PFHxS) in Well MW-131WT

RACER Saginaw

Figure D-11



DW Criteria (400,000 ng/L) is off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.375 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

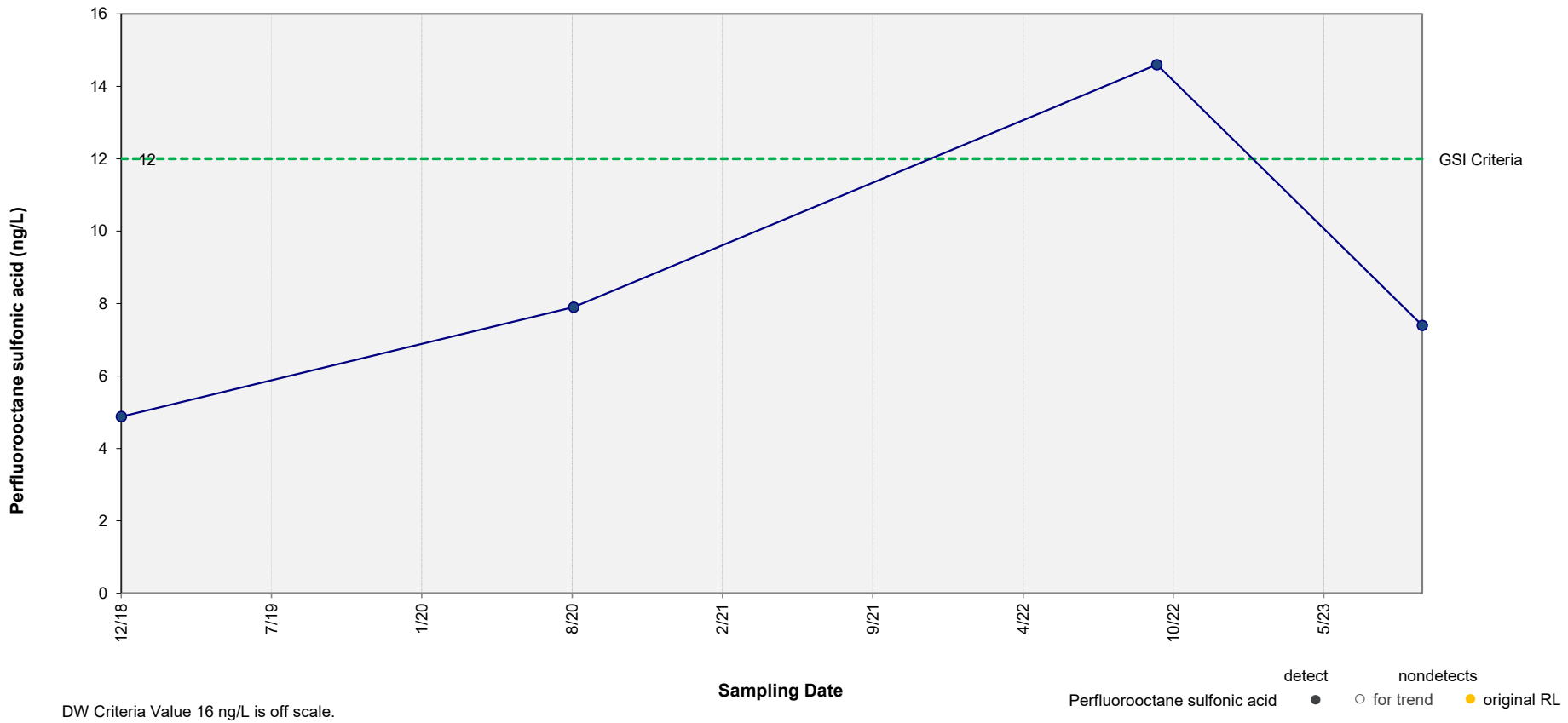
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorohexanoic acid (PFHxA) in Well MW-131WT

RACER Saginaw

Figure D-12



DW Criteria Value 16 ng/L is off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.375 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

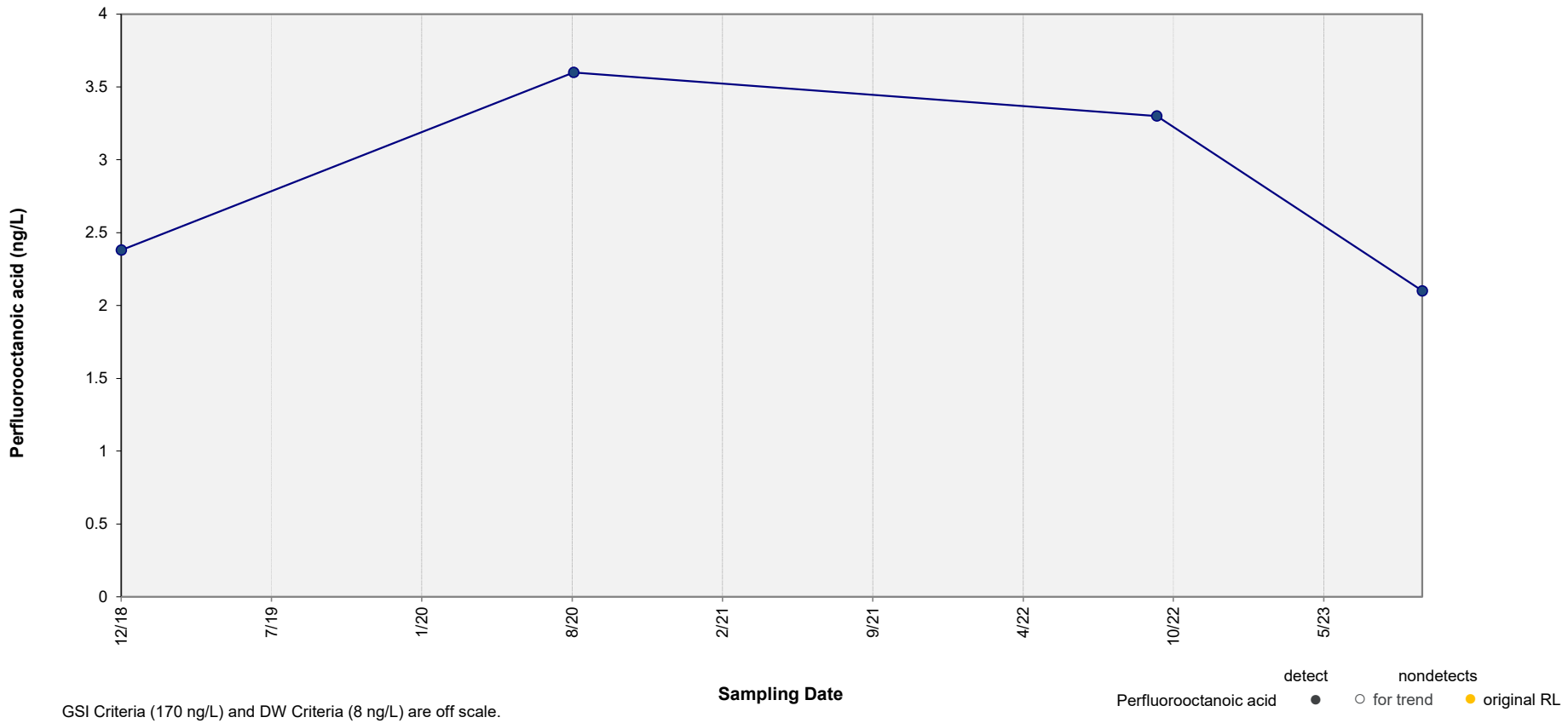
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well MW-131WT

RACER Saginaw

Figure D-13



GSI Criteria (170 ng/L) and DW Criteria (8 ng/L) are off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.375 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

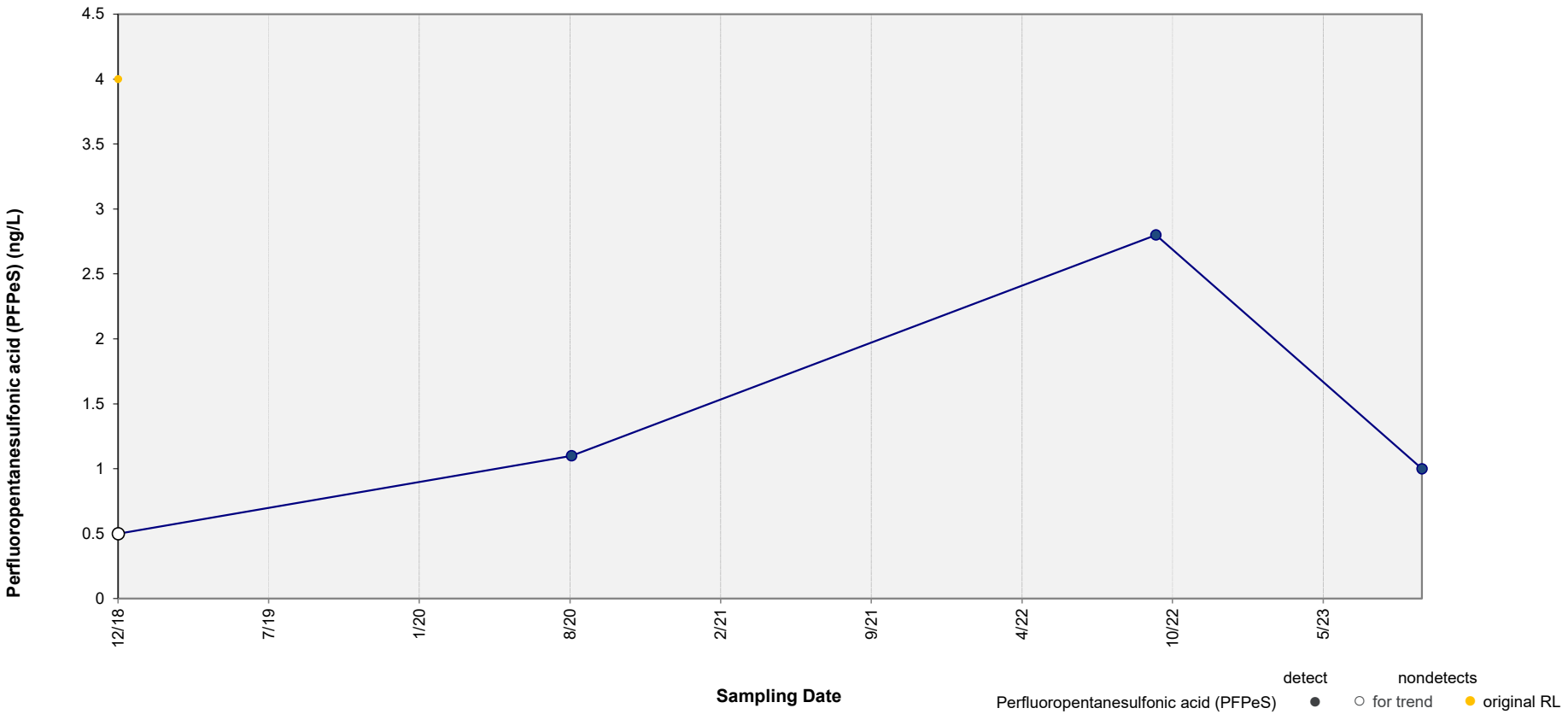
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-131WT

RACER Saginaw

Figure D-14



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.375 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

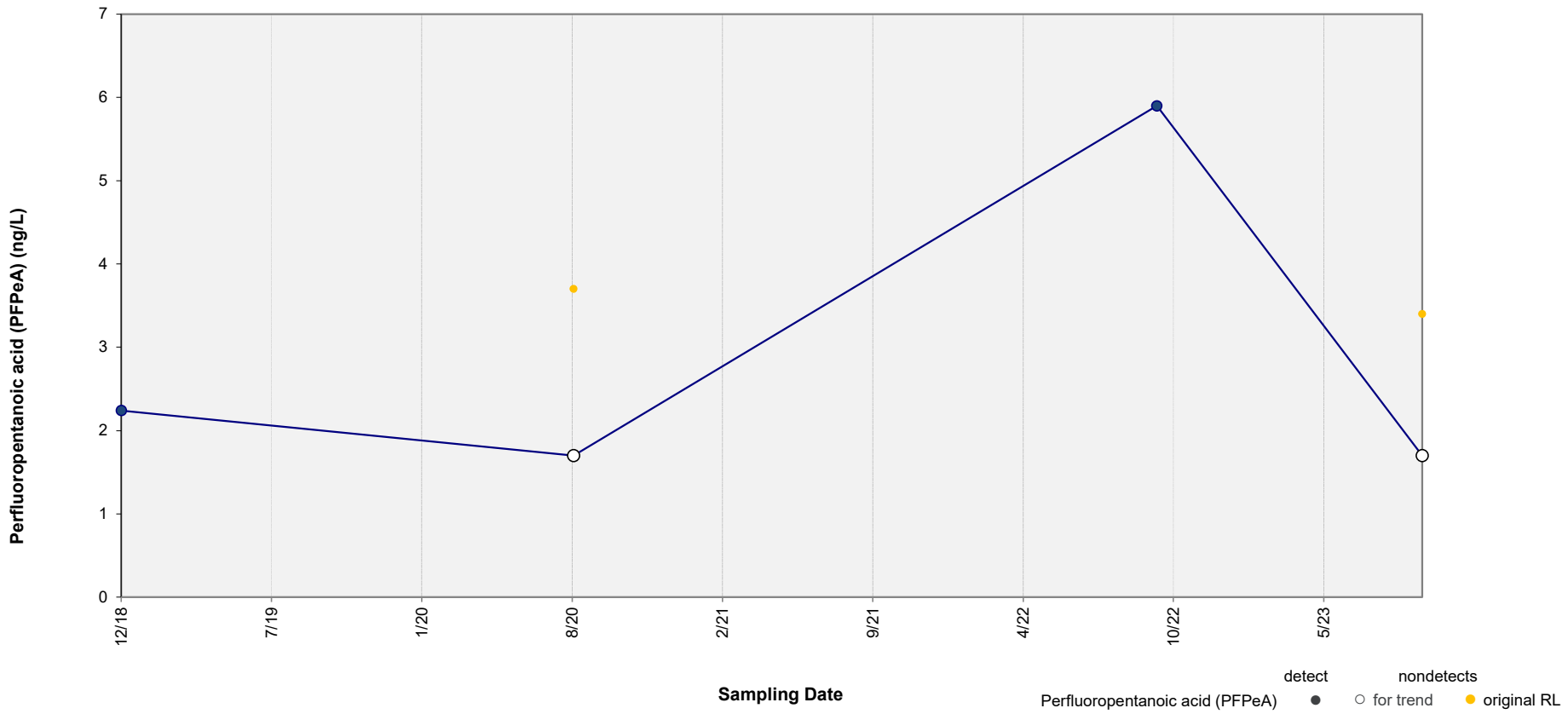
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluoropentanesulfonic acid (PFPeS) in Well MW-131WT

RACER Saginaw

Figure D-15



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

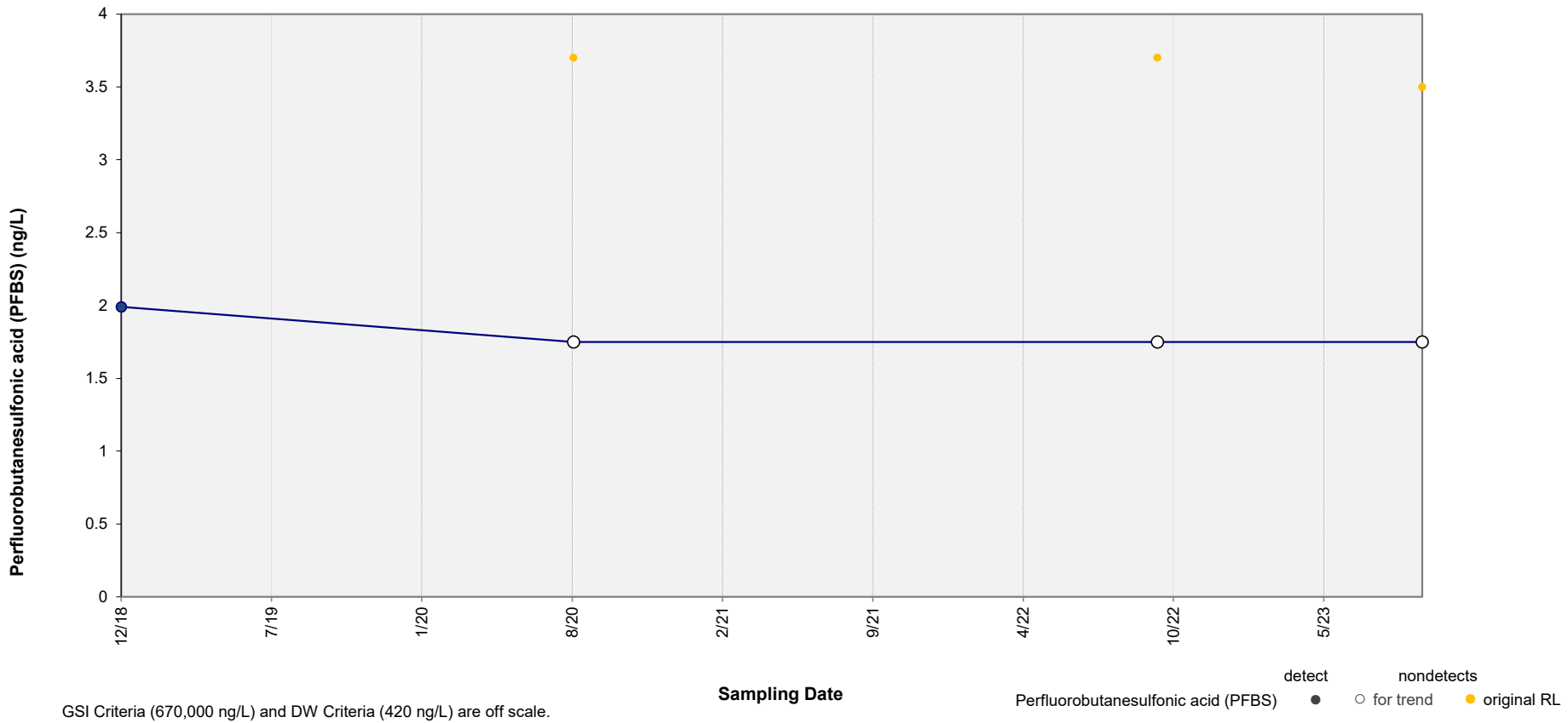
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluoropentanoic acid (PFPeA) in Well MW-131WT

RACER Saginaw

Figure D-16



GSI Criteria (670,000 ng/L) and DW Criteria (420 ng/L) are off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.271 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

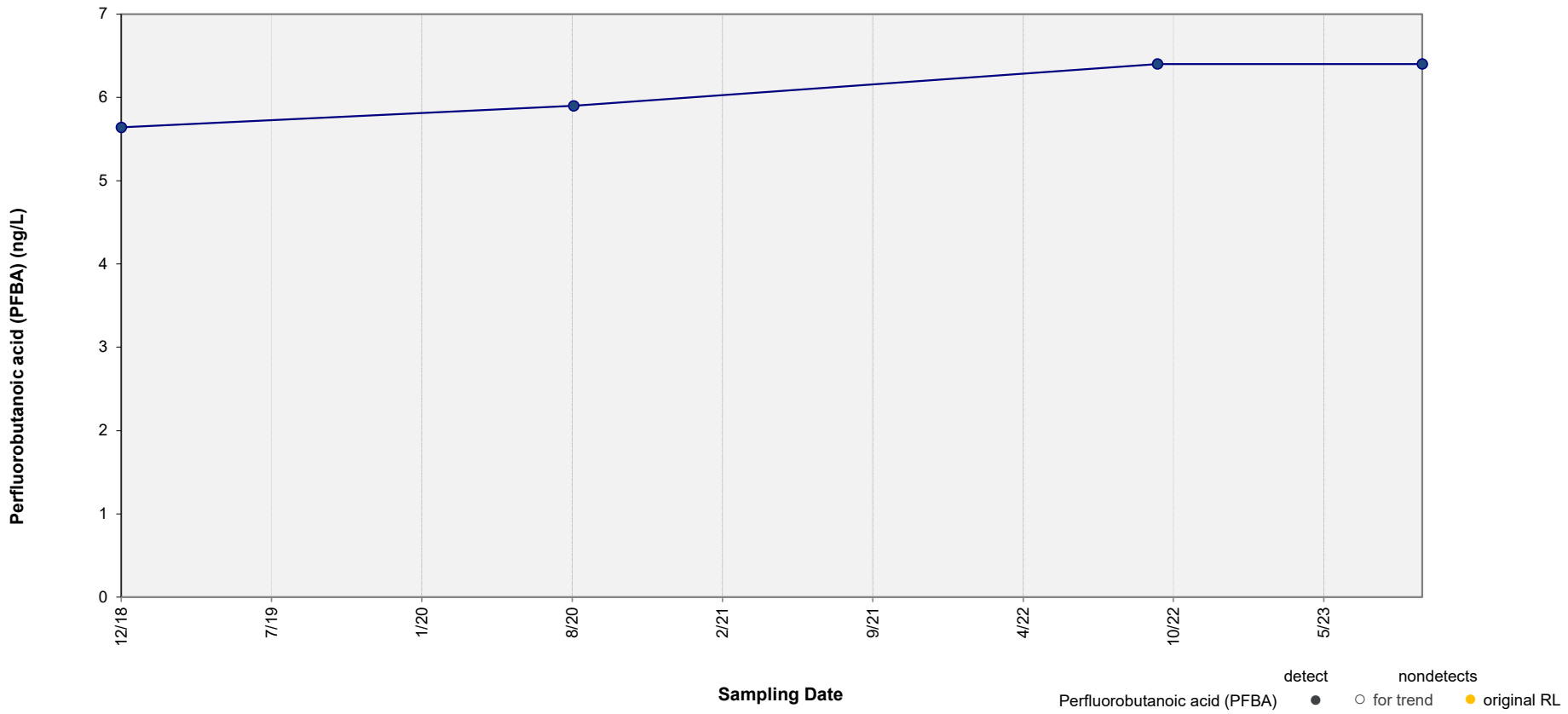
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorobutanesulfonic acid (PFBS) in Well MW-134WT

RACER Saginaw

Figure D-17



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.105 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

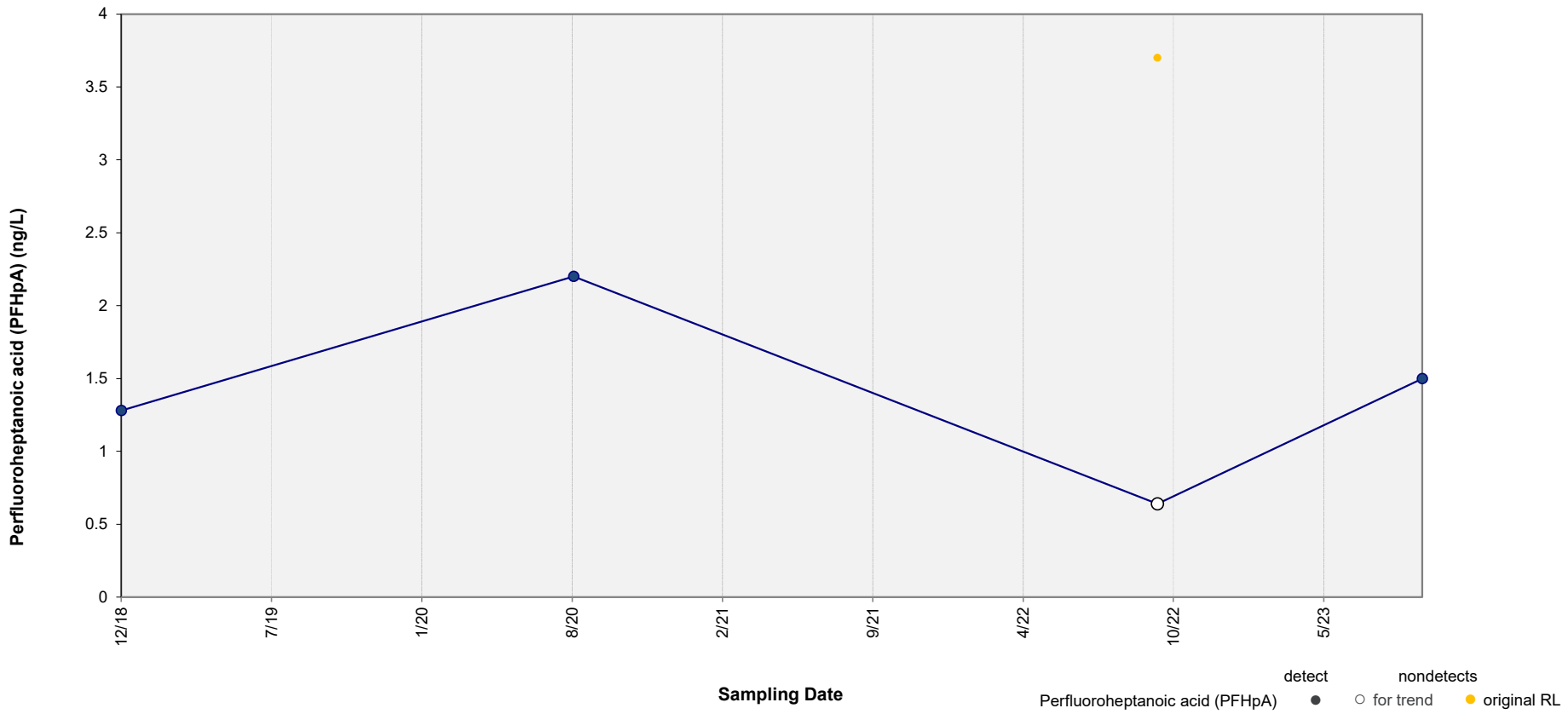
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorobutanoic acid (PFBA) in Well MW-134WT

RACER Saginaw

Figure D-18



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.625 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

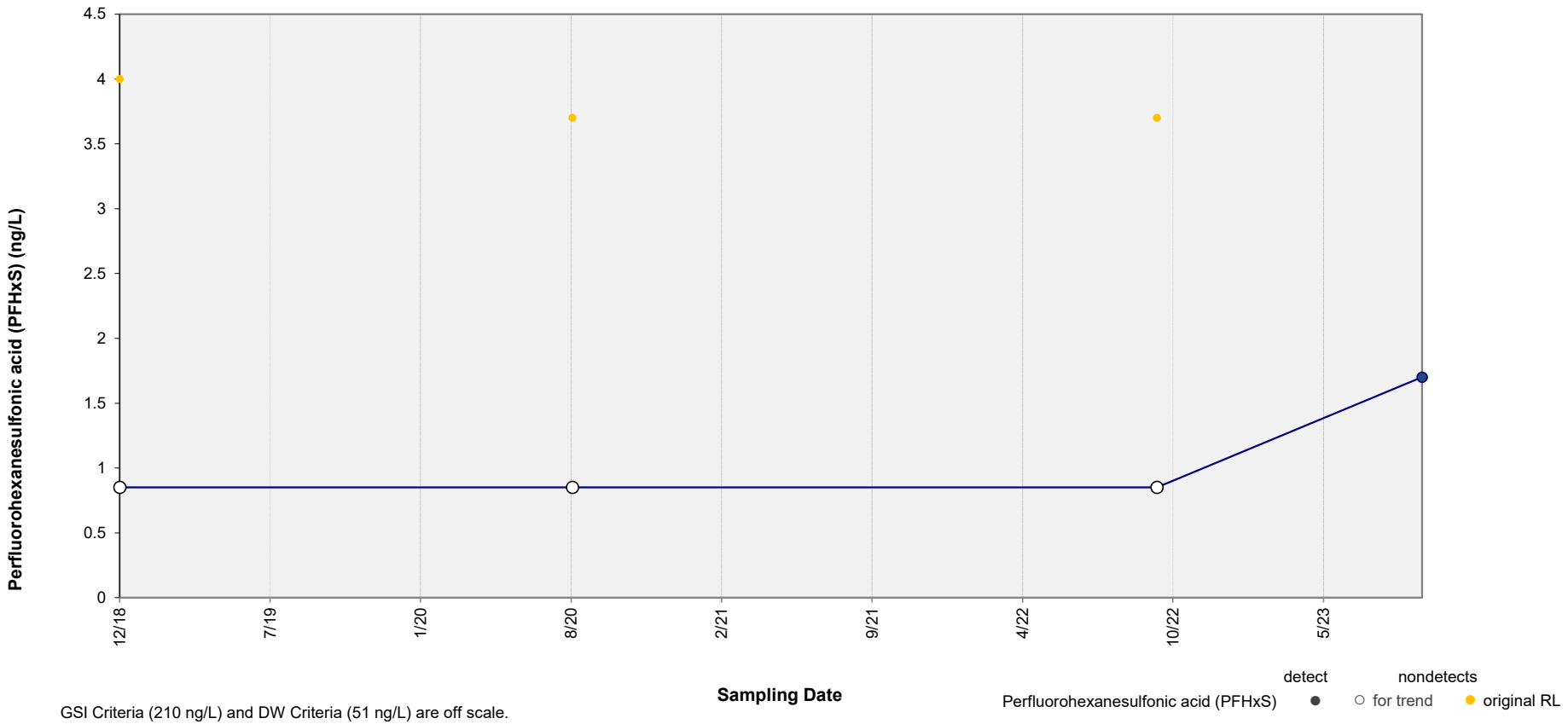
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluoroheptanoic acid (PFHpA) in Well MW-134WT

RACER Saginaw

Figure D-19



GSI Criteria (210 ng/L) and DW Criteria (51 ng/L) are off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.271 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

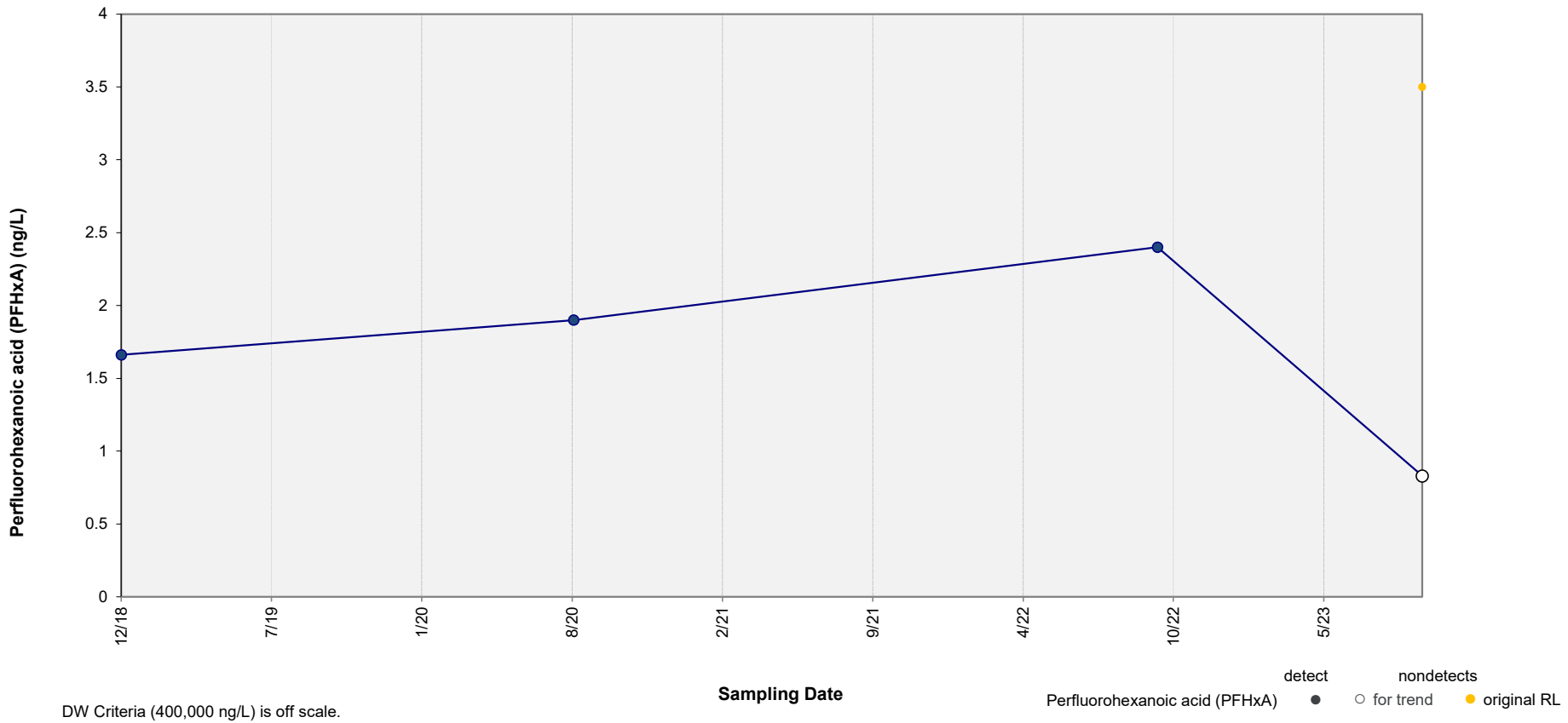
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorohexanesulfonic acid (PFHxS) in Well MW-134WT

RACER Saginaw

Figure D-20



DW Criteria (400,000 ng/L) is off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.625 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

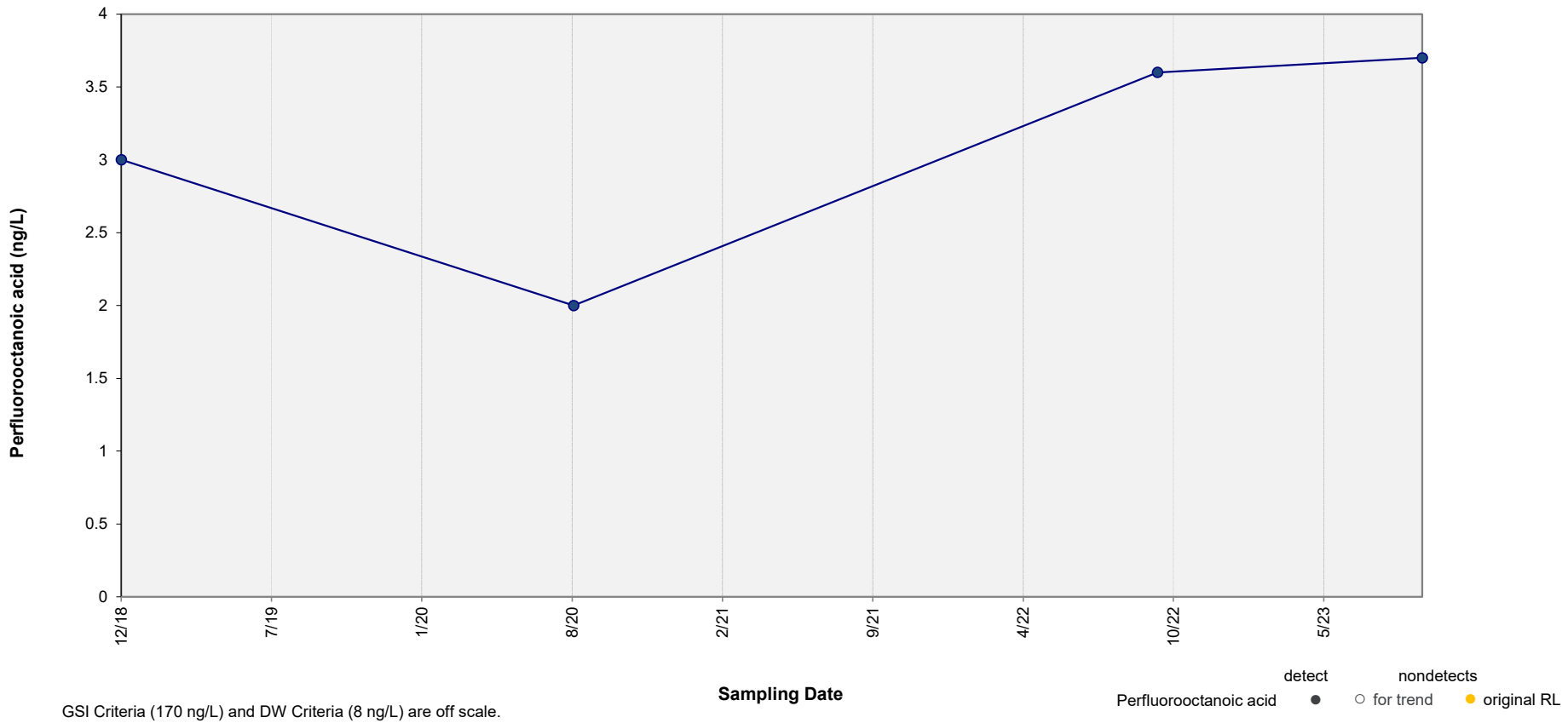
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorohexanoic acid (PFHxA) in Well MW-134WT

RACER Saginaw

Figure D-21



GSI Criteria (170 ng/L) and DW Criteria (8 ng/L) are off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.167 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

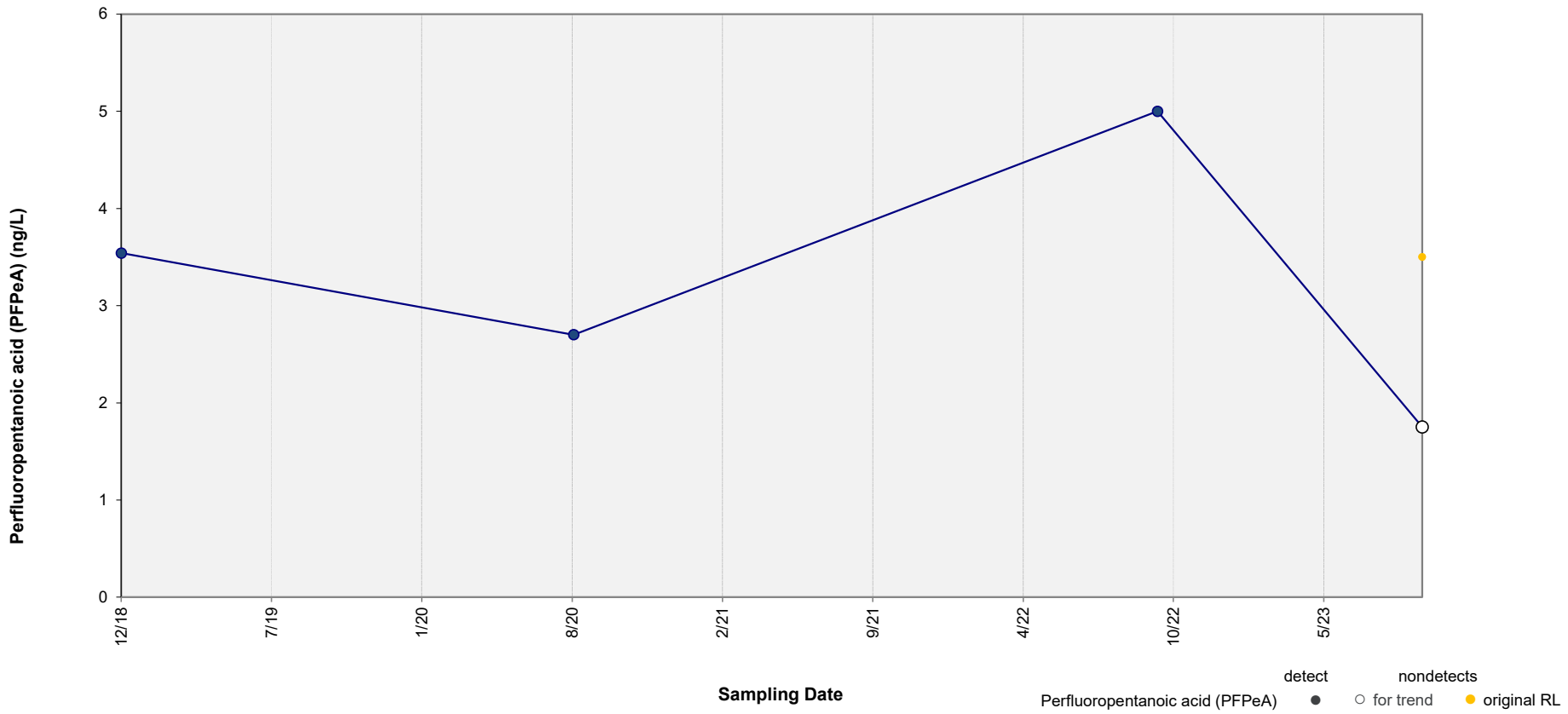
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-134WT

RACER Saginaw

Figure D-22



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.375 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

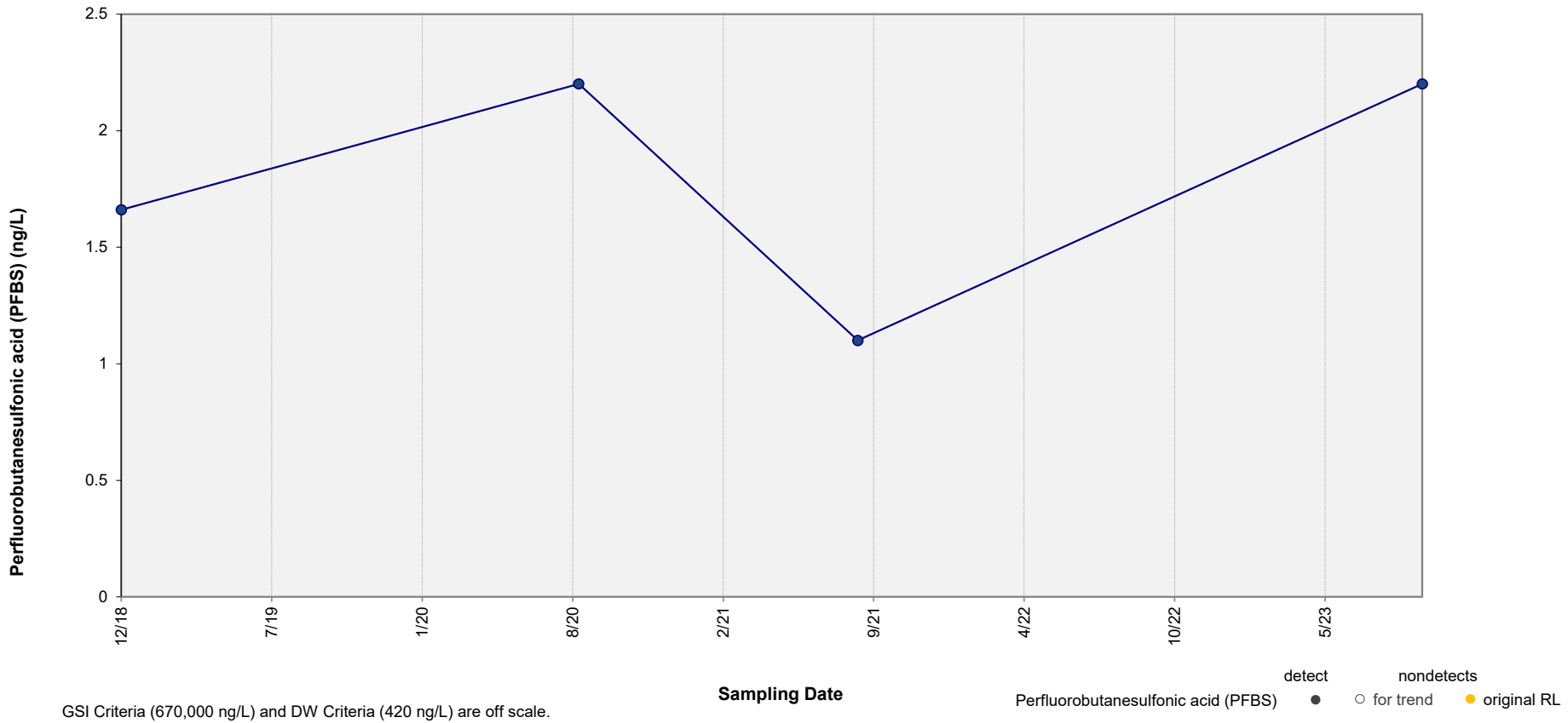
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluoropentanoic acid (PFPeA) in Well MW-134WT

RACER Saginaw

Figure D-23



GSI Criteria (670,000 ng/L) and DW Criteria (420 ng/L) are off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

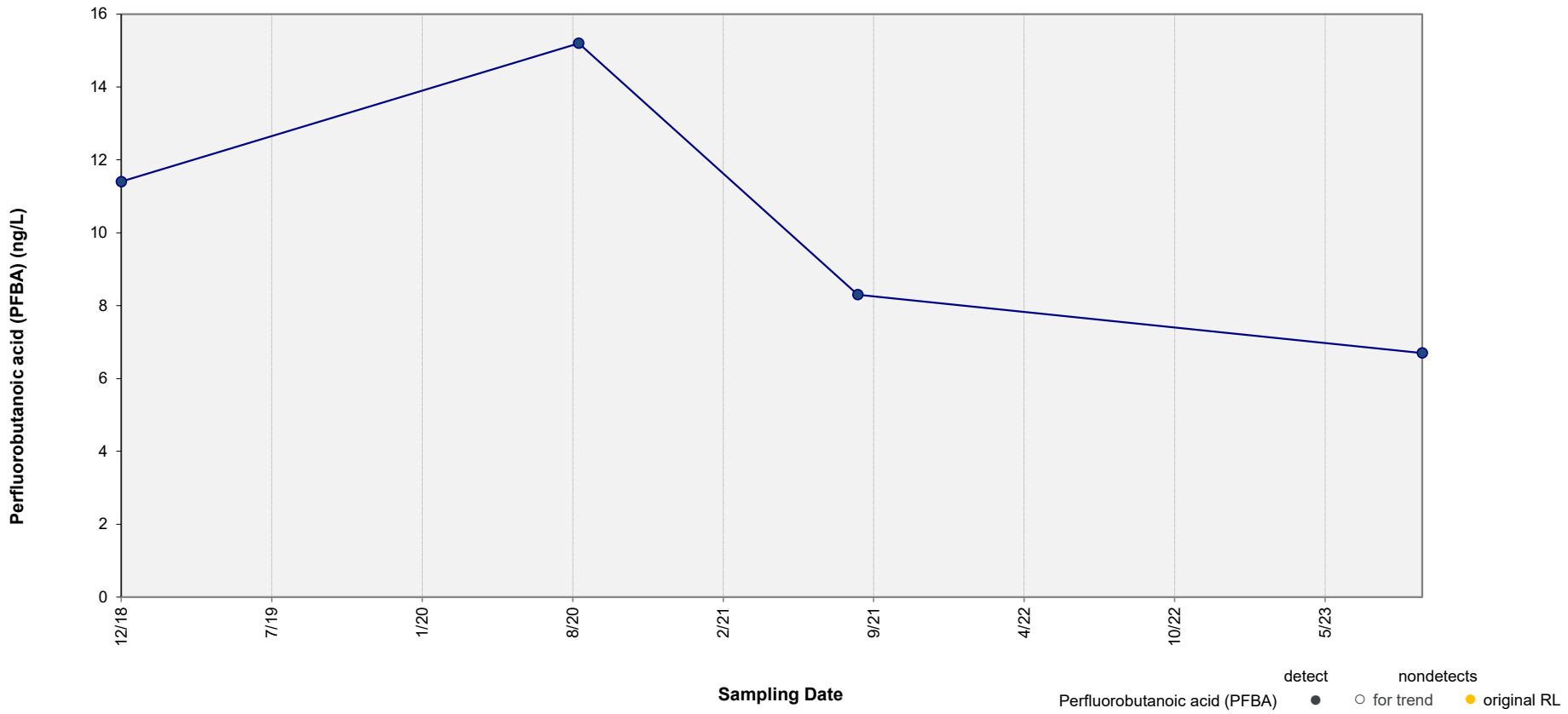
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorobutanesulfonic acid (PFBS) in Well MW-183WT

RACER Saginaw

Figure D-24



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.167 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

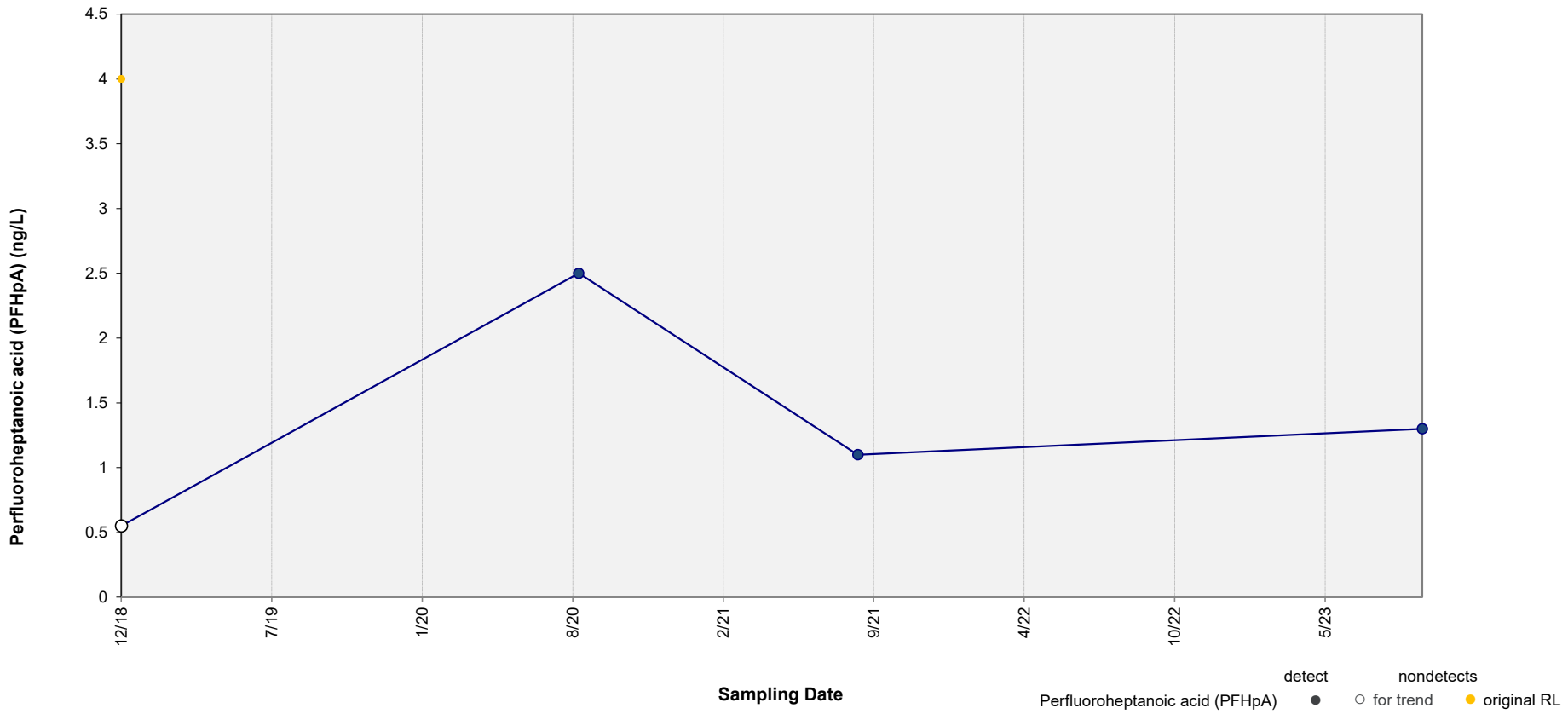
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorobutanoic acid (PFBA) in Well MW-183WT

RACER Saginaw

Figure D-25



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.375 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

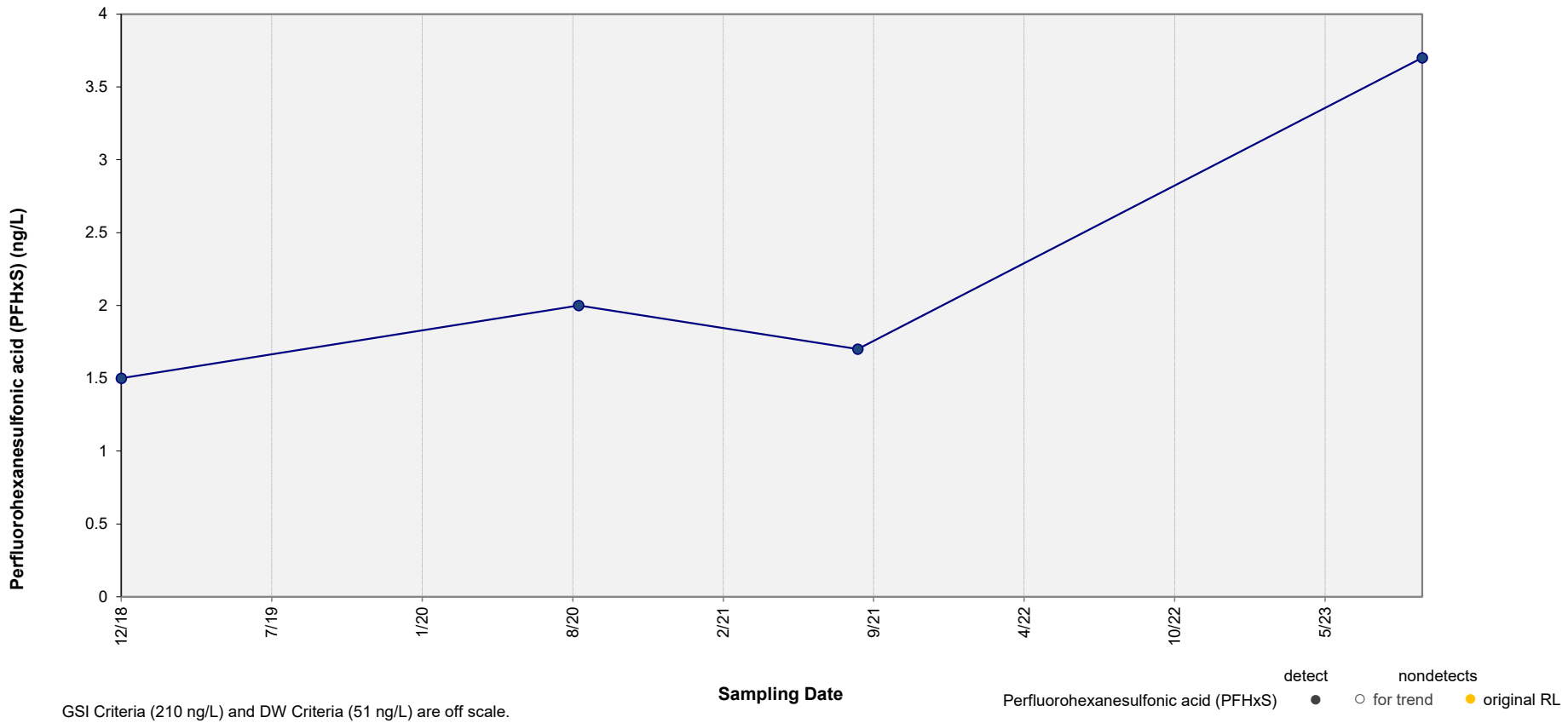
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluoroheptanoic acid (PFHpA) in Well MW-183WT

RACER Saginaw

Figure D-26



GSI Criteria (210 ng/L) and DW Criteria (51 ng/L) are off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.167 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

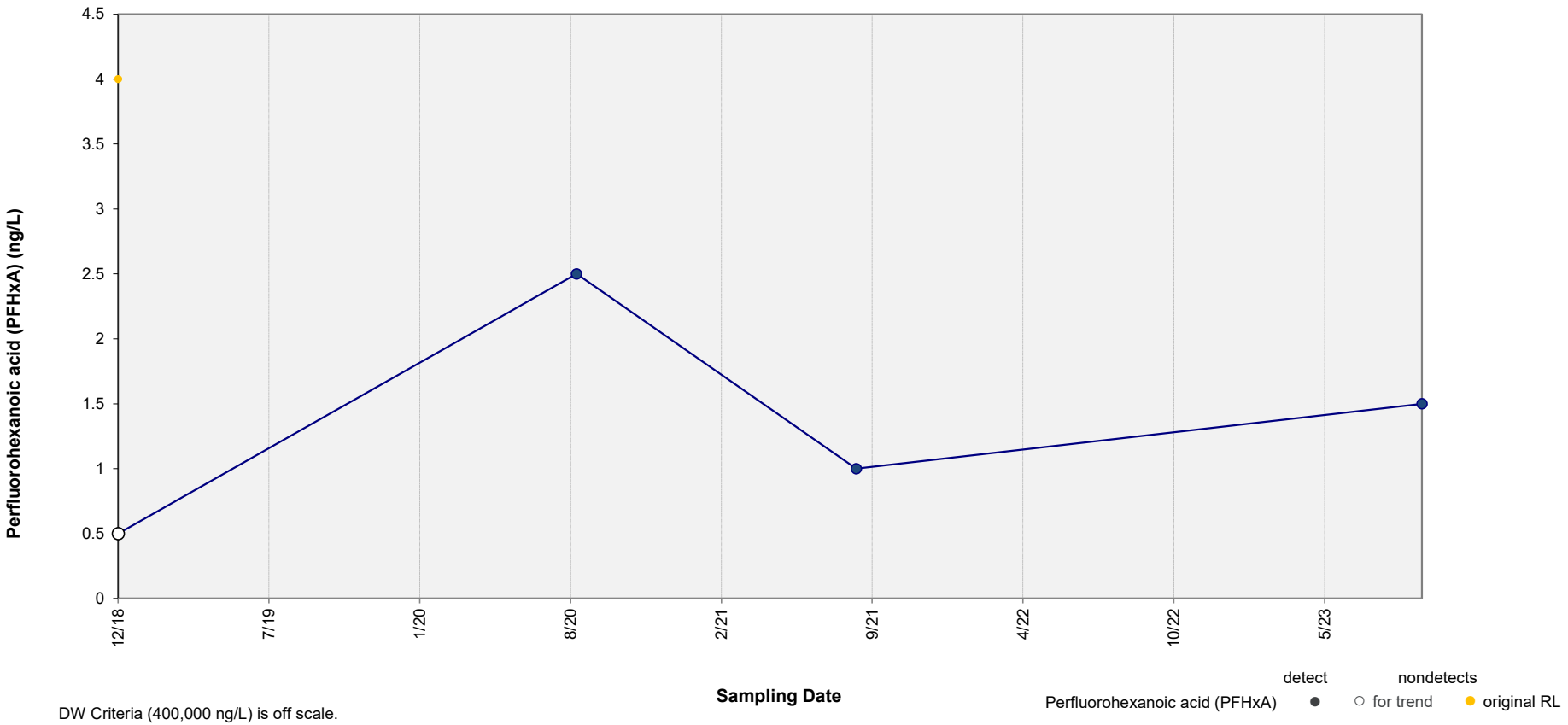
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorohexanesulfonic acid (PFHxS) in Well MW-183WT

RACER Saginaw

Figure D-27



DW Criteria (400,000 ng/L) is off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.375 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

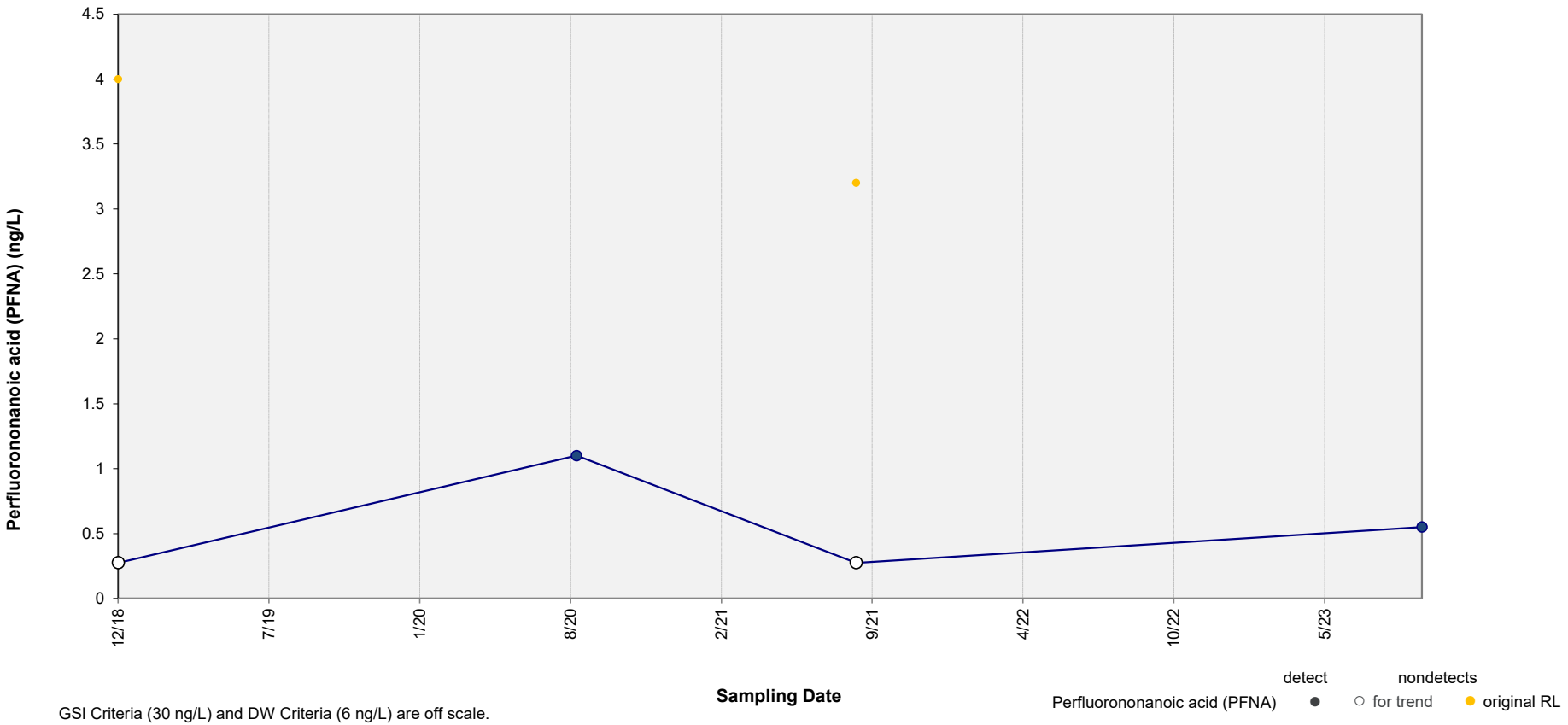
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorohexanoic acid (PFHxA) in Well MW-183WT

RACER Saginaw

Figure D-28



GSI Criteria (30 ng/L) and DW Criteria (6 ng/L) are off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

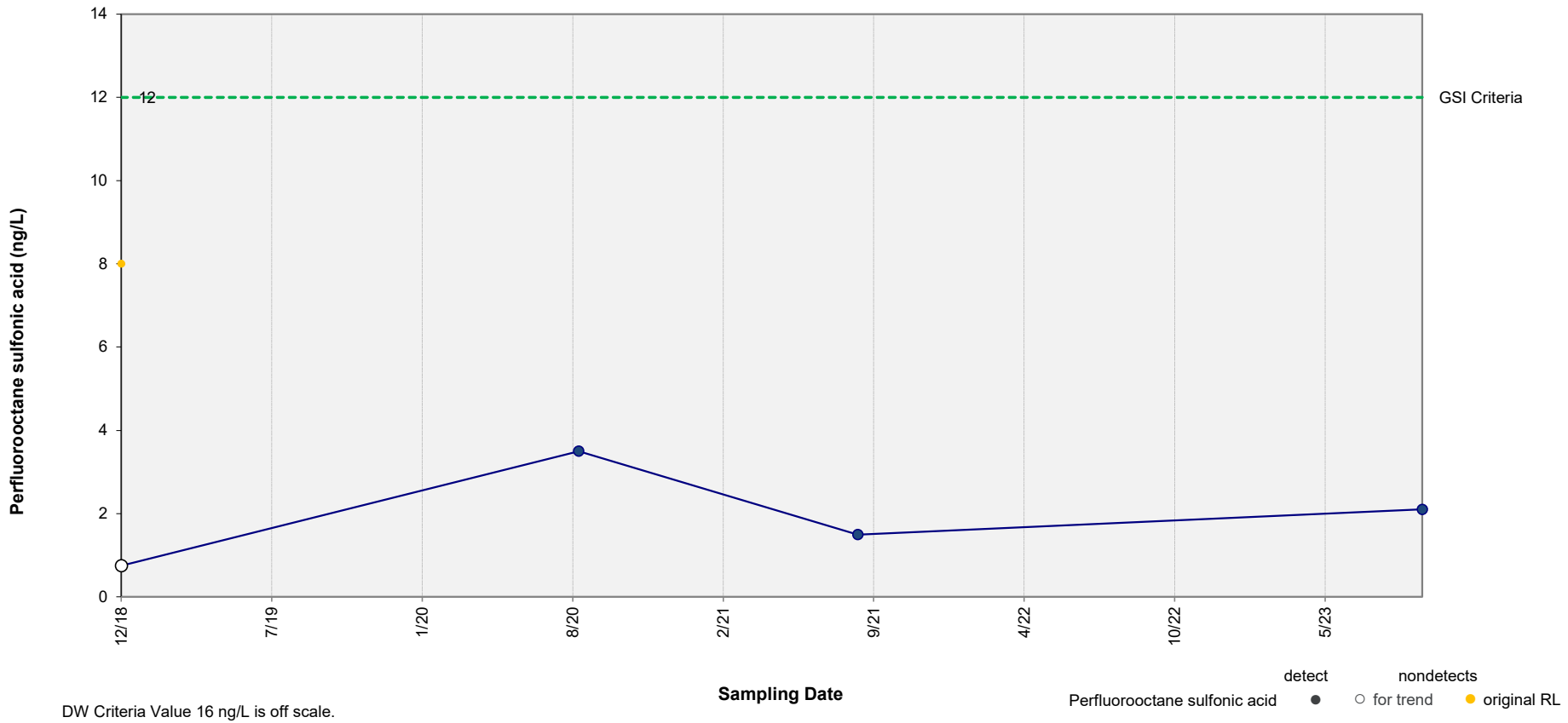
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorononanoic acid (PFNA) in Well MW-183WT

RACER Saginaw

Figure D-29



DW Criteria Value 16 ng/L is off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.375 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

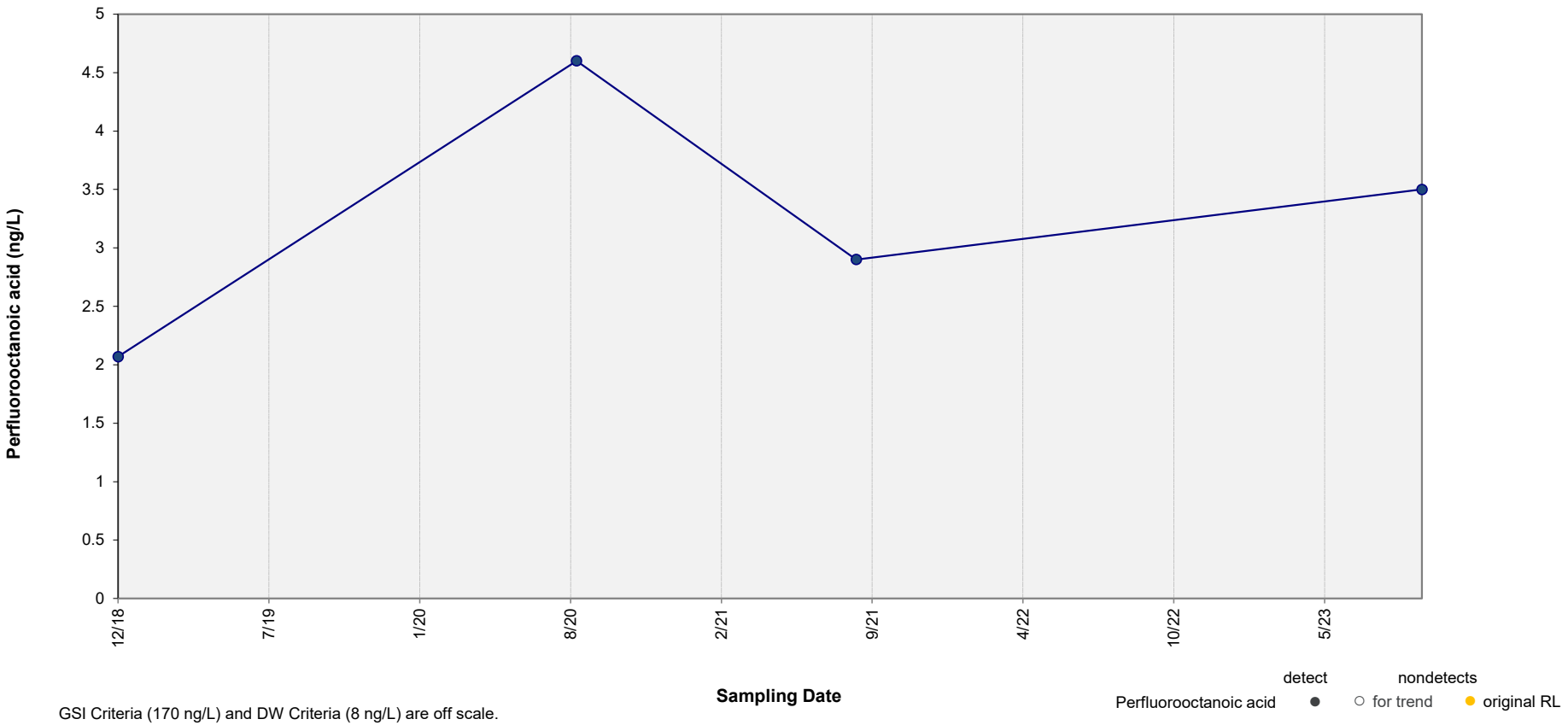
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well MW-183WT

RACER Saginaw

Figure D-30



GSI Criteria (170 ng/L) and DW Criteria (8 ng/L) are off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.375 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

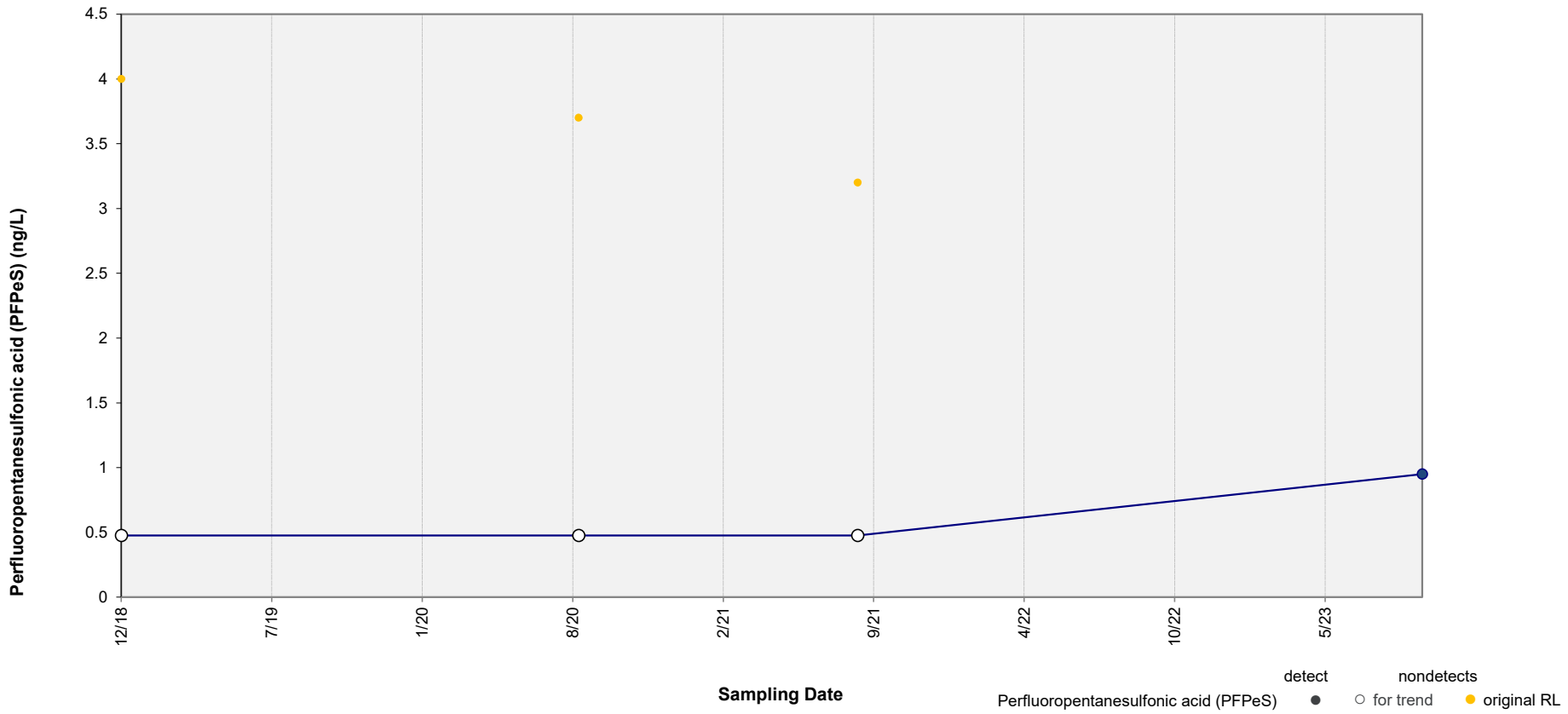
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-183WT

RACER Saginaw

Figure D-31



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.271 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

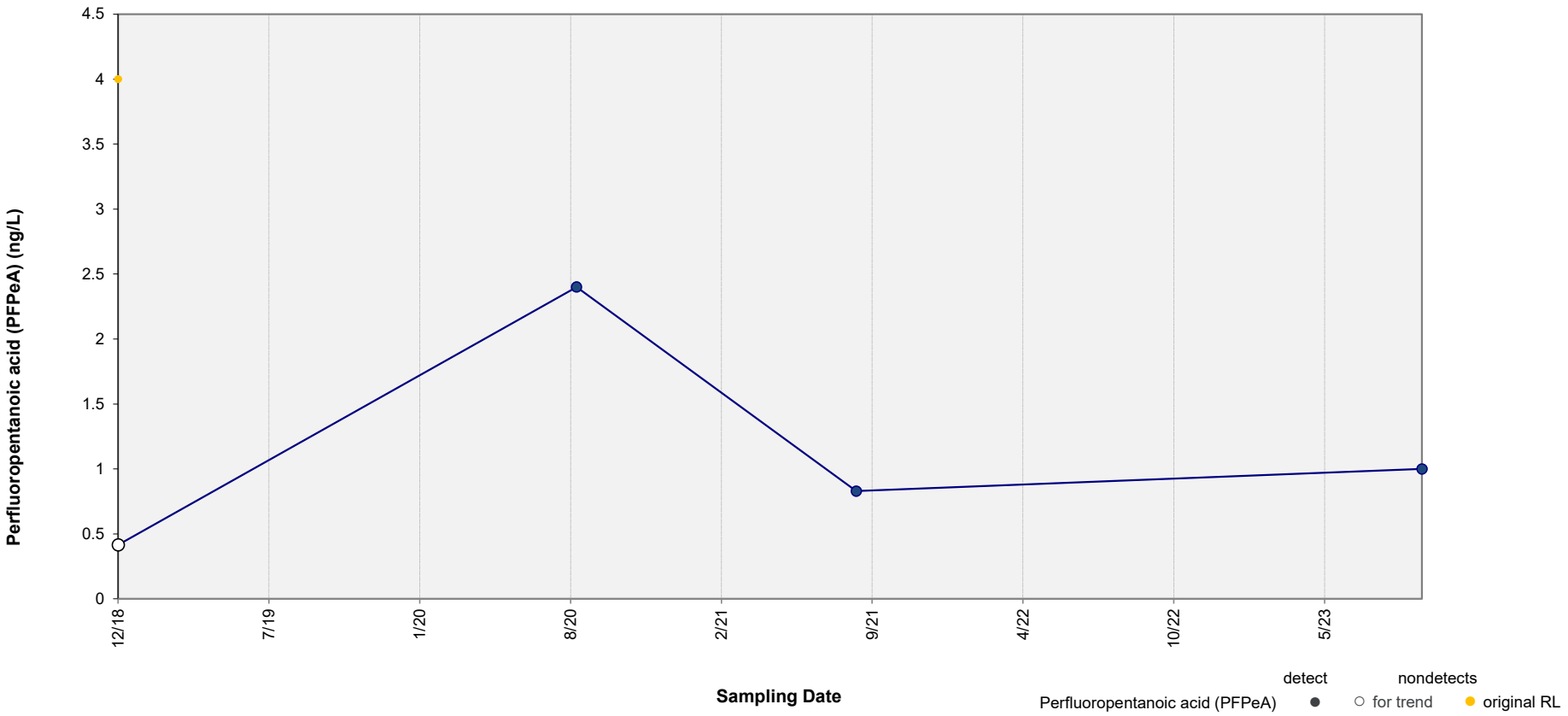
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluoropentanesulfonic acid (PFPeS) in Well MW-183WT

RACER Saginaw

Figure D-32



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.375 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

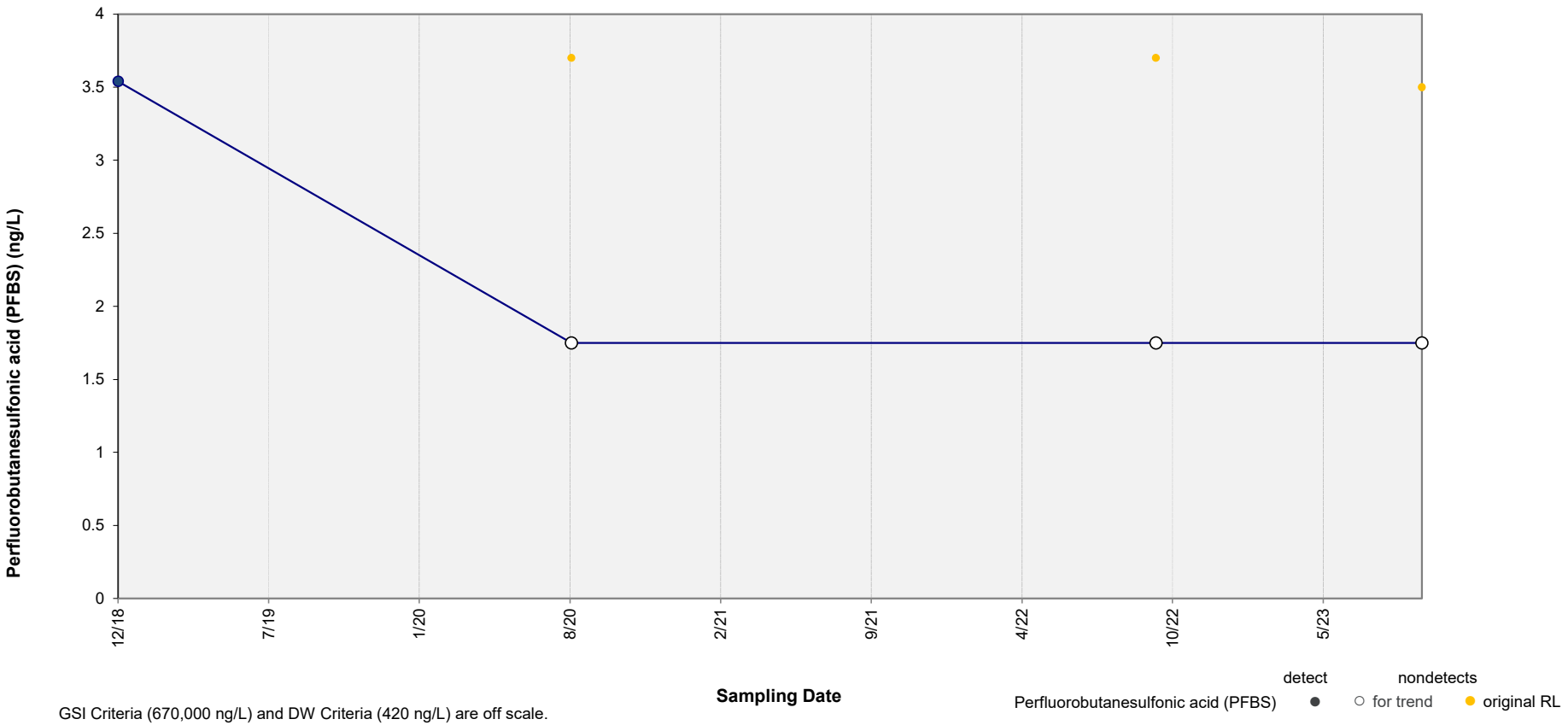
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluoropentanoic acid (PFPeA) in Well MW-183WT

RACER Saginaw

Figure D-33



GSI Criteria (670,000 ng/L) and DW Criteria (420 ng/L) are off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.271 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

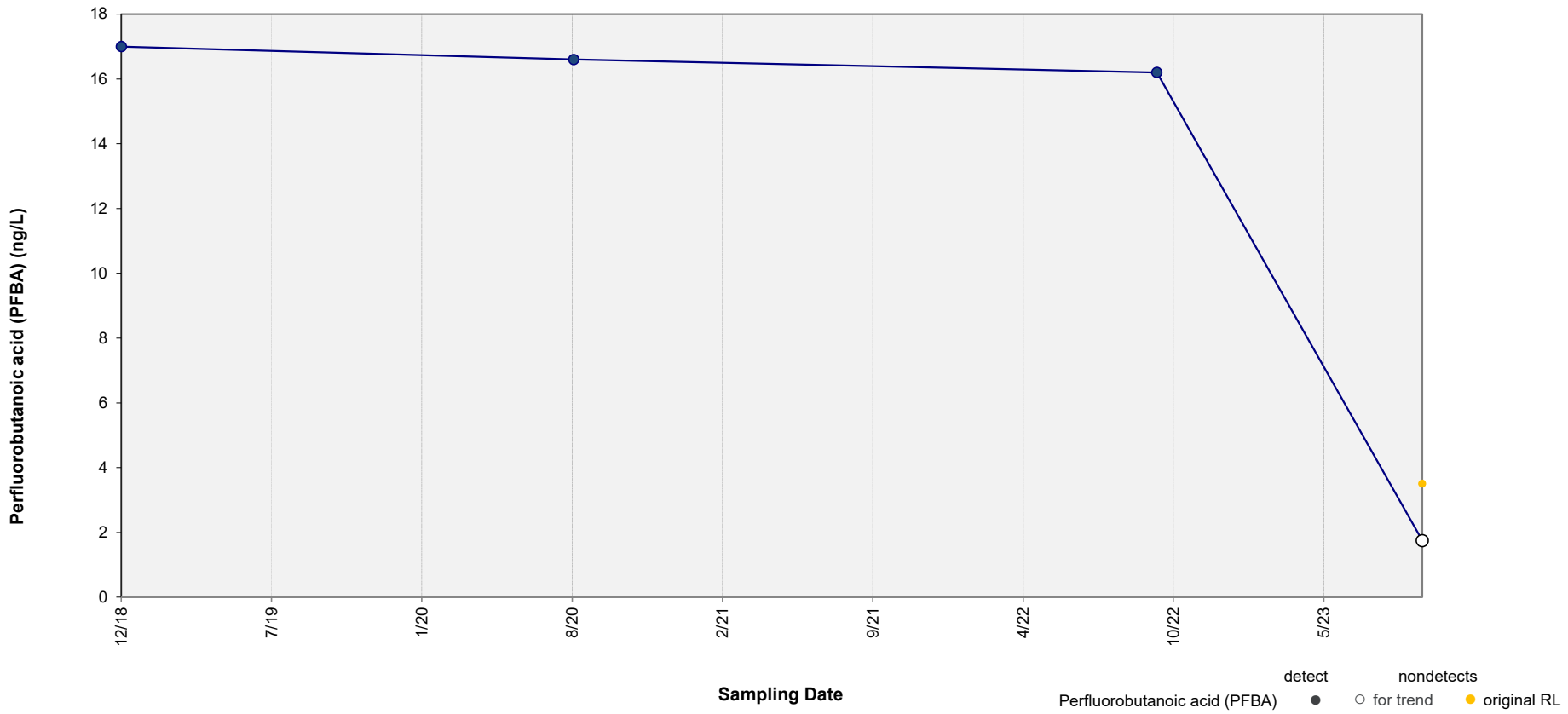
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorobutanesulfonic acid (PFBS) in Well QPTW-13R

RACER Saginaw

Figure D-34



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.042 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

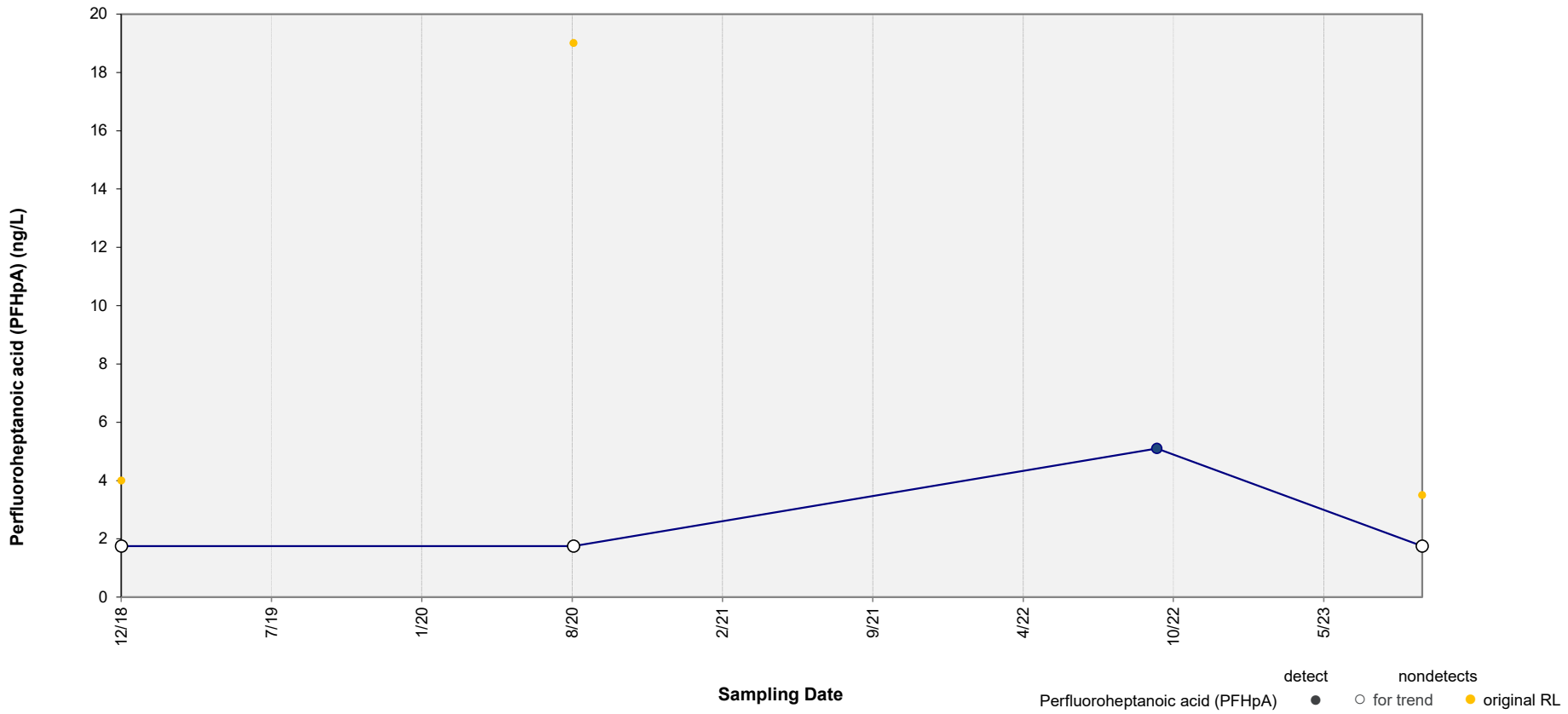
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorobutanoic acid (PFBA) in Well QPTW-13R

RACER Saginaw

Figure D-35



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

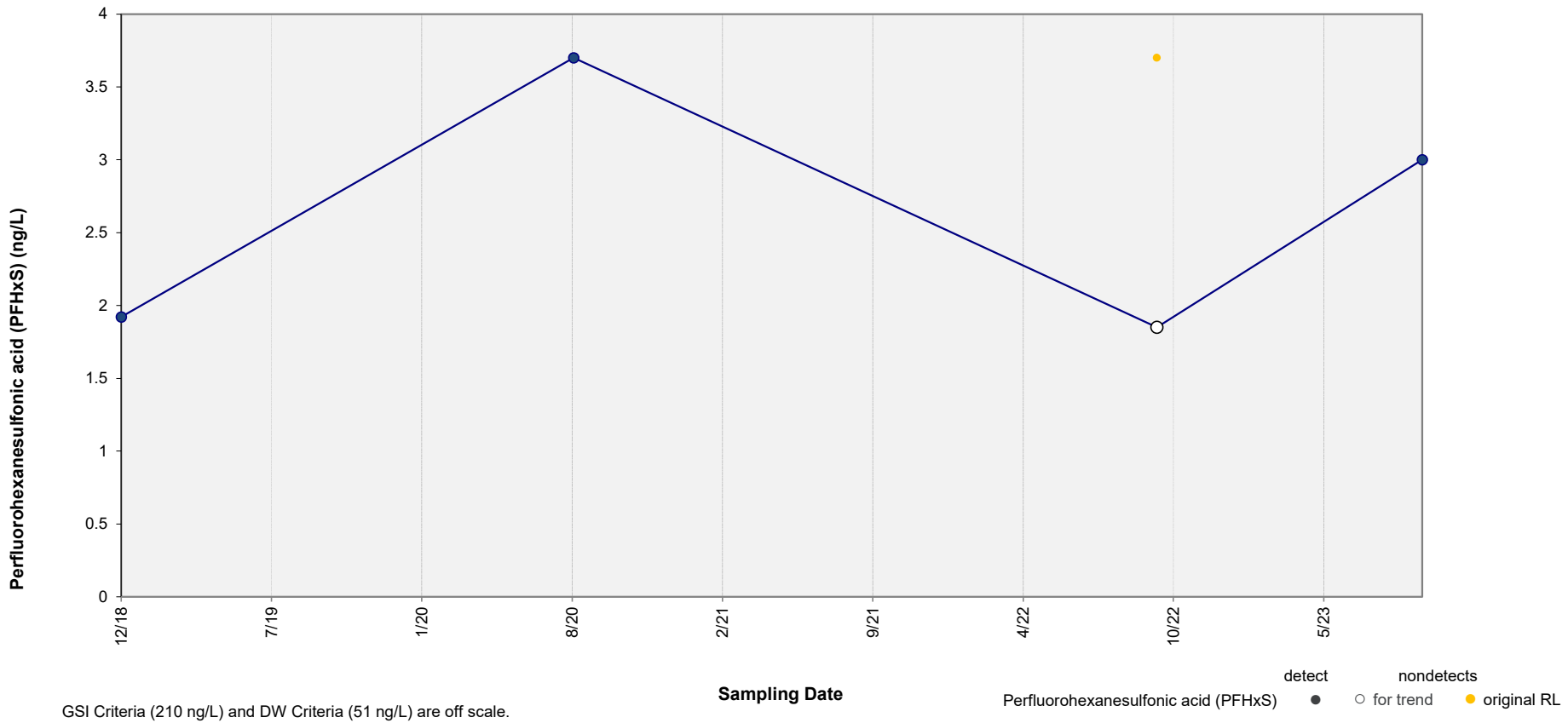
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluoroheptanoic acid (PFHpA) in Well QPTW-13R

RACER Saginaw

Figure D-36



GSI Criteria (210 ng/L) and DW Criteria (51 ng/L) are off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.625 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

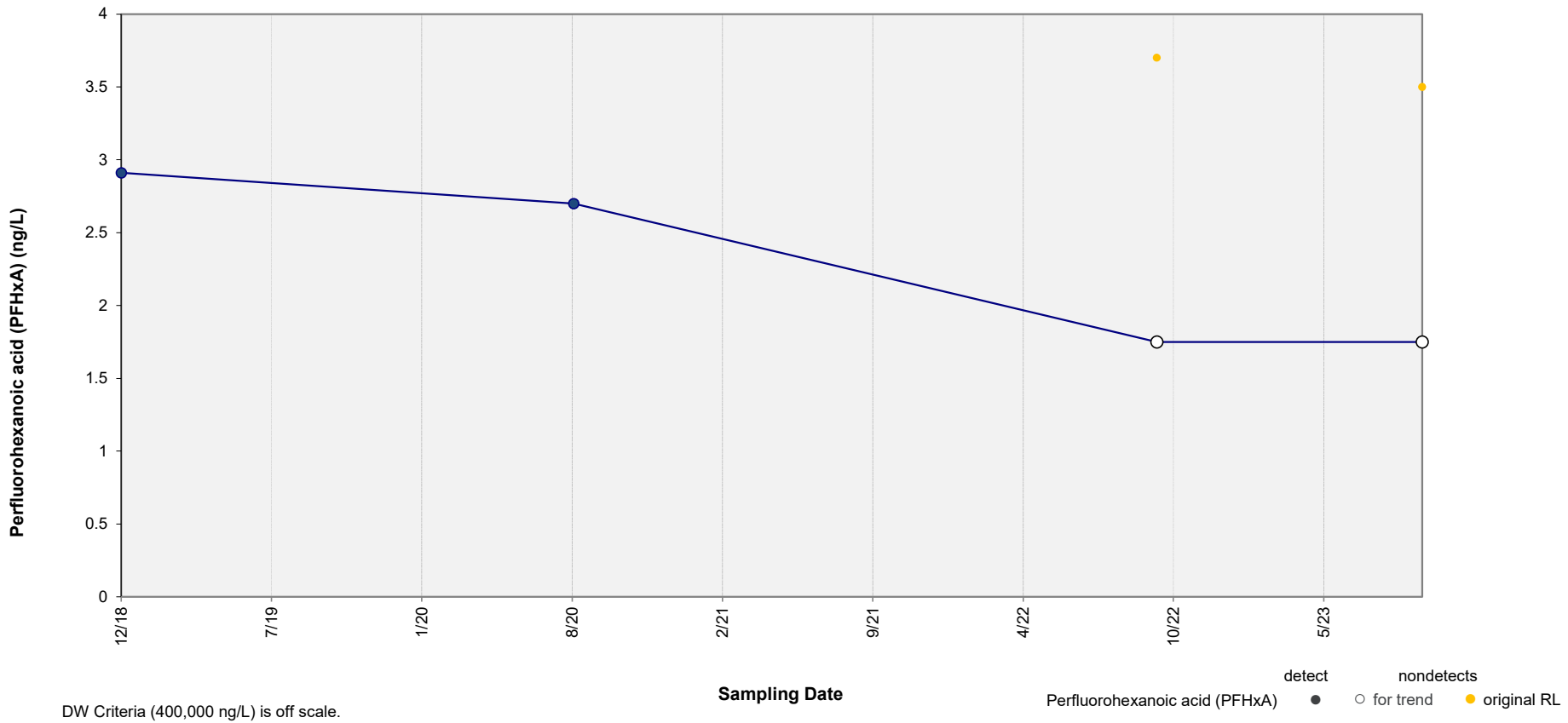
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorohexanesulfonic acid (PFHxS) in Well QPTW-13R

RACER Saginaw

Figure D-37



DW Criteria (400,000 ng/L) is off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.105 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

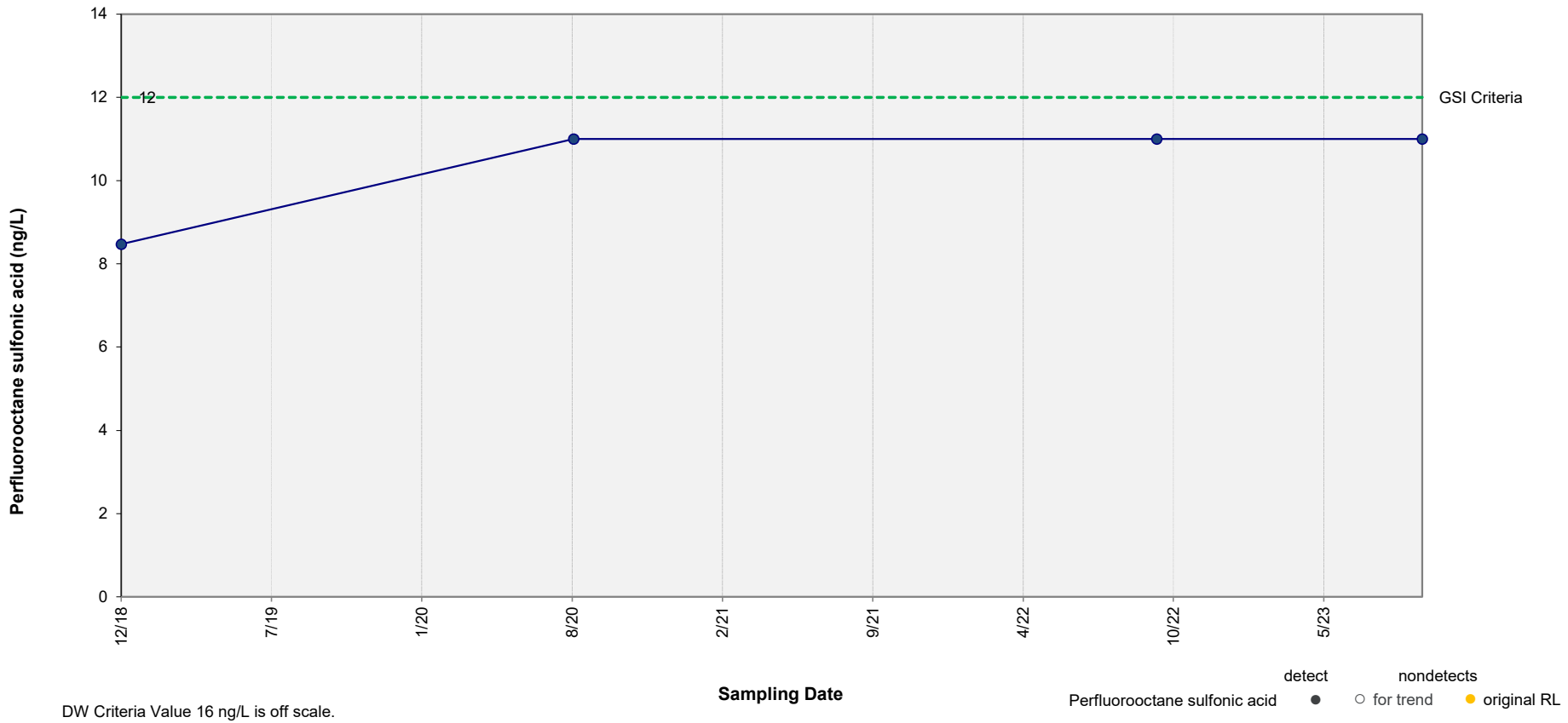
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorohexanoic acid (PFHxA) in Well QPTW-13R

RACER Saginaw

Figure D-38



DW Criteria Value 16 ng/L is off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.271 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

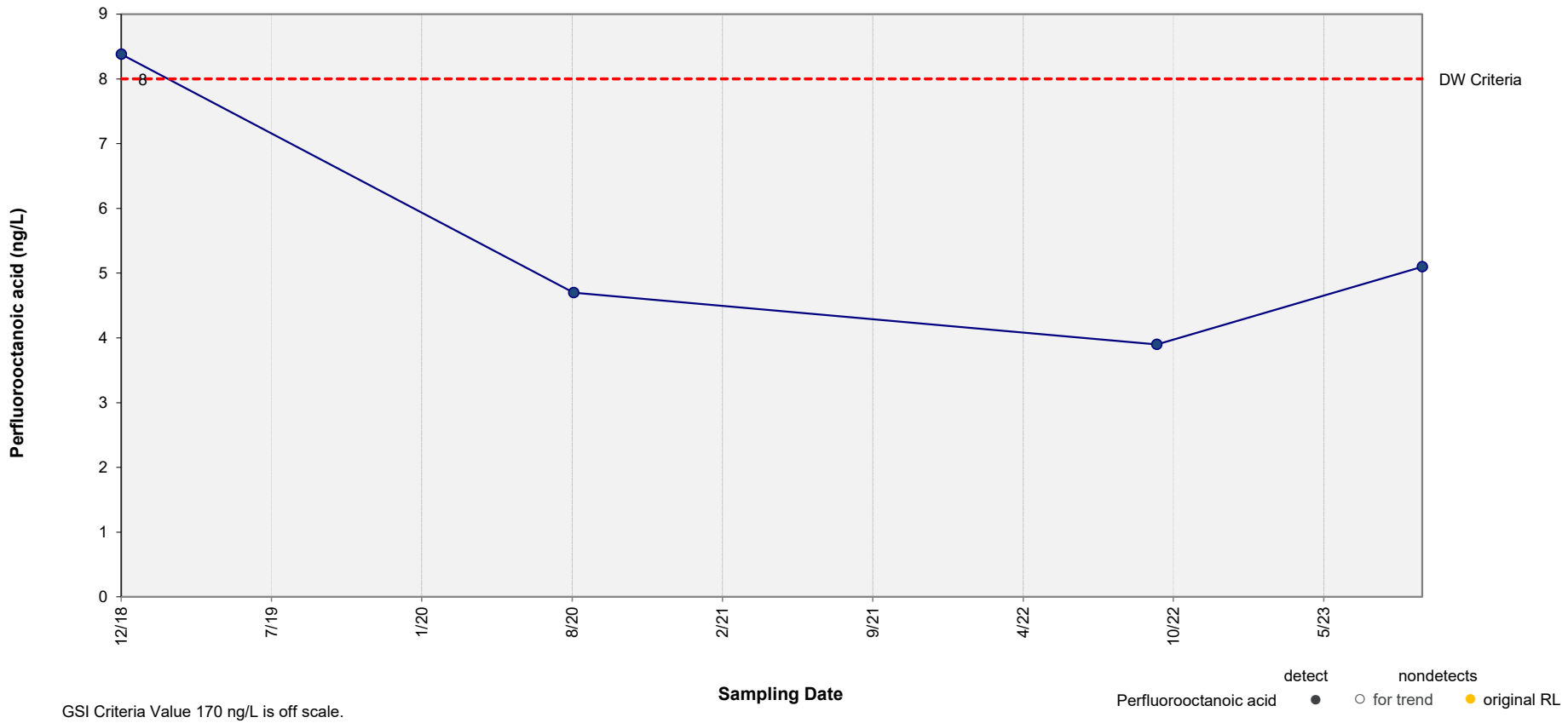
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well QPTW-13R

RACER Saginaw

Figure D-39



GSI Criteria Value 170 ng/L is off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.375 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

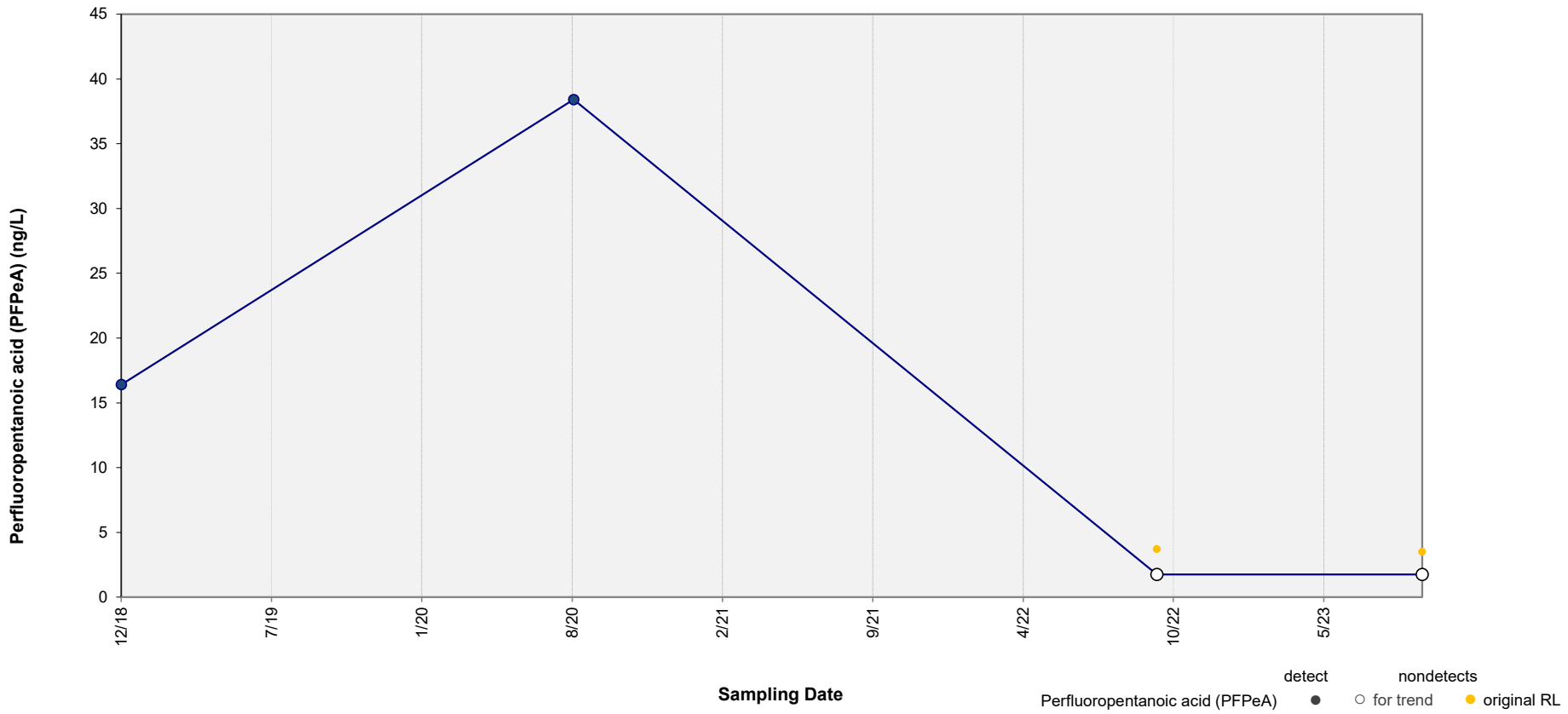
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well QPTW-13R

RACER Saginaw

Figure D-40



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.271 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

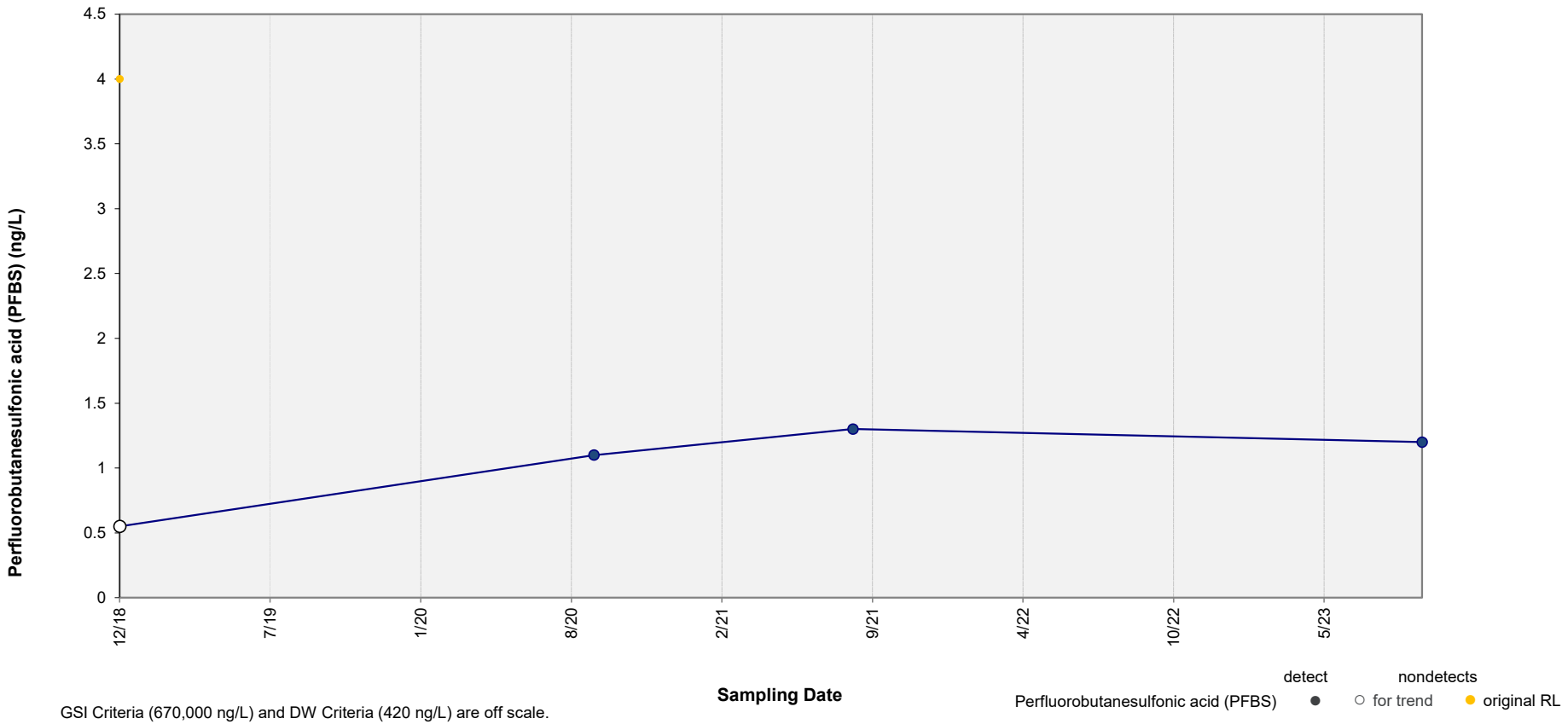
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluoropentanoic acid (PFPeA) in Well QPTW-13R

RACER Saginaw

Figure D-41



GSI Criteria (670,000 ng/L) and DW Criteria (420 ng/L) are off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.167 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

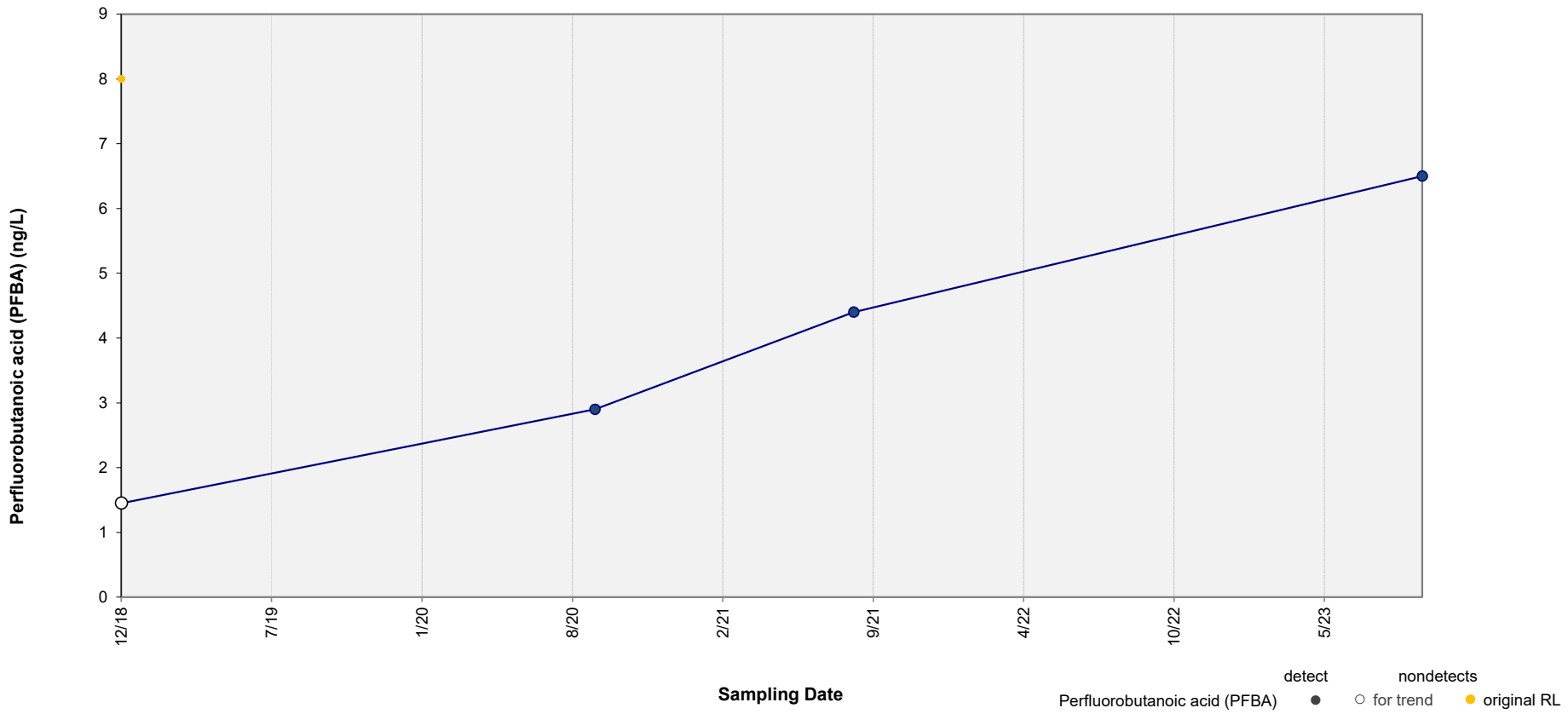
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorobutanesulfonic acid (PFBS) in Well X-10AR2

RACER Saginaw

Figure D-42



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.042 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

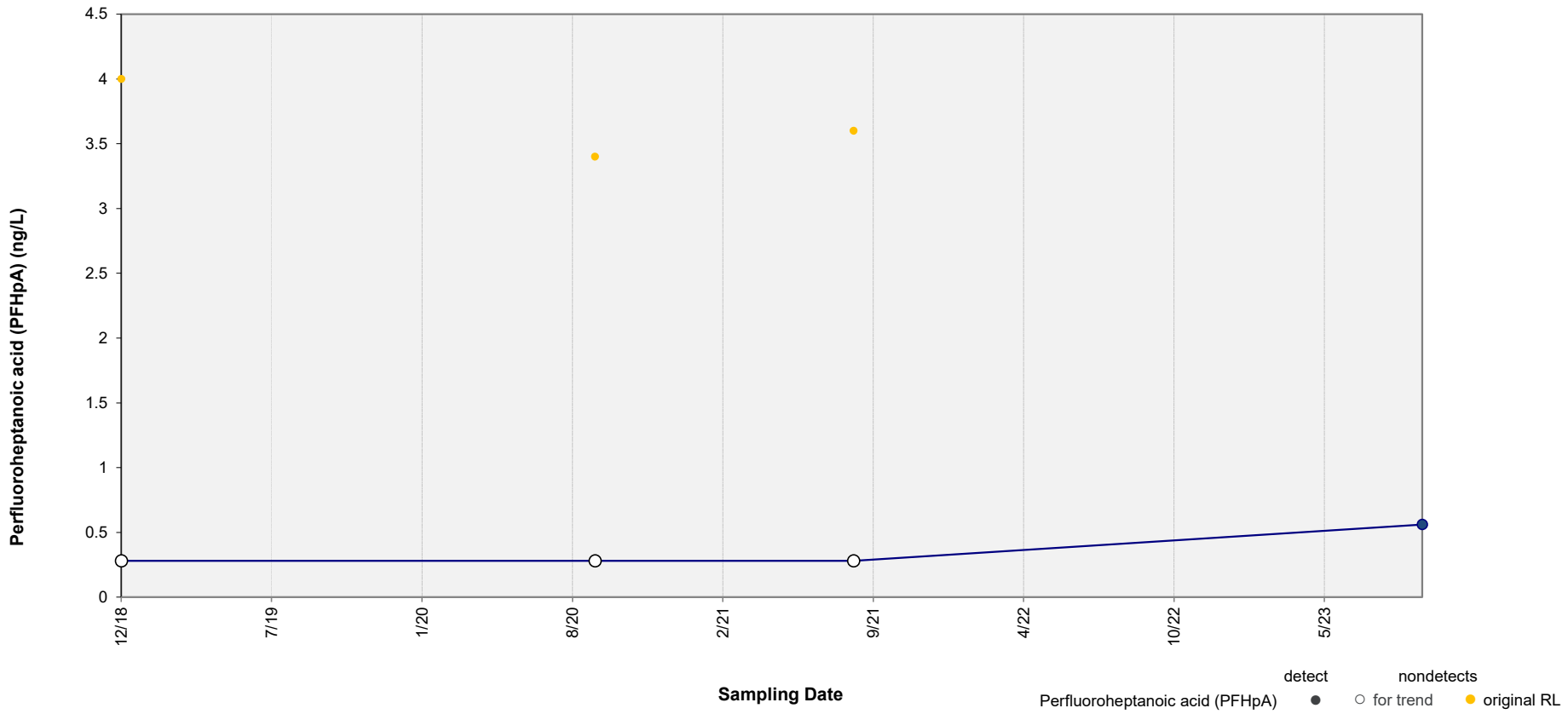
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorobutanoic acid (PFBA) in Well X-10AR2

RACER Saginaw

Figure D-43



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.271 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

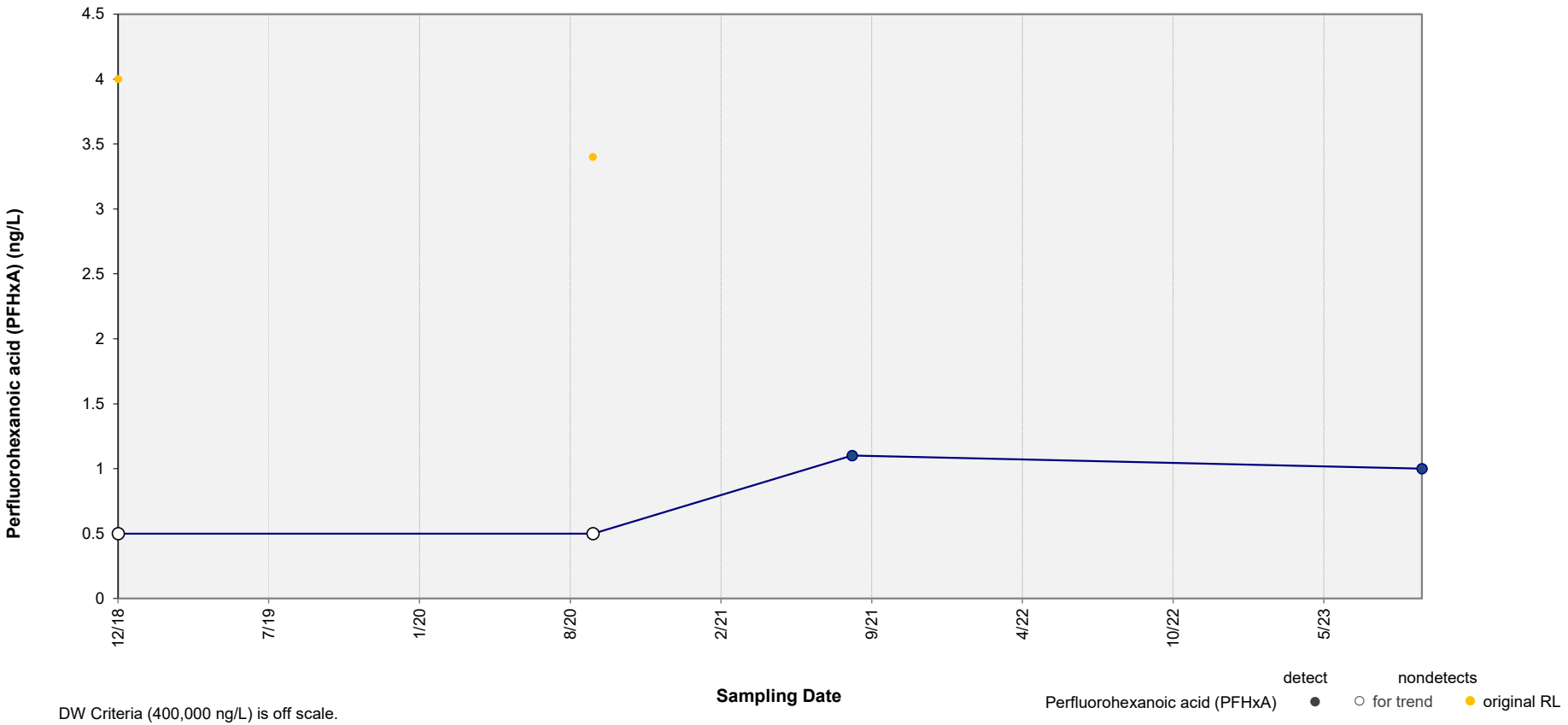
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluoroheptanoic acid (PFHpA) in Well X-10AR2

RACER Saginaw

Figure D-44



DW Criteria (400,000 ng/L) is off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.271 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

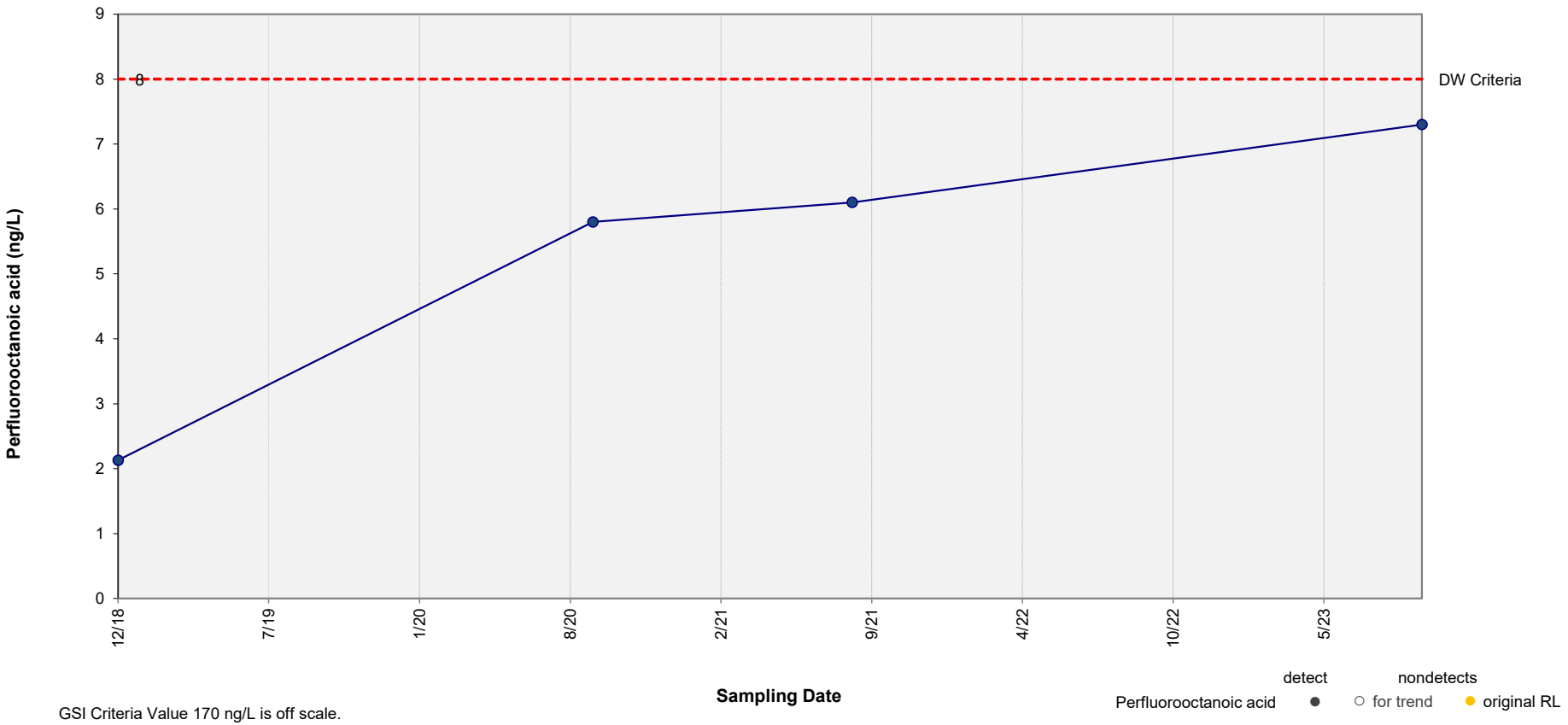
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorohexanoic acid (PFHxA) in Well X-10AR2

RACER Saginaw

Figure D-45



GSI Criteria Value 170 ng/L is off scale.

Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.042 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

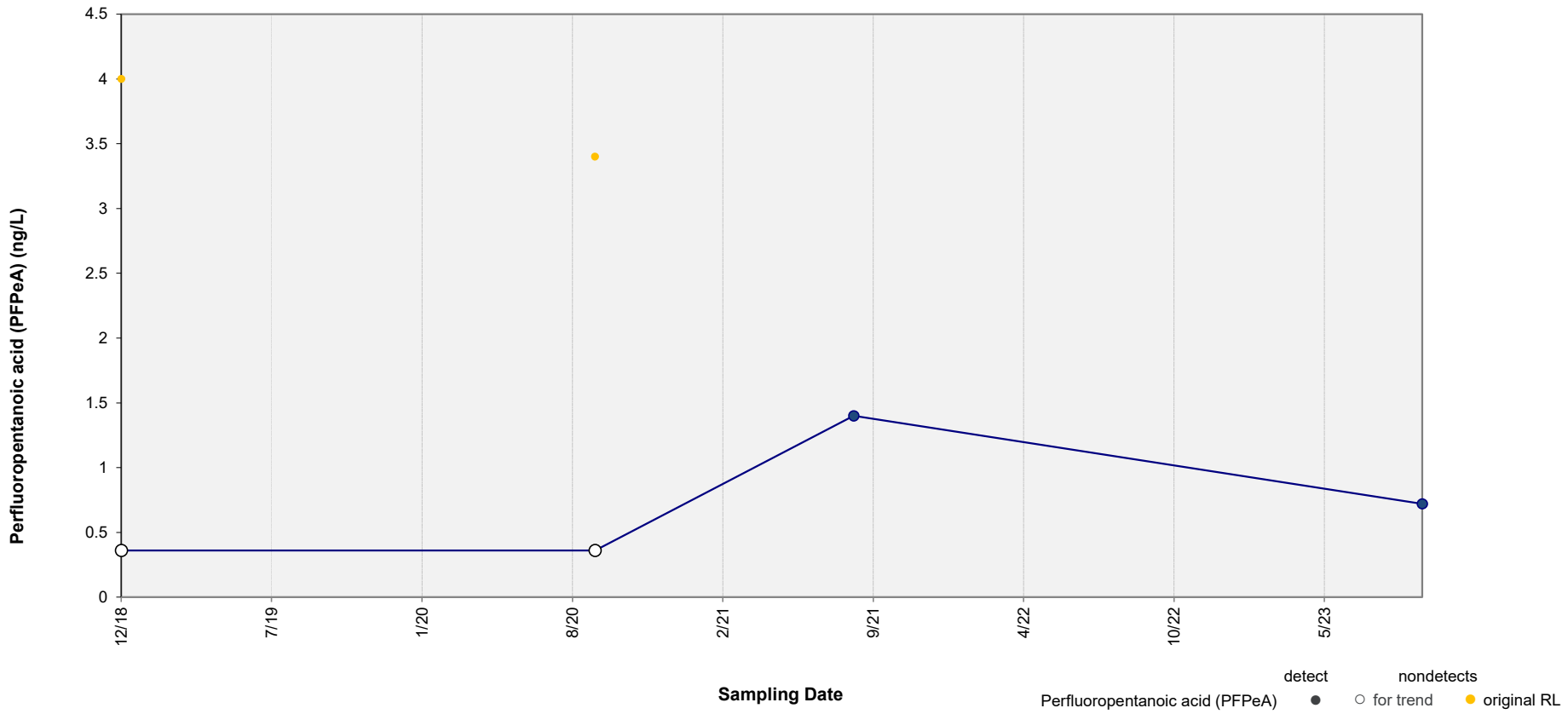
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well X-10AR2

RACER Saginaw

Figure D-46



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.271 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

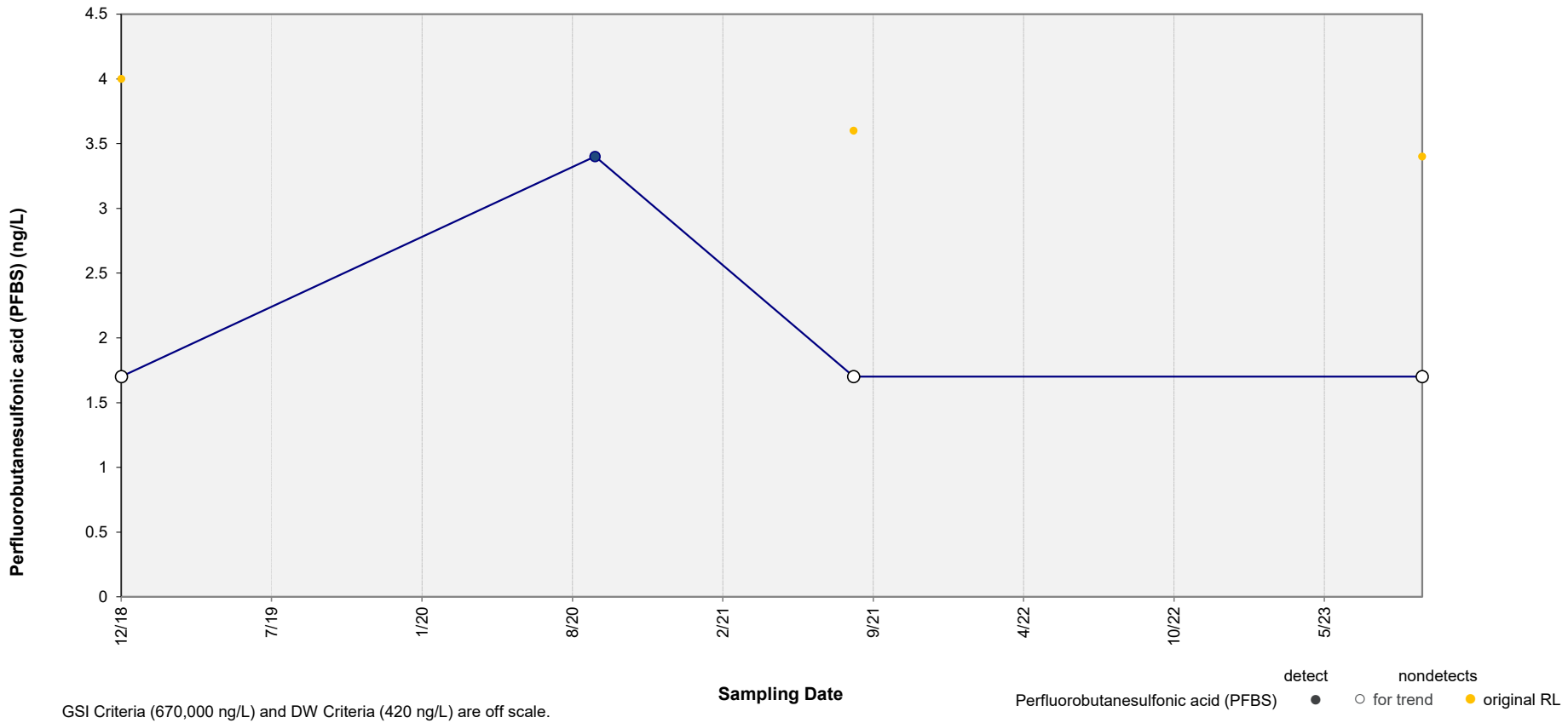
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluoropentanoic acid (PFPeA) in Well X-10AR2

RACER Saginaw

Figure D-47



GSI Criteria (670,000 ng/L) and DW Criteria (420 ng/L) are off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

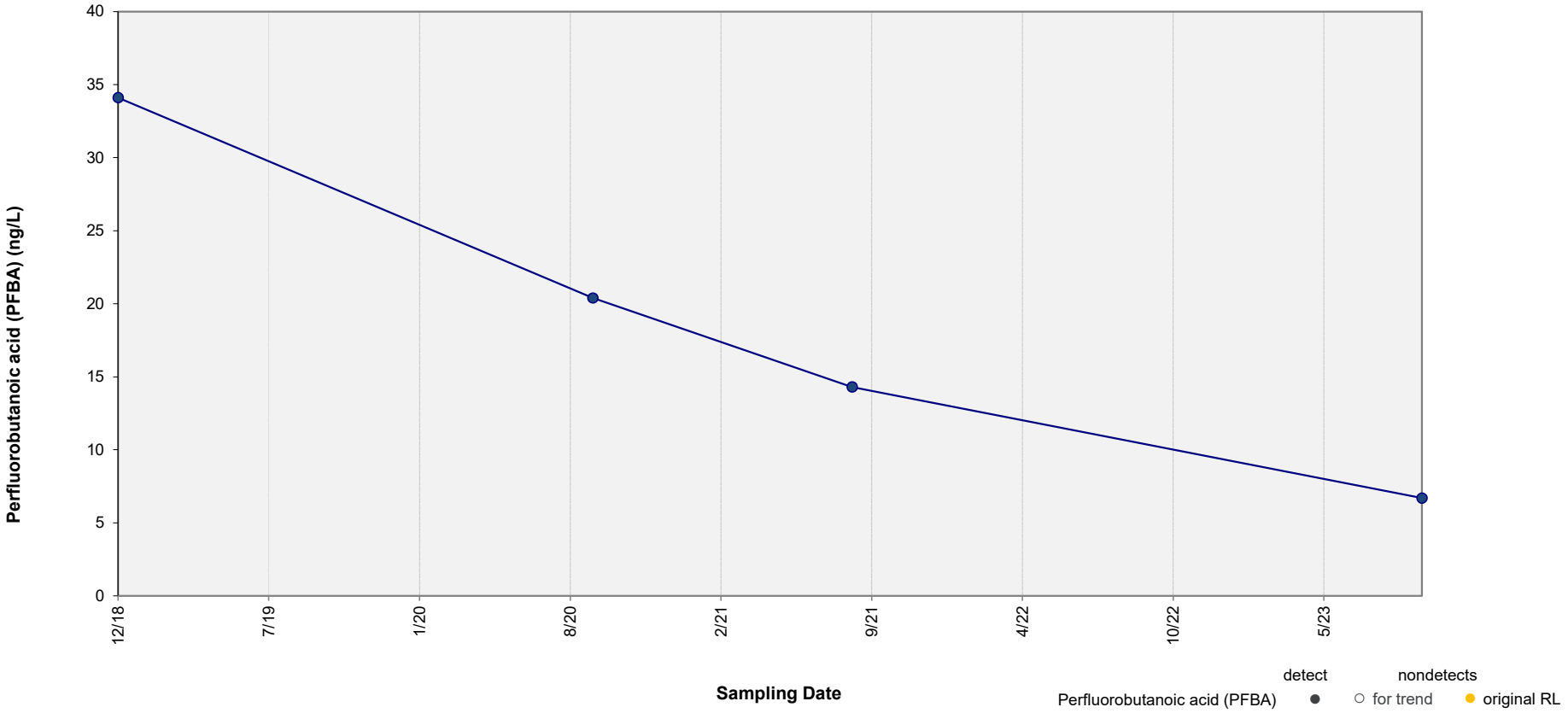
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorobutanesulfonic acid (PFBS) in Well X-2A

RACER Saginaw

Figure D-48



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.042 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

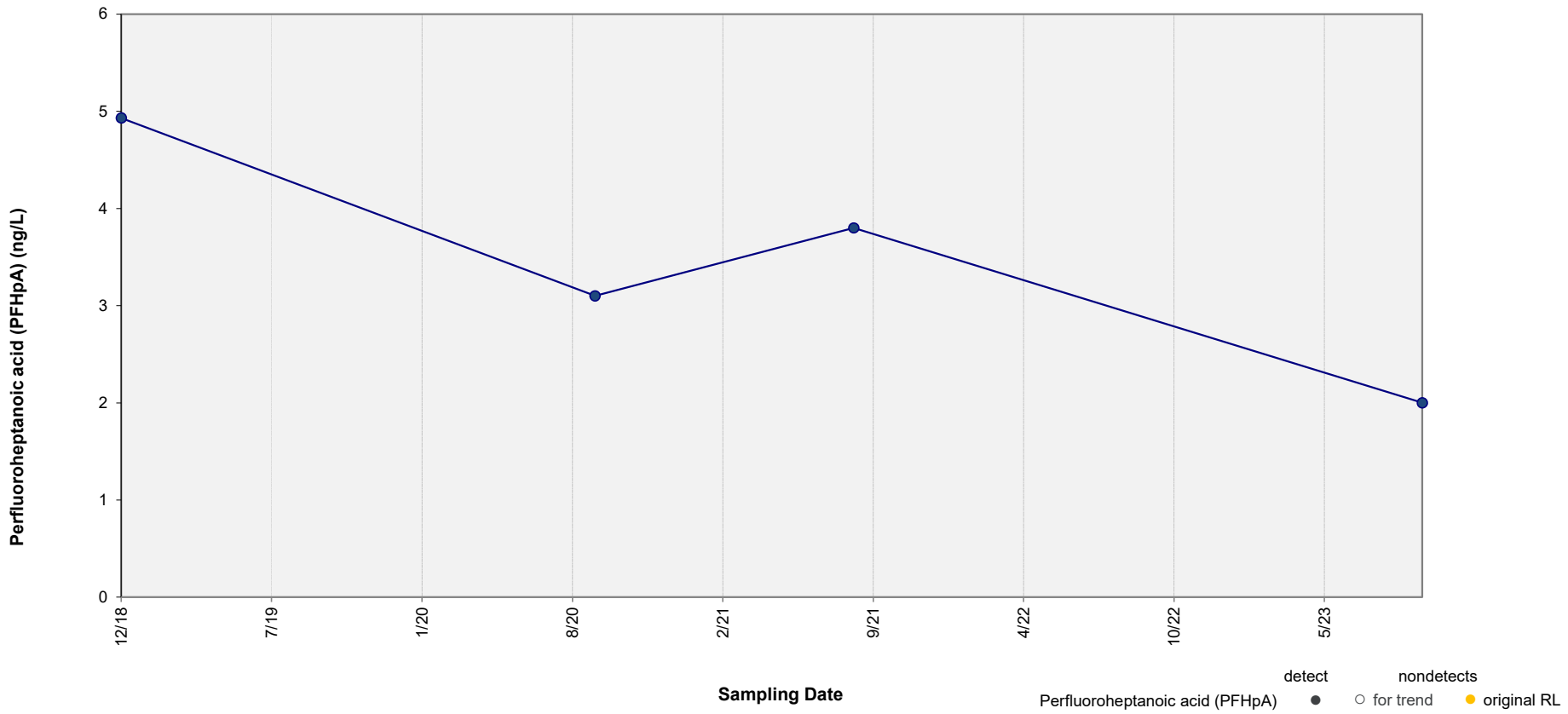
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorobutanoic acid (PFBA) in Well X-2A

RACER Saginaw

Figure D-49



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.167 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

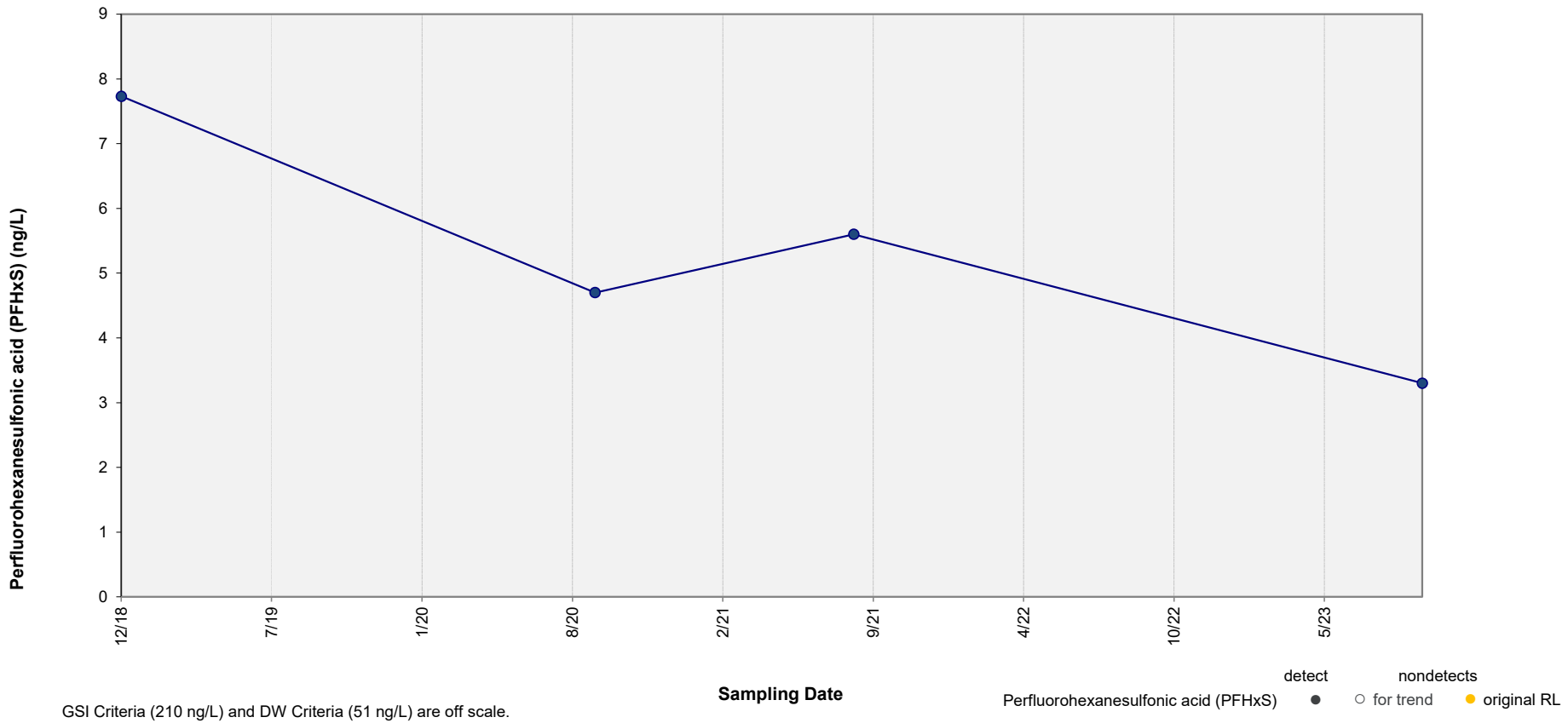
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluoroheptanoic acid (PFHpA) in Well X-2A

RACER Saginaw

Figure D-50



GSI Criteria (210 ng/L) and DW Criteria (51 ng/L) are off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.167 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

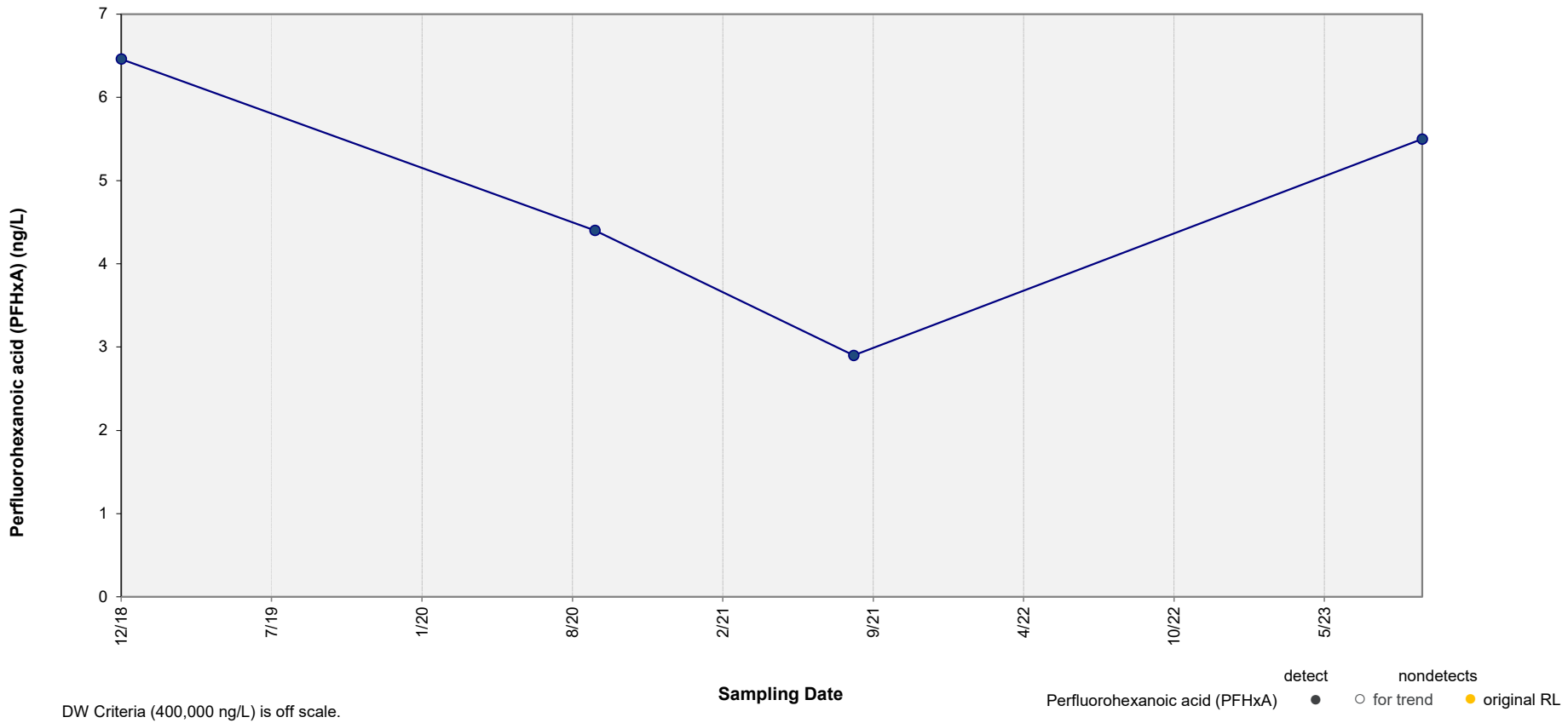
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorohexanesulfonic acid (PFHxS) in Well X-2A

RACER Saginaw

Figure D-51



DW Criteria (400,000 ng/L) is off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.375 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

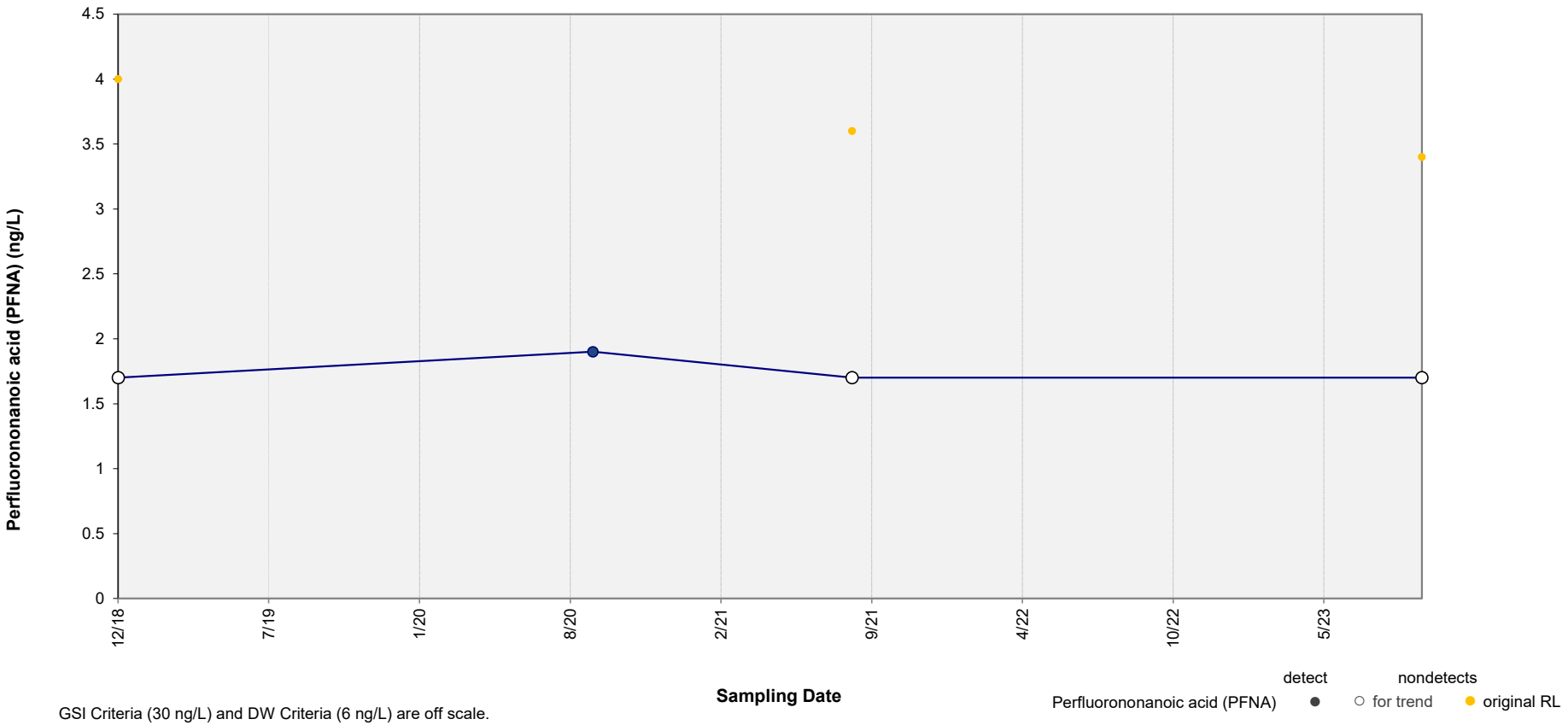
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorohexanoic acid (PFHxA) in Well X-2A

RACER Saginaw

Figure D-52



GSI Criteria (30 ng/L) and DW Criteria (6 ng/L) are off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

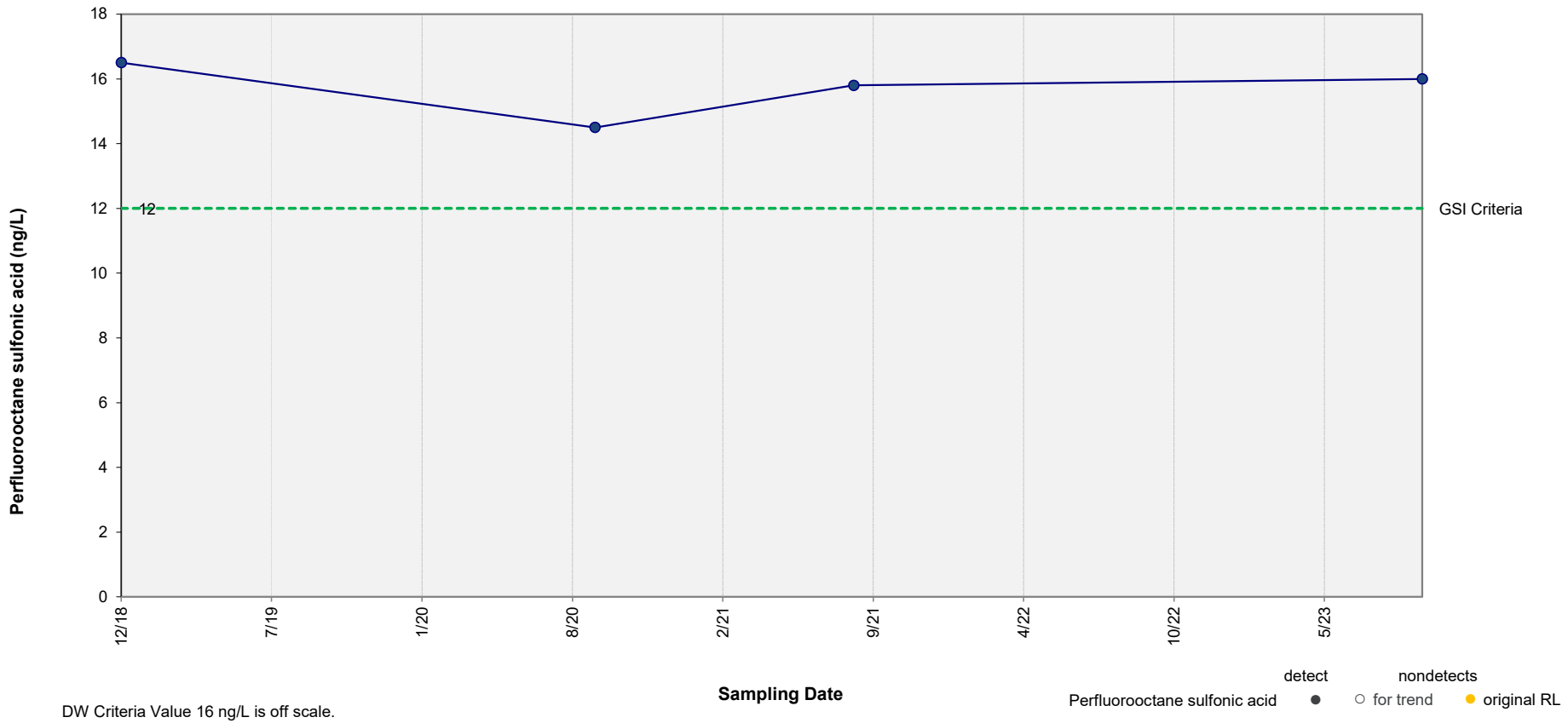
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorononanoic acid (PFNA) in Well X-2A

RACER Saginaw

Figure D-53



DW Criteria Value 16 ng/L is off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.625 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

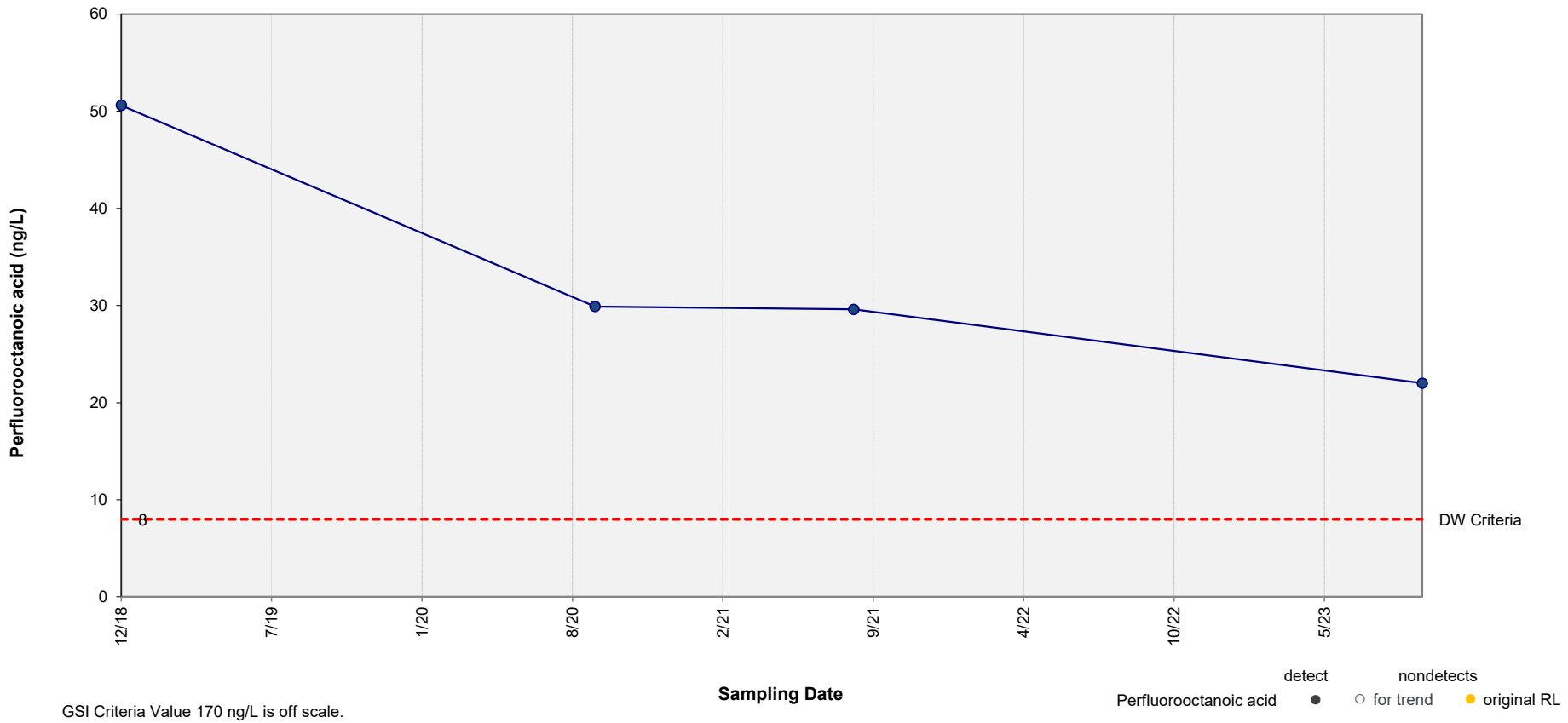
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well X-2A

RACER Saginaw

Figure D-54



GSI Criteria Value 170 ng/L is off scale.

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.042 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

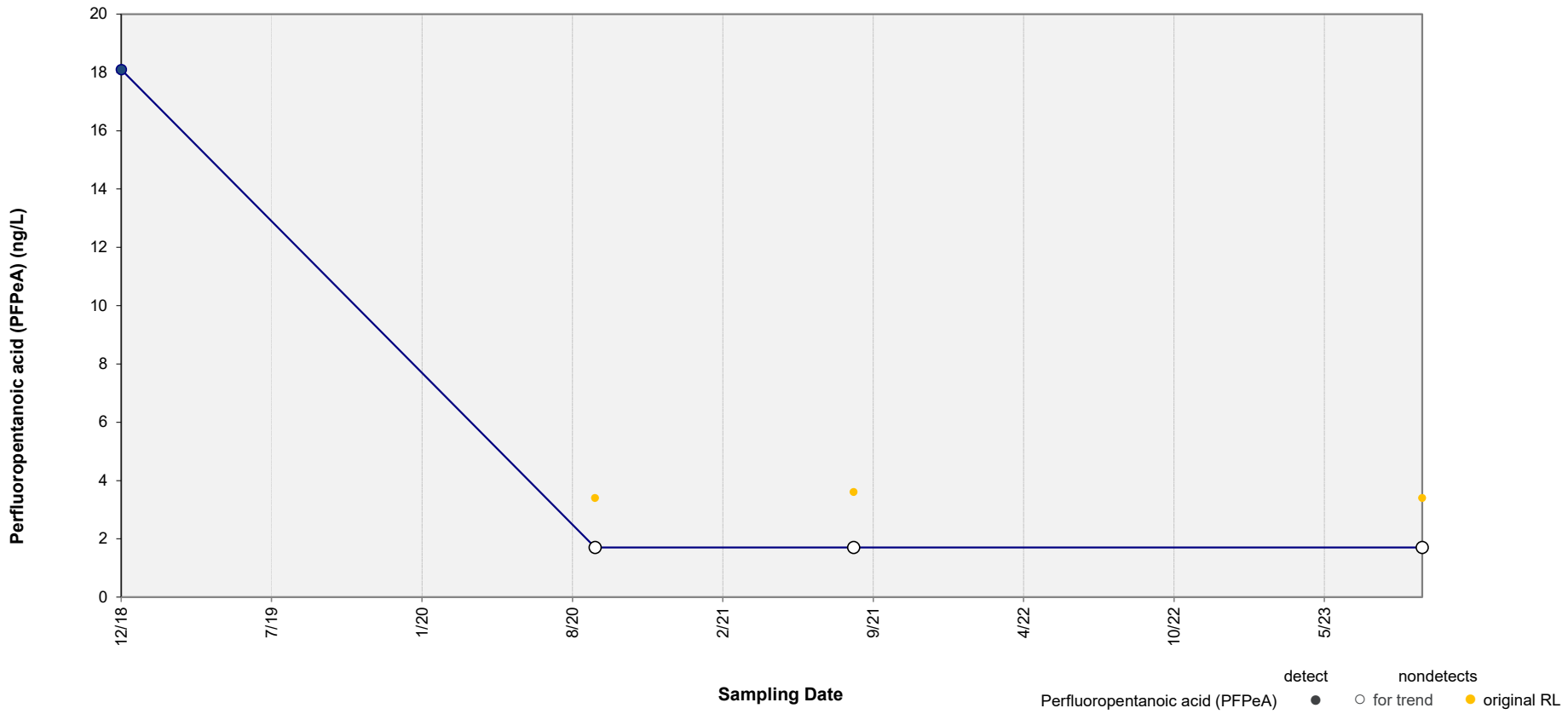
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well X-2A

RACER Saginaw

Figure D-55



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.271 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

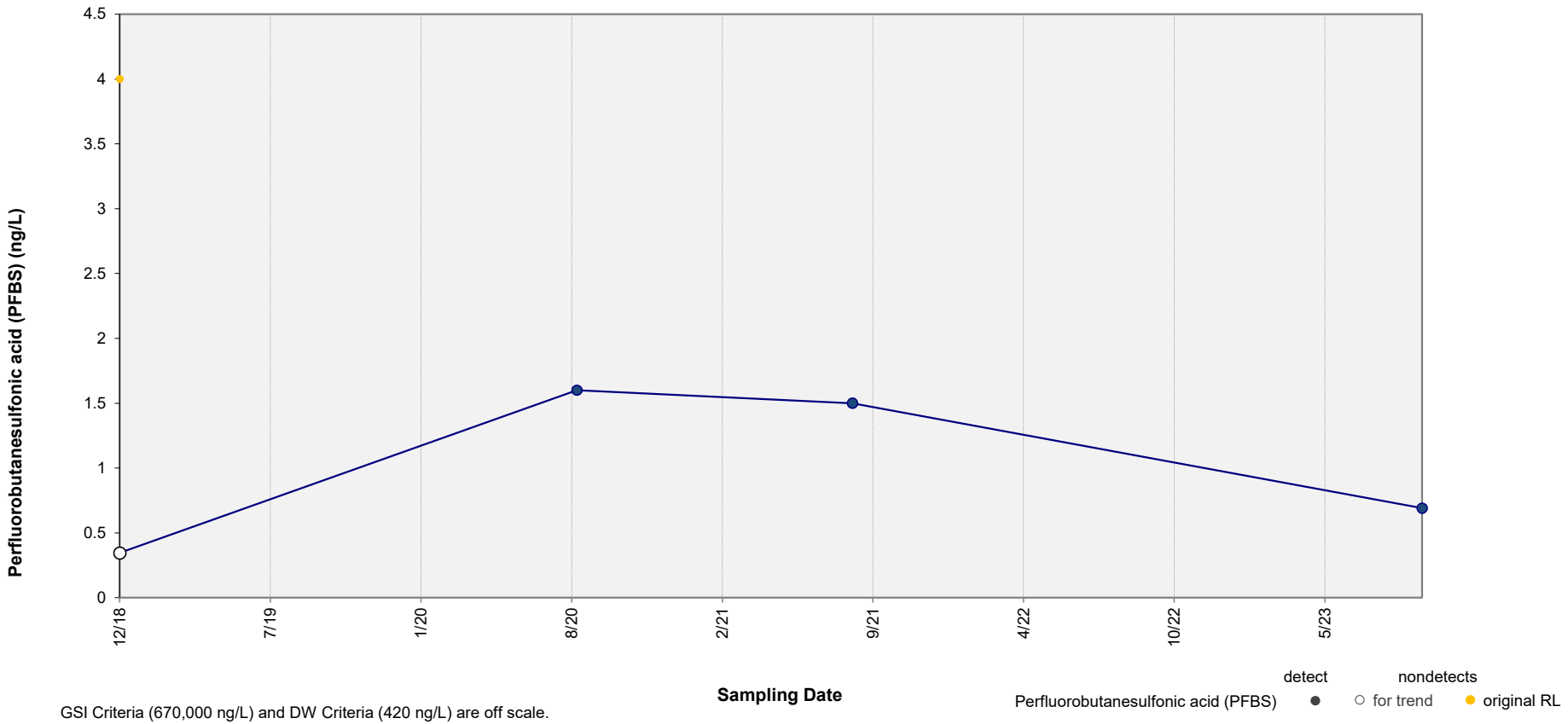
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluoropentanoic acid (PFPeA) in Well X-2A

RACER Saginaw

Figure D-56



GSI Criteria (670,000 ng/L) and DW Criteria (420 ng/L) are off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.625 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

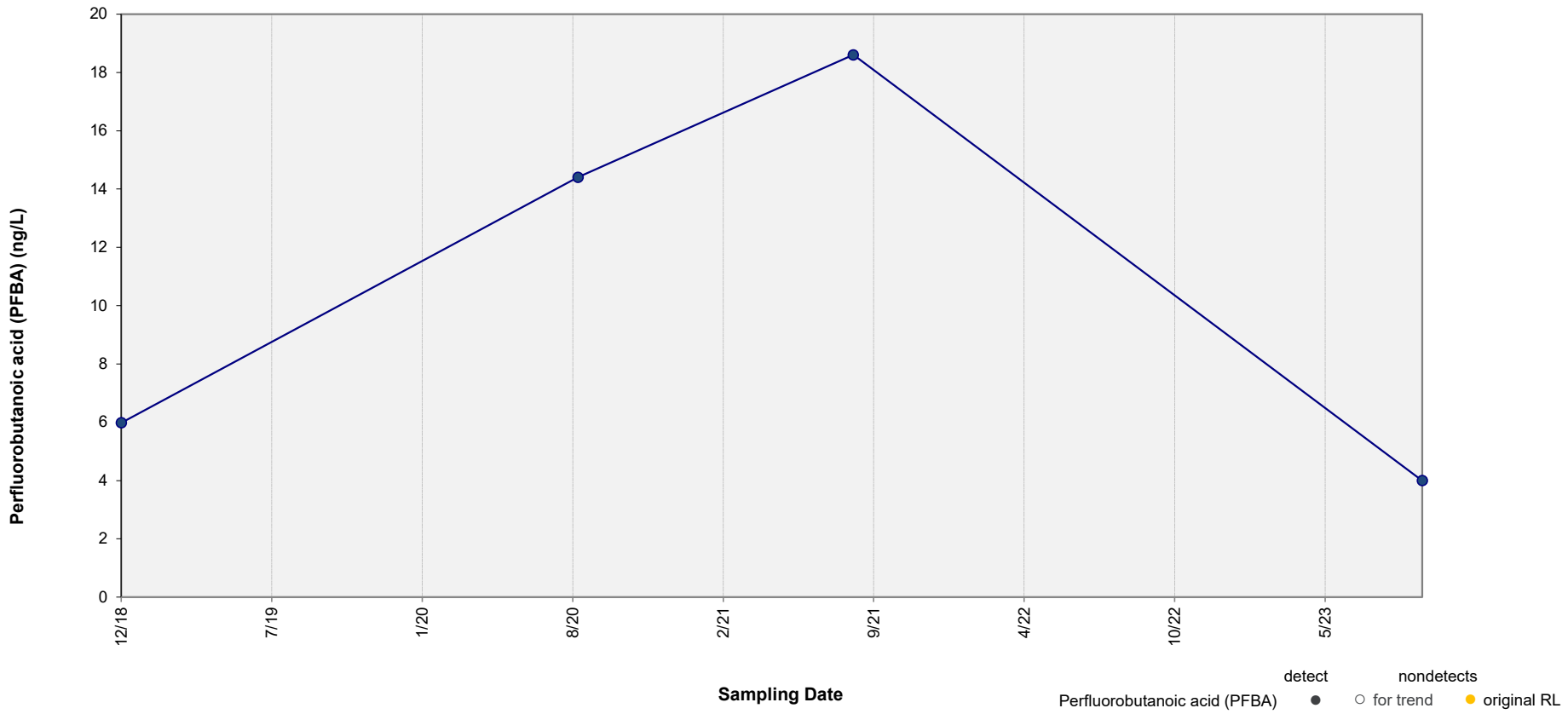
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorobutanesulfonic acid (PFBS) in Well X-9AR

RACER Saginaw

Figure D-57



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.625 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

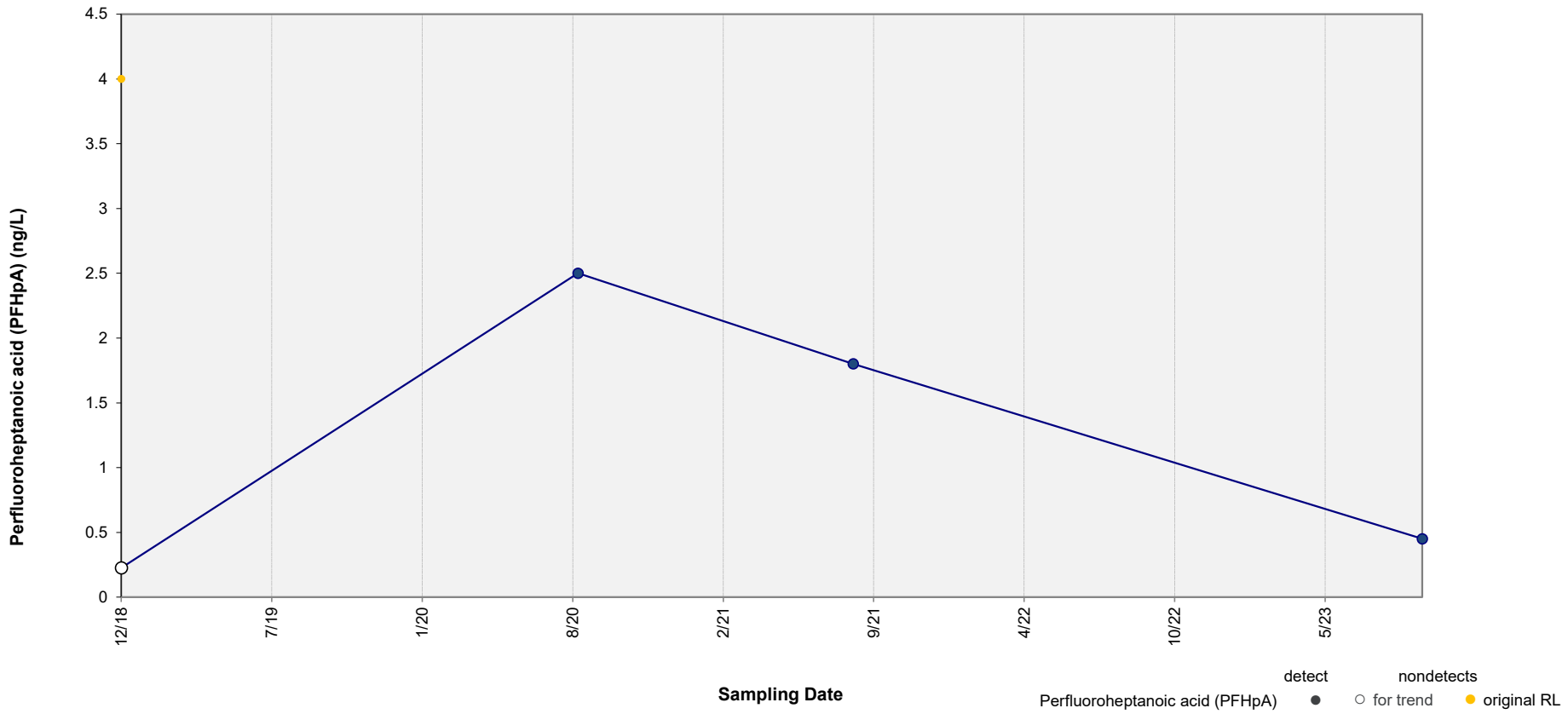
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorobutanoic acid (PFBA) in Well X-9AR

RACER Saginaw

Figure D-58



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.625 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

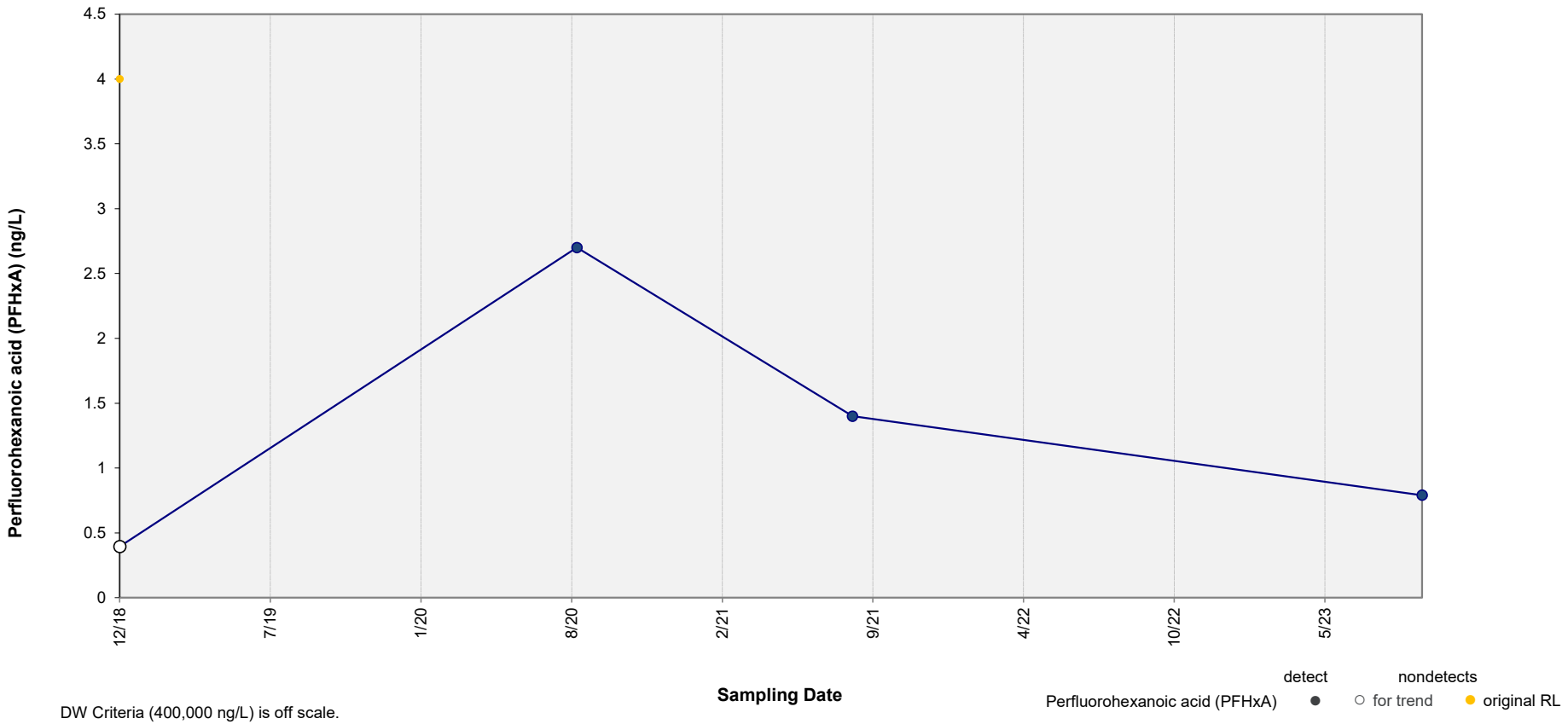
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluoroheptanoic acid (PFHpA) in Well X-9AR

RACER Saginaw

Figure D-59



DW Criteria (400,000 ng/L) is off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.625 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

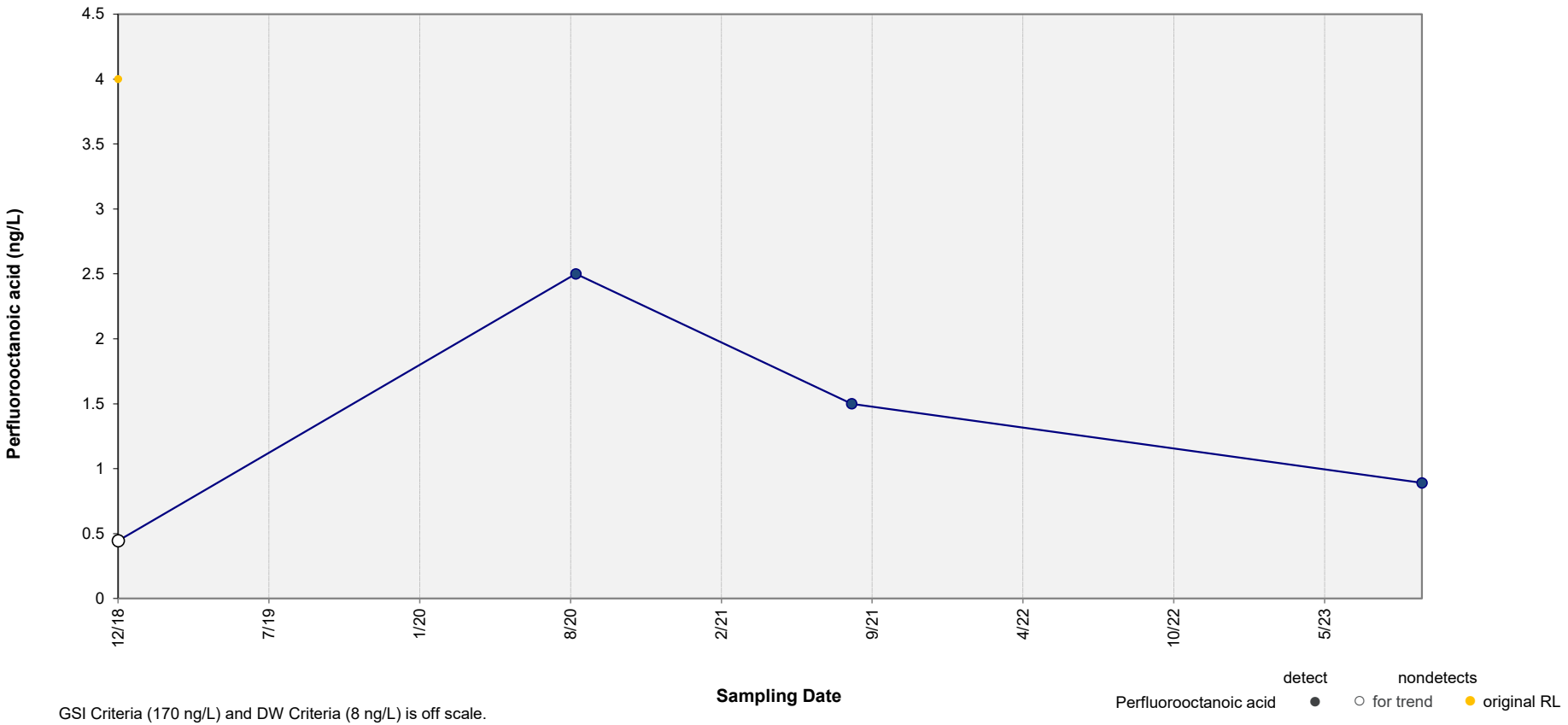
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorohexanoic acid (PFHxA) in Well X-9AR

RACER Saginaw

Figure D-60



GSI Criteria (170 ng/L) and DW Criteria (8 ng/L) is off scale.

Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.625 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

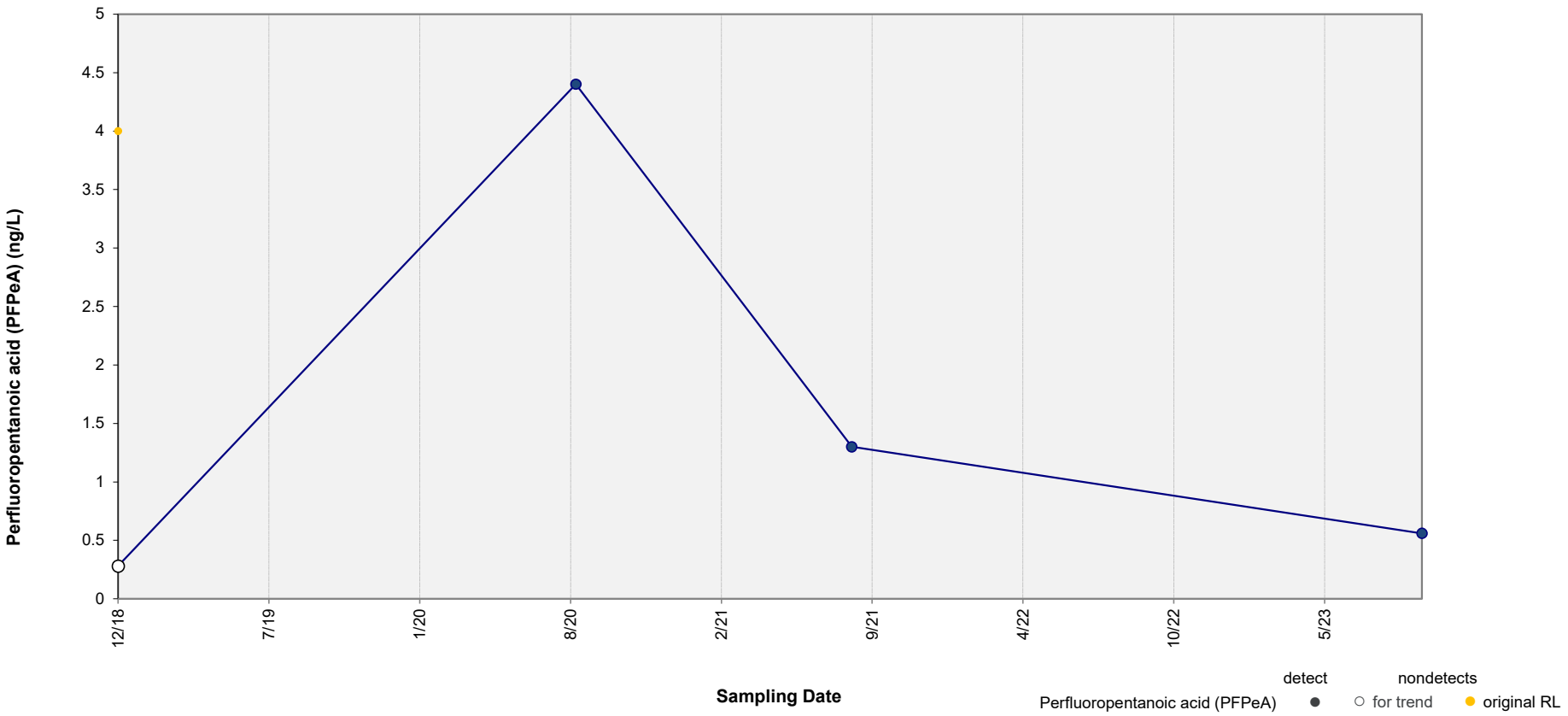
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well X-9AR

RACER Saginaw

Figure D-61



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.625 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **NA**

Median Slope Estimate = NA ng/L Per Day

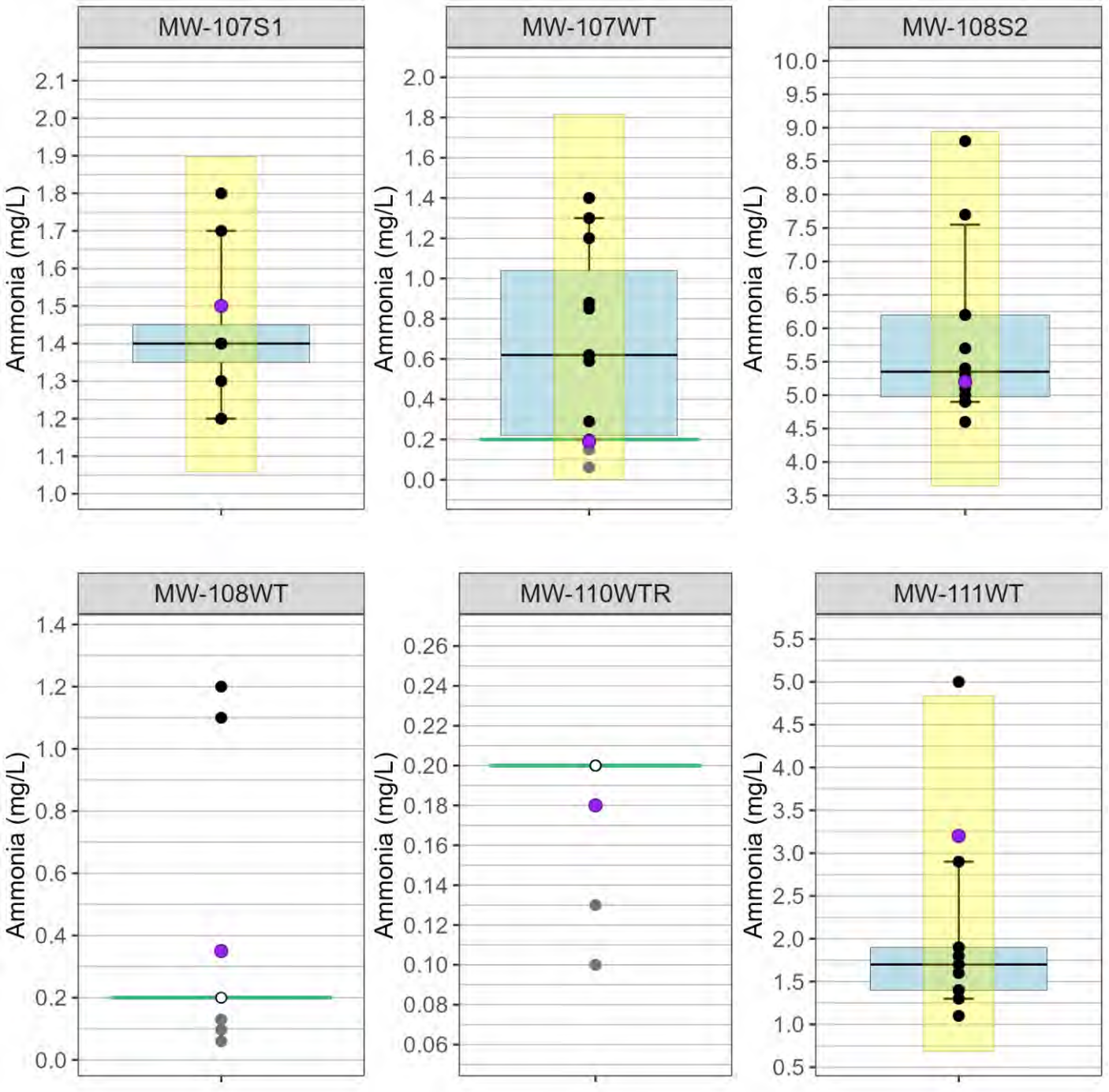
95% Confidence Interval = NA to NA ng/L Per Day

ARCADIS

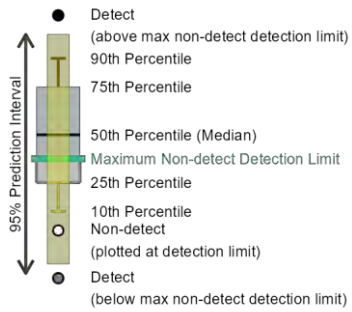
Concentration vs. Time Plot – Perfluoropentanoic acid (PFPeA) in Well X-9AR

RACER Saginaw

Figure D-62



Boxplot Legend



Color Code

Low Flow Result above maximum non-detect detection limit

Low Flow Result above below non-detect detection limit

No Purge Result

Symbol Code

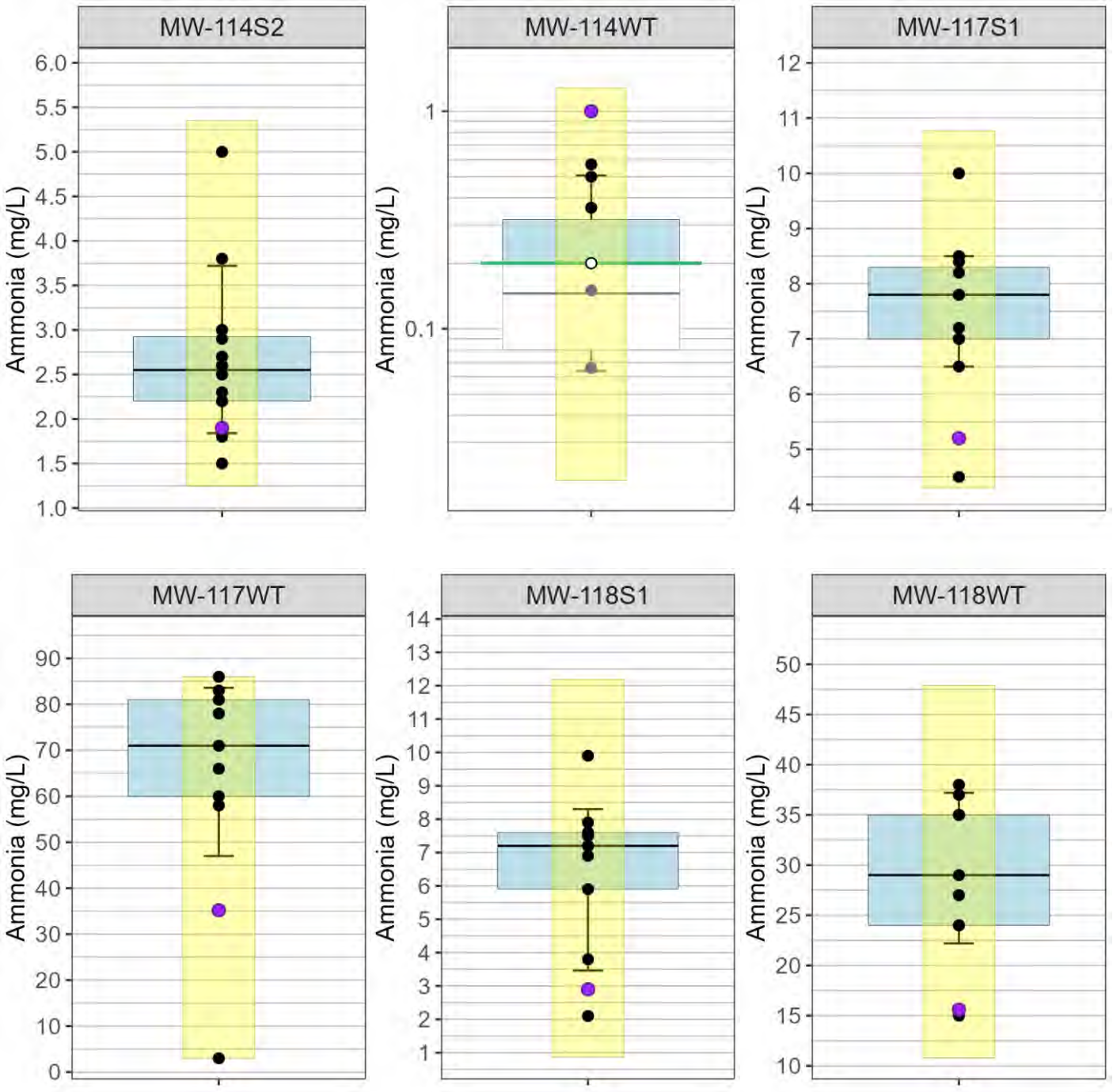
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

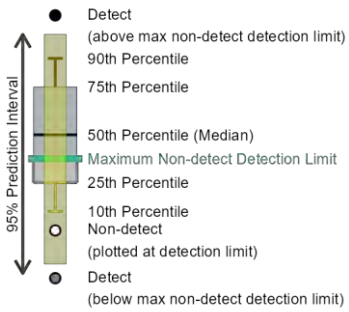
ANIONS: AMMONIA

ARCADIS

FIGURE
1-1



Boxplot Legend



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

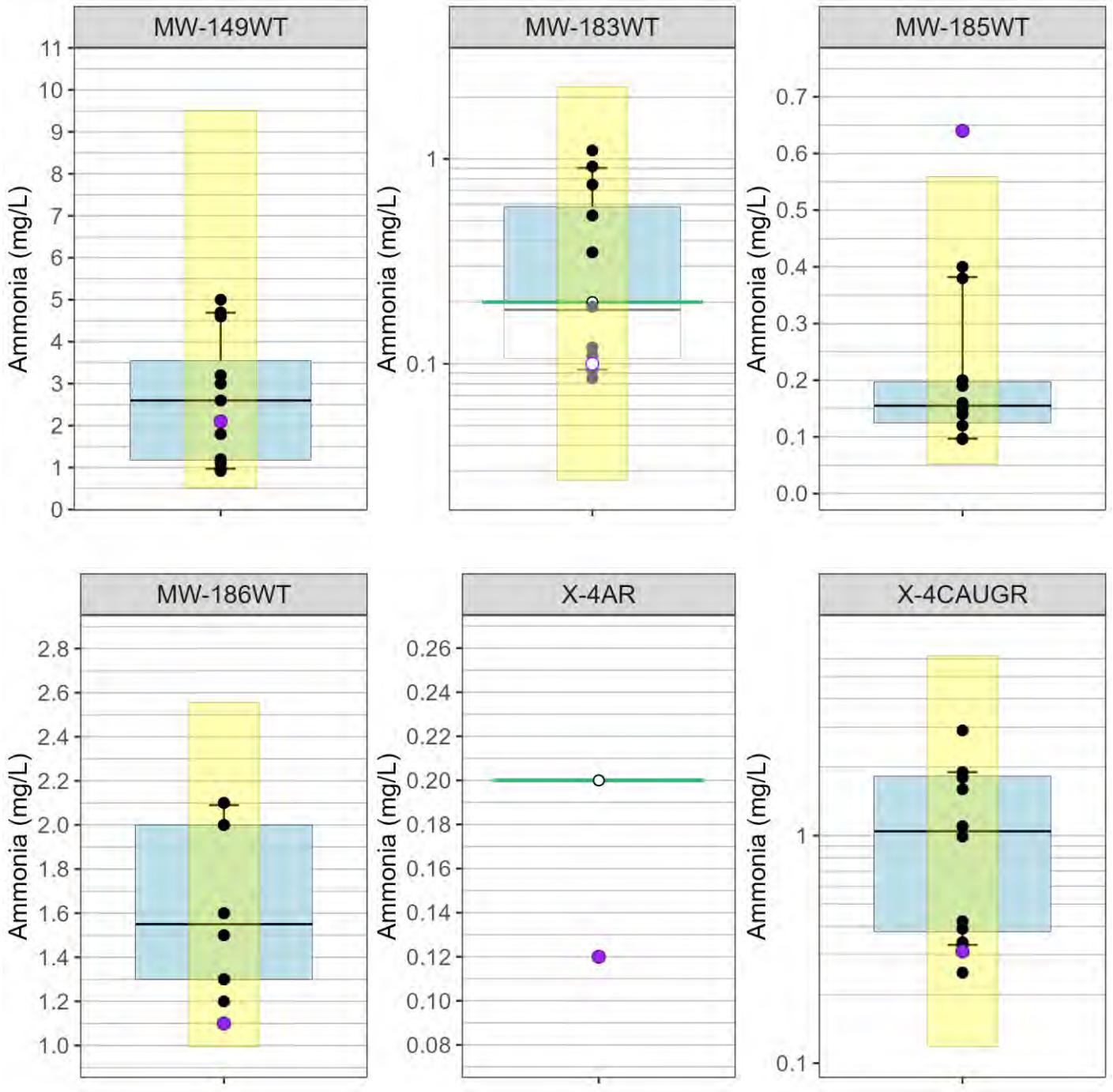
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

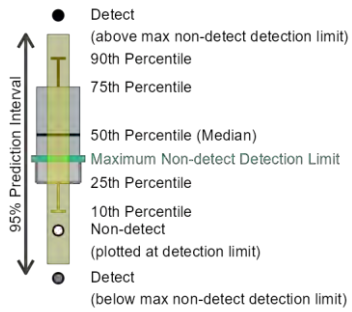
ANIONS: AMMONIA

ARCADIS

FIGURE
1-2



Boxplot Legend



Color Code

Low Flow Result above maximum non-detect detection limit

Low Flow Result above below non-detect detection limit

No Purge Result

Symbol Code

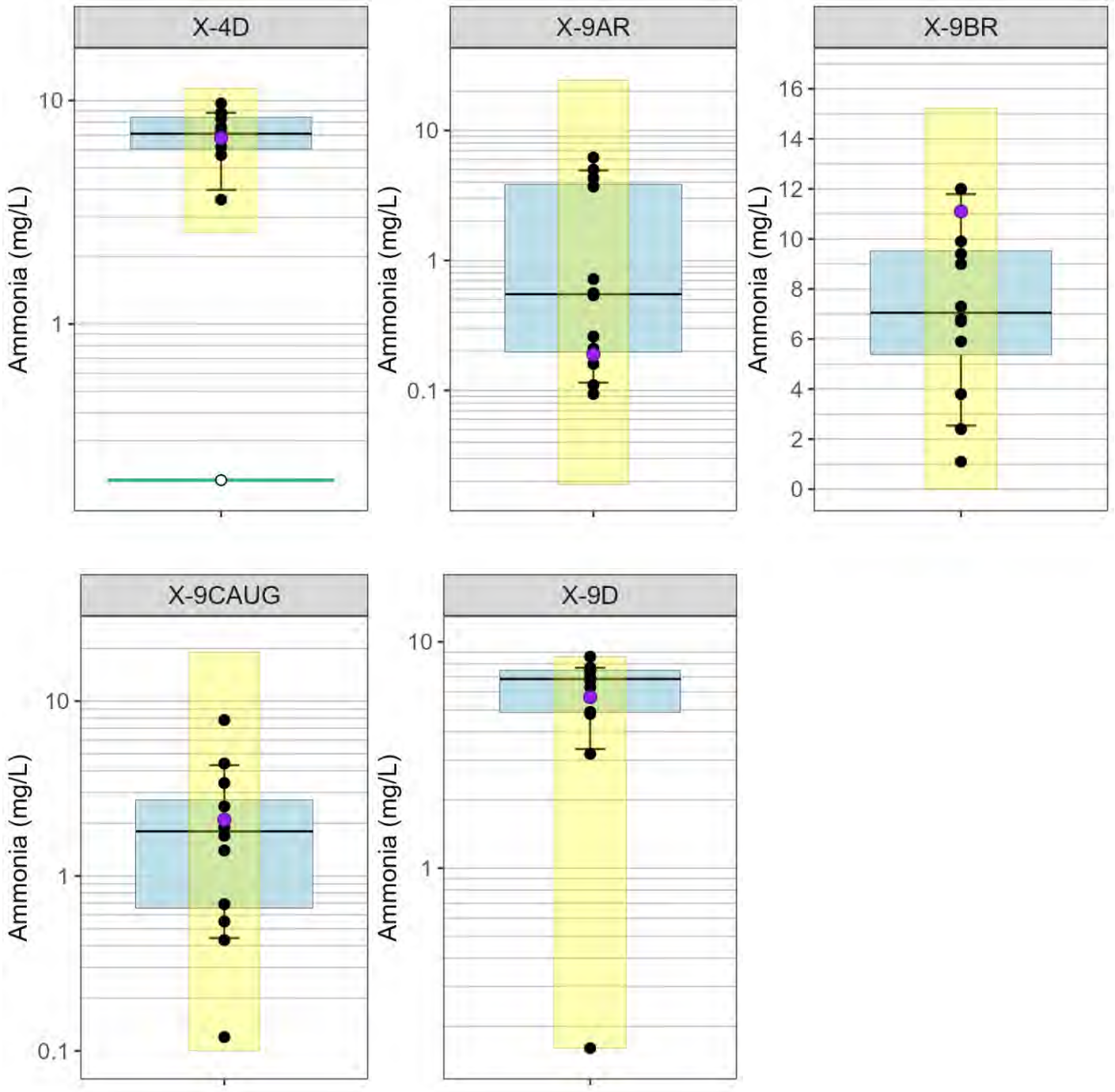
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

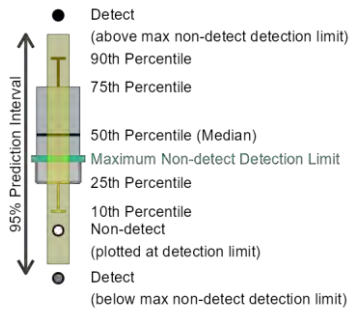
ANIONS: AMMONIA

ARCADIS

FIGURE
1-3



Boxplot Legend



Color Code

Low Flow Result above maximum non-detect detection limit

Low Flow Result above below non-detect detection limit

No Purge Result

Symbol Code

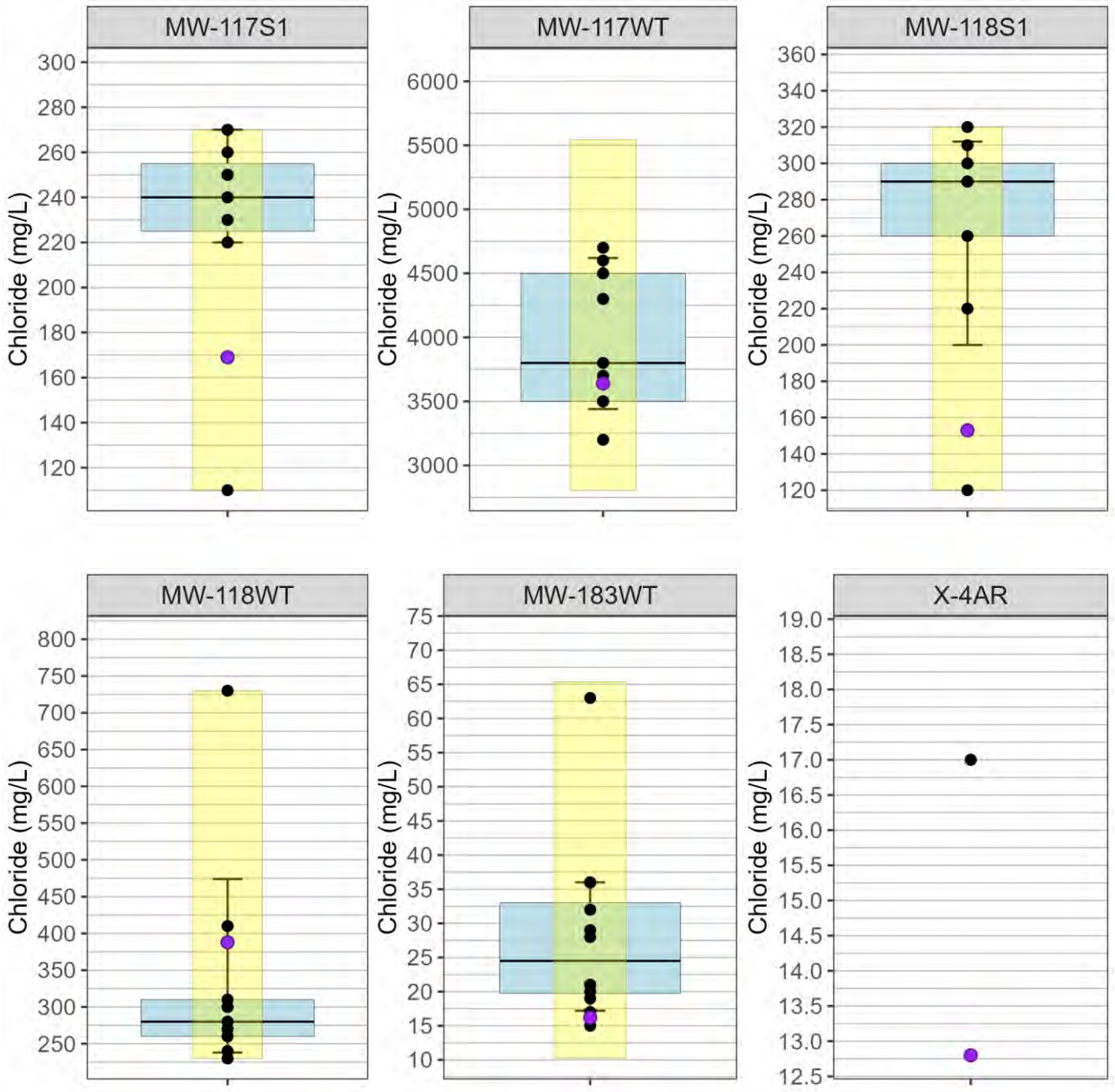
● Detected Result (closed symbol)

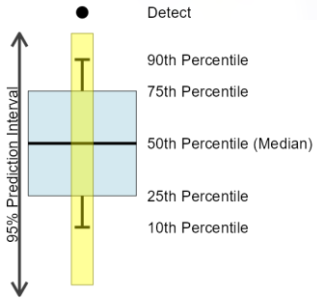
○ Non-detect result (open symbol)

ANIONS: AMMONIA

ARCADIS

FIGURE
1-4





Color Code

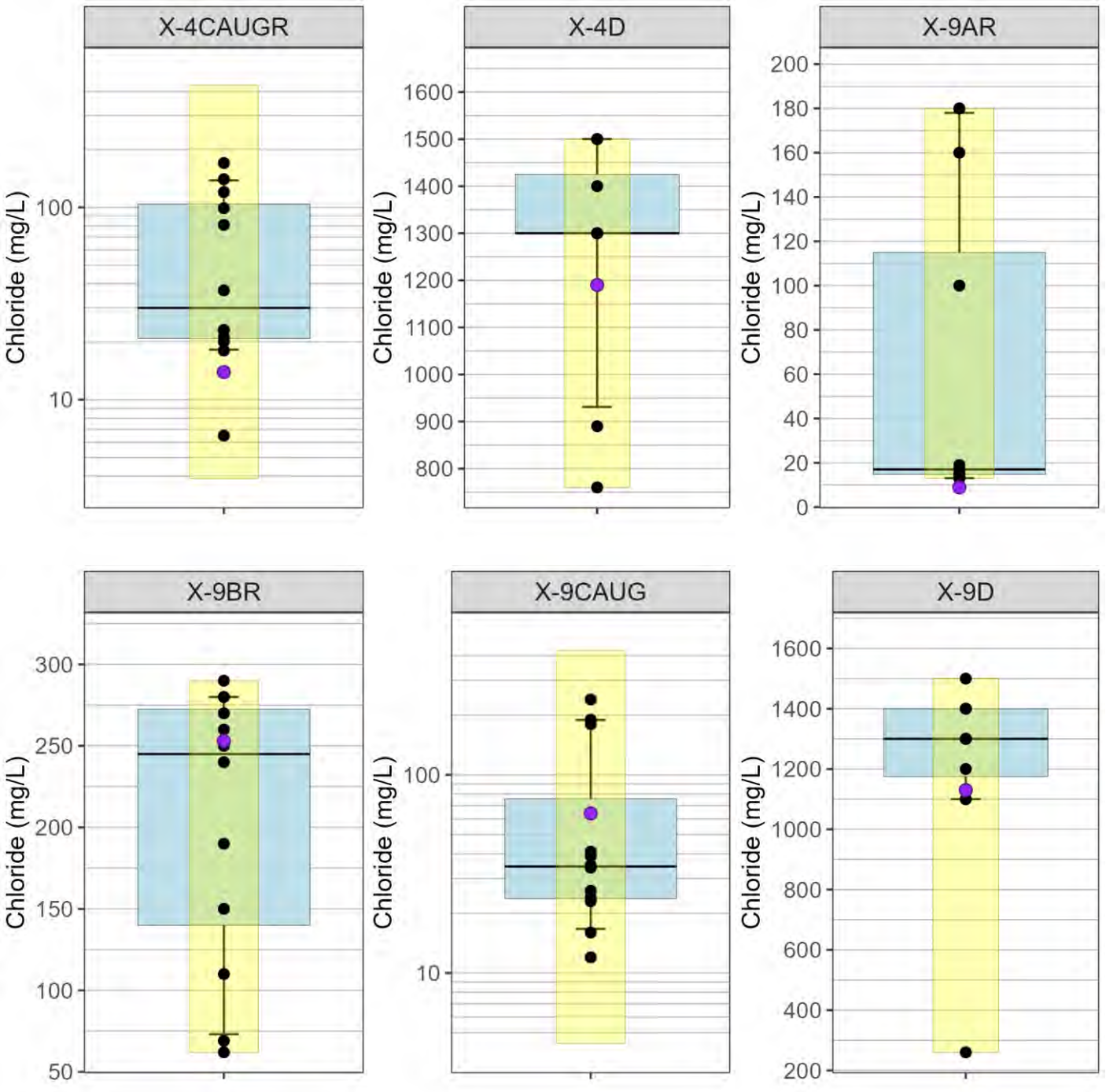
Low Flow Result

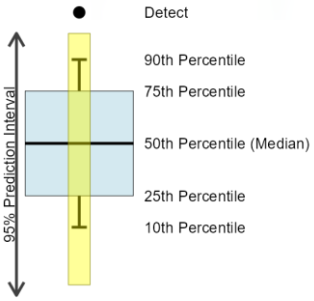
No Purge Result

ANIONS: CHLORIDE

ARCADIS

FIGURE 1-5





Color Code

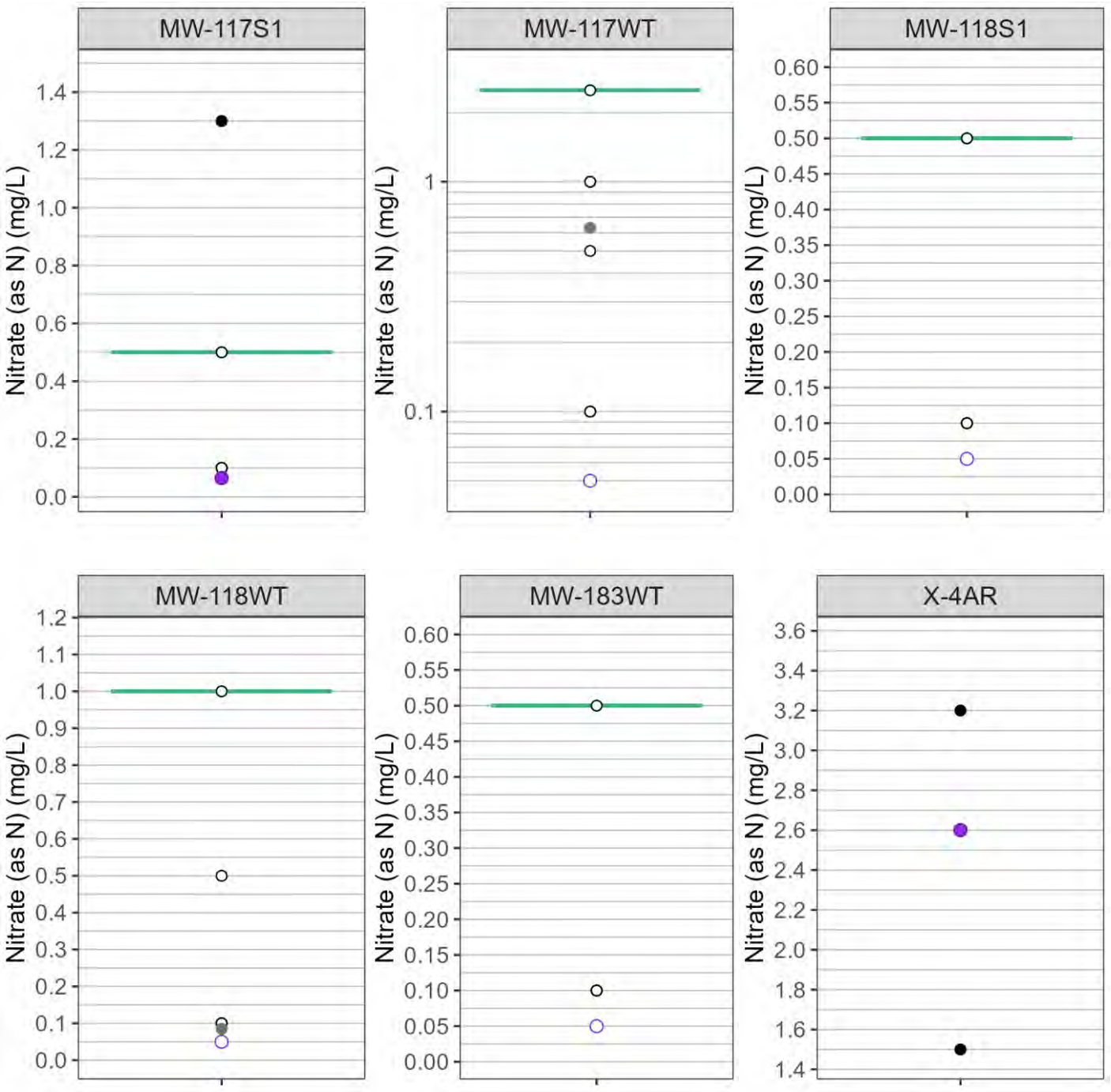
Low Flow Result

No Purge Result

ANIONS: CHLORIDE

ARCADIS

FIGURE 1-6



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

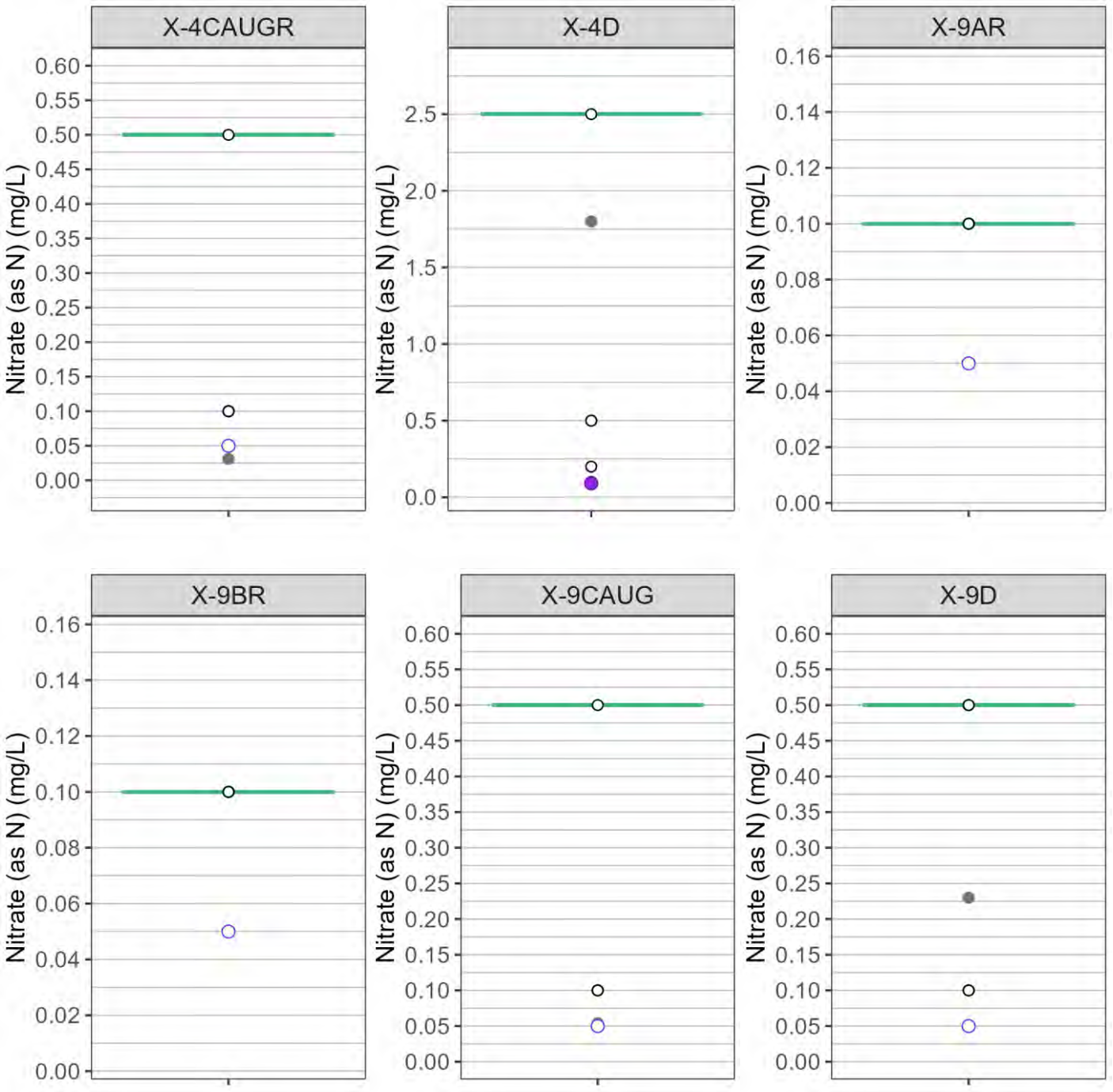
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

ANIONS: NITRATE (AS N)

ARCADIS

FIGURE
1-7



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

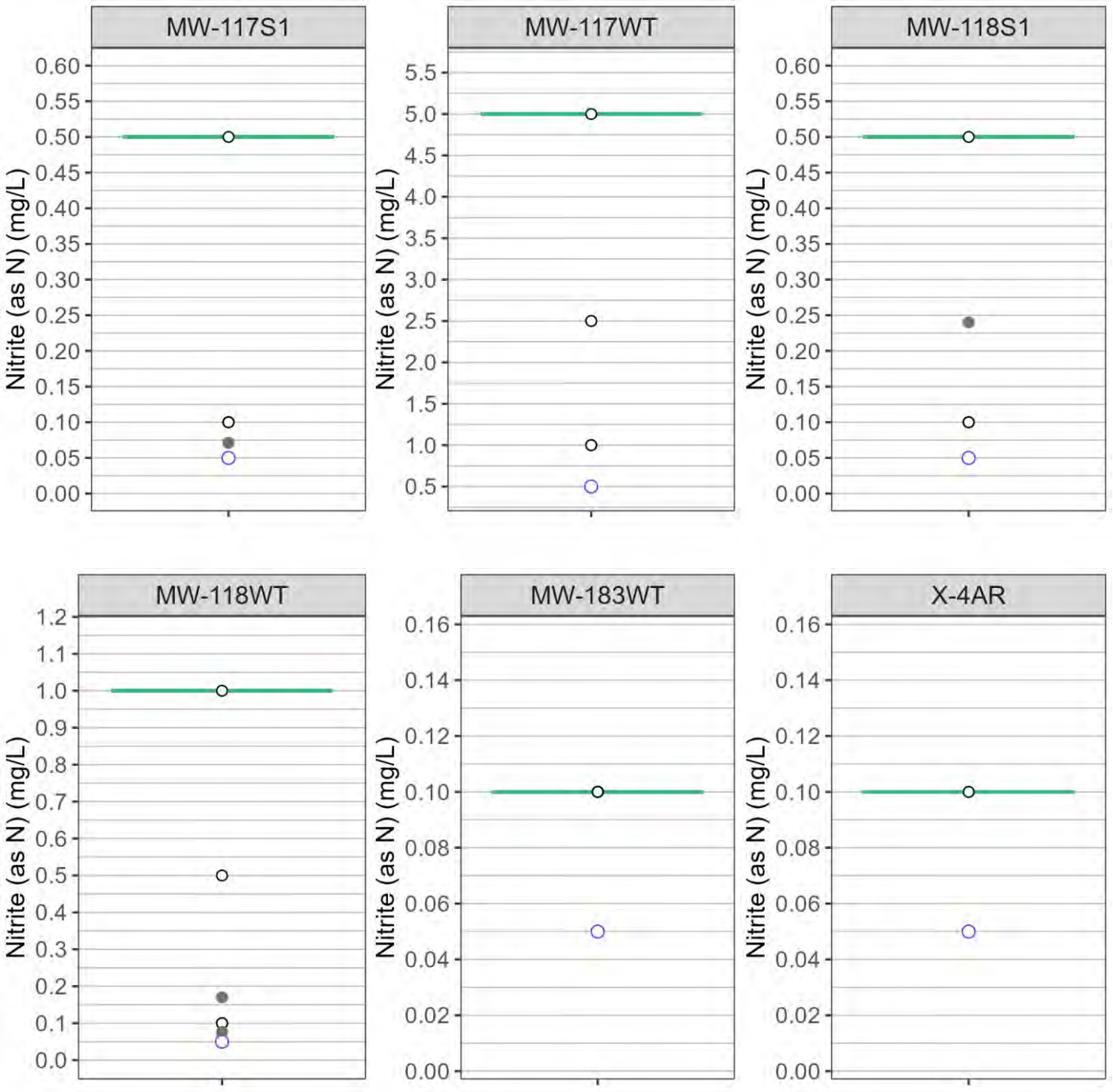
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

ANIONS: NITRATE (AS N)

ARCADIS

FIGURE
1-8



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

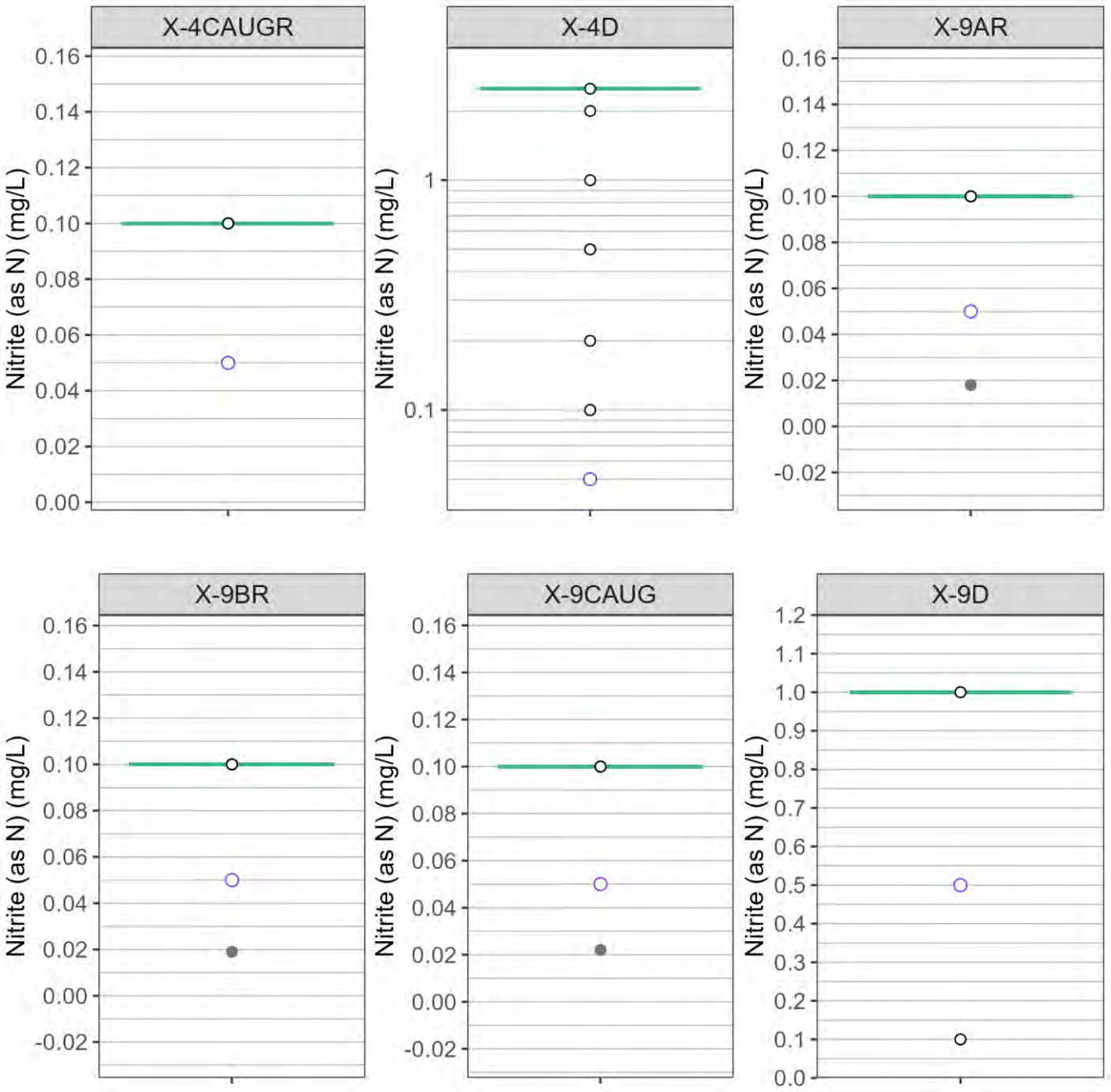
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

ANIONS: NITRITE (AS N)

ARCADIS

FIGURE
1-9



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

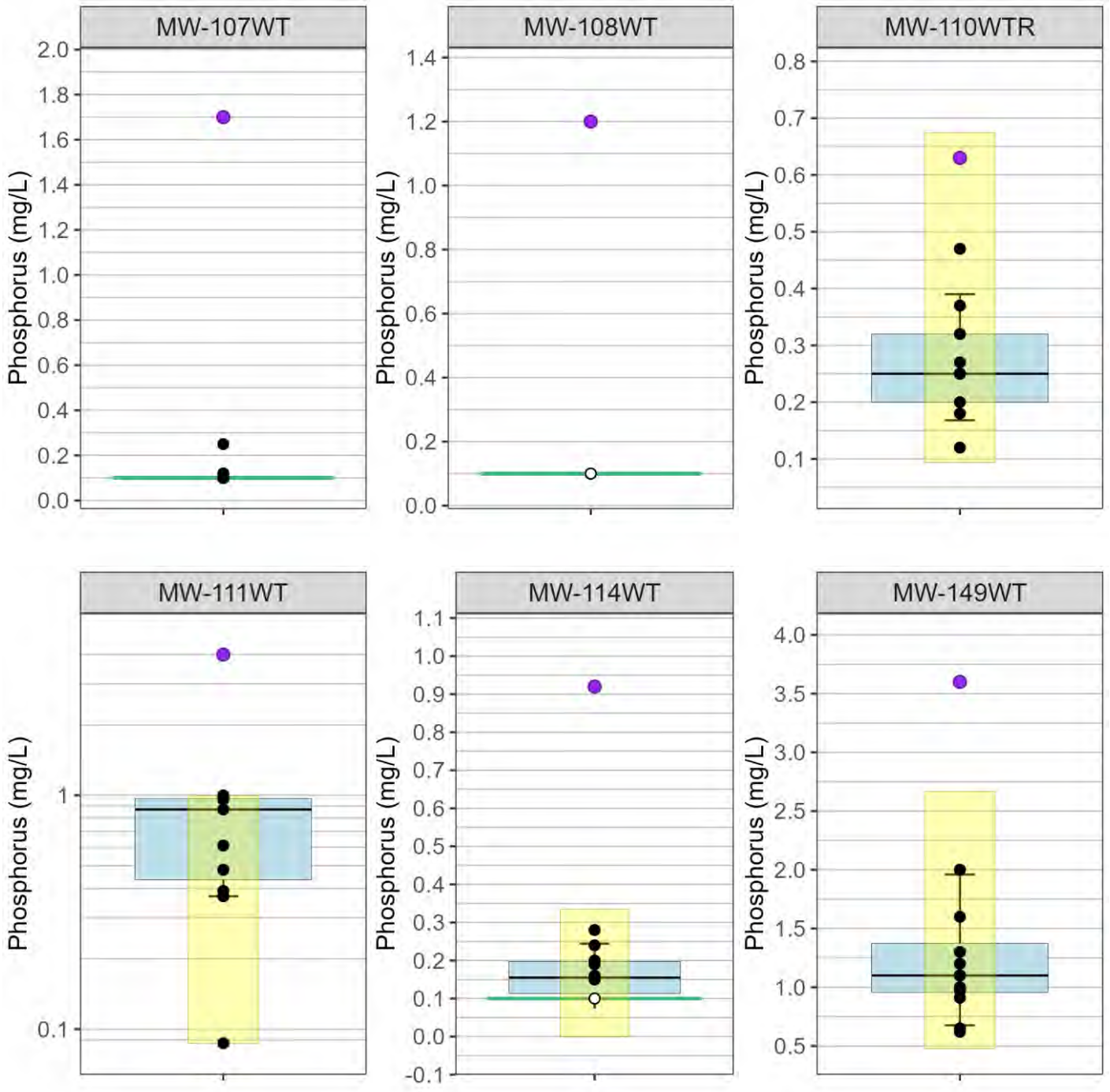
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

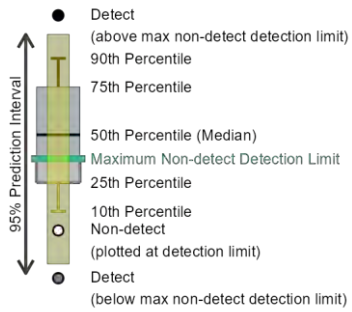
ANIONS: NITRITE (AS N)

ARCADIS

FIGURE
1-10



Boxplot Legend



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

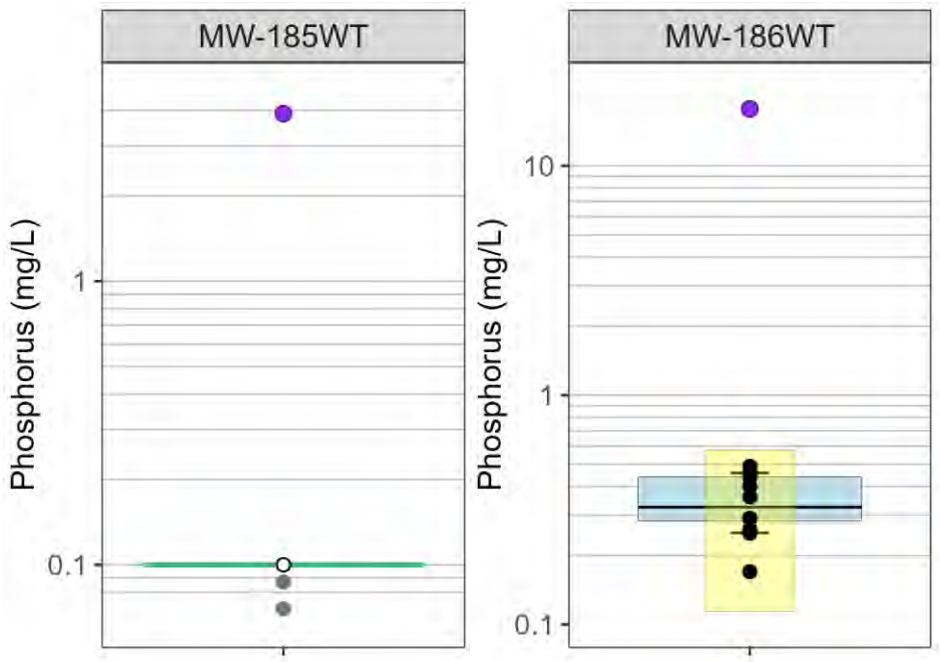
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

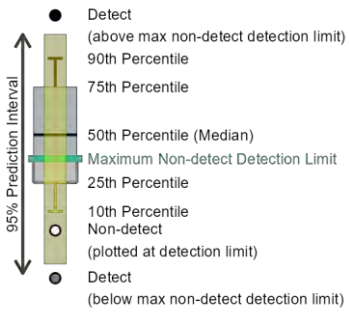
ANIONS: PHOSPHORUS

ARCADIS

FIGURE
1-11



Boxplot Legend



Color Code

Low Flow Result above maximum non-detect detection limit

Low Flow Result above below non-detect detection limit

No Purge Result

Symbol Code

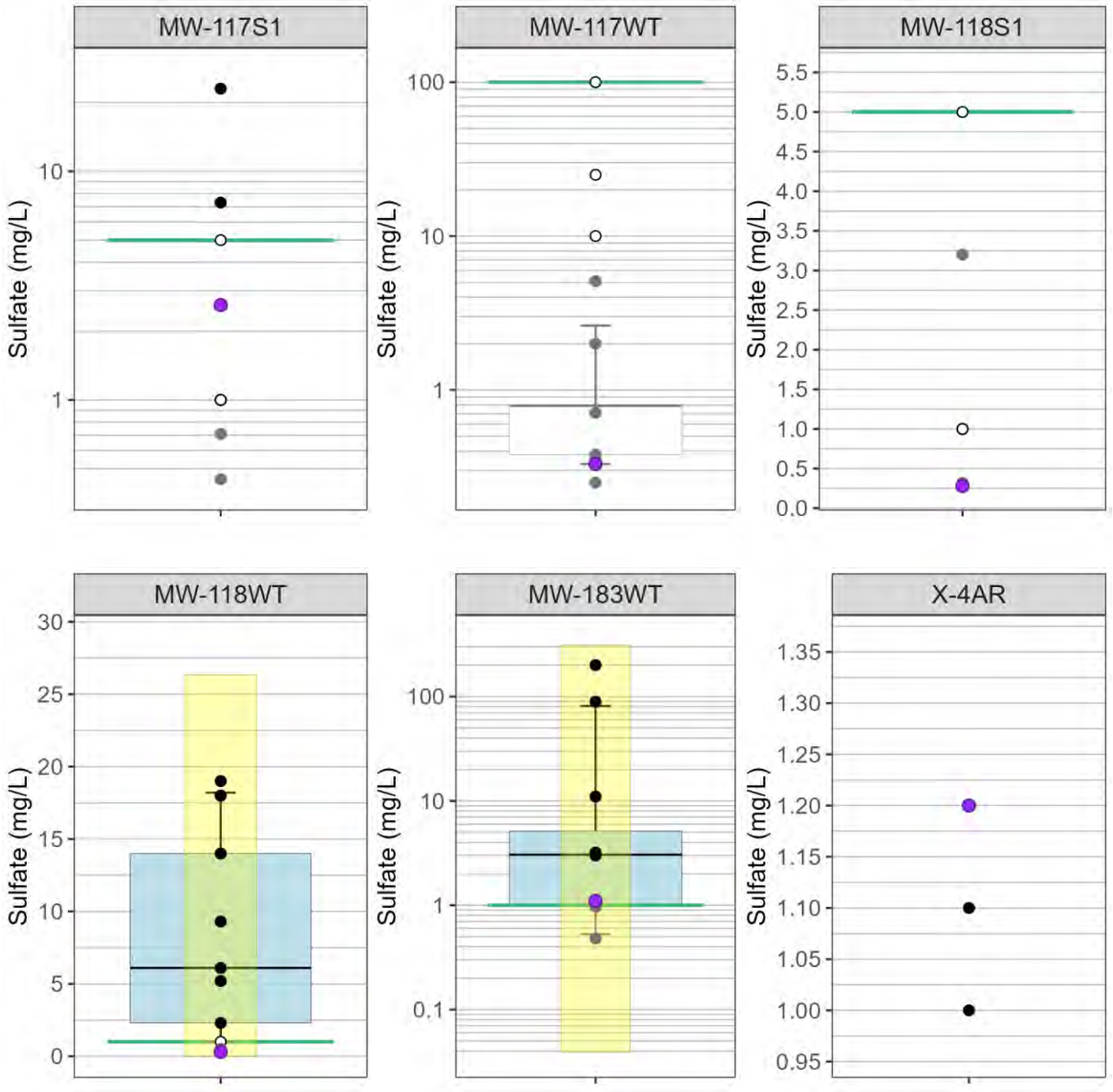
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

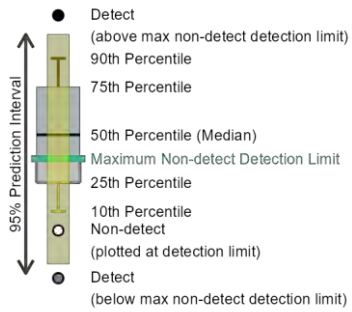
ANIONS: PHOSPHORUS

ARCADIS

FIGURE
1-12



Boxplot Legend



Color Code

Low Flow Result above maximum non-detect detection limit

Low Flow Result above below non-detect detection limit

No Purge Result

Symbol Code

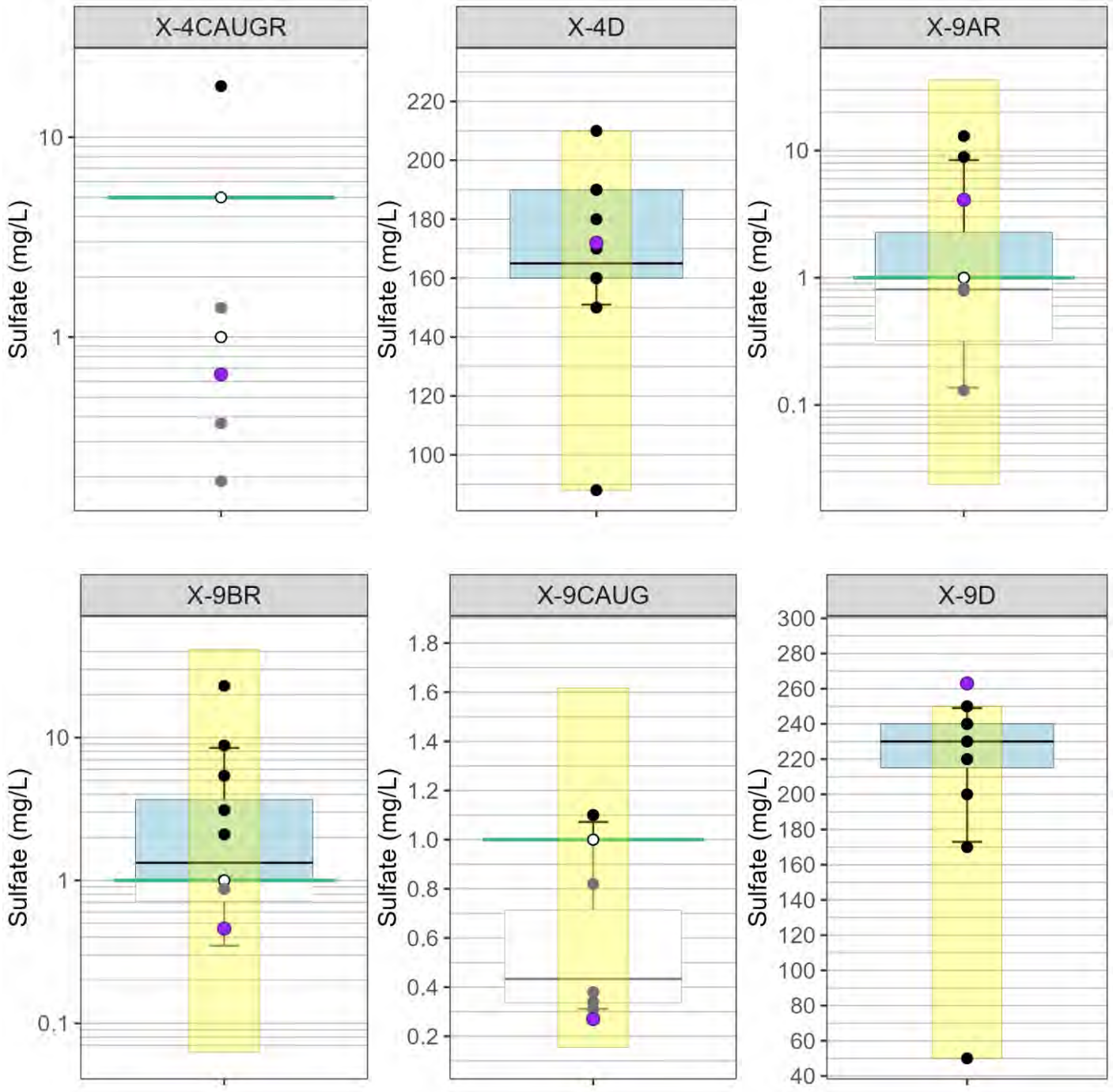
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

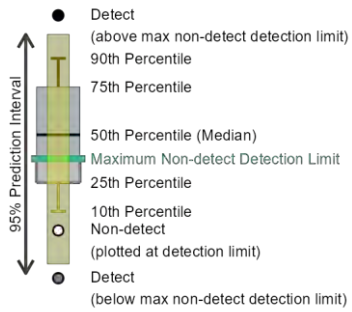
ANIONS: SULFATE

ARCADIS

FIGURE
1-13



Boxplot Legend



Color Code

Low Flow Result above maximum non-detect detection limit

Low Flow Result above below non-detect detection limit

No Purge Result

Symbol Code

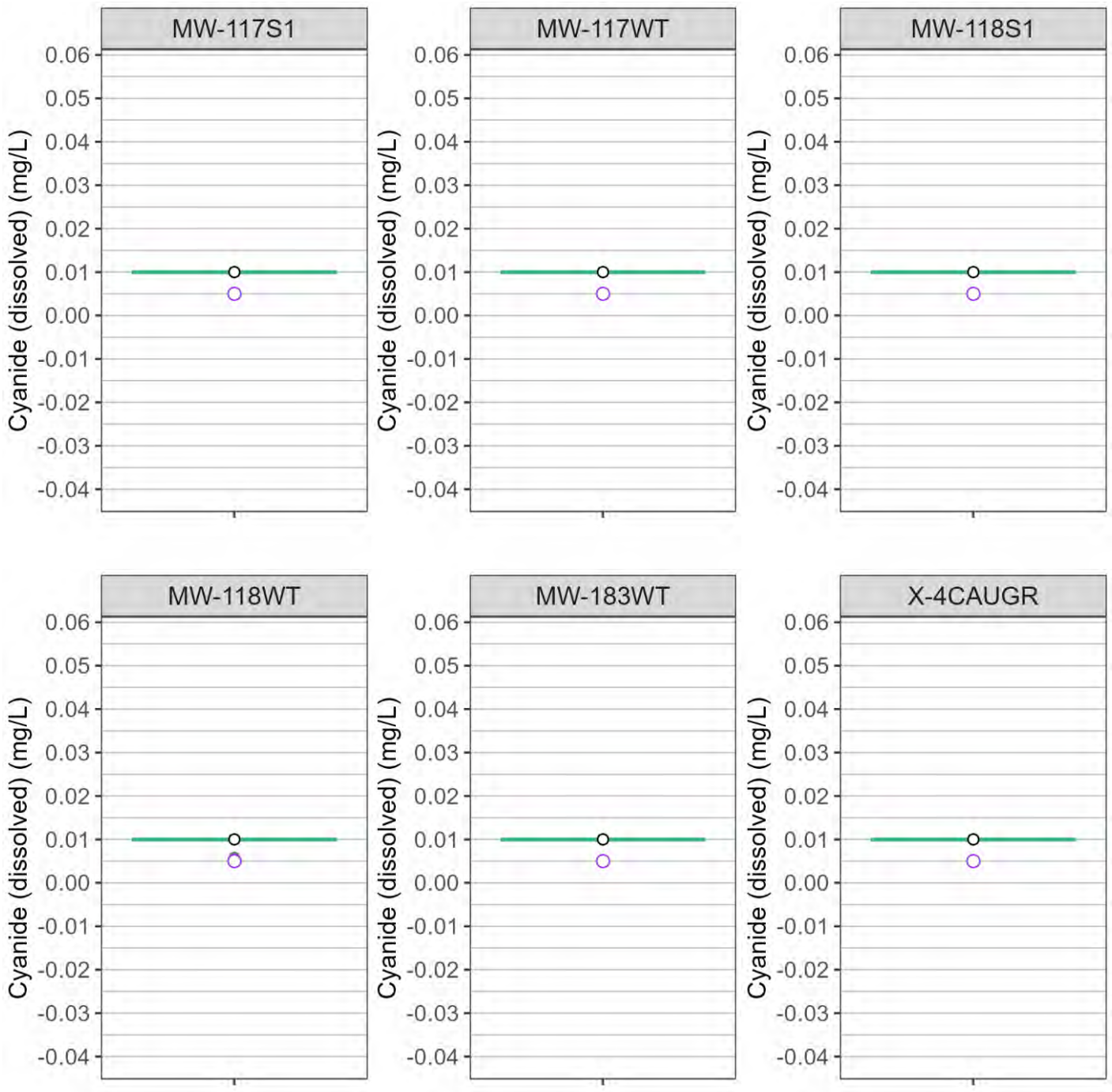
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

ANIONS: SULFATE

ARCADIS

FIGURE
1-14



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

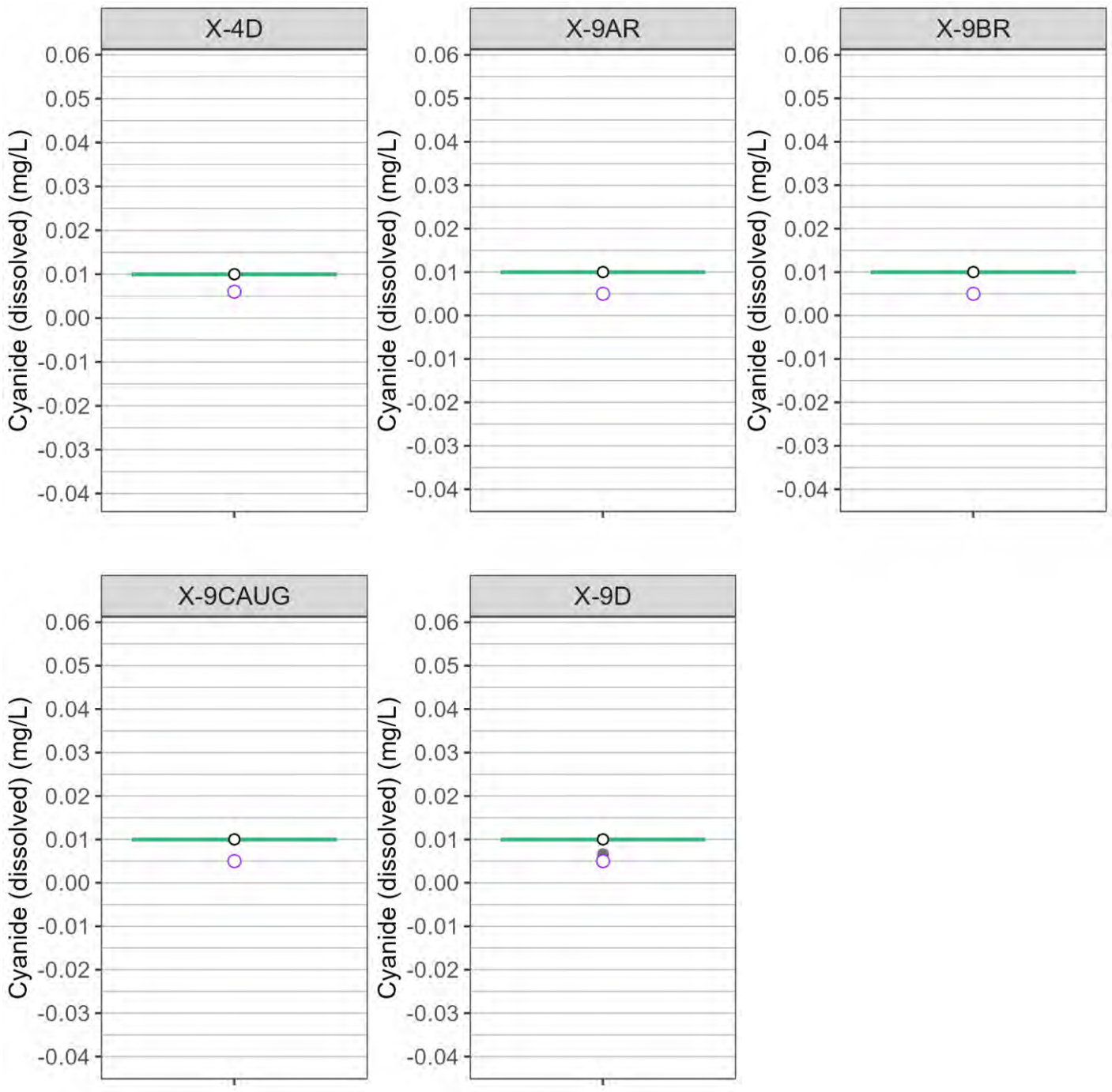
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

CYANIDE: CYANIDE (DISSOLVED)

ARCADIS

FIGURE
2-1



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

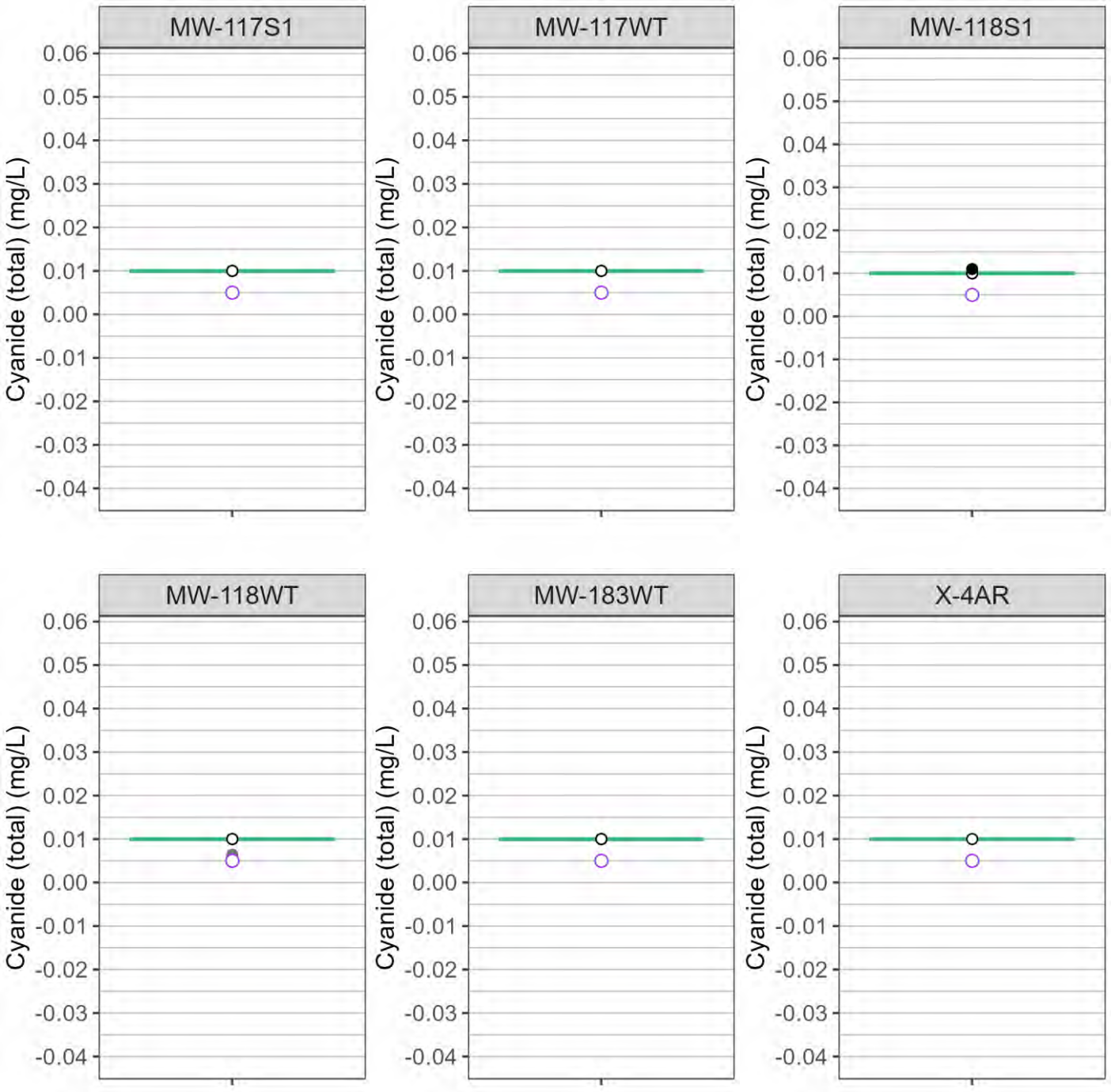
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

CYANIDE: CYANIDE (DISSOLVED)

ARCADIS

FIGURE
2-2



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

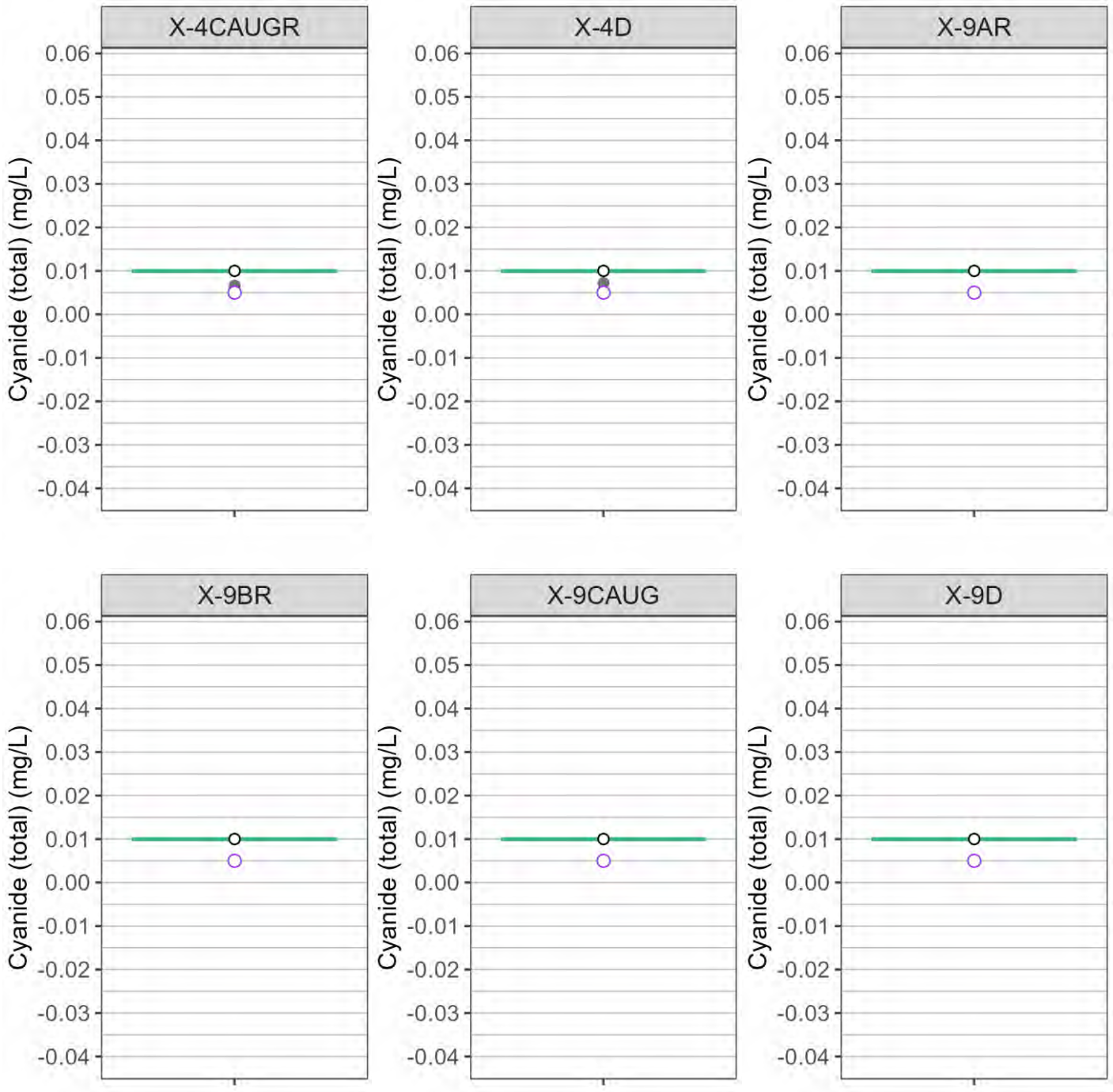
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

CYANIDE: CYANIDE (TOTAL)

ARCADIS

FIGURE
2-3



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

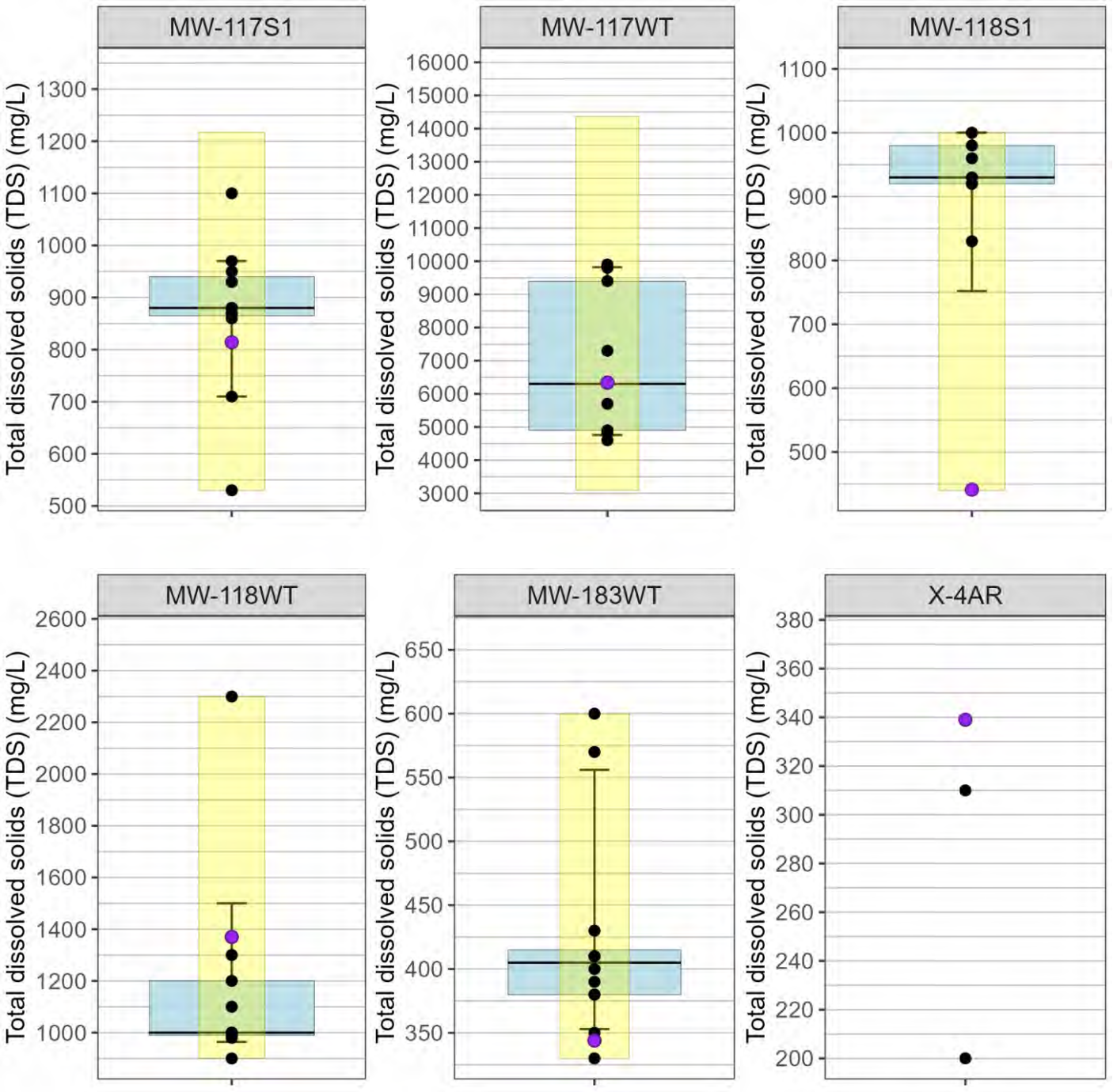
● Detected Result (closed symbol)

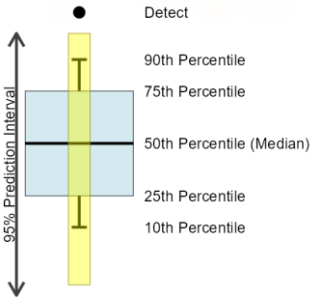
○ Non-detect result (open symbol)

CYANIDE: CYANIDE (TOTAL)

ARCADIS

FIGURE
2-4





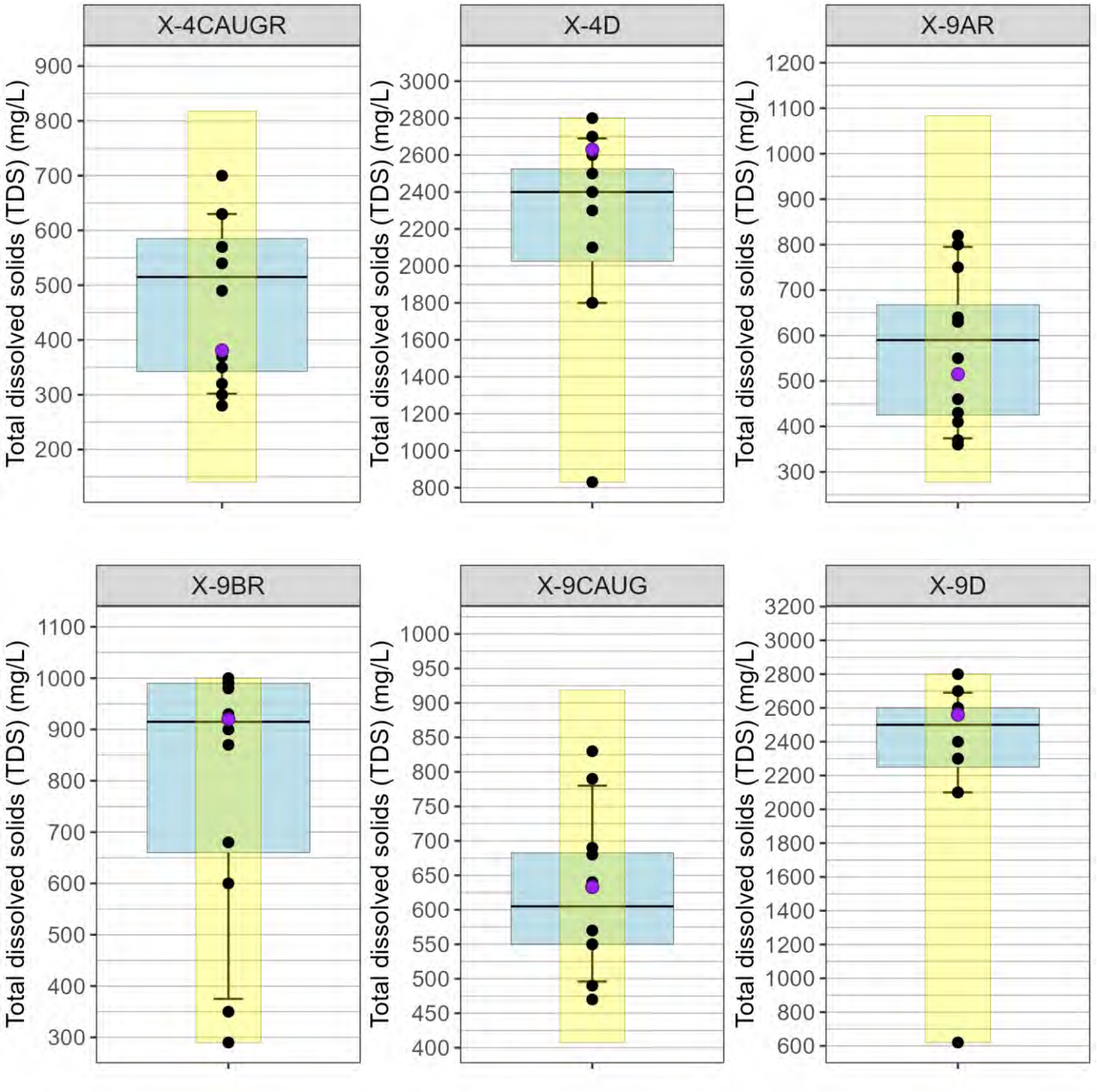
Color Code

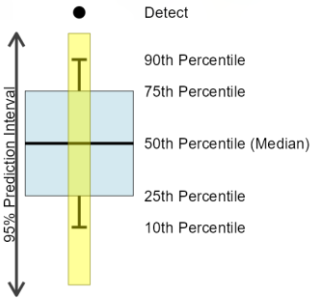
Low Flow Result
No Purge Result

GENCHEM: TOTAL DISSOLVED SOLIDS (TDS)

ARCADIS

FIGURE
3-1





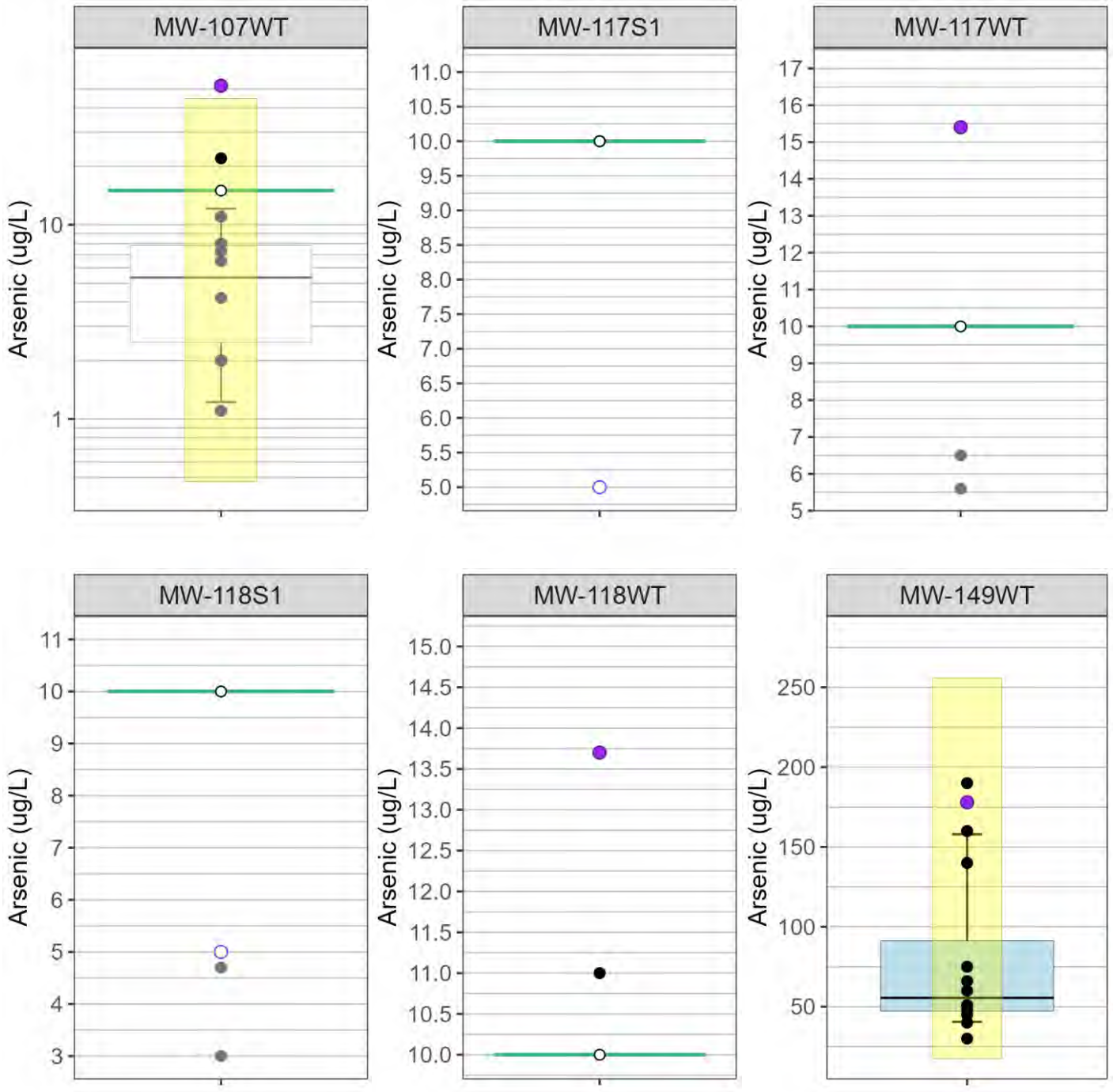
Color Code

Low Flow Result
No Purge Result

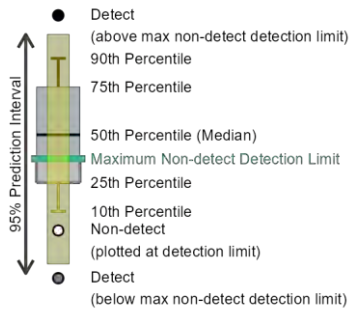
GENCHEM: TOTAL DISSOLVED SOLIDS (TDS)

ARCADIS

FIGURE
3-2



Boxplot Legend



Color Code

Low Flow Result above maximum non-detect detection limit

Low Flow Result above below non-detect detection limit

No Purge Result

Symbol Code

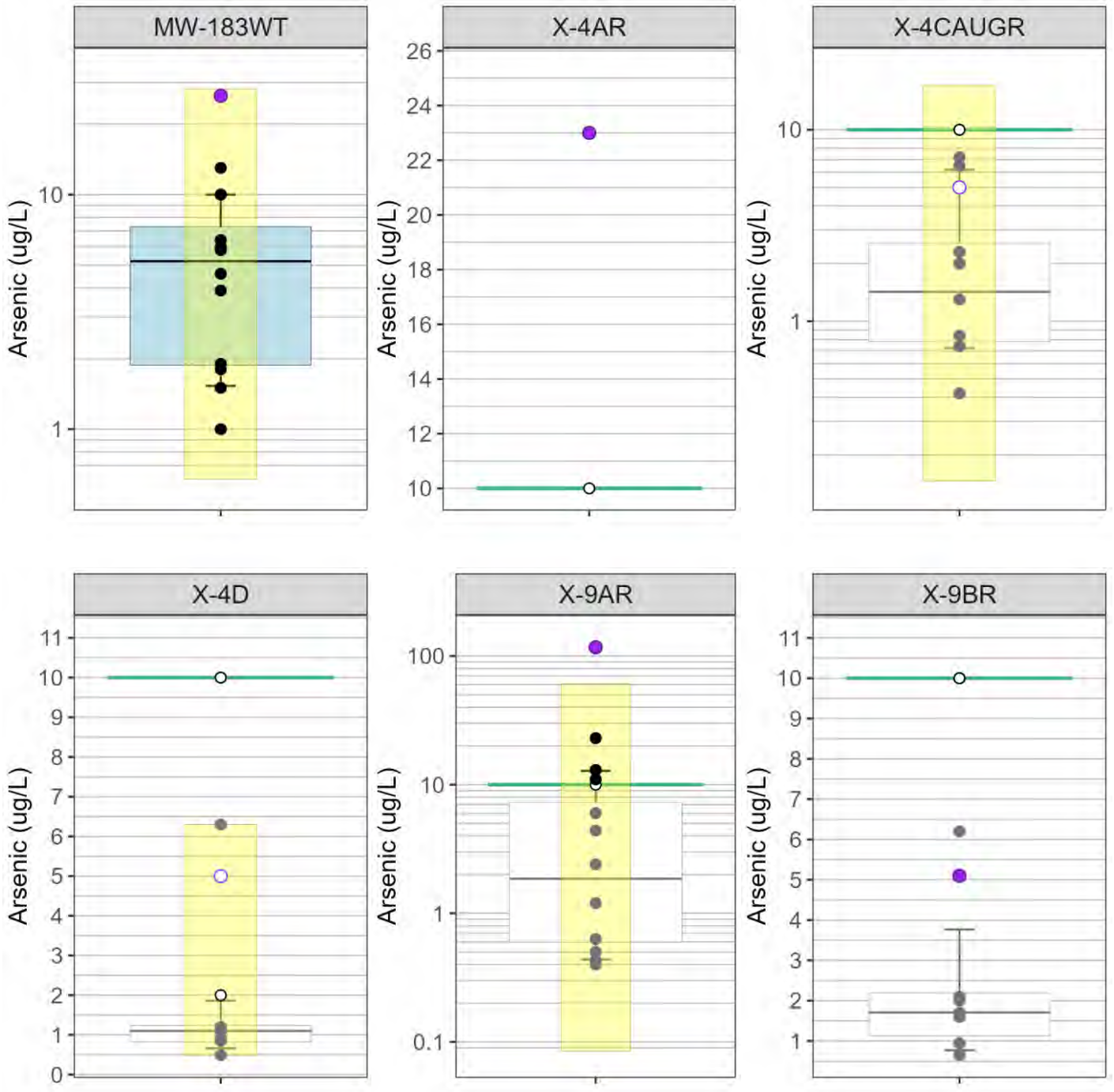
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

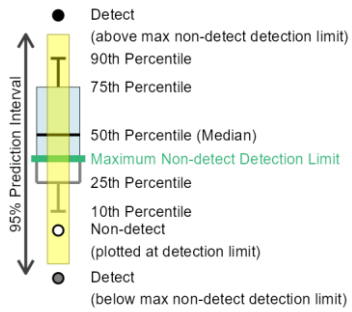
METALS: ARSENIC

ARCADIS

FIGURE
4-1



Boxplot Legend



Color Code

Low Flow Result above maximum non-detect detection limit

Low Flow Result above below non-detect detection limit

No Purge Result

Symbol Code

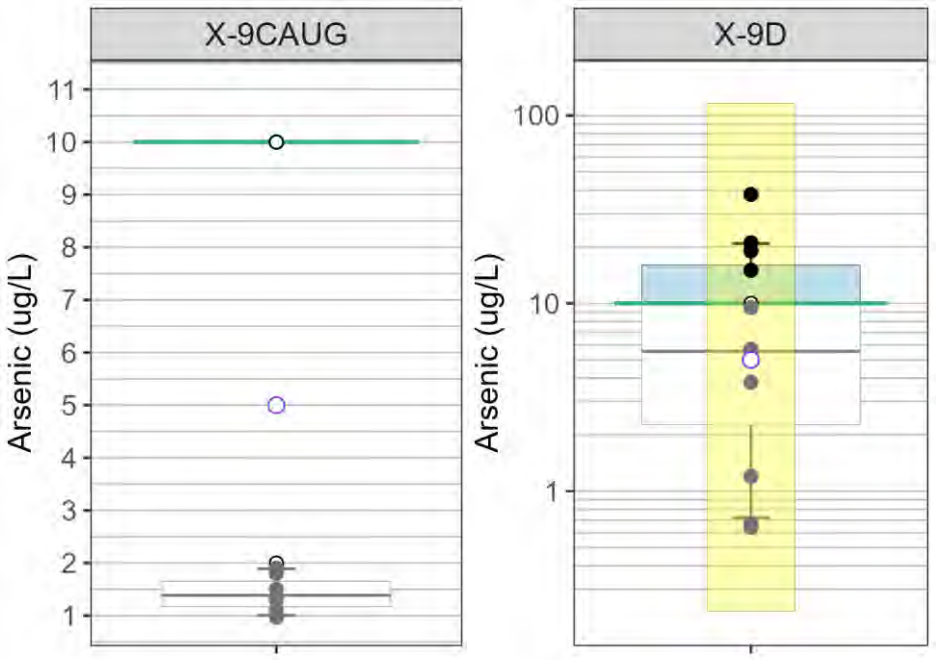
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

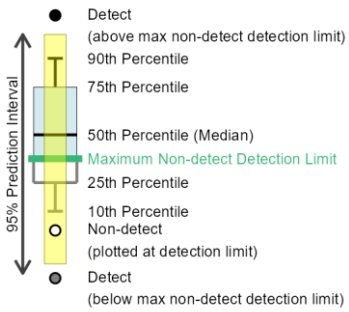
METALS: ARSENIC

ARCADIS

FIGURE
4-2



Boxplot Legend



Color Code

Low Flow Result above maximum non-detect detection limit

Low Flow Result above below non-detect detection limit

No Purge Result

Symbol Code

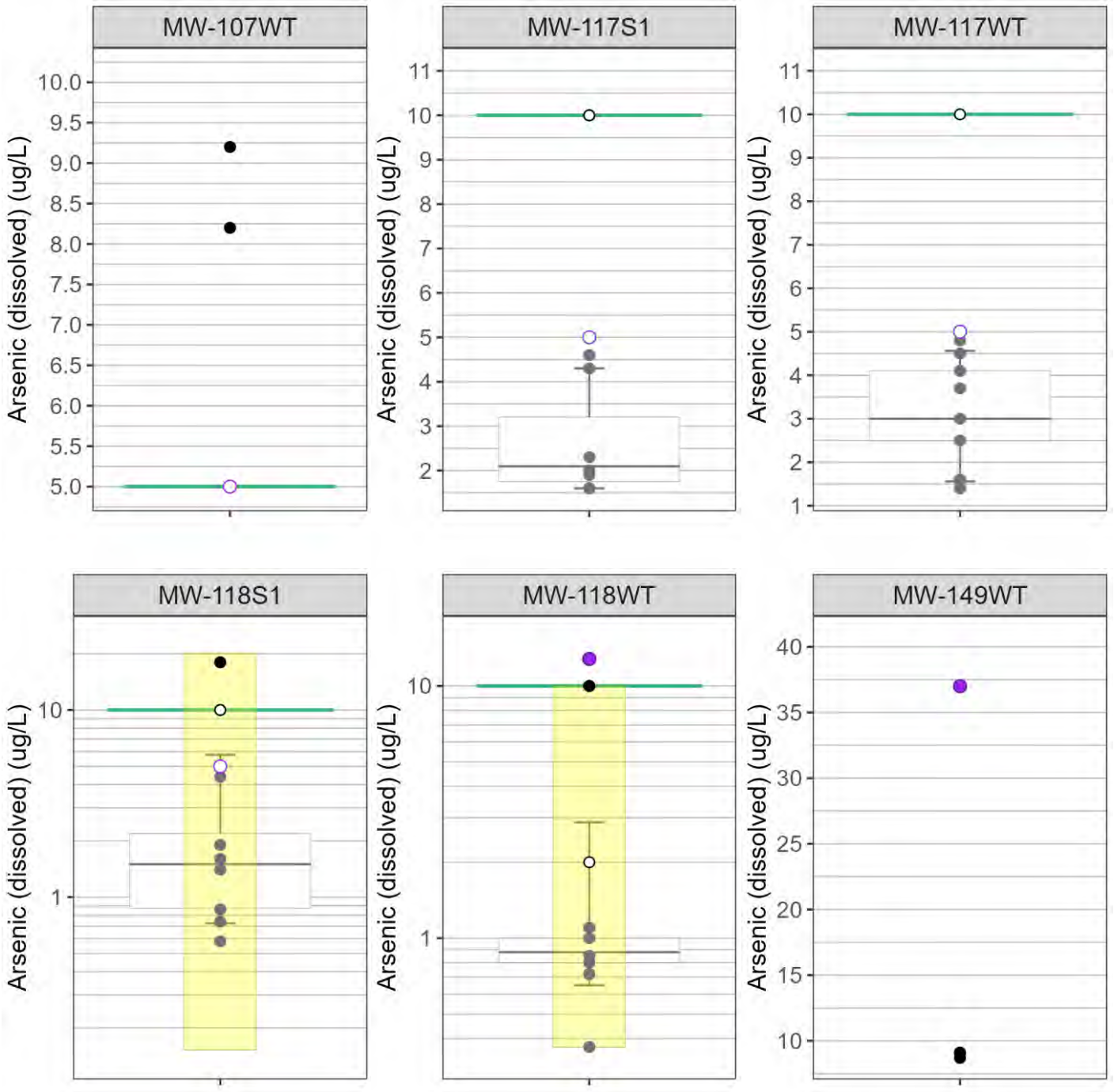
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

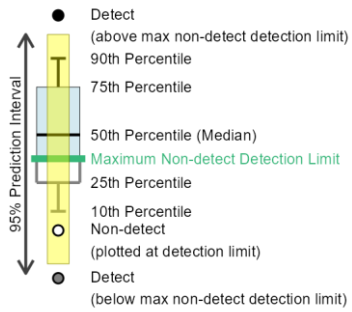
METALS: ARSENIC

ARCADIS

FIGURE
4-3



Boxplot Legend



Color Code

Low Flow Result above maximum non-detect detection limit

Low Flow Result above below non-detect detection limit

No Purge Result

Symbol Code

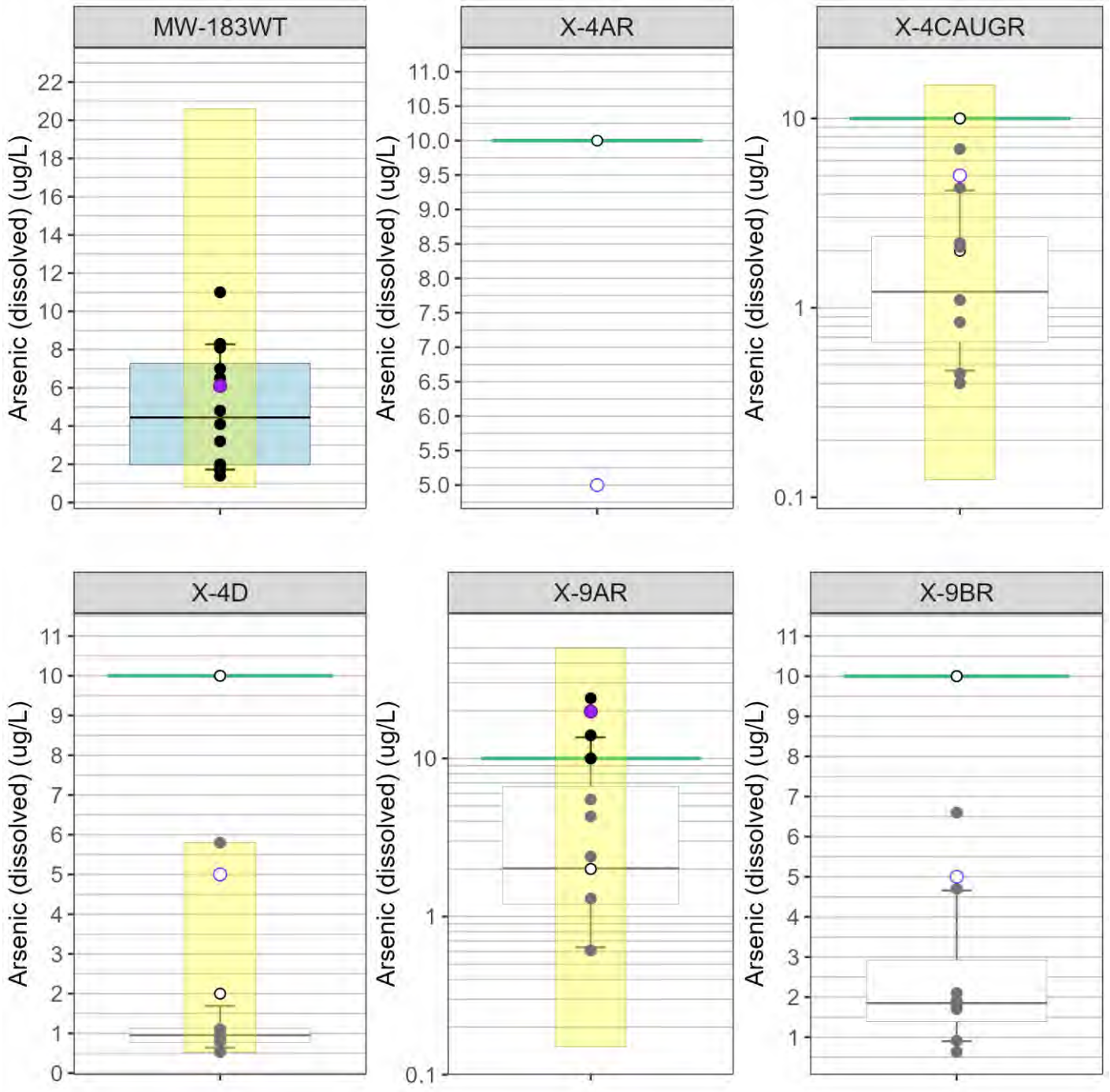
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

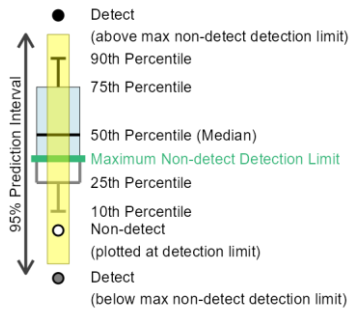
METALS: ARSENIC (DISSOLVED)

ARCADIS

FIGURE
4-4



Boxplot Legend



Color Code

Low Flow Result above maximum non-detect detection limit

Low Flow Result above below non-detect detection limit

No Purge Result

Symbol Code

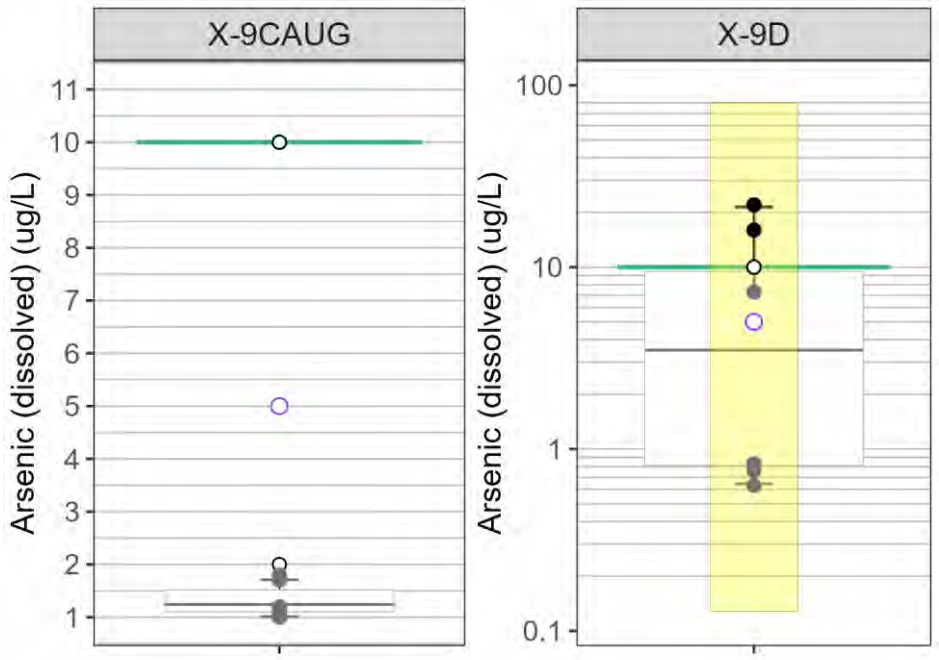
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

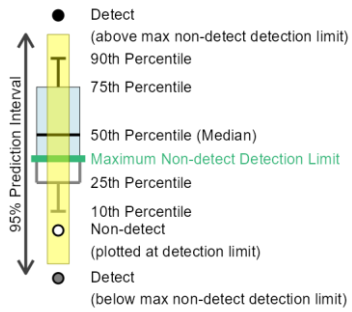
METALS: ARSENIC (DISSOLVED)

ARCADIS

FIGURE
4-5



Boxplot Legend



Color Code

Low Flow Result above maximum non-detect detection limit

Low Flow Result above below non-detect detection limit

No Purge Result

Symbol Code

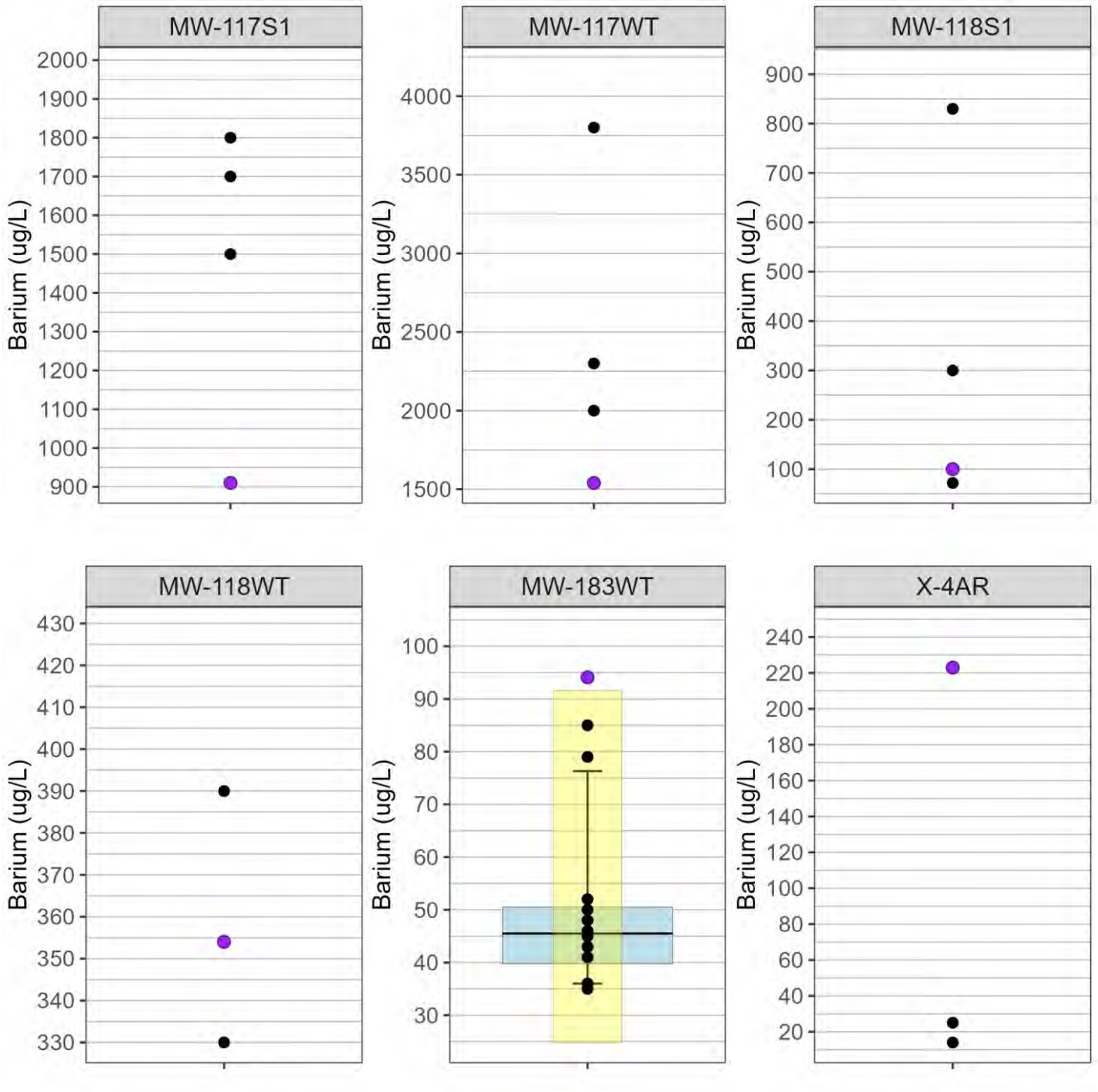
● Detected Result (closed symbol)

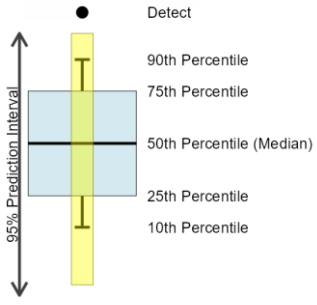
○ Non-detect result (open symbol)

METALS: ARSENIC (DISSOLVED)

ARCADIS

FIGURE
4-6





Color Code

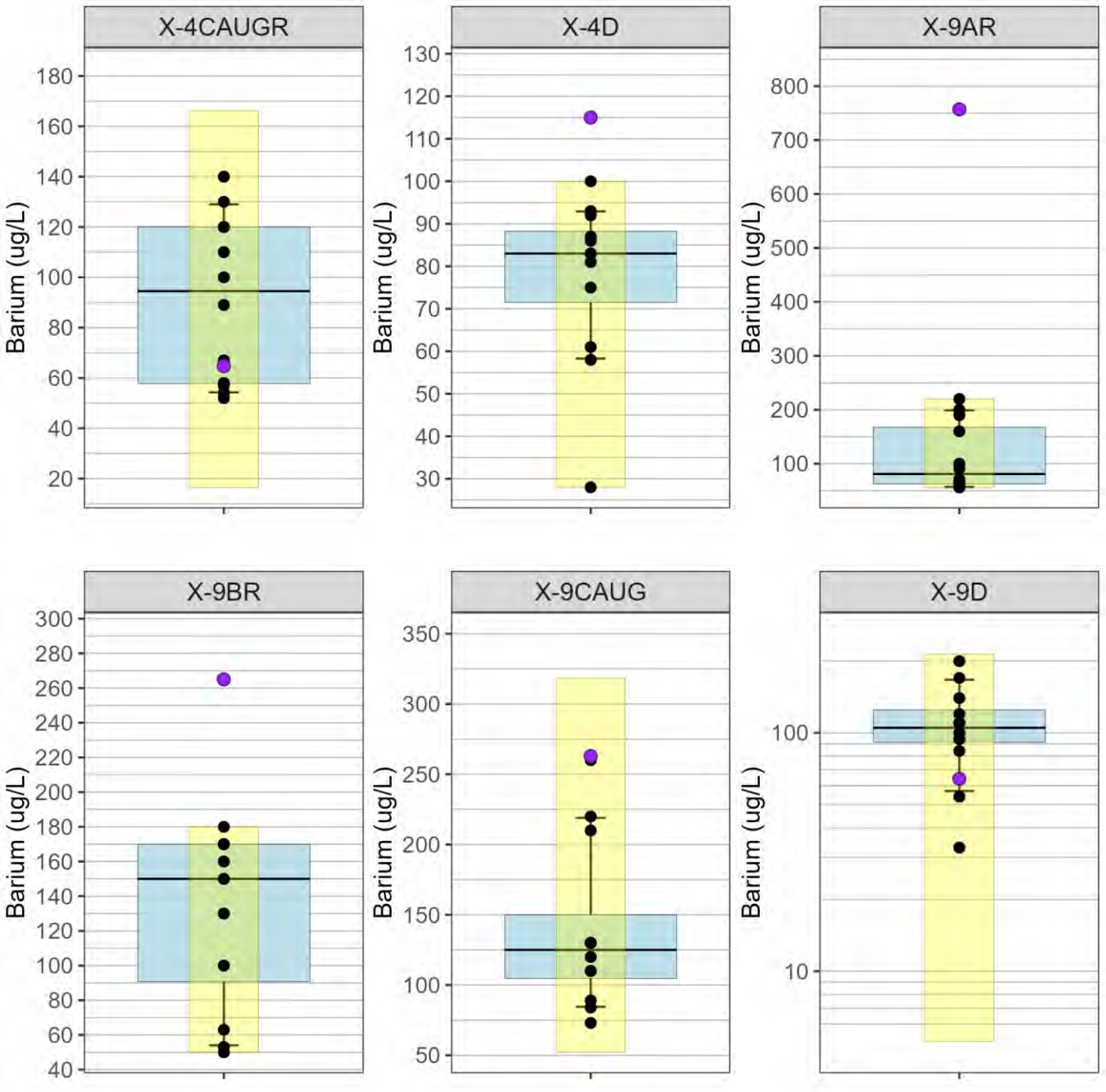
Low Flow Result

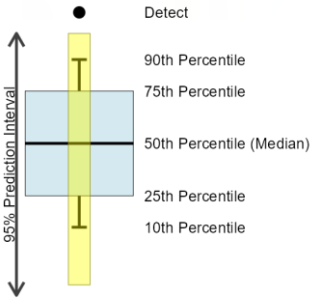
No Purge Result

METALS: BARIUM

ARCADIS

FIGURE 4-7





Color Code

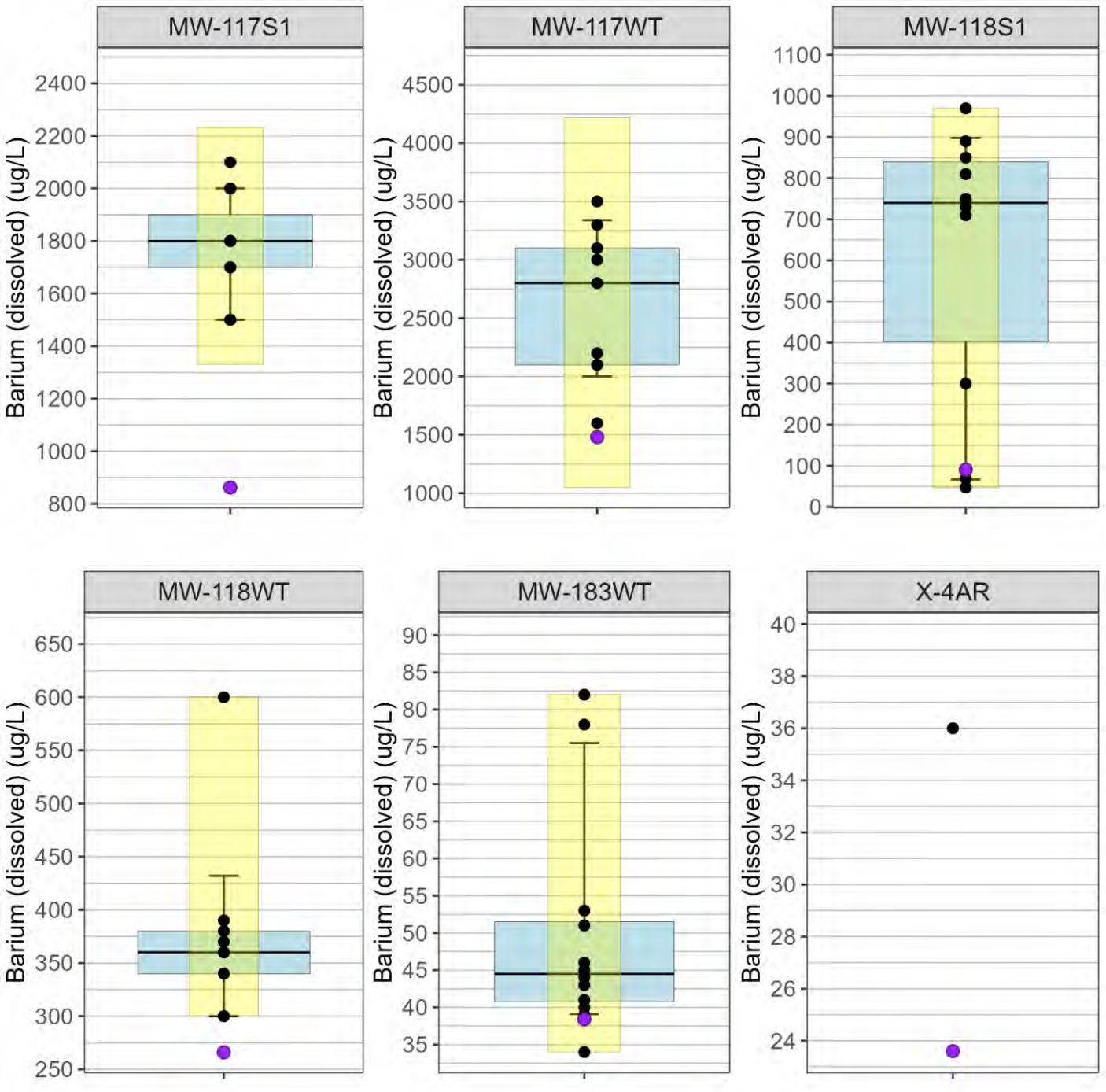
Low Flow Result

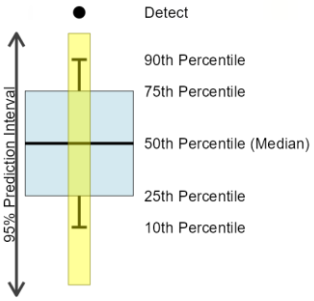
No Purge Result

METALS: BARIUM

ARCADIS

FIGURE
4-8





Color Code

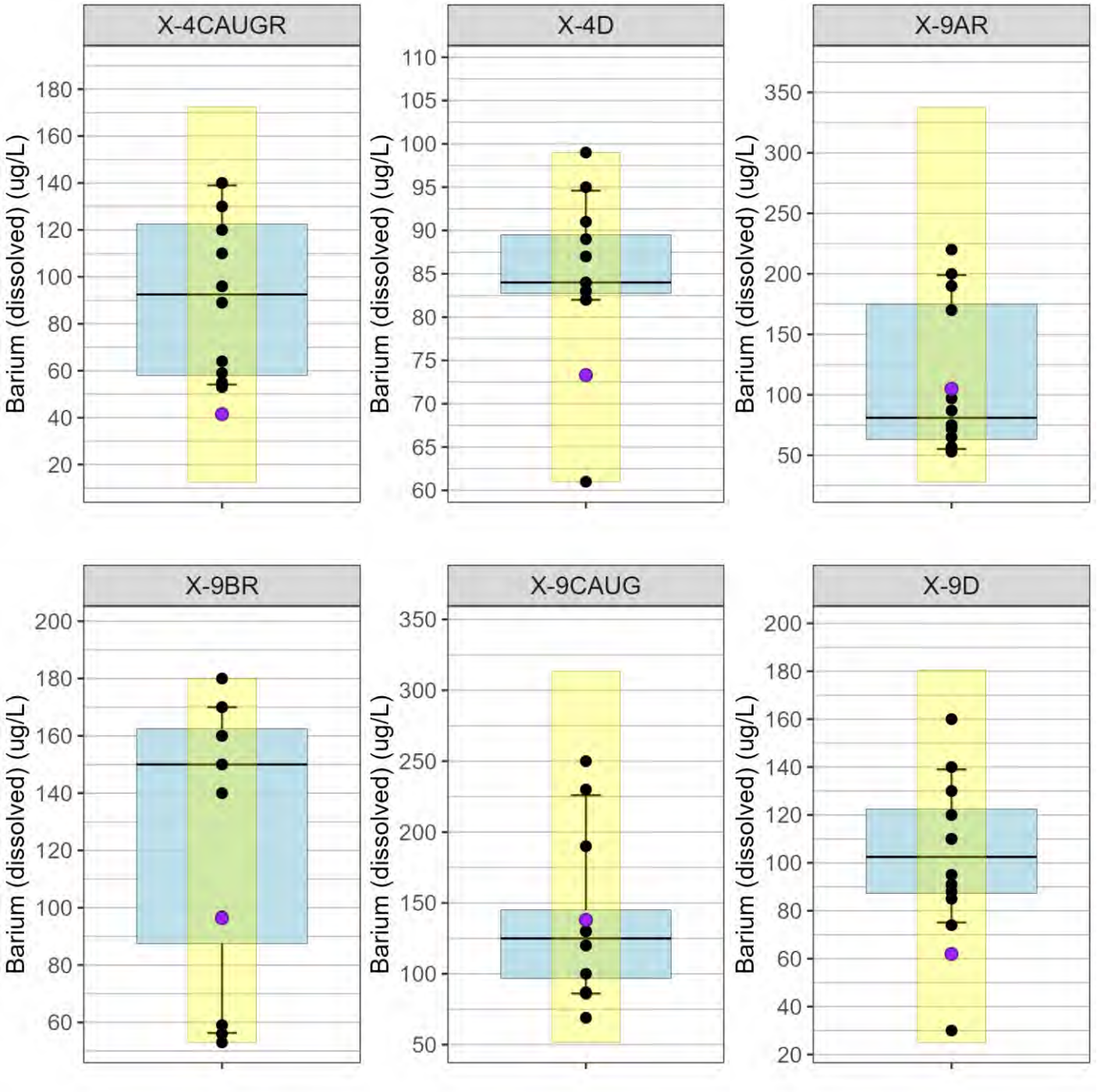
Low Flow Result

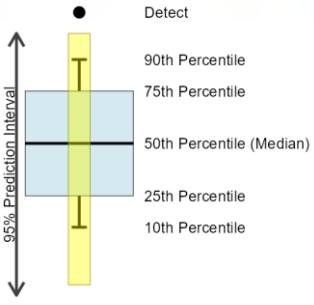
No Purge Result

METALS: BARIUM (DISSOLVED)

ARCADIS

FIGURE
4-9





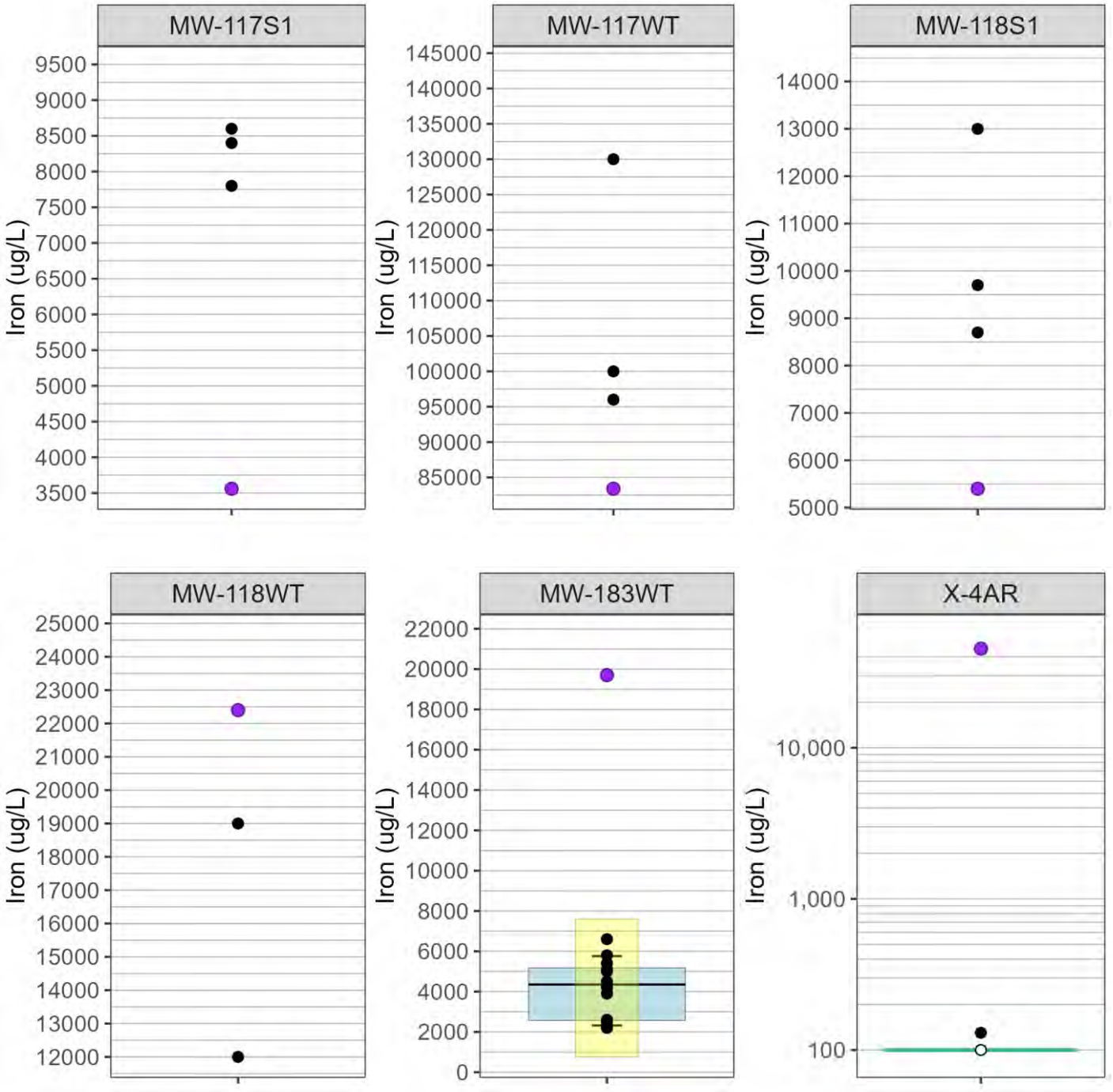
Color Code

Low Flow Result
No Purge Result

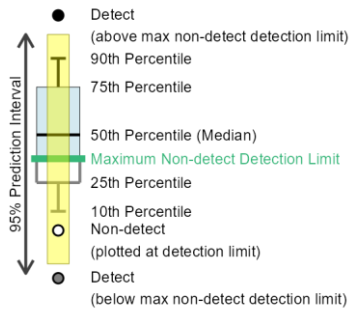
METALS: BARIUM (DISSOLVED)

ARCADIS

FIGURE
4-10



Boxplot Legend



Color Code

Low Flow Result above maximum non-detect detection limit

Low Flow Result above below non-detect detection limit

No Purge Result

Symbol Code

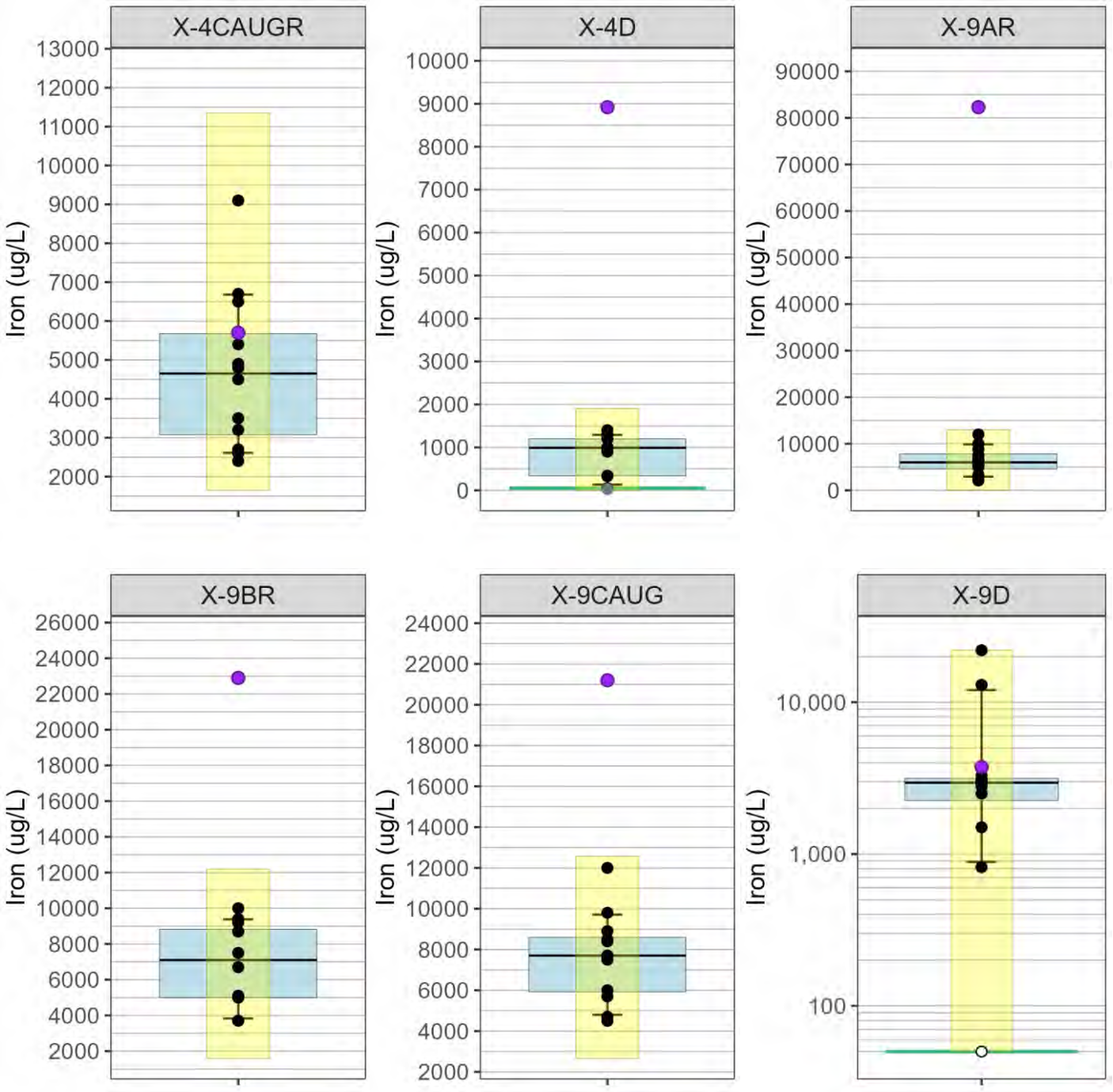
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

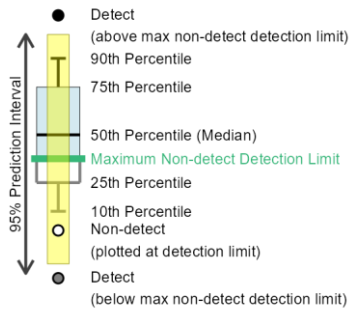
METALS: IRON

ARCADIS

FIGURE
4-11



Boxplot Legend



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

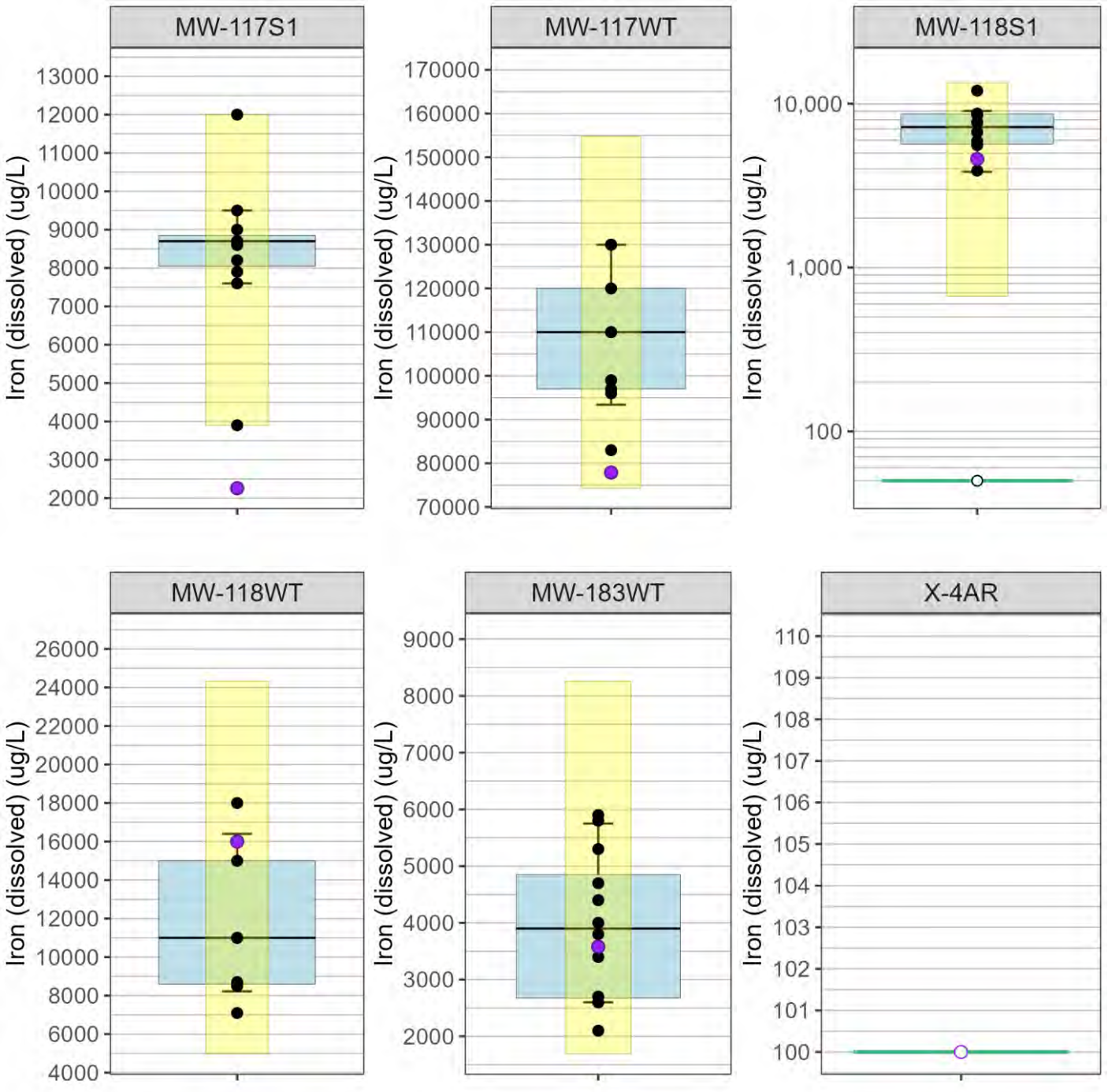
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

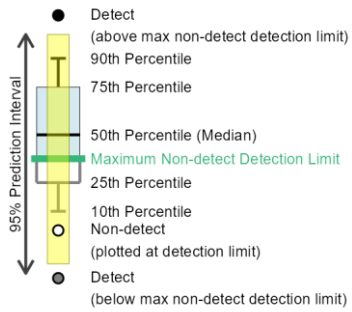
METALS: IRON

ARCADIS

FIGURE
4-12



Boxplot Legend



Color Code

Low Flow Result above maximum non-detect detection limit

Low Flow Result above below non-detect detection limit

No Purge Result

Symbol Code

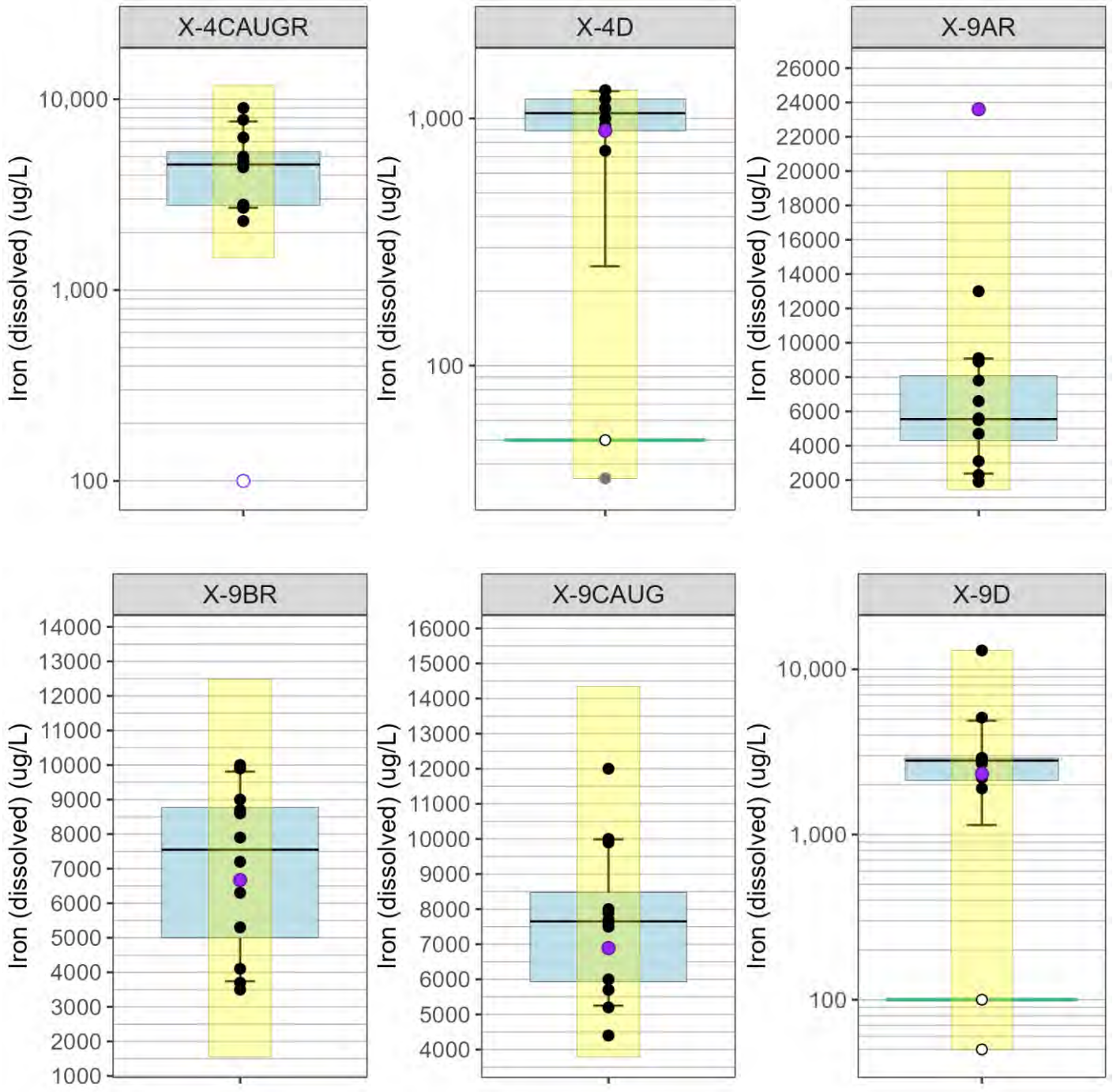
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

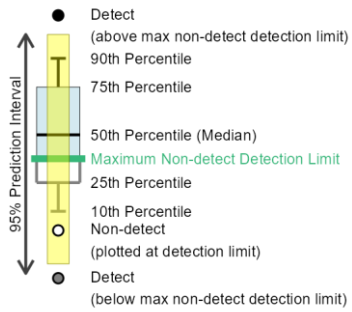
METALS: IRON (DISSOLVED)

ARCADIS

FIGURE
4-13



Boxplot Legend



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

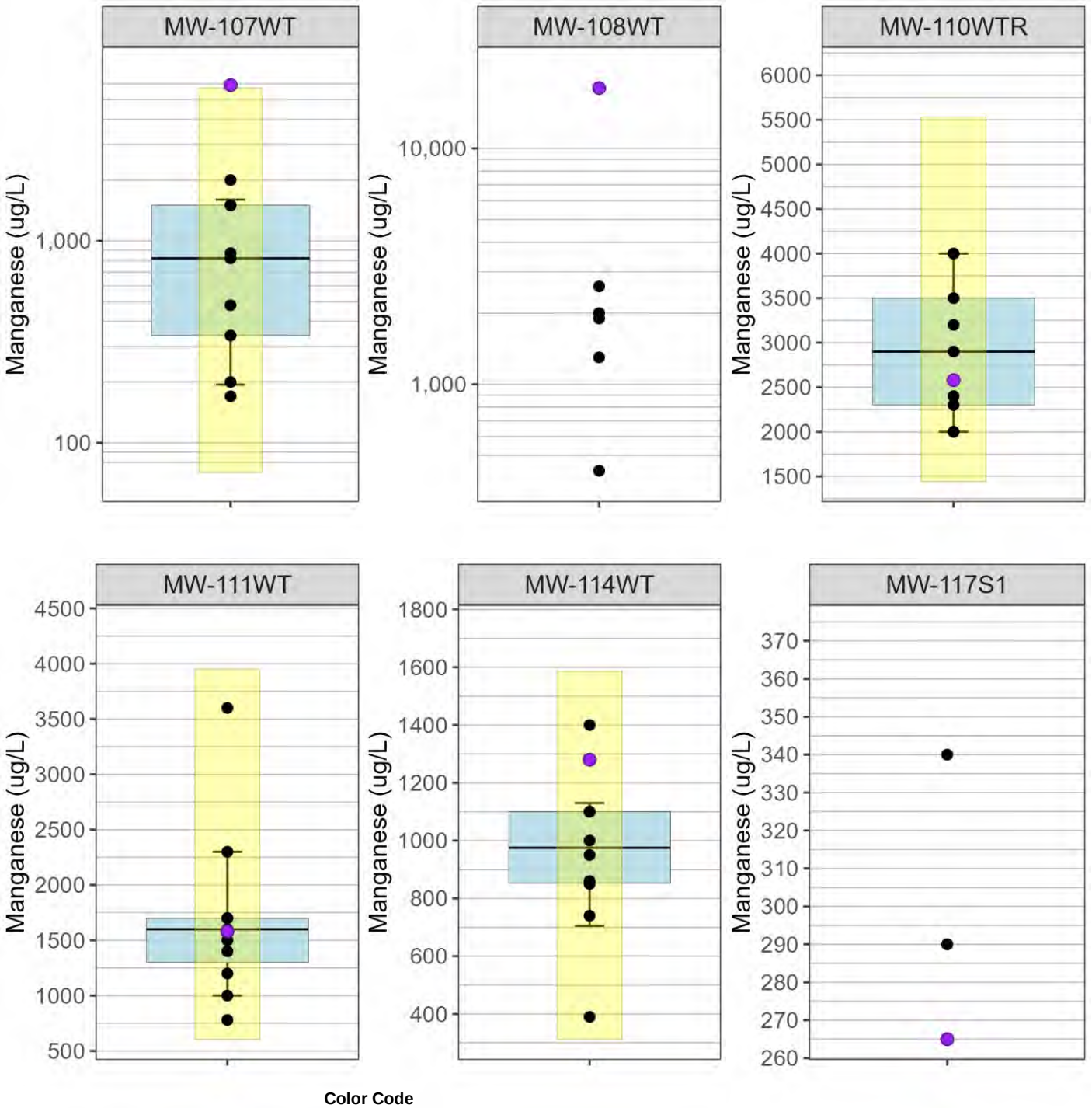
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

METALS: IRON (DISSOLVED)

ARCADIS

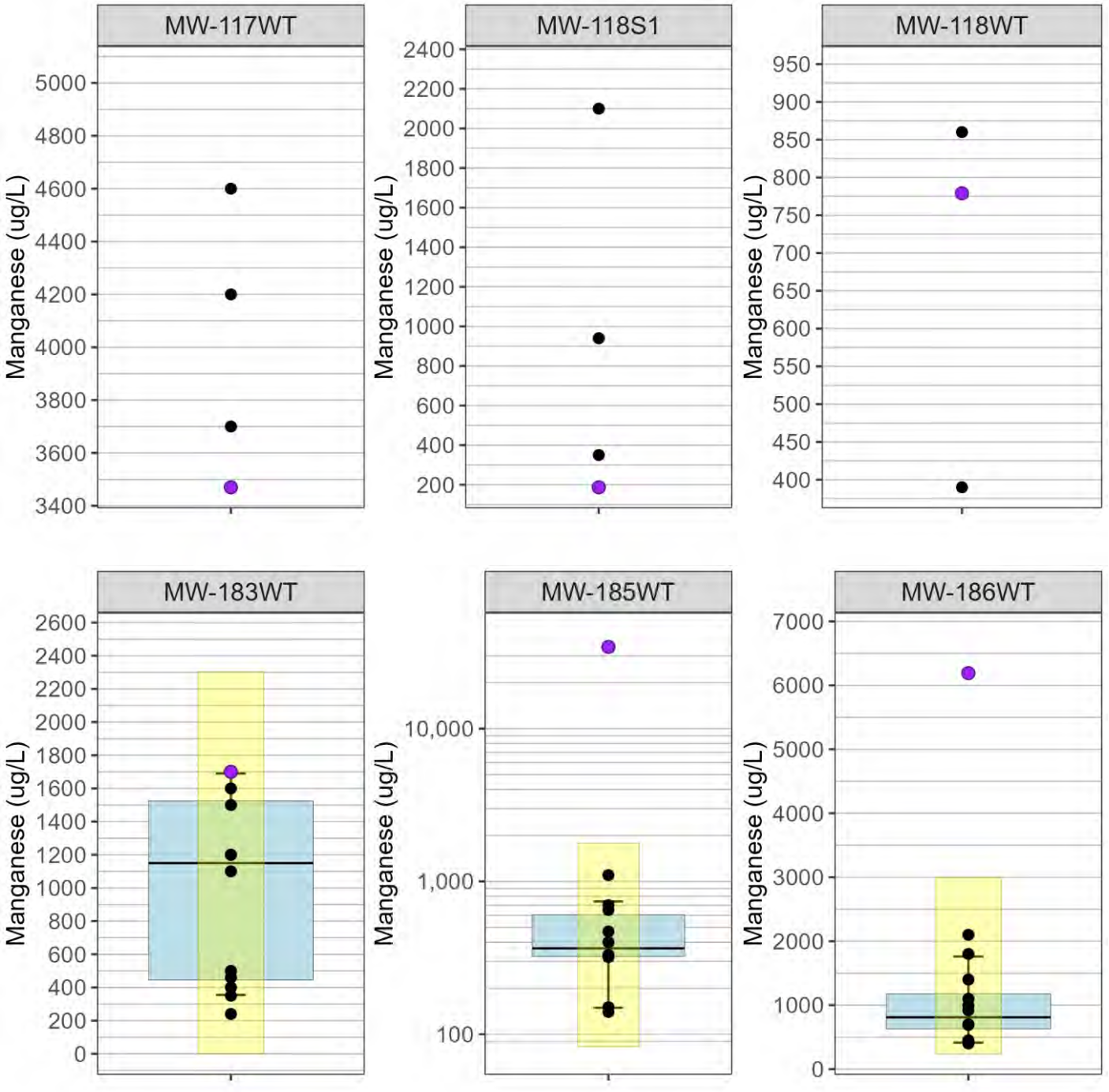
FIGURE
4-14

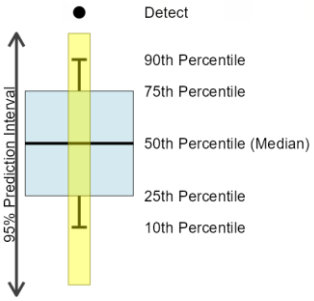


METALS: MANGANESE

ARCADIS

FIGURE
4-15





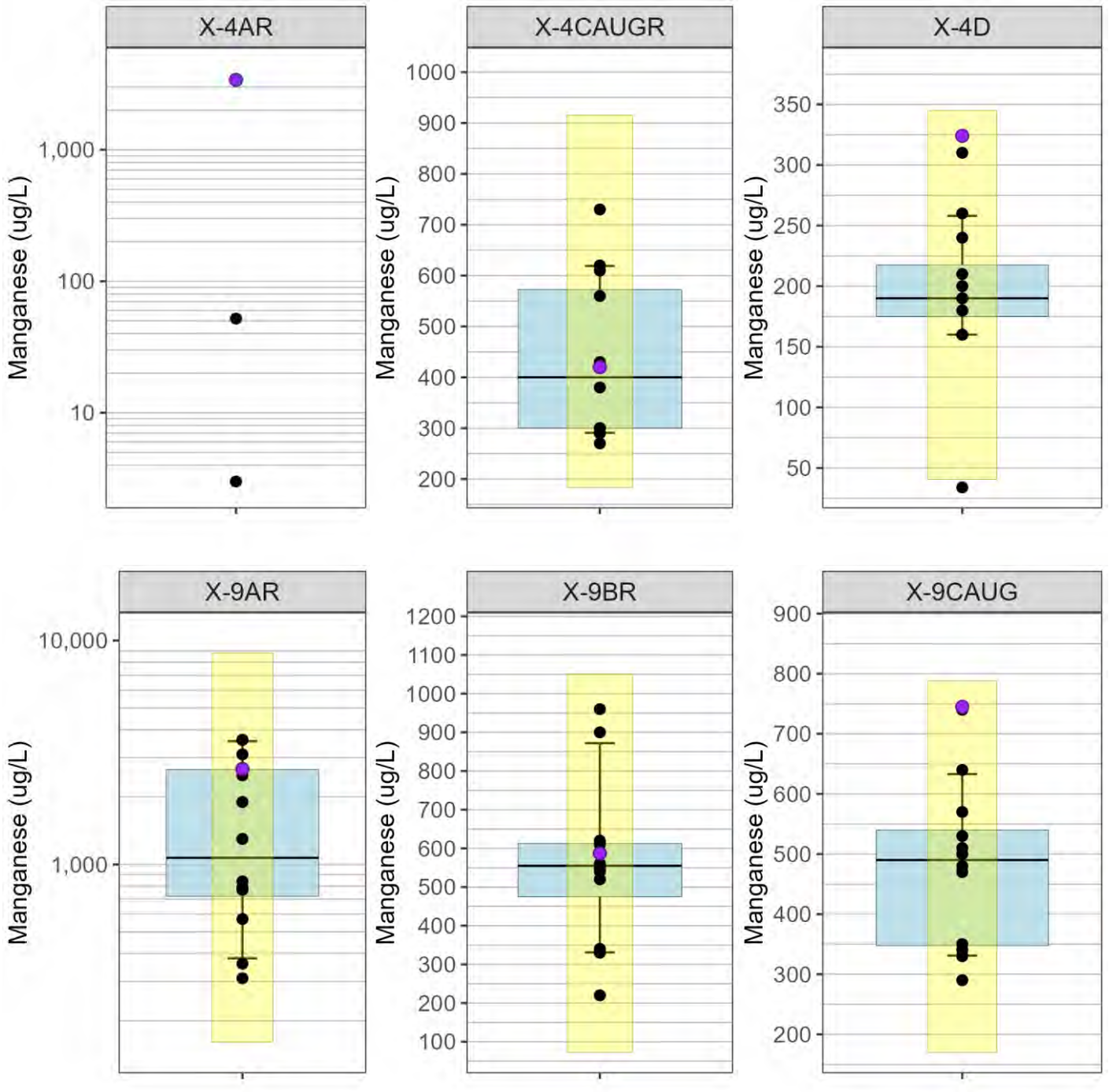
Color Code

Low Flow Result
No Purge Result

METALS: MANGANESE

ARCADIS

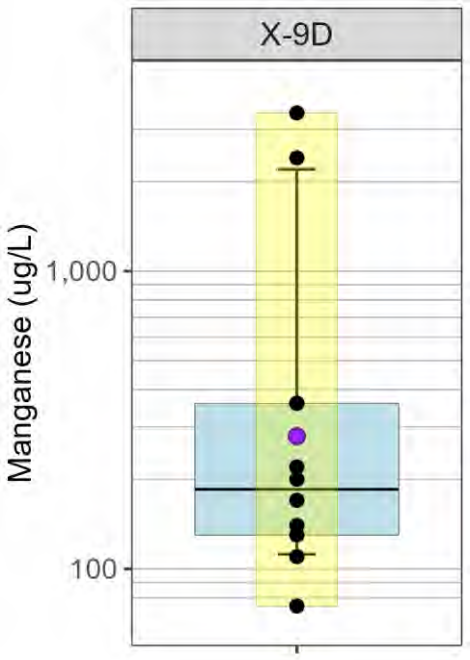
FIGURE
4-16

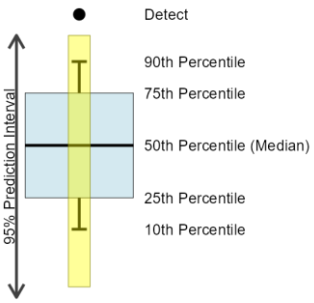


METALS: MANGANESE

ARCADIS

FIGURE
4-17





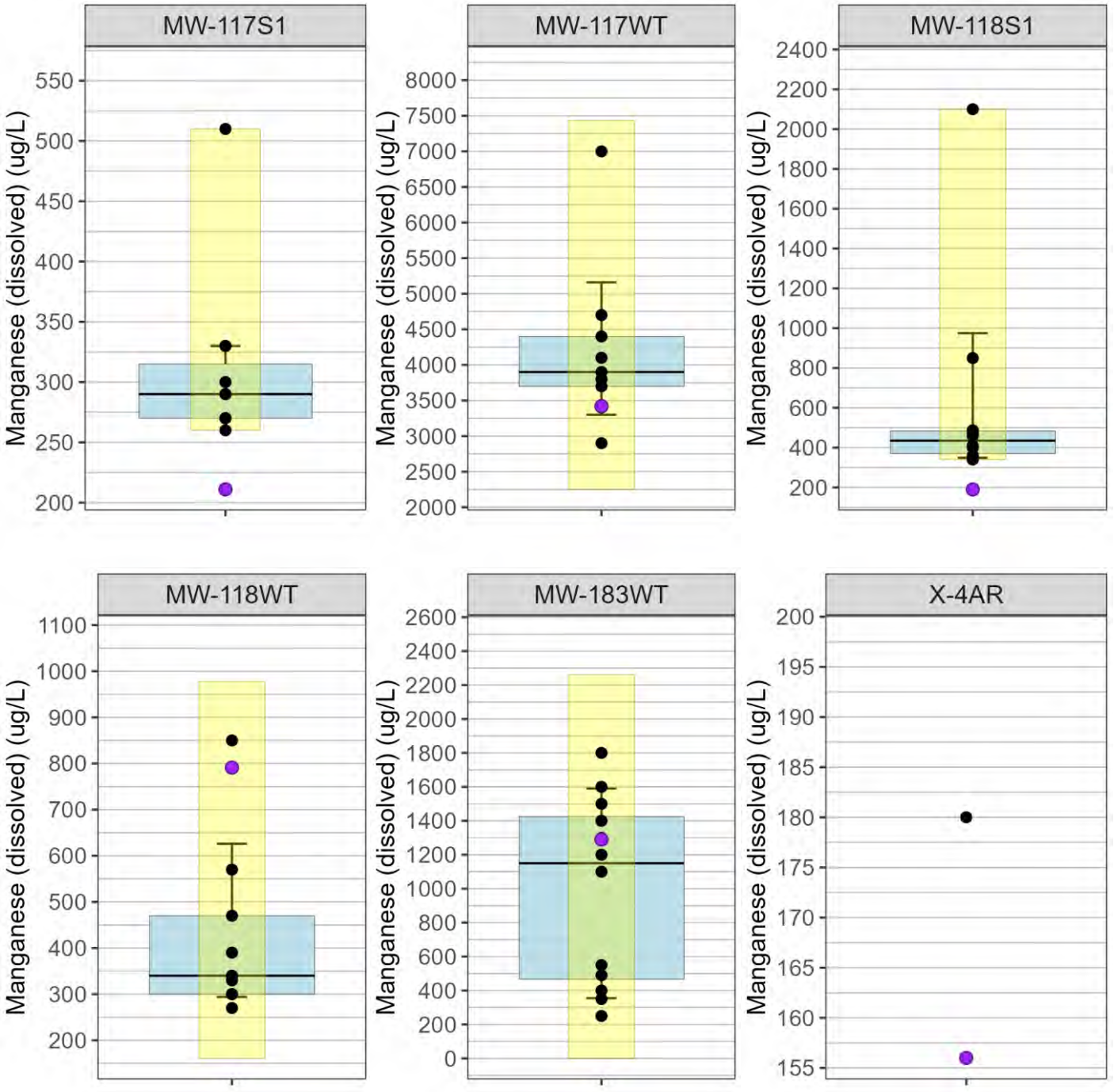
Color Code

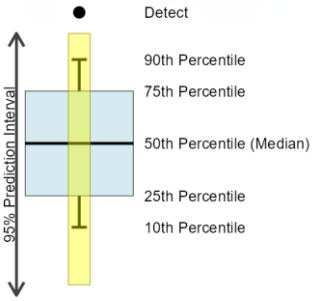
Low Flow Result
No Purge Result

METALS: MANGANESE

ARCADIS

FIGURE
4-18





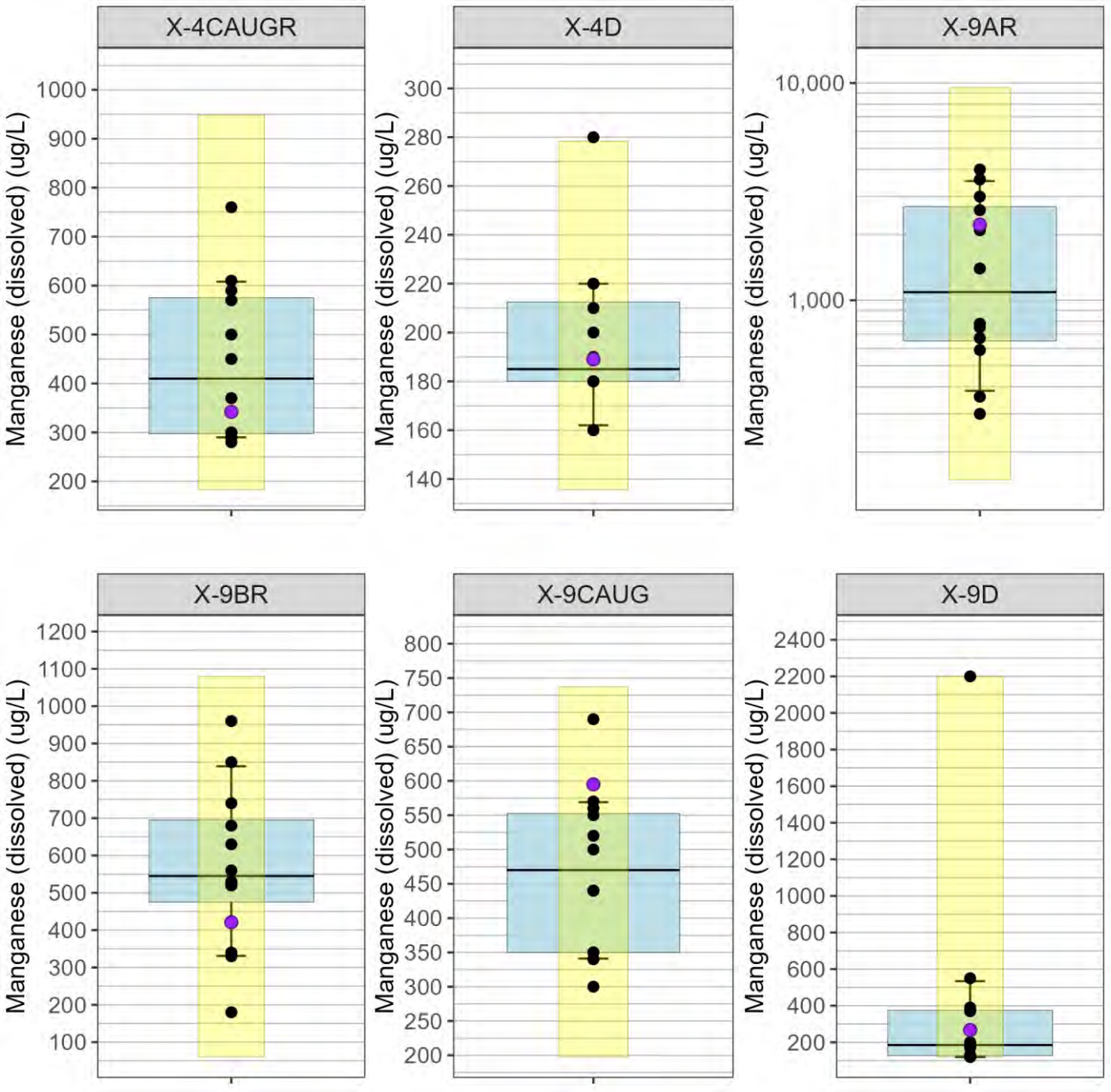
Color Code

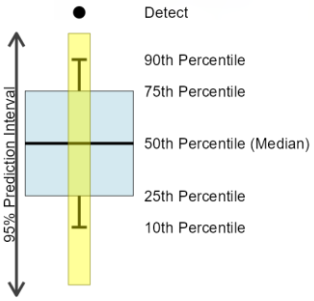
Low Flow Result
No Purge Result

METALS: MANGANESE (DISSOLVED)

ARCADIS

FIGURE
4-19





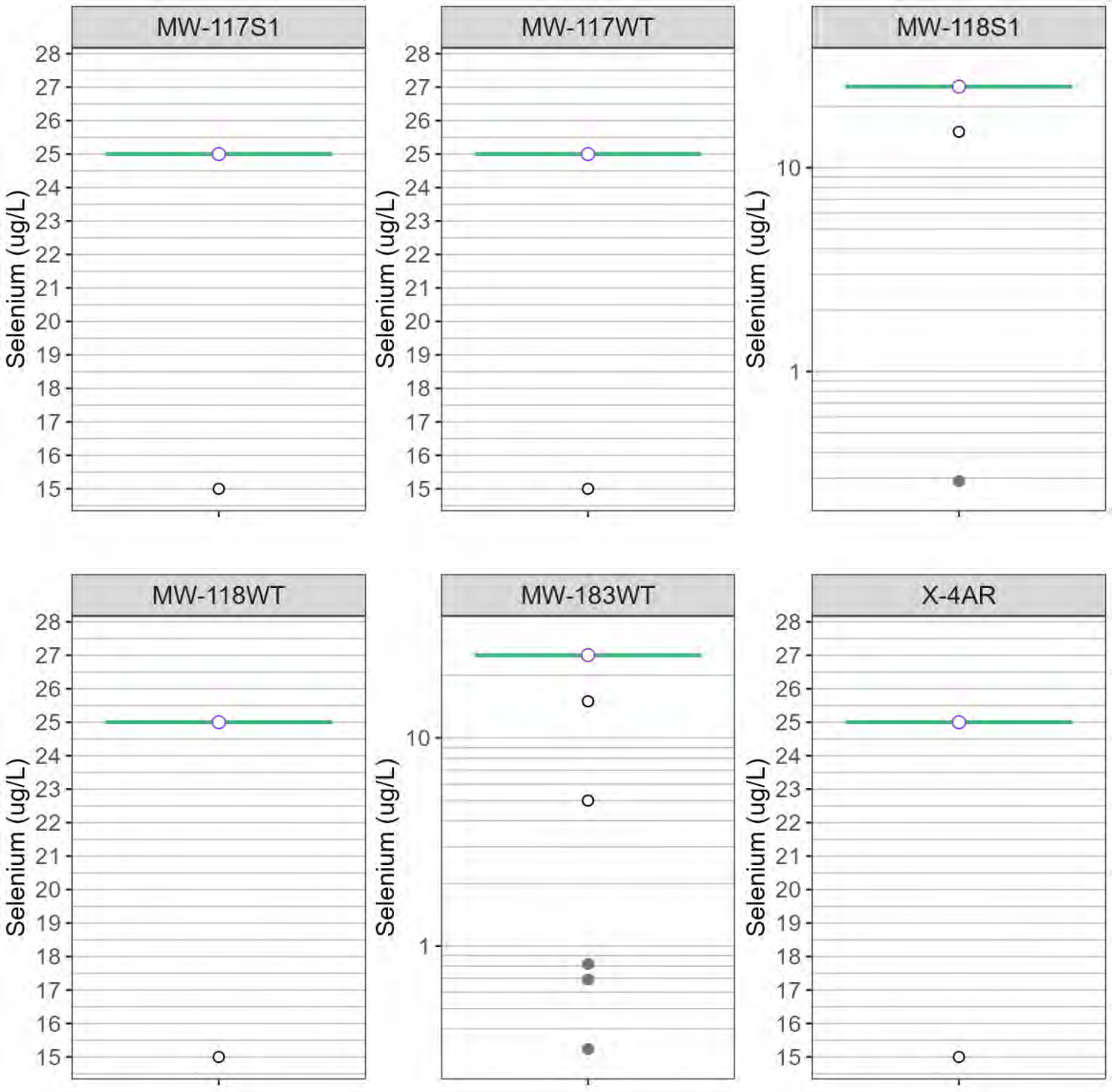
Color Code

Low Flow Result
No Purge Result

METALS: MANGANESE (DISSOLVED)

ARCADIS

FIGURE
4-20



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

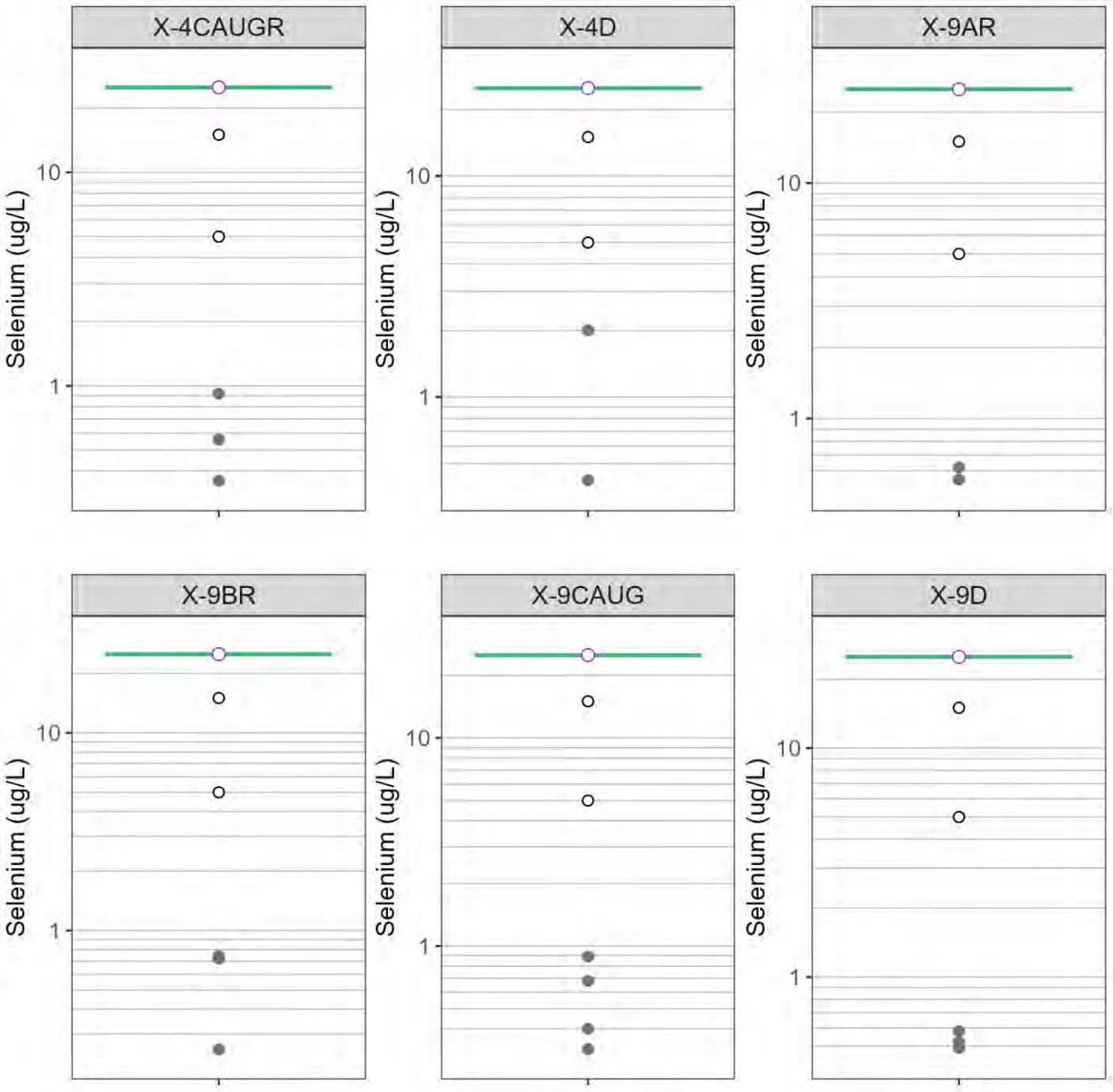
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

METALS: SELENIUM

ARCADIS

FIGURE
4-21



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

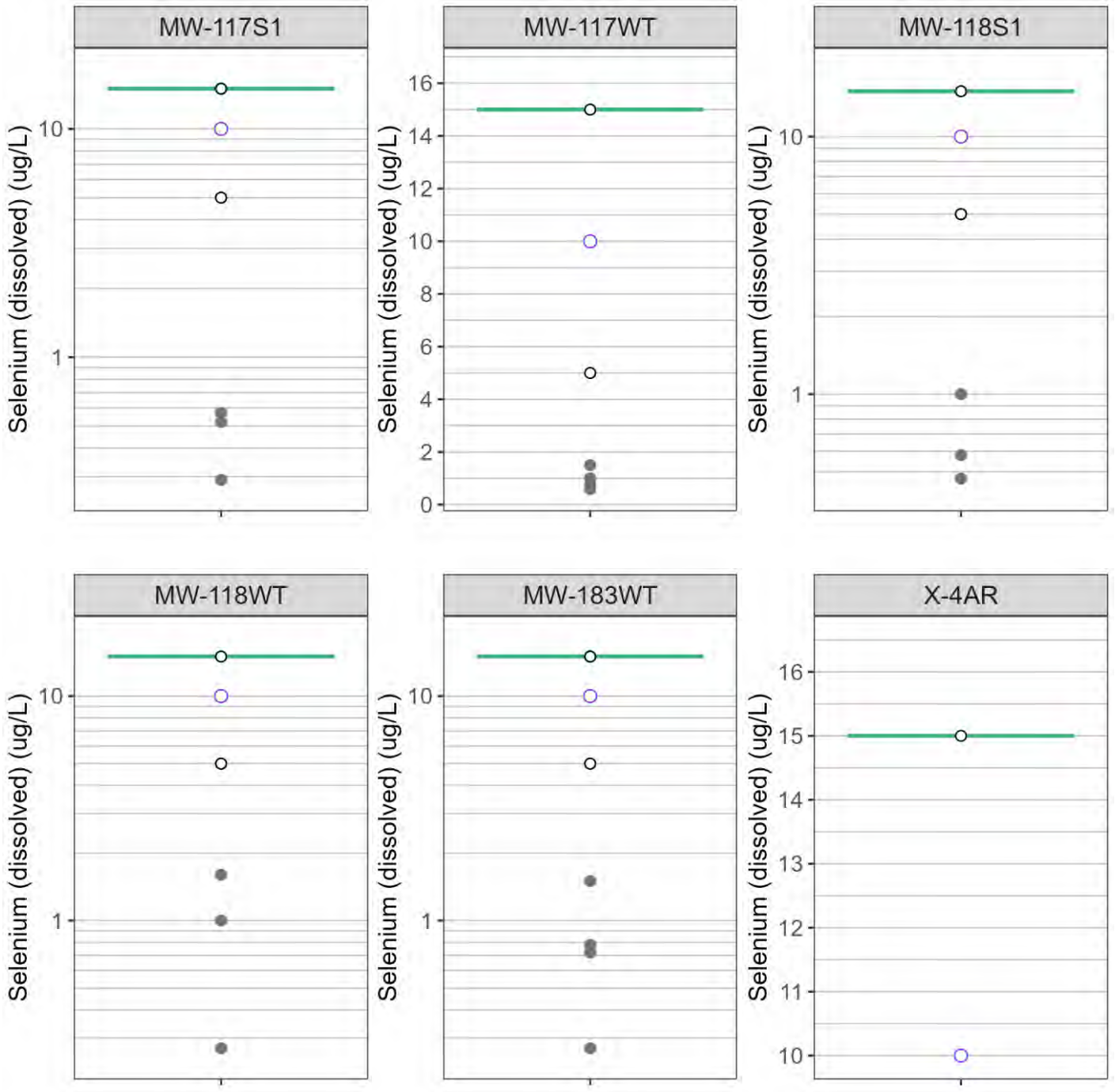
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

METALS: SELENIUM

ARCADIS

FIGURE
4-22



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

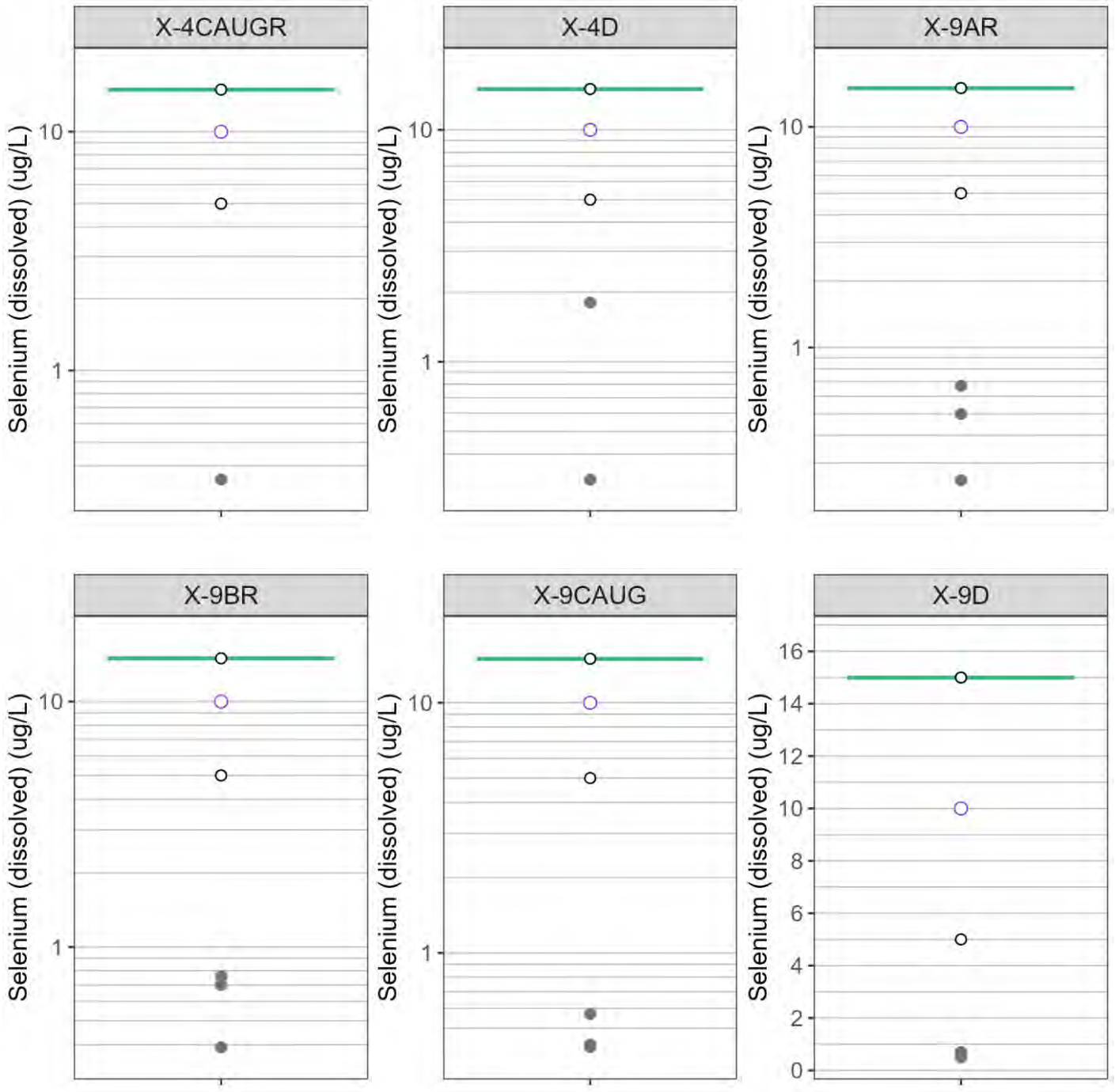
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

METALS: SELENIUM (DISSOLVED)

ARCADIS

FIGURE
4-23



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

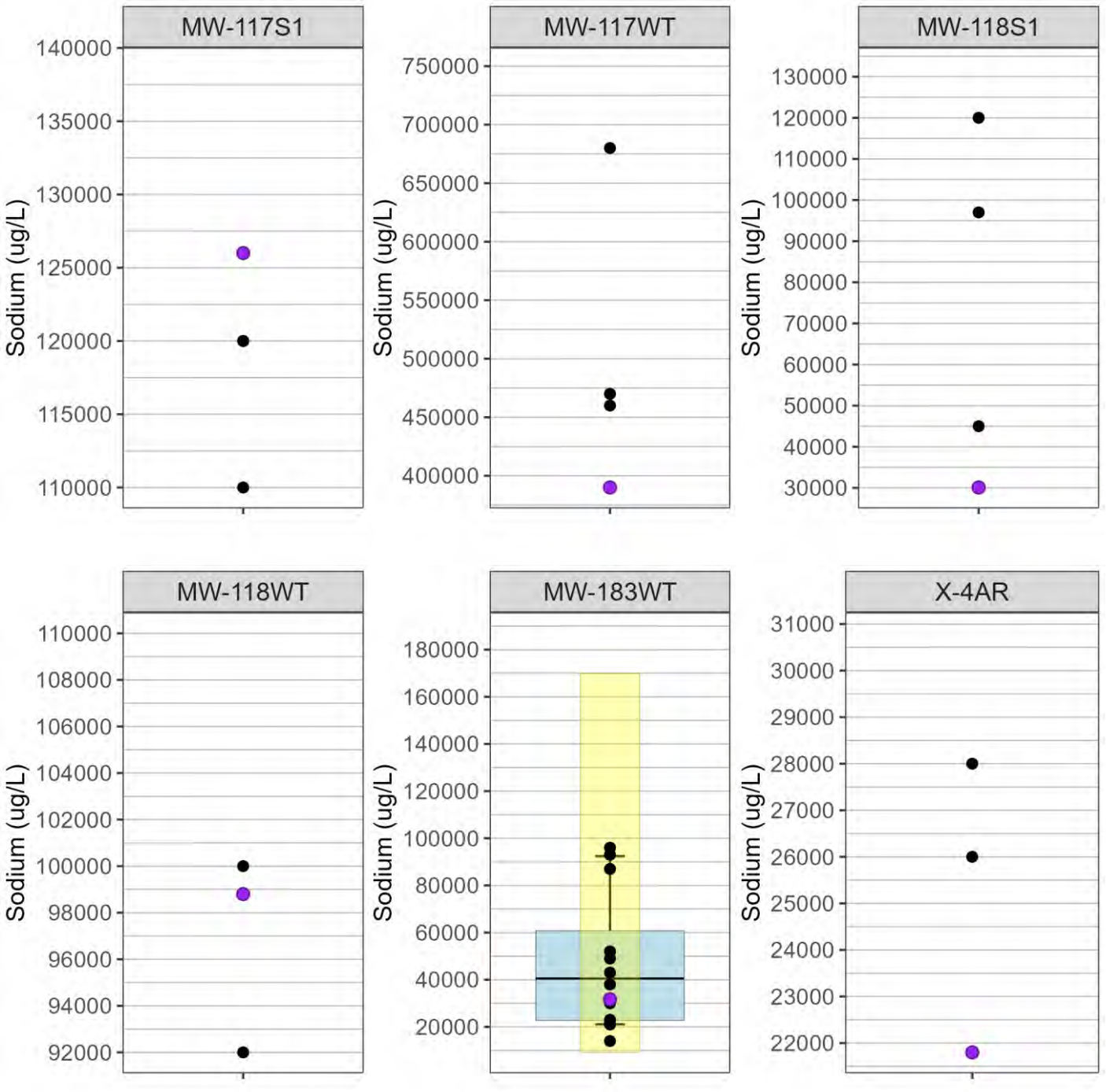
● Detected Result (closed symbol)

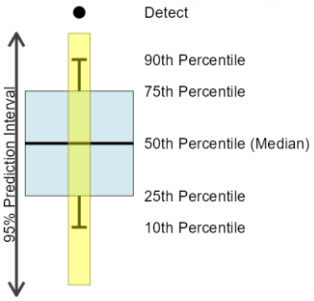
○ Non-detect result (open symbol)

METALS: SELENIUM (DISSOLVED)

ARCADIS

FIGURE
4-24





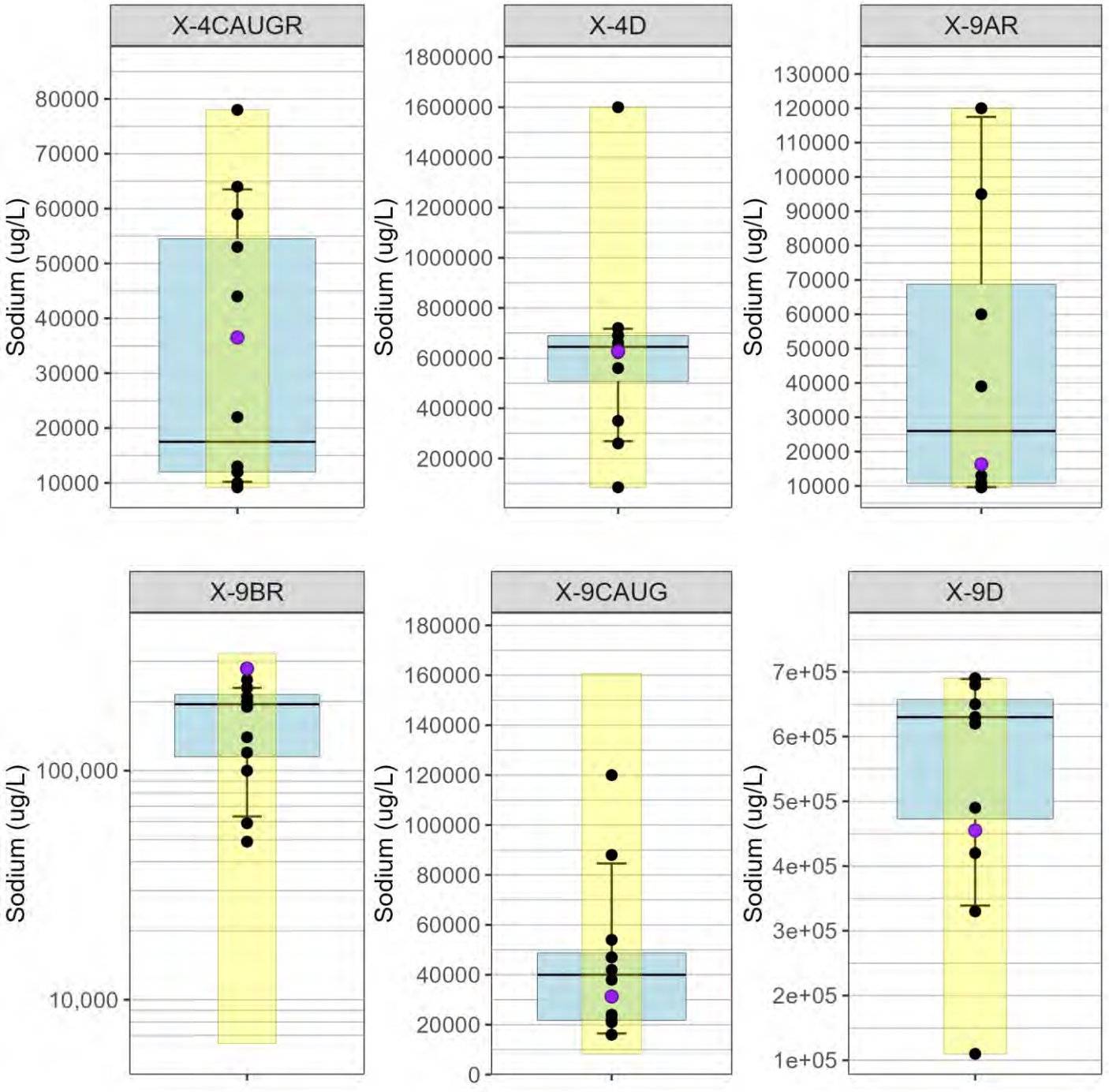
Color Code

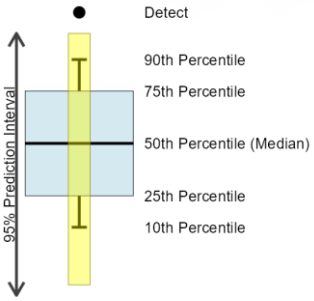
Low Flow Result
No Purge Result

METALS: SODIUM

ARCADIS

FIGURE
4-25





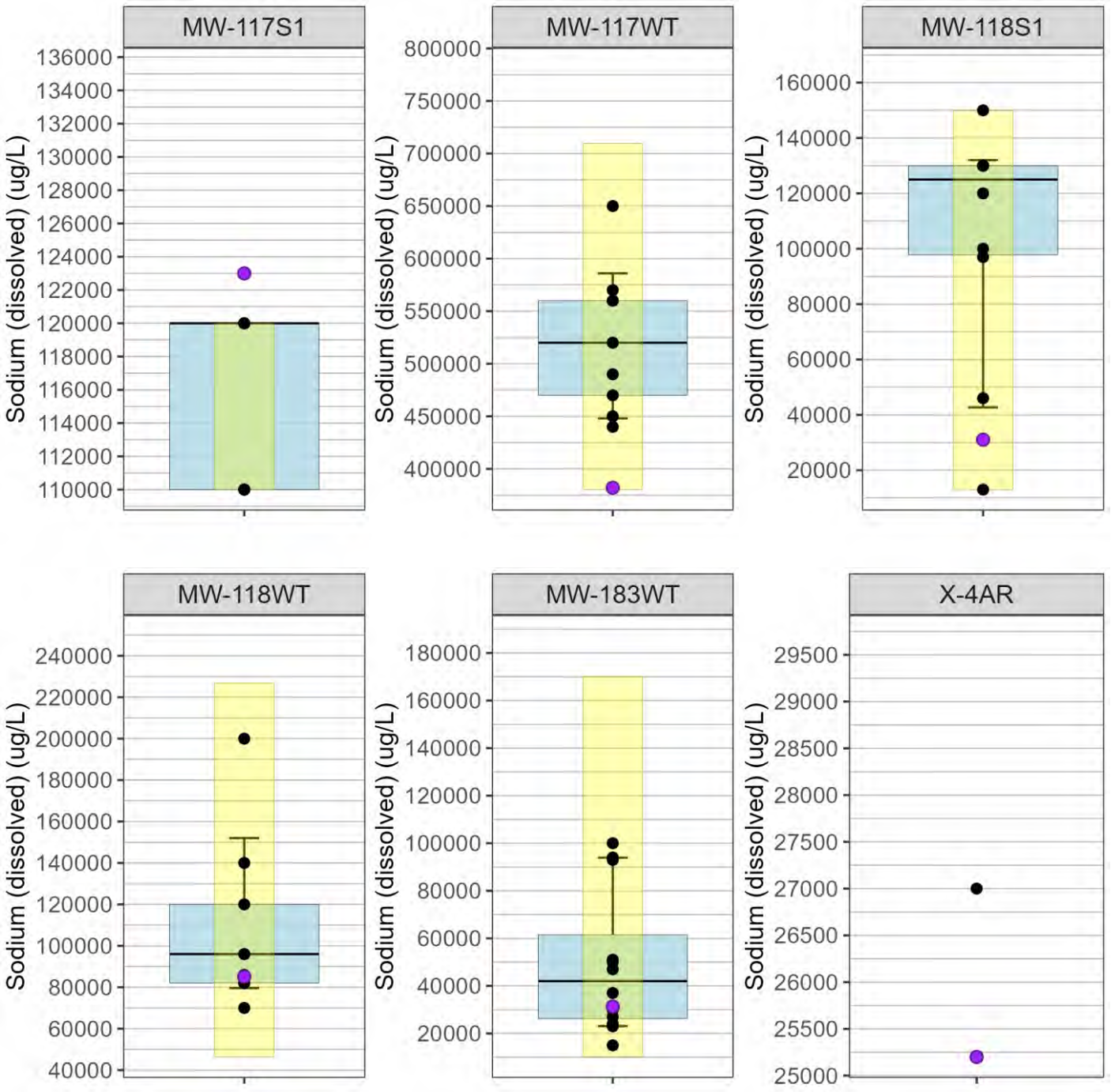
Color Code

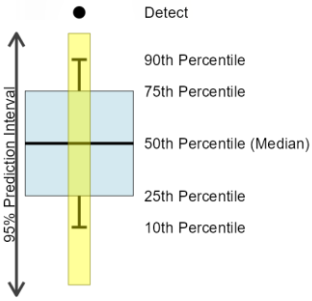
Low Flow Result
No Purge Result

METALS: SODIUM

ARCADIS

FIGURE
4-26





Color Code

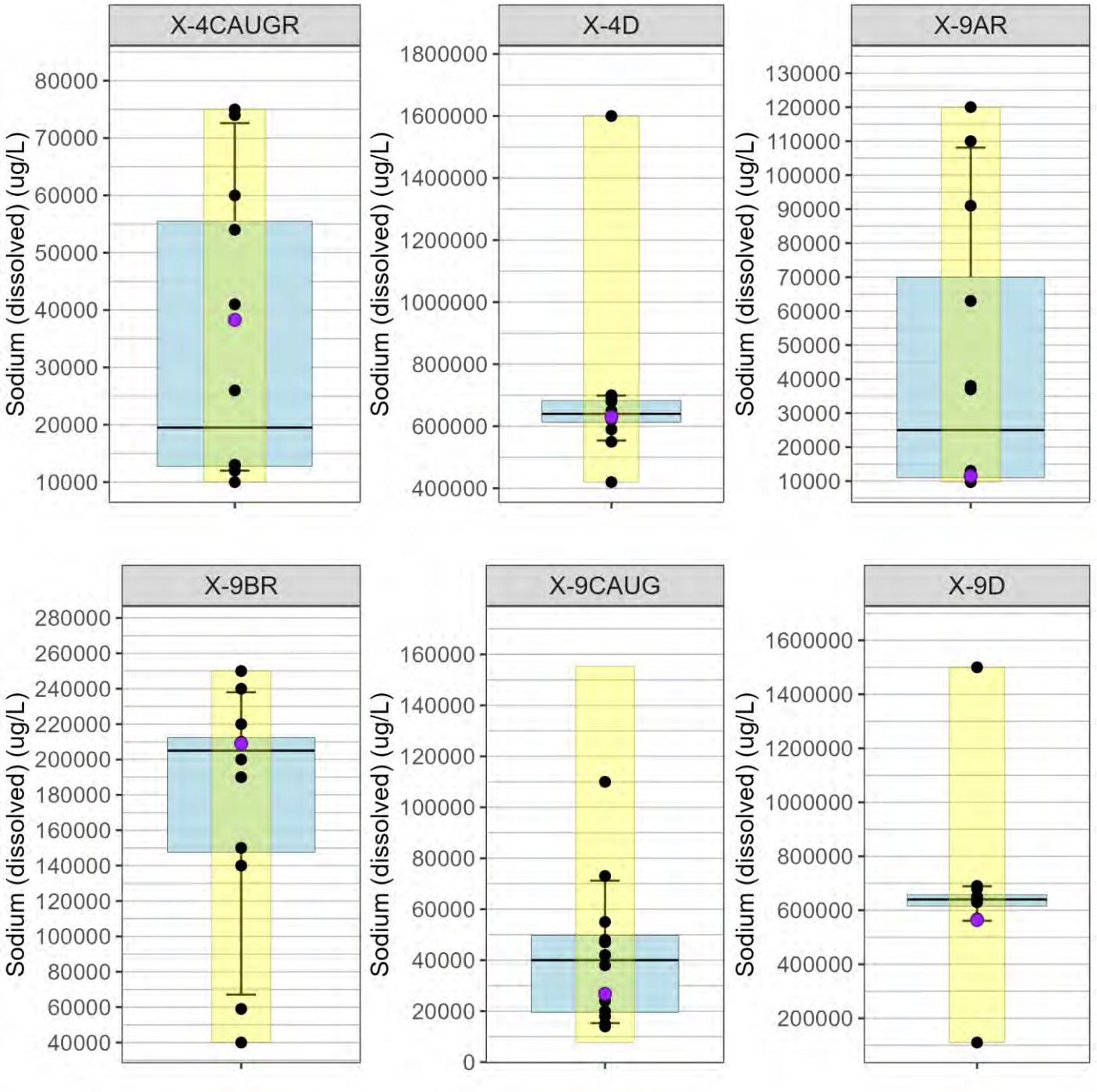
Low Flow Result

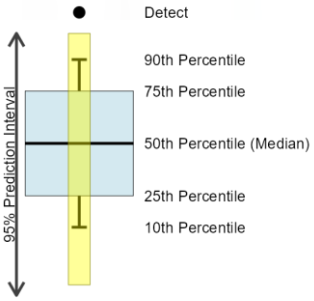
No Purge Result

METALS: SODIUM (DISSOLVED)

ARCADIS

FIGURE 4-27





Color Code

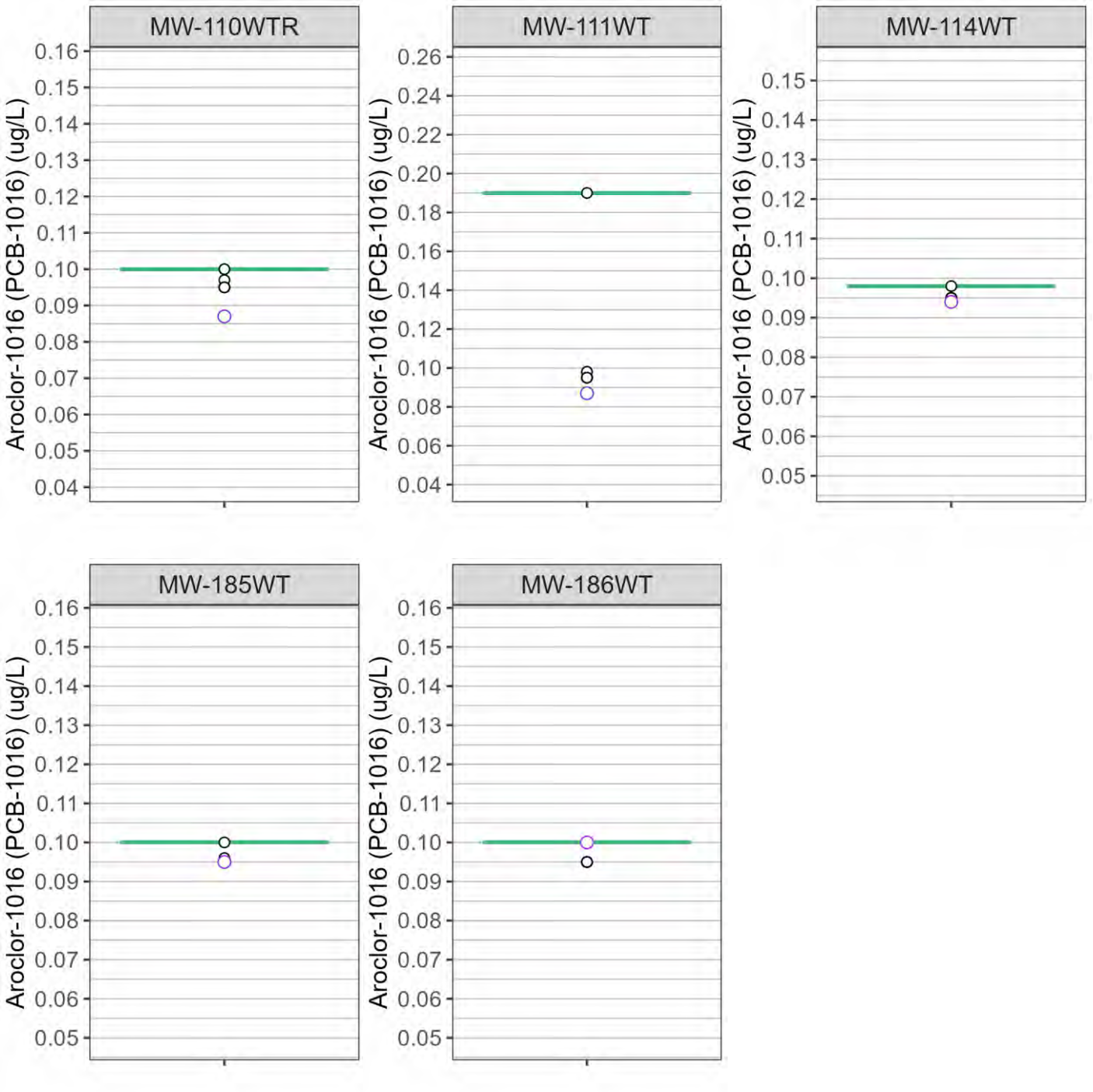
Low Flow Result

No Purge Result

METALS: SODIUM (DISSOLVED)

ARCADIS

FIGURE
4-28



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

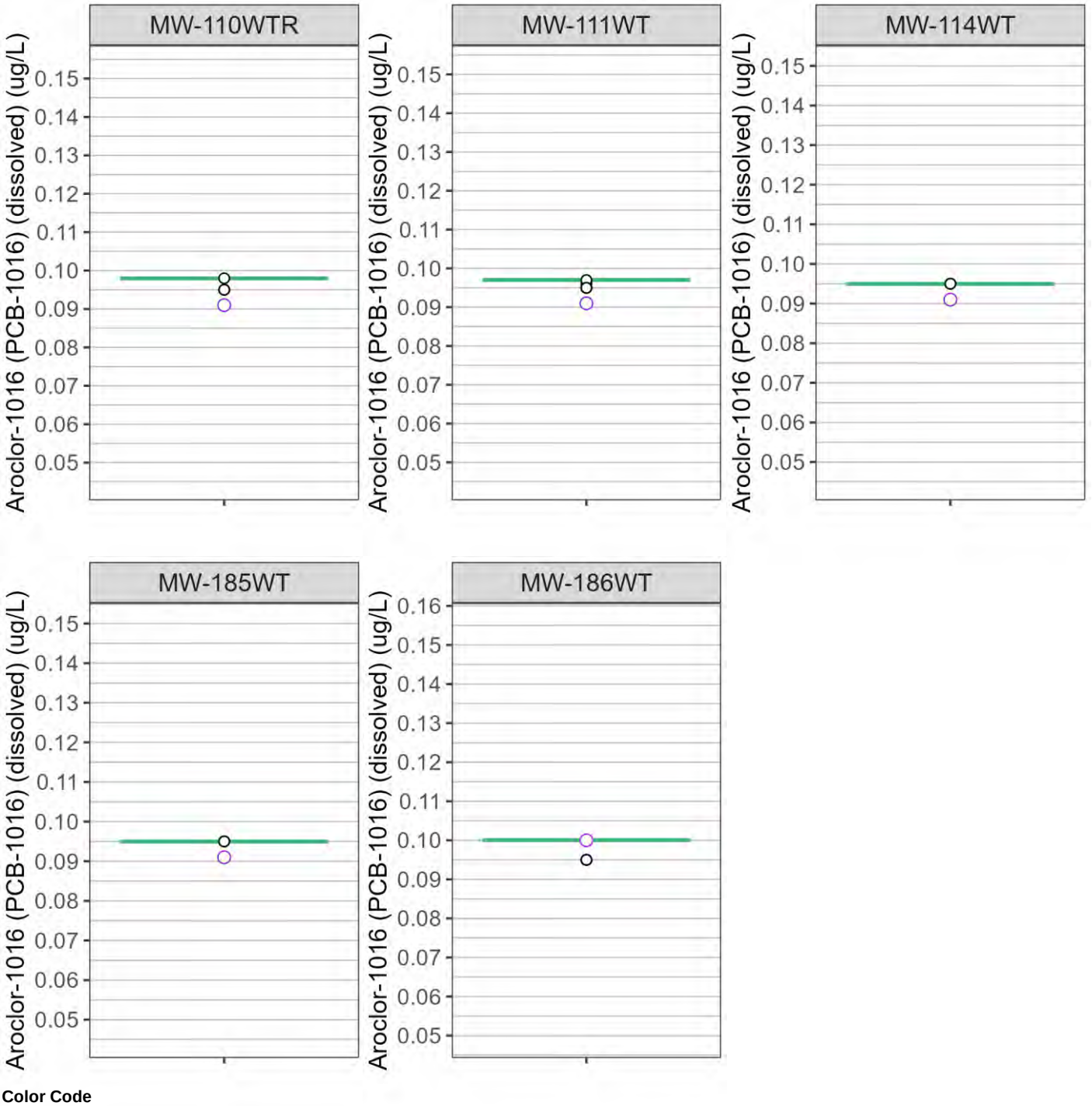
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PCBS: AROCLOR-1016 (PCB-1016)

ARCADIS

FIGURE
5-1



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

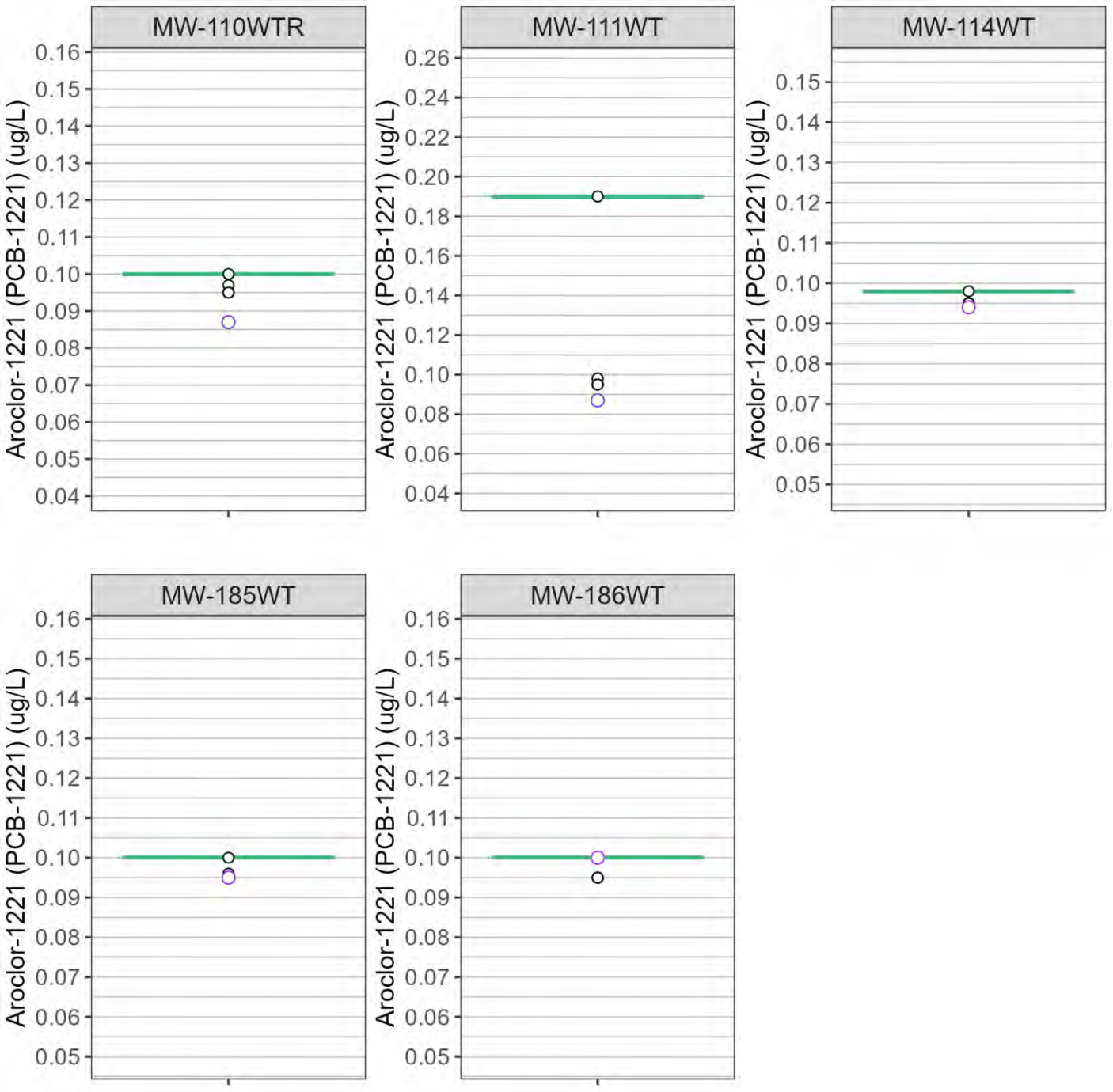
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PCBS: AROCLOR-1016 (PCB-1016) (DISSOLVED)

ARCADIS

FIGURE
5-2



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

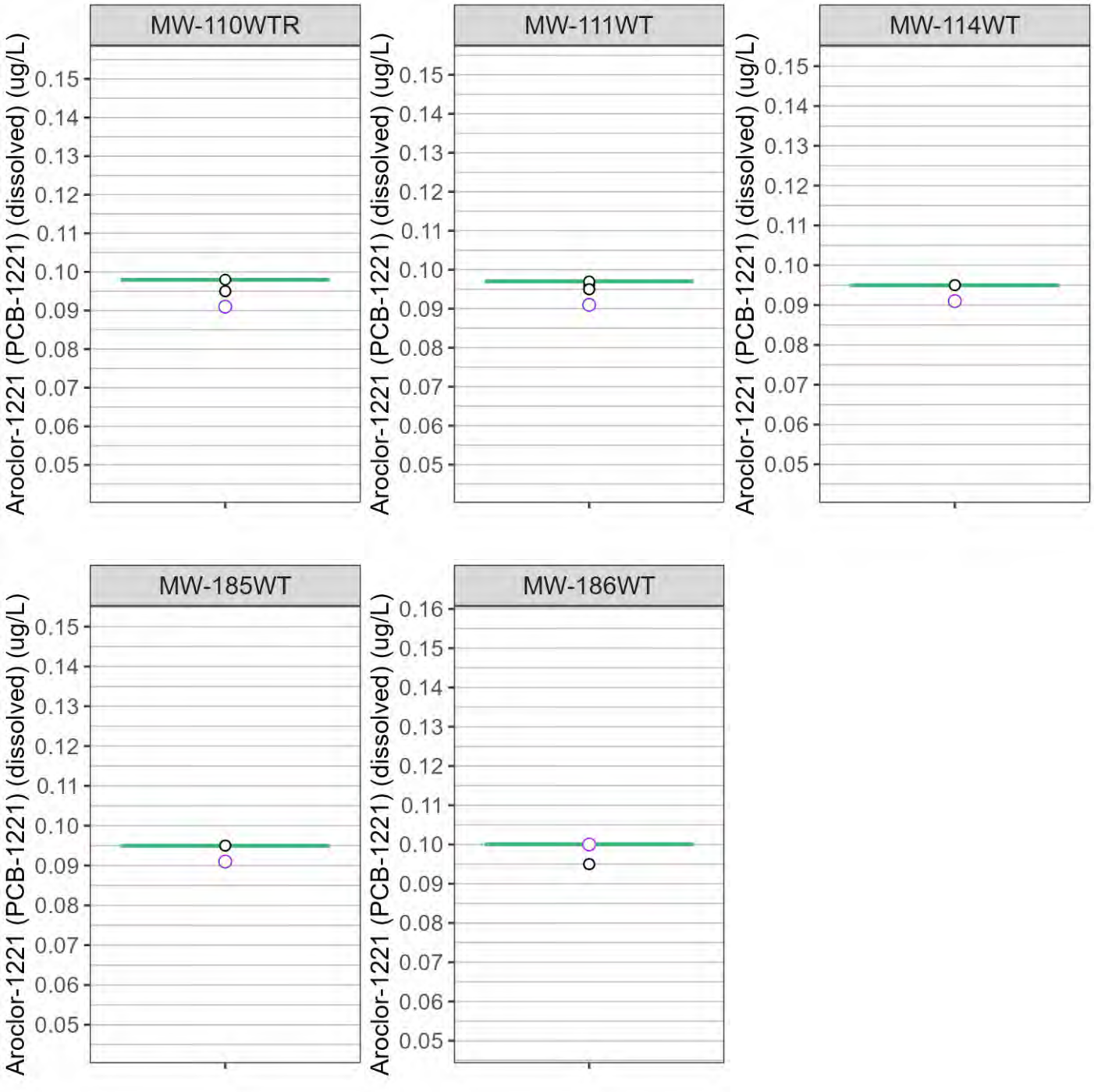
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PCBS: AROCLOR-1221 (PCB-1221)

ARCADIS

FIGURE
5-3



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

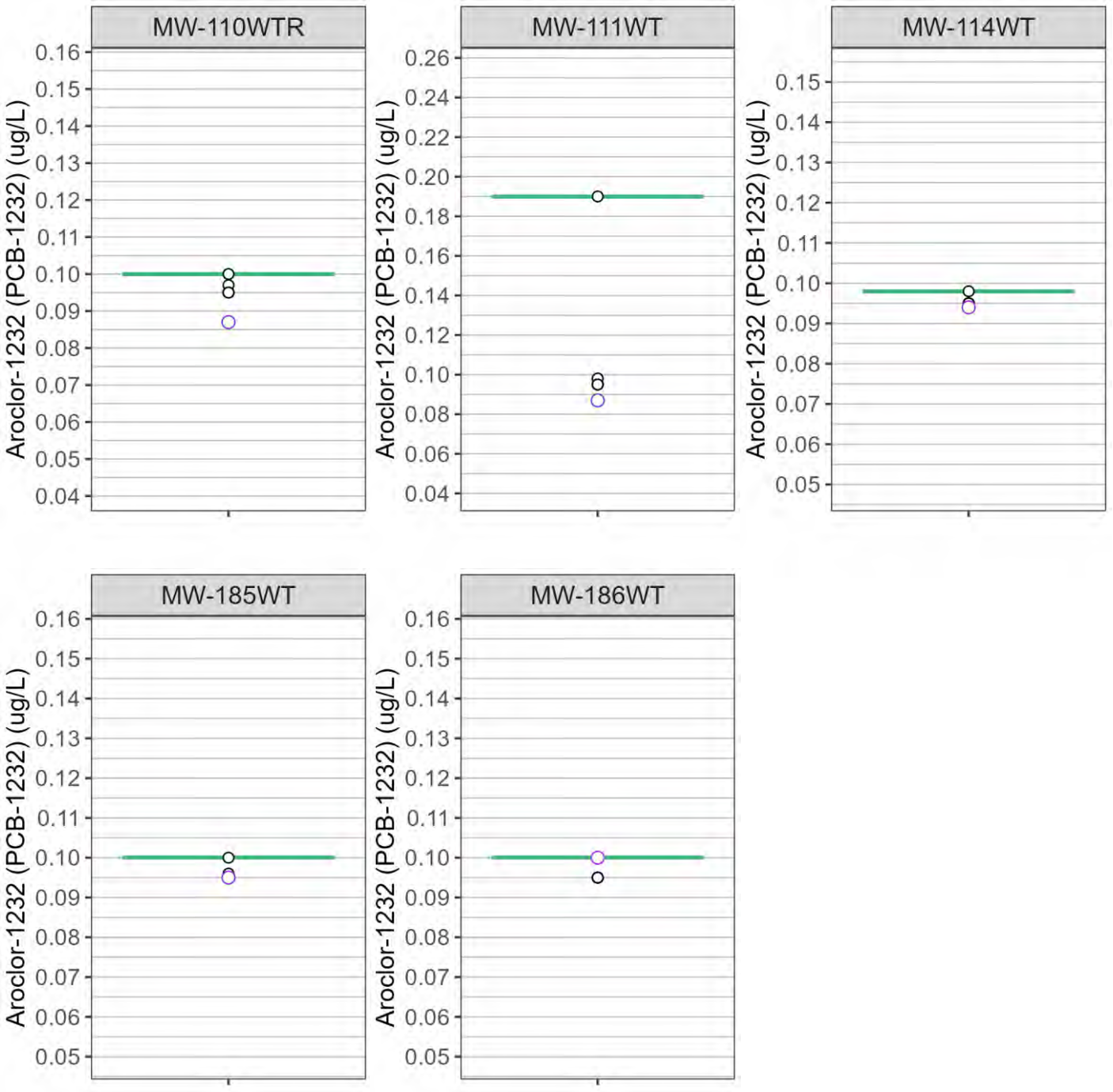
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PCBS: AROCLOR-1221 (PCB-1221) (DISSOLVED)

ARCADIS

FIGURE
5-4



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

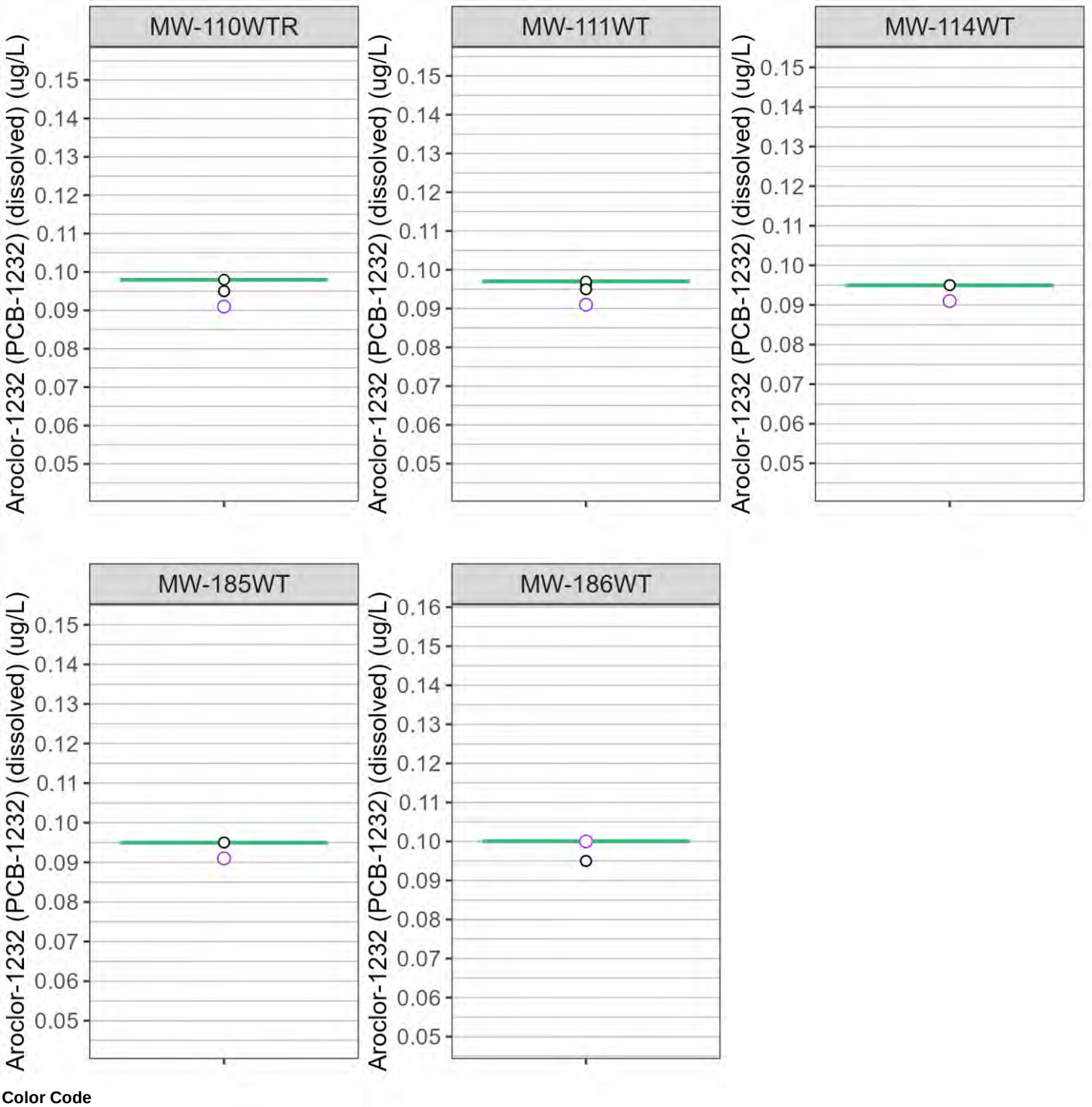
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PCBS: AROCLOR-1232 (PCB-1232)

ARCADIS

FIGURE
5-5



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

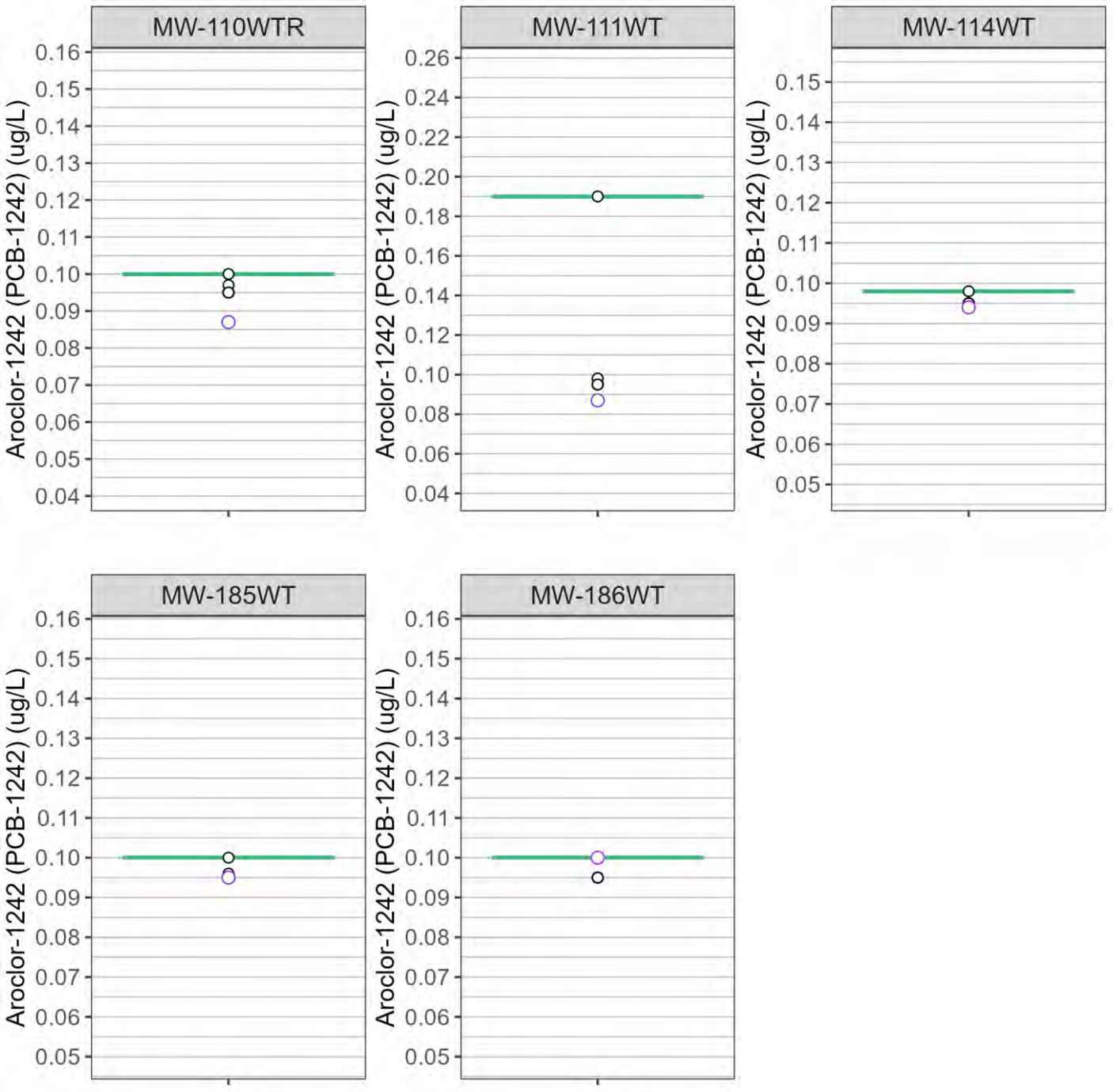
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PCBS: AROCLOR-1232 (PCB-1232) (DISSOLVED)

ARCADIS

FIGURE
5-6



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

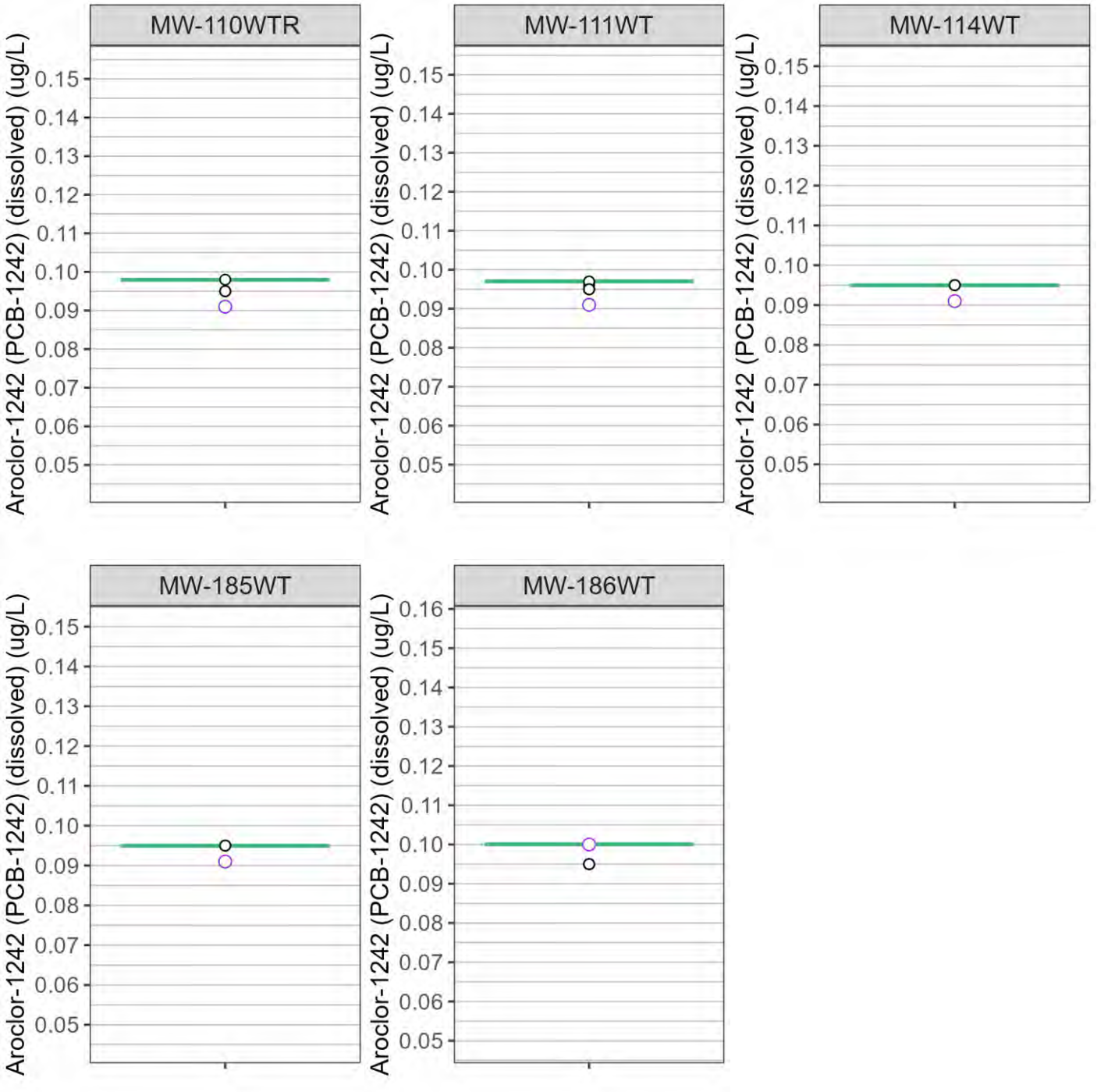
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PCBS: AROCLOR-1242 (PCB-1242)

ARCADIS

FIGURE
5-7



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

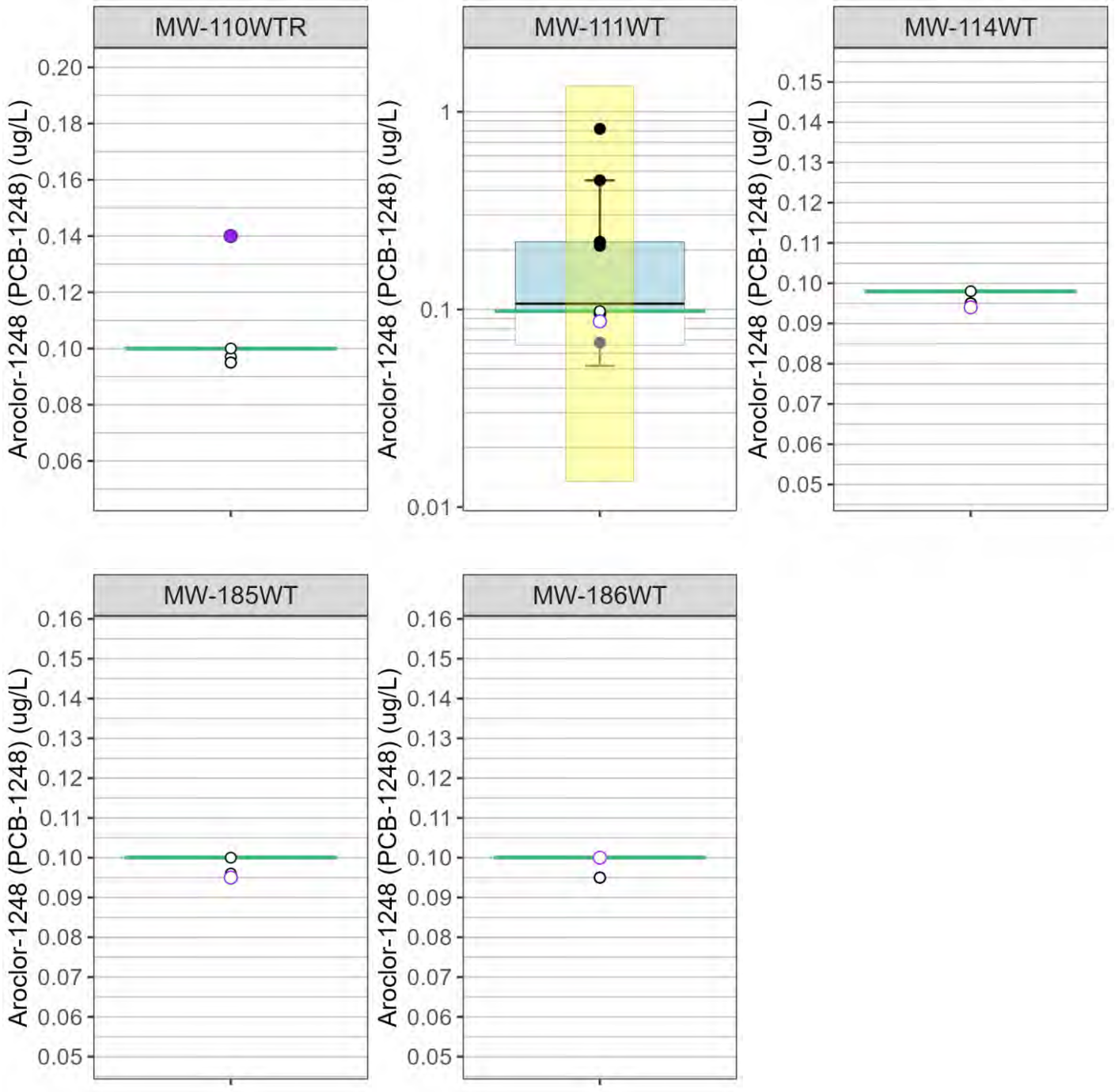
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

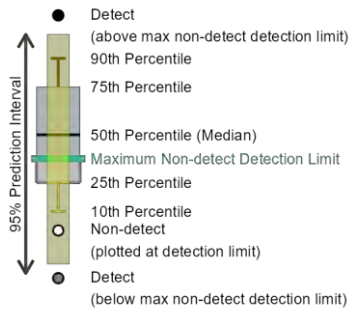
PCBS: AROCLOR-1242 (PCB-1242) (DISSOLVED)

ARCADIS

FIGURE
5-8



Boxplot Legend



Color Code

Low Flow Result above maximum non-detect detection limit

Low Flow Result above below non-detect detection limit

No Purge Result

Symbol Code

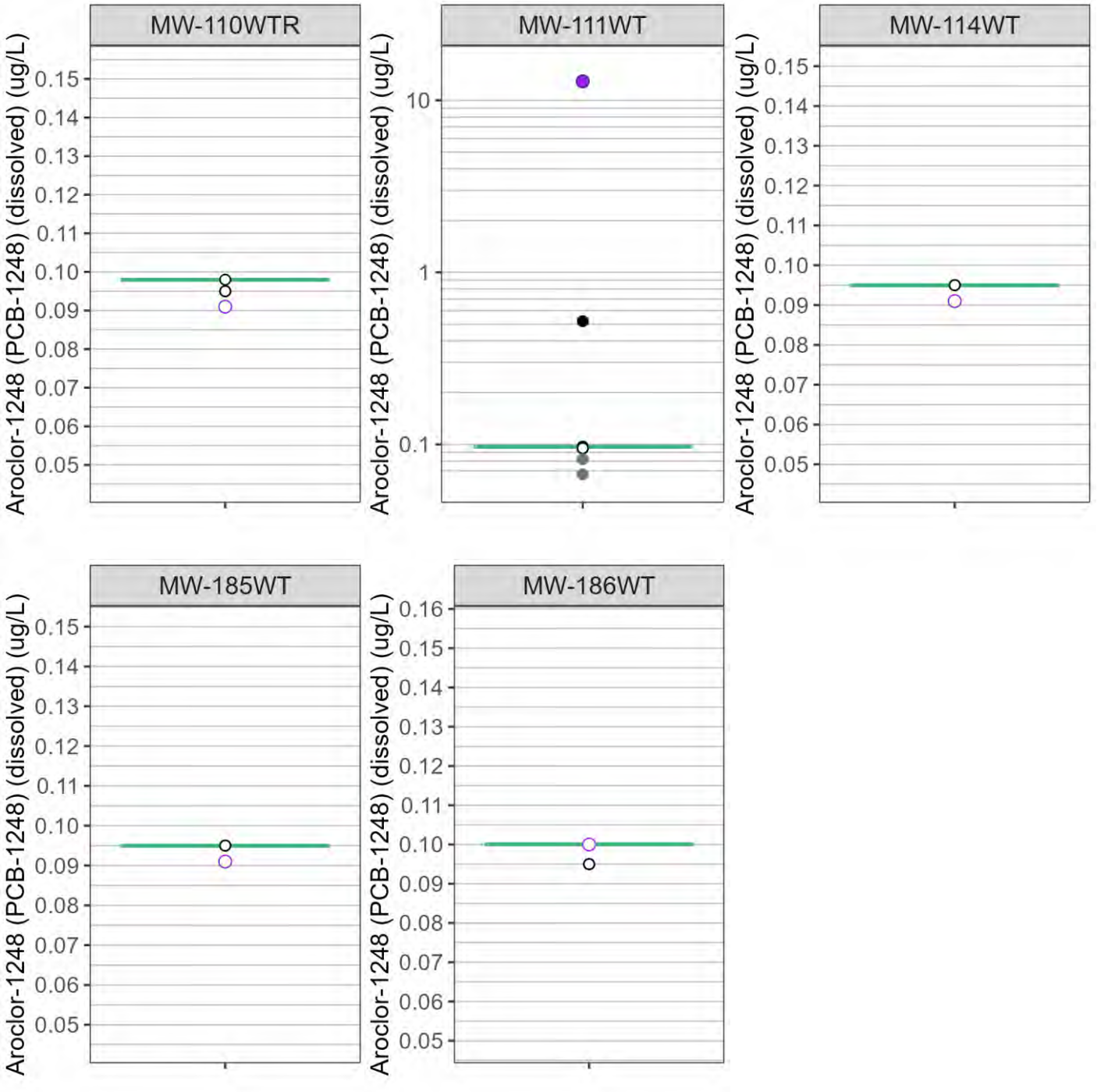
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PCBS: AROCLOR-1248 (PCB-1248)

ARCADIS

FIGURE
5-9



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

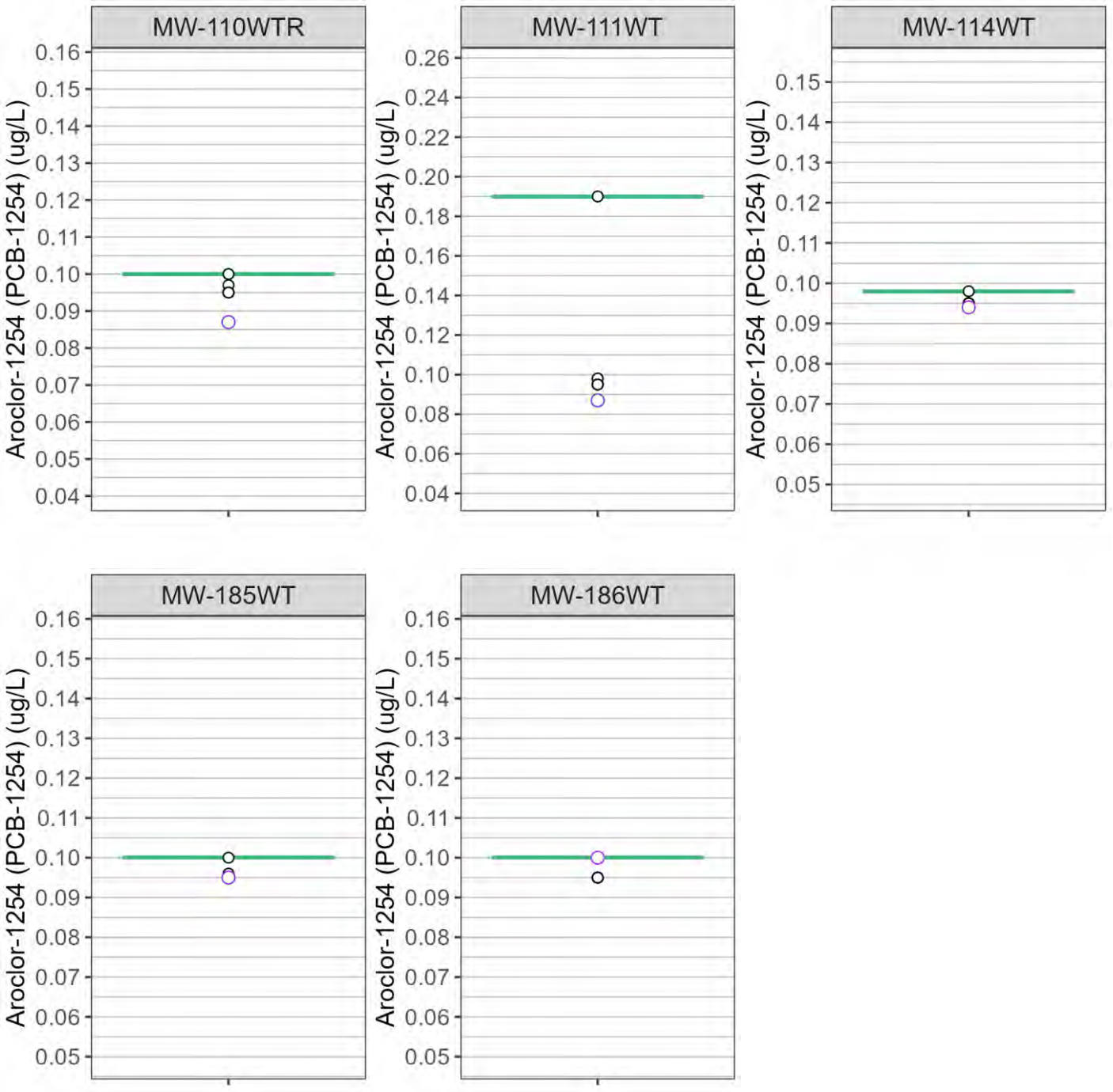
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PCBS: AROCLOR-1248 (PCB-1248) (DISSOLVED)

ARCADIS

FIGURE
5-10



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

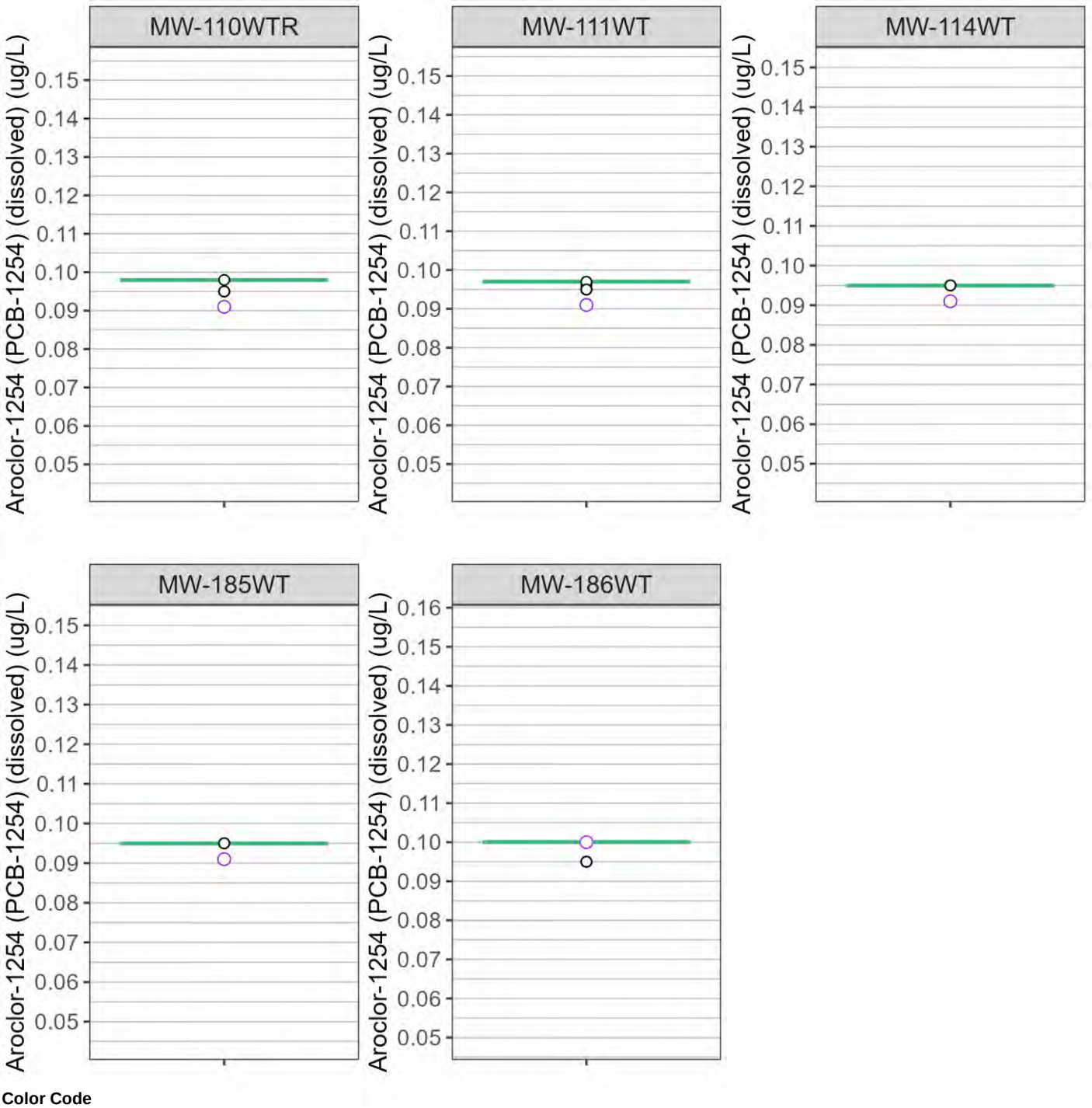
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PCBS: AROCLOR-1254 (PCB-1254)

ARCADIS

FIGURE
5-11



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

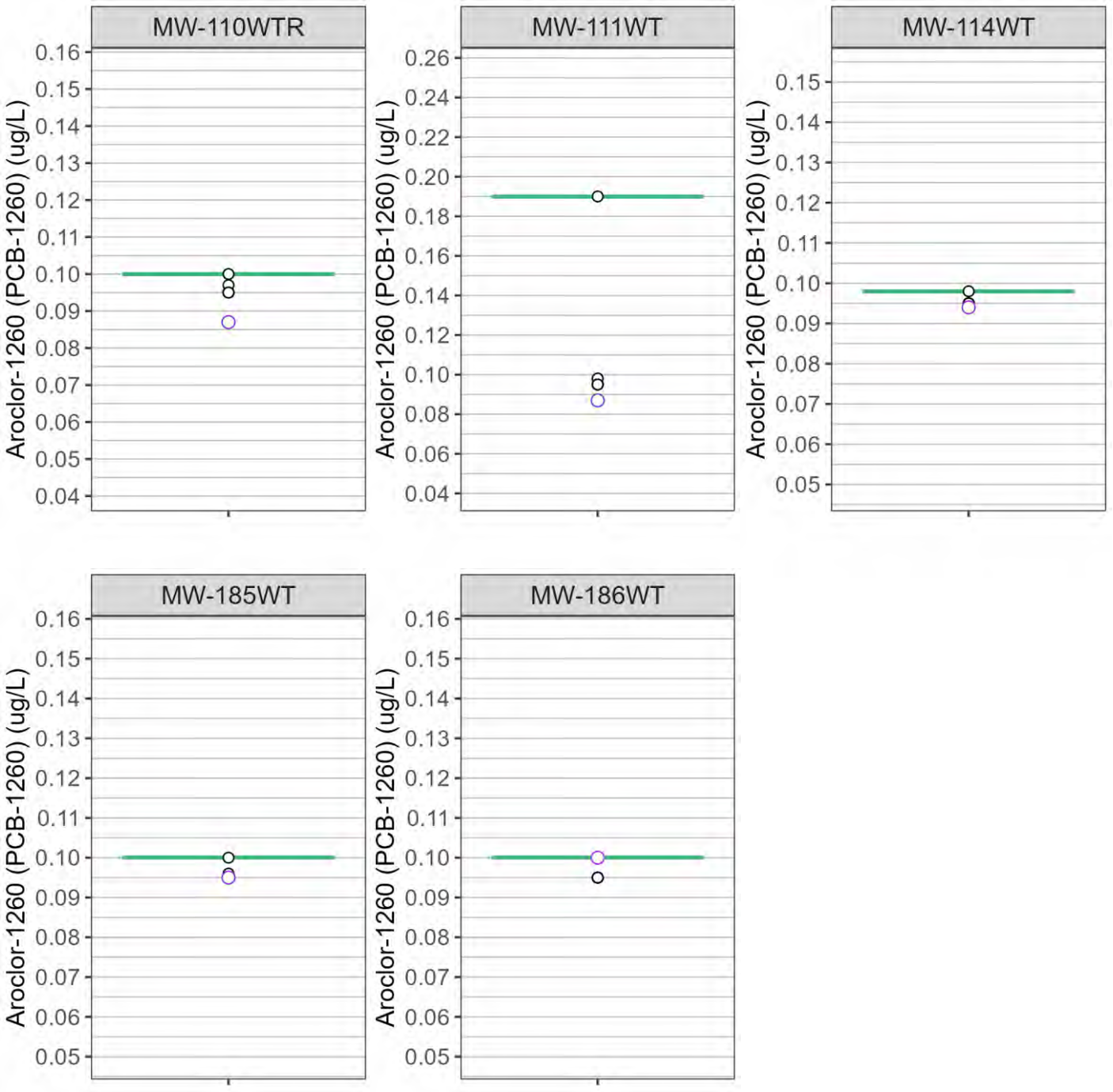
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PCBS: AROCLOR-1254 (PCB-1254) (DISSOLVED)

ARCADIS

FIGURE
5-12



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

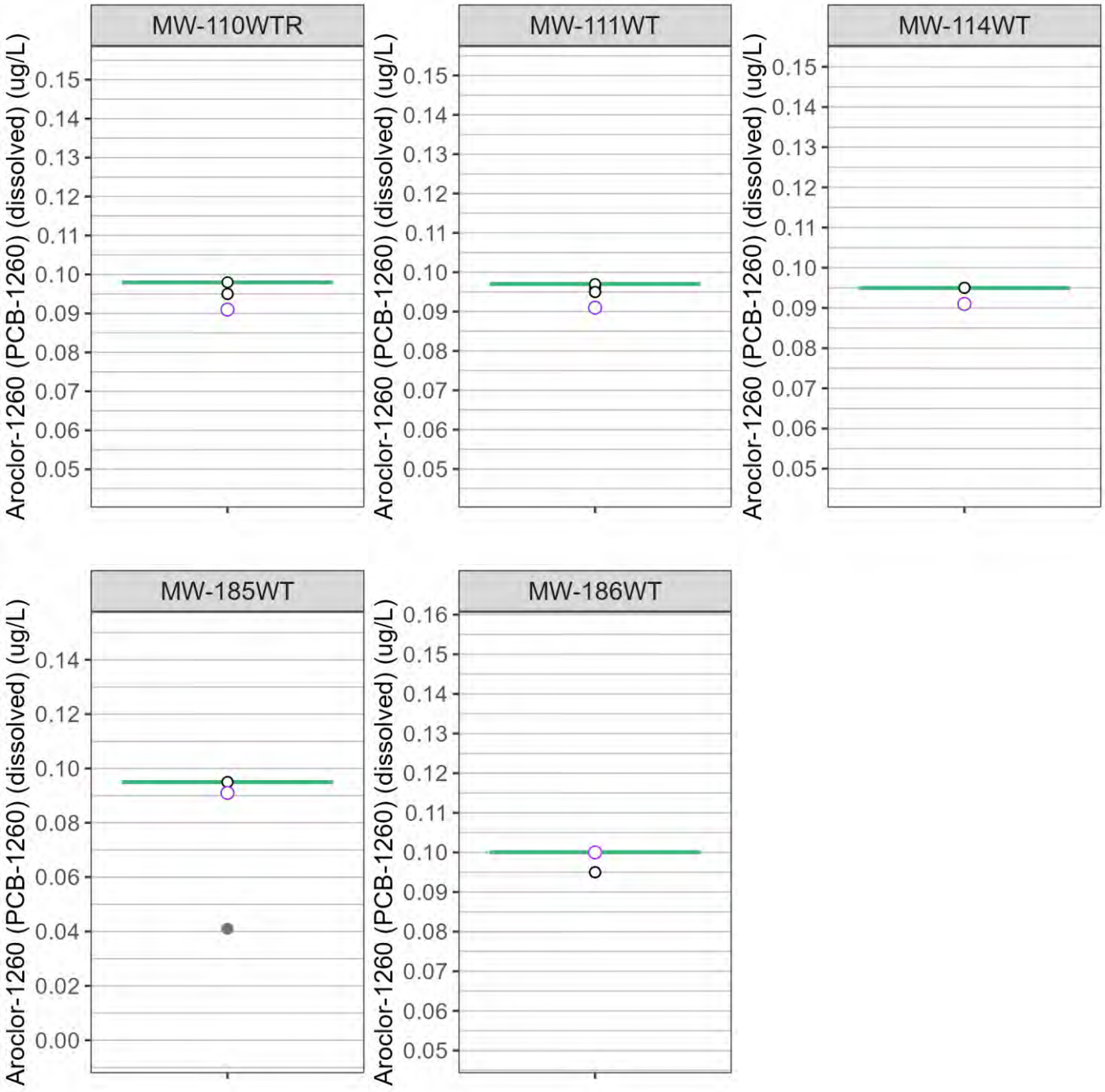
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PCBS: AROCLOR-1260 (PCB-1260)

ARCADIS

FIGURE
5-13



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

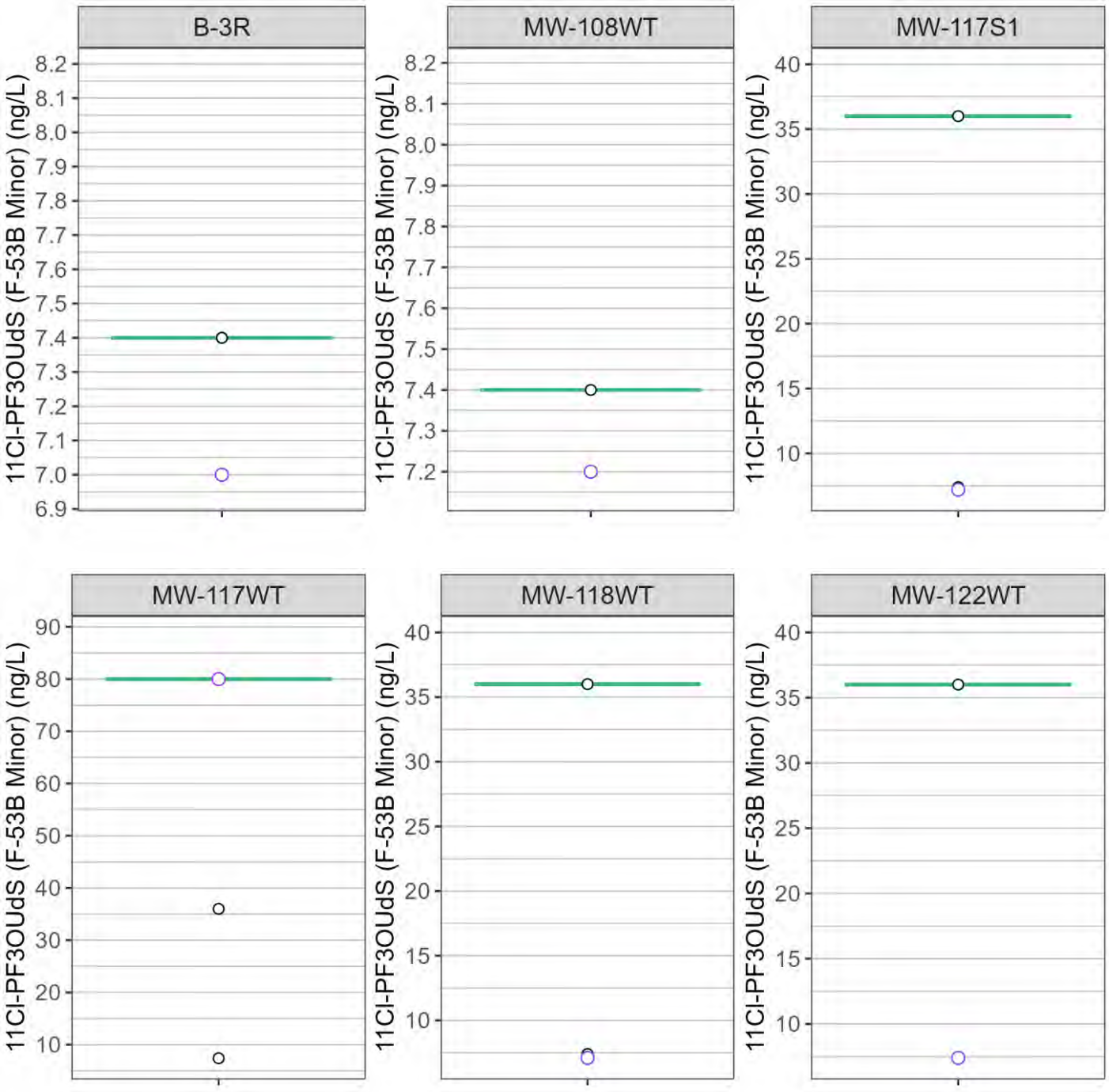
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PCBS: AROCLOR-1260 (PCB-1260) (DISSOLVED)

ARCADIS

FIGURE
5-14



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

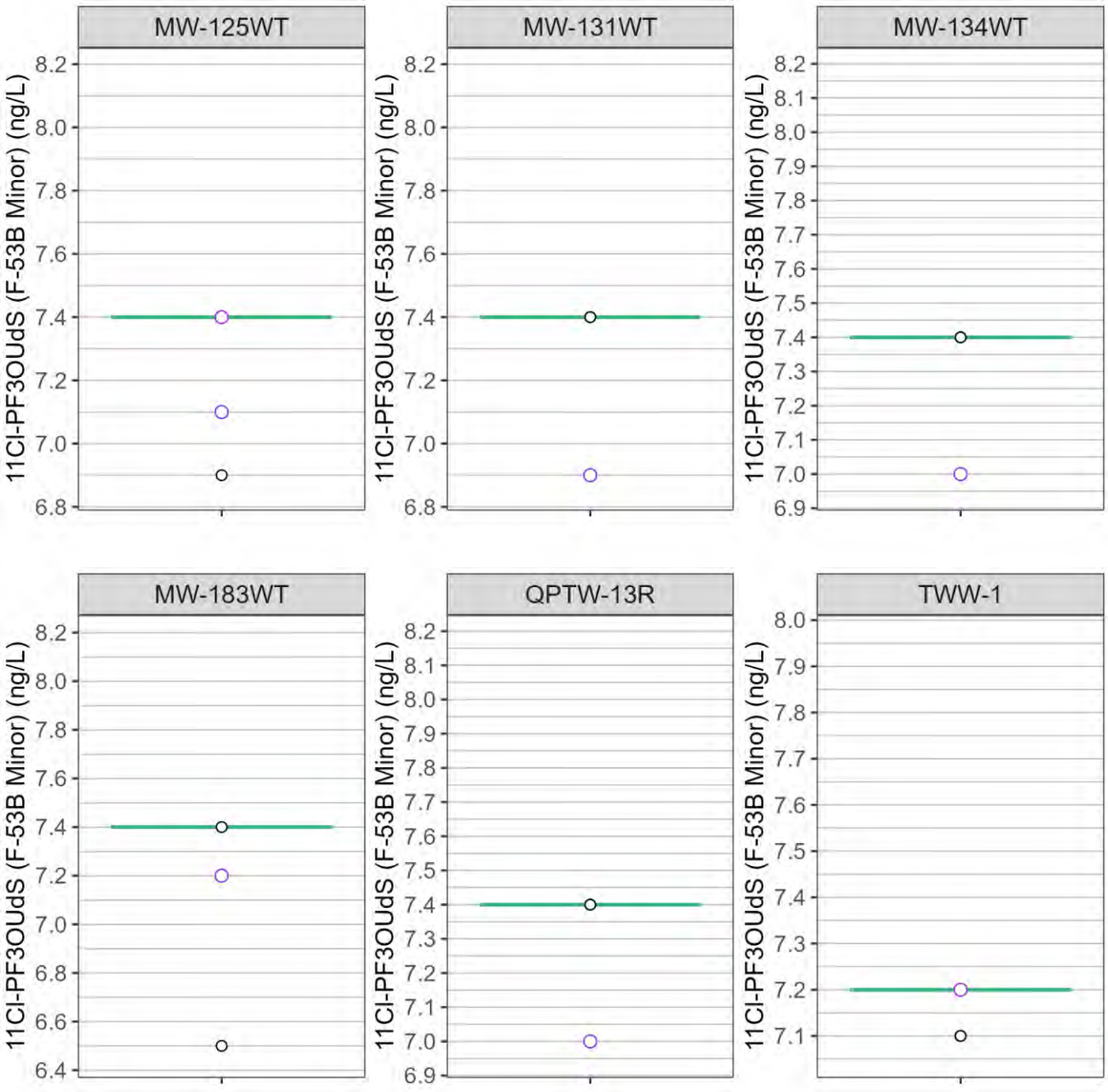
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: 11CL-PF3OUDS (F-53B MINOR)

ARCADIS

FIGURE
6-1



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

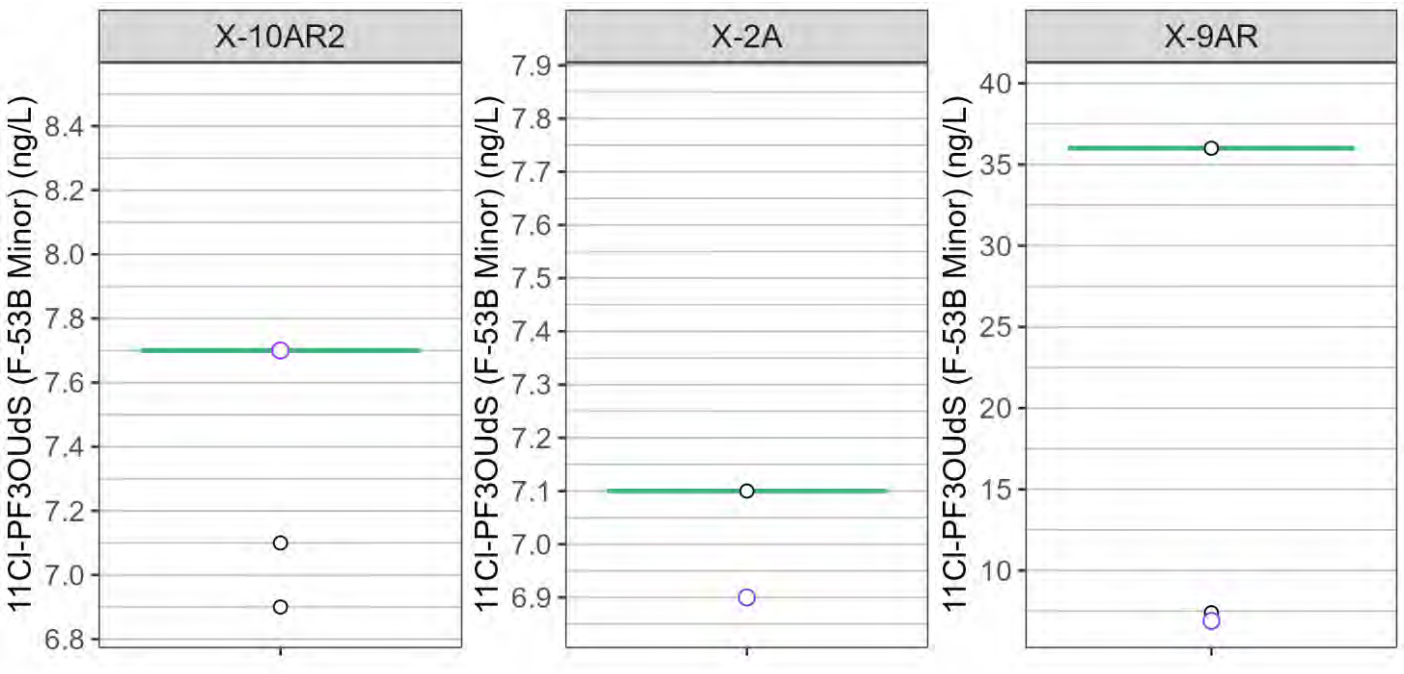
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: 11CL-PF3OUDS (F-53B MINOR)

ARCADIS

FIGURE
6-2



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

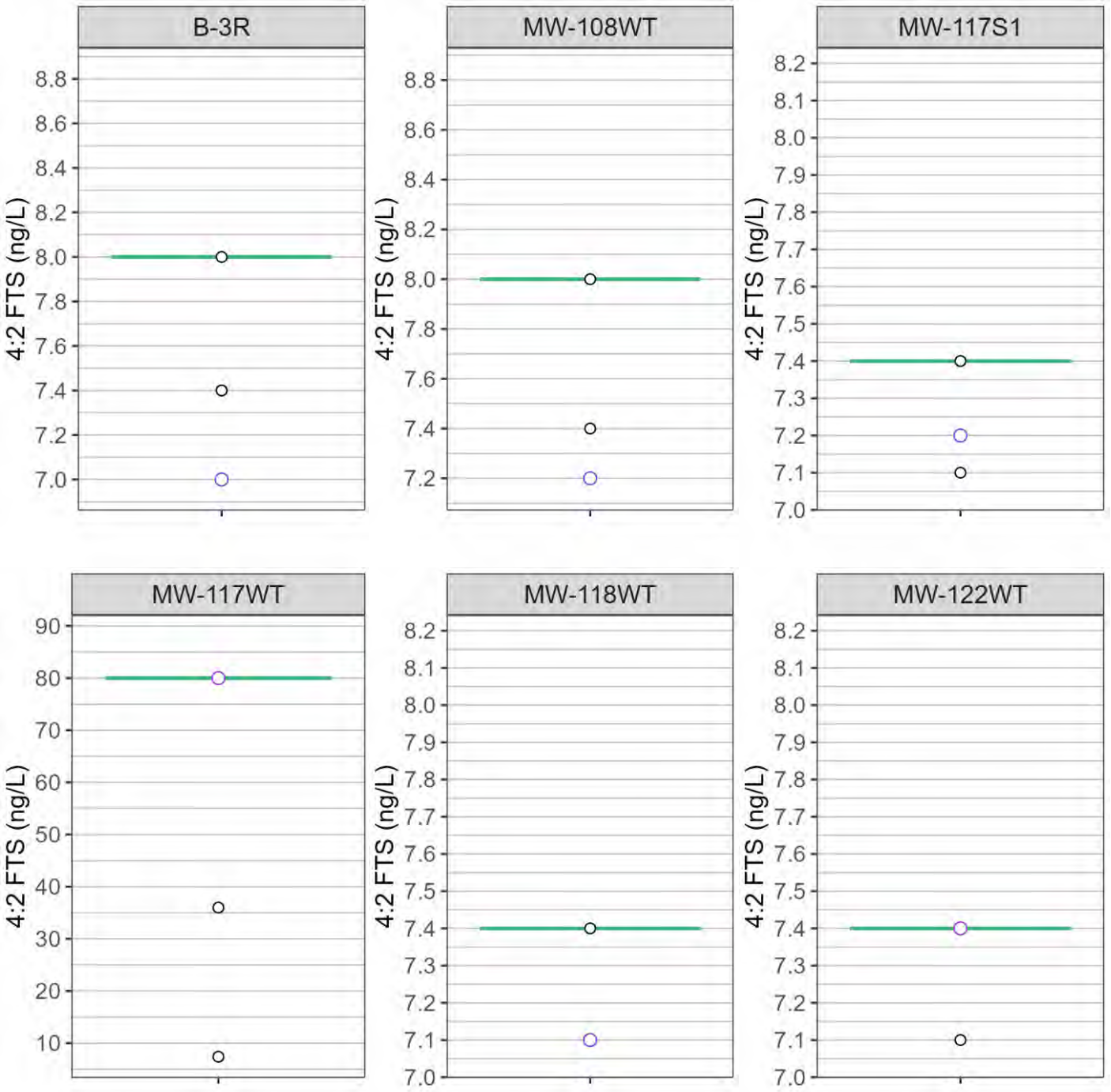
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: 11CL-PF3OUDS (F-53B MINOR)

ARCADIS

FIGURE
6-3



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

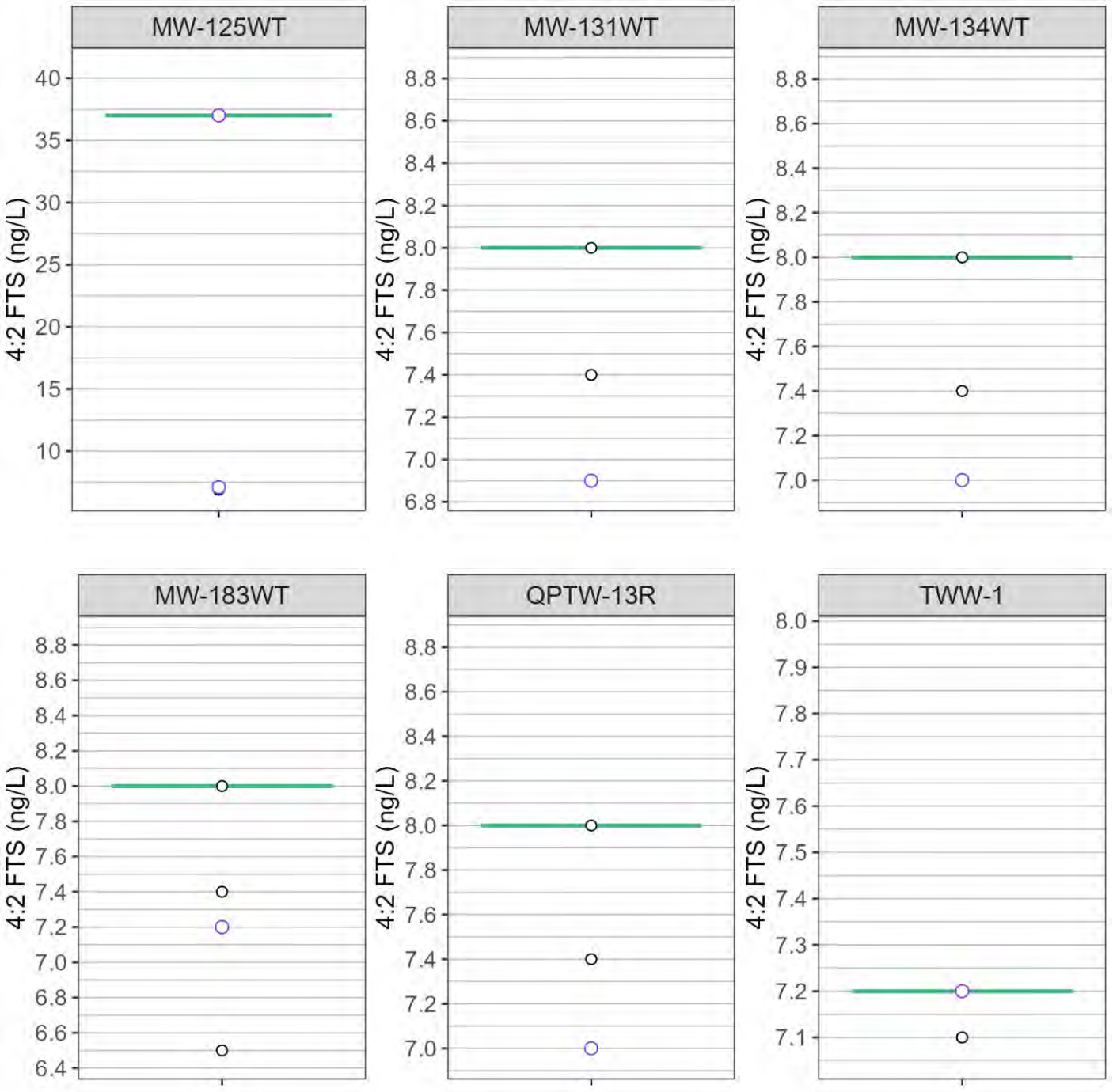
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: 4:2 FTS

ARCADIS

FIGURE
6-4



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

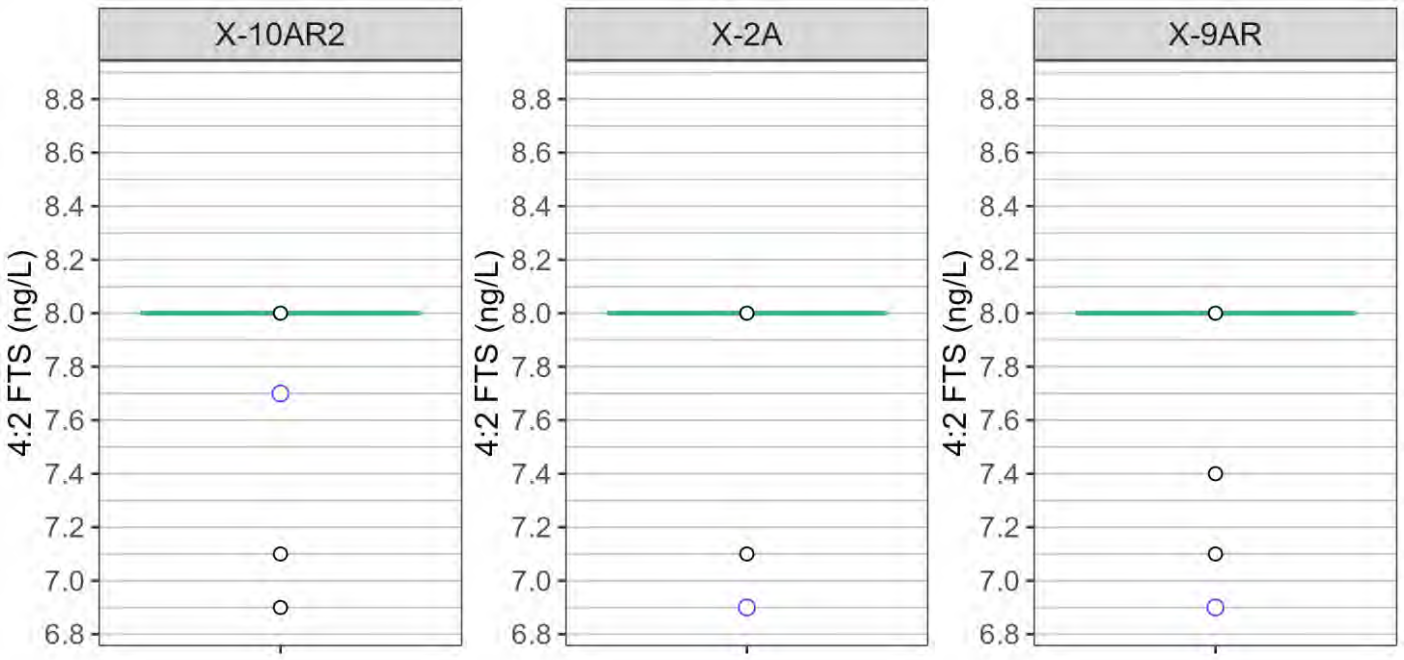
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: 4:2 FTS

ARCADIS

FIGURE
6-5



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

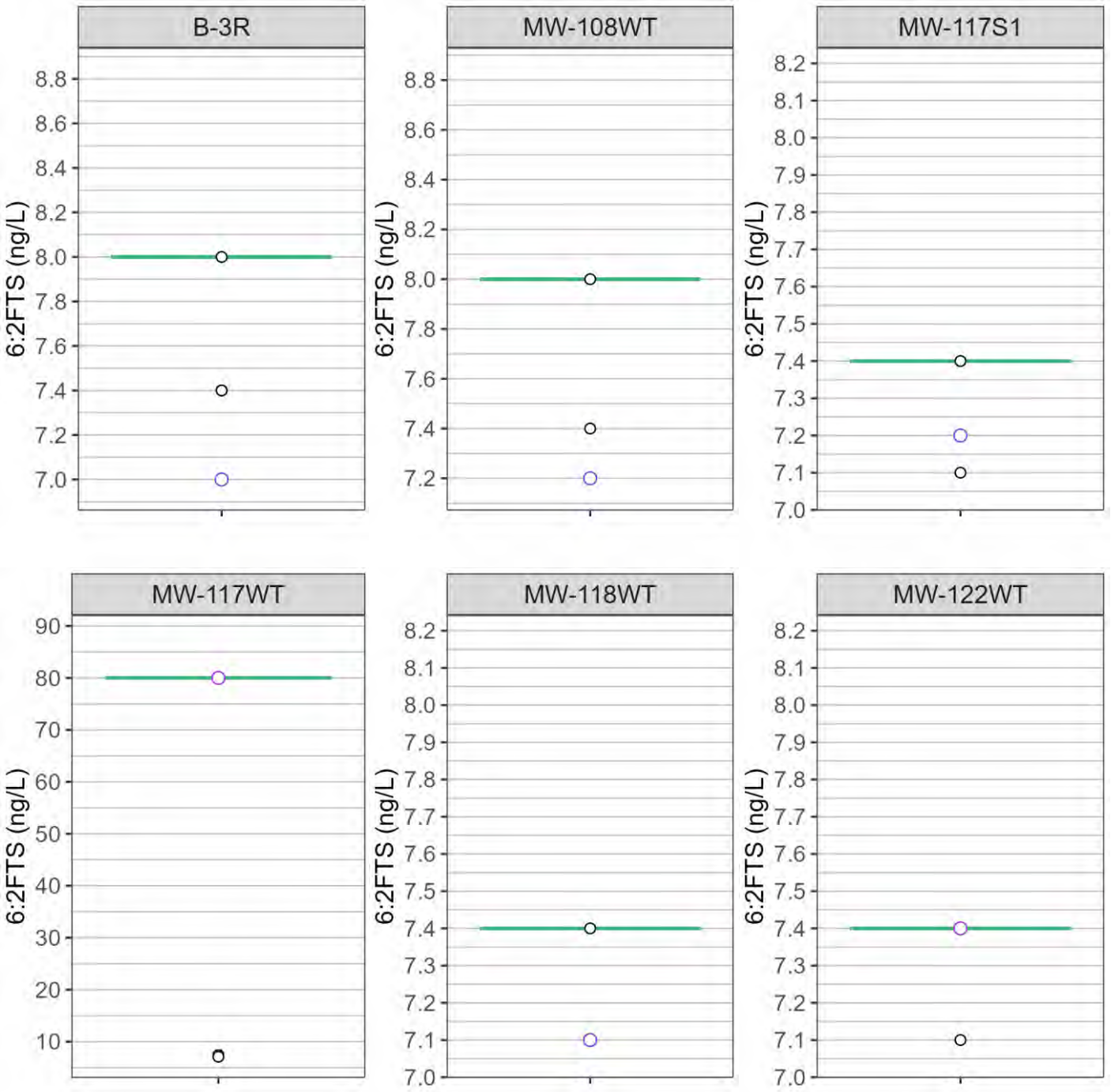
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: 4:2 FTS

ARCADIS

FIGURE
6-6



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

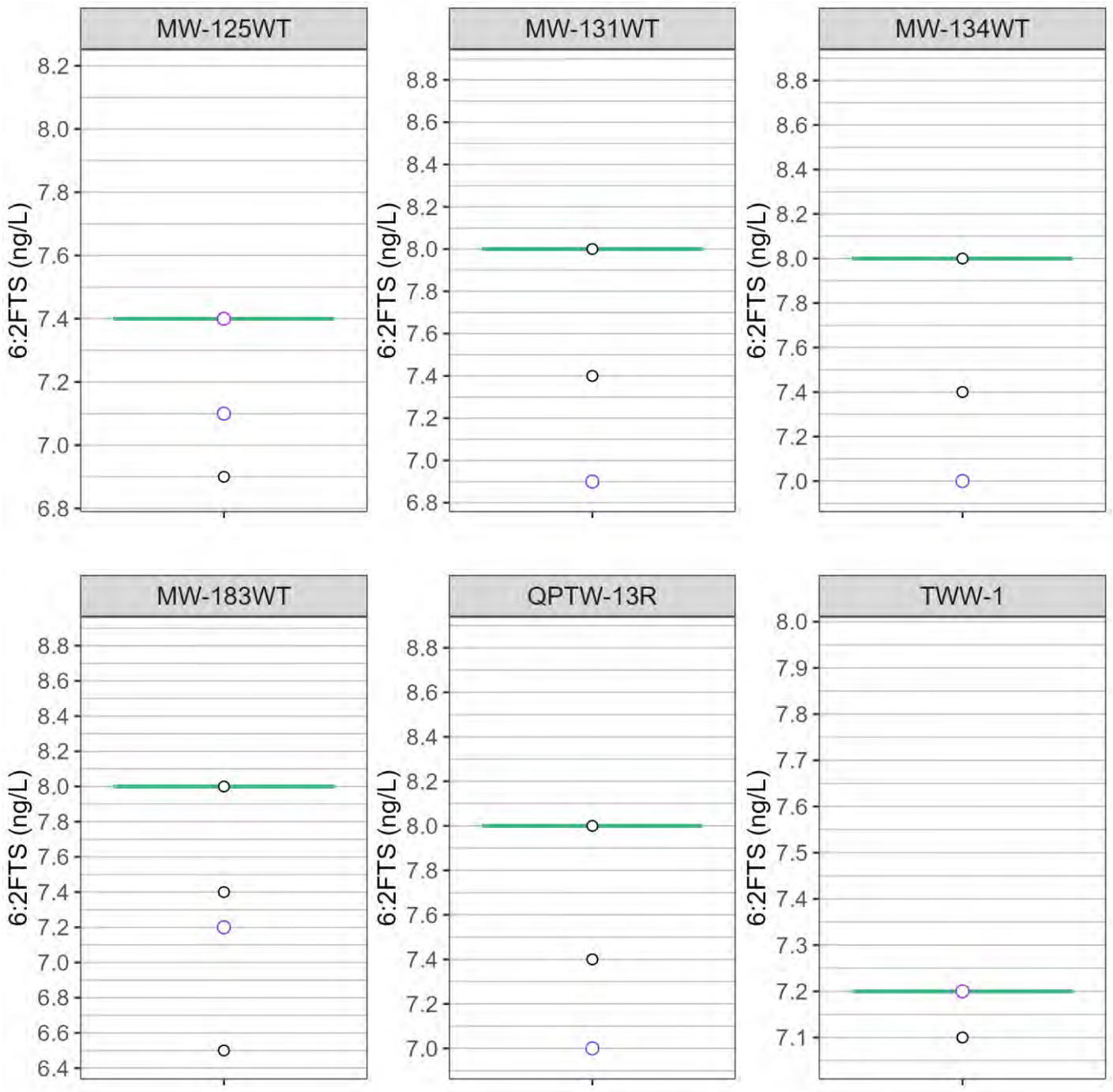
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: 6:2FTS

ARCADIS

FIGURE
6-7



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

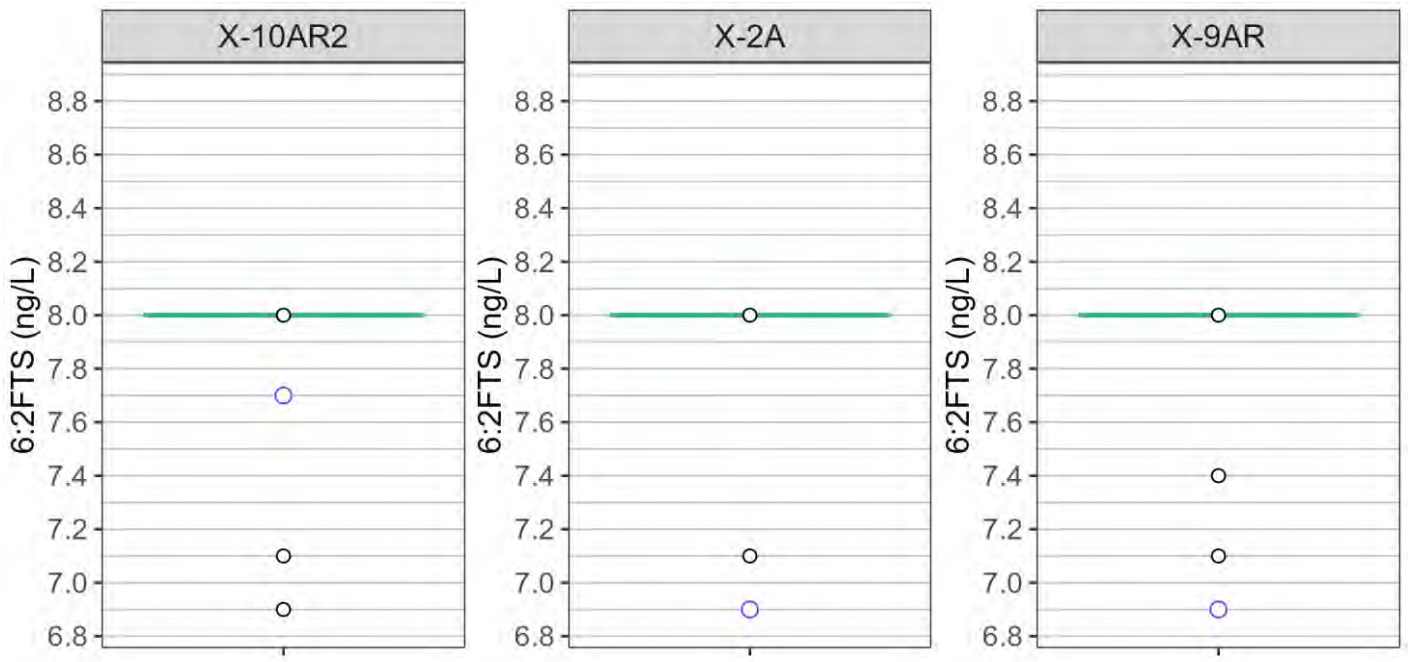
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: 6:2FTS

ARCADIS

FIGURE
6-8



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

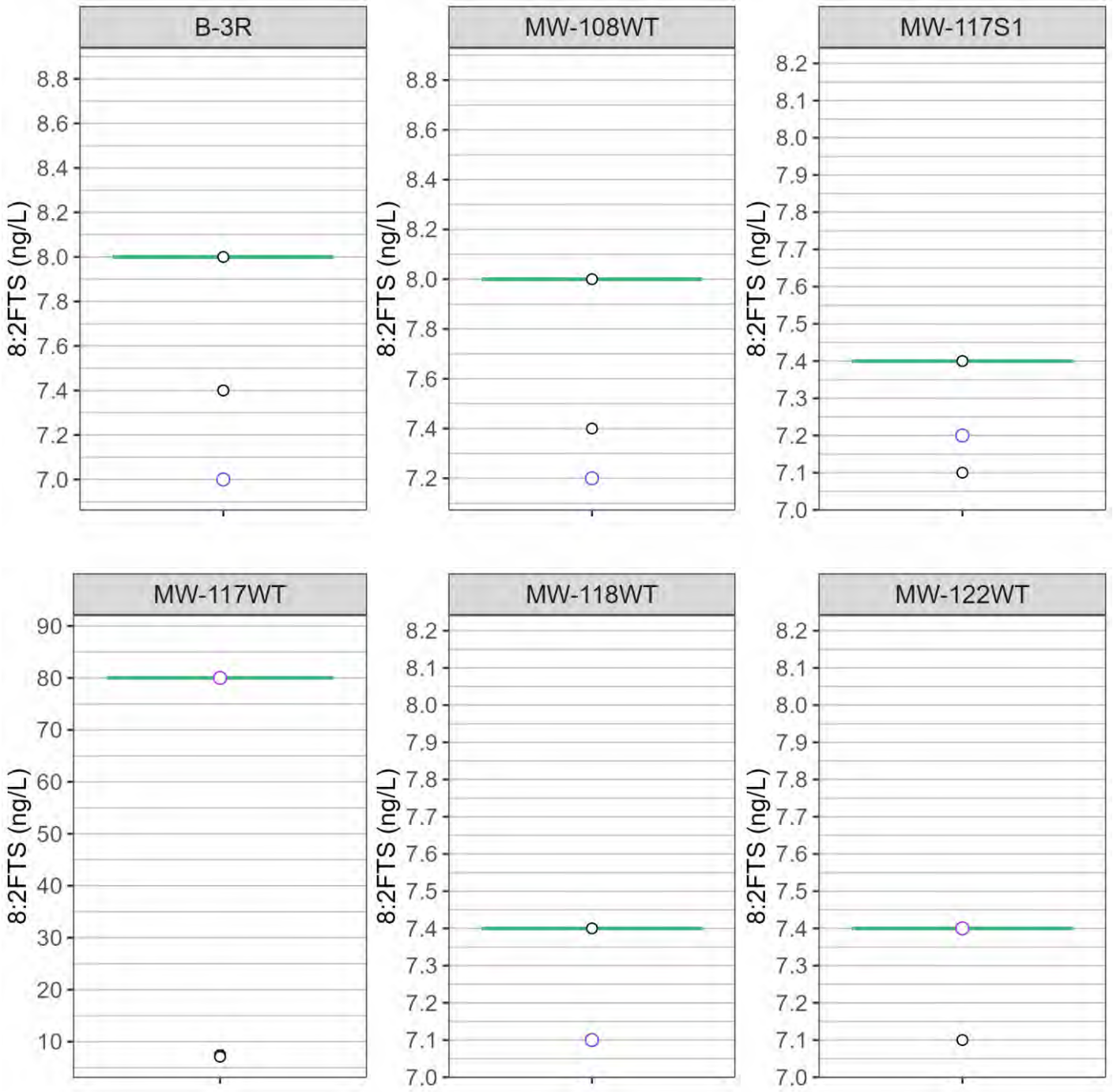
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: 6:2FTS

ARCADIS

FIGURE
6-9



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

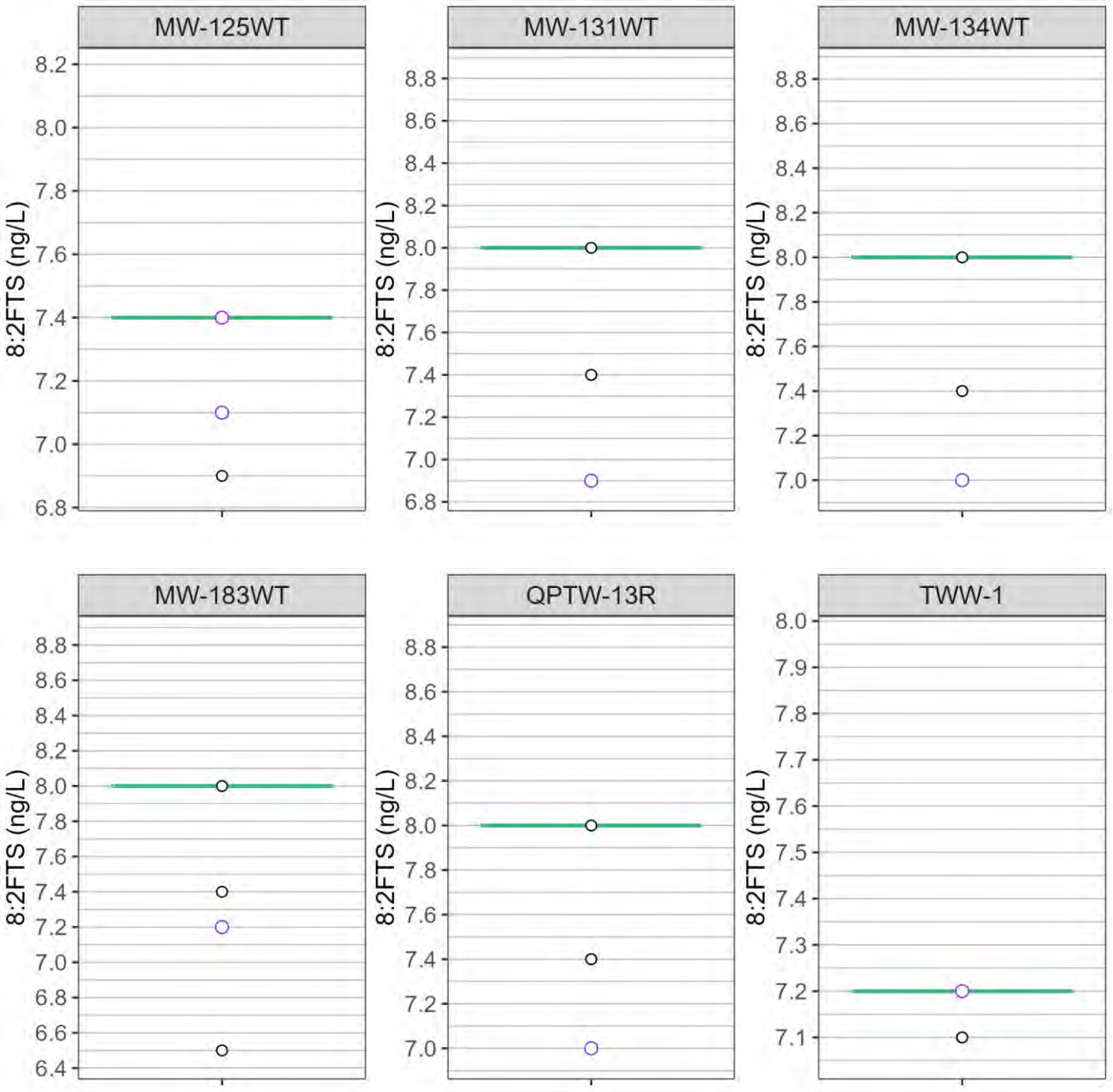
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: 8:2FTS

ARCADIS

FIGURE
6-10



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

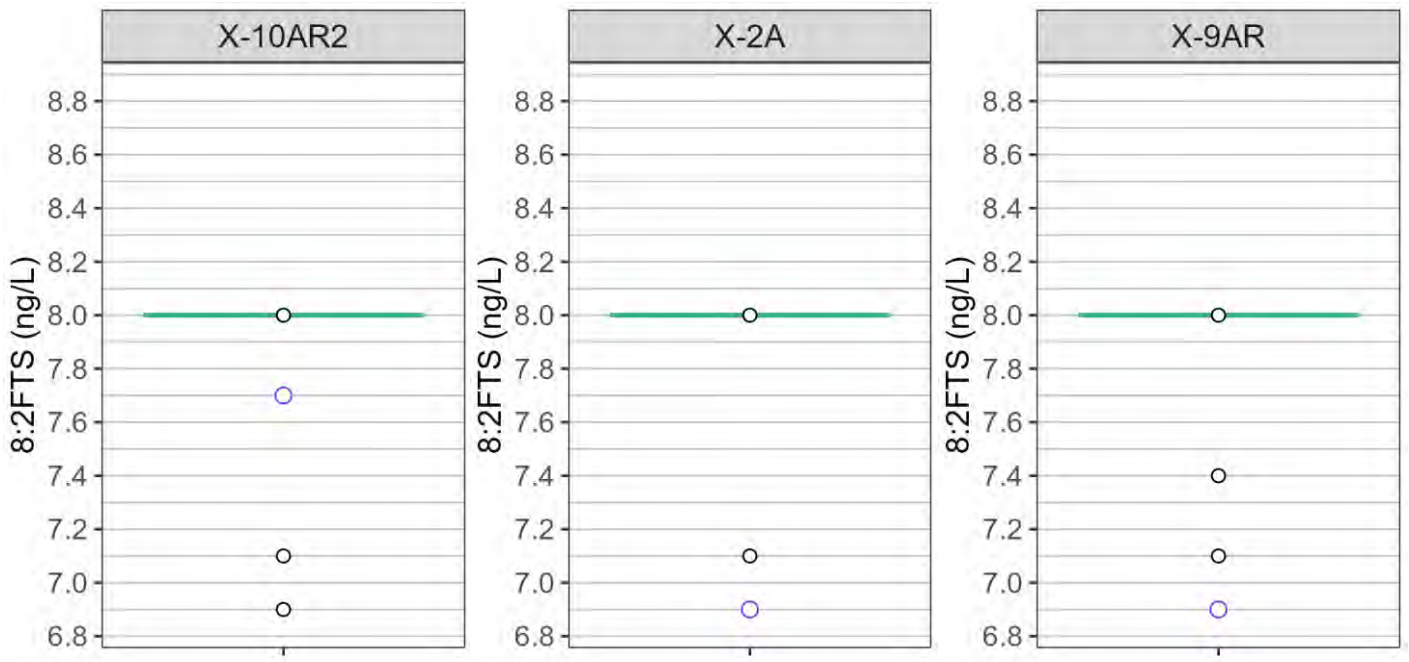
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: 8:2FTS

ARCADIS

FIGURE
6-11



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

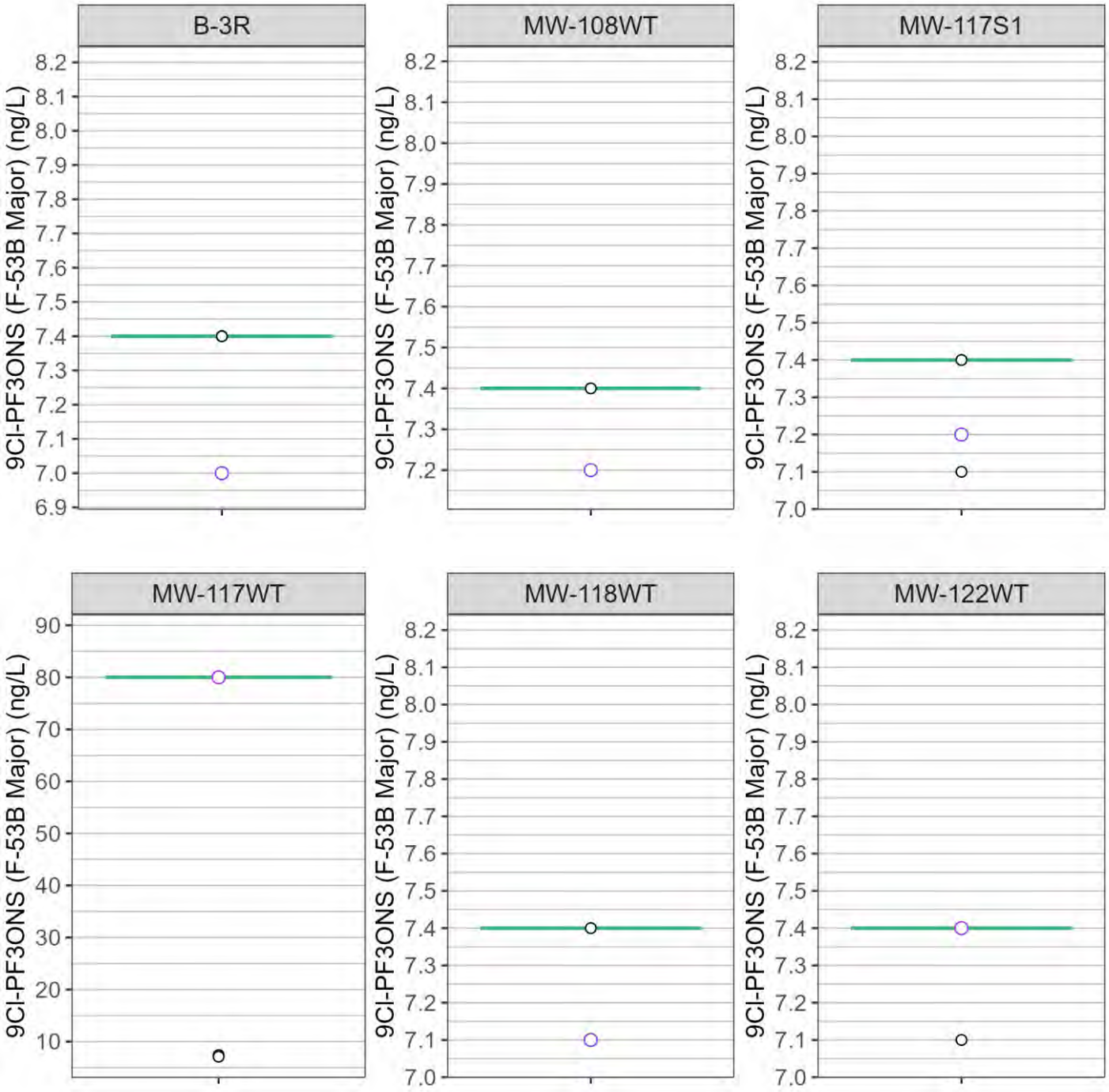
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: 8:2FTS

ARCADIS

FIGURE
6-12



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

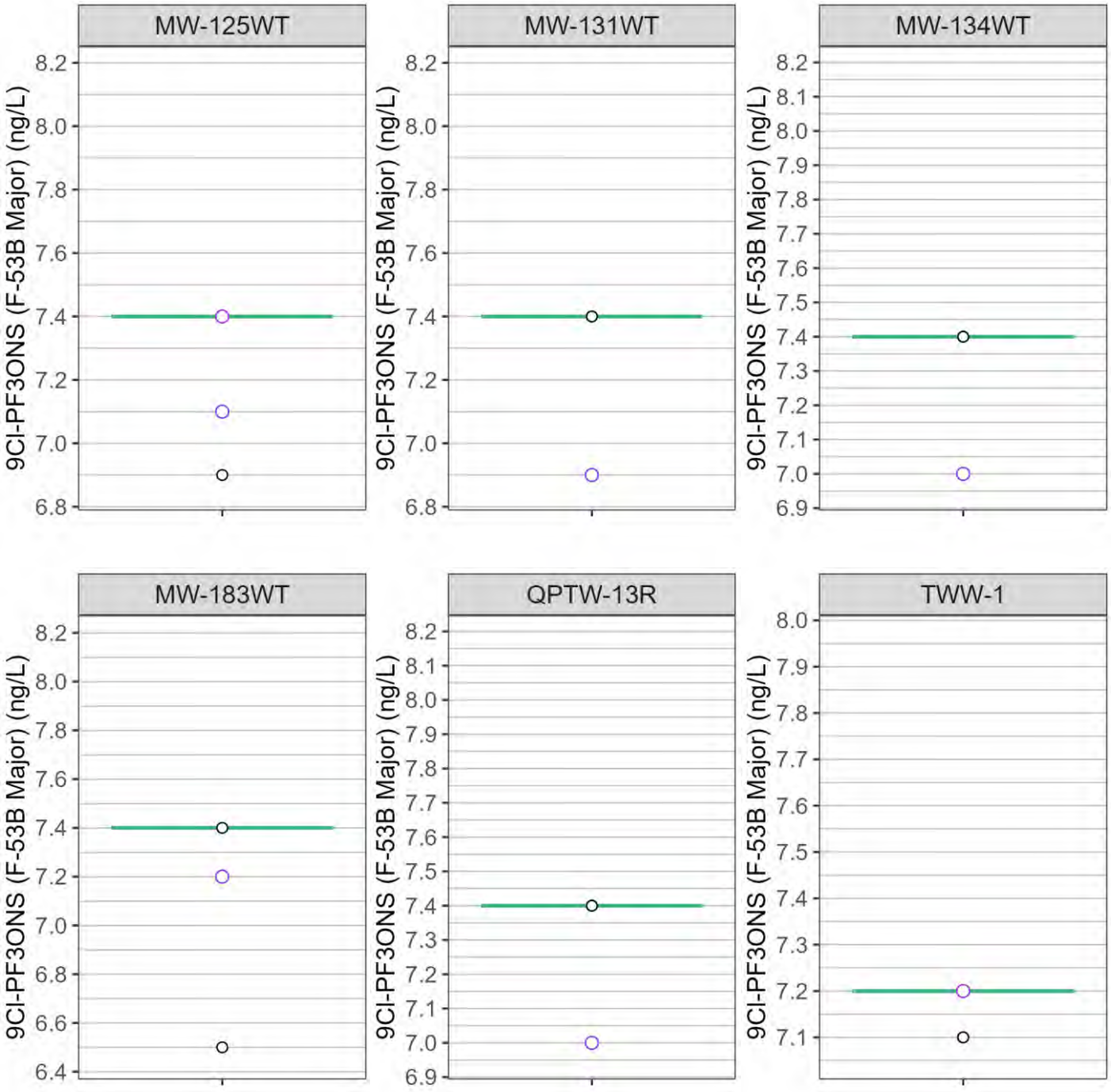
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: 9CL-PF3ONS (F-53B MAJOR)

ARCADIS

FIGURE
6-13



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

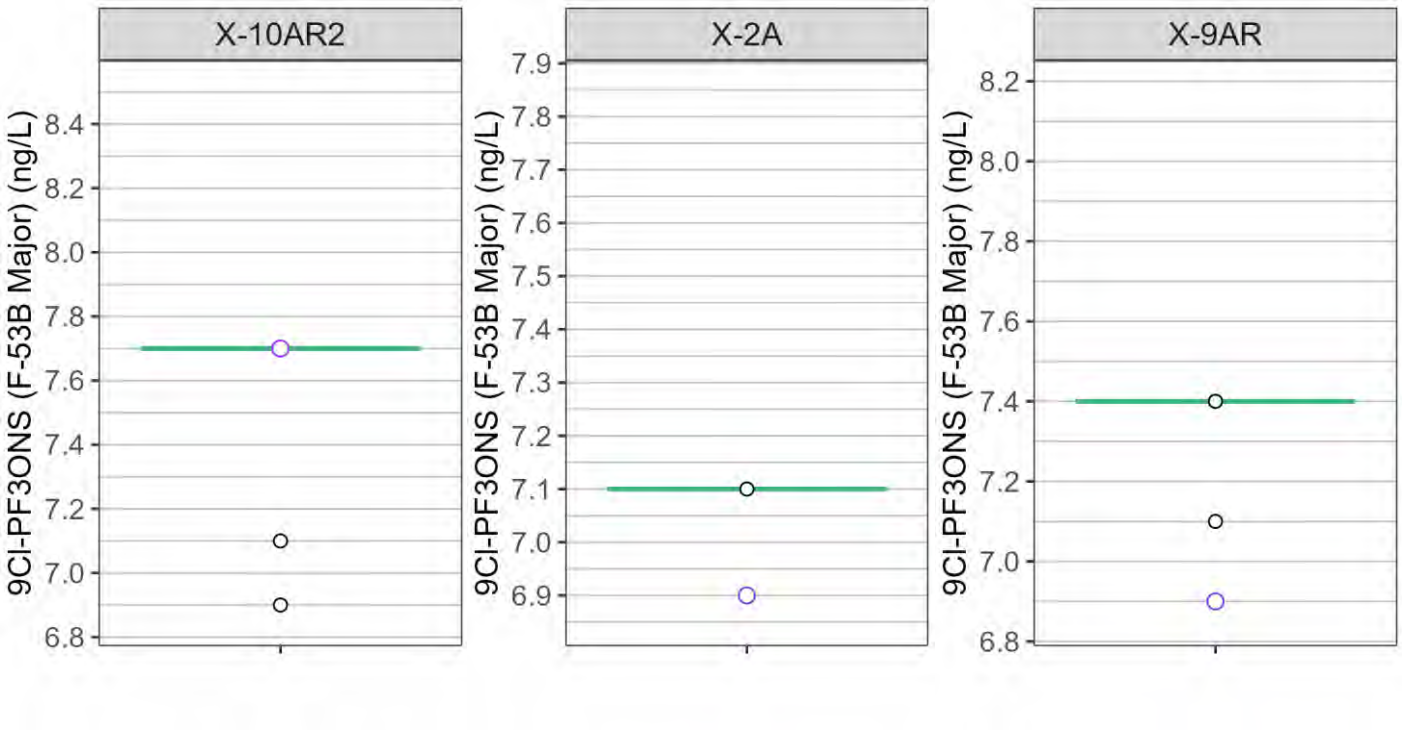
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: 9CL-PF3ONS (F-53B MAJOR)

ARCADIS

FIGURE
6-14



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

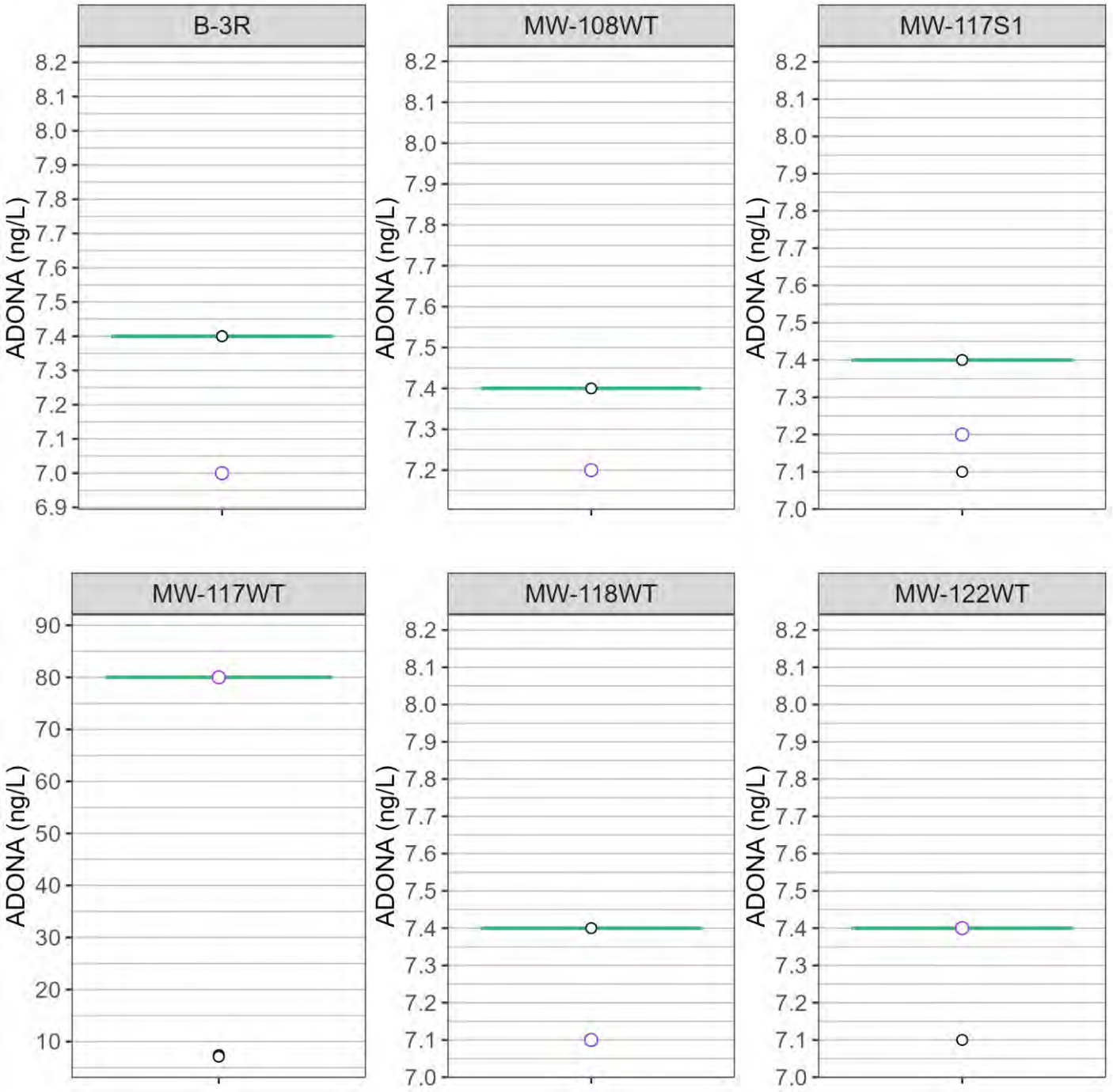
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: 9CL-PF3ONS (F-53B MAJOR)

ARCADIS

FIGURE
6-15



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

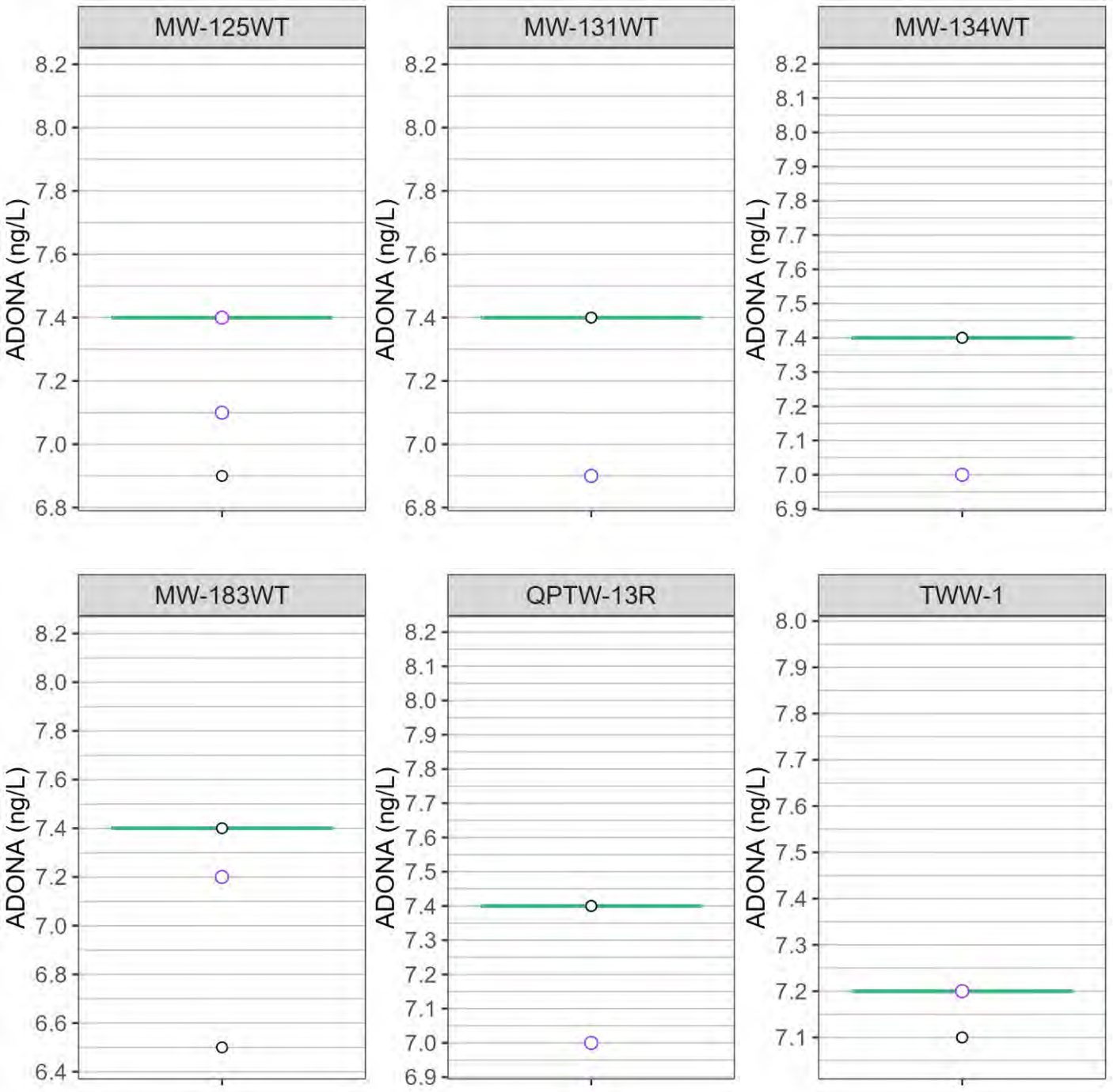
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: ADONA

ARCADIS

FIGURE
6-16



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

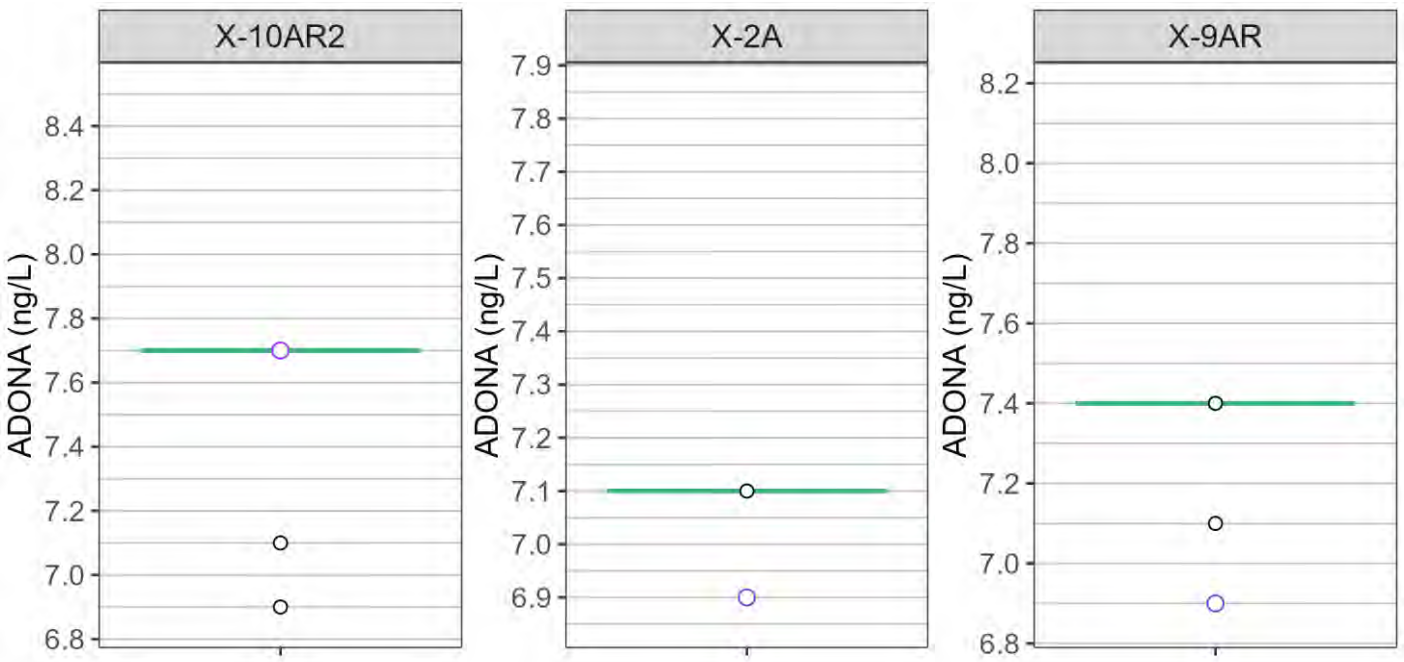
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: ADONA

ARCADIS

FIGURE
6-17



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

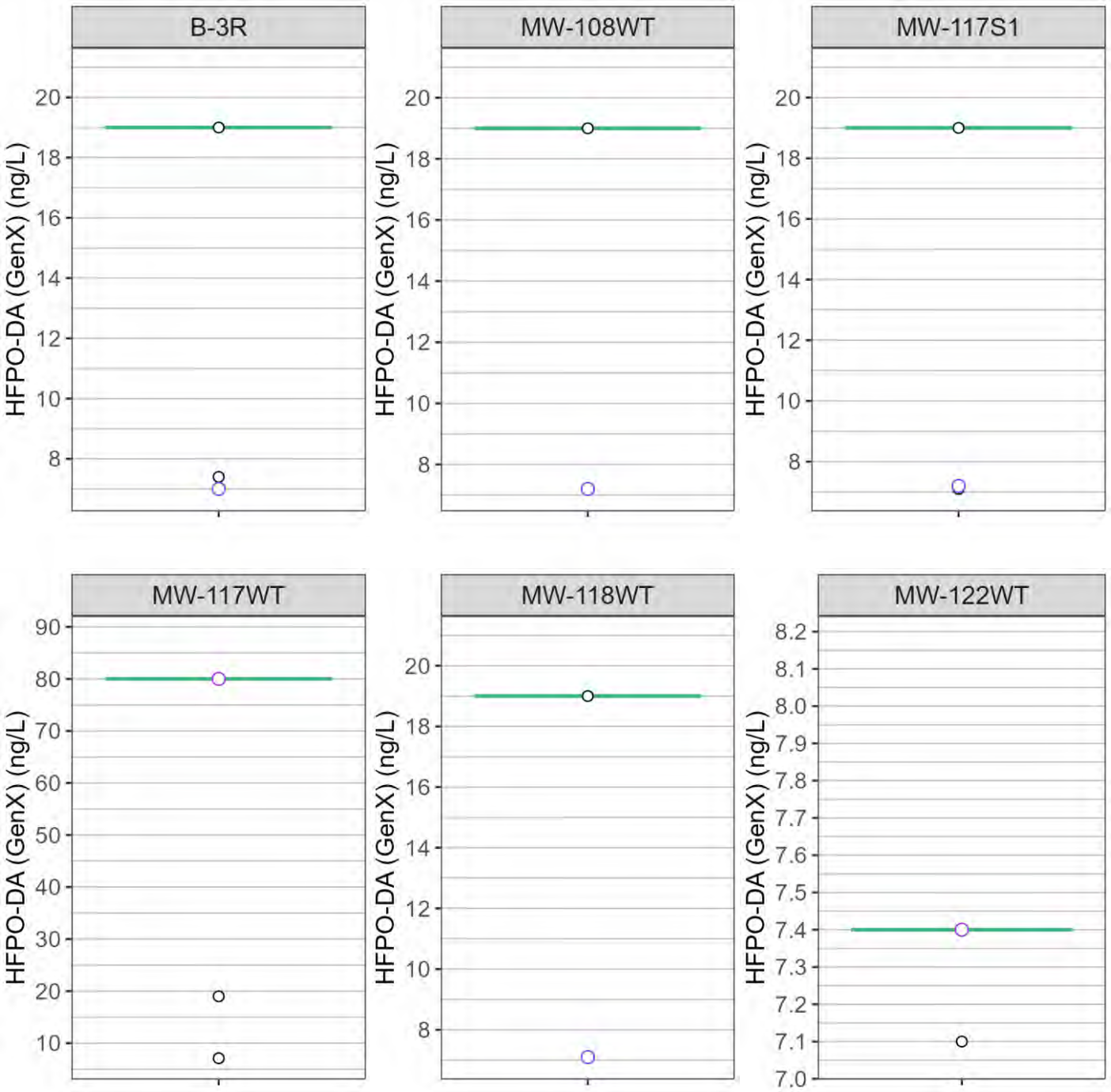
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: ADONA

ARCADIS

FIGURE
6-18



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

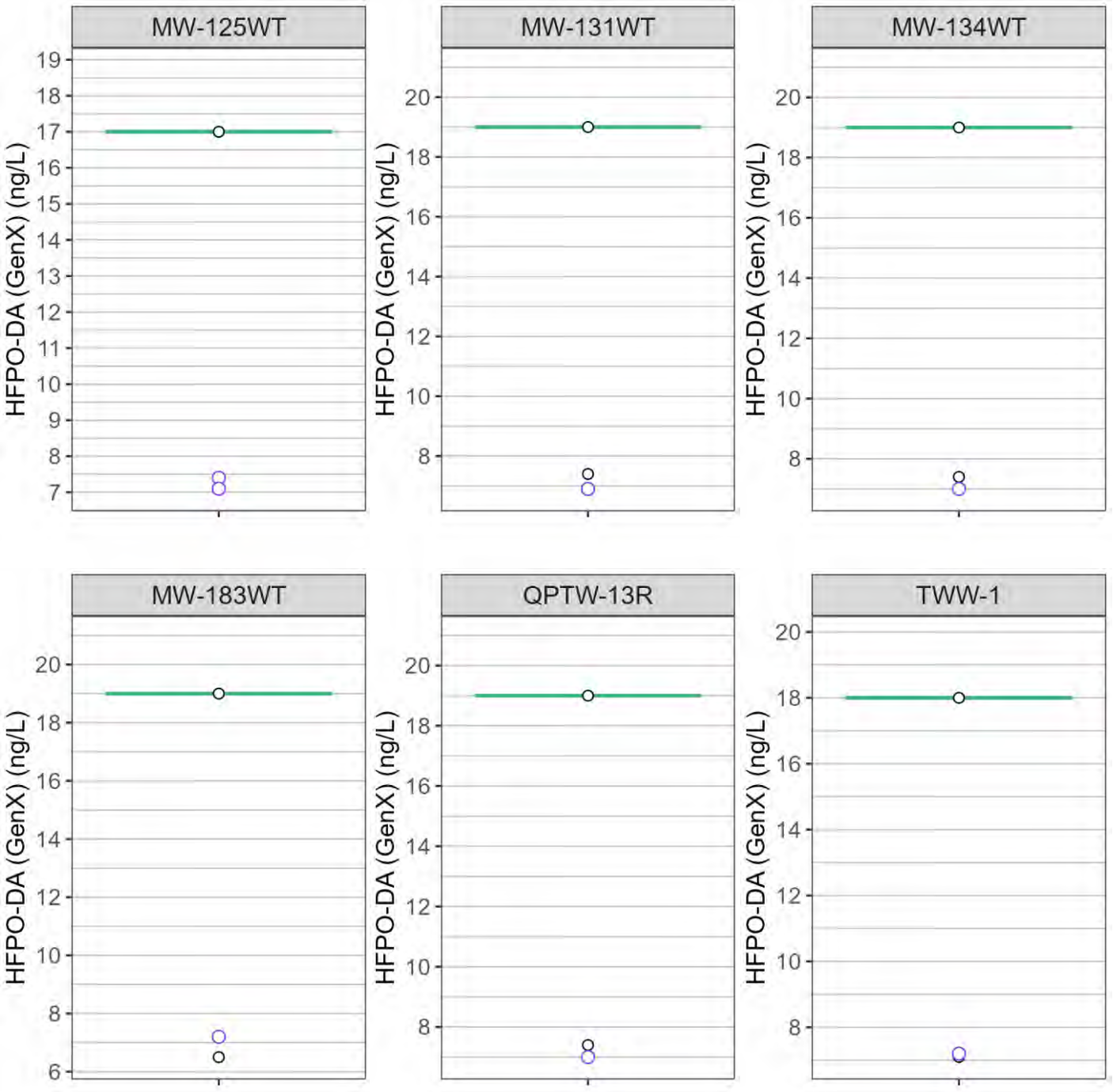
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: HFPO-DA (GENX)

ARCADIS

FIGURE
6-19



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

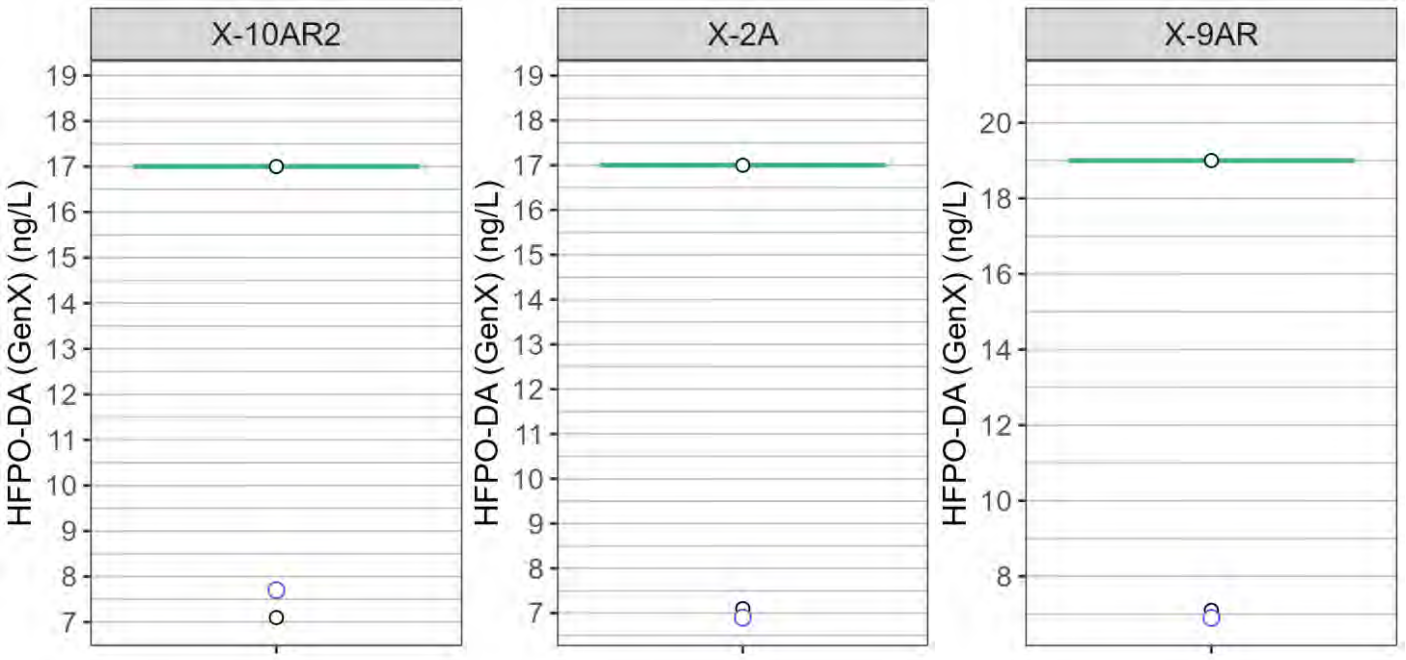
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: HFPO-DA (GENX)

ARCADIS

FIGURE
6-20



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

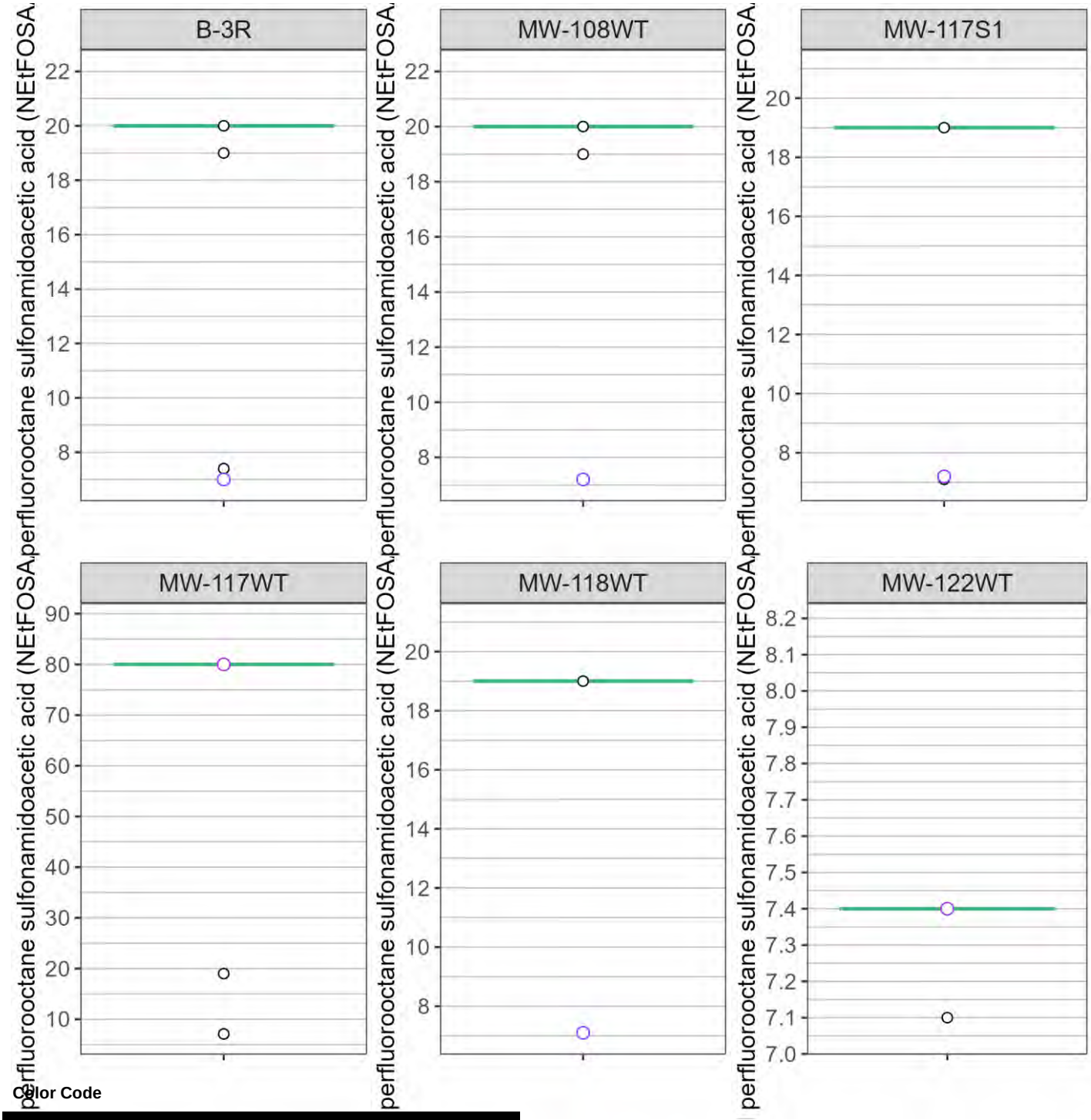
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: HFPO-DA (GENX)

ARCADIS

FIGURE
6-21



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

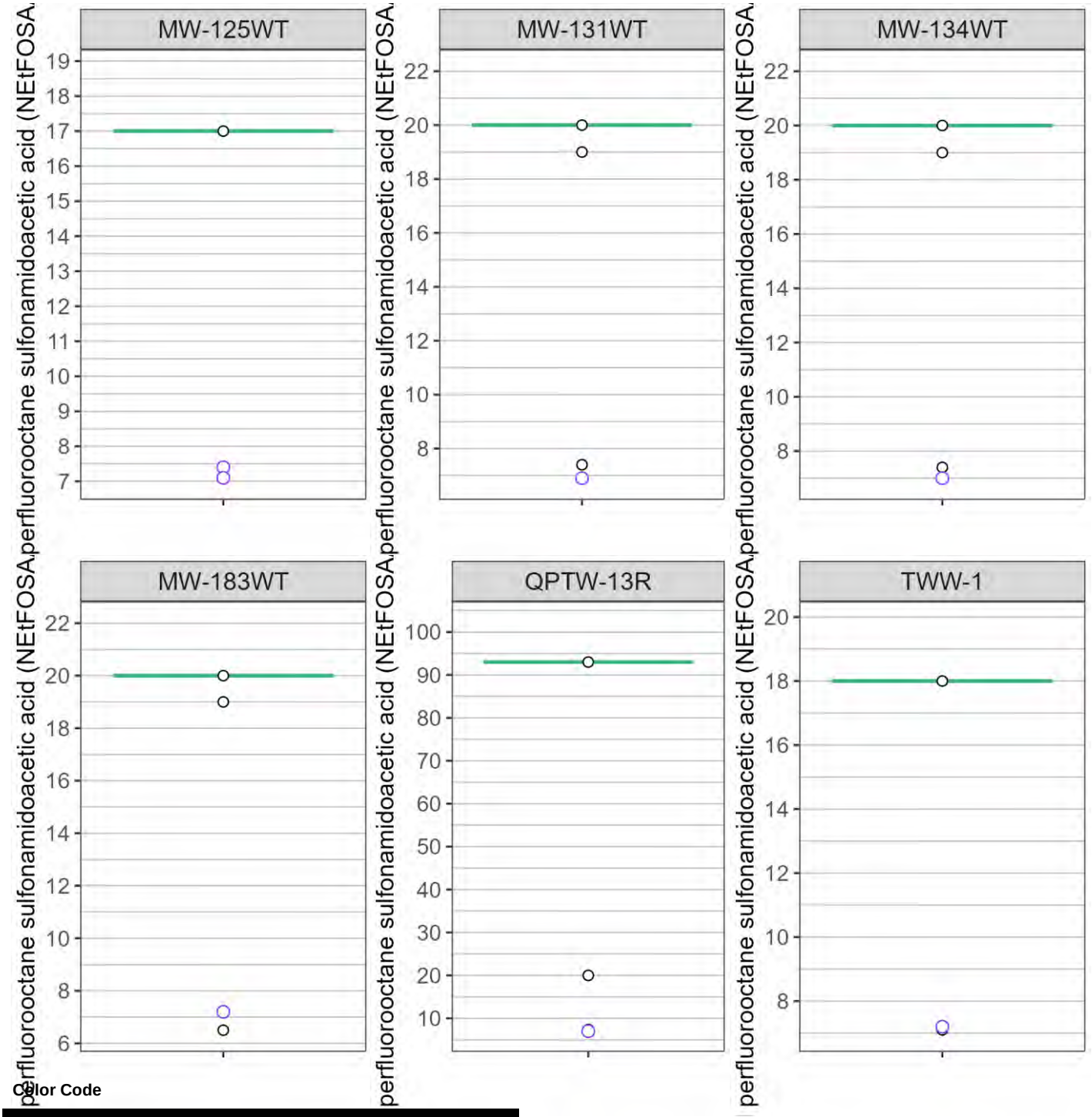
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: N-ETHYL PERFLUOROOCTANE SULFONAMIDOACETIC ACID (NETFOSAA)

ARCADIS

FIGURE
6-22



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

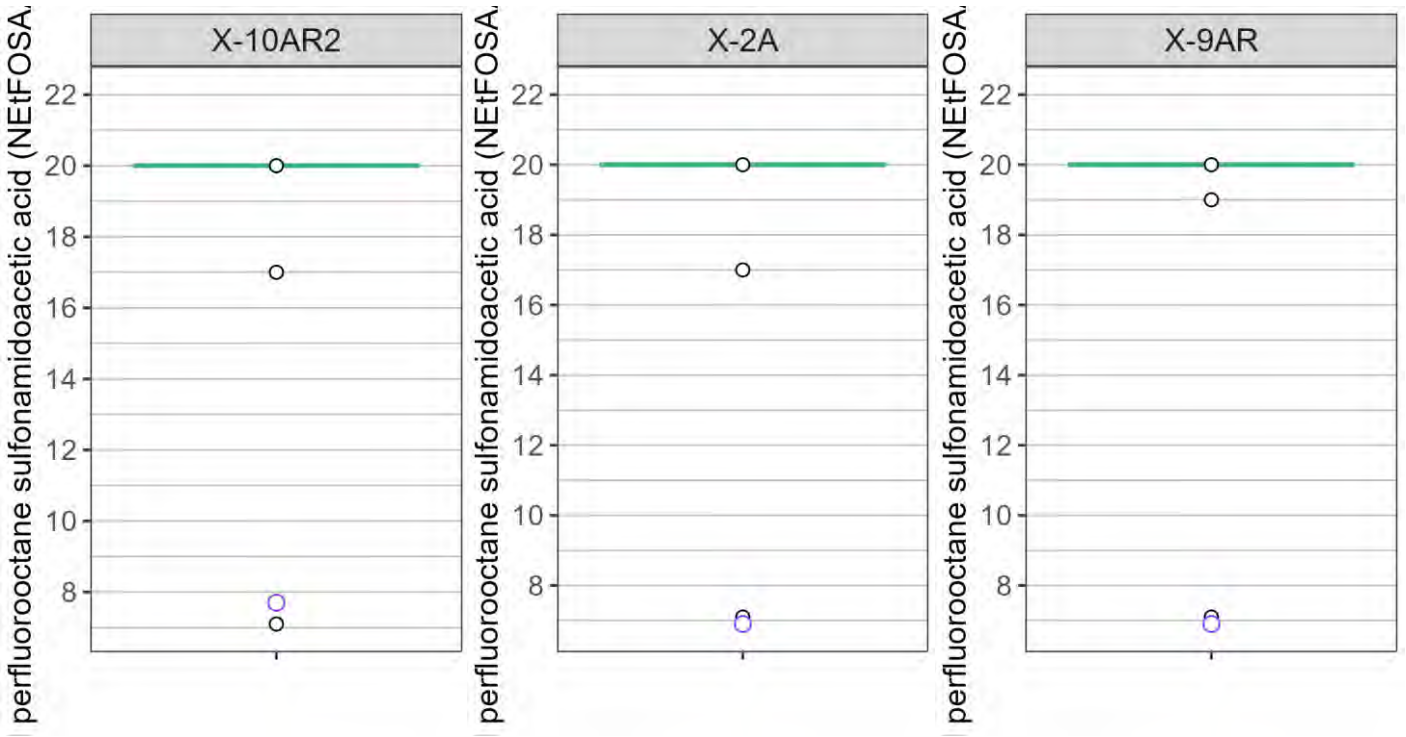
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: N-ETHYL PERFLUOROOCTANE SULFONAMIDOACETIC ACID (NETFOSAA)

ARCADIS

FIGURE
6-23



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

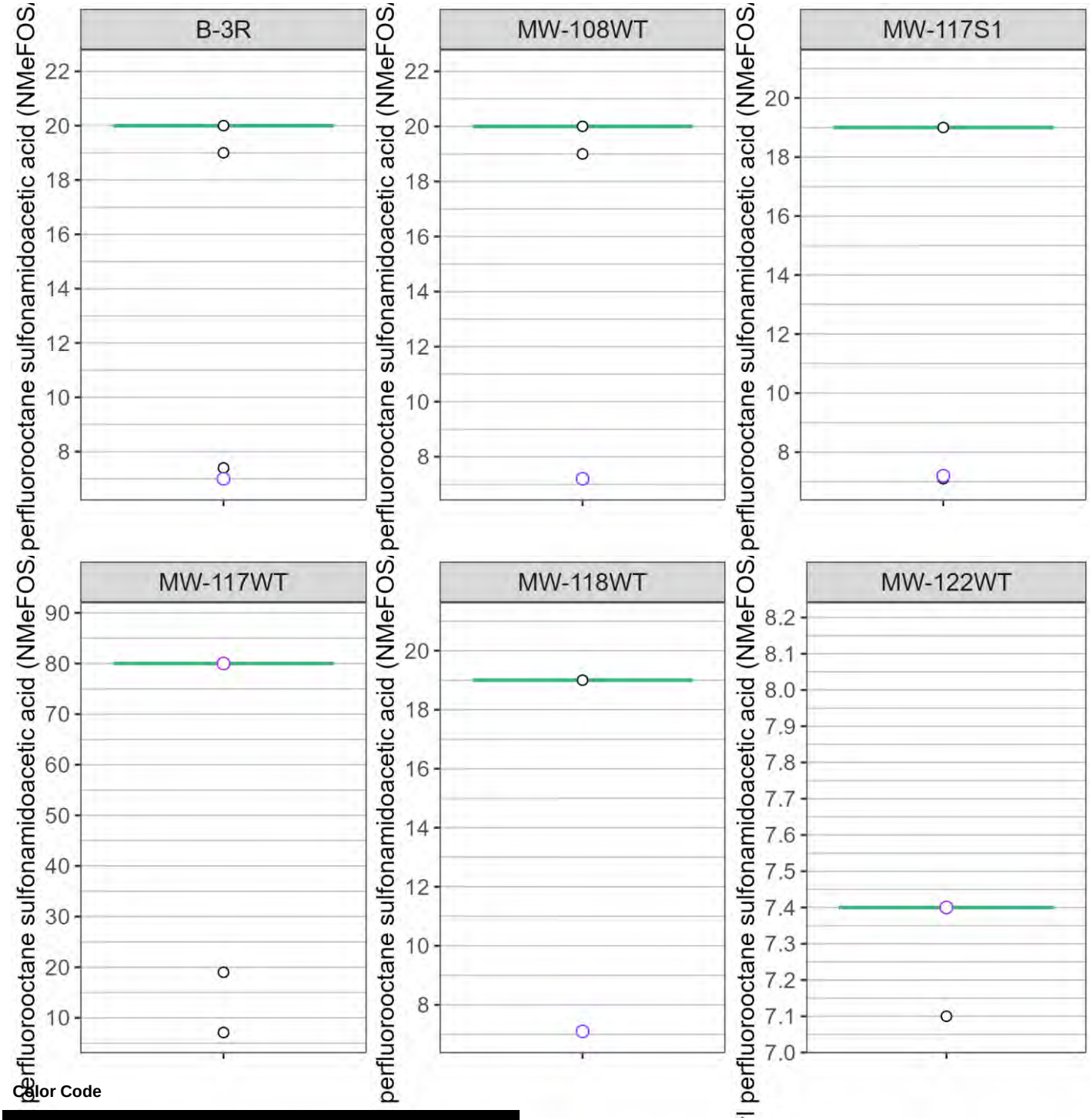
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: N-ETHYL PERFLUOROOCTANE SULFONAMIDOACETIC ACID (NETFOSAA)

ARCADIS

FIGURE
6-24



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

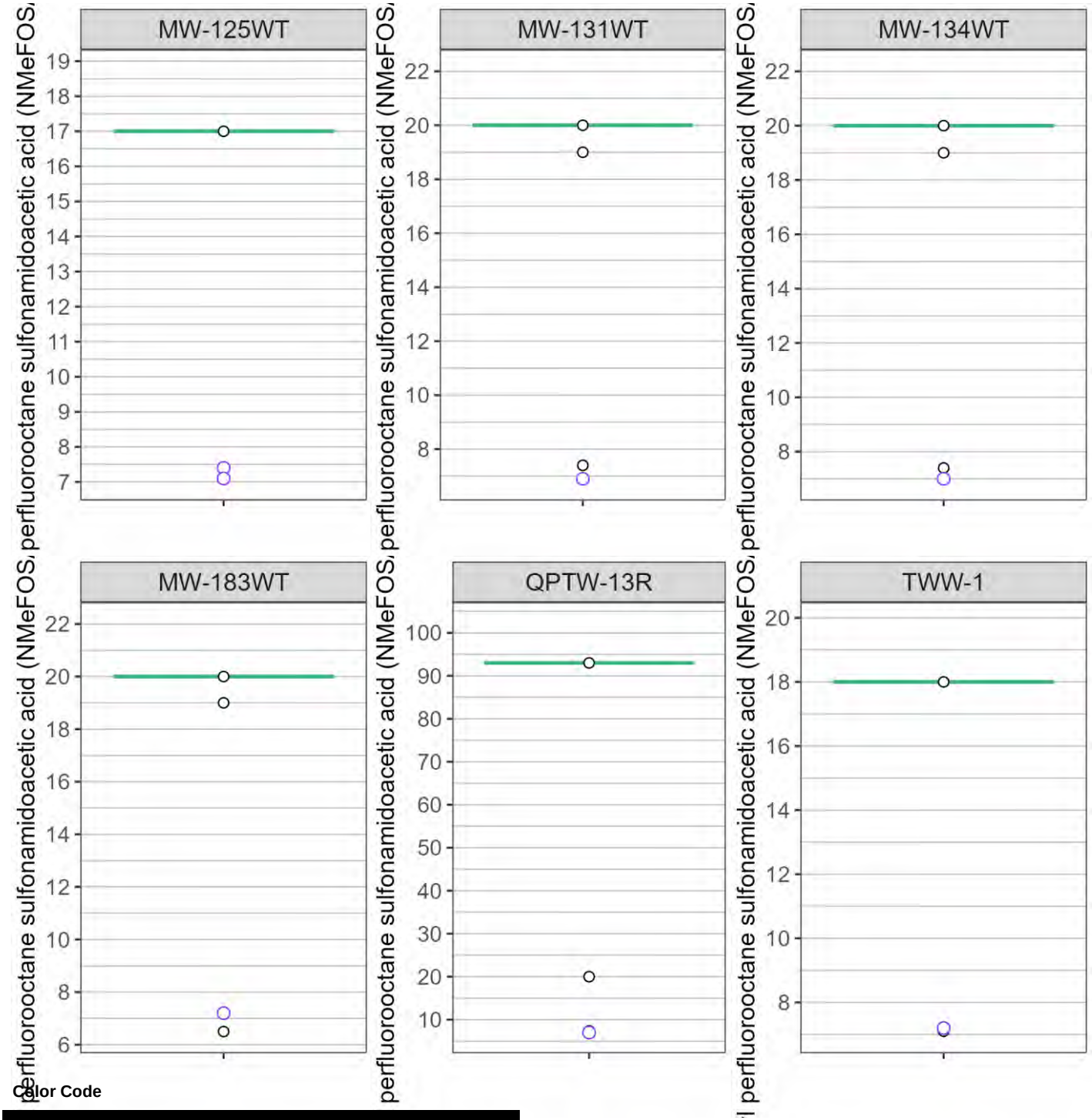
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: N-METHYL PERFLUOROOCTANE SULFONAMIDOACETIC ACID (NMEFOSAA)

ARCADIS

FIGURE
6-25



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

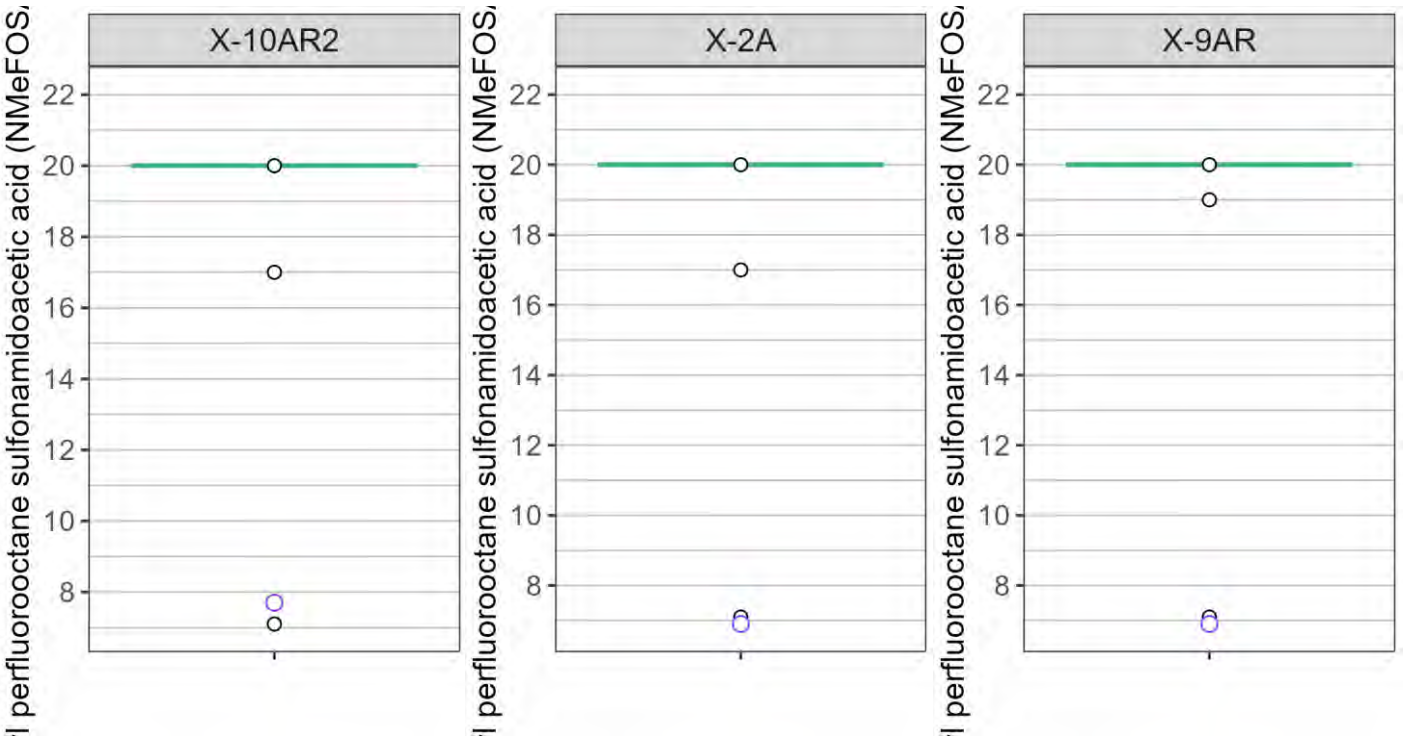
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: N-METHYL PERFLUOROOCTANE SULFONAMIDOACETIC ACID (NMEFOSAA)

ARCADIS

FIGURE
6-26



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

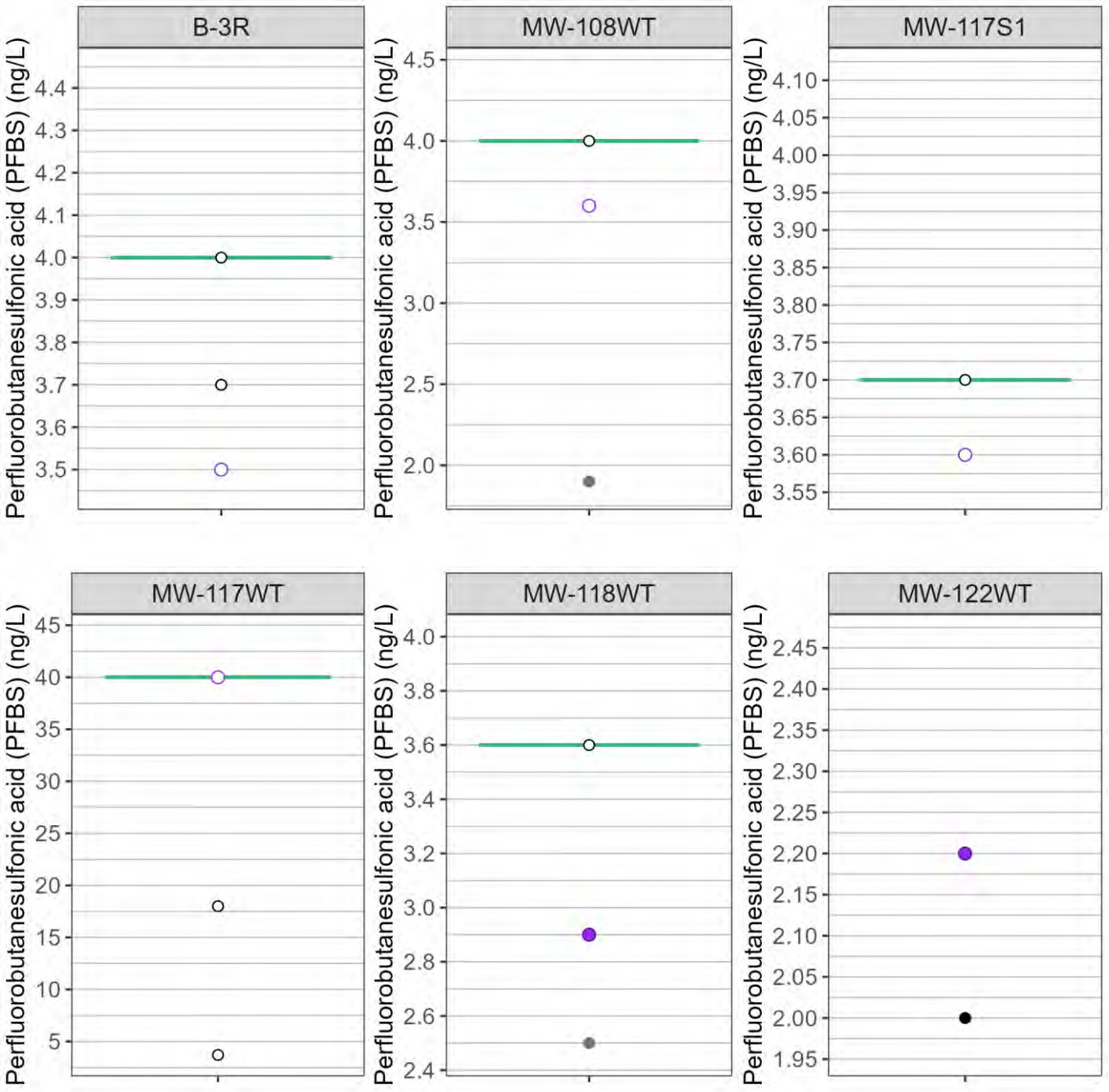
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: N-METHYL PERFLUOROOCTANE SULFONAMIDOACETIC ACID (NMEFOSAA)

ARCADIS

FIGURE
6-27



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

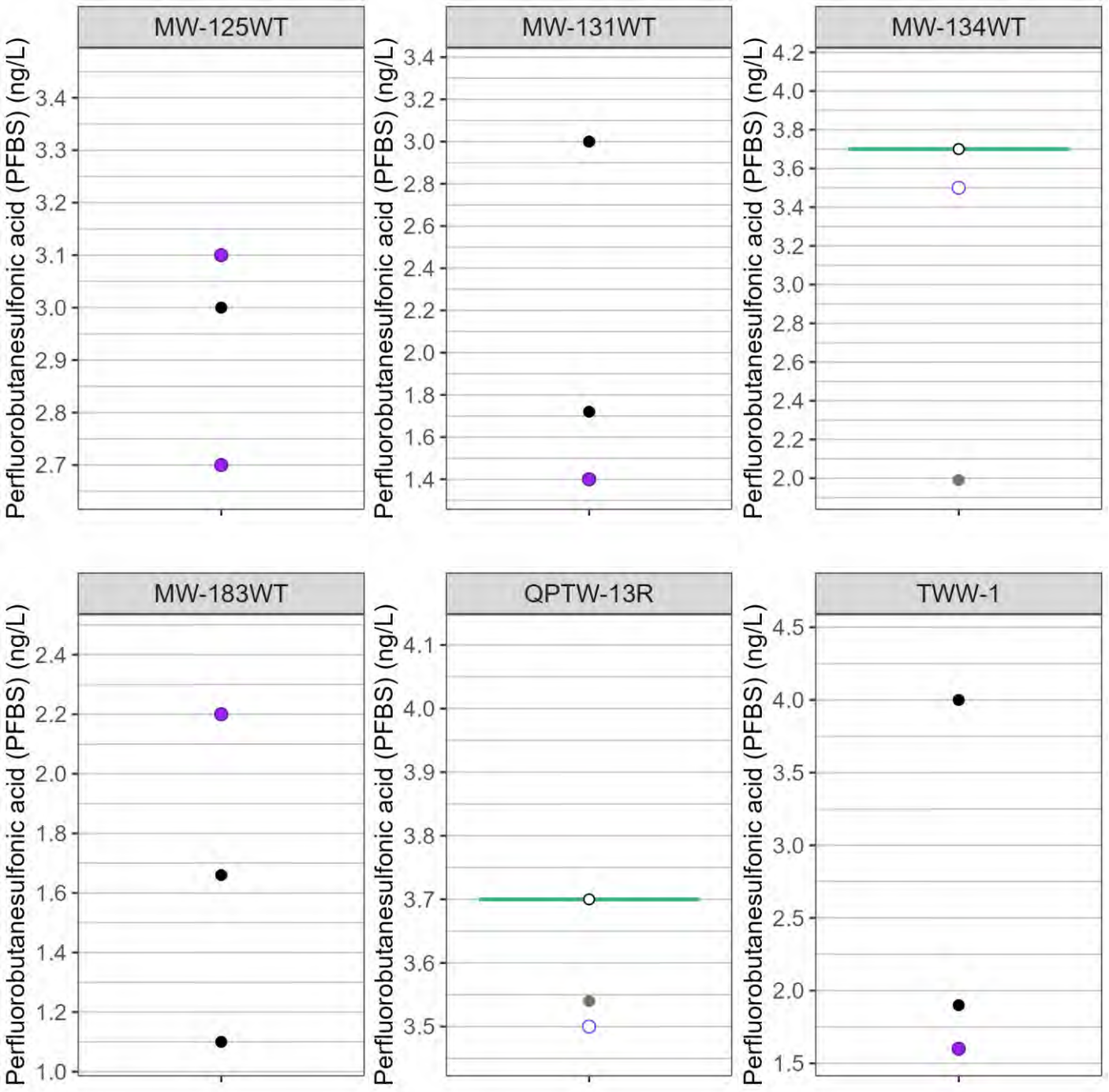
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROBUTANESULFONIC ACID (PFBS)

ARCADIS

FIGURE
6-28



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

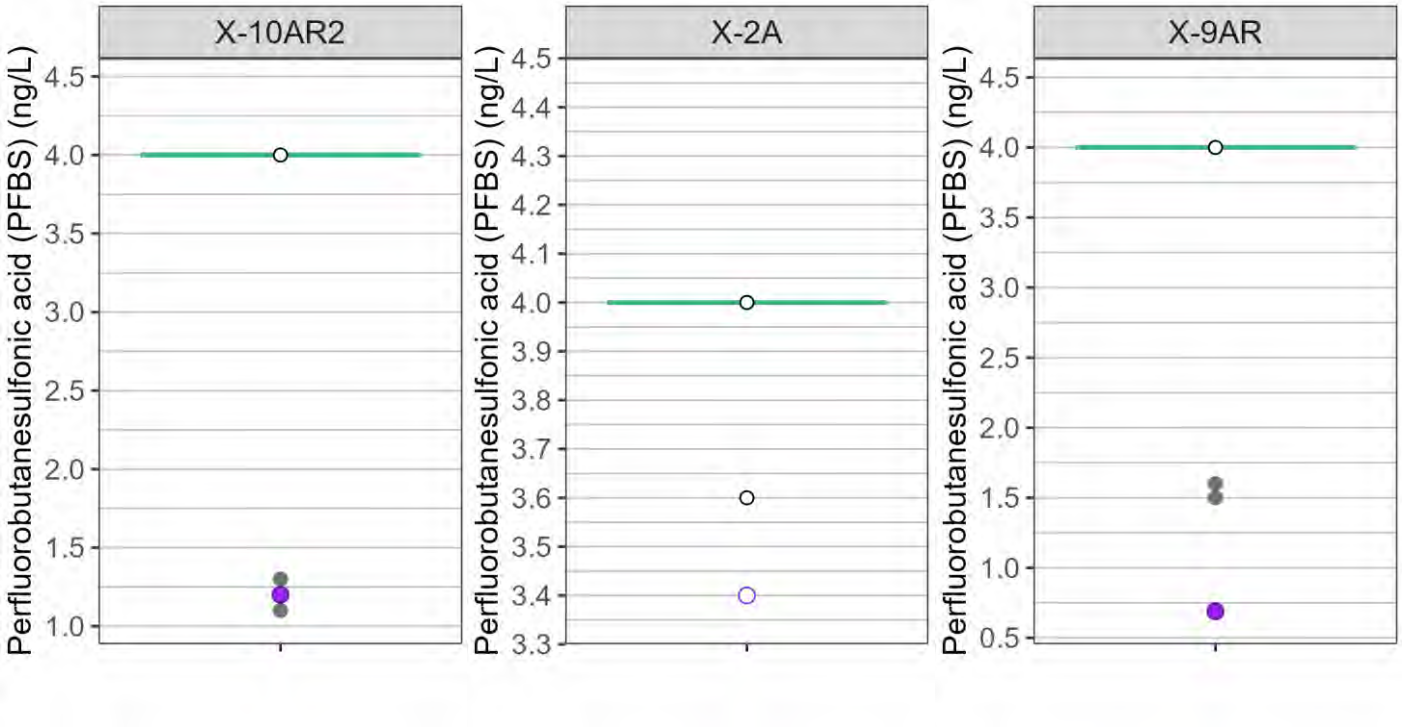
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROBUTANESULFONIC ACID (PFBS)

ARCADIS

FIGURE
6-29



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

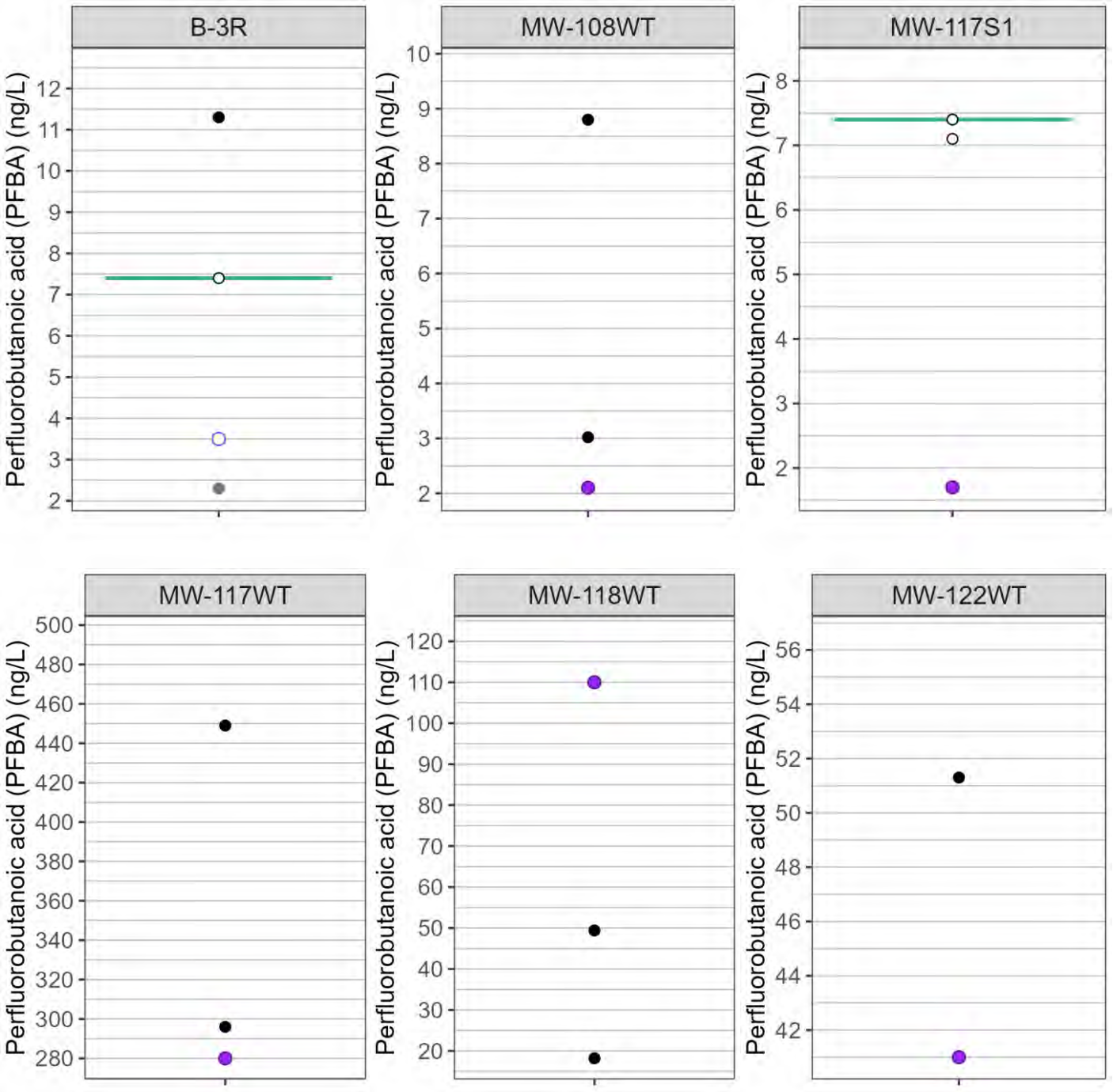
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROBUTANESULFONIC ACID (PFBS)

ARCADIS

FIGURE
6-30



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

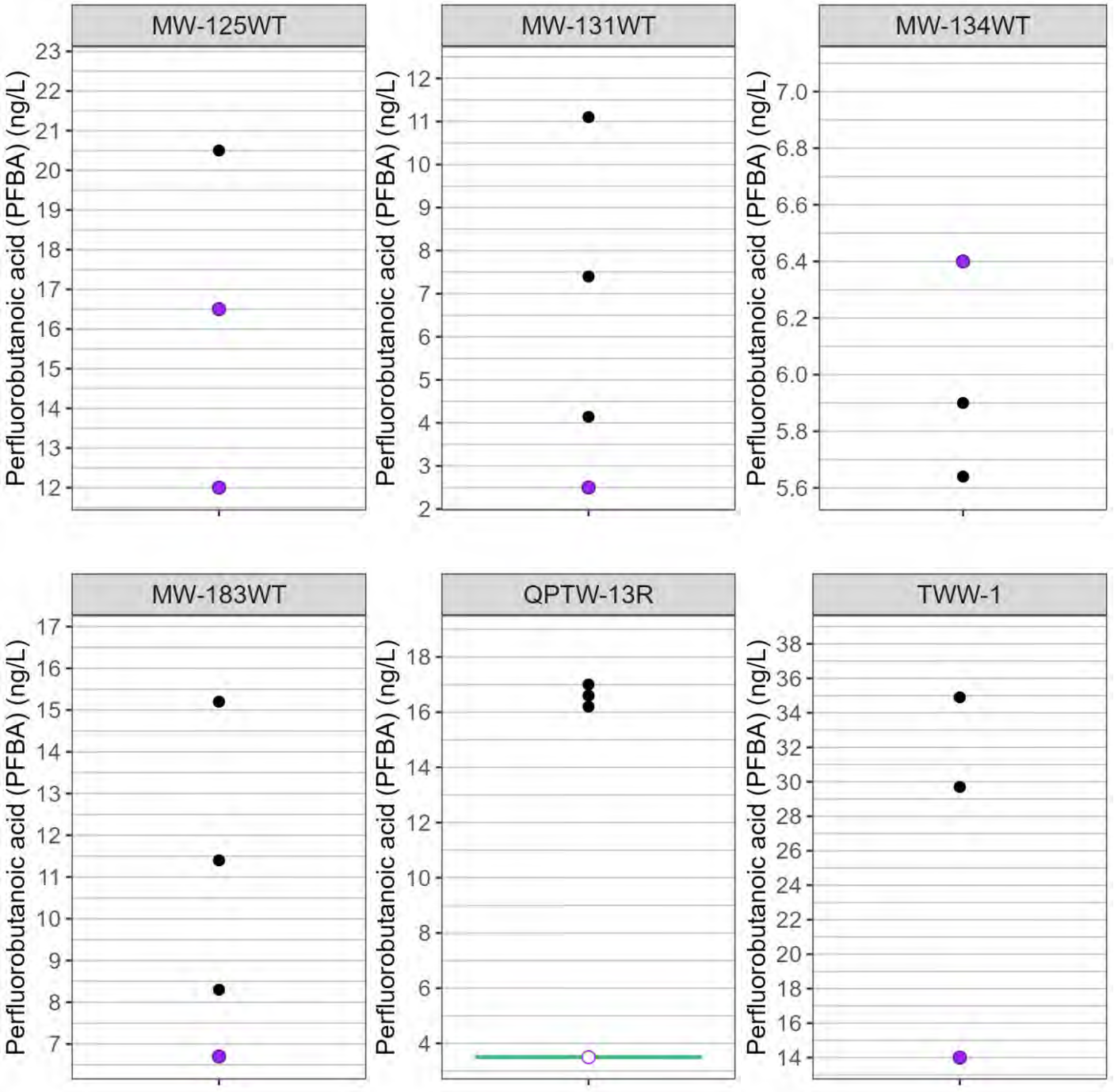
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROBUTANOIC ACID (PFBA)

ARCADIS

FIGURE
6-31



Color Code

Low Flow Result

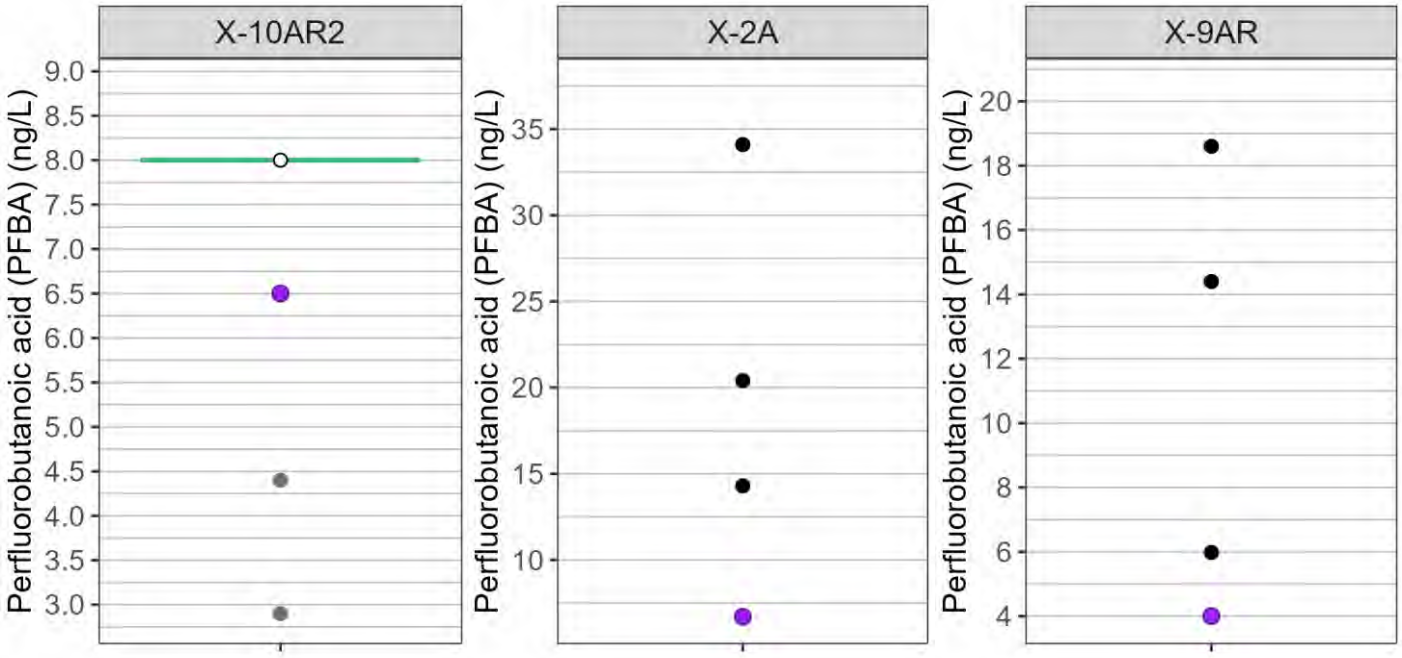
No Purge Result

PFAS: PERFLUOROBUTANOIC ACID (PFBA)

ARCADIS

FIGURE

6-32



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

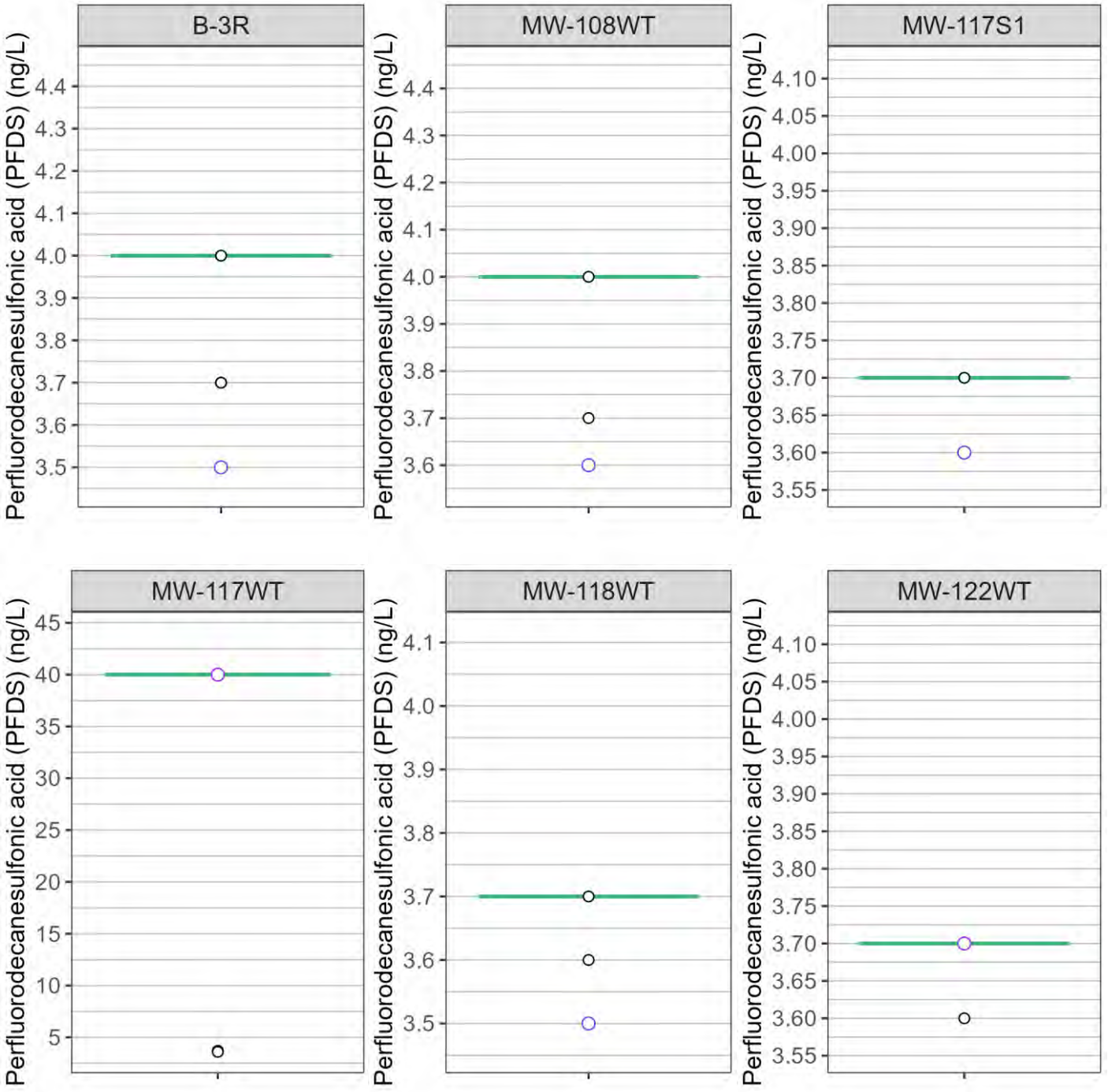
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROBUTANOIC ACID (PFBA)

ARCADIS

FIGURE
6-33



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

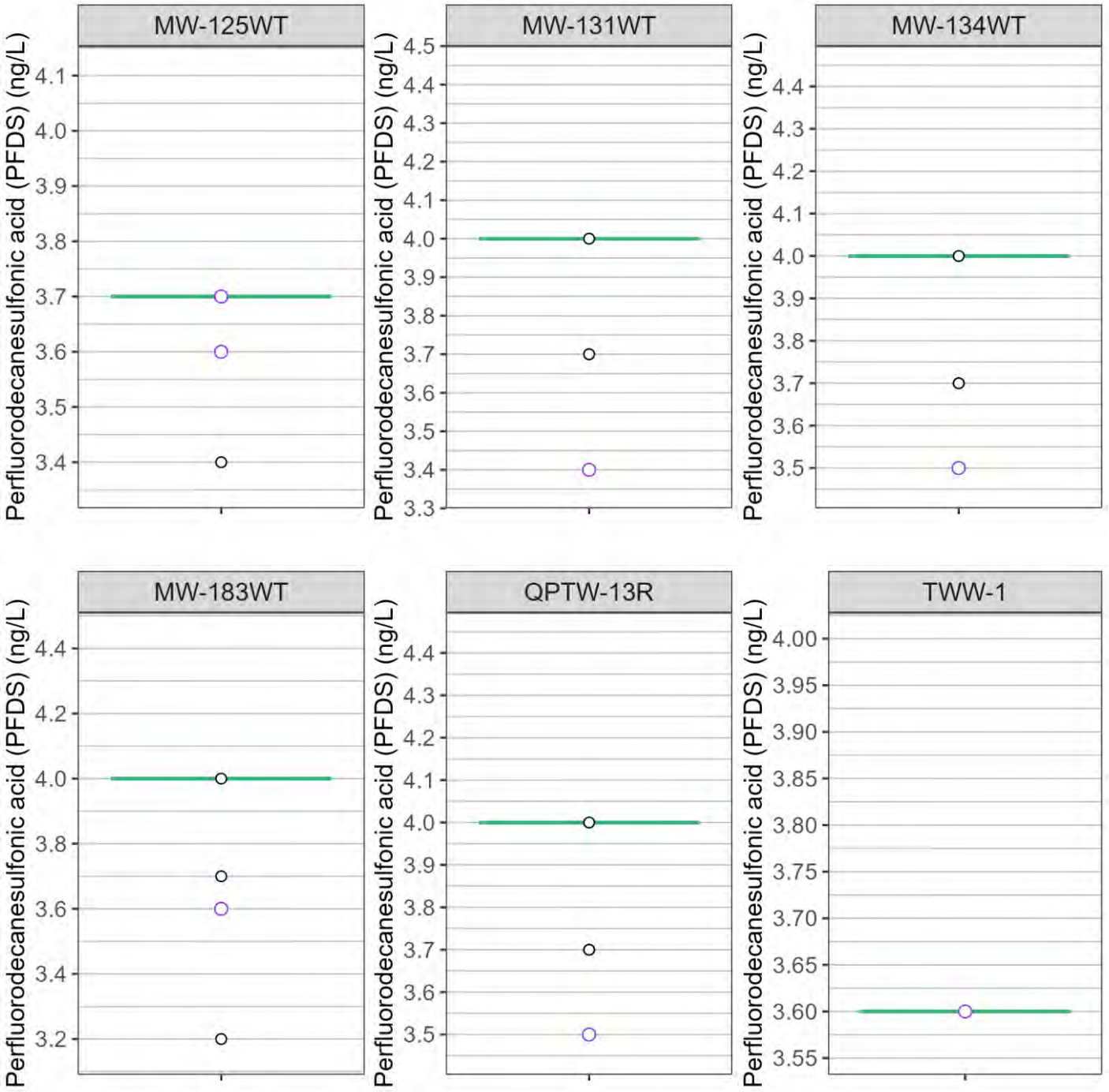
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUORODECANESULFONIC ACID (PFDS)

ARCADIS

FIGURE
6-34



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

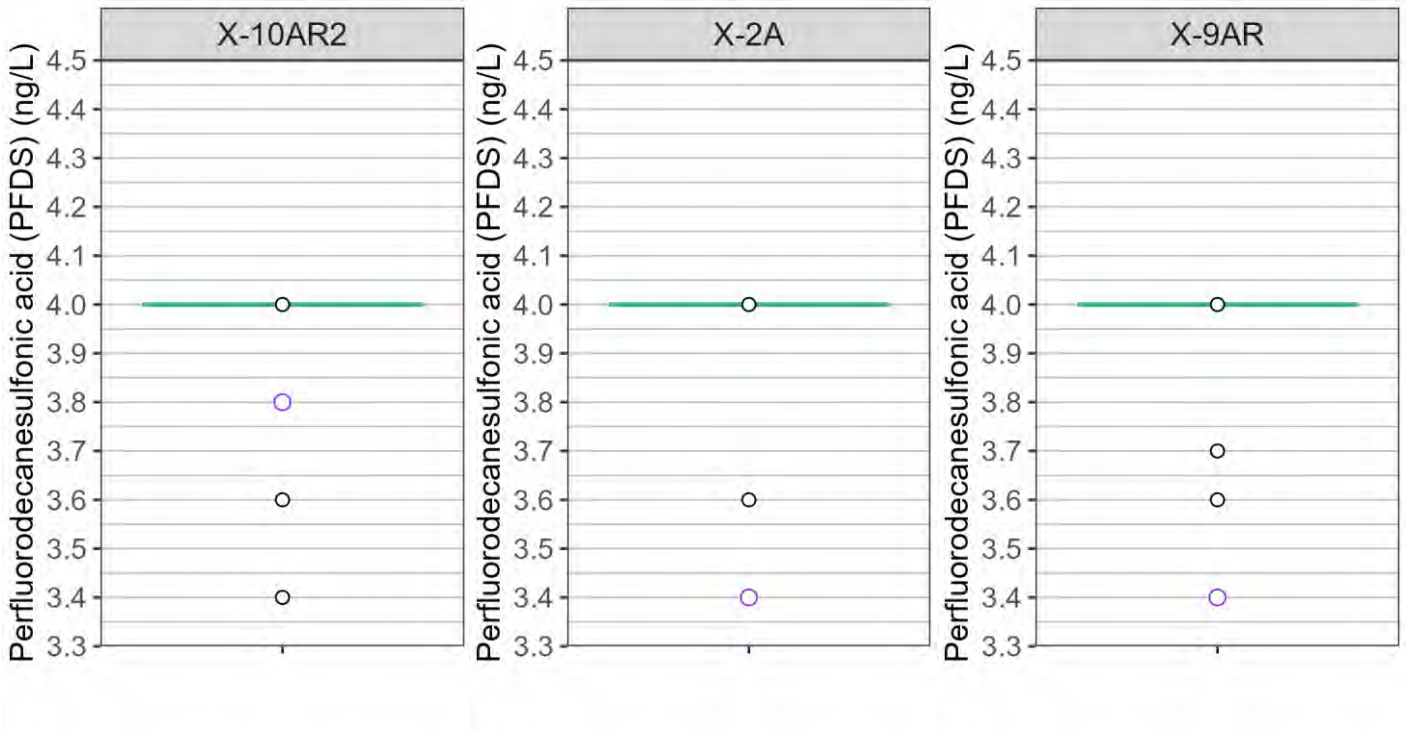
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUORODECANESULFONIC ACID (PFDS)

ARCADIS

FIGURE
6-35



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

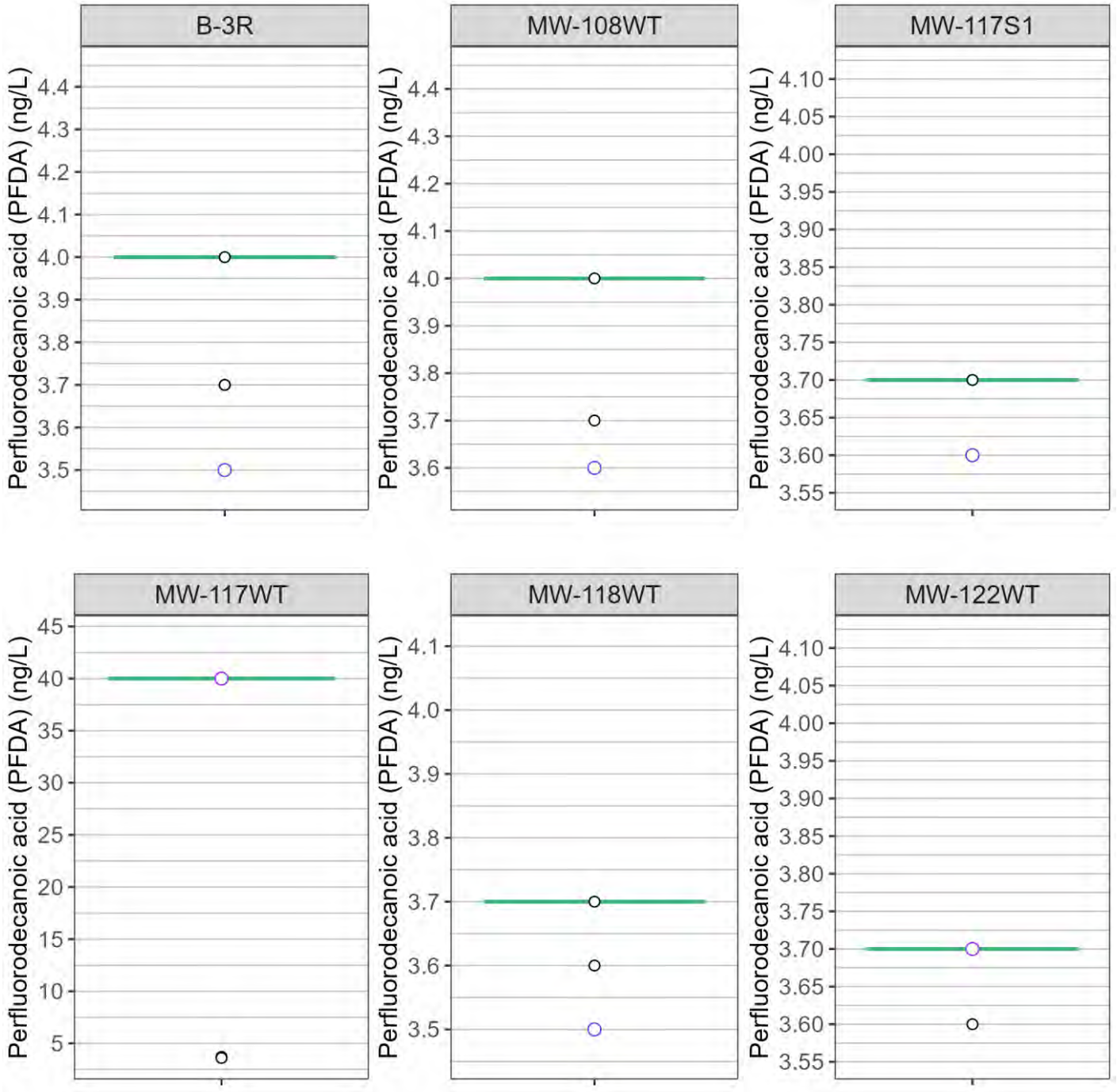
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUORODECANESULFONIC ACID (PFDS)

ARCADIS

FIGURE
6-36



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

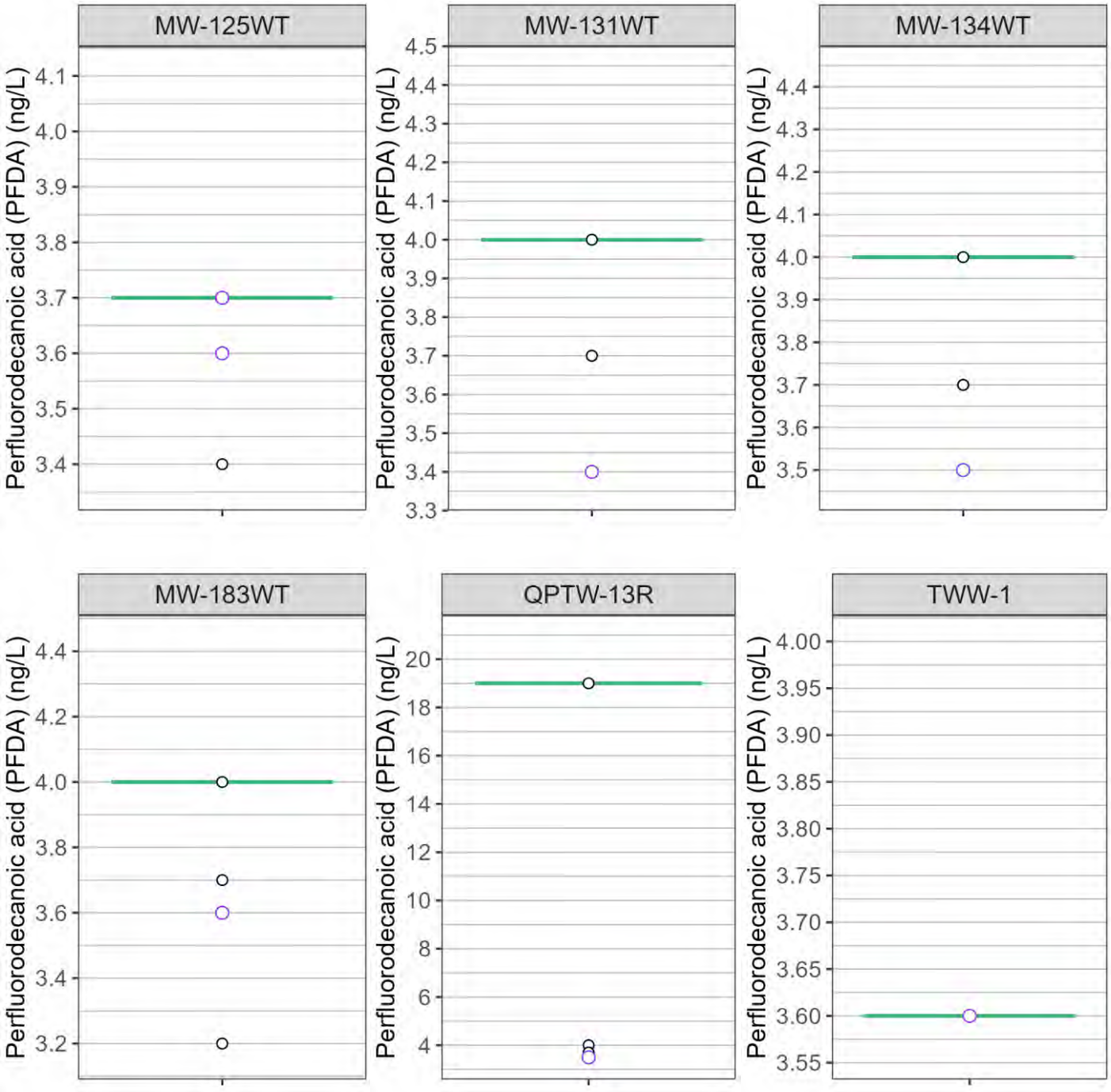
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUORODECANOIC ACID (PFDA)

ARCADIS

FIGURE
6-37



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

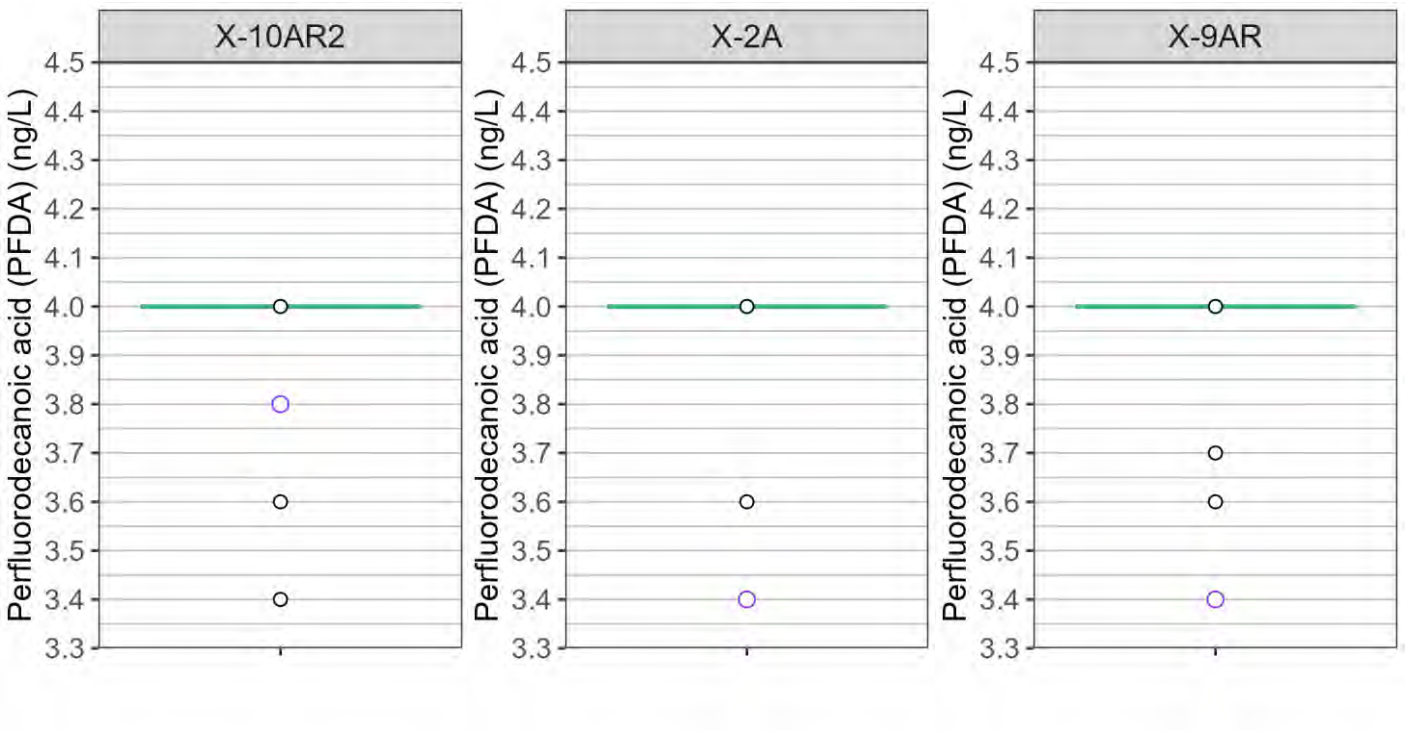
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUORODECANOIC ACID (PFDA)

ARCADIS

FIGURE
6-38



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

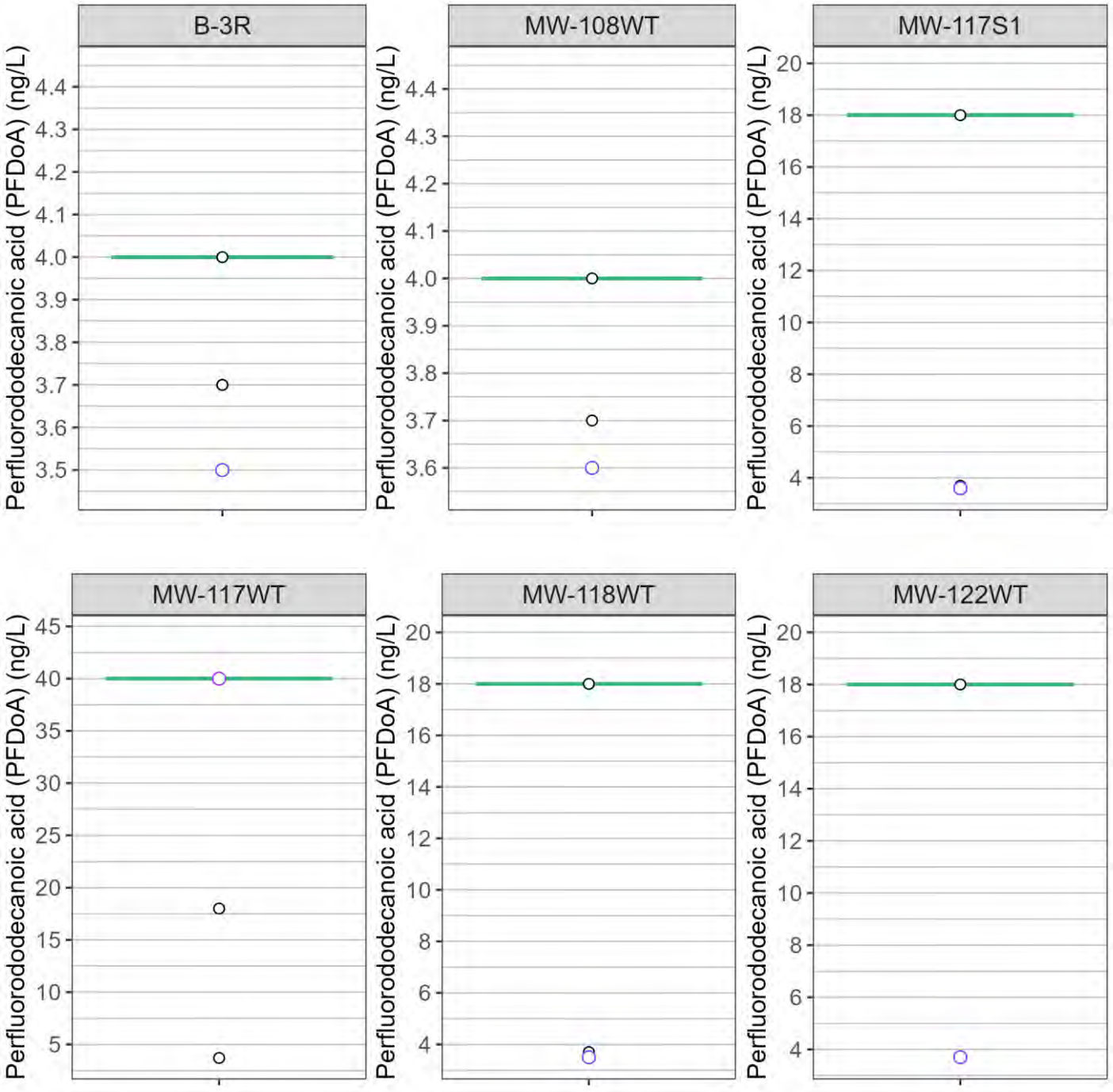
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUORODECANOIC ACID (PFDA)

ARCADIS

FIGURE
6-39



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

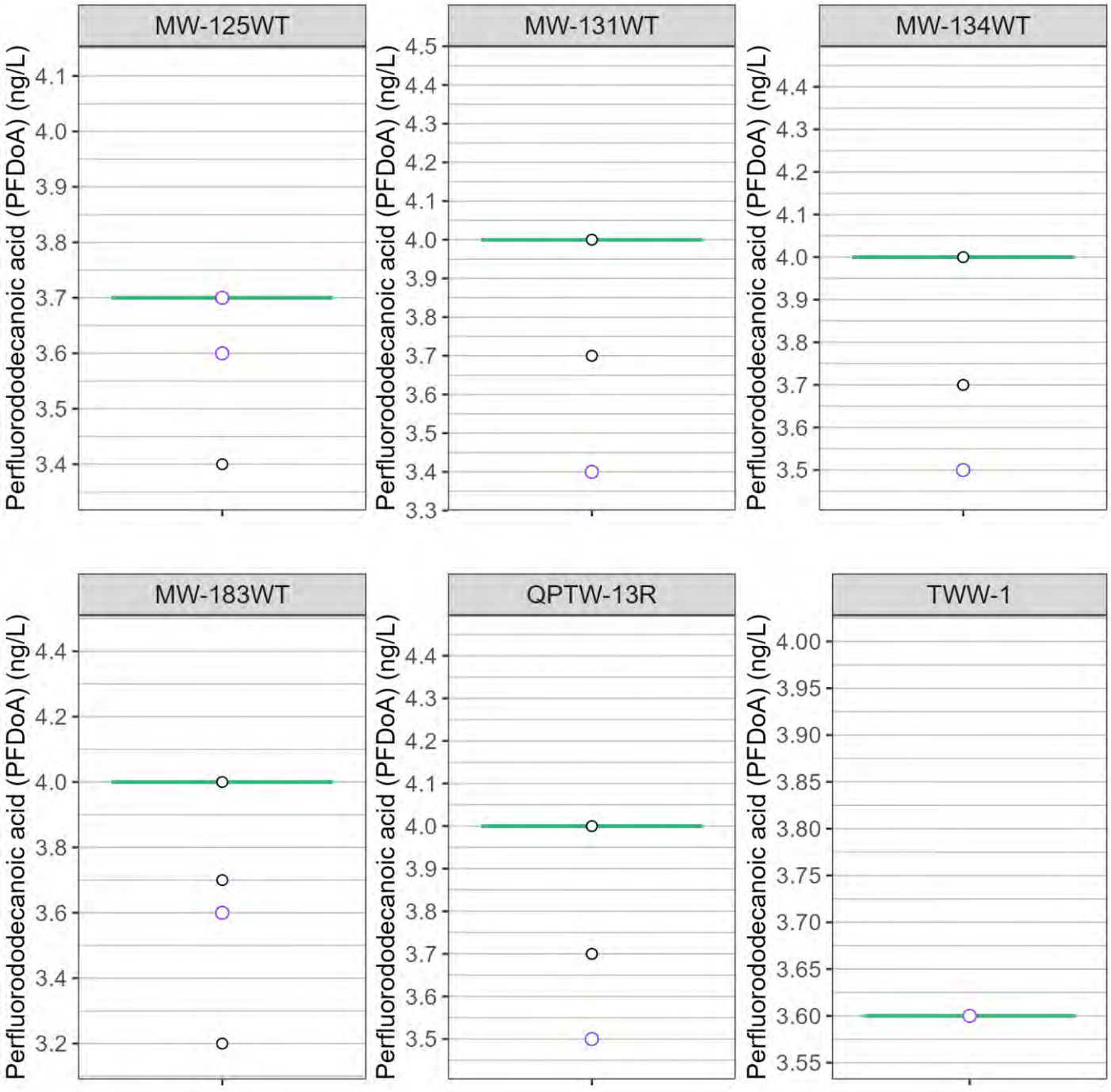
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUORODODECANOIC ACID (PFDOA)

ARCADIS

FIGURE
6-40



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

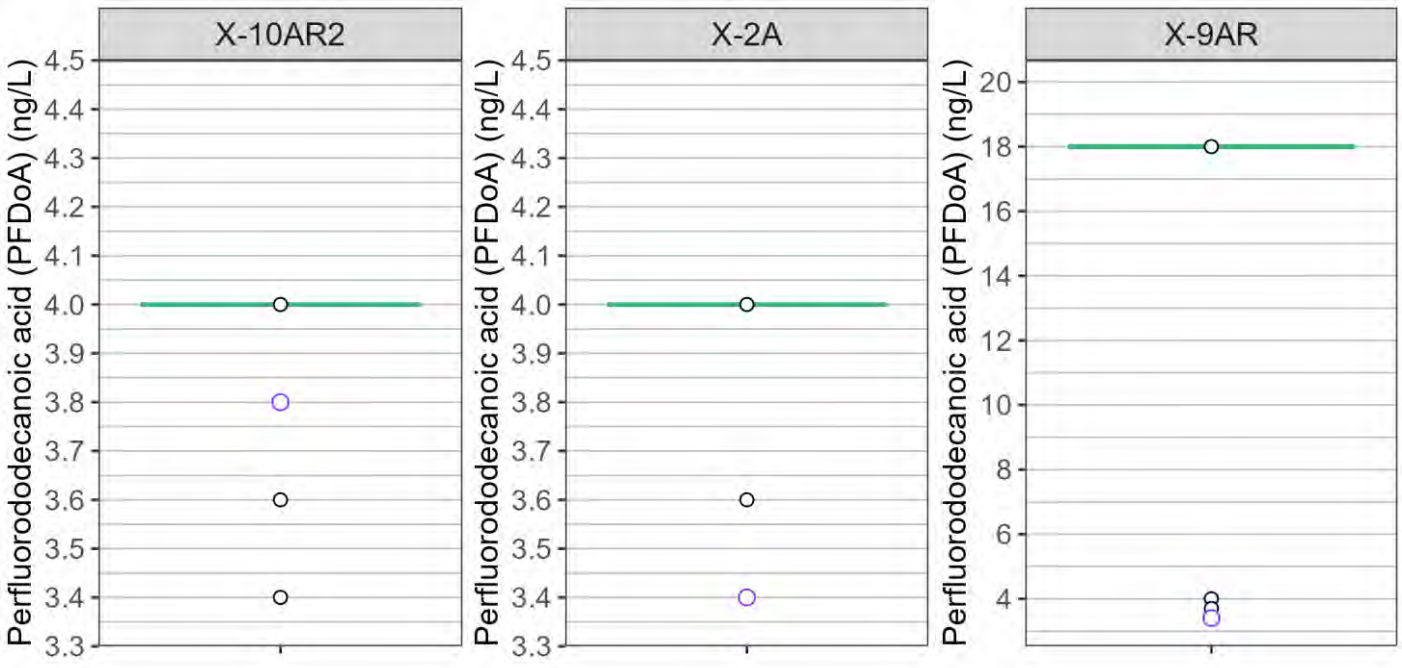
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUORODODECANOIC ACID (PFDOA)

ARCADIS

FIGURE
6-41



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

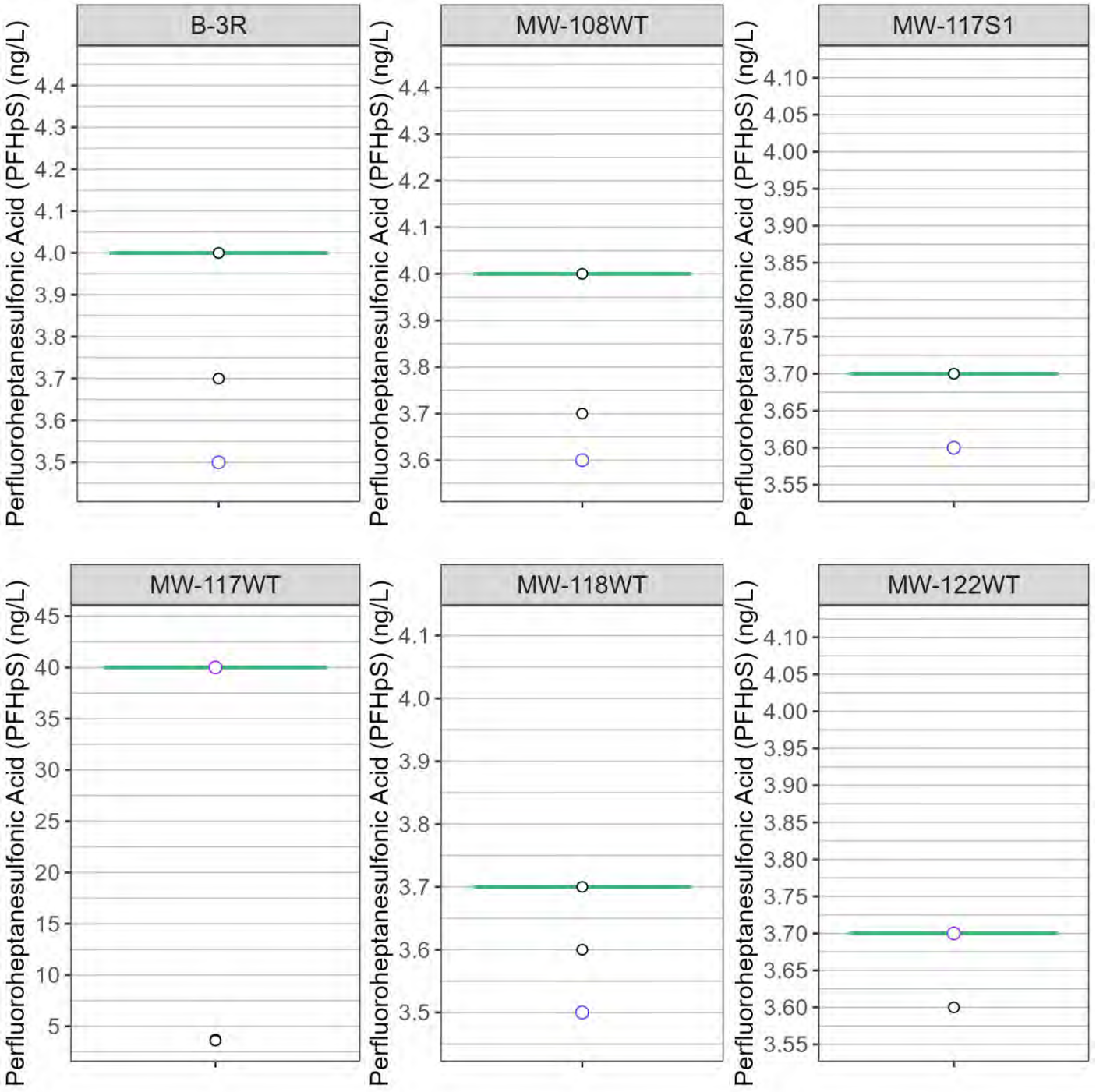
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUORODODECANOIC ACID (PFDOA)

ARCADIS

FIGURE
6-42



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

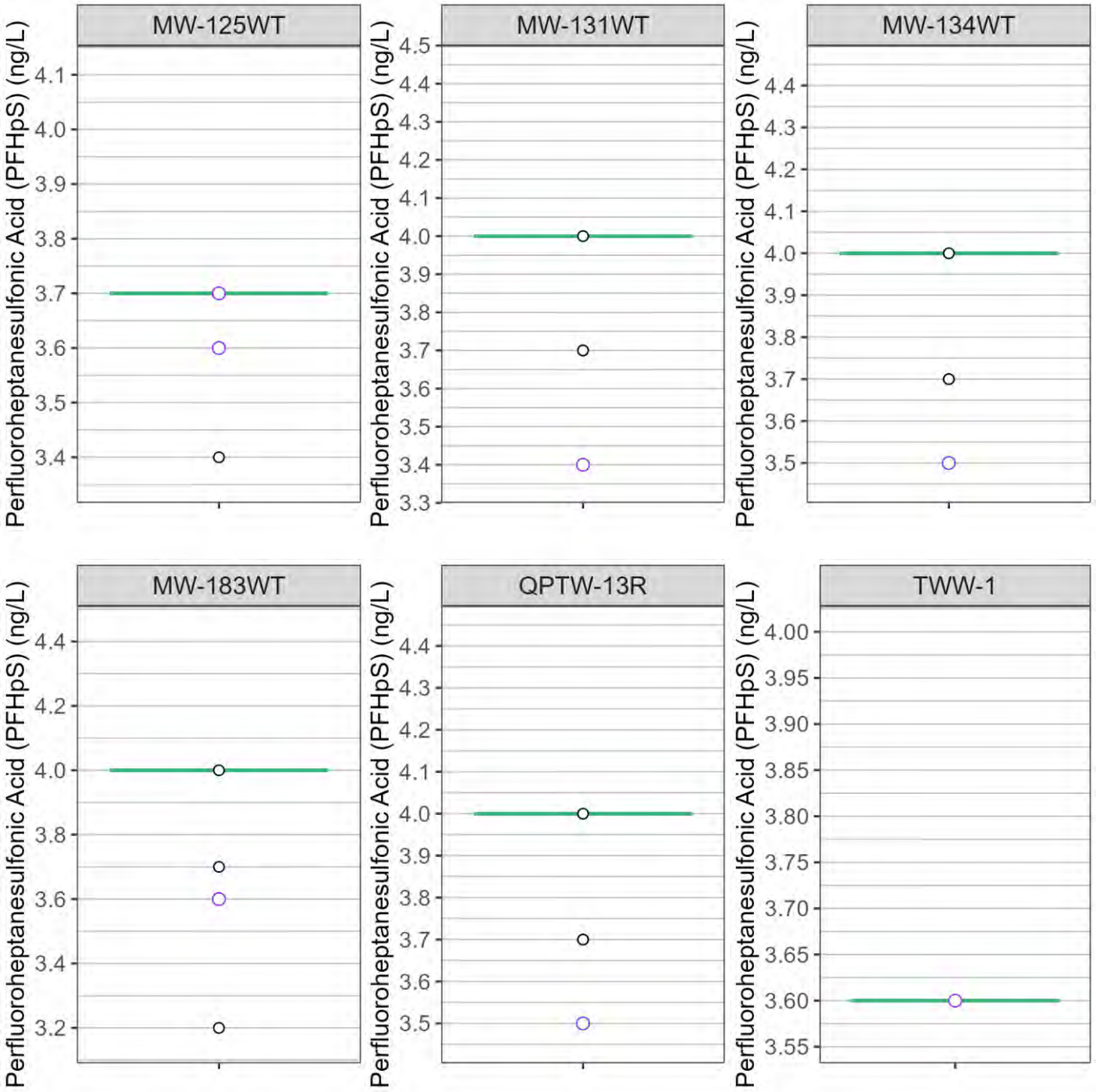
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROHEPTANESULFONIC ACID (PFHPS)

ARCADIS

FIGURE
6-43



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

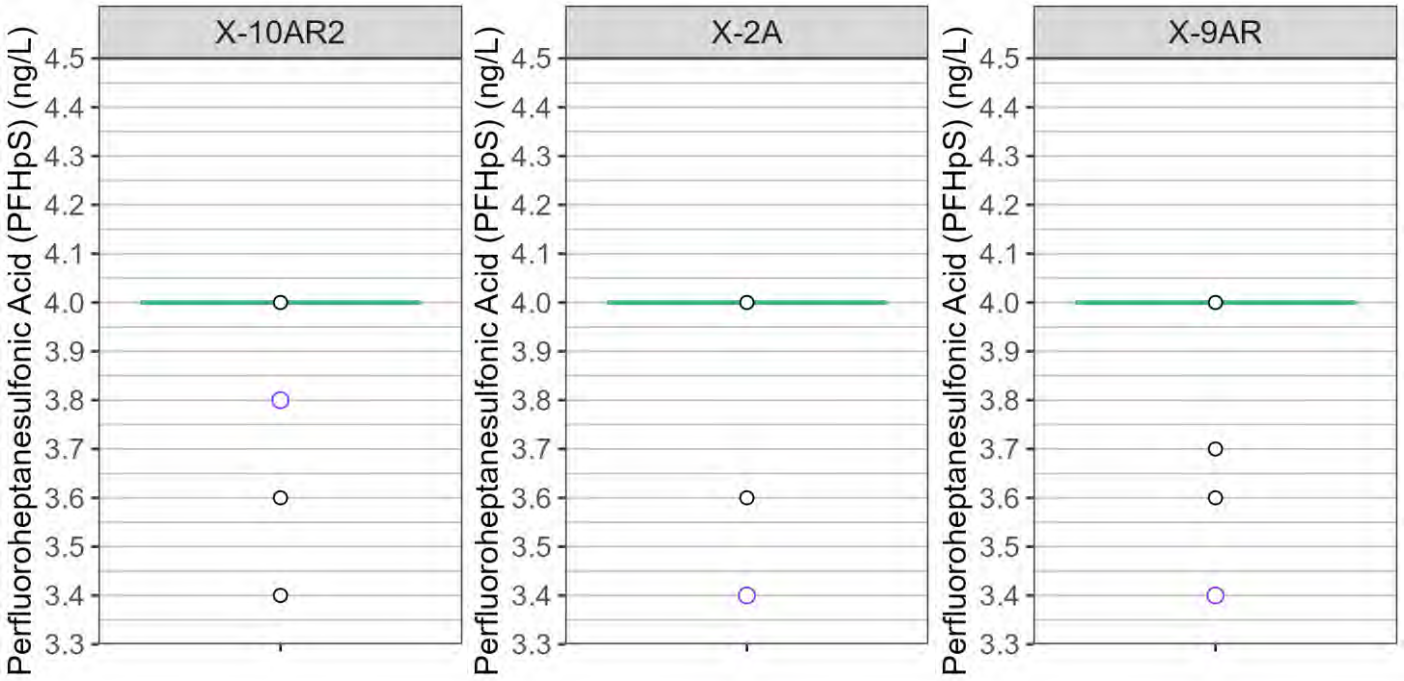
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROHEPTANESULFONIC ACID (PFHPS)

ARCADIS

FIGURE
6-44



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

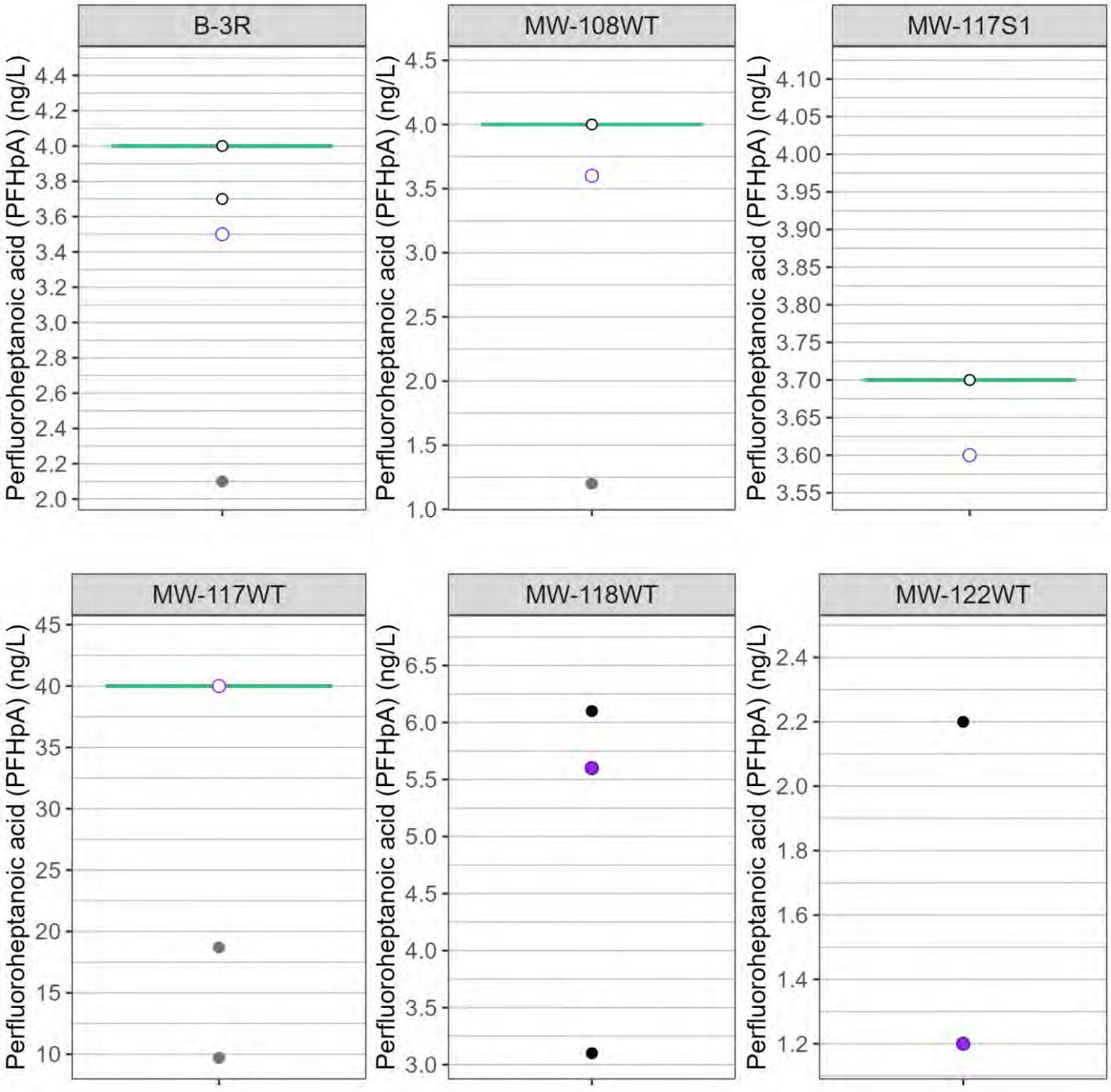
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROHEPTANESULFONIC ACID (PFHPS)

ARCADIS

FIGURE
6-45



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

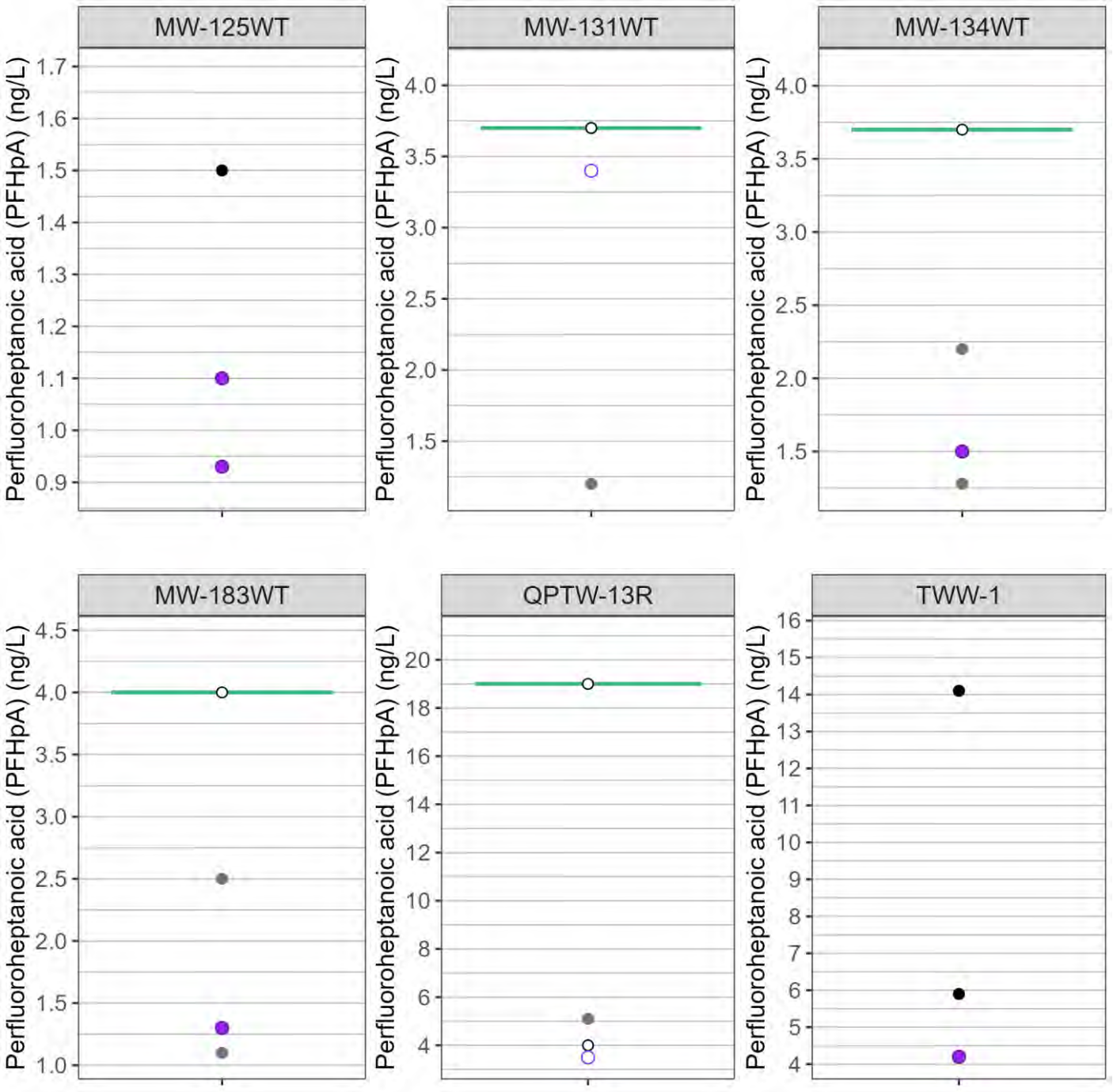
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROHEPTANOIC ACID (PFHPA)

ARCADIS

FIGURE
6-46



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

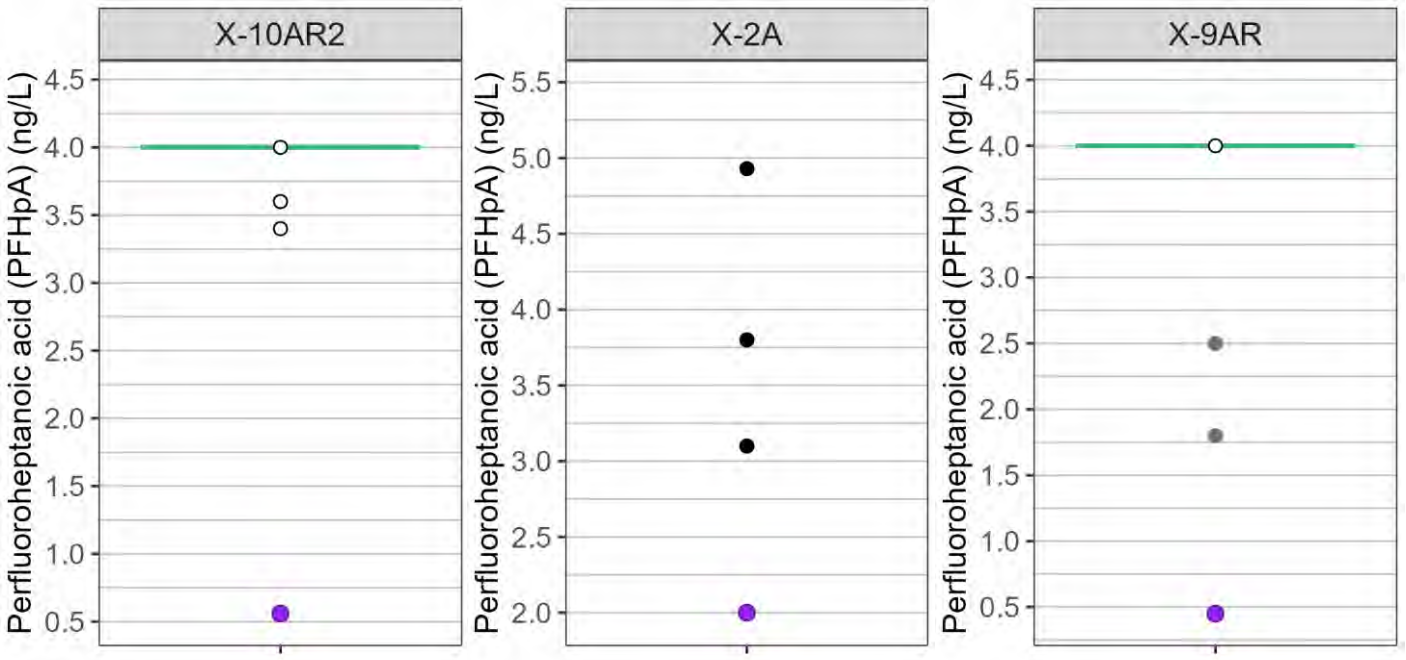
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROHEPTANOIC ACID (PFHPA)

ARCADIS

FIGURE
6-47



Color Code

Low Flow Result above maximum non-detect detection limit

Low Flow Result above below non-detect detection limit

No Purge Result

Symbol Code

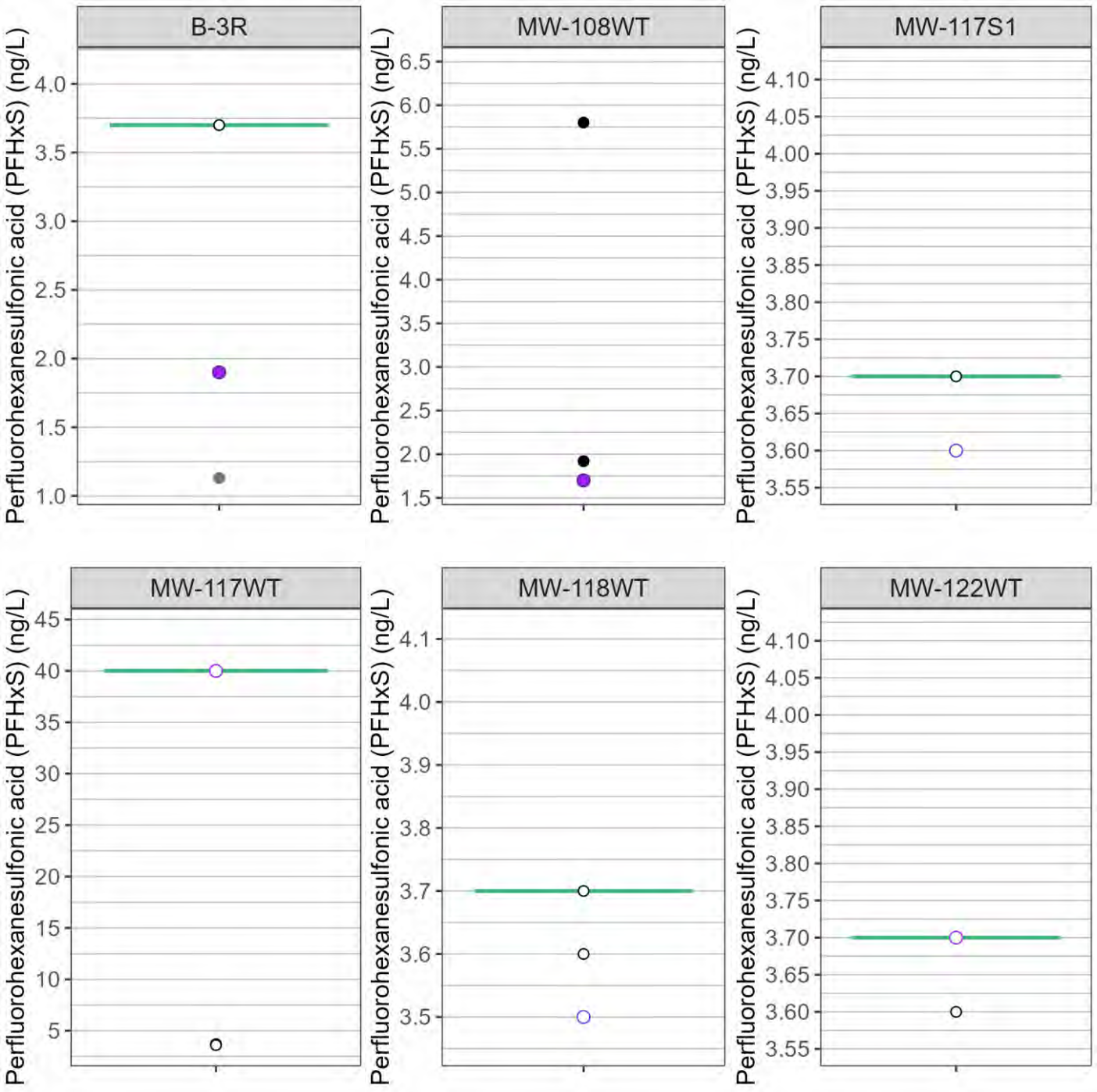
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROHEPTANOIC ACID (PFHPA)

ARCADIS

FIGURE
6-49



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

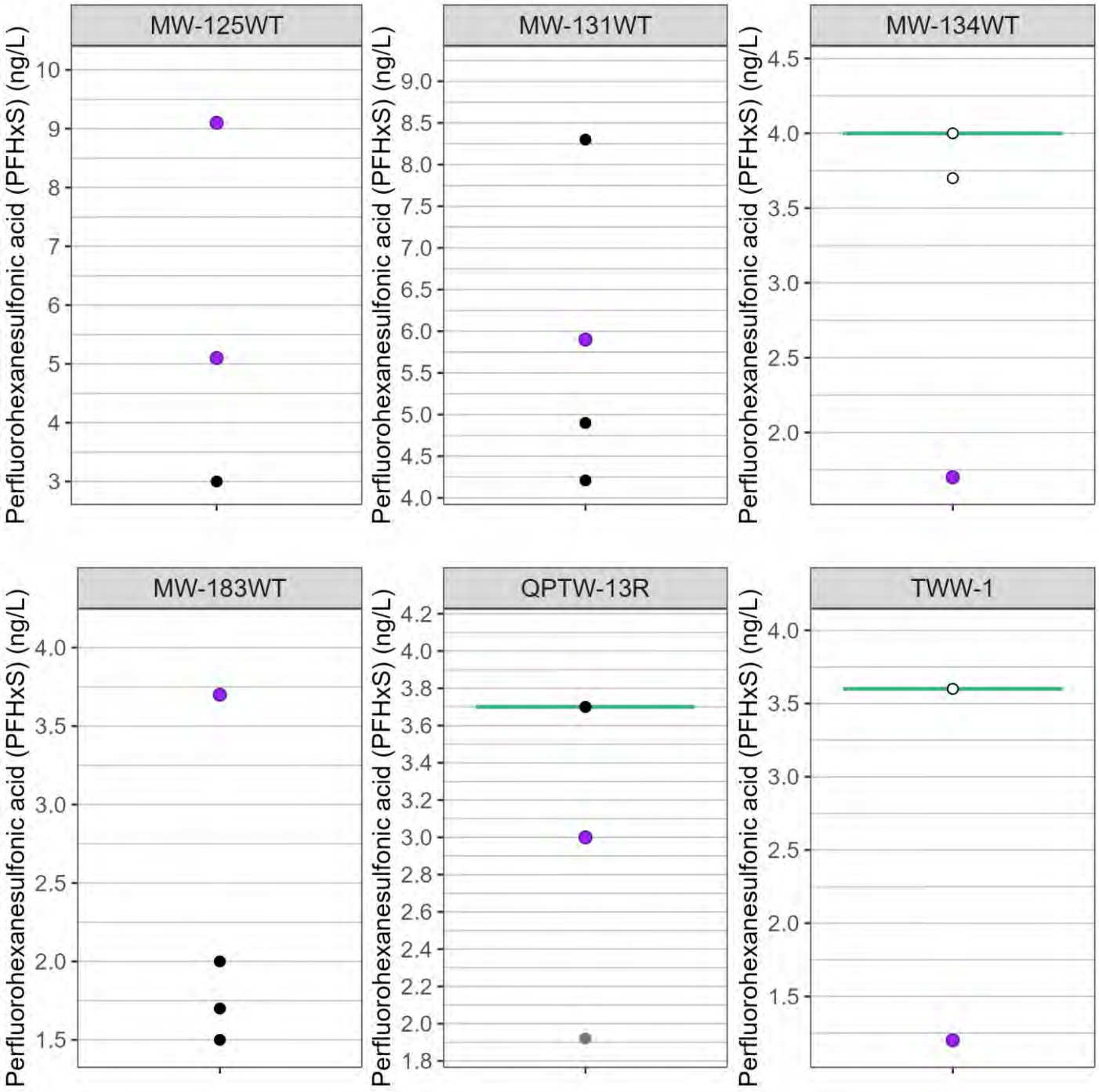
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROHEXANESULFONIC ACID (PFHXS)

ARCADIS

FIGURE
6-50



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

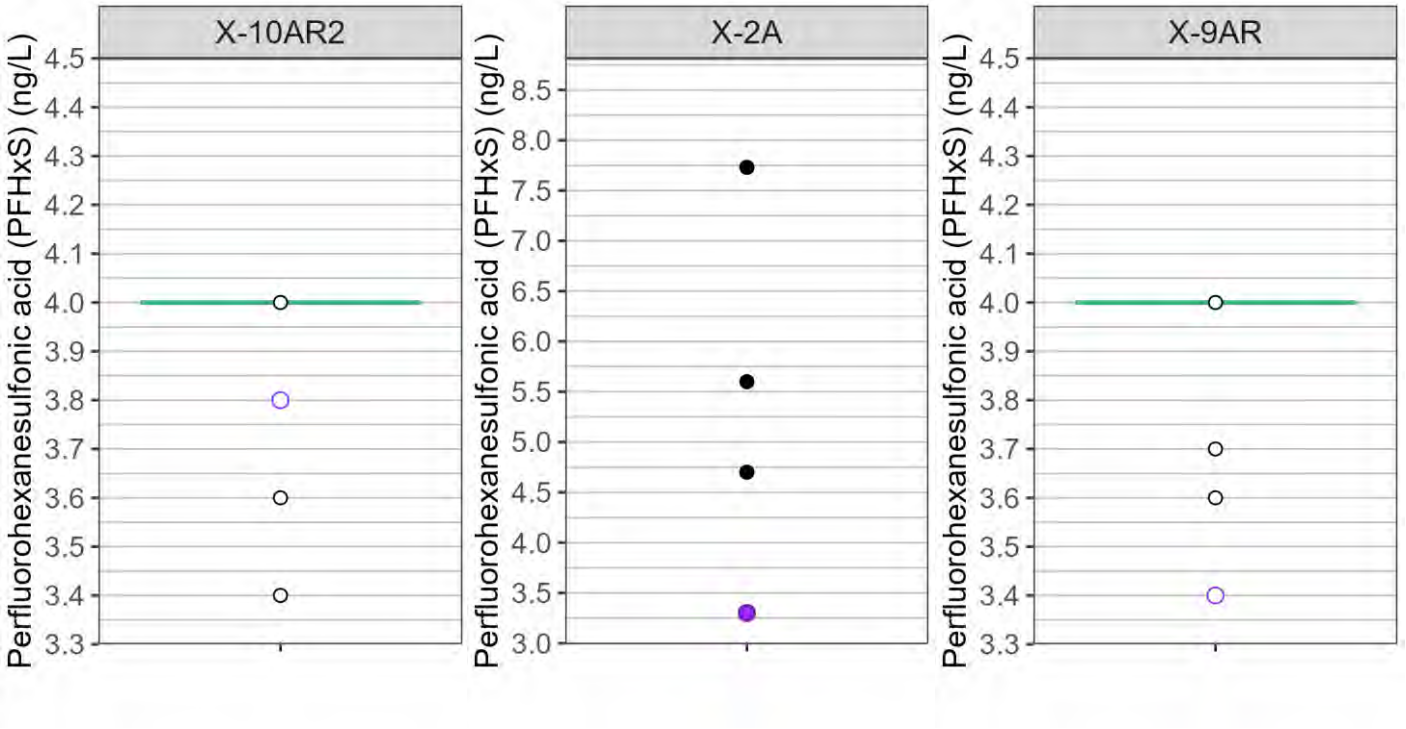
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROHEXANESULFONIC ACID (PFHXS)

ARCADIS

FIGURE
6-51



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

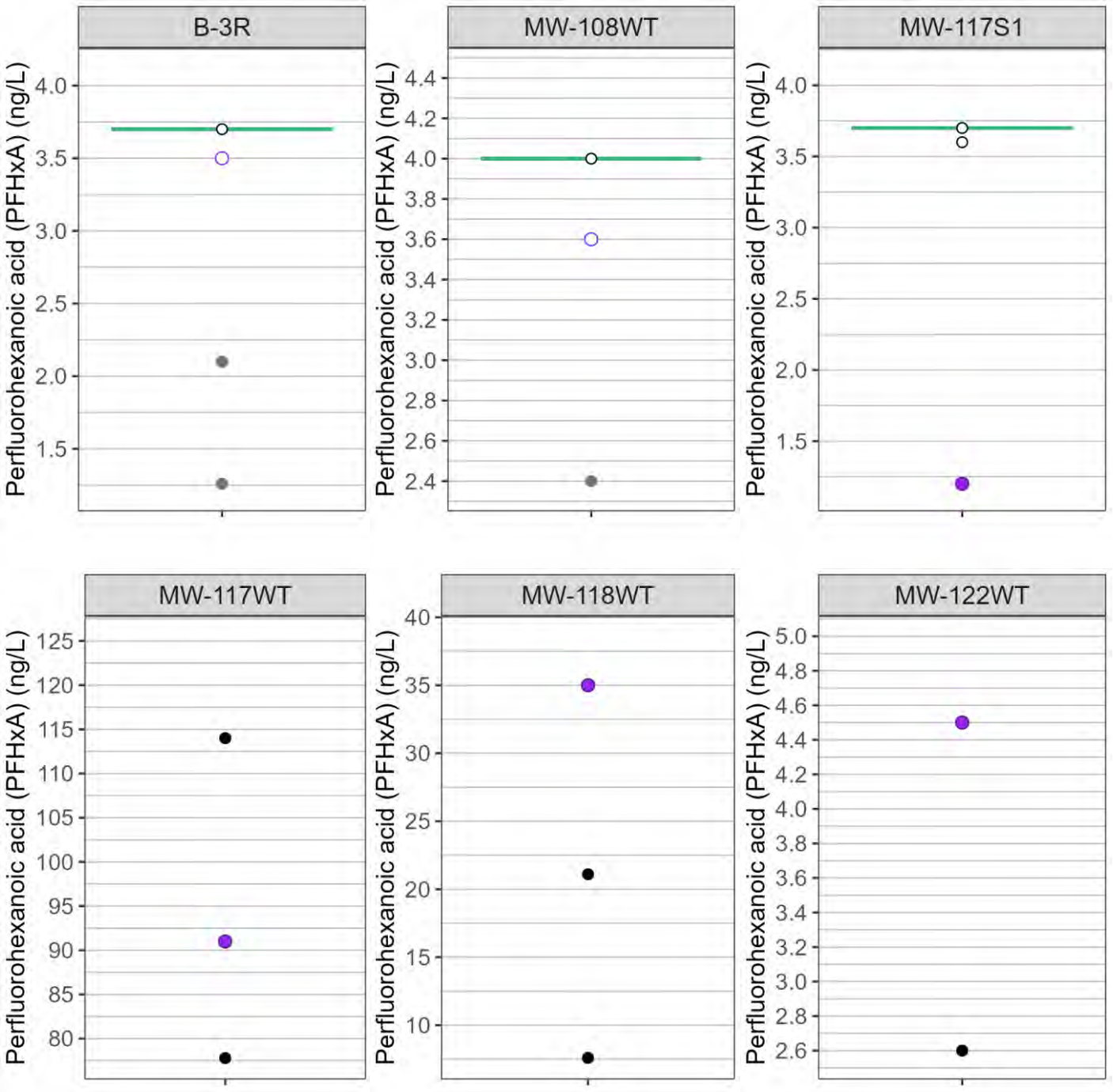
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROHEXANESULFONIC ACID (PFHXS)

ARCADIS

FIGURE
6-52



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

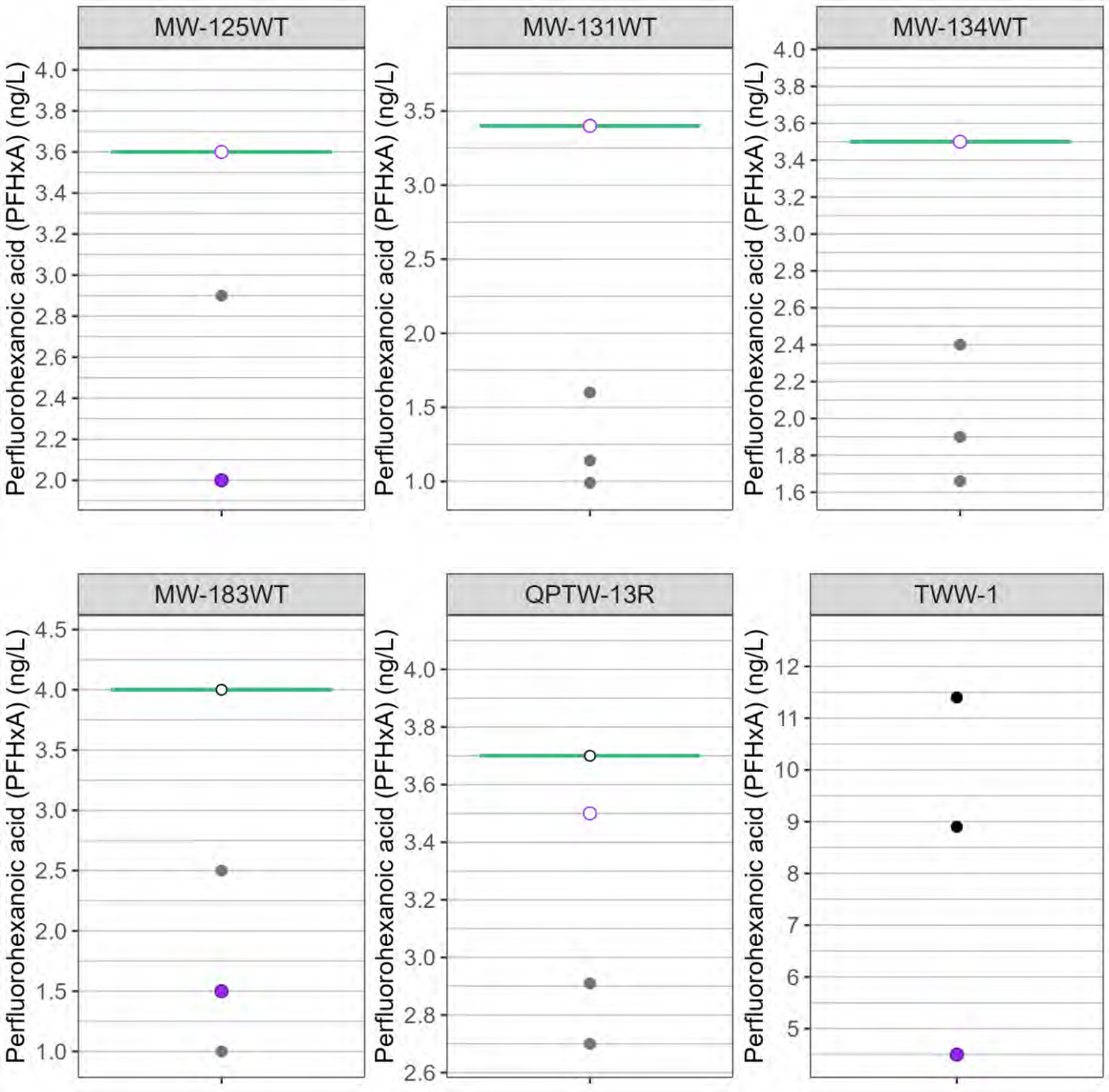
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROHEXANOIC ACID (PFHXA)

ARCADIS

FIGURE
6-53



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

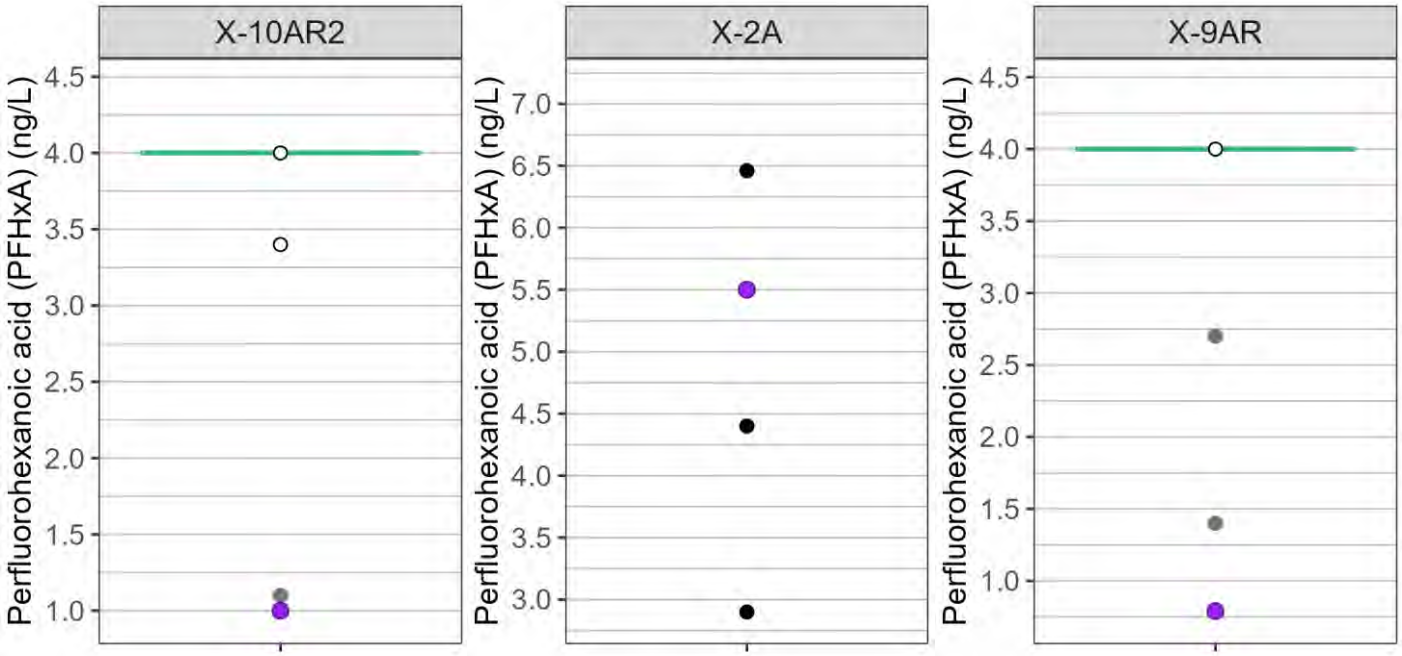
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROHEXANOIC ACID (PFHXA)

ARCADIS

FIGURE
6-54



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

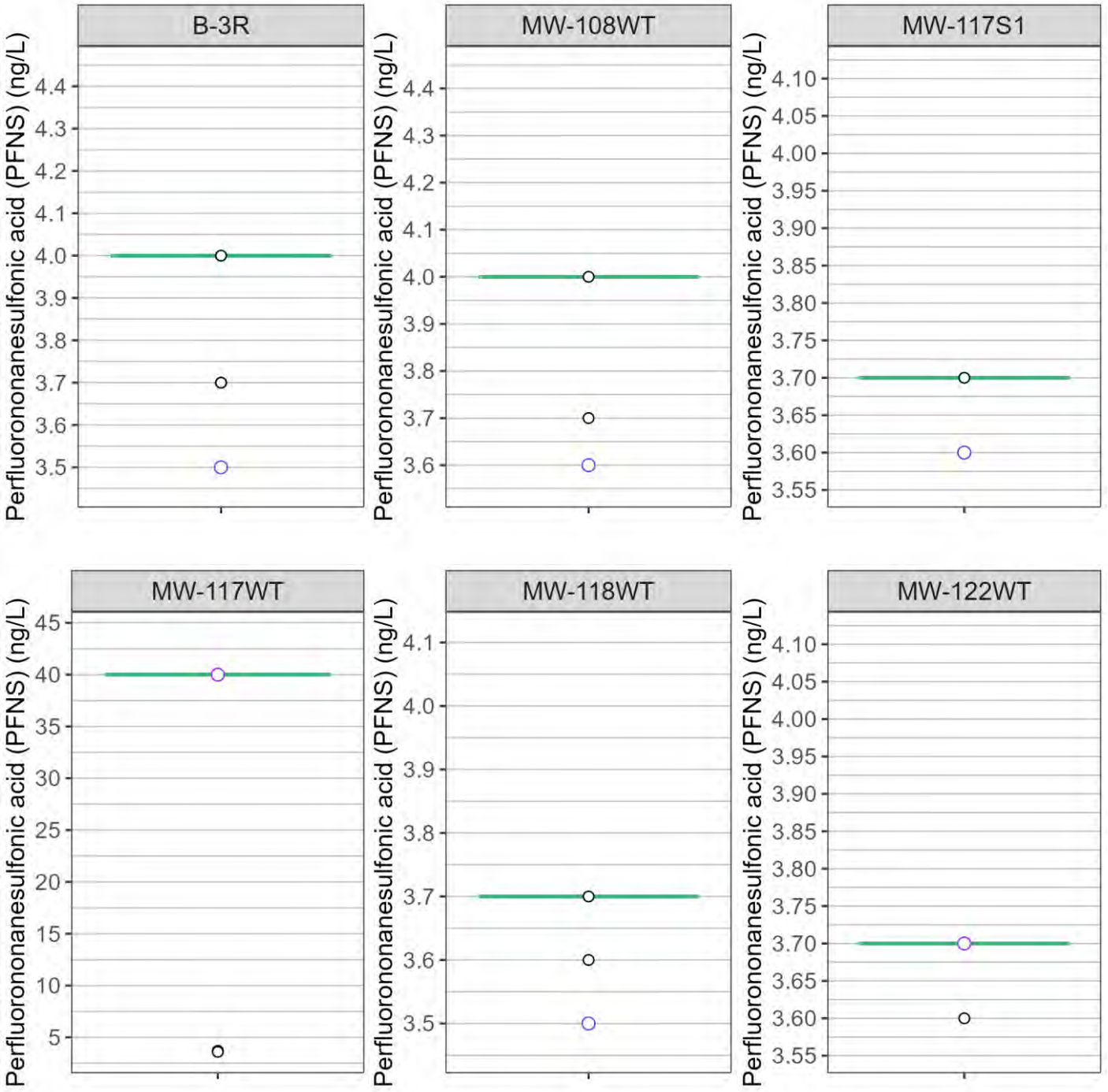
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROHEXANOIC ACID (PFHXA)

ARCADIS

FIGURE
6-55



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

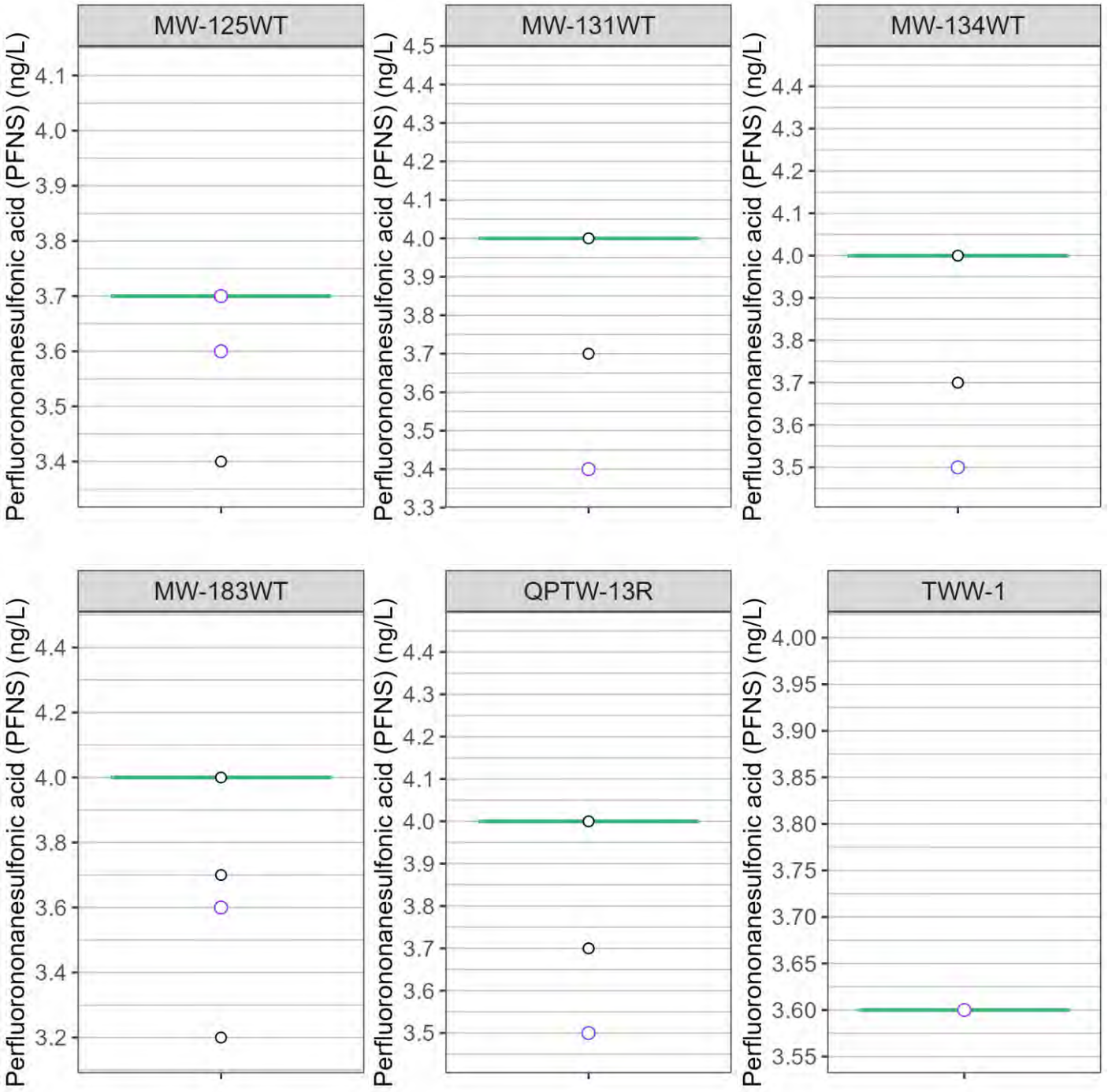
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUORONONANESULFONIC ACID (PFNS)

ARCADIS

FIGURE
6-57



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

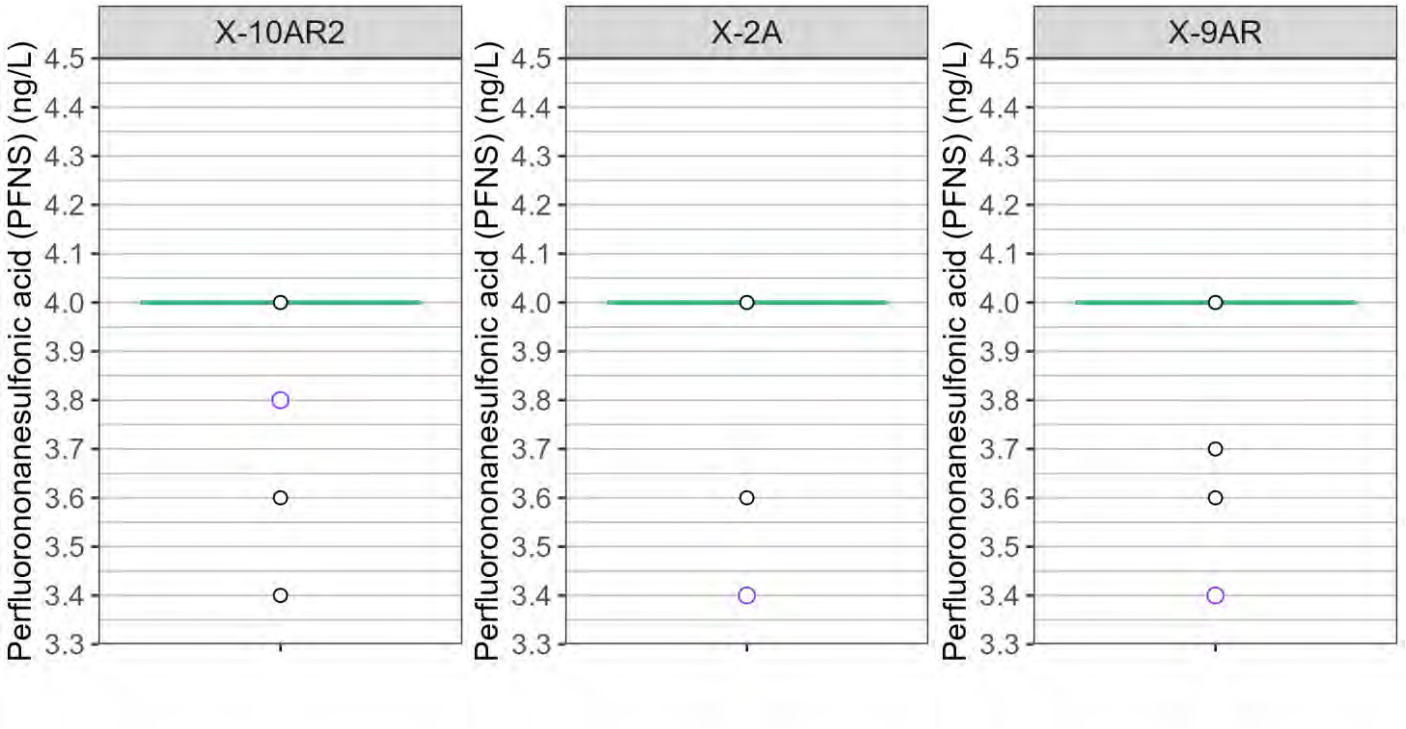
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUORONONANESULFONIC ACID (PFNS)

ARCADIS

FIGURE
6-58



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

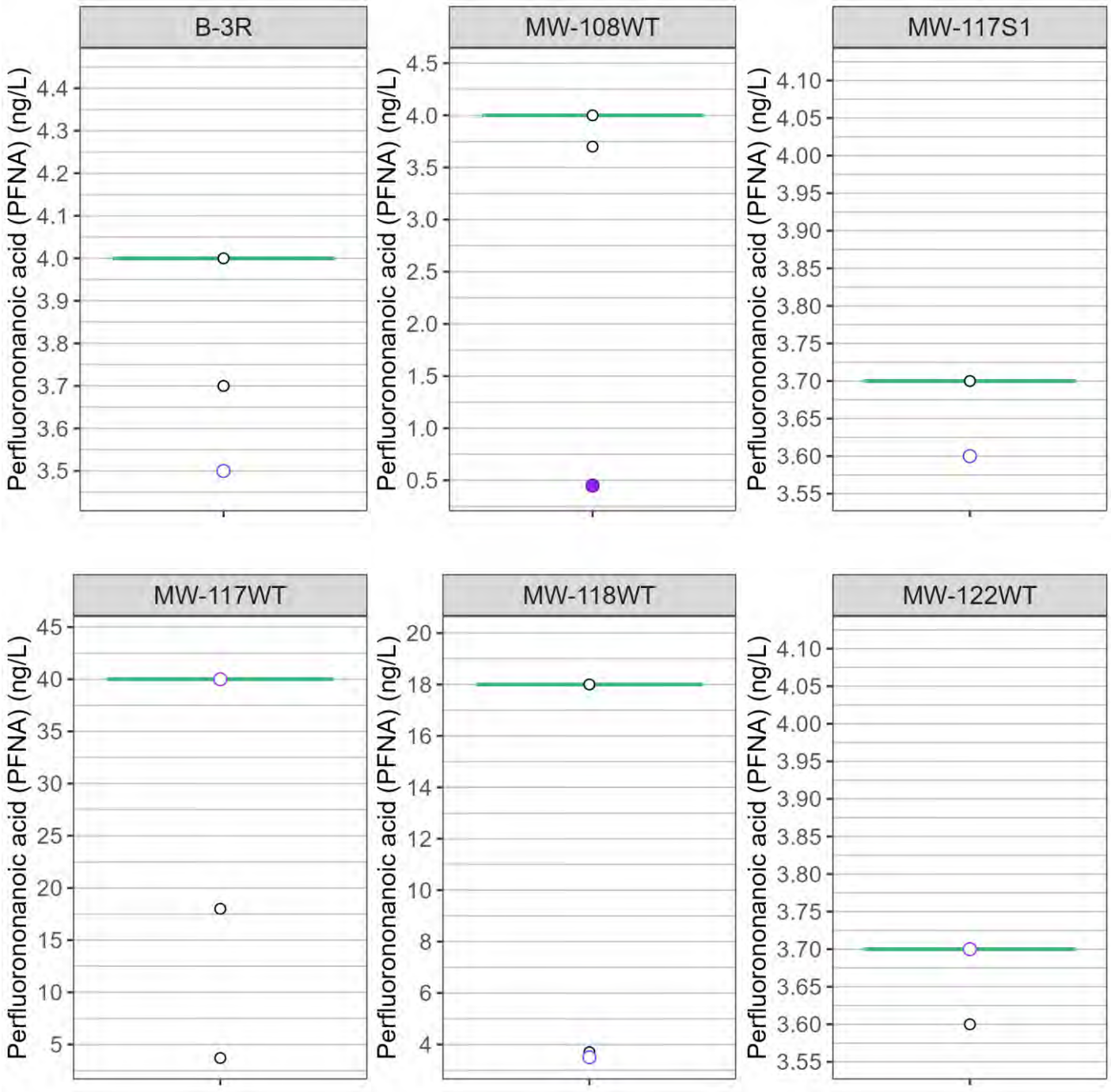
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUORONONANESULFONIC ACID (PFNS)

ARCADIS

FIGURE
6-59



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

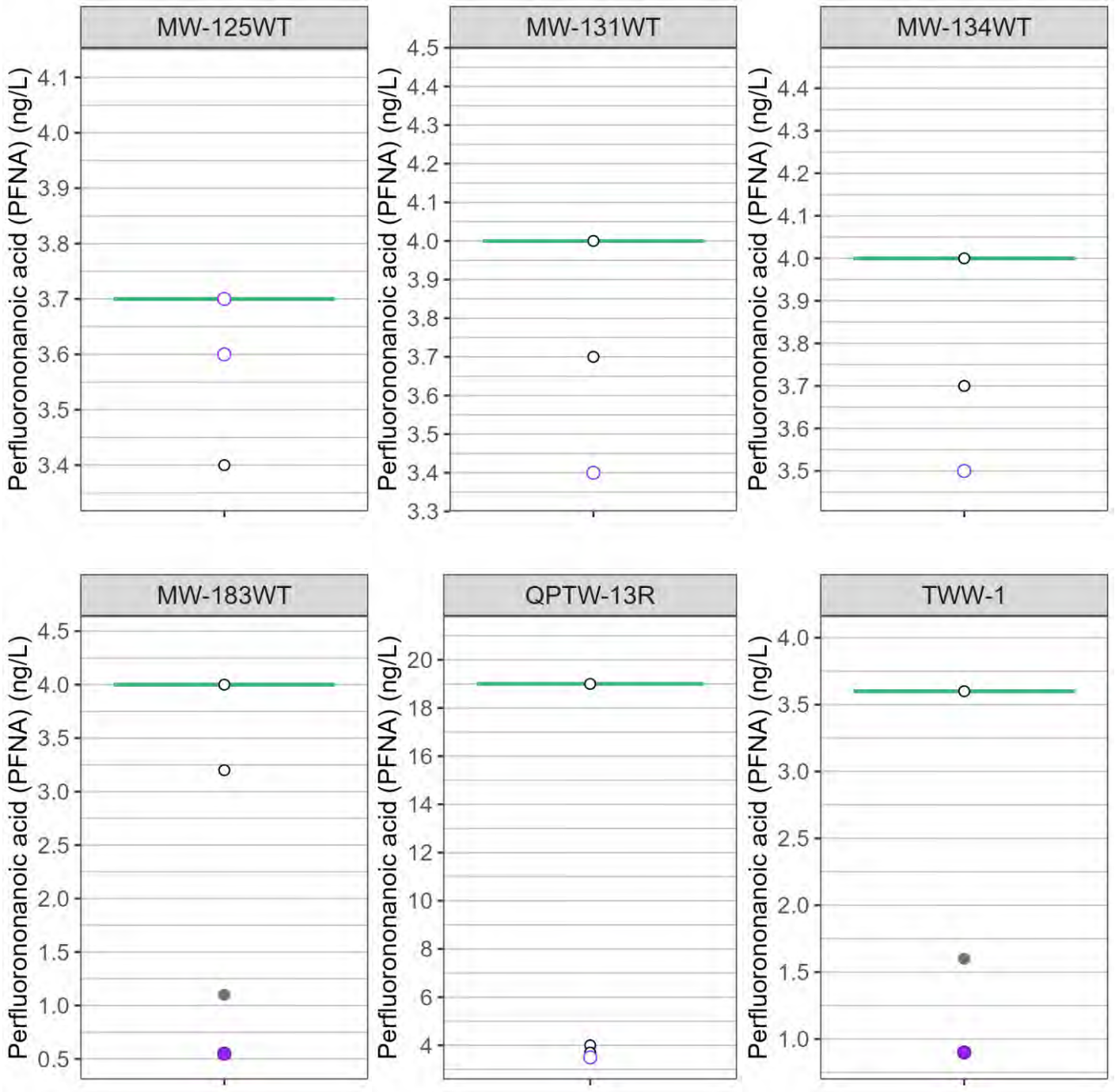
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUORONONANOIC ACID (PFNA)

ARCADIS

FIGURE
6-60



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

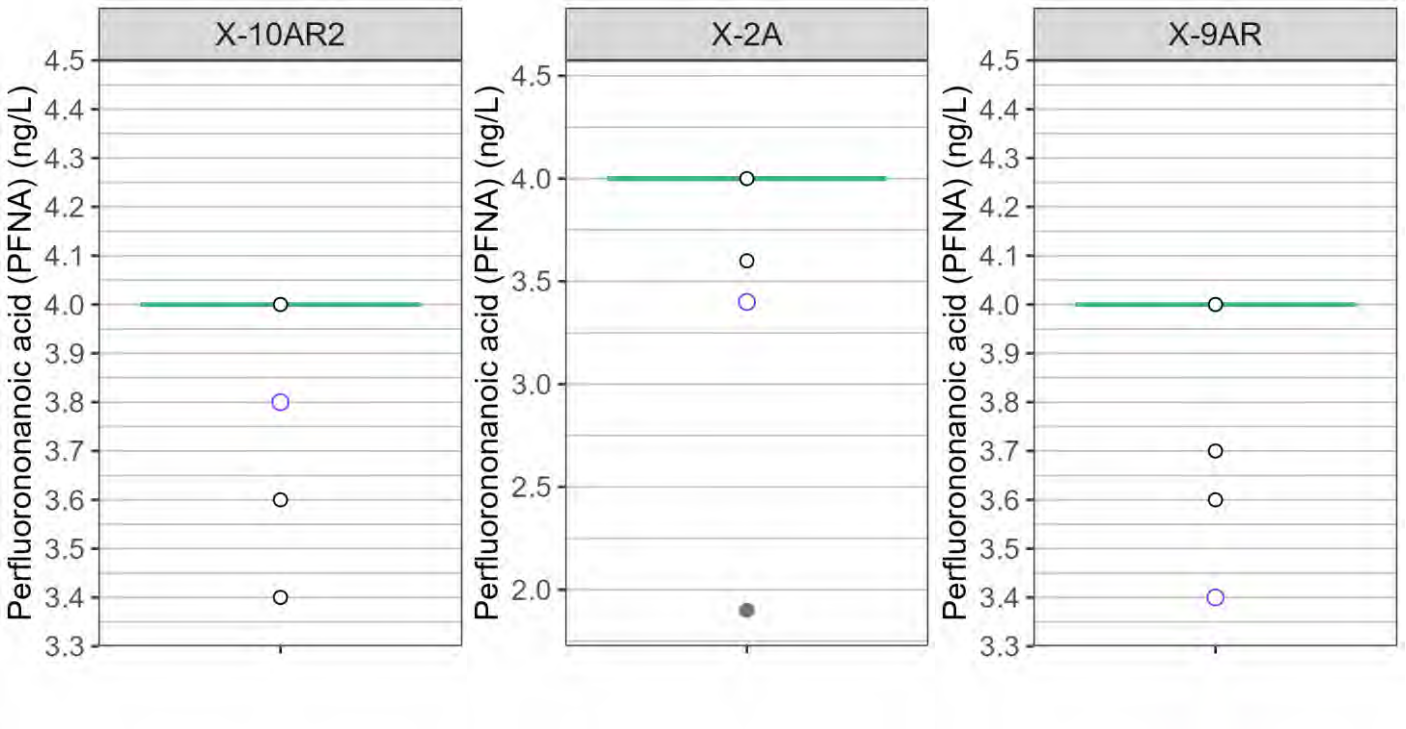
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUORONONANOIC ACID (PFNA)

ARCADIS

FIGURE
6-61



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

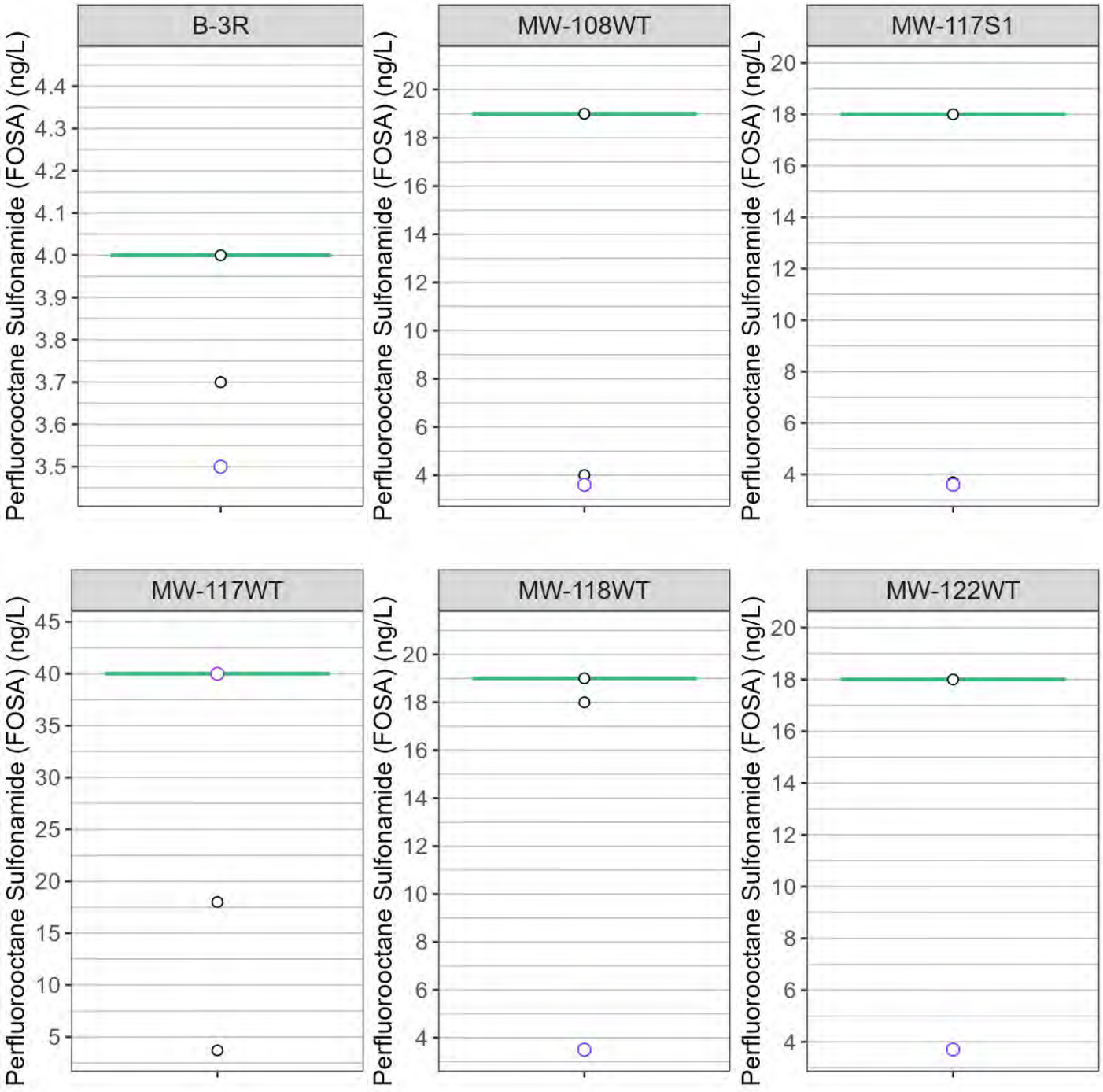
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUORONONANOIC ACID (PFNA)

ARCADIS

FIGURE
6-62



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

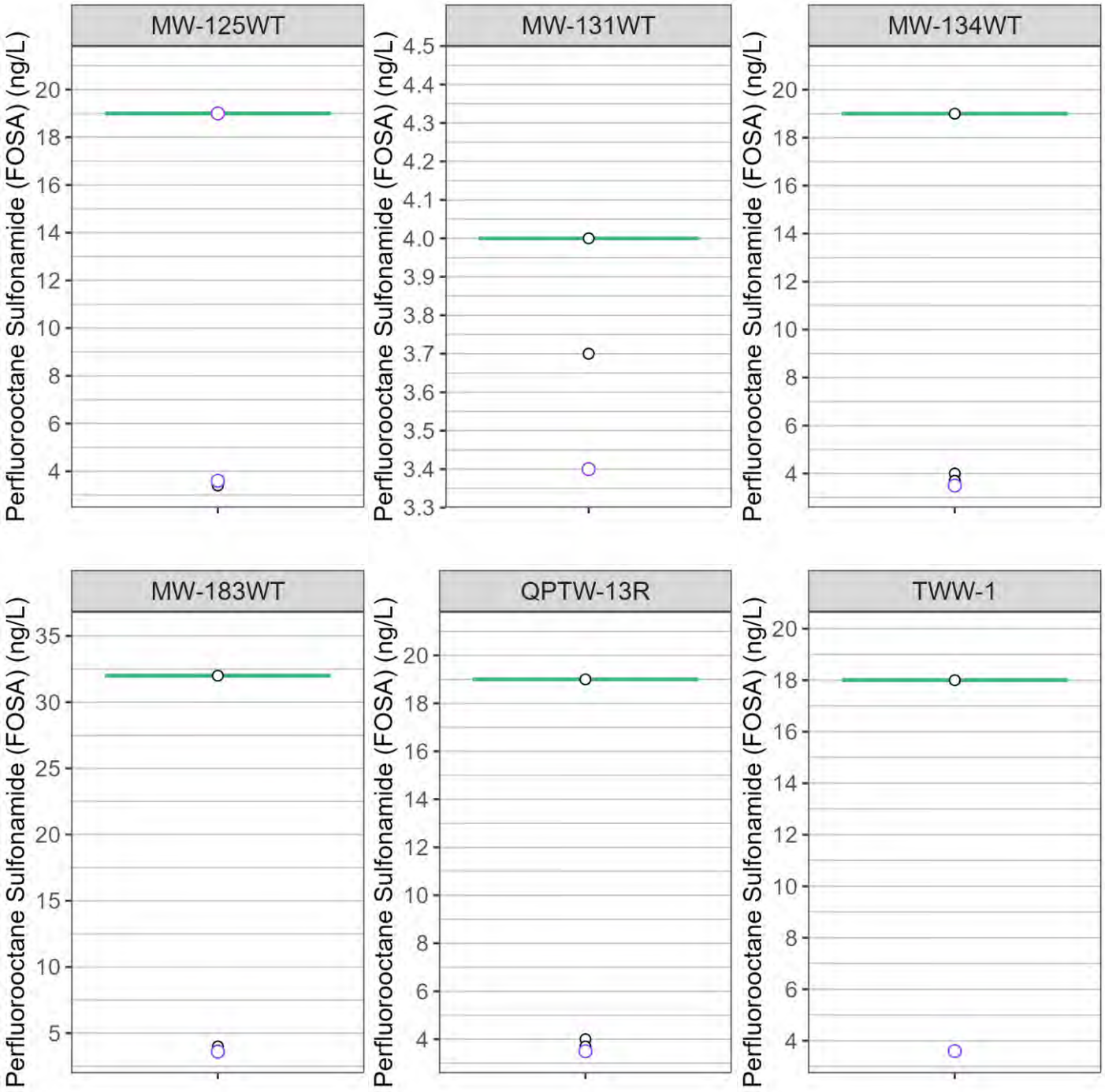
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROOCTANE SULFONAMIDE (FOSA)

ARCADIS

FIGURE
6-63



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

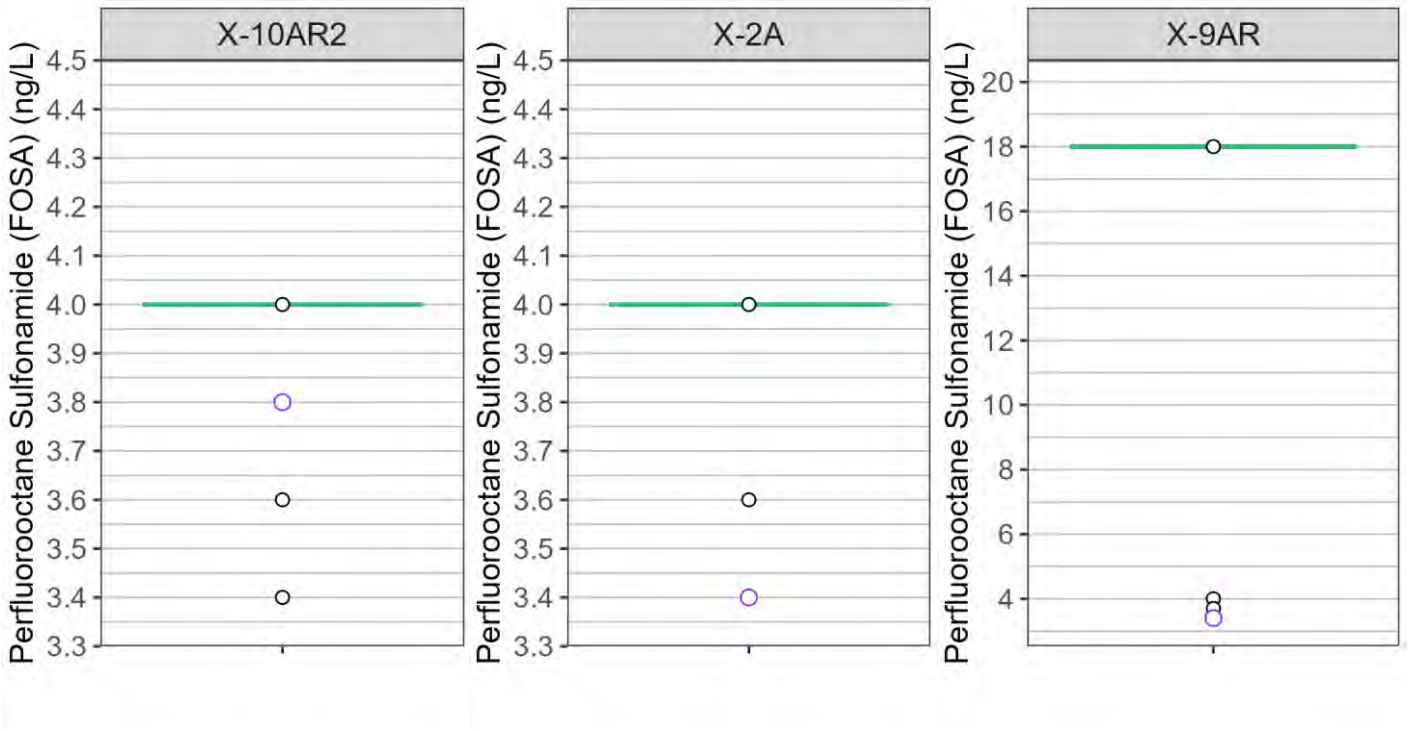
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROOCTANE SULFONAMIDE (FOSA)

ARCADIS

FIGURE
6-64



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

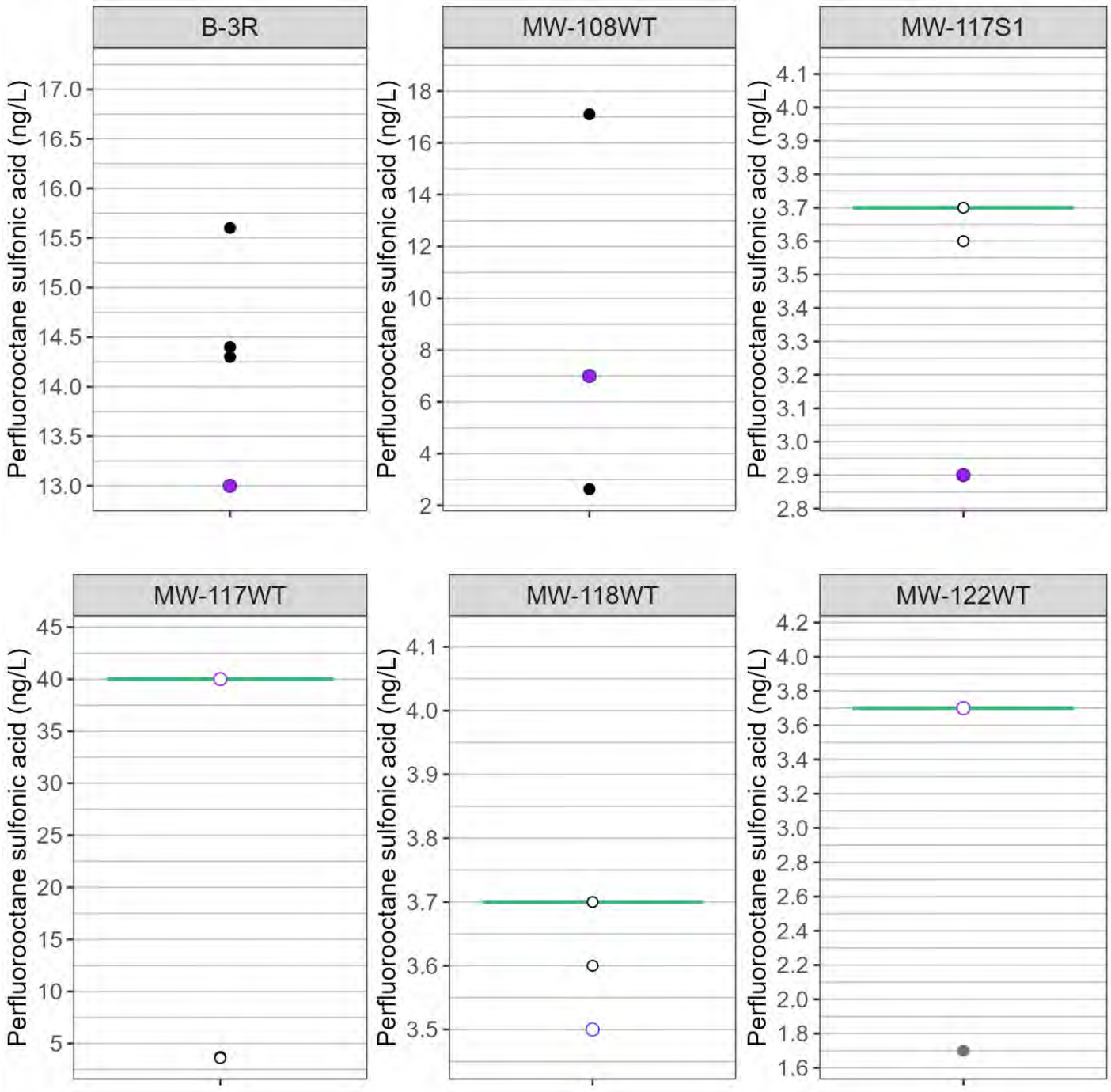
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROOCTANE SULFONAMIDE (FOSA)

ARCADIS

FIGURE
6-65



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

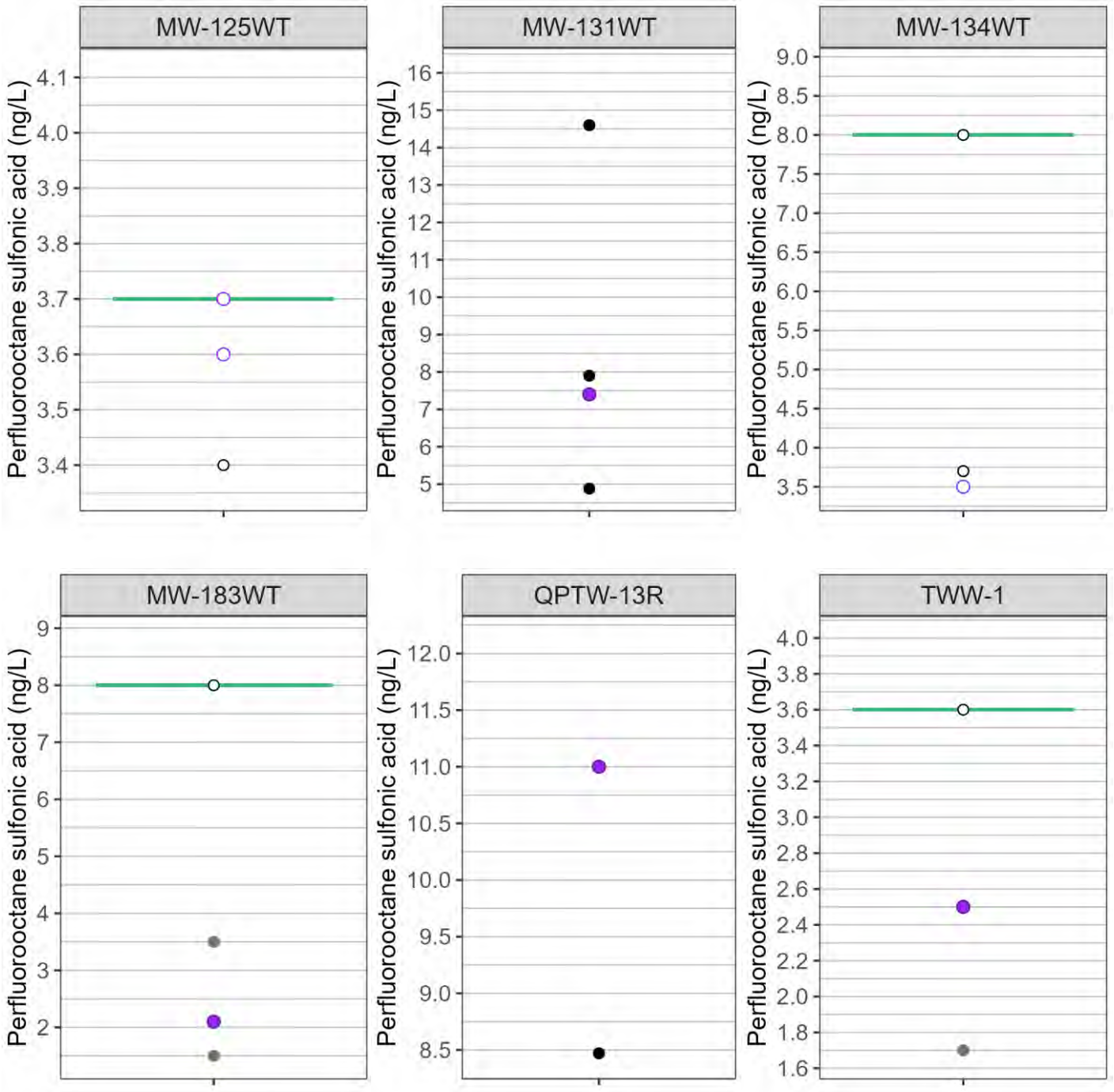
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROOCTANE SULFONIC ACID

ARCADIS

FIGURE
6-66



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

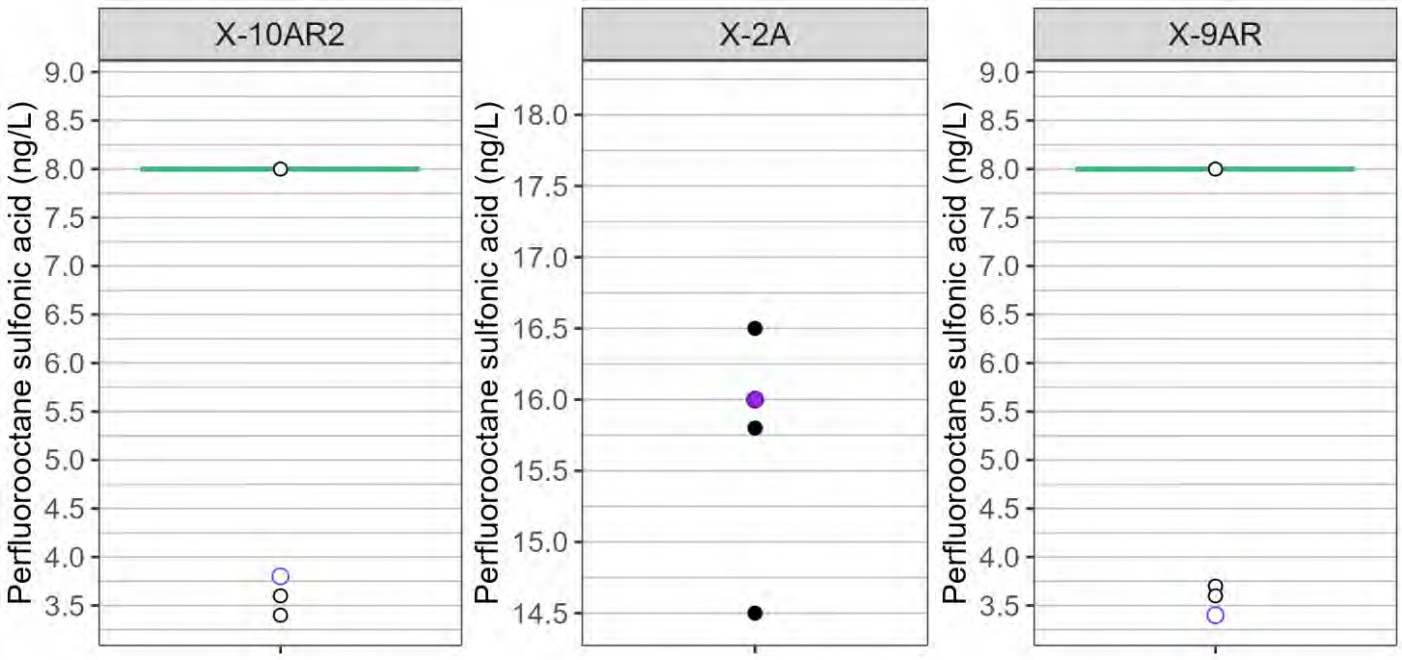
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROOCTANE SULFONIC ACID

ARCADIS

FIGURE
6-67



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

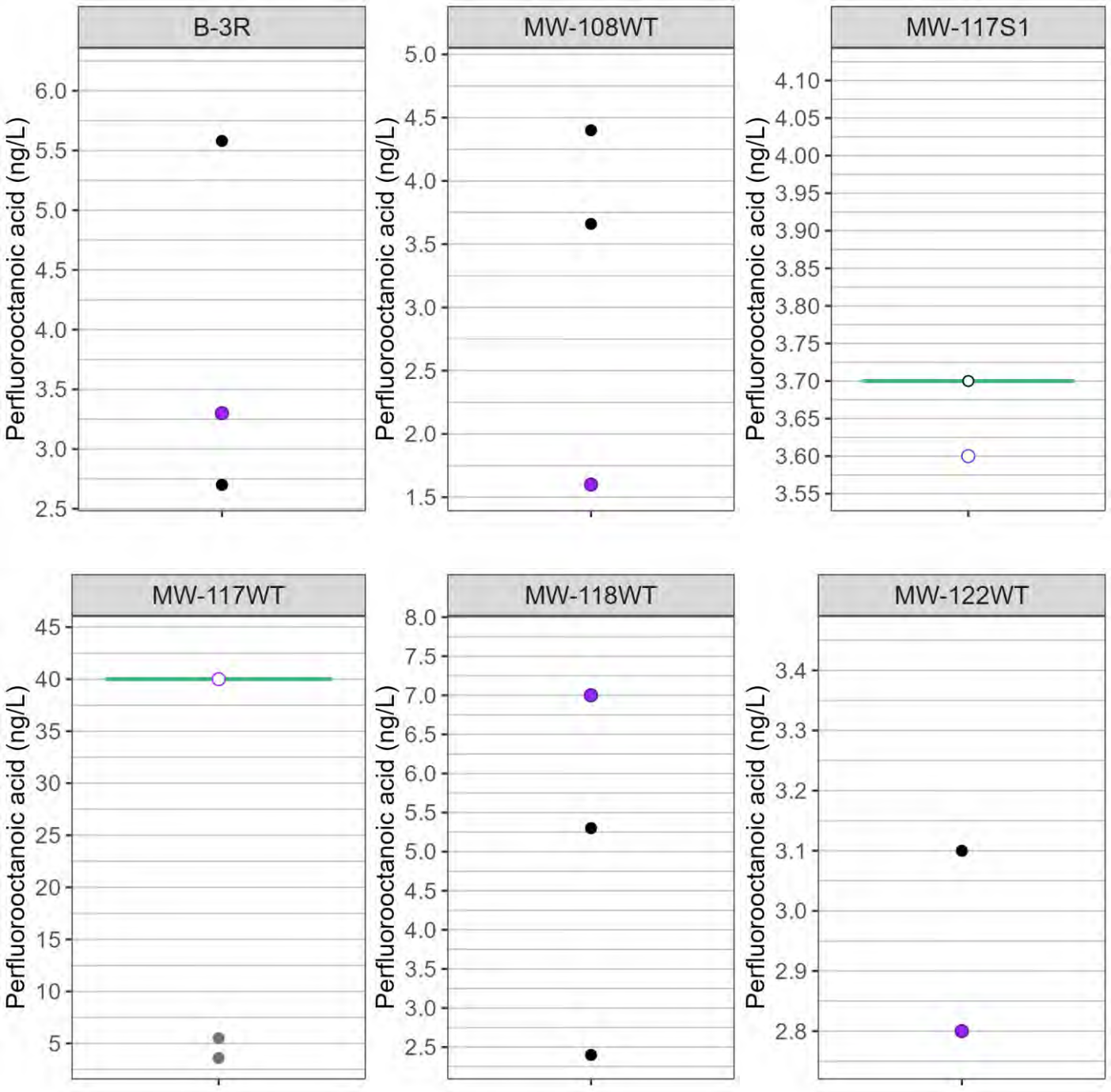
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROOCTANE SULFONIC ACID

ARCADIS

FIGURE
6-68



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

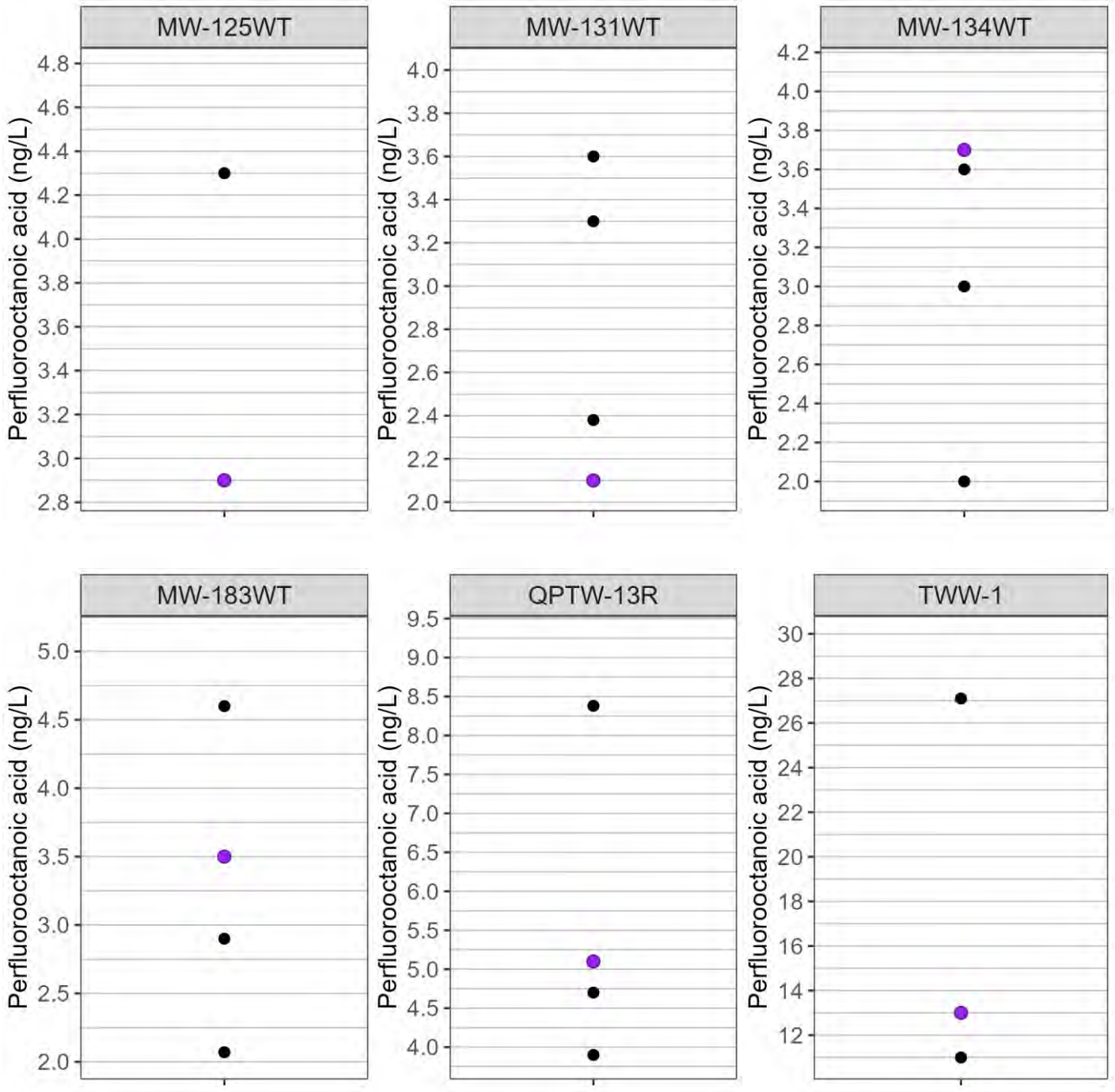
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROOCTANOIC ACID

ARCADIS

FIGURE
6-69



Color Code

Low Flow Result

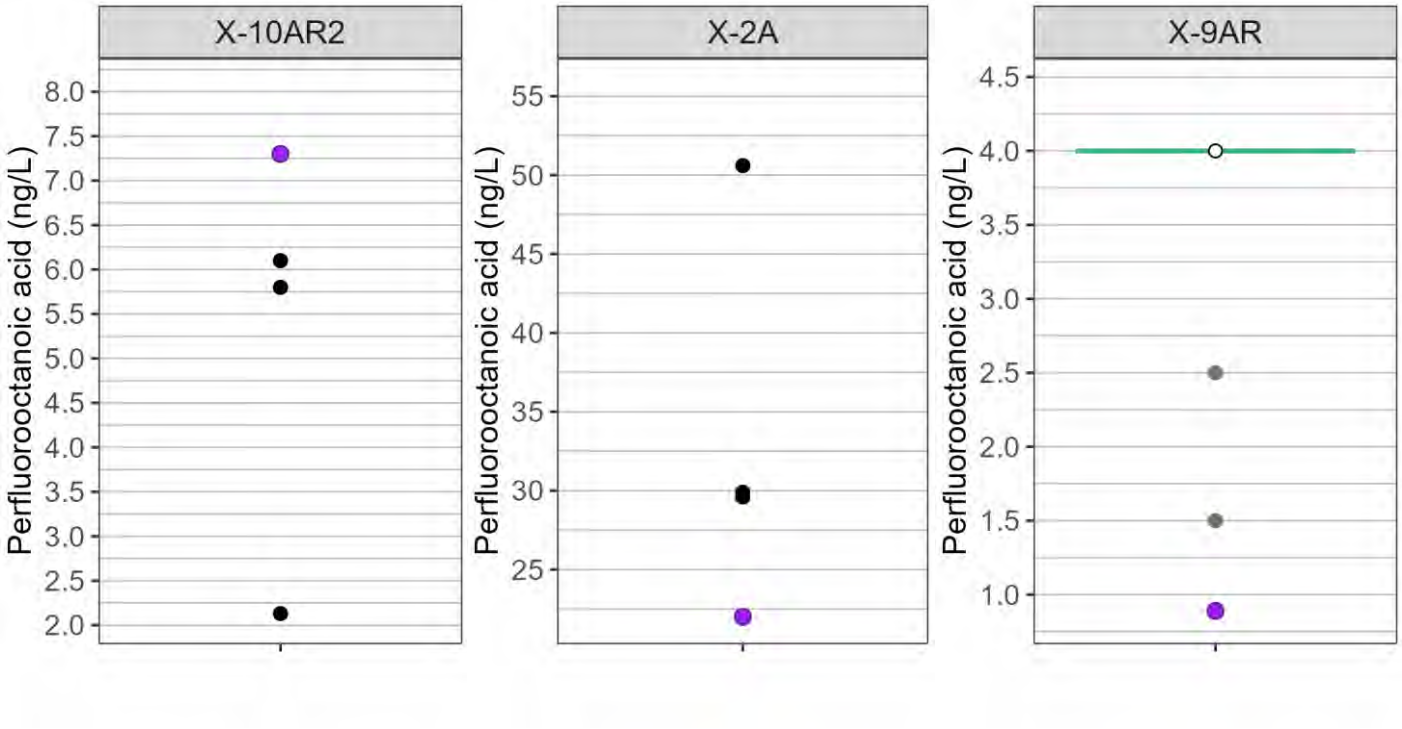
No Purge Result

PFAS: PERFLUOROOCTANOIC ACID

ARCADIS

FIGURE

6-70



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

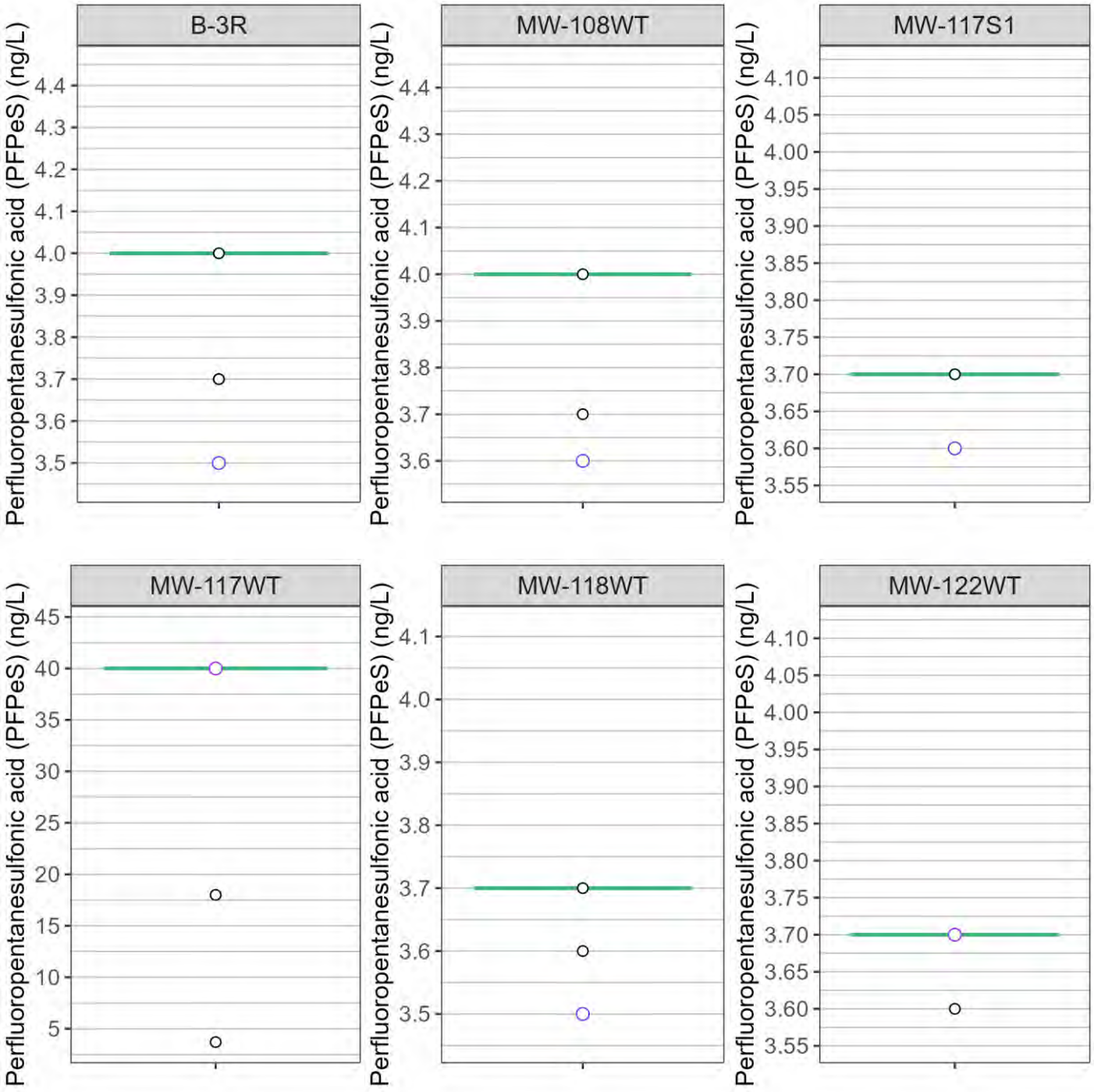
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROOCTANOIC ACID

ARCADIS

FIGURE
6-71



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

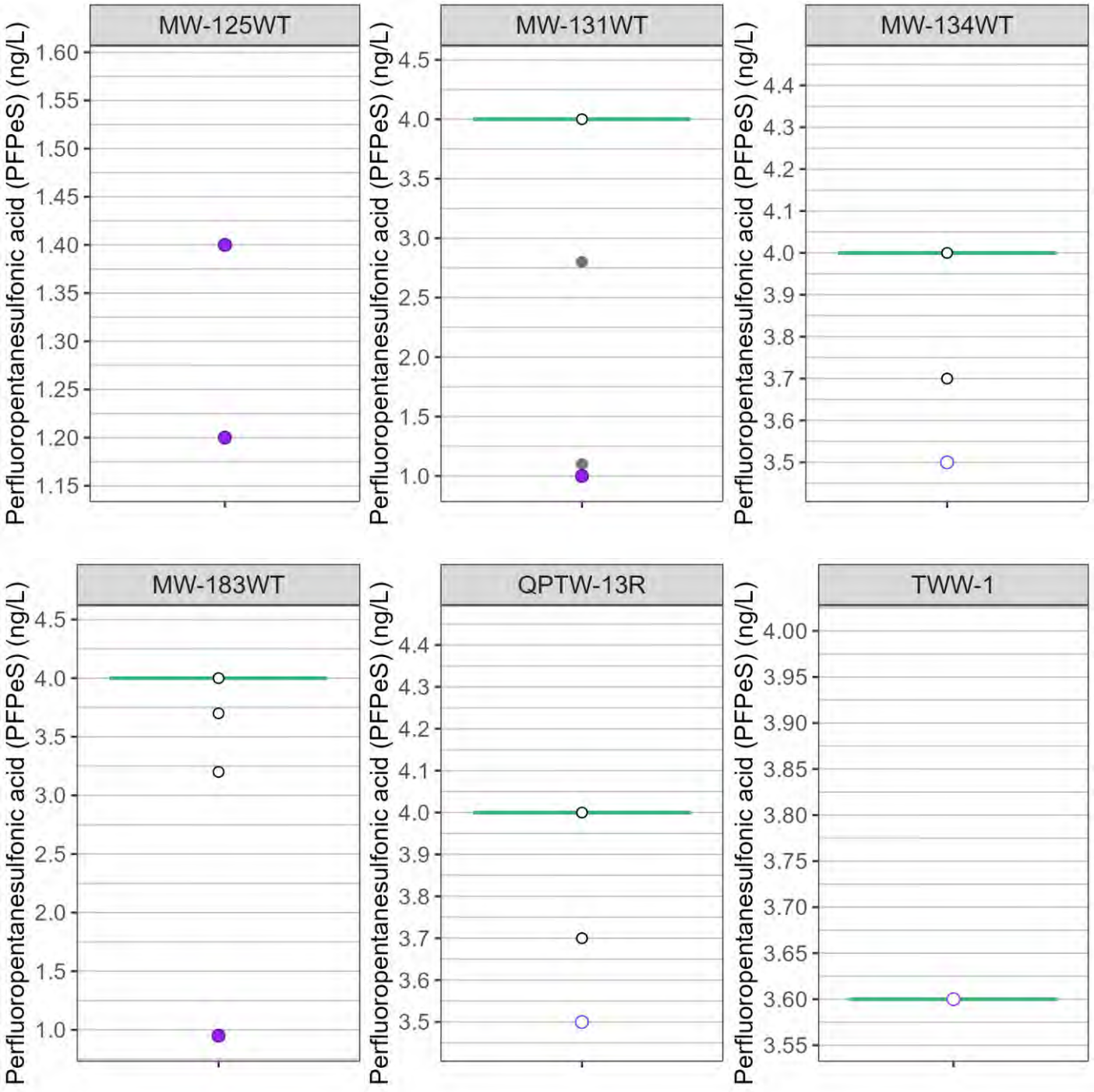
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROPENTANESULFONIC ACID (PFPES)

ARCADIS

FIGURE
6-72



Color Code

Low Flow Result above maximum non-detect detection limit

Low Flow Result above below non-detect detection limit

No Purge Result

Symbol Code

● Detected Result (closed symbol)

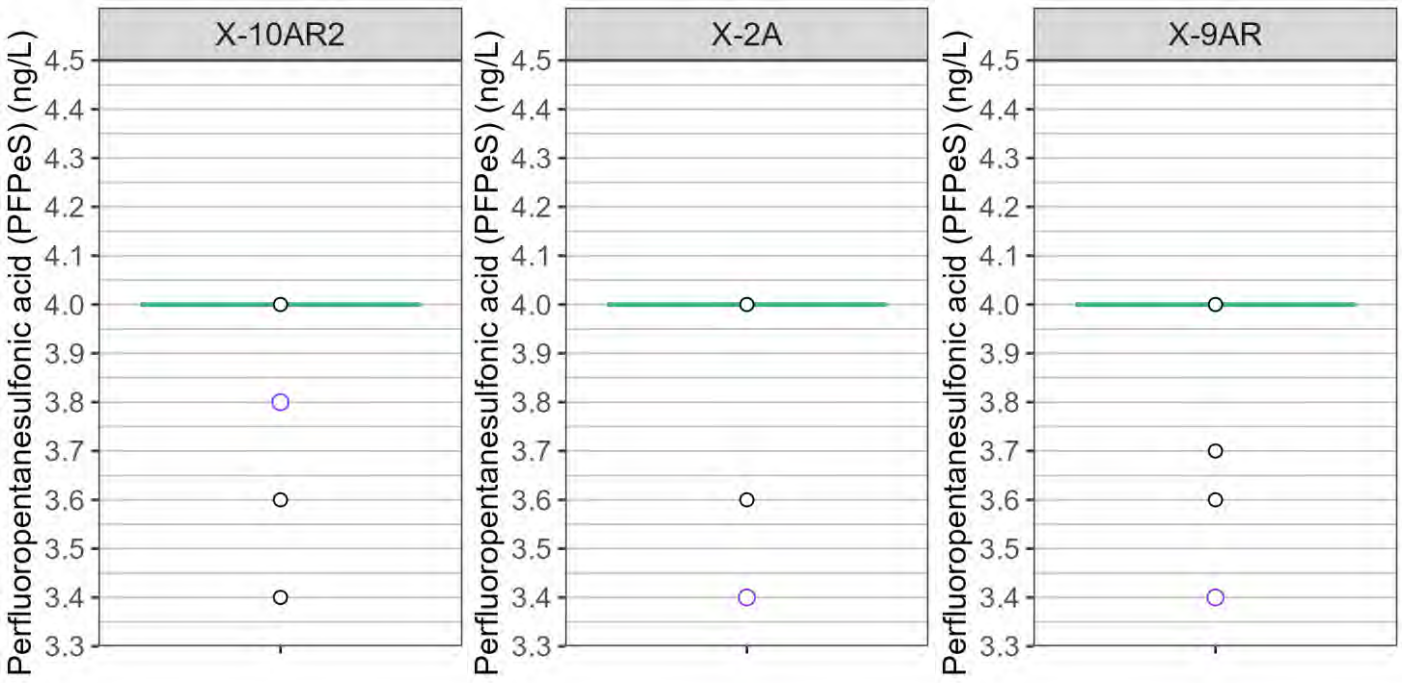
○ Non-detect result (open symbol)

PFAS: PERFLUOROPENTANESULFONIC ACID (PFPES)

ARCADIS

FIGURE

6-73



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

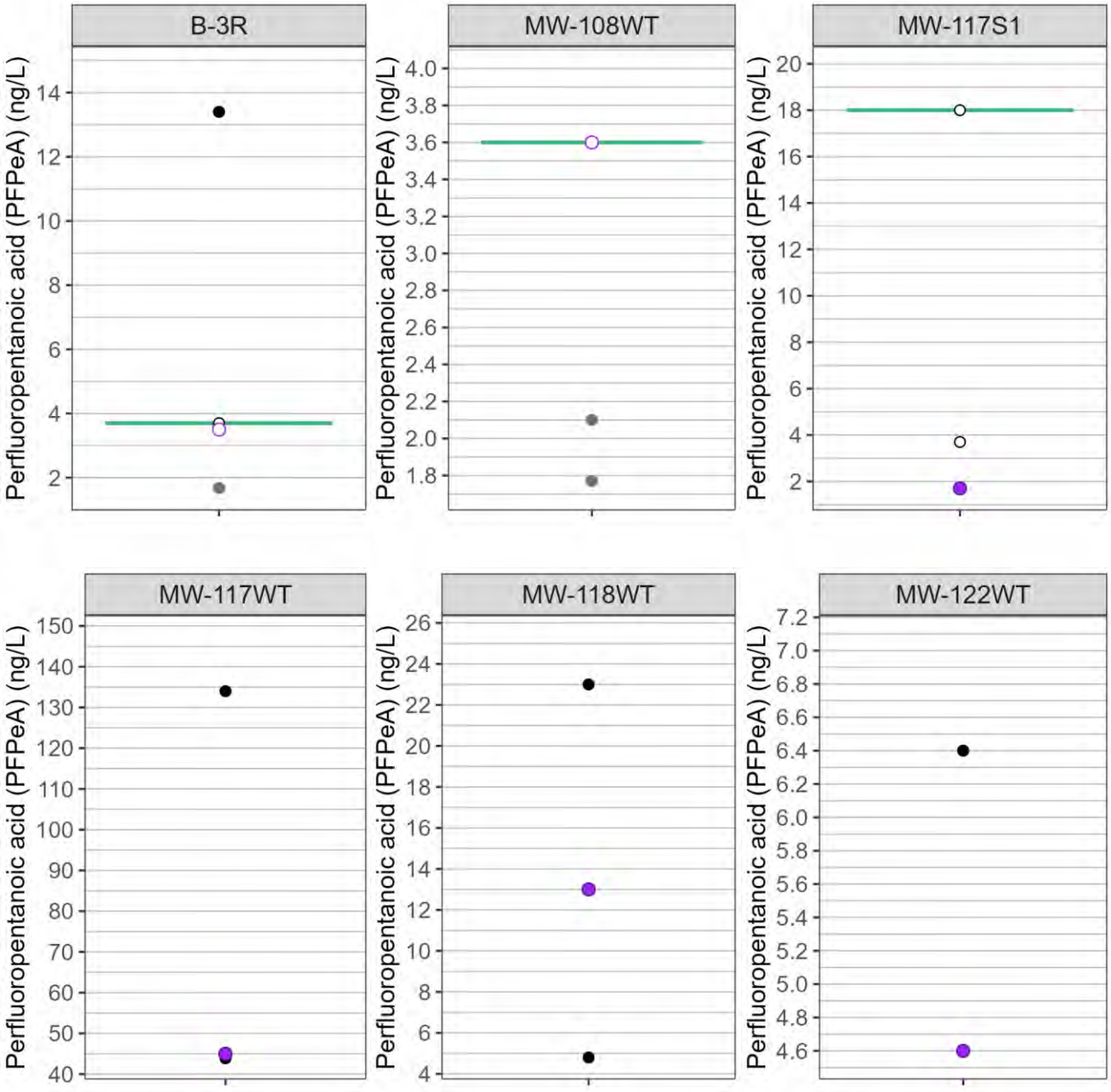
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROPENTANESULFONIC ACID (PFPES)

ARCADIS

FIGURE
6-74



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

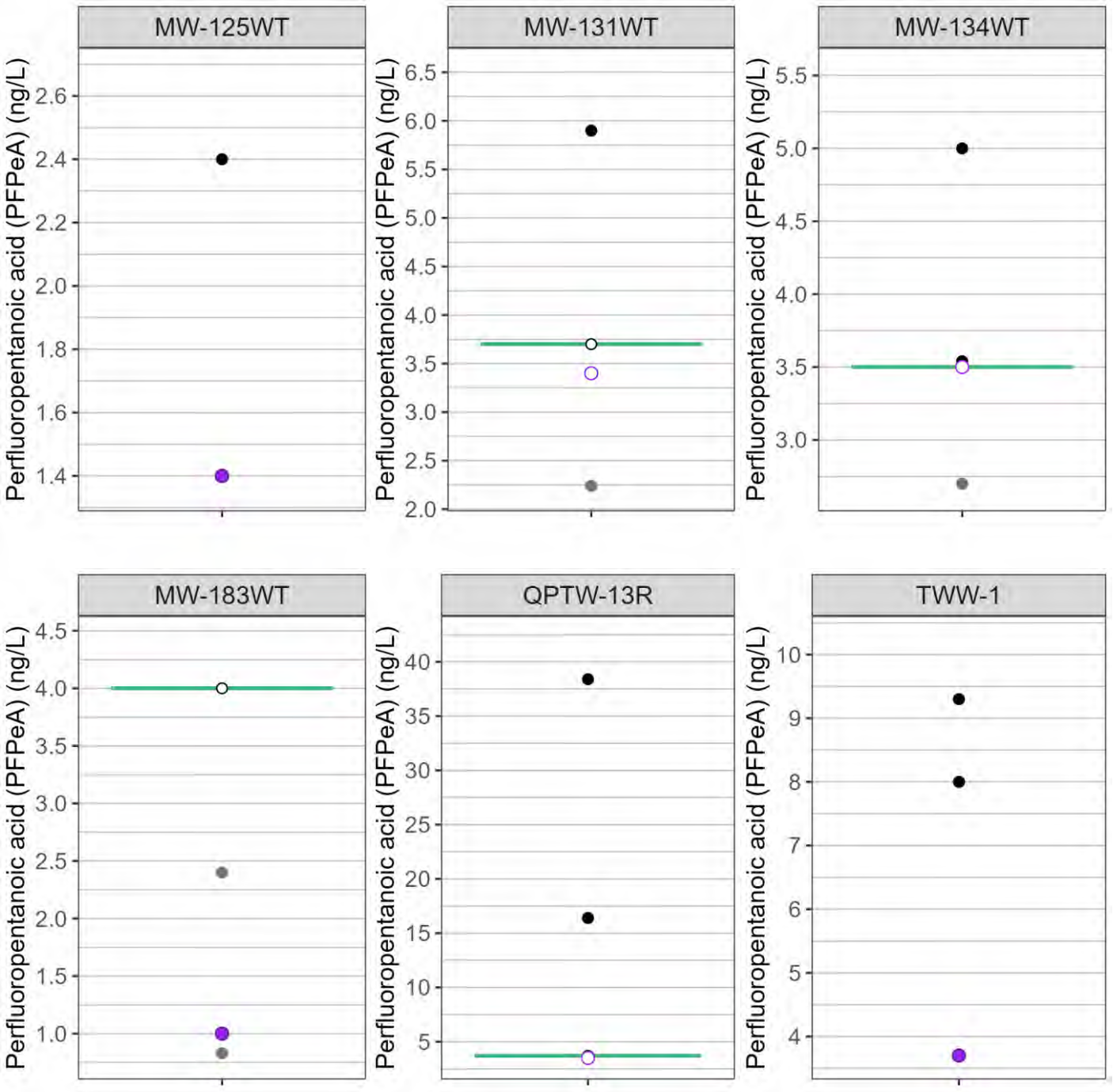
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROPENTANOIC ACID (PFPEA)

ARCADIS

FIGURE
6-75



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

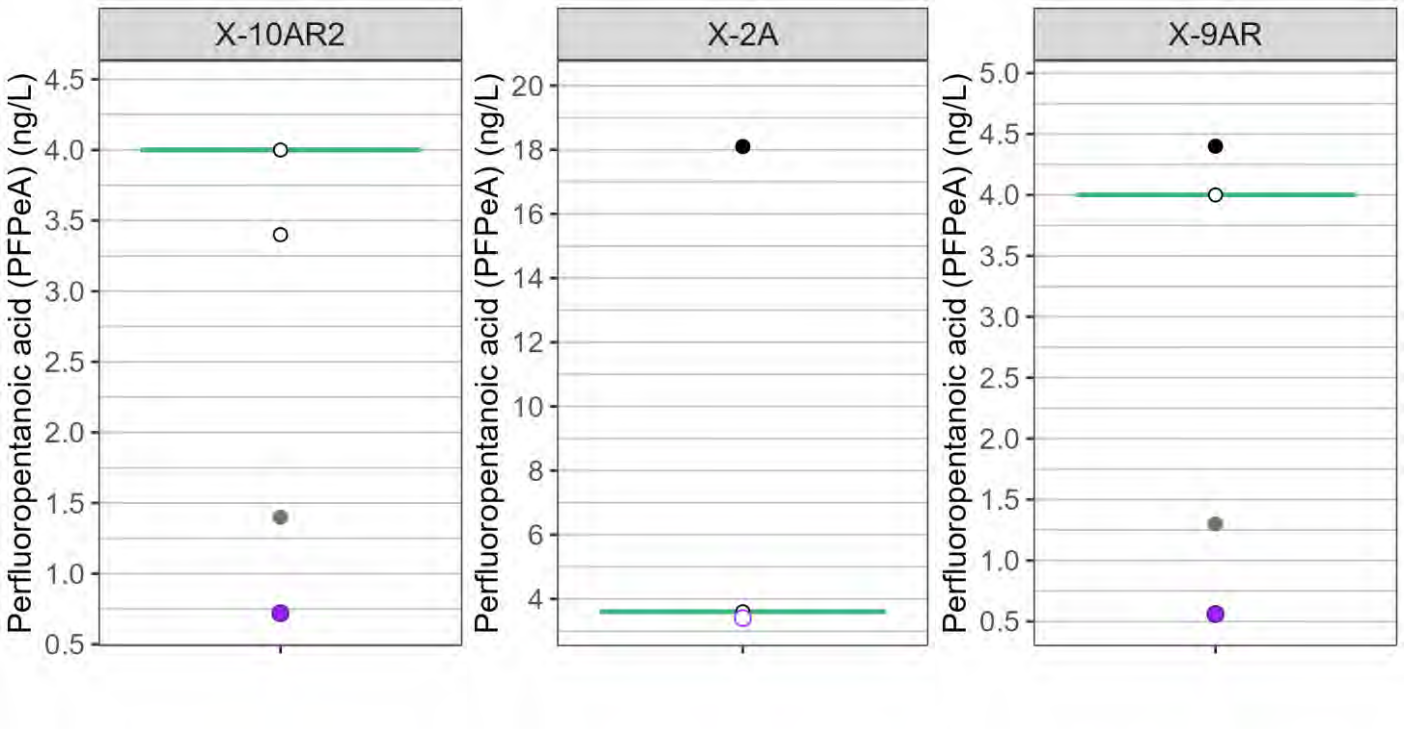
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROPENTANOIC ACID (PFPEA)

ARCADIS

FIGURE
6-76



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

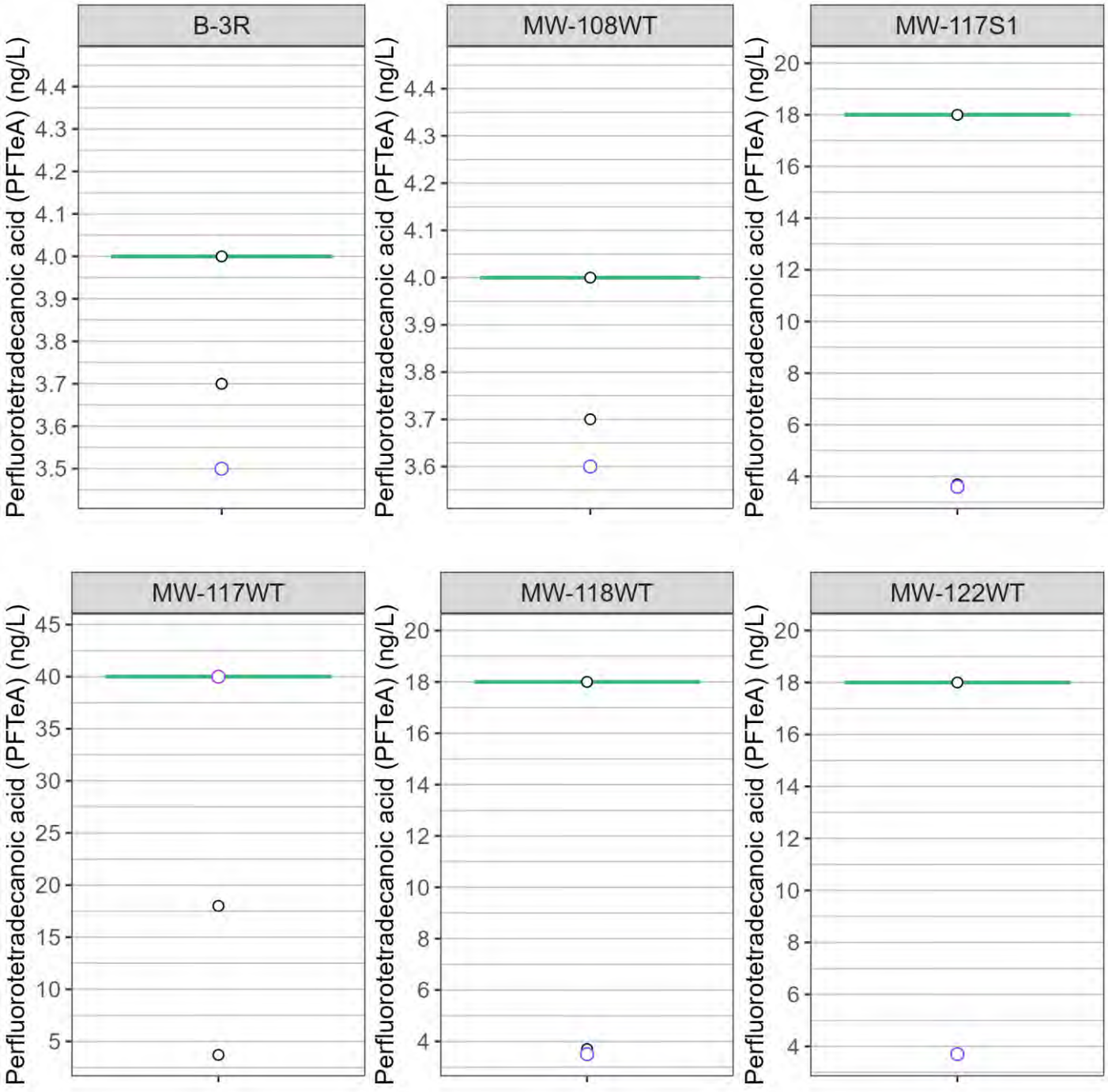
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROPENTANOIC ACID (PFPEA)

ARCADIS

FIGURE
6-77



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

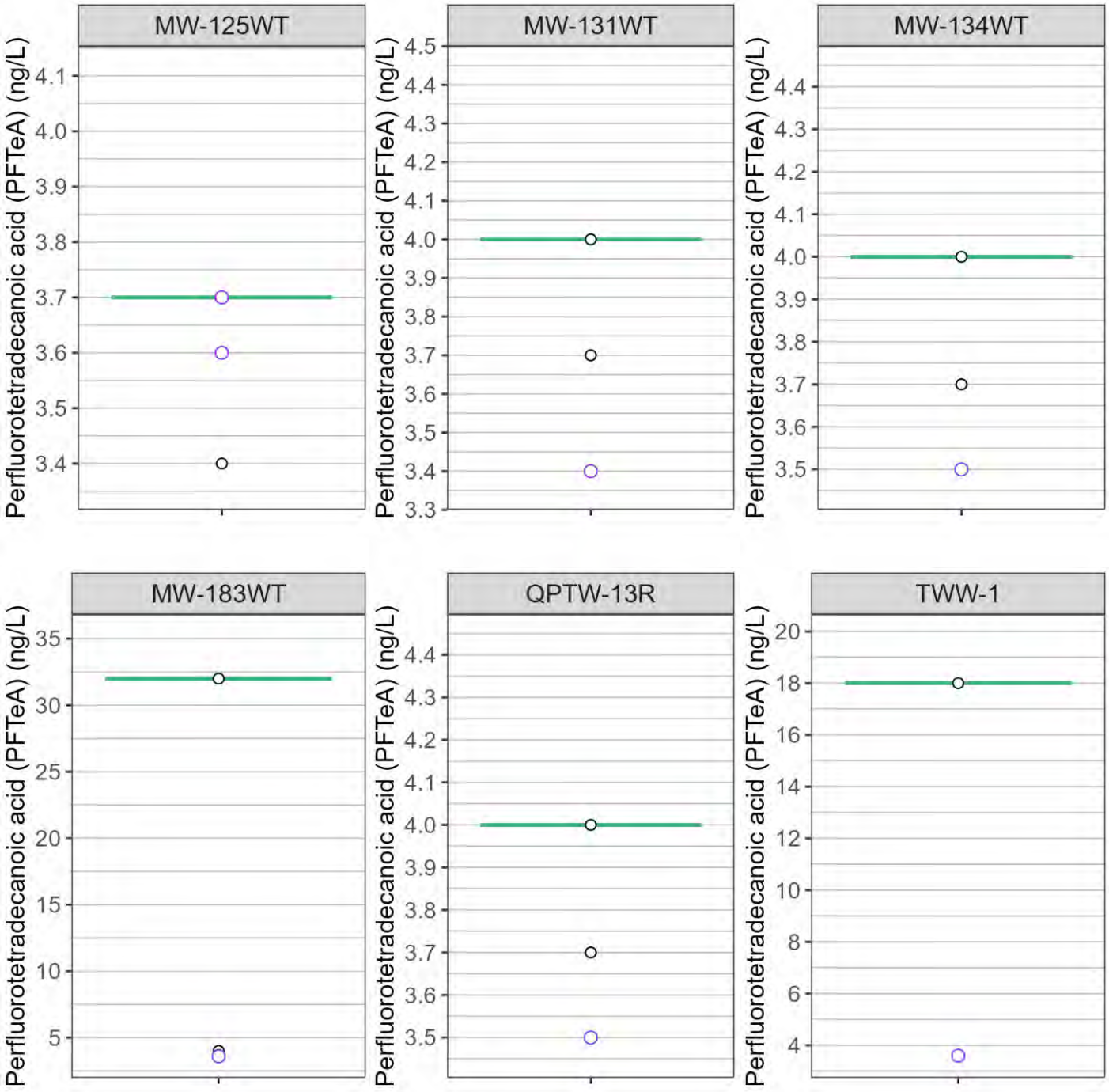
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROTETRADECANOIC ACID (PFTEA)

ARCADIS

FIGURE
6-78



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

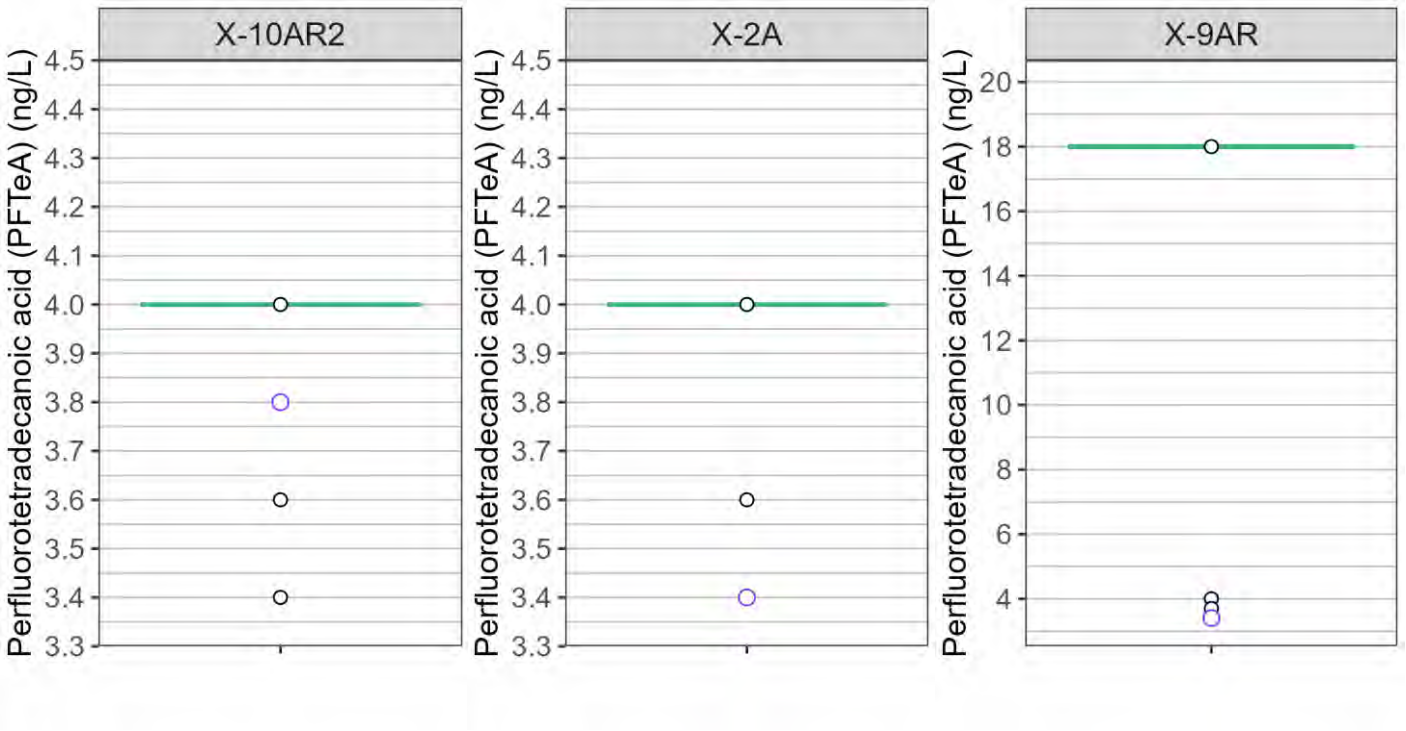
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROTETRADECANOIC ACID (PFTEA)

ARCADIS

FIGURE
6-78



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

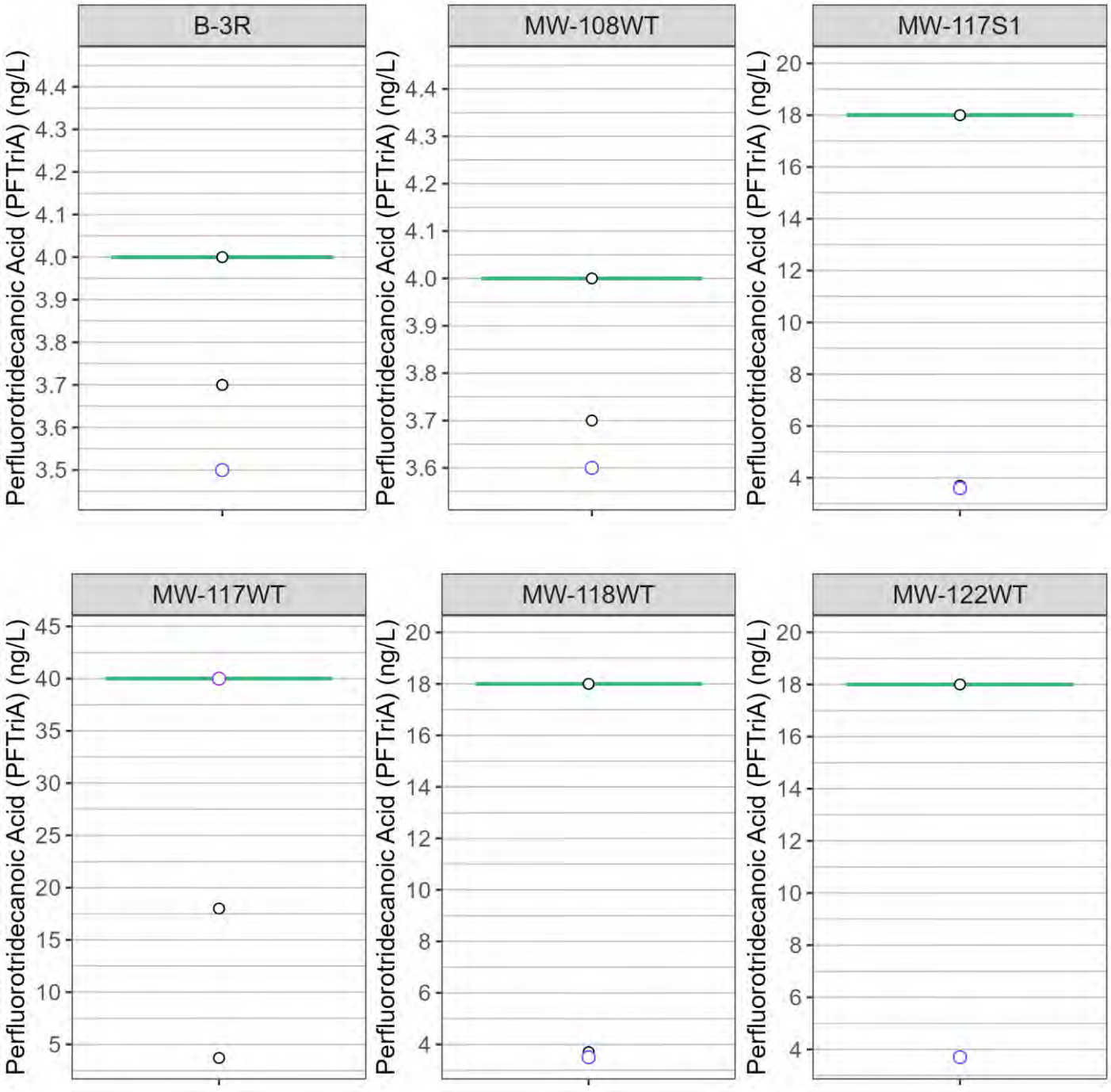
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROTETRADECANOIC ACID (PFTEA)

ARCADIS

FIGURE
6-79



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

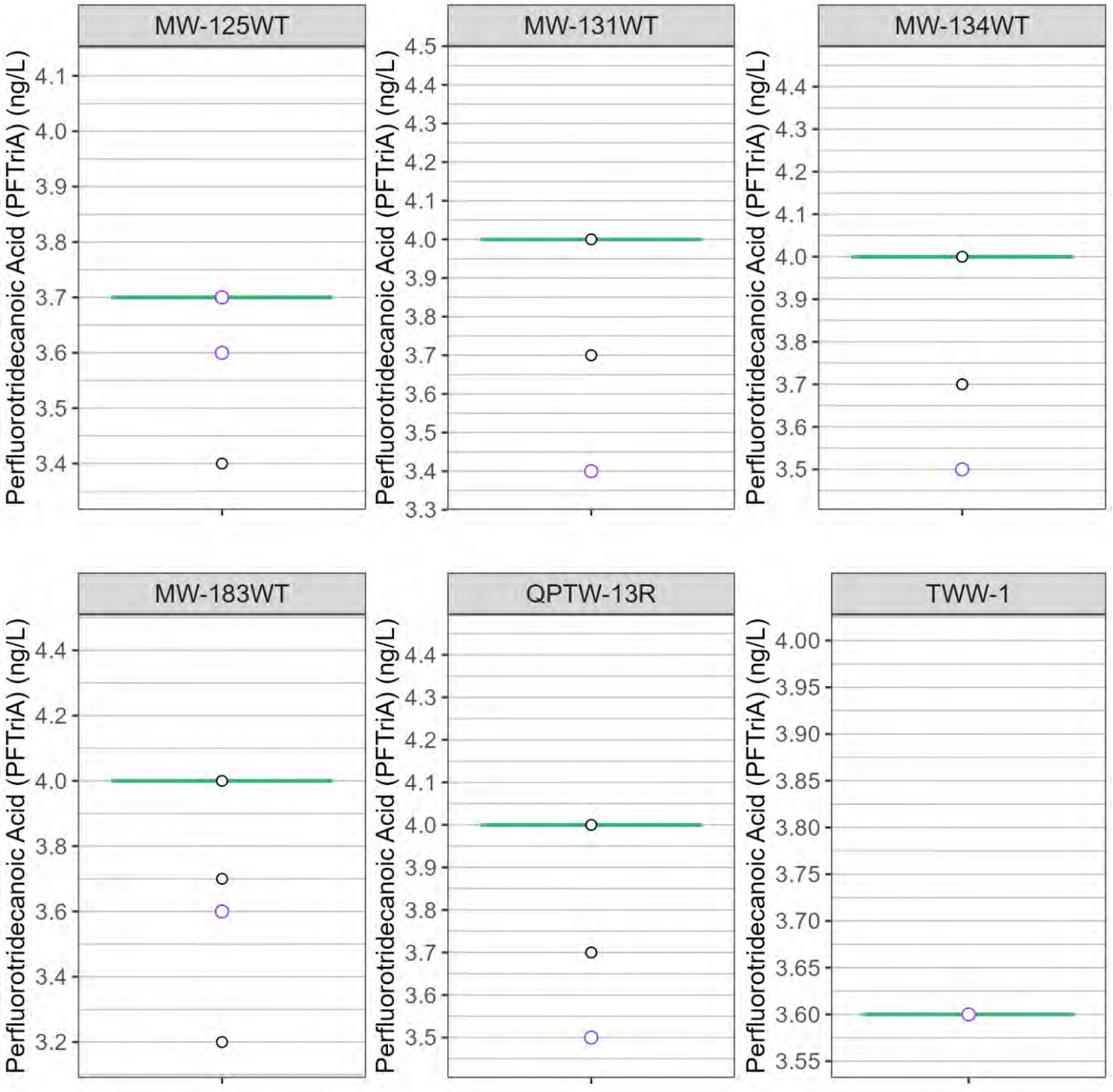
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROTRIDECANOIC ACID (PFTRIA)

ARCADIS

FIGURE
6-80



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

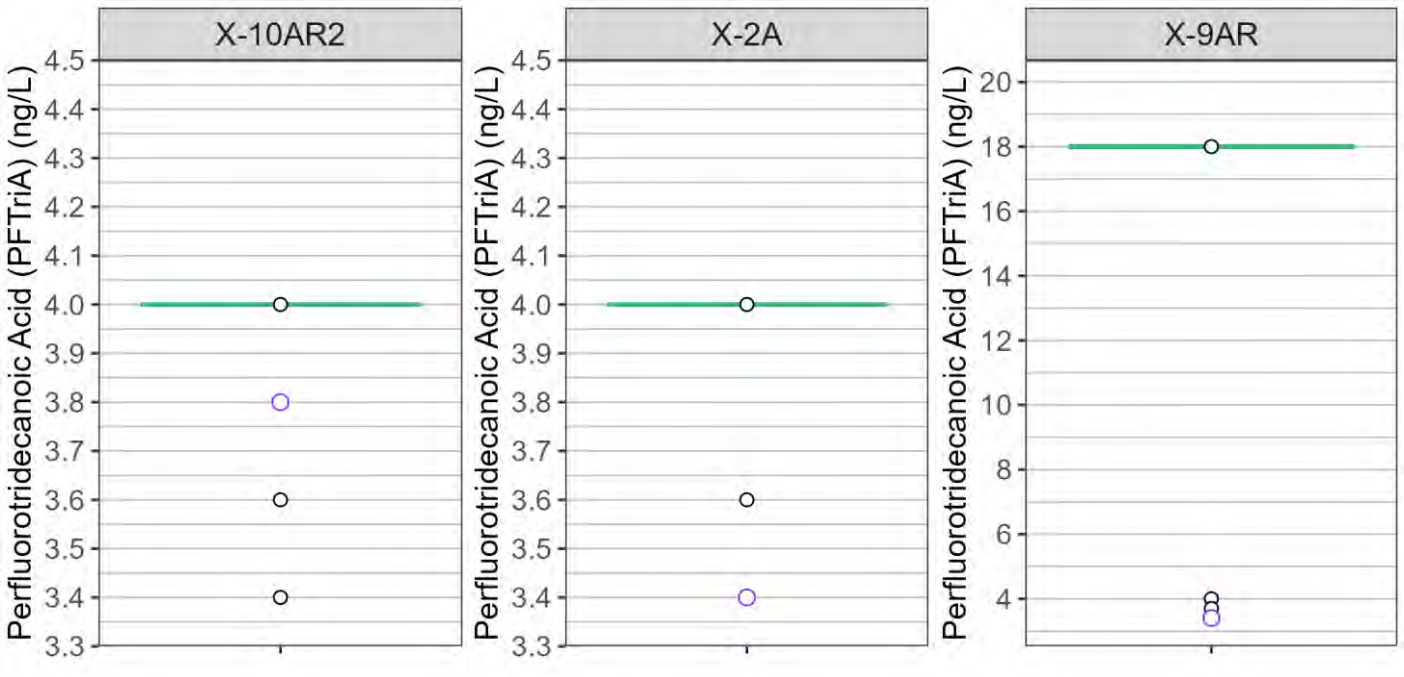
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROTRIDECANOIC ACID (PFTRIA)

ARCADIS

FIGURE
6-81



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

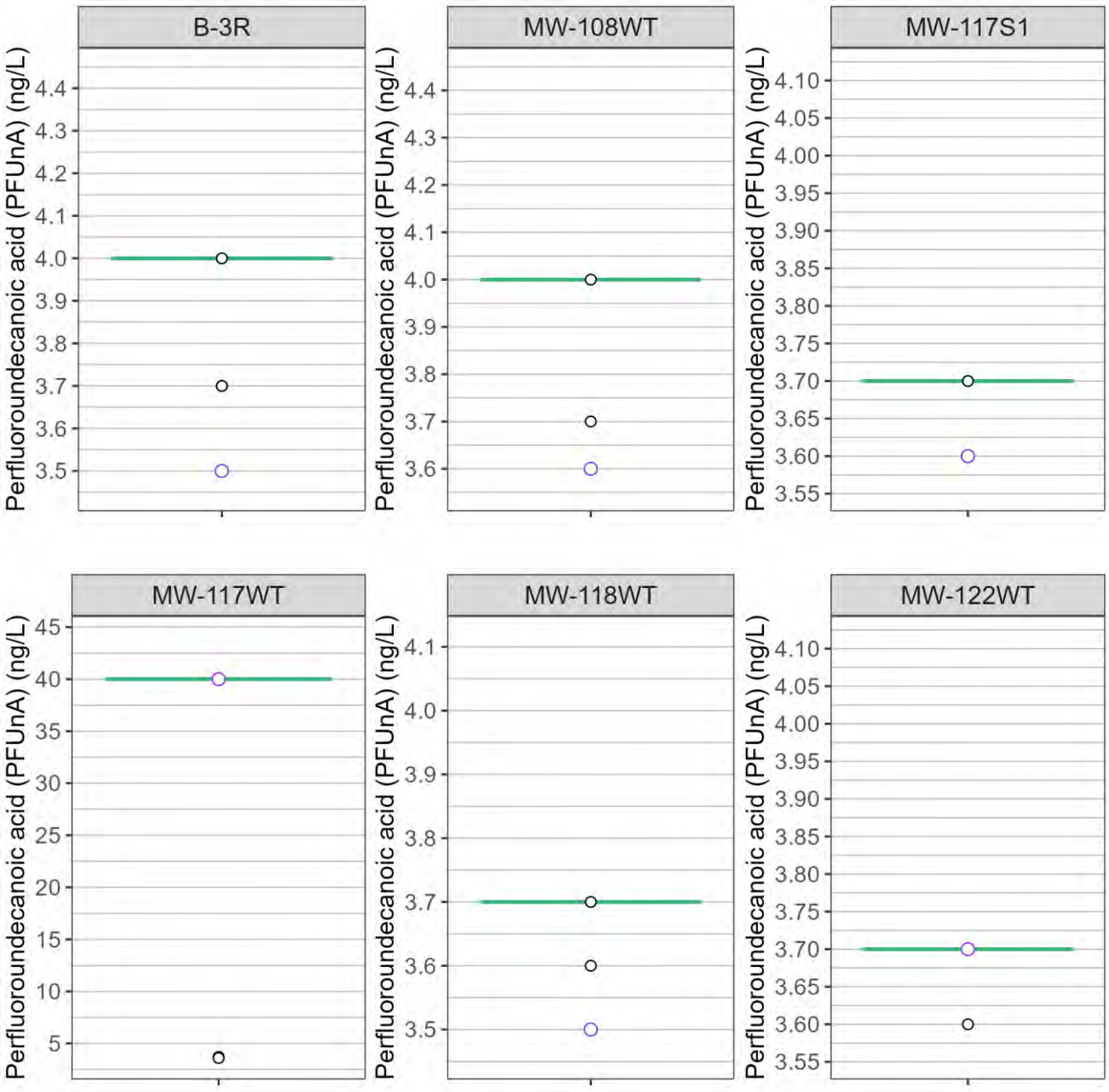
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROTRIDECANOIC ACID (PFTRIA)

ARCADIS

FIGURE
6-82



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

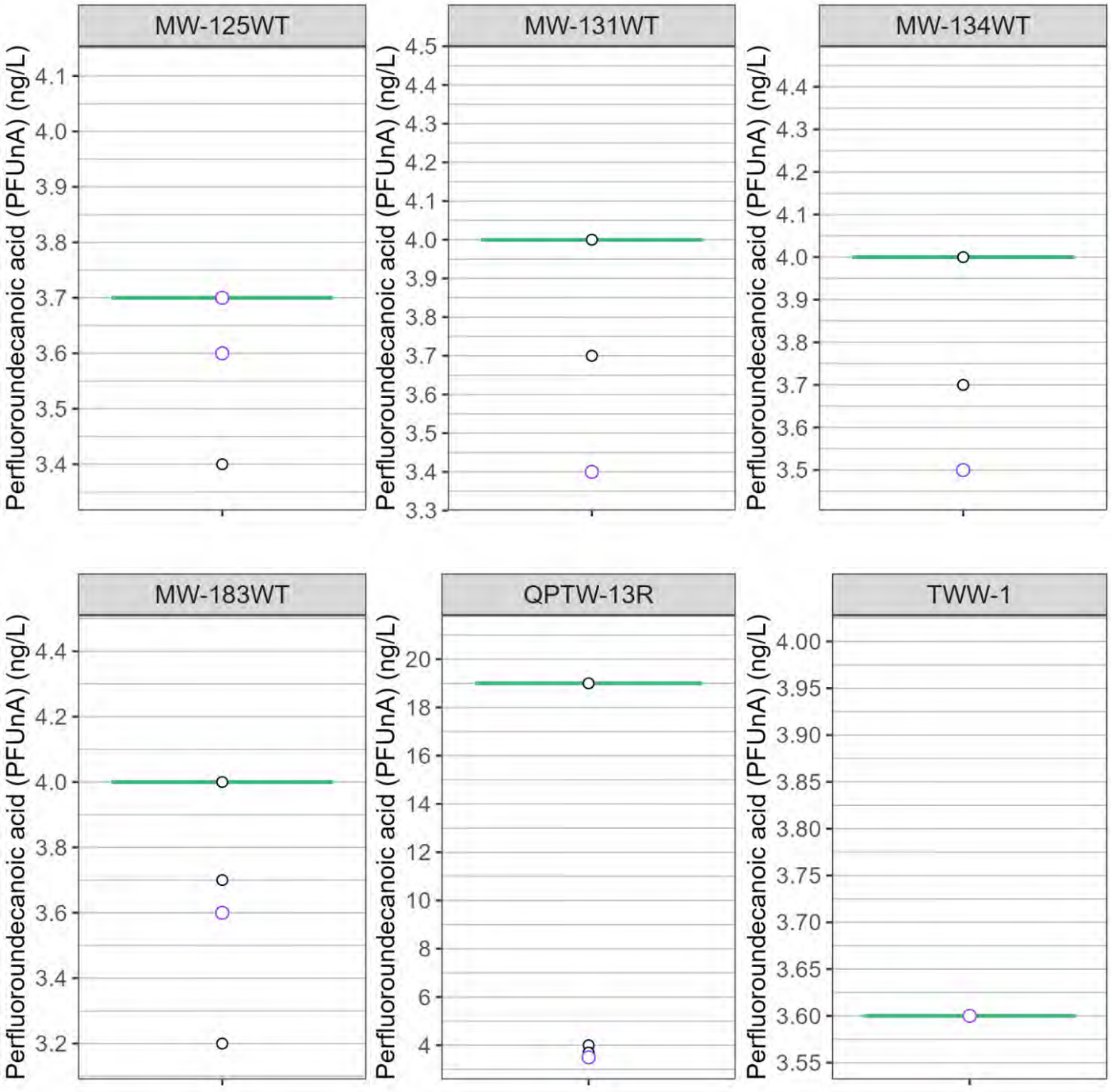
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROUNDECANOIC ACID (PFUNA)

ARCADIS

FIGURE
6-83



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

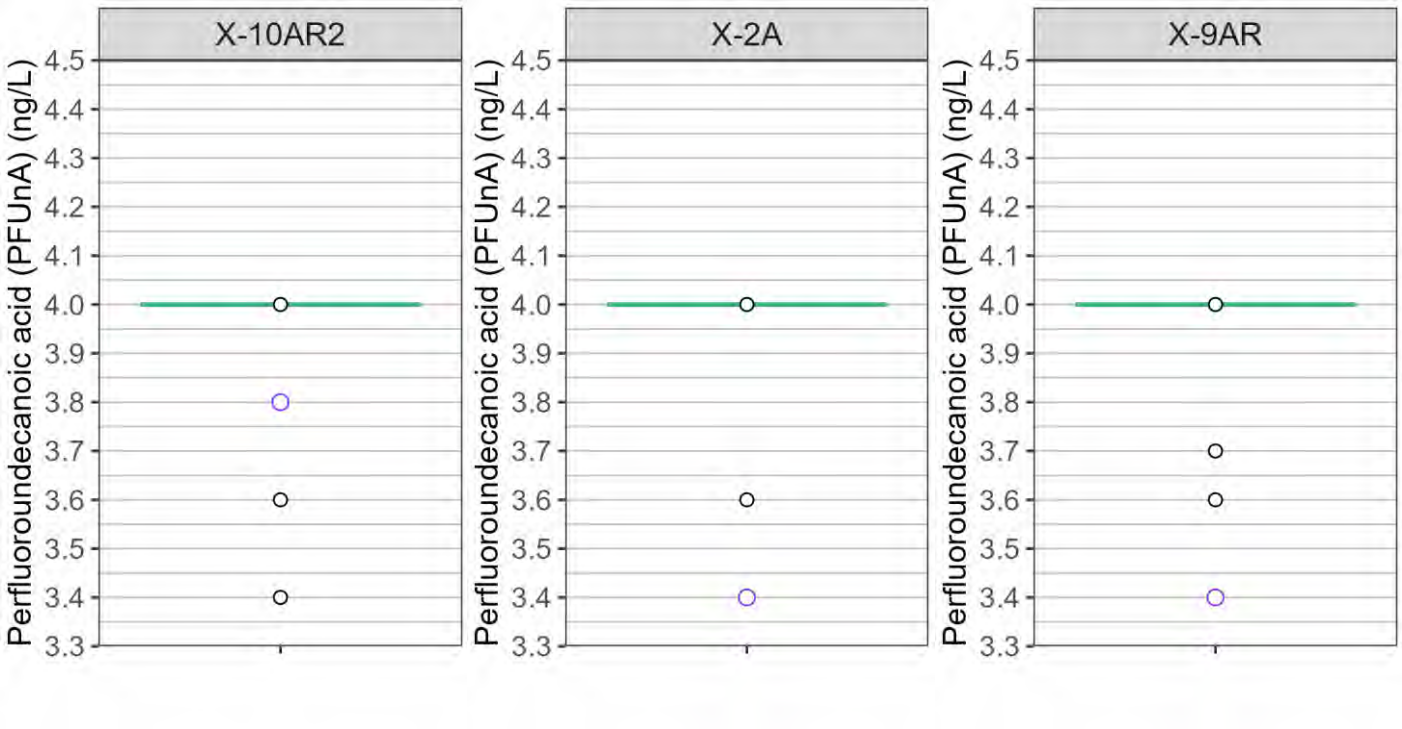
● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROUNDECANOIC ACID (PFUNA)

ARCADIS

FIGURE
6-84



Color Code

Low Flow Result above maximum non-detect detection limit
Low Flow Result above below non-detect detection limit
No Purge Result

Symbol Code

● Detected Result (closed symbol)

○ Non-detect result (open symbol)

PFAS: PERFLUOROUNDECANOIC ACID (PFUNA)

ARCADIS

FIGURE
6-85

Statistical Analysis Summary Table
RACER Saginaw Malleable, Saginaw, Michigan

Analyte Group	Analyte	Units	Well ID	Pre-2023 Low Flow Data Result				Dataset for Prediction Interval Assessment				2023 No Purge Result	Notes	Percent Difference between Low Flow Mean and No Purge Result
				FOD	Range	Mean	Elevated Non-detects (n)	FOD	Range	Interval	Interval Method			
Anions	Ammonia	mg/L	MW-107S1	11/11 (100%)	1.20 - 1.80	1.43	--	11/11 (100%)	1.20 - 1.80	1.06 - 1.90	Parametric (Log-transform)	1.50	No purge result within range of 2011 to 2022 prediction interval.	4.97
Anions	Ammonia	mg/L	MW-107WT	10/11 (90.9%)	<0.200 - 1.40	0.679	--	10/11 (90.9%)	<0.200 - 1.40	0 - 1.82	Parametric (Untransform)	0.190	No purge result within range of 2012 to 2022 prediction interval.	113
Anions	Ammonia	mg/L	MW-108S2	12/12 (100%)	4.60 - 8.80	5.82	--	12/12 (100%)	4.60 - 8.80	3.64 - 8.94	Parametric (Log-transform)	5.20	No purge result within range of 2011 to 2022 prediction interval.	11.2
Anions	Ammonia	mg/L	MW-108WT	5/6 (83.3%)	<0.200 - 1.20	--	--	--	--	--	Prediction interval not estimated due to sample size.	0.350	No purge result within range of 2016 to 2021 results.	--
Anions	Ammonia	mg/L	MW-110WTR	3/9 (33.3%)	<0.200 - 0.130	--	--	--	--	--	Prediction interval not estimated due to sample size.	0.180	No purge result greater than range of 2014 to 2022 results.	--
Anions	Ammonia	mg/L	MW-111WT	11/11 (100%)	1.10 - 5.00	2.00	--	11/11 (100%)	1.10 - 5.00	0.683 - 4.84	Parametric (Log-transform)	3.20	No purge result within range of 2012 to 2022 prediction interval.	46.2
Anions	Ammonia	mg/L	MW-114S2	12/12 (100%)	1.50 - 5.00	2.71	--	12/12 (100%)	1.50 - 5.00	1.24 - 5.35	Parametric (Log-transform)	1.90	No purge result within range of 2011 to 2022 prediction interval.	35.1
Anions	Ammonia	mg/L	MW-114WT	5/10 (50%)	<0.200 - 0.570	0.220	--	5/10 (50%)	<0.200 - 0.570	0.0201 - 1.28	Parametric (Log-transform)	1.00	No purge result within range of 2013 to 2022 prediction interval.	128
Anions	Ammonia	mg/L	MW-117S1	11/11 (100%)	4.50 - 10.0	7.54	--	11/11 (100%)	4.50 - 10.0	4.30 - 10.8	Parametric (Untransform)	5.20	No purge result within range of 2011 to 2022 prediction interval.	36.7
Anions	Ammonia	mg/L	MW-117WT	9/9 (100%)	3.00 - 86.0	65.1	--	9/9 (100%)	3.00 - 86.0	3.00 - 86.0	Nonparametric	35.2	No purge result within range of 2011 to 2022 prediction interval.	59.6
Anions	Ammonia	mg/L	MW-118S1	9/9 (100%)	2.10 - 9.90	6.53	--	9/9 (100%)	2.10 - 9.90	0.873 - 12.2	Parametric (Untransform)	2.90	No purge result within range of 2011 to 2022 prediction interval.	77
Anions	Ammonia	mg/L	MW-118WT	9/9 (100%)	15.0 - 38.0	29.3	--	9/9 (100%)	15.0 - 38.0	10.8 - 47.9	Parametric (Untransform)	15.6	No purge result within range of 2011 to 2022 prediction interval.	61.1
Anions	Ammonia	mg/L	MW-149WT	12/12 (100%)	0.920 - 5.00	2.64	--	12/12 (100%)	0.920 - 5.00	0.521 - 9.51	Parametric (Log-transform)	2.10	No purge result within range of 2011 to 2022 prediction interval.	22.8
Anions	Ammonia	mg/L	MW-183WT	10/12 (83.3%)	<0.200 - 1.10	0.377	--	10/12 (83.3%)	<0.200 - 1.10	0.0270 - 2.26	Parametric (Log-transform)	<0.100	Indeterminate - no purge non-detect detection limit within range of 2011 to 2022 prediction interval.	--
Anions	Ammonia	mg/L	MW-185WT	10/10 (100%)	0.0960 - 0.400	0.193	--	10/10 (100%)	0.0960 - 0.400	0.0525 - 0.559	Parametric (Log-transform)	0.640	No purge result greater than 2012 to 2022 prediction interval.	107
Anions	Ammonia	mg/L	MW-186WT	12/12 (100%)	1.20 - 2.10	1.62	--	12/12 (100%)	1.20 - 2.10	0.994 - 2.56	Parametric (Log-transform)	1.10	No purge result within range of 2011 to 2022 prediction interval.	38.5
Anions	Ammonia	mg/L	X-4AR	0/2 (0%)	<0.200 - <0.200	--	--	--	--	--	Prediction interval not estimated due to sample size.	0.120	No purge result greater than range of 2020 to 2022 results.	--
Anions	Ammonia	mg/L	X-4CAUGR	12/12 (100%)	0.250 - 2.90	1.16	--	12/12 (100%)	0.250 - 2.90	0.118 - 6.17	Parametric (Log-transform)	0.310	No purge result within range of 2011 to 2022 prediction interval.	116
Anions	Ammonia	mg/L	X-4D	11/12 (91.7%)	<0.200 - 9.70	6.96	--	11/12 (91.7%)	<0.200 - 9.70	2.57 - 11.3	Parametric (Untransform)	6.80	No purge result within range of 2011 to 2022 prediction interval.	2.29
Anions	Ammonia	mg/L	X-9AR	12/12 (100%)	0.0940 - 6.20	1.82	--	12/12 (100%)	0.0940 - 6.20	0.0189 - 24.4	Parametric (Log-transform)	0.190	No purge result within range of 2011 to 2022 prediction interval.	162
Anions	Ammonia	mg/L	X-9BR	12/12 (100%)	1.10 - 12.0	7.19	--	12/12 (100%)	1.10 - 12.0	0 - 15.2	Parametric (Untransform)	11.1	No purge result within range of 2011 to 2022 prediction interval.	42.7
Anions	Ammonia	mg/L	X-9CAUG	12/12 (100%)	0.120 - 7.80	2.23	--	12/12 (100%)	0.120 - 7.80	0.101 - 19.0	Parametric (Log-transform)	2.10	No purge result within range of 2011 to 2022 prediction interval.	6.12
Anions	Ammonia	mg/L	X-9D	12/12 (100%)	0.160 - 8.60	5.98	--	12/12 (100%)	0.160 - 8.60	0.160 - 8.60	Nonparametric	5.70	No purge result within range of 2011 to 2022 prediction interval.	4.79
Anions	Chloride	mg/L	MW-117S1	11/11 (100%)	110 - 270	233	--	11/11 (100%)	110 - 270	110 - 270	Nonparametric	169	No purge result within range of 2011 to 2022 prediction interval.	31.7
Anions	Chloride	mg/L	MW-117WT	9/9 (100%)	3,200 - 4,700	3,980	--	9/9 (100%)	3,200 - 4,700	2,810 - 5,540	Parametric (Log-transform)	3,640	No purge result within range of 2011 to 2022 prediction interval.	8.87
Anions	Chloride	mg/L	MW-118S1	9/9 (100%)	120 - 320	267	--	9/9 (100%)	120 - 320	120 - 320	Nonparametric	153	No purge result within range of 2011 to 2022 prediction interval.	54.2
Anions	Chloride	mg/L	MW-118WT	9/9 (100%)	230 - 730	337	--	9/9 (100%)	230 - 730	230 - 730	Nonparametric	388	No purge result within range of 2011 to 2022 prediction interval.	14.2
Anions	Chloride	mg/L	MW-183WT	12/12 (100%)	15.0 - 63.0	28.1	--	12/12 (100%)	15.0 - 63.0	10.3 - 65.3	Parametric (Log-transform)	16.2	No purge result within range of 2011 to 2022 prediction interval.	53.7
Anions	Chloride	mg/L	X-4AR	2/2 (100%)	17.0 - 17.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	12.8	No purge result less than range of 2020 to 2022 results.	--
Anions	Chloride	mg/L	X-4CAUGR	12/12 (100%)	6.50 - 170	63.2	--	12/12 (100%)	6.50 - 170	3.88 - 432	Parametric (Log-transform)	13.9	No purge result within range of 2011 to 2022 prediction interval.	128
Anions	Chloride	mg/L	X-4D	12/12 (100%)	760 - 1,500	1,280	--	12/12 (100%)	760 - 1,500	760 - 1,500	Nonparametric	1,190	No purge result within range of 2011 to 2022 prediction interval.	7.22
Anions	Chloride	mg/L	X-9AR	12/12 (100%)	13.0 - 180	61.9	--	12/12 (100%)	13.0 - 180	13.0 - 180	Nonparametric	8.90	No purge result less than 2011 to 2022 prediction interval.	150
Anions	Chloride	mg/L	X-9BR	12/12 (100%)	62.0 - 290	204	--	12/12 (100%)	62.0 - 290	62.0 - 290	Nonparametric	253	No purge result within range of 2011 to 2022 prediction interval.	21.3
Anions	Chloride	mg/L	X-9CAUG	12/12 (100%)	12.0 - 240	71.7	--	12/12 (100%)	12.0 - 240	4.42 - 424	Parametric (Log-transform)	63.9	No purge result within range of 2011 to 2022 prediction interval.	11.5
Anions	Chloride	mg/L	X-9D	12/12 (100%)	260 - 1,500	1,210	--	12/12 (100%)	260 - 1,500	260 - 1,500	Nonparametric	1,130	No purge result within range of 2011 to 2022 prediction interval.	7.11
Anions	Nitrate (as N)	mg/L	MW-117S1	1/8 (12.5%)	<0.100 - 1.30	--	--	--	--	--	Prediction interval not estimated due to sample size.	0.0650	No purge result within range of 2011 to 2022 results.	--
Anions	Nitrate (as N)	mg/L	MW-117WT	1/8 (12.5%)	<0.100 - 0.630	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0500	Indeterminate - no purge non-detect detection limit within range of 2011 to 2022 results.	--
Anions	Nitrate (as N)	mg/L	MW-118S1	0/7 (0%)	<0.100 - <0.500	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0500	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
Anions	Nitrate (as N)	mg/L	MW-118WT	1/7 (14.3%)	<0.100 - 0.0850	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0500	Indeterminate - no purge non-detect detection limit within range of 2011 to 2022 results.	--
Anions	Nitrate (as N)	mg/L	MW-183WT	0/8 (0%)	<0.100 - <0.500	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0500	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
Anions	Nitrate (as N)	mg/L	X-4AR	2/2 (100%)	1.50 - 3.20	--	--	--	--	--	Prediction interval not estimated due to sample size.	2.60	No purge result within range of 2020 to 2022 results.	--
Anions	Nitrate (as N)	mg/L	X-4CAUGR	1/8 (12.5%)	<0.100 - 0.0310	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0500	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Anions	Nitrate (as N)	mg/L	X-4D	1/8 (12.5%)	<0.100 - 1.80	--	--	--	--	--	Prediction interval not estimated due to sample size.	0.0910	No purge result within range of 2011 to 2022 results.	--
Anions	Nitrate (as N)	mg/L	X-9AR	0/8 (0%)	<0.100 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0500	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
Anions	Nitrate (as N)	mg/L	X-9BR	0/8 (0%)	<0.100 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0500	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
Anions	Nitrate (as N)	mg/L	X-9CAUG	1/8 (12.5%)	<0.100 - 0.0540	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0500	Indeterminate - no purge non-detect detection limit within range of 2011 to 2022 results.	--
Anions	Nitrate (as N)	mg/L	X-9D	1/8 (12.5%)	<0.100 - 0.230	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0500	Indeterminate - no purge non-detect detection limit within range of 2011 to 2022 results.	--
Anions	Nitrite (as N)	mg/L	MW-117S1	1/8 (12.5%)	<0.100 - 0.0710	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0500	Indeterminate - no purge non-detect detection limit within range of 2011 to 2022 results.	--
Anions	Nitrite (as N)	mg/L	MW-117WT	0/8 (0%)	<0.500 - <5.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.500	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
Anions	Nitrite (as N)	mg/L	MW-118S1	1/7 (14.3%)	<0.100 - 0.240	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0500	Indeterminate - no purge non-detect detection limit within range of 2011 to 2022 results.	--
Anions	Nitrite (as N)	mg/L	MW-118WT	2/7 (28.6%)	<0.100 - 0.170	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0500	Indeterminate - no purge non-detect detection limit within range of 2011 to 2022 results.	--
Anions	Nitrite (as N)	mg/L	MW-183WT	0/8 (0%)	<0.100 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0500	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
Anions	Nitrite (as N)	mg/L	X-4AR	0/2 (0%)	<0.100 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0500	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
Anions	Nitrite (as N)	mg/L	X-4CAUGR	0/8 (0%)	<0.100 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0500	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
Anions	Nitrite (as N)	mg/L	X-4D	0/8 (0%)	<0.100 - <2.50	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0500	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
Anions	Nitrite (as N)	mg/L	X-9AR	1/8 (12.5%)	<0.100 - 0.0180	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0500	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Anions	Nitrite (as N)	mg/L	X-9BR	1/8 (12.5%)	<0.100 - 0.0190	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0500	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Anions	Nitrite (as N)	mg/L	X-9CAUG	1/8 (12.5%)	<0.100 - 0.0220	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0500	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Anions	Nitrite (as N)	mg/L	X-9D	0/8 (0%)	<0.100 - <1.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.500	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
Anions	Phosphorus	mg/L	MW-107WT	3/11 (27.3%)	<0.100 - 0.250	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.70	No purge result greater than range of 2012 to 2022 results.	--
Anions	Phosphorus	mg/L	MW-108WT	0/6 (0%)	<0.100 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.20	No purge result greater than range of 2016 to 2021 results.	--
Anions	Phosphorus	mg/L	MW-110WTR	9/9 (100%)	0.120 - 0.470	0.270	--	9/9 (100%)	0.120 - 0.470	0.0940 - 0.674	Parametric (Log-transform)	0.630	No purge result within range of 2014 to 2022 prediction interval.	80
Anions	Phosphorus	mg/L	MW-111WT	11/11 (100%)	0.0870 - 1.00	0.698	--	11/11 (100%)	0.0870 - 1.00	0.0870 - 1.00	Nonparametric	4.00	No purge result greater than 2012 to 2022 prediction interval.	141
Anions	Phosphorus	mg/L	MW-114WT	6/10 (60%)	<0.100 - 0.280	0.163	--	6/10 (60%)	<0.100 - 0.280	0 - 0.335	Parametric (Untransform)	0.920	No purge result greater than 2013 to 2022 prediction interval.	140
Anions	Phosphorus	mg/L	MW-149WT	12/12 (100%)	0.620 - 2.00	1.20	--	12/12 (100%)	0.620 - 2.00	0.478 - 2.67	Parametric (Log-transform)	3.60	No purge result greater than 2011 to 2022 prediction interval.	99.7
Anions	Phosphorus	mg/L	MW-185WT	2/10 (20%)	<0.100 - 0.0870	--	--	--	--	--	Prediction interval not estimated due to sample size.	3.90	No purge result greater than range of 2012 to 2022 results.	--
Anions	Phosphorus	mg/L	MW-186WT	12/12 (100%)	0.170 - 0.490	0.345	--	12/12 (100%)	0.170 - 0.490	0.114 - 0.576	Parametric (Untransform)	17.7	No purge result greater than 2011 to 2022 prediction interval.	192
Anions	Sulfate	mg/L	MW-117S1	4/11 (36.4%)	<1.00 - 23.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	2.60	No purge result within range of 2011 to 2022 results.	--

Statistical Analysis Summary Table
RACER Saginaw Malleable, Saginaw, Michigan

Analyte Group	Analyte	Units	Well ID	Pre-2023 Low Flow Data Result				Dataset for Prediction Interval Assessment				2023 No Purge Result	Notes	Percent Difference between Low Flow Mean and No Purge Result
				FOD	Range	Mean	Elevated Non-detects (n)	FOD	Range	Interval	Interval Method			
Anions	Sulfate	mg/L	MW-117WT	6/9 (66.7%)	<10.0 - 5.10	1.24	<10.0 - <100 (3)	6/6 (100%)	0.250 - 5.10	--	Prediction interval not estimated due to sample size after removal of elevated NDs.	0.330	No purge result within range of 2011 to 2022 results.	116
Anions	Sulfate	mg/L	MW-118S1	2/9 (22.2%)	<1.00 - 3.20	--	--	--	--	--	Prediction interval not estimated due to sample size.	0.280	No purge result within range of 2011 to 2022 results.	--
Anions	Sulfate	mg/L	MW-118WT	8/9 (88.9%)	<1.00 - 19.0	8.36	--	8/9 (88.9%)	<1.00 - 19.0	0 - 26.3	Parametric (Untransform)	0.300	No purge result within range of 2011 to 2022 prediction interval.	186
Anions	Sulfate	mg/L	MW-183WT	10/12 (83.3%)	<1.00 - 200	26.3	--	10/12 (83.3%)	<1.00 - 200	0.0391 - 311	Parametric (Log-transform)	1.10	No purge result within range of 2011 to 2022 prediction interval.	184
Anions	Sulfate	mg/L	X-4AR	2/2 (100%)	1.00 - 1.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.20	No purge result greater than range of 2020 to 2022 results.	--
Anions	Sulfate	mg/L	X-4CAUGR	4/12 (33.3%)	<1.00 - 18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	0.650	No purge result within range of 2011 to 2022 results.	--
Anions	Sulfate	mg/L	X-4D	12/12 (100%)	88.0 - 210	167	--	12/12 (100%)	88.0 - 210	88.0 - 210	Nonparametric	172	No purge result within range of 2011 to 2022 prediction interval.	2.75
Anions	Sulfate	mg/L	X-9AR	6/12 (50%)	<1.00 - 13.0	2.64	--	6/12 (50%)	<1.00 - 13.0	0.0237 - 35.9	Parametric (Log-transform)	4.10	No purge result within range of 2011 to 2022 prediction interval.	43.3
Anions	Sulfate	mg/L	X-9BR	6/12 (50%)	<1.00 - 23.0	3.98	--	6/12 (50%)	<1.00 - 23.0	0.0629 - 41.4	Parametric (Log-transform)	0.460	No purge result within range of 2011 to 2022 prediction interval.	159
Anions	Sulfate	mg/L	X-9CAUG	6/12 (50%)	<1.00 - 1.10	0.560	--	6/12 (50%)	<1.00 - 1.10	0.155 - 1.62	Parametric (Log-transform)	0.270	No purge result within range of 2011 to 2022 prediction interval.	70
Anions	Sulfate	mg/L	X-9D	12/12 (100%)	50.0 - 250	212	--	12/12 (100%)	50.0 - 250	50.0 - 250	Nonparametric	263	No purge result greater than 2011 to 2022 prediction interval.	21.6
Cyanide	Cyanide (dissolved)	mg/L	MW-117S1	0/8 (0%)	<0.0100 - <0.0100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
Cyanide	Cyanide (dissolved)	mg/L	MW-117WT	0/6 (0%)	<0.0100 - <0.0100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
Cyanide	Cyanide (dissolved)	mg/L	MW-118S1	0/6 (0%)	<0.0100 - <0.0100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
Cyanide	Cyanide (dissolved)	mg/L	MW-118WT	1/6 (16.7%)	<0.0100 - 0.00580	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge non-detect detection limit within range of 2014 to 2022 results.	--
Cyanide	Cyanide (dissolved)	mg/L	MW-183WT	0/9 (0%)	<0.0100 - <0.0100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
Cyanide	Cyanide (dissolved)	mg/L	X-4CAUGR	0/9 (0%)	<0.0100 - <0.0100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
Cyanide	Cyanide (dissolved)	mg/L	X-4D	0/9 (0%)	<0.0100 - <0.0100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00600	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
Cyanide	Cyanide (dissolved)	mg/L	X-9AR	0/9 (0%)	<0.0100 - <0.0100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
Cyanide	Cyanide (dissolved)	mg/L	X-9BR	0/9 (0%)	<0.0100 - <0.0100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
Cyanide	Cyanide (dissolved)	mg/L	X-9CAUG	0/9 (0%)	<0.0100 - <0.0100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
Cyanide	Cyanide (dissolved)	mg/L	X-9D	1/9 (11.1%)	<0.0100 - 0.00660	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge non-detect detection limit within range of 2014 to 2022 results.	--
Cyanide	Cyanide (total)	mg/L	MW-117S1	0/11 (0%)	<0.0100 - <0.0100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
Cyanide	Cyanide (total)	mg/L	MW-117WT	0/9 (0%)	<0.0100 - <0.0100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
Cyanide	Cyanide (total)	mg/L	MW-118S1	1/9 (11.1%)	<0.0100 - 0.0110	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge non-detect detection limit within range of 2011 to 2022 results.	--
Cyanide	Cyanide (total)	mg/L	MW-118WT	1/9 (11.1%)	<0.0100 - 0.00640	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge non-detect detection limit within range of 2011 to 2022 results.	--
Cyanide	Cyanide (total)	mg/L	MW-183WT	0/11 (0%)	<0.0100 - <0.0100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
Cyanide	Cyanide (total)	mg/L	X-4AR	0/2 (0%)	<0.0100 - <0.0100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
Cyanide	Cyanide (total)	mg/L	X-4CAUGR	1/12 (8.33%)	<0.0100 - 0.00660	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge non-detect detection limit within range of 2011 to 2022 results.	--
Cyanide	Cyanide (total)	mg/L	X-4D	1/12 (8.33%)	<0.0100 - 0.00720	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge non-detect detection limit within range of 2011 to 2022 results.	--
Cyanide	Cyanide (total)	mg/L	X-9AR	0/12 (0%)	<0.0100 - <0.0100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
Cyanide	Cyanide (total)	mg/L	X-9BR	0/11 (0%)	<0.0100 - <0.0100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
Cyanide	Cyanide (total)	mg/L	X-9CAUG	0/12 (0%)	<0.0100 - <0.0100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
Cyanide	Cyanide (total)	mg/L	X-9D	0/12 (0%)	<0.0100 - <0.0100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.00500	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
GENCHEM	Total dissolved solids (TDS)	mg/L	MW-117S1	11/11 (100%)	530 - 1,100	874	--	11/11 (100%)	530 - 1,100	530 - 1,220	Parametric (Untransform)	814	No purge result within range of 2011 to 2022 prediction interval.	7.07
GENCHEM	Total dissolved solids (TDS)	mg/L	MW-117WT	9/9 (100%)	4,600 - 9,900	6,970	--	9/9 (100%)	4,600 - 9,900	3,090 - 14,400	Parametric (Log-transform)	6,340	No purge result within range of 2011 to 2022 prediction interval.	9.42
GENCHEM	Total dissolved solids (TDS)	mg/L	MW-118S1	9/9 (100%)	440 - 1,000	887	--	9/9 (100%)	440 - 1,000	440 - 1,000	Nonparametric	441	No purge result within range of 2011 to 2022 prediction interval.	67.1
GENCHEM	Total dissolved solids (TDS)	mg/L	MW-118WT	9/9 (100%)	900 - 2,300	1,200	--	9/9 (100%)	900 - 2,300	900 - 2,300	Nonparametric	1,370	No purge result within range of 2011 to 2022 prediction interval.	13.5
GENCHEM	Total dissolved solids (TDS)	mg/L	MW-183WT	12/12 (100%)	330 - 600	422	--	12/12 (100%)	330 - 600	330 - 600	Nonparametric	344	No purge result within range of 2011 to 2022 prediction interval.	20.3
GENCHEM	Total dissolved solids (TDS)	mg/L	X-4AR	2/2 (100%)	200 - 310	--	--	--	--	--	Prediction interval not estimated due to sample size.	339	No purge result greater than range of 2020 to 2022 results.	--
GENCHEM	Total dissolved solids (TDS)	mg/L	X-4CAUGR	12/12 (100%)	280 - 700	479	--	12/12 (100%)	280 - 700	141 - 818	Parametric (Untransform)	381	No purge result within range of 2011 to 2022 prediction interval.	22.8
GENCHEM	Total dissolved solids (TDS)	mg/L	X-4D	12/12 (100%)	830 - 2,800	2,220	--	12/12 (100%)	830 - 2,800	830 - 2,800	Nonparametric	2,630	No purge result within range of 2011 to 2022 prediction interval.	16.9
GENCHEM	Total dissolved solids (TDS)	mg/L	X-9AR	12/12 (100%)	360 - 820	571	--	12/12 (100%)	360 - 820	278 - 1,080	Parametric (Log-transform)	515	No purge result within range of 2011 to 2022 prediction interval.	10.3
GENCHEM	Total dissolved solids (TDS)	mg/L	X-9BR	12/12 (100%)	290 - 1,000	798	--	12/12 (100%)	290 - 1,000	290 - 1,000	Nonparametric	920	No purge result within range of 2011 to 2022 prediction interval.	14.3
GENCHEM	Total dissolved solids (TDS)	mg/L	X-9CAUG	12/12 (100%)	470 - 830	621	--	12/12 (100%)	470 - 830	408 - 918	Parametric (Log-transform)	633	No purge result within range of 2011 to 2022 prediction interval.	1.94
GENCHEM	Total dissolved solids (TDS)	mg/L	X-9D	12/12 (100%)	620 - 2,800	2,310	--	12/12 (100%)	620 - 2,800	620 - 2,800	Nonparametric	2,560	No purge result within range of 2011 to 2022 prediction interval.	10.3
Metals	Arsenic	ug/L	MW-107WT	8/10 (80%)	<2.00 - 22.0	6.73	--	8/10 (80%)	<2.00 - 22.0	0.477 - 44.6	Parametric (Log-transform)	52.0	No purge result greater than 2012 to 2022 prediction interval.	154
Metals	Arsenic	ug/L	MW-117S1	0/3 (0%)	<10.0 - <10.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<5.00	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
Metals	Arsenic	ug/L	MW-117WT	2/3 (66.7%)	<10.0 - 6.50	--	--	--	--	--	Prediction interval not estimated due to sample size.	15.4	No purge result greater than range of 2020 to 2022 results.	--
Metals	Arsenic	ug/L	MW-118S1	2/3 (66.7%)	<10.0 - 4.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<5.00	Indeterminate - no purge non-detect detection limit greater than range of 2014 to 2022 results.	--
Metals	Arsenic	ug/L	MW-118WT	1/2 (50%)	<10.0 - 11.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	13.7	No purge result greater than range of 2021 to 2022 results.	--
Metals	Arsenic	ug/L	MW-149WT	12/12 (100%)	30.0 - 190	79.6	--	12/12 (100%)	30.0 - 190	17.6 - 256	Parametric (Log-transform)	178	No purge result within range of 2011 to 2022 prediction interval.	76.4
Metals	Arsenic	ug/L	MW-183WT	12/12 (100%)	1.00 - 13.0	5.49	--	12/12 (100%)	1.00 - 13.0	0.614 - 28.2	Parametric (Log-transform)	26.4	No purge result within range of 2011 to 2022 prediction interval.	131
Metals	Arsenic	ug/L	X-4AR	0/2 (0%)	<10.0 - <10.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	23.0	No purge result greater than range of 2020 to 2022 results.	--
Metals	Arsenic	ug/L	X-4CAUGR	8/12 (66.7%)	<2.00 - 7.20	2.31	<10.0 - <10.0 (3)	8/9 (88.9%)	<2.00 - 7.20	0.146 - 17.1	Parametric (Log-transform)	<5.00	Indeterminate - no purge non-detect detection limit within range of 2011 to 2020 prediction interval.	--
Metals	Arsenic	ug/L	X-4D	7/12 (58.3%)	<2.00 - 6.30	1.48	<10.0 - <10.0 (3)	7/9 (77.8%)	<2.00 - 6.30	0.490 - 6.30	Nonparametric	<5.00	Indeterminate - no purge non-detect detection limit within range of 2011 to 2020 prediction interval.	--
Metals	Arsenic	ug/L	X-9AR	11/12 (91.7%)	<10.0 - 23.0	5.36	--	11/12 (91.7%)	<10.0 - 23.0	0.0848 - 60.8	Parametric (Log-transform)	117	No purge result greater than 2011 to 2022 prediction interval.	182
Metals	Arsenic	ug/L	X-9BR	7/12 (58.3%)	<10.0 - 6.20	2.10	<10.0 - <10.0 (5)	7/7 (100%)	0.650 - 6.20	--	Prediction interval not estimated due to sample size after removal of elev	5.10	No purge result within range of 2011 to 2022 results.	83.3
Metals	Arsenic	ug/L	X-9CAUG	6/12 (50%)	<2.00 - 1.90	1.42	<2.00 - <10.0 (6)	6/6 (100%)	0.970 - 1.90	--	Prediction interval not estimated due to sample size after removal of elev	<5.00	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Arsenic	ug/L	X-9D	11/12 (91.7%)	<10.0 - 38.0	10.2	--	11/12 (91.7%)	<10.0 - 38.0	0.229 - 116	Parametric (Log-transform)	<5.00	Indeterminate - no purge non-detect detection limit within range of 2011 to 2022 prediction interval.	--
Metals	Arsenic (dissolved)	ug/L	MW-107WT	2/3 (66.7%)	<5.00 - 9.20	--	--	--	--	--	Prediction interval not estimated due to sample size.	<5.00	Indeterminate - no purge non-detect detection limit within range of 2020 to 2022 results.	--
Metals	Arsenic (dissolved)	ug/L	MW-117S1	7/11 (63.6%)	<10.0 - 4.60	2.58	<10.0 - <10.0 (4)	7/7 (100%)	1.60 - 4.60	--	Prediction interval not estimated due to sample size after removal of elev	<5.00	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Arsenic (dissolved)	ug/L	MW-117WT	8/9 (88.9%)	<10.0 - 4.80	3.17	<10.0 (1)	8/8 (100%)	1.40 - 4.80	--	Prediction interval not estimated due to sample size after removal of elev	<5.00	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Arsenic (dissolved)	ug/L	MW-118S1	8/10 (80%)	<10.0 - 18.0	3.27	--	8/10 (80%)	<10.0 - 18.0	0.152 - 20.1	Parametric (Log-transform)	<5.00	Indeterminate - no purge non-detect detection limit within range of 2011 to 2022 prediction interval.	--
Metals	Arsenic (dissolved)	ug/L	MW-118WT	7/9 (77.8%)	<2.00 - 10.0	1.84	--	7/9 (77.8%)	<2.00 - 10.0	0.370 - 10.0	Nonparametric	12.8	No purge result greater than 2011 to 2022 prediction interval.	150
Metals	Arsenic (dissolved)	ug/L	MW-149WT	3/3 (100%)	8.70 - 9.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	37.0	No purge result greater than range of 2020 to 2022 results.	--
Metals	Arsenic (dissolved)	ug/L	MW-183WT	12/12 (100%)	1.40 - 11.0	5.00	--	12/12 (100%)	1.40 - 11.0	0.794 - 20.6	Parametric (Log-transform)	6.10	No purge result within range of 2011 to 2022 prediction interval.	19.8
Metals	Arsenic (dissolved)	ug/L	X-4AR	0/1 (0%)	<10.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<5.00	Indeterminate - no purge and 2020 results are non-detect.	--

Statistical Analysis Summary Table
RACER Saginaw Malleable, Saginaw, Michigan

				Pre-2023 Low Flow Data Result				Dataset for Prediction Interval Assessment						
Analyte Group	Analyte	Units	Well ID	FOD	Range	Mean	Elevated Non-detects (n)	FOD	Range	Interval	Interval Method	2023 No Purge Result	Notes	Percent Difference between Low Flow Mean and No Purge Result
Metals	Arsenic (dissolved)	ug/L	X-4CAUGR	8/12 (66.7%)	<2.00 - 6.90	1.98	<10.0 - <10.0 (3)	8/9 (88.9%)	<2.00 - 6.90	0.124 - 15.0	Parametric (Log-transform)	<5.00	Indeterminate - no purge non-detect detection limit within range of 2011 to 2020 prediction interval.	--
Metals	Arsenic (dissolved)	ug/L	X-4D	7/12 (58.3%)	<2.00 - 5.80	1.37	<10.0 - <10.0 (3)	7/9 (77.8%)	<2.00 - 5.80	0.530 - 5.80	Nonparametric	<5.00	Indeterminate - no purge non-detect detection limit within range of 2011 to 2020 prediction interval.	--
Metals	Arsenic (dissolved)	ug/L	X-9AR	8/12 (66.7%)	<2.00 - 24.0	5.55	--	8/12 (66.7%)	<2.00 - 24.0	0.150 - 49.9	Parametric (Log-transform)	19.8	No purge result within range of 2011 to 2022 prediction interval.	112
Metals	Arsenic (dissolved)	ug/L	X-9BR	8/12 (66.7%)	<10.0 - 6.60	2.46	<10.0 - <10.0 (4)	8/8 (100%)	0.630 - 6.60	--	Prediction interval not estimated due to sample size after removal of elev	<5.00	Indeterminate - no purge non-detect detection limit within range of 2011 to 2022 results.	--
Metals	Arsenic (dissolved)	ug/L	X-9CAUG	6/12 (50%)	<2.00 - 1.80	1.31	<2.00 - <10.0 (6)	6/6 (100%)	1.00 - 1.80	--	Prediction interval not estimated due to sample size after removal of elev	<5.00	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Arsenic (dissolved)	ug/L	X-9D	8/12 (66.7%)	<10.0 - 22.0	6.95	--	8/12 (66.7%)	<10.0 - 22.0	0.128 - 80.0	Parametric (Log-transform)	<5.00	Indeterminate - no purge non-detect detection limit within range of 2011 to 2022 prediction interval.	--
Metals	Barium	ug/L	MW-117S1	3/3 (100%)	1,500 - 1,800	--	--	--	--	--	Prediction interval not estimated due to sample size.	910	No purge result less than range of 2020 to 2022 results.	--
Metals	Barium	ug/L	MW-117WT	3/3 (100%)	2,000 - 3,800	--	--	--	--	--	Prediction interval not estimated due to sample size.	1,540	No purge result less than range of 2020 to 2022 results.	--
Metals	Barium	ug/L	MW-118S1	3/3 (100%)	72.0 - 830	--	--	--	--	--	Prediction interval not estimated due to sample size.	99.9	No purge result within range of 2014 to 2022 results.	--
Metals	Barium	ug/L	MW-118WT	2/2 (100%)	330 - 390	--	--	--	--	--	Prediction interval not estimated due to sample size.	354	No purge result within range of 2021 to 2022 results.	--
Metals	Barium	ug/L	MW-183WT	12/12 (100%)	35.0 - 85.0	49.7	--	12/12 (100%)	35.0 - 85.0	24.9 - 91.5	Parametric (Log-transform)	94.1	No purge result greater than 2011 to 2022 prediction interval.	61.8
Metals	Barium	ug/L	X-4AR	2/2 (100%)	14.0 - 25.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	223	No purge result greater than range of 2020 to 2022 results.	--
Metals	Barium	ug/L	X-4CAUGR	12/12 (100%)	52.0 - 140	91.4	--	12/12 (100%)	52.0 - 140	16.5 - 166	Parametric (Untransform)	64.7	No purge result within range of 2011 to 2022 prediction interval.	34.2
Metals	Barium	ug/L	X-4D	12/12 (100%)	28.0 - 100	77.2	--	12/12 (100%)	28.0 - 100	28.0 - 100	Nonparametric	115	No purge result greater than 2011 to 2022 prediction interval.	39.3
Metals	Barium	ug/L	X-9AR	12/12 (100%)	56.0 - 220	111	--	12/12 (100%)	56.0 - 220	56.0 - 220	Nonparametric	757	No purge result greater than 2011 to 2022 prediction interval.	149
Metals	Barium	ug/L	X-9BR	12/12 (100%)	50.0 - 180	129	--	12/12 (100%)	50.0 - 180	50.0 - 180	Nonparametric	265	No purge result greater than 2011 to 2022 prediction interval.	69.1
Metals	Barium	ug/L	X-9CAUG	12/12 (100%)	73.0 - 260	139	--	12/12 (100%)	73.0 - 260	52.1 - 318	Parametric (Log-transform)	263	No purge result within range of 2011 to 2022 prediction interval.	61.8
Metals	Barium	ug/L	X-9D	12/12 (100%)	33.0 - 200	110	--	12/12 (100%)	33.0 - 200	5.07 - 214	Parametric (Untransform)	64.1	No purge result within range of 2011 to 2022 prediction interval.	52.4
Metals	Barium (dissolved)	ug/L	MW-117S1	11/11 (100%)	1,500 - 2,100	1,780	--	11/11 (100%)	1,500 - 2,100	1,330 - 2,230	Parametric (Untransform)	862	No purge result less than 2011 to 2022 prediction interval.	69.6
Metals	Barium (dissolved)	ug/L	MW-117WT	9/9 (100%)	1,600 - 3,500	2,630	--	9/9 (100%)	1,600 - 3,500	1,050 - 4,220	Parametric (Untransform)	1,480	No purge result within range of 2011 to 2022 prediction interval.	56.1
Metals	Barium (dissolved)	ug/L	MW-118S1	10/10 (100%)	47.3 - 970	613	--	10/10 (100%)	47.3 - 970	47.3 - 970	Nonparametric	90.7	No purge result within range of 2011 to 2022 prediction interval.	148
Metals	Barium (dissolved)	ug/L	MW-118WT	9/9 (100%)	300 - 600	378	--	9/9 (100%)	300 - 600	300 - 600	Nonparametric	266	No purge result less than 2011 to 2022 prediction interval.	34.7
Metals	Barium (dissolved)	ug/L	MW-183WT	12/12 (100%)	34.0 - 82.0	49.7	--	12/12 (100%)	34.0 - 82.0	34.0 - 82.0	Nonparametric	38.4	No purge result within range of 2011 to 2022 prediction interval.	25.6
Metals	Barium (dissolved)	ug/L	X-4AR	1/1 (100%)	36.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	23.6	No purge result less than 2020 result.	--
Metals	Barium (dissolved)	ug/L	X-4CAUGR	12/12 (100%)	53.0 - 140	92.5	--	12/12 (100%)	53.0 - 140	12.6 - 172	Parametric (Untransform)	41.5	No purge result within range of 2011 to 2022 prediction interval.	76.1
Metals	Barium (dissolved)	ug/L	X-4D	12/12 (100%)	61.0 - 99.0	85.0	--	12/12 (100%)	61.0 - 99.0	61.0 - 99.0	Nonparametric	73.3	No purge result within range of 2011 to 2022 prediction interval.	14.8
Metals	Barium (dissolved)	ug/L	X-9AR	12/12 (100%)	53.0 - 220	112	--	12/12 (100%)	53.0 - 220	27.9 - 338	Parametric (Log-transform)	105	No purge result within range of 2011 to 2022 prediction interval.	6.23
Metals	Barium (dissolved)	ug/L	X-9BR	12/12 (100%)	53.0 - 180	129	--	12/12 (100%)	53.0 - 180	53.0 - 180	Nonparametric	96.4	No purge result within range of 2011 to 2022 prediction interval.	28.7
Metals	Barium (dissolved)	ug/L	X-9CAUG	12/12 (100%)	69.0 - 250	137	--	12/12 (100%)	69.0 - 250	51.6 - 313	Parametric (Log-transform)	138	No purge result within range of 2011 to 2022 prediction interval.	0.849
Metals	Barium (dissolved)	ug/L	X-9D	12/12 (100%)	30.0 - 160	103	--	12/12 (100%)	30.0 - 160	25.0 - 180	Parametric (Untransform)	62.0	No purge result within range of 2011 to 2022 prediction interval.	49.5
Metals	Iron	ug/L	MW-117S1	3/3 (100%)	7,800 - 8,600	--	--	--	--	--	Prediction interval not estimated due to sample size.	3,560	No purge result less than range of 2020 to 2022 results.	--
Metals	Iron	ug/L	MW-117WT	3/3 (100%)	96,000 - 130,000	--	--	--	--	--	Prediction interval not estimated due to sample size.	83,400	No purge result less than range of 2020 to 2022 results.	--
Metals	Iron	ug/L	MW-118S1	3/3 (100%)	8,700 - 13,000	--	--	--	--	--	Prediction interval not estimated due to sample size.	5,400	No purge result less than range of 2014 to 2022 results.	--
Metals	Iron	ug/L	MW-118WT	2/2 (100%)	12,000 - 19,000	--	--	--	--	--	Prediction interval not estimated due to sample size.	22,400	No purge result greater than range of 2021 to 2022 results.	--
Metals	Iron	ug/L	MW-183WT	12/12 (100%)	2,200 - 6,600	4,180	--	12/12 (100%)	2,200 - 6,600	760 - 7,590	Parametric (Untransform)	19,700	No purge result greater than 2011 to 2022 prediction interval.	130
Metals	Iron	ug/L	X-4AR	1/2 (50%)	<100 - 130	--	--	--	--	--	Prediction interval not estimated due to sample size.	45,300	No purge result greater than range of 2020 to 2022 results.	--
Metals	Iron	ug/L	X-4CAUGR	12/12 (100%)	2,400 - 9,100	4,690	--	12/12 (100%)	2,400 - 9,100	1,650 - 11,300	Parametric (Log-transform)	5,700	No purge result within range of 2011 to 2022 prediction interval.	19.4
Metals	Iron	ug/L	X-4D	11/12 (91.7%)	<50.0 - 1,400	816	--	11/12 (91.7%)	<50.0 - 1,400	0 - 1,910	Parametric (Untransform)	8,920	No purge result greater than 2011 to 2022 prediction interval.	166
Metals	Iron	ug/L	X-9AR	12/12 (100%)	2,100 - 12,000	6,300	--	12/12 (100%)	2,100 - 12,000	0 - 13,000	Parametric (Untransform)	82,300	No purge result greater than 2011 to 2022 prediction interval.	172
Metals	Iron	ug/L	X-9BR	12/12 (100%)	3,700 - 10,000	6,890	--	12/12 (100%)	3,700 - 10,000	1,590 - 12,200	Parametric (Untransform)	22,900	No purge result greater than 2011 to 2022 prediction interval.	107
Metals	Iron	ug/L	X-9CAUG	12/12 (100%)	4,500 - 12,000	7,620	--	12/12 (100%)	4,500 - 12,000	2,660 - 12,600	Parametric (Untransform)	21,200	No purge result greater than 2011 to 2022 prediction interval.	94.3
Metals	Iron	ug/L	X-9D	11/12 (91.7%)	<50.0 - 22,000	4,870	--	11/12 (91.7%)	<50.0 - 22,000	50.0 - 22,000	Nonparametric	3,740	No purge result within range of 2011 to 2022 prediction interval.	26.3
Metals	Iron (dissolved)	ug/L	MW-117S1	11/11 (100%)	3,900 - 12,000	8,440	--	11/11 (100%)	3,900 - 12,000	3,900 - 12,000	Nonparametric	2,260	No purge result less than 2011 to 2022 prediction interval.	115
Metals	Iron (dissolved)	ug/L	MW-117WT	9/9 (100%)	83,000 - 130,000	108,000	--	9/9 (100%)	83,000 - 130,000	74,300 - 155,000	Parametric (Log-transform)	77,900	No purge result within range of 2011 to 2022 prediction interval.	32.7
Metals	Iron (dissolved)	ug/L	MW-118S1	9/10 (90%)	<50.0 - 12,000	7,100	--	9/10 (90%)	<50.0 - 12,000	668 - 13,400	Parametric (Untransform)	4,590	No purge result within range of 2011 to 2022 prediction interval.	42.9
Metals	Iron (dissolved)	ug/L	MW-118WT	9/9 (100%)	7,100 - 18,000	11,500	--	9/9 (100%)	7,100 - 18,000	4,970 - 24,300	Parametric (Log-transform)	16,000	No purge result within range of 2011 to 2022 prediction interval.	32.4
Metals	Iron (dissolved)	ug/L	MW-183WT	12/12 (100%)	2,100 - 5,900	3,940	--	12/12 (100%)	2,100 - 5,900	1,690 - 8,260	Parametric (Log-transform)	3,580	No purge result within range of 2011 to 2022 prediction interval.	9.62
Metals	Iron (dissolved)	ug/L	X-4AR	0/1 (0%)	<100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<100	Indeterminate - no purge and 2020 results are non-detect.	--
Metals	Iron (dissolved)	ug/L	X-4CAUGR	12/12 (100%)	2,300 - 9,000	4,600	--	12/12 (100%)	2,300 - 9,000	1,480 - 11,800	Parametric (Log-transform)	<100	No purge non-detect detection limit less than 2011 to 2022 prediction interval.	--
Metals	Iron (dissolved)	ug/L	X-4D	11/12 (91.7%)	<50.0 - 1,300	926	--	11/12 (91.7%)	<50.0 - 1,300	35.0 - 1,300	Nonparametric	892	No purge result within range of 2011 to 2022 prediction interval.	3.75
Metals	Iron (dissolved)	ug/L	X-9AR	12/12 (100%)	1,900 - 13,000	6,170	--	12/12 (100%)	1,900 - 13,000	1,450 - 20,000	Parametric (Log-transform)	23,600	No purge result greater than 2011 to 2022 prediction interval.	117
Metals	Iron (dissolved)	ug/L	X-9BR	12/12 (100%)	3,500 - 10,000	7,020	--	12/12 (100%)	3,500 - 10,000	1,550 - 12,500	Parametric (Untransform)	6,670	No purge result within range of 2011 to 2022 prediction interval.	5.07
Metals	Iron (dissolved)	ug/L	X-9CAUG	12/12 (100%)	4,400 - 12,000	7,660	--	12/12 (100%)	4,400 - 12,000	3,790 - 14,300	Parametric (Log-transform)	6,890	No purge result within range of 2011 to 2022 prediction interval.	10.6
Metals	Iron (dissolved)	ug/L	X-9D	10/12 (83.3%)	<50.0 - 13,000	3,440	--	10/12 (83.3%)	<50.0 - 13,000	50.0 - 13,000	Nonparametric	2,330	No purge result within range of 2011 to 2022 prediction interval.	38.5
Metals	Manganese	ug/L	MW-107WT	9/9 (100%)	170 - 2,000	876	--	9/9 (100%)	170 - 2,000	71.5 - 5,720	Parametric (Log-transform)	5,900	No purge result greater than 2012 to 2022 prediction interval.	148
Metals	Manganese	ug/L	MW-108WT	6/6 (100%)	430 - 2,600	--	--	--	--	--	Prediction interval not estimated due to sample size.	18,000	No purge result greater than range of 2016 to 2021 results.	--
Metals	Manganese	ug/L	MW-110WTR	9/9 (100%)	2,000 - 4,000	2,920	--	9/9 (100%)	2,000 - 4,000	1,440 - 5,530	Parametric (Log-transform)	2,580	No purge result within range of 2014 to 2022 prediction interval.	12.4
Metals	Manganese	ug/L	MW-111WT	11/11 (100%)	780 - 3,600	1,670	--	11/11 (100%)	780 - 3,600	605 - 3,950	Parametric (Log-transform)	1,580	No purge result within range of 2012 to 2022 prediction interval.	5.59
Metals	Manganese	ug/L	MW-114WT	10/10 (100%)	390 - 1,400	949	--	10/10 (100%)	390 - 1,400	312 - 1,590	Parametric (Untransform)	1,280	No purge result within range of 2013 to 2022 prediction interval.	29.7
Metals	Manganese	ug/L	MW-117S1	3/3 (100%)	290 - 340	--	--	--	--	--	Prediction interval not estimated due to sample size.	265	No purge result less than range of 2020 to 2022 results.	--
Metals	Manganese	ug/L	MW-117WT	3/3 (100%)	3,700 - 4,600	--	--	--	--	--	Prediction interval not estimated due to sample size.	3,470	No purge result less than range of 2020 to 2022 results.	--
Metals	Manganese	ug/L	MW-118S1	3/3 (100%)	350 - 2,100	--	--	--	--	--	Prediction interval not estimated due to sample size.	187	No purge result less than range of 2014 to 2022 results.	--
Metals	Manganese	ug/L	MW-118WT	2/2 (100%)	390 - 860	--	--	--	--	--	Prediction interval not estimated due to sample size.	779	No purge result within range of 2021 to 2022 results.	--
Metals	Manganese	ug/L	MW-183WT	12/12 (100%)	240 - 1,700	996	--	12/12 (100%)	240 - 1,700	0 - 2,300	Parametric (Untransform)	1,700	No purge result within range of 2011 to 2022 prediction interval.	52.2
Metals	Manganese	ug/L	MW-185WT	10/10 (100%)	140 - 1,100	459	--	10/10 (100%)	140 - 1,100	82.6 - 1,780	Parametric (Log-transform)	34,300	No purge result greater than 2012 to 2022 prediction interval.	195
Metals	Manganese	ug/L	MW-186WT	12/12 (100%)	400 - 2,100	972	--	12/12 (100%)	400 - 2,100	239 - 2,990	Parametric (Log-transform)	6,190	No purge result greater than 2011 to 2022 prediction interval.	146
Metals	Manganese	ug/L	X-4AR	2/2 (100%)	3.00 - 52.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	3,400	No purge result greater than range of 2020 to 2022 results.	--
Metals	Manganese	ug/L	X-4CAUGR	12/12 (100%)	270 - 730	434	--	12/12 (100%)	270 - 730	183 - 916	Parametric (Log-transform)	420	No purge result within range of 2011 to 2022 prediction interval.	3.32
Metals	Manganese	ug/L	X-4D	12/12 (100%)	34.0 - 310	193	--	12/12 (100%)	34.0 - 310	40.7 - 345	Parametric (Untransform)	324	No purge result within range of 2011 to 2022 prediction interval.	50.8

Statistical Analysis Summary Table
RACER Saginaw Malleable, Saginaw, Michigan

				Pre-2023 Low Flow Data Result				Dataset for Prediction Interval Assessment						
Analyte Group	Analyte	Units	Well ID	FOD	Range	Mean	Elevated Non-detects (n)	FOD	Range	Interval	Interval Method	2023 No Purge Result	Notes	Percent Difference between Low Flow Mean and No Purge Result
Metals	Manganese	ug/L	X-9AR	12/12 (100%)	310 - 3,600	1,640	--	12/12 (100%)	310 - 3,600	161 - 8,810	Parametric (Log-transform)	2,670	No purge result within range of 2011 to 2022 prediction interval.	48
Metals	Manganese	ug/L	X-9BR	12/12 (100%)	220 - 960	562	--	12/12 (100%)	220 - 960	72.5 - 1,050	Parametric (Untransform)	587	No purge result within range of 2011 to 2022 prediction interval.	4.41
Metals	Manganese	ug/L	X-9CAUG	12/12 (100%)	290 - 740	479	--	12/12 (100%)	290 - 740	170 - 788	Parametric (Untransform)	745	No purge result within range of 2011 to 2022 prediction interval.	43.4
Metals	Manganese	ug/L	X-9D	12/12 (100%)	75.0 - 3,400	641	--	12/12 (100%)	75.0 - 3,400	75.0 - 3,400	Nonparametric	279	No purge result within range of 2011 to 2022 prediction interval.	78.7
Metals	Manganese (dissolved)	ug/L	MW-117S1	11/11 (100%)	260 - 510	308	--	11/11 (100%)	260 - 510	260 - 510	Nonparametric	211	No purge result less than 2011 to 2022 prediction interval.	37.4
Metals	Manganese (dissolved)	ug/L	MW-117WT	9/9 (100%)	2,900 - 7,000	4,210	--	9/9 (100%)	2,900 - 7,000	2,250 - 7,440	Parametric (Log-transform)	3,420	No purge result within range of 2011 to 2022 prediction interval.	20.7
Metals	Manganese (dissolved)	ug/L	MW-118S1	10/10 (100%)	340 - 2,100	623	--	10/10 (100%)	340 - 2,100	340 - 2,100	Nonparametric	190	No purge result less than 2011 to 2022 prediction interval.	106
Metals	Manganese (dissolved)	ug/L	MW-118WT	9/9 (100%)	270 - 850	424	--	9/9 (100%)	270 - 850	161 - 978	Parametric (Log-transform)	791	No purge result within range of 2011 to 2022 prediction interval.	60.3
Metals	Manganese (dissolved)	ug/L	MW-183WT	12/12 (100%)	250 - 1,800	995	--	12/12 (100%)	250 - 1,800	0 - 2,260	Parametric (Untransform)	1,290	No purge result within range of 2011 to 2022 prediction interval.	25.8
Metals	Manganese (dissolved)	ug/L	X-4AR	1/1 (100%)	180	--	--	--	--	--	Prediction interval not estimated due to sample size.	156	No purge result less than 2020 result.	--
Metals	Manganese (dissolved)	ug/L	X-4CAUGR	12/12 (100%)	280 - 760	442	--	12/12 (100%)	280 - 760	183 - 948	Parametric (Log-transform)	342	No purge result within range of 2011 to 2022 prediction interval.	25.6
Metals	Manganese (dissolved)	ug/L	X-4D	12/12 (100%)	160 - 280	197	--	12/12 (100%)	160 - 280	136 - 278	Parametric (Log-transform)	189	No purge result within range of 2011 to 2022 prediction interval.	3.98
Metals	Manganese (dissolved)	ug/L	X-9AR	12/12 (100%)	300 - 4,000	1,680	--	12/12 (100%)	300 - 4,000	149 - 9,530	Parametric (Log-transform)	2,230	No purge result within range of 2011 to 2022 prediction interval.	28.2
Metals	Manganese (dissolved)	ug/L	X-9BR	12/12 (100%)	180 - 960	570	--	12/12 (100%)	180 - 960	60.4 - 1,080	Parametric (Untransform)	421	No purge result within range of 2011 to 2022 prediction interval.	30.1
Metals	Manganese (dissolved)	ug/L	X-9CAUG	12/12 (100%)	300 - 690	468	--	12/12 (100%)	300 - 690	198 - 737	Parametric (Untransform)	595	No purge result within range of 2011 to 2022 prediction interval.	24
Metals	Manganese (dissolved)	ug/L	X-9D	12/12 (100%)	120 - 2,200	395	--	12/12 (100%)	120 - 2,200	120 - 2,200	Nonparametric	267	No purge result within range of 2011 to 2022 prediction interval.	38.7
Metals	Selenium	ug/L	MW-117S1	0/3 (0%)	<15.0 - <15.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<25.0	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
Metals	Selenium	ug/L	MW-117WT	0/3 (0%)	<15.0 - <15.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<25.0	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
Metals	Selenium	ug/L	MW-118S1	1/3 (33.3%)	<15.0 - 0.290	--	--	--	--	--	Prediction interval not estimated due to sample size.	<25.0	Indeterminate - no purge non-detect detection limit greater than range of 2014 to 2022 results.	--
Metals	Selenium	ug/L	MW-118WT	0/2 (0%)	<15.0 - <15.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<25.0	Indeterminate - no purge and 2021 to 2022 results are non-detect.	--
Metals	Selenium	ug/L	MW-183WT	3/12 (25%)	<5.00 - 0.820	--	--	--	--	--	Prediction interval not estimated due to sample size.	<25.0	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Selenium	ug/L	X-4AR	0/2 (0%)	<15.0 - <15.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<25.0	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
Metals	Selenium	ug/L	X-4CAUGR	3/12 (25%)	<5.00 - 0.920	--	--	--	--	--	Prediction interval not estimated due to sample size.	<25.0	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Selenium	ug/L	X-4D	2/12 (16.7%)	<5.00 - 2.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<25.0	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Selenium	ug/L	X-9AR	2/12 (16.7%)	<5.00 - 0.620	--	--	--	--	--	Prediction interval not estimated due to sample size.	<25.0	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Selenium	ug/L	X-9BR	3/12 (25%)	<5.00 - 0.740	--	--	--	--	--	Prediction interval not estimated due to sample size.	<25.0	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Selenium	ug/L	X-9CAUG	4/12 (33.3%)	<5.00 - 0.890	--	--	--	--	--	Prediction interval not estimated due to sample size.	<25.0	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Selenium	ug/L	X-9D	3/12 (25%)	<5.00 - 0.580	--	--	--	--	--	Prediction interval not estimated due to sample size.	<25.0	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Selenium (dissolved)	ug/L	MW-117S1	3/11 (27.3%)	<5.00 - 0.570	--	--	--	--	--	Prediction interval not estimated due to sample size.	<10.0	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Selenium (dissolved)	ug/L	MW-117WT	4/9 (44.4%)	<5.00 - 1.50	--	--	--	--	--	Prediction interval not estimated due to sample size.	<10.0	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Selenium (dissolved)	ug/L	MW-118S1	3/10 (30%)	<5.00 - 1.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<10.0	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Selenium (dissolved)	ug/L	MW-118WT	3/9 (33.3%)	<5.00 - 1.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	<10.0	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Selenium (dissolved)	ug/L	MW-183WT	4/12 (33.3%)	<5.00 - 1.50	--	--	--	--	--	Prediction interval not estimated due to sample size.	<10.0	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Selenium (dissolved)	ug/L	X-4AR	0/1 (0%)	<15.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<10.0	Indeterminate - no purge and 2020 results are non-detect.	--
Metals	Selenium (dissolved)	ug/L	X-4CAUGR	1/12 (8.33%)	<5.00 - 0.350	--	--	--	--	--	Prediction interval not estimated due to sample size.	<10.0	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Selenium (dissolved)	ug/L	X-4D	2/12 (16.7%)	<5.00 - 1.80	--	--	--	--	--	Prediction interval not estimated due to sample size.	<10.0	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Selenium (dissolved)	ug/L	X-9AR	3/12 (25%)	<5.00 - 0.670	--	--	--	--	--	Prediction interval not estimated due to sample size.	<10.0	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Selenium (dissolved)	ug/L	X-9BR	3/12 (25%)	<5.00 - 0.760	--	--	--	--	--	Prediction interval not estimated due to sample size.	<10.0	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Selenium (dissolved)	ug/L	X-9CAUG	3/12 (25%)	<5.00 - 0.570	--	--	--	--	--	Prediction interval not estimated due to sample size.	<10.0	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Selenium (dissolved)	ug/L	X-9D	3/12 (25%)	<5.00 - 0.700	--	--	--	--	--	Prediction interval not estimated due to sample size.	<10.0	Indeterminate - no purge non-detect detection limit greater than range of 2011 to 2022 results.	--
Metals	Sodium	ug/L	MW-117S1	3/3 (100%)	110,000 - 120,000	--	--	--	--	--	Prediction interval not estimated due to sample size.	126,000	No purge result greater than range of 2020 to 2022 results.	--
Metals	Sodium	ug/L	MW-117WT	3/3 (100%)	460,000 - 680,000	--	--	--	--	--	Prediction interval not estimated due to sample size.	390,000	No purge result less than range of 2020 to 2022 results.	--
Metals	Sodium	ug/L	MW-118S1	3/3 (100%)	45,000 - 120,000	--	--	--	--	--	Prediction interval not estimated due to sample size.	30,100	No purge result less than range of 2014 to 2022 results.	--
Metals	Sodium	ug/L	MW-118WT	2/2 (100%)	92,000 - 100,000	--	--	--	--	--	Prediction interval not estimated due to sample size.	98,800	No purge result within range of 2021 to 2022 results.	--
Metals	Sodium	ug/L	MW-183WT	12/12 (100%)	14,000 - 96,000	47,300	--	12/12 (100%)	14,000 - 96,000	9,180 - 170,000	Parametric (Log-transform)	31,700	No purge result within range of 2011 to 2022 prediction interval.	39.6
Metals	Sodium	ug/L	X-4AR	2/2 (100%)	26,000 - 28,000	--	--	--	--	--	Prediction interval not estimated due to sample size.	21,800	No purge result less than range of 2020 to 2022 results.	--
Metals	Sodium	ug/L	X-4CAUGR	12/12 (100%)	9,200 - 78,000	32,400	--	12/12 (100%)	9,200 - 78,000	9,200 - 78,000	Nonparametric	36,500	No purge result within range of 2011 to 2022 prediction interval.	11.8
Metals	Sodium	ug/L	X-4D	12/12 (100%)	85,000 - 1,600,000	627,000	--	12/12 (100%)	85,000 - 1,600,000	85,000 - 1,600,000	Nonparametric	627,000	No purge result within range of 2011 to 2022 prediction interval.	0.0133
Metals	Sodium	ug/L	X-9AR	12/12 (100%)	9,600 - 120,000	44,800	--	12/12 (100%)	9,600 - 120,000	9,600 - 120,000	Nonparametric	16,300	No purge result within range of 2011 to 2022 prediction interval.	93.2
Metals	Sodium	ug/L	X-9BR	12/12 (100%)	49,000 - 250,000	166,000	--	12/12 (100%)	49,000 - 250,000	6,450 - 325,000	Parametric (Untransform)	279,000	No purge result within range of 2011 to 2022 prediction interval.	51
Metals	Sodium	ug/L	X-9CAUG	12/12 (100%)	16,000 - 120,000	44,600	--	12/12 (100%)	16,000 - 120,000	8,320 - 161,000	Parametric (Log-transform)	31,300	No purge result within range of 2011 to 2022 prediction interval.	35
Metals	Sodium	ug/L	X-9D	12/12 (100%)	110,000 - 690,000	548,000	--	12/12 (100%)	110,000 - 690,000	110,000 - 690,000	Nonparametric	455,000	No purge result within range of 2011 to 2022 prediction interval.	18.5
Metals	Sodium (dissolved)	ug/L	MW-117S1	11/11 (100%)	110,000 - 120,000	115,000	--	11/11 (100%)	110,000 - 120,000	110,000 - 120,000	Nonparametric	123,000	No purge result greater than 2011 to 2022 prediction interval.	6.33
Metals	Sodium (dissolved)	ug/L	MW-117WT	9/9 (100%)	440,000 - 650,000	523,000	--	9/9 (100%)	440,000 - 650,000	380,000 - 710,000	Parametric (Log-transform)	382,000	No purge result within range of 2011 to 2022 prediction interval.	31.2
Metals	Sodium (dissolved)	ug/L	MW-118S1	10/10 (100%)	13,000 - 150,000	105,000	--	10/10 (100%)	13,000 - 150,000	13,000 - 150,000	Nonparametric	31,000	No purge result within range of 2011 to 2022 prediction interval.	109
Metals	Sodium (dissolved)	ug/L	MW-118WT	9/9 (100%)	70,000 - 200,000	108,000	--	9/9 (100%)	70,000 - 200,000	46,400 - 227,000	Parametric (Log-transform)	85,100	No purge result within range of 2011 to 2022 prediction interval.	23.7
Metals	Sodium (dissolved)	ug/L	MW-183WT	12/12 (100%)	15,000 - 100,000	49,200	--	12/12 (100%)	15,000 - 100,000	10,100 - 170,000	Parametric (Log-transform)	31,300	No purge result within range of 2011 to 2022 prediction interval.	44.6
Metals	Sodium (dissolved)	ug/L	X-4AR	1/1 (100%)	27,000	--	--	--	--	--	Prediction interval not estimated due to sample size.	25,200	No purge result less than 2020 result.	--
Metals	Sodium (dissolved)	ug/L	X-4CAUGR	12/12 (100%)	10,000 - 75,000	33,600	--	12/12 (100%)	10,000 - 75,000	10,000 - 75,000	Nonparametric	38,300	No purge result within range of 2011 to 2022 prediction interval.	13.1
Metals	Sodium (dissolved)	ug/L	X-4D	12/12 (100%)	420,000 - 1,600,000	701,000	--	12/12 (100%)	420,000 - 1,600,000	420,000 - 1,600,000	Nonparametric	630,000	No purge result within range of 2011 to 2022 prediction interval.	10.6
Metals	Sodium (dissolved)	ug/L	X-9AR	12/12 (100%)	9,700 - 120,000	43,800	--	12/12 (100%)	9,700 - 120,000	9,700 - 120,000	Nonparametric	11,500	No purge result within range of 2011 to 2022 prediction interval.	117
Metals	Sodium (dissolved)	ug/L	X-9BR	12/12 (100%)	40,000 - 250,000	177,000	--	12/12 (100%)	40,000 - 250,000	40,000 - 250,000	Nonparametric	209,000	No purge result within range of 2011 to 2022 prediction interval.	16.8
Metals	Sodium (dissolved)	ug/L	X-9CAUG	12/12 (100%)	14,000 - 110,000	42,000	--	12/12 (100%)	14,000 - 110,000	7,680 - 155,000	Parametric (Log-transform)	26,800	No purge result within range of 2011 to 2022 prediction interval.	44.2
Metals	Sodium (dissolved)	ug/L	X-9D	12/12 (100%)	110,000 - 1,500,000	662,000	--	12/12 (100%)	110,000 - 1,500,000	110,000 - 1,500,000	Nonparametric	564,000	No purge result within range of 2011 to 2022 prediction interval.	16.1
PCBS	Aroclor-1016 (PCB-1016)	ug/L	MW-110WTR	0/8 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0870	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
PCBS	Aroclor-1016 (PCB-1016)	ug/L	MW-111WT	0/11 (0%)	<0.0950 - <0.190	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0870	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1016 (PCB-1016)	ug/L	MW-114WT	0/10 (0%)	<0.0950 - <0.0980	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0940	Indeterminate - no purge and 2013 to 2022 results are non-detect.	--
PCBS	Aroclor-1016 (PCB-1016)	ug/L	MW-185WT	0/10 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0950	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1016 (PCB-1016)	ug/L	MW-186WT	0/12 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.100	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--

Statistical Analysis Summary Table
RACER Saginaw Malleable, Saginaw, Michigan

				Pre-2023 Low Flow Data Result				Dataset for Prediction Interval Assessment						
Analyte Group	Analyte	Units	Well ID	FOD	Range	Mean	Elevated Non-detects (n)	FOD	Range	Interval	Interval Method	2023 No Purge Result	Notes	Percent Difference between Low Flow Mean and No Purge Result
PCBS	Aroclor-1016 (PCB-1016) (dissolved)	ug/L	MW-110WTR	0/9 (0%)	<0.0950 - <0.0980	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
PCBS	Aroclor-1016 (PCB-1016) (dissolved)	ug/L	MW-111WT	0/11 (0%)	<0.0950 - <0.0970	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1016 (PCB-1016) (dissolved)	ug/L	MW-114WT	0/10 (0%)	<0.0950 - <0.0950	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2013 to 2022 results are non-detect.	--
PCBS	Aroclor-1016 (PCB-1016) (dissolved)	ug/L	MW-185WT	0/10 (0%)	<0.0950 - <0.0950	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1016 (PCB-1016) (dissolved)	ug/L	MW-186WT	0/12 (0%)	<0.0950 - <0.0950	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.100	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
PCBS	Aroclor-1221 (PCB-1221)	ug/L	MW-110WTR	0/8 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0870	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
PCBS	Aroclor-1221 (PCB-1221)	ug/L	MW-111WT	0/11 (0%)	<0.0950 - <0.190	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0870	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1221 (PCB-1221)	ug/L	MW-114WT	0/10 (0%)	<0.0950 - <0.0980	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0940	Indeterminate - no purge and 2013 to 2022 results are non-detect.	--
PCBS	Aroclor-1221 (PCB-1221)	ug/L	MW-185WT	0/10 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0950	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1221 (PCB-1221)	ug/L	MW-186WT	0/12 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.100	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
PCBS	Aroclor-1221 (PCB-1221) (dissolved)	ug/L	MW-110WTR	0/9 (0%)	<0.0950 - <0.0980	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
PCBS	Aroclor-1221 (PCB-1221) (dissolved)	ug/L	MW-111WT	0/11 (0%)	<0.0950 - <0.0970	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1221 (PCB-1221) (dissolved)	ug/L	MW-114WT	0/10 (0%)	<0.0950 - <0.0950	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2013 to 2022 results are non-detect.	--
PCBS	Aroclor-1221 (PCB-1221) (dissolved)	ug/L	MW-185WT	0/10 (0%)	<0.0950 - <0.0950	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1221 (PCB-1221) (dissolved)	ug/L	MW-186WT	0/12 (0%)	<0.0950 - <0.0950	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.100	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
PCBS	Aroclor-1232 (PCB-1232)	ug/L	MW-110WTR	0/8 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0870	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
PCBS	Aroclor-1232 (PCB-1232)	ug/L	MW-111WT	0/11 (0%)	<0.0950 - <0.190	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0870	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1232 (PCB-1232)	ug/L	MW-114WT	0/10 (0%)	<0.0950 - <0.0980	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0940	Indeterminate - no purge and 2013 to 2022 results are non-detect.	--
PCBS	Aroclor-1232 (PCB-1232)	ug/L	MW-185WT	0/10 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0950	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1232 (PCB-1232)	ug/L	MW-186WT	0/12 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.100	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
PCBS	Aroclor-1232 (PCB-1232) (dissolved)	ug/L	MW-110WTR	0/9 (0%)	<0.0950 - <0.0980	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
PCBS	Aroclor-1232 (PCB-1232) (dissolved)	ug/L	MW-111WT	0/11 (0%)	<0.0950 - <0.0970	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1232 (PCB-1232) (dissolved)	ug/L	MW-114WT	0/10 (0%)	<0.0950 - <0.0950	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2013 to 2022 results are non-detect.	--
PCBS	Aroclor-1232 (PCB-1232) (dissolved)	ug/L	MW-185WT	0/10 (0%)	<0.0950 - <0.0950	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1232 (PCB-1232) (dissolved)	ug/L	MW-186WT	0/12 (0%)	<0.0950 - <0.0950	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.100	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
PCBS	Aroclor-1242 (PCB-1242)	ug/L	MW-110WTR	0/8 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0870	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
PCBS	Aroclor-1242 (PCB-1242)	ug/L	MW-111WT	0/11 (0%)	<0.0950 - <0.190	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0870	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1242 (PCB-1242)	ug/L	MW-114WT	0/10 (0%)	<0.0950 - <0.0980	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0940	Indeterminate - no purge and 2013 to 2022 results are non-detect.	--
PCBS	Aroclor-1242 (PCB-1242)	ug/L	MW-185WT	0/10 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0950	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1242 (PCB-1242)	ug/L	MW-186WT	0/12 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.100	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
PCBS	Aroclor-1242 (PCB-1242) (dissolved)	ug/L	MW-110WTR	0/9 (0%)	<0.0950 - <0.0980	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
PCBS	Aroclor-1242 (PCB-1242) (dissolved)	ug/L	MW-111WT	0/11 (0%)	<0.0950 - <0.0970	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1242 (PCB-1242) (dissolved)	ug/L	MW-114WT	0/10 (0%)	<0.0950 - <0.0950	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2013 to 2022 results are non-detect.	--
PCBS	Aroclor-1242 (PCB-1242) (dissolved)	ug/L	MW-185WT	0/10 (0%)	<0.0950 - <0.0950	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1242 (PCB-1242) (dissolved)	ug/L	MW-186WT	0/12 (0%)	<0.0950 - <0.0950	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.100	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
PCBS	Aroclor-1248 (PCB-1248)	ug/L	MW-110WTR	0/8 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	0.140	No purge result greater than range of 2014 to 2022 results.	--
PCBS	Aroclor-1248 (PCB-1248)	ug/L	MW-111WT	6/11 (54.5%)	<0.0950 - 0.820	0.211	--	6/11 (54.5%)	<0.0950 - 0.820	0.0135 - 1.35	Parametric (Log-transform)	<0.0870	Indeterminate - no purge non-detect detection limit within range of 2012 to 2022 prediction interval.	--
PCBS	Aroclor-1248 (PCB-1248)	ug/L	MW-114WT	0/10 (0%)	<0.0950 - <0.0980	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0940	Indeterminate - no purge and 2013 to 2022 results are non-detect.	--
PCBS	Aroclor-1248 (PCB-1248)	ug/L	MW-185WT	0/10 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0950	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1248 (PCB-1248)	ug/L	MW-186WT	0/12 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.100	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
PCBS	Aroclor-1248 (PCB-1248) (dissolved)	ug/L	MW-110WTR	0/9 (0%)	<0.0950 - <0.0980	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
PCBS	Aroclor-1248 (PCB-1248) (dissolved)	ug/L	MW-111WT	3/11 (27.3%)	<0.0950 - 0.520	--	--	--	--	--	Prediction interval not estimated due to sample size.	12.9	No purge result greater than range of 2012 to 2022 results.	--
PCBS	Aroclor-1248 (PCB-1248) (dissolved)	ug/L	MW-114WT	0/10 (0%)	<0.0950 - <0.0950	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2013 to 2022 results are non-detect.	--
PCBS	Aroclor-1248 (PCB-1248) (dissolved)	ug/L	MW-185WT	0/10 (0%)	<0.0950 - <0.0950	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1248 (PCB-1248) (dissolved)	ug/L	MW-186WT	0/12 (0%)	<0.0950 - <0.0950	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.100	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
PCBS	Aroclor-1254 (PCB-1254)	ug/L	MW-110WTR	0/8 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0870	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
PCBS	Aroclor-1254 (PCB-1254)	ug/L	MW-111WT	0/11 (0%)	<0.0950 - <0.190	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0870	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1254 (PCB-1254)	ug/L	MW-114WT	0/10 (0%)	<0.0950 - <0.0980	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0940	Indeterminate - no purge and 2013 to 2022 results are non-detect.	--
PCBS	Aroclor-1254 (PCB-1254)	ug/L	MW-185WT	0/10 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0950	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1254 (PCB-1254)	ug/L	MW-186WT	0/12 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.100	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
PCBS	Aroclor-1254 (PCB-1254) (dissolved)	ug/L	MW-110WTR	0/9 (0%)	<0.0950 - <0.0980	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
PCBS	Aroclor-1254 (PCB-1254) (dissolved)	ug/L	MW-111WT	0/11 (0%)	<0.0950 - <0.0970	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1254 (PCB-1254) (dissolved)	ug/L	MW-114WT	0/10 (0%)	<0.0950 - <0.0950	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2013 to 2022 results are non-detect.	--
PCBS	Aroclor-1254 (PCB-1254) (dissolved)	ug/L	MW-185WT	0/10 (0%)	<0.0950 - <0.0950	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1254 (PCB-1254) (dissolved)	ug/L	MW-186WT	0/12 (0%)	<0.0950 - <0.0950	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.100	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
PCBS	Aroclor-1260 (PCB-1260)	ug/L	MW-110WTR	0/8 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0870	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
PCBS	Aroclor-1260 (PCB-1260)	ug/L	MW-111WT	0/11 (0%)	<0.0950 - <0.190	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0870	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1260 (PCB-1260)	ug/L	MW-114WT	0/10 (0%)	<0.0950 - <0.0980	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0940	Indeterminate - no purge and 2013 to 2022 results are non-detect.	--
PCBS	Aroclor-1260 (PCB-1260)	ug/L	MW-185WT	0/10 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0950	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1260 (PCB-1260)	ug/L	MW-186WT	0/12 (0%)	<0.0950 - <0.100	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.100	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
PCBS	Aroclor-1260 (PCB-1260) (dissolved)	ug/L	MW-110WTR	0/9 (0%)	<0.0950 - <0.0980	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2014 to 2022 results are non-detect.	--
PCBS	Aroclor-1260 (PCB-1260) (dissolved)	ug/L	MW-111WT	0/11 (0%)	<0.0950 - <0.0970	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2012 to 2022 results are non-detect.	--
PCBS	Aroclor-1260 (PCB-1260) (dissolved)	ug/L	MW-114WT	0/10 (0%)	<0.0950 - <0.0950	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge and 2013 to 2022 results are non-detect.	--
PCBS	Aroclor-1260 (PCB-1260) (dissolved)	ug/L	MW-185WT	1/10 (10%)	<0.0950 - 0.0410	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.0910	Indeterminate - no purge non-detect detection limit greater than range of 2012 to 2022 results.	--
PCBS	Aroclor-1260 (PCB-1260) (dissolved)	ug/L	MW-186WT	0/12 (0%)	<0.0950 - <0.0950	--	--	--	--	--	Prediction interval not estimated due to sample size.	<0.100	Indeterminate - no purge and 2011 to 2022 results are non-detect.	--
PFAS	11Cl-PF3OUdS (F-53B Minor)	ng/L	B-3R	0/2 (0%)	<7.40 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
PFAS	11Cl-PF3OUdS (F-53B Minor)	ng/L	MW-108WT	0/1 (0%)	<7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	11Cl-PF3OUdS (F-53B Minor)	ng/L	MW-117S1	0/2 (0%)	<7.40 - <36.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	11Cl-PF3OUdS (F-53B Minor)	ng/L	MW-117WT	0/2 (0%)	<7.40 - <36.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<80.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--

Statistical Analysis Summary Table
RACER Saginaw Malleable, Saginaw, Michigan

ARCADIS

Analyte Group	Analyte	Units	Well ID	Pre-2023 Low Flow Data Result				Dataset for Prediction Interval Assessment				2023 No Purge Result	Notes	Percent Difference between Low Flow Mean and No Purge Result
				FOD	Range	Mean	Elevated Non-detects (n)	FOD	Range	Interval	Interval Method			
PFAS	11Cl-PF3OUdS (F-53B Minor)	ng/L	MW-118WT	0/2 (0%)	<7.40 - <36.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.10	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	11Cl-PF3OUdS (F-53B Minor)	ng/L	MW-122WT	0/1 (0%)	<36.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.40	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	11Cl-PF3OUdS (F-53B Minor)	ng/L	MW-125WT	0/1 (0%)	<6.90	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.10 - <7.40	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	11Cl-PF3OUdS (F-53B Minor)	ng/L	MW-131WT	0/2 (0%)	<7.40 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
PFAS	11Cl-PF3OUdS (F-53B Minor)	ng/L	MW-134WT	0/2 (0%)	<7.40 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
PFAS	11Cl-PF3OUdS (F-53B Minor)	ng/L	MW-183WT	0/2 (0%)	<6.50 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	11Cl-PF3OUdS (F-53B Minor)	ng/L	QPTW-13R	0/2 (0%)	<7.40 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
PFAS	11Cl-PF3OUdS (F-53B Minor)	ng/L	TWW-1	0/2 (0%)	<7.10 - <7.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	11Cl-PF3OUdS (F-53B Minor)	ng/L	X-10AR2	0/2 (0%)	<6.90 - <7.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.70	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	11Cl-PF3OUdS (F-53B Minor)	ng/L	X-2A	0/2 (0%)	<6.90 - <7.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	11Cl-PF3OUdS (F-53B Minor)	ng/L	X-9AR	0/2 (0%)	<7.40 - <36.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	4:2 FTS	ng/L	B-3R	0/3 (0%)	<7.40 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	4:2 FTS	ng/L	MW-108WT	0/2 (0%)	<7.40 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2018 to 2020 results are non-detect.	--
PFAS	4:2 FTS	ng/L	MW-117S1	0/2 (0%)	<7.10 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	4:2 FTS	ng/L	MW-117WT	0/2 (0%)	<7.40 - <36.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<80.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	4:2 FTS	ng/L	MW-118WT	0/2 (0%)	<7.10 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.10	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	4:2 FTS	ng/L	MW-122WT	0/1 (0%)	<7.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.40	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	4:2 FTS	ng/L	MW-125WT	0/1 (0%)	<6.90	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.10 - <37.0	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	4:2 FTS	ng/L	MW-131WT	0/3 (0%)	<7.40 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	4:2 FTS	ng/L	MW-134WT	0/3 (0%)	<7.40 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	4:2 FTS	ng/L	MW-183WT	0/3 (0%)	<6.50 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	4:2 FTS	ng/L	QPTW-13R	0/3 (0%)	<7.40 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	4:2 FTS	ng/L	TWW-1	0/2 (0%)	<7.10 - <7.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	4:2 FTS	ng/L	X-10AR2	0/3 (0%)	<6.90 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.70	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	4:2 FTS	ng/L	X-2A	0/3 (0%)	<6.90 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	4:2 FTS	ng/L	X-9AR	0/3 (0%)	<7.10 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	6:2FTS	ng/L	B-3R	0/3 (0%)	<7.40 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	6:2FTS	ng/L	MW-108WT	0/2 (0%)	<7.40 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2018 to 2020 results are non-detect.	--
PFAS	6:2FTS	ng/L	MW-117S1	0/2 (0%)	<7.10 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	6:2FTS	ng/L	MW-117WT	0/2 (0%)	<7.10 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<80.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	6:2FTS	ng/L	MW-118WT	0/2 (0%)	<7.10 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.10	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	6:2FTS	ng/L	MW-122WT	0/1 (0%)	<7.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.40	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	6:2FTS	ng/L	MW-125WT	0/1 (0%)	<6.90	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.10 - <7.40	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	6:2FTS	ng/L	MW-131WT	0/3 (0%)	<7.40 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	6:2FTS	ng/L	MW-134WT	0/3 (0%)	<7.40 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	6:2FTS	ng/L	MW-183WT	0/3 (0%)	<6.50 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	6:2FTS	ng/L	QPTW-13R	0/3 (0%)	<7.40 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	6:2FTS	ng/L	TWW-1	0/2 (0%)	<7.10 - <7.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	6:2FTS	ng/L	X-10AR2	0/3 (0%)	<6.90 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.70	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	6:2FTS	ng/L	X-2A	0/3 (0%)	<6.90 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	6:2FTS	ng/L	X-9AR	0/3 (0%)	<7.10 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	8:2FTS	ng/L	B-3R	0/3 (0%)	<7.40 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	8:2FTS	ng/L	MW-108WT	0/2 (0%)	<7.40 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2018 to 2020 results are non-detect.	--
PFAS	8:2FTS	ng/L	MW-117S1	0/2 (0%)	<7.10 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	8:2FTS	ng/L	MW-117WT	0/2 (0%)	<7.10 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<80.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	8:2FTS	ng/L	MW-118WT	0/2 (0%)	<7.10 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.10	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	8:2FTS	ng/L	MW-122WT	0/1 (0%)	<7.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.40	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	8:2FTS	ng/L	MW-125WT	0/1 (0%)	<6.90	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.10 - <7.40	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	8:2FTS	ng/L	MW-131WT	0/3 (0%)	<7.40 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	8:2FTS	ng/L	MW-134WT	0/3 (0%)	<7.40 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	8:2FTS	ng/L	MW-183WT	0/3 (0%)	<6.50 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	8:2FTS	ng/L	QPTW-13R	0/3 (0%)	<7.40 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	8:2FTS	ng/L	TWW-1	0/2 (0%)	<7.10 - <7.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	8:2FTS	ng/L	X-10AR2	0/3 (0%)	<6.90 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.70	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	8:2FTS	ng/L	X-2A	0/3 (0%)	<6.90 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	8:2FTS	ng/L	X-9AR	0/3 (0%)	<7.10 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	9Cl-PF3ONS (F-53B Major)	ng/L	B-3R	0/2 (0%)	<7.40 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
PFAS	9Cl-PF3ONS (F-53B Major)	ng/L	MW-108WT	0/1 (0%)	<7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	9Cl-PF3ONS (F-53B Major)	ng/L	MW-117S1	0/2 (0%)	<7.10 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	9Cl-PF3ONS (F-53B Major)	ng/L	MW-117WT	0/2 (0%)	<7.10 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<80.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	9Cl-PF3ONS (F-53B Major)	ng/L	MW-118WT	0/2 (0%)	<7.10 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.10	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	9Cl-PF3ONS (F-53B Major)	ng/L	MW-122WT	0/1 (0%)	<7.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.40	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	9Cl-PF3ONS (F-53B Major)	ng/L	MW-125WT	0/1 (0%)	<6.90	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.10 - <7.40	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	9Cl-PF3ONS (F-53B Major)	ng/L	MW-131WT	0/2 (0%)	<7.40 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
PFAS	9Cl-PF3ONS (F-53B Major)	ng/L	MW-134WT	0/2 (0%)	<7.40 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
PFAS	9Cl-PF3ONS (F-53B Major)	ng/L	MW-183WT	0/2 (0%)	<6.50 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	9Cl-PF3ONS (F-53B Major)	ng/L	QPTW-13R	0/2 (0%)	<7.40 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
PFAS	9Cl-PF3ONS (F-53B Major)	ng/L	TWW-1	0/2 (0%)	<7.10 - <7.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	9Cl-PF3ONS (F-53B Major)	ng/L	X-10AR2	0/2 (0%)	<6.90 - <7.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.70	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--

Statistical Analysis Summary Table
RACER Saginaw Malleable, Saginaw, Michigan

Analyte Group	Analyte	Units	Well ID	Pre-2023 Low Flow Data Result				Dataset for Prediction Interval Assessment				2023 No Purge Result	Notes	Percent Difference between Low Flow Mean and No Purge Result
				FOD	Range	Mean	Elevated Non-detects (n)	FOD	Range	Interval	Interval Method			
PFAS	9Cl-PF3ONS (F-53B Major)	ng/L	X-2A	0/2 (0%)	<6.90 - <7.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	9Cl-PF3ONS (F-53B Major)	ng/L	X-9AR	0/2 (0%)	<7.10 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	ADONA	ng/L	B-3R	0/2 (0%)	<7.40 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
PFAS	ADONA	ng/L	MW-108WT	0/1 (0%)	<7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	ADONA	ng/L	MW-117S1	0/2 (0%)	<7.10 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	ADONA	ng/L	MW-117WT	0/2 (0%)	<7.10 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<80.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	ADONA	ng/L	MW-118WT	0/2 (0%)	<7.10 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.10	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	ADONA	ng/L	MW-122WT	0/1 (0%)	<7.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.40	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	ADONA	ng/L	MW-125WT	0/1 (0%)	<6.90	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.10 - <7.40	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	ADONA	ng/L	MW-131WT	0/2 (0%)	<7.40 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
PFAS	ADONA	ng/L	MW-134WT	0/2 (0%)	<7.40 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
PFAS	ADONA	ng/L	MW-183WT	0/2 (0%)	<6.50 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	ADONA	ng/L	QPTW-13R	0/2 (0%)	<7.40 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
PFAS	ADONA	ng/L	TWW-1	0/2 (0%)	<7.10 - <7.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	ADONA	ng/L	X-10AR2	0/2 (0%)	<6.90 - <7.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.70	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	ADONA	ng/L	X-2A	0/2 (0%)	<6.90 - <7.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	ADONA	ng/L	X-9AR	0/2 (0%)	<7.10 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	HFPO-DA (GenX)	ng/L	B-3R	0/2 (0%)	<7.40 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
PFAS	HFPO-DA (GenX)	ng/L	MW-108WT	0/1 (0%)	<19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	HFPO-DA (GenX)	ng/L	MW-117S1	0/2 (0%)	<7.10 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	HFPO-DA (GenX)	ng/L	MW-117WT	0/2 (0%)	<7.10 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<80.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	HFPO-DA (GenX)	ng/L	MW-118WT	0/2 (0%)	<7.10 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.10	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	HFPO-DA (GenX)	ng/L	MW-122WT	0/1 (0%)	<7.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.40	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	HFPO-DA (GenX)	ng/L	MW-125WT	0/1 (0%)	<17.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.10 - <7.40	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	HFPO-DA (GenX)	ng/L	MW-131WT	0/2 (0%)	<7.40 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
PFAS	HFPO-DA (GenX)	ng/L	MW-134WT	0/2 (0%)	<7.40 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
PFAS	HFPO-DA (GenX)	ng/L	MW-183WT	0/2 (0%)	<6.50 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	HFPO-DA (GenX)	ng/L	QPTW-13R	0/2 (0%)	<7.40 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2020 to 2022 results are non-detect.	--
PFAS	HFPO-DA (GenX)	ng/L	TWW-1	0/2 (0%)	<7.10 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	HFPO-DA (GenX)	ng/L	X-10AR2	0/2 (0%)	<7.10 - <17.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.70	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	HFPO-DA (GenX)	ng/L	X-2A	0/2 (0%)	<7.10 - <17.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	HFPO-DA (GenX)	ng/L	X-9AR	0/2 (0%)	<7.10 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	NEtFOSAA	ng/L	B-3R	0/3 (0%)	<7.40 - <20.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	NEtFOSAA	ng/L	MW-108WT	0/2 (0%)	<19.0 - <20.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2018 to 2020 results are non-detect.	--
PFAS	NEtFOSAA	ng/L	MW-117S1	0/2 (0%)	<7.10 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	NEtFOSAA	ng/L	MW-117WT	0/2 (0%)	<7.10 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<80.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	NEtFOSAA	ng/L	MW-118WT	0/2 (0%)	<7.10 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.10	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	NEtFOSAA	ng/L	MW-122WT	0/1 (0%)	<7.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.40	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	NEtFOSAA	ng/L	MW-125WT	0/1 (0%)	<17.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.10 - <7.40	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	NEtFOSAA	ng/L	MW-131WT	0/3 (0%)	<7.40 - <20.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	NEtFOSAA	ng/L	MW-134WT	0/3 (0%)	<7.40 - <20.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	NEtFOSAA	ng/L	MW-183WT	0/3 (0%)	<6.50 - <20.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	NEtFOSAA	ng/L	QPTW-13R	0/3 (0%)	<7.40 - <93.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	NEtFOSAA	ng/L	TWW-1	0/2 (0%)	<7.10 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	NEtFOSAA	ng/L	X-10AR2	0/3 (0%)	<7.10 - <20.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.70	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	NEtFOSAA	ng/L	X-2A	0/3 (0%)	<7.10 - <20.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	NEtFOSAA	ng/L	X-9AR	0/3 (0%)	<7.10 - <20.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	NMeFOSAA	ng/L	B-3R	0/3 (0%)	<7.40 - <20.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	NMeFOSAA	ng/L	MW-108WT	0/2 (0%)	<19.0 - <20.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2018 to 2020 results are non-detect.	--
PFAS	NMeFOSAA	ng/L	MW-117S1	0/2 (0%)	<7.10 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	NMeFOSAA	ng/L	MW-117WT	0/2 (0%)	<7.10 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<80.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	NMeFOSAA	ng/L	MW-118WT	0/2 (0%)	<7.10 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.10	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	NMeFOSAA	ng/L	MW-122WT	0/1 (0%)	<7.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.40	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	NMeFOSAA	ng/L	MW-125WT	0/1 (0%)	<17.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.10 - <7.40	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	NMeFOSAA	ng/L	MW-131WT	0/3 (0%)	<7.40 - <20.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	NMeFOSAA	ng/L	MW-134WT	0/3 (0%)	<7.40 - <20.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	NMeFOSAA	ng/L	MW-183WT	0/3 (0%)	<6.50 - <20.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	NMeFOSAA	ng/L	QPTW-13R	0/3 (0%)	<7.40 - <93.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.00	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	NMeFOSAA	ng/L	TWW-1	0/2 (0%)	<7.10 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.20	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	NMeFOSAA	ng/L	X-10AR2	0/3 (0%)	<7.10 - <20.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<7.70	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	NMeFOSAA	ng/L	X-2A	0/3 (0%)	<7.10 - <20.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	NMeFOSAA	ng/L	X-9AR	0/3 (0%)	<7.10 - <20.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<6.90	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	PFBS	ng/L	B-3R	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorobutanesulfonic acid (PFBS)	ng/L	MW-108WT	1/2 (50%)	<4.00 - 1.90	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge non-detect detection limit greater than range of 2018 to 2020 results.	--
PFAS	Perfluorobutanesulfonic acid (PFBS)	ng/L	MW-117S1	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorobutanesulfonic acid (PFBS)	ng/L	MW-117WT	0/2 (0%)	<3.70 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<40.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorobutanesulfonic acid (PFBS)	ng/L	MW-118WT	1/2 (50%)	<3.60 - 2.50	--	--	--	--	--	Prediction interval not estimated due to sample size.	2.90	No purge result greater than range of 2020 to 2021 results.	--
PFAS	Perfluorobutanesulfonic acid (PFBS)	ng/L	MW-122WT	1/1 (100%)	2.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	2.20	No purge result greater than 2021 result.	--
PFAS	Perfluorobutanesulfonic acid (PFBS)	ng/L	MW-125WT	1/1 (100%)	3.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	2.70 - 3.10	2020 result within range of no purge results.	--

Statistical Analysis Summary Table
RACER Saginaw Malleable, Saginaw, Michigan

				Pre-2023 Low Flow Data Result				Dataset for Prediction Interval Assessment						
Analyte Group	Analyte	Units	Well ID	FOD	Range	Mean	Elevated Non-detects (n)	FOD	Range	Interval	Interval Method	2023 No Purge Result	Notes	Percent Difference between Low Flow Mean and No Purge Result
PFAS	Perfluorobutanesulfonic acid (PFBS)	ng/L	MW-131WT	3/3 (100%)	1.72 - 3.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.40	No purge result less than range of 2018 to 2022 results.	--
PFAS	Perfluorobutanesulfonic acid (PFBS)	ng/L	MW-134WT	1/3 (33.3%)	<3.70 - 1.99	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge non-detect detection limit greater than range of 2018 to 2022 results.	--
PFAS	Perfluorobutanesulfonic acid (PFBS)	ng/L	MW-183WT	3/3 (100%)	1.10 - 2.20	--	--	--	--	--	Prediction interval not estimated due to sample size.	2.20	No purge result within range of 2018 to 2021 results.	--
PFAS	Perfluorobutanesulfonic acid (PFBS)	ng/L	QPTW-13R	1/3 (33.3%)	<3.70 - 3.54	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge non-detect detection limit within range of 2018 to 2022 results.	--
PFAS	Perfluorobutanesulfonic acid (PFBS)	ng/L	TWW-1	2/2 (100%)	1.90 - 4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.60	No purge result less than range of 2020 to 2021 results.	--
PFAS	Perfluorobutanesulfonic acid (PFBS)	ng/L	X-10AR2	2/3 (66.7%)	<4.00 - 1.30	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.20	No purge result within range of 2018 to 2021 results.	--
PFAS	Perfluorobutanesulfonic acid (PFBS)	ng/L	X-2A	1/3 (33.3%)	<3.60 - 3.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge non-detect detection limit within range of 2018 to 2021 results.	--
PFAS	Perfluorobutanesulfonic acid (PFBS)	ng/L	X-9AR	2/3 (66.7%)	<4.00 - 1.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	0.690	No purge result within range of 2018 to 2021 results.	--
PFAS	Perfluorobutanoic acid (PFBA)	ng/L	B-3R	2/3 (66.7%)	<7.40 - 11.3	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge non-detect detection limit within range of 2018 to 2022 results.	--
PFAS	Perfluorobutanoic acid (PFBA)	ng/L	MW-108WT	2/2 (100%)	3.02 - 8.80	--	--	--	--	--	Prediction interval not estimated due to sample size.	2.10	No purge result less than range of 2018 to 2020 results.	--
PFAS	Perfluorobutanoic acid (PFBA)	ng/L	MW-117S1	0/2 (0%)	<7.10 - <7.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.70	No purge result greater than range of 2020 to 2021 results.	--
PFAS	Perfluorobutanoic acid (PFBA)	ng/L	MW-117WT	2/2 (100%)	296 - 449	--	--	--	--	--	Prediction interval not estimated due to sample size.	280	No purge result less than range of 2020 to 2021 results.	--
PFAS	Perfluorobutanoic acid (PFBA)	ng/L	MW-118WT	2/2 (100%)	18.2 - 49.4	--	--	--	--	--	Prediction interval not estimated due to sample size.	110	No purge result greater than range of 2020 to 2021 results.	--
PFAS	Perfluorobutanoic acid (PFBA)	ng/L	MW-122WT	1/1 (100%)	51.3	--	--	--	--	--	Prediction interval not estimated due to sample size.	41.0	No purge result less than 2021 result.	--
PFAS	Perfluorobutanoic acid (PFBA)	ng/L	MW-125WT	1/1 (100%)	20.5	--	--	--	--	--	Prediction interval not estimated due to sample size.	12.0 - 16.5	No purge result less than 2020 result.	--
PFAS	Perfluorobutanoic acid (PFBA)	ng/L	MW-131WT	3/3 (100%)	4.14 - 11.1	--	--	--	--	--	Prediction interval not estimated due to sample size.	2.50	No purge result less than range of 2018 to 2022 results.	--
PFAS	Perfluorobutanoic acid (PFBA)	ng/L	MW-134WT	3/3 (100%)	5.64 - 6.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	6.40	No purge result within range of 2018 to 2022 results.	--
PFAS	Perfluorobutanoic acid (PFBA)	ng/L	MW-183WT	3/3 (100%)	8.30 - 15.2	--	--	--	--	--	Prediction interval not estimated due to sample size.	6.70	No purge result less than range of 2018 to 2021 results.	--
PFAS	Perfluorobutanoic acid (PFBA)	ng/L	QPTW-13R	3/3 (100%)	16.2 - 17.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	No purge non-detect detection limit less than range of 2018 to 2022 results.	--
PFAS	Perfluorobutanoic acid (PFBA)	ng/L	TWW-1	2/2 (100%)	29.7 - 34.9	--	--	--	--	--	Prediction interval not estimated due to sample size.	14.0	No purge result less than range of 2020 to 2021 results.	--
PFAS	Perfluorobutanoic acid (PFBA)	ng/L	X-10AR2	2/3 (66.7%)	<8.00 - 4.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	6.50	No purge result greater than range of 2018 to 2021 results.	--
PFAS	Perfluorobutanoic acid (PFBA)	ng/L	X-2A	3/3 (100%)	14.3 - 34.1	--	--	--	--	--	Prediction interval not estimated due to sample size.	6.70	No purge result less than range of 2018 to 2021 results.	--
PFAS	Perfluorobutanoic acid (PFBA)	ng/L	X-9AR	3/3 (100%)	5.98 - 18.6	--	--	--	--	--	Prediction interval not estimated due to sample size.	4.00	No purge result less than range of 2018 to 2021 results.	--
PFAS	Perfluorodecanesulfonic acid (PFDS)	ng/L	B-3R	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorodecanesulfonic acid (PFDS)	ng/L	MW-108WT	0/2 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2018 to 2020 results are non-detect.	--
PFAS	Perfluorodecanesulfonic acid (PFDS)	ng/L	MW-117S1	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorodecanesulfonic acid (PFDS)	ng/L	MW-117WT	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<40.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorodecanesulfonic acid (PFDS)	ng/L	MW-118WT	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorodecanesulfonic acid (PFDS)	ng/L	MW-122WT	0/1 (0%)	<3.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.70	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	Perfluorodecanesulfonic acid (PFDS)	ng/L	MW-125WT	0/1 (0%)	<3.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60 - <3.70	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	Perfluorodecanesulfonic acid (PFDS)	ng/L	MW-131WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorodecanesulfonic acid (PFDS)	ng/L	MW-134WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorodecanesulfonic acid (PFDS)	ng/L	MW-183WT	0/3 (0%)	<3.20 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorodecanesulfonic acid (PFDS)	ng/L	QPTW-13R	0/3 (0%)	<3.70 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorodecanesulfonic acid (PFDS)	ng/L	TWW-1	0/2 (0%)	<3.60 - <3.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorodecanesulfonic acid (PFDS)	ng/L	X-10AR2	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.80	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorodecanesulfonic acid (PFDS)	ng/L	X-2A	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorodecanesulfonic acid (PFDS)	ng/L	X-9AR	0/3 (0%)	<3.60 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorodecanoic acid (PFDA)	ng/L	B-3R	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorodecanoic acid (PFDA)	ng/L	MW-108WT	0/2 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2018 to 2020 results are non-detect.	--
PFAS	Perfluorodecanoic acid (PFDA)	ng/L	MW-117S1	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorodecanoic acid (PFDA)	ng/L	MW-117WT	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<40.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorodecanoic acid (PFDA)	ng/L	MW-118WT	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorodecanoic acid (PFDA)	ng/L	MW-122WT	0/1 (0%)	<3.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.70	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	Perfluorodecanoic acid (PFDA)	ng/L	MW-125WT	0/1 (0%)	<3.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60 - <3.70	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	Perfluorodecanoic acid (PFDA)	ng/L	MW-131WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorodecanoic acid (PFDA)	ng/L	MW-134WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorodecanoic acid (PFDA)	ng/L	MW-183WT	0/3 (0%)	<3.20 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorodecanoic acid (PFDA)	ng/L	QPTW-13R	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorodecanoic acid (PFDA)	ng/L	TWW-1	0/2 (0%)	<3.60 - <3.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorodecanoic acid (PFDA)	ng/L	X-10AR2	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.80	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorodecanoic acid (PFDA)	ng/L	X-2A	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorodecanoic acid (PFDA)	ng/L	X-9AR	0/3 (0%)	<3.60 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorododecanoic acid (PFDoA)	ng/L	B-3R	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorododecanoic acid (PFDoA)	ng/L	MW-108WT	0/2 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2018 to 2020 results are non-detect.	--
PFAS	Perfluorododecanoic acid (PFDoA)	ng/L	MW-117S1	0/2 (0%)	<3.70 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorododecanoic acid (PFDoA)	ng/L	MW-117WT	0/2 (0%)	<3.70 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<40.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorododecanoic acid (PFDoA)	ng/L	MW-118WT	0/2 (0%)	<3.70 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorododecanoic acid (PFDoA)	ng/L	MW-122WT	0/1 (0%)	<18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.70	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	Perfluorododecanoic acid (PFDoA)	ng/L	MW-125WT	0/1 (0%)	<3.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60 - <3.70	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	Perfluorododecanoic acid (PFDoA)	ng/L	MW-131WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorododecanoic acid (PFDoA)	ng/L	MW-134WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorododecanoic acid (PFDoA)	ng/L	MW-183WT	0/3 (0%)	<3.20 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorododecanoic acid (PFDoA)	ng/L	QPTW-13R	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorododecanoic acid (PFDoA)	ng/L	TWW-1	0/2 (0%)	<3.60 - <3.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorododecanoic acid (PFDoA)	ng/L	X-10AR2	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.80	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorododecanoic acid (PFDoA)	ng/L	X-2A	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorododecanoic acid (PFDoA)	ng/L	X-9AR	0/3 (0%)	<3.70 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluoroheptanesulfonic Acid (PFHpS)	ng/L	B-3R	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--

Statistical Analysis Summary Table
RACER Saginaw Malleable, Saginaw, Michigan

				Pre-2023 Low Flow Data Result				Dataset for Prediction Interval Assessment						
Analyte Group	Analyte	Units	Well ID	FOD	Range	Mean	Elevated Non-detects (n)	FOD	Range	Interval	Interval Method	2023 No Purge Result	Notes	Percent Difference between Low Flow Mean and No Purge Result
PFAS	Perfluoroheptanesulfonic Acid (PFHpS)	ng/L	MW-108WT	0/2 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2018 to 2020 results are non-detect.	--
PFAS	Perfluoroheptanesulfonic Acid (PFHpS)	ng/L	MW-117S1	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluoroheptanesulfonic Acid (PFHpS)	ng/L	MW-117WT	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<40.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluoroheptanesulfonic Acid (PFHpS)	ng/L	MW-118WT	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluoroheptanesulfonic Acid (PFHpS)	ng/L	MW-122WT	0/1 (0%)	<3.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.70	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	Perfluoroheptanesulfonic Acid (PFHpS)	ng/L	MW-125WT	0/1 (0%)	<3.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60 - <3.70	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	Perfluoroheptanesulfonic Acid (PFHpS)	ng/L	MW-131WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluoroheptanesulfonic Acid (PFHpS)	ng/L	MW-134WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluoroheptanesulfonic Acid (PFHpS)	ng/L	MW-183WT	0/3 (0%)	<3.20 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluoroheptanesulfonic Acid (PFHpS)	ng/L	QPTW-13R	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluoroheptanesulfonic Acid (PFHpS)	ng/L	TWW-1	0/2 (0%)	<3.60 - <3.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluoroheptanesulfonic Acid (PFHpS)	ng/L	X-10AR2	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.80	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluoroheptanesulfonic Acid (PFHpS)	ng/L	X-2A	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluoroheptanesulfonic Acid (PFHpS)	ng/L	X-9AR	0/3 (0%)	<3.60 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluoroheptanoic acid (PFHpA)	ng/L	B-3R	1/3 (33.3%)	<3.70 - 2.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge non-detect detection limit greater than range of 2018 to 2022 results.	--
PFAS	Perfluoroheptanoic acid (PFHpA)	ng/L	MW-108WT	1/2 (50%)	<4.00 - 1.20	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge non-detect detection limit greater than range of 2018 to 2020 results.	--
PFAS	Perfluoroheptanoic acid (PFHpA)	ng/L	MW-117S1	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluoroheptanoic acid (PFHpA)	ng/L	MW-117WT	2/2 (100%)	9.70 - 18.7	--	--	--	--	--	Prediction interval not estimated due to sample size.	<40.0	Indeterminate - no purge non-detect detection limit greater than range of 2020 to 2021 results.	--
PFAS	Perfluoroheptanoic acid (PFHpA)	ng/L	MW-118WT	2/2 (100%)	3.10 - 6.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	5.60	No purge result within range of 2020 to 2021 results.	--
PFAS	Perfluoroheptanoic acid (PFHpA)	ng/L	MW-122WT	1/1 (100%)	2.20	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.20	No purge result less than 2021 result.	--
PFAS	Perfluoroheptanoic acid (PFHpA)	ng/L	MW-125WT	1/1 (100%)	1.50	--	--	--	--	--	Prediction interval not estimated due to sample size.	0.930 - 1.10	No purge result less than 2020 result.	--
PFAS	Perfluoroheptanoic acid (PFHpA)	ng/L	MW-131WT	1/3 (33.3%)	<3.70 - 1.20	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge non-detect detection limit greater than range of 2018 to 2022 results.	--
PFAS	Perfluoroheptanoic acid (PFHpA)	ng/L	MW-134WT	2/3 (66.7%)	<3.70 - 2.20	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.50	No purge result within range of 2018 to 2022 results.	--
PFAS	Perfluoroheptanoic acid (PFHpA)	ng/L	MW-183WT	2/3 (66.7%)	<4.00 - 2.50	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.30	No purge result within range of 2018 to 2021 results.	--
PFAS	Perfluoroheptanoic acid (PFHpA)	ng/L	QPTW-13R	1/3 (33.3%)	<4.00 - 5.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge non-detect detection limit within range of 2018 to 2022 results.	--
PFAS	Perfluoroheptanoic acid (PFHpA)	ng/L	TWW-1	2/2 (100%)	5.90 - 14.1	--	--	--	--	--	Prediction interval not estimated due to sample size.	4.20	No purge result less than range of 2020 to 2021 results.	--
PFAS	Perfluoroheptanoic acid (PFHpA)	ng/L	X-10AR2	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	0.560	No purge result greater than range of 2018 to 2021 results.	--
PFAS	Perfluoroheptanoic acid (PFHpA)	ng/L	X-2A	3/3 (100%)	3.10 - 4.93	--	--	--	--	--	Prediction interval not estimated due to sample size.	2.00	No purge result less than range of 2018 to 2021 results.	--
PFAS	Perfluoroheptanoic acid (PFHpA)	ng/L	X-9AR	2/3 (66.7%)	<4.00 - 2.50	--	--	--	--	--	Prediction interval not estimated due to sample size.	0.450	No purge result within range of 2018 to 2021 results.	--
PFAS	Perfluorohexanesulfonic acid (PFHxS)	ng/L	B-3R	1/3 (33.3%)	<3.70 - 1.13	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.90	No purge result greater than range of 2018 to 2022 results.	--
PFAS	Perfluorohexanesulfonic acid (PFHxS)	ng/L	MW-108WT	2/2 (100%)	1.92 - 5.80	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.70	No purge result less than range of 2018 to 2020 results.	--
PFAS	Perfluorohexanesulfonic acid (PFHxS)	ng/L	MW-117S1	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorohexanesulfonic acid (PFHxS)	ng/L	MW-117WT	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<40.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorohexanesulfonic acid (PFHxS)	ng/L	MW-118WT	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorohexanesulfonic acid (PFHxS)	ng/L	MW-122WT	0/1 (0%)	<3.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.70	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	Perfluorohexanesulfonic acid (PFHxS)	ng/L	MW-125WT	1/1 (100%)	3.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	5.10 - 9.10	No purge result greater than 2020 result.	--
PFAS	Perfluorohexanesulfonic acid (PFHxS)	ng/L	MW-131WT	3/3 (100%)	4.21 - 8.30	--	--	--	--	--	Prediction interval not estimated due to sample size.	5.90	No purge result within range of 2018 to 2022 results.	--
PFAS	Perfluorohexanesulfonic acid (PFHxS)	ng/L	MW-134WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.70	No purge result greater than range of 2018 to 2022 results.	--
PFAS	Perfluorohexanesulfonic acid (PFHxS)	ng/L	MW-183WT	3/3 (100%)	1.50 - 2.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	3.70	No purge result greater than range of 2018 to 2021 results.	--
PFAS	Perfluorohexanesulfonic acid (PFHxS)	ng/L	QPTW-13R	2/3 (66.7%)	<3.70 - 3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	3.00	No purge result within range of 2018 to 2022 results.	--
PFAS	Perfluorohexanesulfonic acid (PFHxS)	ng/L	TWW-1	0/2 (0%)	<3.60 - <3.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.20	No purge result greater than range of 2020 to 2021 results.	--
PFAS	Perfluorohexanesulfonic acid (PFHxS)	ng/L	X-10AR2	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.80	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorohexanesulfonic acid (PFHxS)	ng/L	X-2A	3/3 (100%)	4.70 - 7.73	--	--	--	--	--	Prediction interval not estimated due to sample size.	3.30	No purge result less than range of 2018 to 2021 results.	--
PFAS	Perfluorohexanesulfonic acid (PFHxS)	ng/L	X-9AR	0/3 (0%)	<3.60 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorohexanoic acid (PFHxA)	ng/L	B-3R	2/3 (66.7%)	<3.70 - 2.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge non-detect detection limit greater than range of 2018 to 2022 results.	--
PFAS	Perfluorohexanoic acid (PFHxA)	ng/L	MW-108WT	1/2 (50%)	<4.00 - 2.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge non-detect detection limit greater than range of 2018 to 2020 results.	--
PFAS	Perfluorohexanoic acid (PFHxA)	ng/L	MW-117S1	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.20	No purge result greater than range of 2020 to 2021 results.	--
PFAS	Perfluorohexanoic acid (PFHxA)	ng/L	MW-117WT	2/2 (100%)	77.8 - 114	--	--	--	--	--	Prediction interval not estimated due to sample size.	91.0	No purge result within range of 2020 to 2021 results.	--
PFAS	Perfluorohexanoic acid (PFHxA)	ng/L	MW-118WT	2/2 (100%)	7.60 - 21.1	--	--	--	--	--	Prediction interval not estimated due to sample size.	35.0	No purge result greater than range of 2020 to 2021 results.	--
PFAS	Perfluorohexanoic acid (PFHxA)	ng/L	MW-122WT	1/1 (100%)	2.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	4.50	No purge result greater than 2021 result.	--
PFAS	Perfluorohexanoic acid (PFHxA)	ng/L	MW-125WT	1/1 (100%)	2.90	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60 - 2.00	No purge result less than 2020 result.	--
PFAS	Perfluorohexanoic acid (PFHxA)	ng/L	MW-131WT	3/3 (100%)	0.990 - 1.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge non-detect detection limit greater than range of 2018 to 2022 results.	--
PFAS	Perfluorohexanoic acid (PFHxA)	ng/L	MW-134WT	3/3 (100%)	1.66 - 2.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge non-detect detection limit greater than range of 2018 to 2022 results.	--
PFAS	Perfluorohexanoic acid (PFHxA)	ng/L	MW-183WT	2/3 (66.7%)	<4.00 - 2.50	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.50	No purge result within range of 2018 to 2021 results.	--
PFAS	Perfluorohexanoic acid (PFHxA)	ng/L	QPTW-13R	2/3 (66.7%)	<3.70 - 2.91	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge non-detect detection limit greater than range of 2018 to 2022 results.	--
PFAS	Perfluorohexanoic acid (PFHxA)	ng/L	TWW-1	2/2 (100%)	8.90 - 11.4	--	--	--	--	--	Prediction interval not estimated due to sample size.	4.50	No purge result less than range of 2020 to 2021 results.	--
PFAS	Perfluorohexanoic acid (PFHxA)	ng/L	X-10AR2	1/3 (33.3%)	<3.40 - 1.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.00	No purge result within range of 2018 to 2021 results.	--
PFAS	Perfluorohexanoic acid (PFHxA)	ng/L	X-2A	3/3 (100%)	2.90 - 6.46	--	--	--	--	--	Prediction interval not estimated due to sample size.	5.50	No purge result within range of 2018 to 2021 results.	--
PFAS	Perfluorohexanoic acid (PFHxA)	ng/L	X-9AR	2/3 (66.7%)	<4.00 - 2.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	0.790	No purge result within range of 2018 to 2021 results.	--
PFAS	Perfluorononanesulfonic acid (PFNS)	ng/L	B-3R	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorononanesulfonic acid (PFNS)	ng/L	MW-108WT	0/2 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2018 to 2020 results are non-detect.	--
PFAS	Perfluorononanesulfonic acid (PFNS)	ng/L	MW-117S1	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorononanesulfonic acid (PFNS)	ng/L	MW-117WT	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<40.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorononanesulfonic acid (PFNS)	ng/L	MW-118WT	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorononanesulfonic acid (PFNS)	ng/L	MW-122WT	0/1 (0%)	<3.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.70	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	Perfluorononanesulfonic acid (PFNS)	ng/L	MW-125WT	0/1 (0%)	<3.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60 - <3.70	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	Perfluorononanesulfonic acid (PFNS)	ng/L	MW-131WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorononanesulfonic acid (PFNS)	ng/L	MW-134WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorononanesulfonic acid (PFNS)	ng/L	MW-183WT	0/3 (0%)	<3.20 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--

Statistical Analysis Summary Table
RACER Saginaw Malleable, Saginaw, Michigan

				Pre-2023 Low Flow Data Result				Dataset for Prediction Interval Assessment						
Analyte Group	Analyte	Units	Well ID	FOD	Range	Mean	Elevated Non-detects (n)	FOD	Range	Interval	Interval Method	2023 No Purge Result	Notes	Percent Difference between Low Flow Mean and No Purge Result
PFAS	Perfluorononanesulfonic acid (PFNS)	ng/L	QPTW-13R	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorononanesulfonic acid (PFNS)	ng/L	TWW-1	0/2 (0%)	<3.60 - <3.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorononanesulfonic acid (PFNS)	ng/L	X-10AR2	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.80	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorononanesulfonic acid (PFNS)	ng/L	X-2A	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorononanesulfonic acid (PFNS)	ng/L	X-9AR	0/3 (0%)	<3.60 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorononanoic acid (PFNA)	ng/L	B-3R	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorononanoic acid (PFNA)	ng/L	MW-108WT	0/2 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	0.450	No purge result greater than range of 2018 to 2020 results.	--
PFAS	Perfluorononanoic acid (PFNA)	ng/L	MW-117S1	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorononanoic acid (PFNA)	ng/L	MW-117WT	0/2 (0%)	<3.70 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<40.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorononanoic acid (PFNA)	ng/L	MW-118WT	0/2 (0%)	<3.70 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorononanoic acid (PFNA)	ng/L	MW-122WT	0/1 (0%)	<3.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.70	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	Perfluorononanoic acid (PFNA)	ng/L	MW-125WT	0/1 (0%)	<3.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60 - <3.70	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	Perfluorononanoic acid (PFNA)	ng/L	MW-131WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorononanoic acid (PFNA)	ng/L	MW-134WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorononanoic acid (PFNA)	ng/L	MW-183WT	1/3 (33.3%)	<3.20 - 1.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	0.550	No purge result within range of 2018 to 2021 results.	--
PFAS	Perfluorononanoic acid (PFNA)	ng/L	QPTW-13R	0/3 (0%)	<3.70 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorononanoic acid (PFNA)	ng/L	TWW-1	1/2 (50%)	<3.60 - 1.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	0.900	No purge result within range of 2020 to 2021 results.	--
PFAS	Perfluorononanoic acid (PFNA)	ng/L	X-10AR2	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.80	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorononanoic acid (PFNA)	ng/L	X-2A	1/3 (33.3%)	<3.60 - 1.90	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge non-detect detection limit greater than range of 2018 to 2021 results.	--
PFAS	Perfluorononanoic acid (PFNA)	ng/L	X-9AR	0/3 (0%)	<3.60 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorooctane Sulfonamide (FOSA)	ng/L	B-3R	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorooctane Sulfonamide (FOSA)	ng/L	MW-108WT	0/2 (0%)	<4.00 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2018 to 2020 results are non-detect.	--
PFAS	Perfluorooctane Sulfonamide (FOSA)	ng/L	MW-117S1	0/2 (0%)	<3.70 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorooctane Sulfonamide (FOSA)	ng/L	MW-117WT	0/2 (0%)	<3.70 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<40.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorooctane Sulfonamide (FOSA)	ng/L	MW-118WT	0/2 (0%)	<18.0 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorooctane Sulfonamide (FOSA)	ng/L	MW-122WT	0/1 (0%)	<18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.70	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	Perfluorooctane Sulfonamide (FOSA)	ng/L	MW-125WT	0/1 (0%)	<3.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60 - <19.0	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	Perfluorooctane Sulfonamide (FOSA)	ng/L	MW-131WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorooctane Sulfonamide (FOSA)	ng/L	MW-134WT	0/3 (0%)	<3.70 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorooctane Sulfonamide (FOSA)	ng/L	MW-183WT	0/3 (0%)	<3.70 - <32.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorooctane Sulfonamide (FOSA)	ng/L	QPTW-13R	0/3 (0%)	<3.70 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorooctane Sulfonamide (FOSA)	ng/L	TWW-1	0/2 (0%)	<3.60 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorooctane Sulfonamide (FOSA)	ng/L	X-10AR2	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.80	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorooctane Sulfonamide (FOSA)	ng/L	X-2A	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorooctane Sulfonamide (FOSA)	ng/L	X-9AR	0/3 (0%)	<3.70 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorooctane sulfonic acid	ng/L	B-3R	3/3 (100%)	14.3 - 15.6	--	--	--	--	--	Prediction interval not estimated due to sample size.	13.0	No purge result less than range of 2018 to 2022 results.	--
PFAS	Perfluorooctane sulfonic acid	ng/L	MW-108WT	2/2 (100%)	2.63 - 17.1	--	--	--	--	--	Prediction interval not estimated due to sample size.	7.00	No purge result within range of 2018 to 2020 results.	--
PFAS	Perfluorooctane sulfonic acid	ng/L	MW-117S1	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	2.90	No purge result greater than range of 2020 to 2021 results.	--
PFAS	Perfluorooctane sulfonic acid	ng/L	MW-117WT	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<40.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorooctane sulfonic acid	ng/L	MW-118WT	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorooctane sulfonic acid	ng/L	MW-122WT	1/1 (100%)	1.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.70	Indeterminate - no purge non-detect detection limit greater than 2021 result.	--
PFAS	Perfluorooctane sulfonic acid	ng/L	MW-125WT	0/1 (0%)	<3.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60 - <3.70	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	Perfluorooctane sulfonic acid	ng/L	MW-131WT	3/3 (100%)	4.88 - 14.6	--	--	--	--	--	Prediction interval not estimated due to sample size.	7.40	No purge result within range of 2018 to 2022 results.	--
PFAS	Perfluorooctane sulfonic acid	ng/L	MW-134WT	0/3 (0%)	<3.70 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorooctane sulfonic acid	ng/L	MW-183WT	2/3 (66.7%)	<8.00 - 3.50	--	--	--	--	--	Prediction interval not estimated due to sample size.	2.10	No purge result within range of 2018 to 2021 results.	--
PFAS	Perfluorooctane sulfonic acid	ng/L	QPTW-13R	3/3 (100%)	8.47 - 11.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	11.0	No purge result within range of 2018 to 2022 results.	--
PFAS	Perfluorooctane sulfonic acid	ng/L	TWW-1	1/2 (50%)	<3.60 - 1.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	2.50	No purge result greater than range of 2020 to 2021 results.	--
PFAS	Perfluorooctane sulfonic acid	ng/L	X-10AR2	0/3 (0%)	<3.40 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.80	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorooctane sulfonic acid	ng/L	X-2A	3/3 (100%)	14.5 - 16.5	--	--	--	--	--	Prediction interval not estimated due to sample size.	16.0	No purge result within range of 2018 to 2021 results.	--
PFAS	Perfluorooctane sulfonic acid	ng/L	X-9AR	0/3 (0%)	<3.60 - <8.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorooctanoic acid	ng/L	B-3R	3/3 (100%)	2.70 - 5.58	--	--	--	--	--	Prediction interval not estimated due to sample size.	3.30	No purge result within range of 2018 to 2022 results.	--
PFAS	Perfluorooctanoic acid	ng/L	MW-108WT	2/2 (100%)	3.66 - 4.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.60	No purge result less than range of 2018 to 2020 results.	--
PFAS	Perfluorooctanoic acid	ng/L	MW-117S1	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorooctanoic acid	ng/L	MW-117WT	2/2 (100%)	3.60 - 5.50	--	--	--	--	--	Prediction interval not estimated due to sample size.	<40.0	Indeterminate - no purge non-detect detection limit greater than range of 2020 to 2021 results.	--
PFAS	Perfluorooctanoic acid	ng/L	MW-118WT	2/2 (100%)	2.40 - 5.30	--	--	--	--	--	Prediction interval not estimated due to sample size.	7.00	No purge result greater than range of 2020 to 2021 results.	--
PFAS	Perfluorooctanoic acid	ng/L	MW-122WT	1/1 (100%)	3.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	2.80	No purge result less than 2021 result.	--
PFAS	Perfluorooctanoic acid	ng/L	MW-125WT	1/1 (100%)	4.30	--	--	--	--	--	Prediction interval not estimated due to sample size.	2.90 - 2.90	No purge result less than 2020 result.	--
PFAS	Perfluorooctanoic acid	ng/L	MW-131WT	3/3 (100%)	2.38 - 3.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	2.10	No purge result less than range of 2018 to 2022 results.	--
PFAS	Perfluorooctanoic acid	ng/L	MW-134WT	3/3 (100%)	2.00 - 3.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	3.70	No purge result greater than range of 2018 to 2022 results.	--
PFAS	Perfluorooctanoic acid	ng/L	MW-183WT	3/3 (100%)	2.07 - 4.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	3.50	No purge result within range of 2018 to 2021 results.	--
PFAS	Perfluorooctanoic acid	ng/L	QPTW-13R	3/3 (100%)	3.90 - 8.38	--	--	--	--	--	Prediction interval not estimated due to sample size.	5.10	No purge result within range of 2018 to 2022 results.	--
PFAS	Perfluorooctanoic acid	ng/L	TWW-1	2/2 (100%)	11.0 - 27.1	--	--	--	--	--	Prediction interval not estimated due to sample size.	13.0	No purge result within range of 2020 to 2021 results.	--
PFAS	Perfluorooctanoic acid	ng/L	X-10AR2	3/3 (100%)	2.13 - 6.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	7.30	No purge result greater than range of 2018 to 2021 results.	--
PFAS	Perfluorooctanoic acid	ng/L	X-2A	3/3 (100%)	29.6 - 50.6	--	--	--	--	--	Prediction interval not estimated due to sample size.	22.0	No purge result less than range of 2018 to 2021 results.	--
PFAS	Perfluorooctanoic acid	ng/L	X-9AR	2/3 (66.7%)	<4.00 - 2.50	--	--	--	--	--	Prediction interval not estimated due to sample size.	0.890	No purge result within range of 2018 to 2021 results.	--
PFAS	Perfluoropentanesulfonic acid (PFPeS)	ng/L	B-3R	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluoropentanesulfonic acid (PFPeS)	ng/L	MW-108WT	0/2 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2018 to 2020 results are non-detect.	--
PFAS	Perfluoropentanesulfonic acid (PFPeS)	ng/L	MW-117S1	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluoropentanesulfonic acid (PFPeS)	ng/L	MW-117WT	0/2 (0%)	<3.70 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<40.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--

Statistical Analysis Summary Table
RACER Saginaw Malleable, Saginaw, Michigan

				Pre-2023 Low Flow Data Result				Dataset for Prediction Interval Assessment						
Analyte Group	Analyte	Units	Well ID	FOD	Range	Mean	Elevated Non-detects (n)	FOD	Range	Interval	Interval Method	2023 No Purge Result	Notes	Percent Difference between Low Flow Mean and No Purge Result
PFAS	Perfluoropentanesulfonic acid (PFPeS)	ng/L	MW-118WT	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluoropentanesulfonic acid (PFPeS)	ng/L	MW-122WT	0/1 (0%)	<3.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.70	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	Perfluoropentanesulfonic acid (PFPeS)	ng/L	MW-125WT	1/1 (100%)	1.20	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.20 - 1.40	2020 result within range of no purge results.	--
PFAS	Perfluoropentanesulfonic acid (PFPeS)	ng/L	MW-131WT	2/3 (66.7%)	<4.00 - 2.80	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.00	No purge result within range of 2018 to 2022 results.	--
PFAS	Perfluoropentanesulfonic acid (PFPeS)	ng/L	MW-134WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluoropentanesulfonic acid (PFPeS)	ng/L	MW-183WT	0/3 (0%)	<3.20 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	0.950	No purge result greater than range of 2018 to 2021 results.	--
PFAS	Perfluoropentanesulfonic acid (PFPeS)	ng/L	QPTW-13R	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluoropentanesulfonic acid (PFPeS)	ng/L	TWW-1	0/2 (0%)	<3.60 - <3.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluoropentanesulfonic acid (PFPeS)	ng/L	X-10AR2	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.80	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluoropentanesulfonic acid (PFPeS)	ng/L	X-2A	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluoropentanesulfonic acid (PFPeS)	ng/L	X-9AR	0/3 (0%)	<3.60 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluoropentanoic acid (PFPeA)	ng/L	B-3R	2/3 (66.7%)	<3.70 - 13.4	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge non-detect detection limit within range of 2018 to 2022 results.	--
PFAS	Perfluoropentanoic acid (PFPeA)	ng/L	MW-108WT	2/2 (100%)	1.77 - 2.10	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge non-detect detection limit greater than range of 2018 to 2020 results.	--
PFAS	Perfluoropentanoic acid (PFPeA)	ng/L	MW-117S1	0/2 (0%)	<3.70 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.70	No purge result greater than range of 2020 to 2021 results.	--
PFAS	Perfluoropentanoic acid (PFPeA)	ng/L	MW-117WT	2/2 (100%)	43.9 - 134	--	--	--	--	--	Prediction interval not estimated due to sample size.	45.0	No purge result within range of 2020 to 2021 results.	--
PFAS	Perfluoropentanoic acid (PFPeA)	ng/L	MW-118WT	2/2 (100%)	4.80 - 23.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	13.0	No purge result within range of 2020 to 2021 results.	--
PFAS	Perfluoropentanoic acid (PFPeA)	ng/L	MW-122WT	1/1 (100%)	6.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	4.60	No purge result less than 2021 result.	--
PFAS	Perfluoropentanoic acid (PFPeA)	ng/L	MW-125WT	1/1 (100%)	2.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.40 - 1.40	No purge result less than 2020 result.	--
PFAS	Perfluoropentanoic acid (PFPeA)	ng/L	MW-131WT	2/3 (66.7%)	<3.70 - 5.90	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge non-detect detection limit within range of 2018 to 2022 results.	--
PFAS	Perfluoropentanoic acid (PFPeA)	ng/L	MW-134WT	3/3 (100%)	2.70 - 5.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge non-detect detection limit within range of 2018 to 2022 results.	--
PFAS	Perfluoropentanoic acid (PFPeA)	ng/L	MW-183WT	2/3 (66.7%)	<4.00 - 2.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	1.00	No purge result within range of 2018 to 2021 results.	--
PFAS	Perfluoropentanoic acid (PFPeA)	ng/L	QPTW-13R	2/3 (66.7%)	<3.70 - 38.4	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge non-detect detection limit within range of 2018 to 2022 results.	--
PFAS	Perfluoropentanoic acid (PFPeA)	ng/L	TWW-1	2/2 (100%)	8.00 - 9.30	--	--	--	--	--	Prediction interval not estimated due to sample size.	3.70	No purge result less than range of 2020 to 2021 results.	--
PFAS	Perfluoropentanoic acid (PFPeA)	ng/L	X-10AR2	1/3 (33.3%)	<3.40 - 1.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	0.720	No purge result within range of 2018 to 2021 results.	--
PFAS	Perfluoropentanoic acid (PFPeA)	ng/L	X-2A	1/3 (33.3%)	<3.40 - 18.1	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge non-detect detection limit within range of 2018 to 2021 results.	--
PFAS	Perfluoropentanoic acid (PFPeA)	ng/L	X-9AR	2/3 (66.7%)	<4.00 - 4.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	0.560	No purge result within range of 2018 to 2021 results.	--
PFAS	Perfluorotetradecanoic acid (PFTeA)	ng/L	B-3R	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorotetradecanoic acid (PFTeA)	ng/L	MW-108WT	0/2 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2018 to 2020 results are non-detect.	--
PFAS	Perfluorotetradecanoic acid (PFTeA)	ng/L	MW-117S1	0/2 (0%)	<3.70 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorotetradecanoic acid (PFTeA)	ng/L	MW-117WT	0/2 (0%)	<3.70 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<40.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorotetradecanoic acid (PFTeA)	ng/L	MW-118WT	0/2 (0%)	<3.70 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorotetradecanoic acid (PFTeA)	ng/L	MW-122WT	0/1 (0%)	<18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.70	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	Perfluorotetradecanoic acid (PFTeA)	ng/L	MW-125WT	0/1 (0%)	<3.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60 - <3.70	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	Perfluorotetradecanoic acid (PFTeA)	ng/L	MW-131WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorotetradecanoic acid (PFTeA)	ng/L	MW-134WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorotetradecanoic acid (PFTeA)	ng/L	MW-183WT	0/3 (0%)	<3.70 - <32.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorotetradecanoic acid (PFTeA)	ng/L	QPTW-13R	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorotetradecanoic acid (PFTeA)	ng/L	TWW-1	0/2 (0%)	<3.60 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorotetradecanoic acid (PFTeA)	ng/L	X-10AR2	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.80	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorotetradecanoic acid (PFTeA)	ng/L	X-2A	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorotetradecanoic acid (PFTeA)	ng/L	X-9AR	0/3 (0%)	<3.70 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorotridecanoic Acid (PFTriA)	ng/L	B-3R	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorotridecanoic Acid (PFTriA)	ng/L	MW-108WT	0/2 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2018 to 2020 results are non-detect.	--
PFAS	Perfluorotridecanoic Acid (PFTriA)	ng/L	MW-117S1	0/2 (0%)	<3.70 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorotridecanoic Acid (PFTriA)	ng/L	MW-117WT	0/2 (0%)	<3.70 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<40.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorotridecanoic Acid (PFTriA)	ng/L	MW-118WT	0/2 (0%)	<3.70 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorotridecanoic Acid (PFTriA)	ng/L	MW-122WT	0/1 (0%)	<18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.70	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	Perfluorotridecanoic Acid (PFTriA)	ng/L	MW-125WT	0/1 (0%)	<3.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60 - <3.70	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	Perfluorotridecanoic Acid (PFTriA)	ng/L	MW-131WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorotridecanoic Acid (PFTriA)	ng/L	MW-134WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorotridecanoic Acid (PFTriA)	ng/L	MW-183WT	0/3 (0%)	<3.20 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorotridecanoic Acid (PFTriA)	ng/L	QPTW-13R	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluorotridecanoic Acid (PFTriA)	ng/L	TWW-1	0/2 (0%)	<3.60 - <3.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluorotridecanoic Acid (PFTriA)	ng/L	X-10AR2	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.80	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorotridecanoic Acid (PFTriA)	ng/L	X-2A	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluorotridecanoic Acid (PFTriA)	ng/L	X-9AR	0/3 (0%)	<3.70 - <18.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluoroundecanoic acid (PFUnA)	ng/L	B-3R	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluoroundecanoic acid (PFUnA)	ng/L	MW-108WT	0/2 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2018 to 2020 results are non-detect.	--
PFAS	Perfluoroundecanoic acid (PFUnA)	ng/L	MW-117S1	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluoroundecanoic acid (PFUnA)	ng/L	MW-117WT	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<40.0	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluoroundecanoic acid (PFUnA)	ng/L	MW-118WT	0/2 (0%)	<3.60 - <3.70	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluoroundecanoic acid (PFUnA)	ng/L	MW-122WT	0/1 (0%)	<3.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.70	Indeterminate - no purge and 2021 results are non-detect.	--
PFAS	Perfluoroundecanoic acid (PFUnA)	ng/L	MW-125WT	0/1 (0%)	<3.40	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60 - <3.70	Indeterminate - no purge and 2020 results are non-detect.	--
PFAS	Perfluoroundecanoic acid (PFUnA)	ng/L	MW-131WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluoroundecanoic acid (PFUnA)	ng/L	MW-134WT	0/3 (0%)	<3.70 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluoroundecanoic acid (PFUnA)	ng/L	MW-183WT	0/3 (0%)	<3.20 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluoroundecanoic acid (PFUnA)	ng/L	QPTW-13R	0/3 (0%)	<3.70 - <19.0	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.50	Indeterminate - no purge and 2018 to 2022 results are non-detect.	--
PFAS	Perfluoroundecanoic acid (PFUnA)	ng/L	TWW-1	0/2 (0%)	<3.60 - <3.60	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.60	Indeterminate - no purge and 2020 to 2021 results are non-detect.	--
PFAS	Perfluoroundecanoic acid (PFUnA)	ng/L	X-10AR2	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.80	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--

Statistical Analysis Summary Table
RACER Saginaw Malleable, Saginaw, Michigan

				Pre-2023 Low Flow Data Result				Dataset for Prediction Interval Assessment						
Analyte Group	Analyte	Units	Well ID	FOD	Range	Mean	Elevated Non-detects (n)	FOD	Range	Interval	Interval Method	2023 No Purge Result	Notes	Percent Difference between Low Flow Mean and No Purge Result
PFAS	Perfluoroundecanoic acid (PFUnA)	ng/L	X-2A	0/3 (0%)	<3.40 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
PFAS	Perfluoroundecanoic acid (PFUnA)	ng/L	X-9AR	0/3 (0%)	<3.60 - <4.00	--	--	--	--	--	Prediction interval not estimated due to sample size.	<3.40	Indeterminate - no purge and 2018 to 2021 results are non-detect.	--
													Total Average	**58.28**

Notes:

Prediction intervals for 1 future observation assessed for datasets with at least 8 samples and a frequency of detect (FOD) greater than 50%.

Samples with non-detect detection intervals greater than maximum detected result were excluded from the prediction interval assessment.

If the assumption is that the data (or log-transformed data) follow a normal distribution, prediction intervals were constructed using standard methods.

The data distribution of the untransformed and log-transformed datasets were tested and the "best-fit" dataset was used to construct the parametric prediction interval.

The distribution of datasets without non-detect (ND) results were tested using the gofTest function and prediction intervals were constructed using the predIntNorm (for untransformed datasets) or predIntLnorm (for log-transformed datasets) function in the R EnvStats package (Millard, 2013) .

The distribution of datasets with non-detect (ND) results were tested using the gofTestCensored function and prediction intervals were constructed using the cenPredInt function in the R EnvStats package (Millard, 2013) .

If the dataset(or log-transformed dataset) did not follow a normal distribution, nonparametric predication intervals were constructed. Nonparametric prediction intervals were constructed using the predIntNpar function in the R EnvStats package (Millard, 2013) .

Attachment 6

SMI Well Construction Logs, Sampling Parameters, and Field Parameters

Attachment 6
Monitoring Well Sampling Plan and Construction Summary
2023 Annual Report
RACER Trust
Saginaw Malleable Industrial Land
Saginaw, Michigan

Well ID	Screen Interval (ft bgs)[1]	Screened Unit/Zone	Well Construction	Date Installed	TIC[2] Elevation (ft AMSL)[3]
B-3R	16-26	Upper Sand	2” PVC	5/22/1995	609.51
MW-107WT	4-9	Water Table	2" PVC	12/23/1994	590.65
MW-107S1	12.5-17.5	Upper Sand	2" PVC	12/23/1994	590.74
MW-108WT	2.5-7.5	Water Table	2" PVC	12/21/9194	590.53
MW-108S2	22-27	Upper Sand	2" PVC	12/21/1994	590.26
MW-110WTR	3-8	Water Table	2" PVC	11/9/2001	591.52
MW-111WT	5.5-10.5	Water Table	2" PVC	1/6/1995	590.95
MW-114WT	3.5-8.5	Water Table	2" PVC	1/10/1995	591.12
MW-114S2	22.5-27.5	Upper Sand	2" PVC	1/10/1995	591.20
MW-131WT	2-12	Water Table	2" PVC	1/13/1995	592.56
MW-134WT	4-9	Water Table	2" PVC	1/9/1995	594.02
MW-149WT	7-17	Water Table	2" PVC	9/21/1995	592.27
MW-185WT	3-8	Water Table	2" PVC	11/8/2001	588.67
MW-186WT	8-18	Water Table	2" PVC	NA	590.34
QPTW-13R	4-14	Water Table	2” PVC	8/16/2017	594.04

Notes:

[1] Depths are in feet below ground surface (ft bgs)

[2] TIC = top of inner casing

[3] Elevations are in feet above mean sea level (ft AMSL)

“ PVC = inch polyvinyl chloride

NA = not available

Attachment 6
Groundwater Sampling Analytical Parameters
RACER Saginaw Malleable Industrial Land
Saginaw, Michigan

		Constituent & Preservative - Container Description											
Well ID	**Proposed Monitoring Plan (2020)**	**Ammonia Nitrogen (NH_3-N) and Phosphorus (P) H_2SO_4 - 250mL Poly**	**Total Arsenic (As) and Total Manganese (Mn) HNO_3 - 250mL Poly**	**Dissolved Arsenic unpreserved - 250mL Poly**	**8270 SVOCs unpreserved - 2x100mL Amber**	**8082 Total PCBs unpreserved - 2x100mL Amber**	**8082 Dissolved PCBs unpreserved - 2x100mL Amber**	**PFAS unpreserved - 2x250mL HDPE**	**screen interval**	QAQC/Comments	Sampling Comments	**Previous Total Volume (mL)**	**PACE Minimum Total Volume (mL)**	**PACE Recommended Total Volume (mL)**
MW-107WT	Ammonia nitrogen, phosphorus,arsenic (total and dissolved), and total manganese	60 - 200 mL (NH_3-N,P)	3 x (100 - 150) mL (As,Mn)	3 x (50 - 100) mL					4-9	MS/MSD for total and dissolved arsenic, and total manganese	Sample collected with bailer. Colleced recommended total volume for samples.	7,500	510	1,750
MW-108WT	SVOCs, ammonia nitrogen, phosphorus, total manganese, and PFAS	60 - 250 mL (NH_3-N,P)	50-100 mL (Mn)		4 x 100 mL			1 x 250 mL	2.5-7.5	Duplicate for SVOCs MS/MSD for SVOCs Note: Can only fill one 100 mL bottle for each SVOC sample. Note: Collect only one 250 mL bottle for PFAs, if extra volume fill a second 250 mL bottle.	The hydrasleeve deployed did not collect water upon retrieval. The water column in the well is too shallow to obtain a sample with use of a hydrasleeve. The sample was collected with a bailer.	10,000	760	1,800
MW-110WTR	PCBs (total and dissolved,) ammonia nitrogen, phosphorus, and total manganese	60 - 250 mL (NH_3-N,P)	2 x (50 - 175) mL (Mn)			2 x 100 mL	2 x 100 mL		3-8	Duplicate for total manganese	Sample collected with hydrasleeve. PCBs were collected from the first deployment. Hydrasleeve was redeployed to collect sample for ammonia nitrogen, phosphorus, and total manganese.	6,000	360	1,150
MW-111WT	PCBs (total and dissolved), ammonia nitrogen, phosphorus, and total manganese	60 - 100 mL (NH_3-N,P)	50 - 100 mL (Mn)			2-4 x 100 mL	2-4 x 100 mL		5.5-10.5	Duplicate for total and dissolved PCBs Note: May only be able to fill 100mL bottle for each	Sample collected with hydrasleeve. PCBs were collected from the first deployment.	9,500	510	1,300
MW-114WT	PCBs (total and dissolved), ammonia nitrogen, phosphorus, and total manganese	3 x (60 -150 mL) (NH_3-N,P)	50 - 150 mL (Mn)			2 x 100 mL	2 x 100 mL		3.5-8.56	MS/MSD for ammonia nitrogen and phosphorus	Sample collected with hydrasleeve.	5,500	430	1,400
MW-149WT	Ammonia nitrogen, phosphorus, and arsenic (total and dissolved)	2 x (60 - 200) mL (NH_3-N,P)	2 x (50 -200) mL (As)	2 x (50 - 100) mL					7-17	Duplicate for ammonia nitrogen, phosphorus, and total and dissolved arsenic	Sample collected with hydrasleeve.	4,000	320	1,500
MW-185WT	PCBs (total and dissolved), ammonia nitrogen, phosphorus, and total manganese	60 - 250 mL (NH_3-N,P)	50 - 250 mL (Mn)			2 x 100 mL	2 x 100 mL		3-8		Sample collected with hydrasleeve. Full sample collected during first deployment.	5,500	310	900
MW-186WT	PCBs (total and dissolved), ammonia nitrogen, phosphorus, and total manganese	60 - 100 mL (NH_3-N,P)	50 - 100 mL (Mn)			3-4 x 100 mL	3-4 x 100 mL		8-18	MS/MSD for total and dissolved PCBs Note: May only be able to fill 100mL bottle for each. If able to fill more double to sample bottles for the original sample and one for each MS and MSD.	Sample collected with hydrasleeve. Full sample collected during first deployment.	13,500	710	1,700
MW-107S1	Ammonia nitrogen	250 mL (NH_3-N)							12.5-17.5		Sample collected with hydrasleeve.	500	10	250
MW-108S2	Ammonia nitrogen	2 x 250 mL (NH_3-N)							22-27	Duplicate for ammonia nitrogen	Sample collected with hydrasleeve.	1,000	20	500
MW-114S2	Ammonia nitrogen	250 mL (NH_3-N)							22.5-27.5		Sample collected with hydrasleeve.	500	10	250
MW-131WT	PFAS							2 x 250 mL	2-12		Sample collected with hydrasleeve.	500	250	500
MW-134WT	PFAS							2 x 250 mL	4-9		Sample collected with hydrasleeve.	500	250	500
B-3R	PFAS							2 x 250 mL	16-26		Sample collected with hydrasleeve.	500	250	500
QPTW-13R	PFAS							4 x 250 mL	4-14	Duplicate for PFAS	Sample collected with hydrasleeve.	1,000	500	1,000

Notes:

HDPE = high-density ploye thylene
HNO_3 = nitric acid
H_2SO_4 = sulfuric acid
NH_3-N = Ammonia Nitrogen
P = Phosphours
Mn = Manganese
As = Arsenic
L = liter
mL = milliliter
MS/MSD = matrix spike/matrix spike duplicate
PCB = polychlorinated biphenols
PFAS = per- and ploy fluoroalkyl substances
SVOC = semi volatile organic compound

Note: Each sample location are provided ranges of sample volumes to collect. The minimum limit is the absolute minimum volume that can be collected in order to run the analysis and the upper limit is what can be collected in order to conserve sample volume and be able to obtain samples for the remaining parameters.

Attachment 6
Field Parameters, 2023 Annual Report
RACER Trust Saginaw Malleable Industrial Land
Saginaw, Michigan

ARCADIS Design & Consultancy for natural and built assets

Well ID	Date Sampled	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH (SU)	Temperature (°C)	Turbidity (NTUs)
B-3R	**8/11/20**	0.940	0.27	-236	7.99	16.3	4.55
B-3R	**8/19/21**	0.799	0.06	-231.5	8.09	15.8	20.8
B-3R	**9/26/22**	0.980	0.14	-209.8	8.10	13.2	9.34
B-3R[3]	**9/14/23**	0.750	1.84	-148.5	7.82	14.1	92.6
MW-107S1	**9/30/10**	1.258	0.40	-104.2	7.54	22.9	0.35
MW-107S1	**9/21/11**	1.260	0.90	-111.7	7.11	14.9	0.6
MW-107S1	**9/17/12**	1.109	-[2]	-83.0	7.19	15.3	1.02
MW-107S1	**9/25/13**	3.474	0.79	180.3	7.41	12.7	0.1
MW-107S1	**9/24/14**	1.149	3.03	-76.8	7.40	12.7	2.3
MW-107S1	**10/1/15**	1.520	0.19	74.33	7.13	14.2	8.2
MW-107S1	**9/29/16**	0.547	0.49	9.54	7.03	14.3	1.8
MW-107S1	**8/30/17**	1.237	0.52	-91.8	7.34	17.0	1.55
MW-107S1	**9/26/18**	1.110	0.26	-90.1	7.09	14.2	0.02
MW-107S1	**8/21/19**	1.370	0.10	-82.4	7.34	15.5	0.02
MW-107S1	**8/11/20**	1.360	0.12	-131.2	7.46	17.5	0.02
MW-107S1	**8/20/21**	1.186	0.08	-135.7	7.45	17.9	1.46
MW-107S1	**9/26/22**	1.360	2.30	-104.9	7.31	12.8	0.04
MW-107S1[3]	**9/14/23**	1.304	1.96	-106.5	7.44	12.4	7.64
MW-107WT	**DRY 2010 and 2011**	NA	NA	NA	NA	NA	NA
MW-107WT[1]	**9/18/12**	NA	NA	NA	NA	NA	11.0
MW-107WT[1]	**9/26/13**	NA	NA	NA	NA	NA	93.2
MW-107WT[1]	**9/24/14**	0.861	0.64	-88.8	6.94	14.3	1.3
MW-107WT	**10/1/15**	1.239	5.06	-110.08	7.18	18.1	1.9
MW-107WT	**9/29/16**	0.401	0.62	35.2	6.90	15.6	1.05
MW-107WT	**8/30/17**	0.928	8.90	78	7.23	21.6	1.26
MW-107WT	**9/26/18**	0.870	0.91	-29.3	6.96	18.1	0.71
MW-107WT	**8/21/19**	0.910	0.57	70.4	7.05	20.4	0.02
MW-107WT	**8/11/20**	0.880	1.01	48.4	7.11	20.3	0.02
MW-107WT	**8/20/21**	0.813	0.19	-162.1	7.53	16.9	1.42
MW-107WT	**9/26/22**	1.060	0.33	-127.9	7.22	14.4	0.49
MW-107WT[4]	**9/14/23**	1.099	3.52	-32.4	7.24	13.7	278

Attachment 6
Field Parameters, 2023 Annual Report
RACER Trust Saginaw Malleable Industrial Land
Saginaw, Michigan

ARCADIS Design & Consultancy for natural and built assets

Well ID	Date Sampled	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH (SU)	Temperature (°C)	Turbidity (NTUs)
MW-108S2	**9/28/10**	1.142	0.12	-116.6	7.52	13.9	0.4
MW-108S2	**9/21/11**	0.808	0.63	-96.9	7.51	13.9	3.8
MW-108S2	**9/17/12**	0.901	0.28	-238.8	7.38	13.2	0.83
MW-108S2	**9/26/13**	2.641	0.37	160.1	7.49	12.4	0.8
MW-108S2	**9/24/14**	Missing field notes					
MW-108S2	**10/1/15**	1.062	0.14	103.92	7.59	13.5	8.9
MW-108S2	**9/29/16**	0.395	0.52	7.28	7.10	15.0	1.43
MW-108S2	**8/30/17**	0.644	0.36	-124.3	7.61	16.5	1.92
MW-108S2	**9/26/18**	0.630	1.45	-83.7	7.25	12.1	0.02
MW-108S2	**8/21/19**	0.950	0.27	-138.8	7.44	18.9	0.02
MW-108S2	**8/11/20**	0.890	0.24	-87.1	7.48	17.0	7.34
MW-108S2	**8/19/21**	1.030	0.15	-110.9	7.27	18.4	5.95
MW-108S2	**9/27/22**	0.810	0.32	-140.4	7.82	11.9	8.58
MW-108S2[3]	**9/14/23**	0.891	2.13	-77.8	7.35	12.3	91.3
MW-108WT	**DRY 2010 through 2014**	NA	NA	NA	NA	NA	NA
MW-108WT	**9/29/16**	0.310	0.51	4.45	6.55	16.6	0.87
MW-108WT	**8/30/17**	Purged dry, sampled on 8/31/17					
MW-108WT	**9/27/18**	0.620	0.52	158.4	6.30	14.1	0.80
MW-108WT	**8/21/19**	0.740	0.32	58.1	6.86	22.3	0.02
MW-108WT	**8/13/20**	0.700	0.21	-44.1	6.86	21.9	1.75
MW-108WT	**8/19/21**	0.780	0.87	-36.1	6.90	23.2	1.01
MW-108WT	**9/27/22**	Well was pumped dry, unable to sample					
MW-108WT[3]	**9/14/23**	0.649	5.61	225	6.82	14.8	145
MW-110WTR	**DRY 2010 through 2013**	NA	NA	NA	NA	NA	NA
MW-110WTR	**9/24/14**	Missing field notes					
MW-110WTR	**10/1/15**	2.198	0.62	-117.47	6.91	14.1	7.71
MW-110WTR	**9/29/16**	0.683	0.52	-29.39	6.47	14.6	0.86
MW-110WTR	**8/31/17**	1.133	0.51	-100.1	6.67	16.0	1.9
MW-110WTR	**9/27/18**	1.280	0.93	-51.7	6.32	16.0	0.94
MW-110WTR	**8/21/19**	0.980	0.31	-87.9	7.07	18.8	0.02
MW-110WTR	**8/12/20**	0.940	0.59	-55	6.85	16.9	0.02
MW-110WTR	**8/19/21**	1.060	0.18	-84.4	6.77	20.5	1.96

Well ID	Date Sampled	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH (SU)	Temperature (°C)	Turbidity (NTUs)
MW-110WTR	**9/27/22**	1.100	0.29	-123.2	6.84	12.8	1.85
MW-110WTR[3]	**9/14/23**	1.080	2.90	-83.2	6.94	15.3	111

Attachment 6
Field Parameters, 2023 Annual Report
RACER Trust Saginaw Malleable Industrial Land
Saginaw, Michigan

ARCADIS Design & Consultancy for natural and built assets

Well ID	Date Sampled	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH (SU)	Temperature (°C)	Turbidity (NTUs)
MW-111WT	**DRY 2010 and 2011**	NA	NA	NA	NA	NA	NA
MW-111WT[1]	**9/18/12**	NA	NA	NA	NA	NA	5.36
MW-111WT[1]	**9/26/13**	NA	NA	NA	NA	NA	6.62
MW-111WT	**9/23/14**	Missing field notes					
MW-111WT	**10/1/15**	1.206	0.21	109.71	7.05	13.1	6.34
MW-111WT	**9/29/16**	0.403	0.50	-32.78	6.66	15.4	1.02
MW-111WT	**8/31/17**	0.762	0.47	-66.9	7.25	18.8	1.85
MW-111WT	**9/27/18**	0.840	0.21	-43.7	6.91	17.7	0.02
MW-111WT	**8/22/19**	0.830	0.07	-164.8	7.11	17.3	8.46
MW-111WT	**8/12/20**	0.780	0.21	-155.7	7.17	21.7	0.02
MW-111WT	**8/23/21**	0.820	0.38	-118.2	6.91	20.8	0.74
MW-111WT	**9/27/22**	0.820	0.15	-169.3	7.32	13.7	1.73
MW-111WT[3]	**9/14/23**	0.885	1.62	-119.8	7.11	15.8	80.7
MW-114S2	**9/29/10**	0.690	0.10	-118.5	8.40	16.4	1.0
MW-114S2	**9/22/11**	0.929	1.83	-109.6	7.20	16.3	1.1
MW-114S2	**9/18/12**	0.809	7.67	-21.1	7.25	14.3	3.47
MW-114S2	**9/25/13**	2.810	0.63	-206.2	7.37	14.2	0.2
MW-114S2	**9/23/14**	0.637	0.07	-113.4	6.73	16.0	1.3
MW-114S2	**10/1/15**	0.650	0.36	127.66	7.29	14.0	5.5
MW-114S2	**9/29/16**	0.257	0.45	-42.57	6.96	16.0	1.02
MW-114S2	**9/1/17**	0.783	0.56	-119.2	7.33	16.1	1.95
MW-114S2	**9/28/18**	0.487	0.55	-19.6	6.62	14.6	4.33
MW-114S2	**8/22/19**	0.555	0.53	35.4	7.28	17.6	3.28
MW-114S2	**8/13/20**	0.710	0.36	-28.2	6.45	17.1	3.83
MW-114S2	**8/20/21**	0.520	0.13	-64.9	7.21	18.3	1.94
MW-114S2	**9/27/22**	0.546	0.10	-111.4	7.17	14.3	0.02
MW-114S2[3]	**9/14/23**	0.526	1.48	-114.6	7.55	16.2	259

Attachment 6
Field Parameters, 2023 Annual Report
RACER Trust Saginaw Malleable Industrial Land
Saginaw, Michigan

ARCADIS Design & Consultancy for natural and built assets

Well ID	Date Sampled	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH (SU)	Temperature (ºC)	Turbidity (NTUs)
MW-114WT	**DRY 2010, 2011 and 2012**	NA	NA	NA	NA	NA	NA
MW-114WT[1]	**9/25/13**	NA	NA	NA	NA	NA	12.3
MW-114WT	**9/23/14**	0.705	0.19	-88.1	6.43	20.3	0.98
MW-114WT	**10/1/15**	1.026	1.16	112.83	6.67	16.2	8.68
MW-114WT	**9/29/16**	0.277	0.66	-21.73	6.77	18.5	1.39
MW-114WT	**8/31/17**	0.527	0.41	-146.1	7.11	19.7	1.96
MW-114WT	**9/28/18**	0.590	0.71	26.3	6.72	16.1	0.02
MW-114WT	**8/22/19**	0.580	0.18	-126.6	6.99	22.5	9.63
MW-114WT	**8/13/20**	0.510	0.04	-153.7	7.21	25.4	0.72
MW-114WT	**8/20/21**	0.730	0.26	-96.3	7.05	20.4	1.71
MW-114WT	**9/27/22**	0.393	0.17	-148.8	7.14	14.7	0.02
MW-114WT[3]	**9/14/23**	0.648	1.84	-113	7.10	18.6	34.9
MW-131WT	**8/11/20**	0.750	0.12	-122.4	7.21	19.5	0.53
MW-131WT	**8/19/21**	0.581	0.09	-148.8	7.57	19.0	1.88
MW-131WT[3]	**9/26/22**	0.660	0.28	-106.3	7.60	14.9	4.71
MW-131WT[3]	**9/14/23**	0.599	2.51	189.2	7.06	17.0	16.94
MW-134WT	**8/11/20**	1.190	10.00	-129.5	7.00	17.3	0.93
MW-134WT	**8/19/21**	0.835	0.11	-135.9	7.06	18.5	1.44
MW-134WT	**9/27/22**	0.970	0.24	-131.9	7.11	12.8	7.42
MW-134WT[3]	**9/14/23**	0.690	2.71	-97.4	6.96	15.0	42.6
MW-149WT	**9/30/10**	1.395	0.53	-133.4	6.91	12.8	1.6
MW-149WT	**9/28/11**	1.441	0.43	-136.6	6.77	13.8	1.7
MW-149WT	**9/18/12**	1.161	-[2]	-75.0	6.73	14.0	0.72
MW-149WT	**9/25/13**	4.722	0.28	-150.7	6.70	14.9	1.25
MW-149WT	**9/24/14**	Missing field notes					
MW-149WT	**10/1/15**	1.234	0.21	87.25	6.82	13.2	5.58
MW-149WT	**9/29/16**	0.455	0.56	48.33	6.50	14.9	1.89
MW-149WT	**8/30/17**	1.014	0.34	-82.8	7.13	16.1	1.92
MW-149WT	**9/26/18**	1.050	0.56	-71.2	6.42	15.0	0.02
MW-149WT	**8/21/19**	1.070	0.27	-113.4	6.86	17.4	0.21
MW-149WT	**8/11/20**	0.860	0.16	-127.9	7.03	14.6	0.02
MW-149WT	**8/11/21**	0.856	0.11	-118	6.91	16.1	4.60

Well ID	Date Sampled	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH (SU)	Temperature (°C)	Turbidity (NTUs)
MW-149WT	**9/27/22**	1.020	0.03	-127.0	6.79	12.0	9.01
MW-149WT[3]	**9/14/23**	1.110	3.01	-81.1	6.89	12.5	139

Well ID	Date Sampled	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH (SU)	Temperature (ºC)	Turbidity (NTUs)
MW-185WT	**DRY 2010 and 2011**	NA	NA	NA	NA	NA	NA
MW-185WT[1]	**9/18/12**	NA	NA	NA	NA	NA	27.7
MW-185WT[1]	**9/25/13**	NA	NA	NA	NA	NA	19.7
MW-185WT	**9/24/14**	0.480	0.29	-125.7	7.75	22.0	1.65
MW-185WT	**10/1/15**	0.597	0.67	-150.33	7.91	14.9	5.67
MW-185WT	**9/29/16**	0.213	0.37	74.88	7.18	19.1	1.05
MW-185WT	**8/31/17**	0.417	0.70	-6.6	7.94	20.9	1.89
MW-185WT	**9/27/18**	0.420	0.46	69.2	7.24	18.6	0.02
MW-185WT	**8/22/19**	0.417	0.95	80.5	7.55	20.6	0.02
MW-185WT	**8/14/20**	0.429	0.31	203.4	7.62	20.4	1.48
MW-185WT	**8/23/21**	0.560	0.26	63.8	7.62	23.2	1.98
MW-185WT	**9/27/22**	0.381	0.46	0.60	7.52	11.9	0.02
MW-185WT[3]	**9/14/23**	0.559	3.29	-88.80	7.64	17.8	144
MW-186WT	**9/29/10**	0.530	0.39	-130.1	7.88	14.5	0.6
MW-186WT	**9/28/11**	0.940	1.68	-136	8.04	14.2	0.5
MW-186WT	**9/18/12**	0.748	4.43	-222.8	7.43	15.1	0.60
MW-186WT	**9/25/13**	2.239	0.48	-104.2	6.86	16.2	0.5
MW-186WT	**9/24/14**	0.853	0.24	-124.9	6.50	19.0	1.5
MW-186WT	**10/1/15**	0.597	0.67	-150.33	7.91	14.9	5.7
MW-186WT	**9/29/16**	0.295	0.46	99.39	6.90	15.5	2.43
MW-186WT	**8/31/17**	0.529	0.35	-120.1	7.36	20.6	1.97
MW-186WT	**9/27/18**	0.477	0.28	-143.6	7.29	16.8	9.05
MW-186WT	**8/22/19**	0.583	0.87	89.5	7.26	21.3	4.90
MW-186WT	**8/12/20**	0.435	0.16	173.5	7.62	20.5	3.53
MW-186WT	**8/24/21**	0.547	0.38	-119.8	6.96	18.9	0.65
MW-186WT	**9/28/22**	0.519	0.25	-189.4	7.52	11.5	1.97
MW-186WT[3]	**9/14/23**	0.508	1.64	-127.5	7.43	18.1	261

Well ID	Date Sampled	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH (SU)	Temperature (ºC)	Turbidity (NTUs)
QPTW-13R	**8/11/20**	1.040	0.13	-88.3	6.89	18.7	4.23
QPTW-13R	**8/19/21**	1.064	0.09	-67.2	6.84	20.0	4.22
QPTW-13R	**9/26/22**	1.060	0.13	-81.2	6.96	16.3	0.02
QPTW-13R[3]	**9/14/23**	0.834	1.50	-63.1	6.82	16.7	1131

Notes:
ºC = Celsius
mg/L = milligrams per liter
mV = millivolts
NTUs = Nephelometric Turbidity Units
SU = Standard Units.
mS/cm = milliSiemens per centimeter.
NA = not applicable/not available.
1. Monitoring well purged dry upon sampling. Well was allowed to recharge and then a sample was collected. Only turbidity was measured prior to sampling.
2. No reading due to faulty dissolved oxygen sensor.
3. Sample collected with hydrasleeve.
4. Sample collected with bailer.

Attachment 7a

Laboratory Analytical Reports

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

September 29, 2023

Scott Clearwater
Arcadis U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, MI 48377

RE: Project: Saginaw SMI
Pace Project No.: 50354022

Dear Scott Clearwater:

Enclosed are the analytical results for sample(s) received by the laboratory on September 15, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Indianapolis
- Pace Analytical Services - Minneapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Olivia Deck
olivia.deck@pacelabs.com
(317)228-3102
Project Manager

Enclosures

cc: Amanda Robinson, Arcadis U.S., Inc.

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Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

CERTIFICATIONS

Project: Saginaw SMI
Pace Project No.: 50354022

Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8 Tribal Water Systems+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
GMP+ Certification #: GMP050884
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: AI-03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Approval: via MN 027-053-137
Minnesota Petrofund Registration #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification (A2LA) #: R-036
North Dakota Certification (MN) #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification (1700) #: CL101
Oklahoma Certification #: 9507
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Vermont Certification #: VT-027053137
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01
USDA Permit #: P330-19-00208

Pace Analytical Services Indianapolis

7726 Moller Road, Indianapolis, IN 46268
Illinois Accreditation #: 200074
Indiana Drinking Water Laboratory #: C-49-06
Kansas/TNI Certification #: E-10177
Kentucky UST Agency Interest #: 80226
Kentucky WW Laboratory ID #: 98019
Michigan Drinking Water Laboratory #9050
Ohio VAP Certified Laboratory #: CL0065
Oklahoma Laboratory #: 9204
Texas Certification #: T104704355
Wisconsin Laboratory #: 999788130
USDA Foreign Soil Permit #: 525-23-13-23119
USDA Compliance Agreement #: IN-SL-22-001

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Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

SAMPLE SUMMARY

Project: Saginaw SMI
Pace Project No.: 50354022

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50354022001	**MW-149WT_091423**	Water	09/14/23 09:30	09/15/23 09:05
50354022002	**DUP-09_091423**	Water	09/14/23 08:00	09/15/23 09:05
50354022003	**MW-107WT_091423**	Water	09/14/23 10:25	09/15/23 09:05
50354022004	**MW-107S1_091423**	Water	09/14/23 10:15	09/15/23 09:05
50354022005	**MW-110WTR_091423**	Water	09/14/23 11:45	09/15/23 09:05
50354022006	**DUP-07_091423**	Water	09/14/23 08:00	09/15/23 09:05
50354022007	**MW-111WT_091423**	Water	09/14/23 12:45	09/15/23 09:05
50354022008	**Dup-08_091423**	Water	09/14/23 08:00	09/15/23 09:05
50354022009	**MW-185WT_091423**	Water	09/14/23 13:30	09/15/23 09:05
50354022010	**MW-185WT_091423 Diss**	Water	09/14/23 13:30	09/15/23 09:05
50354022011	**MW-186WT_091423**	Water	09/14/23 14:00	09/15/23 09:05
50354022012	**MW-186WT_091424 Diss**	Water	09/14/23 14:00	09/15/23 09:05
50354022013	**Dup-08_091423 Diss**	Water	09/14/23 08:00	09/15/23 09:05
50354022014	**MW-111WT_091423 Diss**	Water	09/14/23 12:45	09/15/23 09:05
50354022015	**MW-110WTR_091423 Diss**	Water	09/14/23 11:45	09/15/23 09:05
50354022016	**MW-108WT_091423**	Water	09/14/23 09:45	09/15/23 09:05
50354022017	**DUP-06_091423**	Water	09/14/23 08:00	09/15/23 09:05
50354022018	**MW-108S2_091423**	Water	09/14/23 10:45	09/15/23 09:05
50354022019	**DUP-10_091423**	Water	09/14/23 08:00	09/15/23 09:05
50354022020	**MW-114WT_091423**	Water	09/14/23 14:45	09/15/23 09:05
50354022021	**MW-114WT_091423 Diss**	Water	09/14/23 14:45	09/15/23 09:05
50354022022	**MW-114S2_091423**	Water	09/14/23 14:50	09/15/23 09:05

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Indianapolis, IN 46268
(317)228-3100

SAMPLE ANALYTE COUNT

Project: Saginaw SMI
Pace Project No.: 50354022

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
50354022001	**MW-149WT_091423**	EPA 6010	JPK	1	PASI-I
		EPA 6010	ELK	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-P F	EPT	1	PASI-M
50354022002	**DUP-09_091423**	EPA 6010	JPK	1	PASI-I
		EPA 6010	ELK	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-P F	EPT	1	PASI-M
50354022003	**MW-107WT_091423**	EPA 6010	JPK	2	PASI-I
		EPA 6010	ELK	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-P F	EPT	1	PASI-M
50354022004	**MW-107S1_091423**	SM 4500-NH3 G	OAS	1	PASI-I
50354022005	**MW-110WTR_091423**	EPA 8082	KAV	8	PASI-I
		EPA 6010	JPK	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-P F	EPT	1	PASI-M
50354022006	**DUP-07_091423**	EPA 6010	JPK	1	PASI-I
50354022007	**MW-111WT_091423**	EPA 8082	KAV	8	PASI-I
		EPA 6010	JPK	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-P F	EPT	1	PASI-M
50354022008	**Dup-08_091423**	EPA 8082	KAV	8	PASI-I
50354022009	**MW-185WT_091423**	EPA 8082	KAV	8	PASI-I
		EPA 6010	JPK	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-P F	EPT	1	PASI-M
50354022010	**MW-185WT_091423 Diss**	EPA 8082	KAV	8	PASI-I
50354022011	**MW-186WT_091423**	EPA 8082	KAV	8	PASI-I
		EPA 6010	JPK	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-P F	EPT	1	PASI-M
50354022012	**MW-186WT_091424 Diss**	EPA 8082	KAV	8	PASI-I
50354022013	**Dup-08_091423 Diss**	EPA 8082	KAV	8	PASI-I
50354022014	**MW-111WT_091423 Diss**	EPA 8082	KAV	8	PASI-I
50354022015	**MW-110WTR_091423 Diss**	EPA 8082	KAV	8	PASI-I
50354022016	**MW-108WT_091423**	EPA 6010	JPK	1	PASI-I

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SAMPLE ANALYTE COUNT

Project: Saginaw SMI
Pace Project No.: 50354022

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8270	JCM	68	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-P F	EPT	1	PASI-M
50354022017	**DUP-06_091423**	EPA 8270	JCM	68	PASI-I
50354022018	**MW-108S2_091423**	SM 4500-NH3 G	OAS	1	PASI-I
50354022019	**DUP-10_091423**	SM 4500-NH3 G	OAS	1	PASI-I
50354022020	**MW-114WT_091423**	EPA 8082	KAV	8	PASI-I
		EPA 6010	JPK	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-P F	EPT	1	PASI-M
50354022021	**MW-114WT_091423 Diss**	EPA 8082	KAV	8	PASI-I
50354022022	**MW-114S2_091423**	SM 4500-NH3 G	OAS	1	PASI-I

PASI-I = Pace Analytical Services - Indianapolis
PASI-M = Pace Analytical Services - Minneapolis

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SUMMARY OF DETECTION

Project: Saginaw SMI
Pace Project No.: 50354022

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
50354022001	**MW-149WT_091423**					
EPA 6010	Arsenic	178	ug/L	5.0	09/22/23 02:50	
EPA 6010	Arsenic, Dissolved	37.0	ug/L	5.0	09/20/23 16:28	
SM 4500-NH3 G	Nitrogen, Ammonia	2.1	mg/L	0.10	09/29/23 15:18	
SM 4500-P F	Phosphorus	3.6	mg/L	0.10	09/26/23 13:01	
50354022002	**DUP-09_091423**					
EPA 6010	Arsenic	164	ug/L	5.0	09/22/23 02:52	
EPA 6010	Arsenic, Dissolved	36.7	ug/L	5.0	09/20/23 16:30	
SM 4500-NH3 G	Nitrogen, Ammonia	2.2	mg/L	0.10	09/29/23 15:19	
SM 4500-P F	Phosphorus	4.6	mg/L	0.10	09/26/23 13:46	
50354022003	**MW-107WT_091423**					
EPA 6010	Arsenic	52.0	ug/L	5.0	09/22/23 02:55	
EPA 6010	Manganese	5900	ug/L	10.0	09/22/23 02:55	
SM 4500-NH3 G	Nitrogen, Ammonia	0.19	mg/L	0.10	09/29/23 15:20	
SM 4500-P F	Phosphorus	1.7	mg/L	0.10	09/26/23 13:03	
50354022004	**MW-107S1_091423**					
SM 4500-NH3 G	Nitrogen, Ammonia	1.5	mg/L	0.10	09/27/23 18:06	
50354022005	**MW-110WTR_091423**					
EPA 8082	PCB-1248 (Aroclor 1248)	0.14	ug/L	0.087	09/28/23 20:17	
EPA 6010	Manganese	2580	ug/L	10.0	09/22/23 03:28	
SM 4500-NH3 G	Nitrogen, Ammonia	0.18	mg/L	0.10	09/29/23 15:23	
SM 4500-P F	Phosphorus	0.63	mg/L	0.10	09/26/23 13:04	
50354022006	**DUP-07_091423**					
EPA 6010	Manganese	2610	ug/L	10.0	09/22/23 03:30	
50354022007	**MW-111WT_091423**					
EPA 6010	Manganese	1580	ug/L	50.0	09/22/23 03:37	
SM 4500-NH3 G	Nitrogen, Ammonia	3.2	mg/L	0.10	09/29/23 15:24	
SM 4500-P F	Phosphorus	4.0	mg/L	0.10	09/26/23 13:05	
50354022008	**Dup-08_091423**					
EPA 8082	PCB-1248 (Aroclor 1248)	28.4	ug/L	0.10	09/28/23 21:27	
50354022009	**MW-185WT_091423**					
EPA 6010	Manganese	34300	ug/L	30.0	09/22/23 03:54	
SM 4500-NH3 G	Nitrogen, Ammonia	0.64	mg/L	0.10	09/29/23 15:25	
SM 4500-P F	Phosphorus	3.9	mg/L	0.10	09/26/23 13:06	
50354022011	**MW-186WT_091423**					
EPA 6010	Manganese	6190	ug/L	50.0	09/22/23 03:42	
SM 4500-NH3 G	Nitrogen, Ammonia	1.1	mg/L	0.10	09/29/23 15:28	
SM 4500-P F	Phosphorus	17.7	mg/L	1.0	09/26/23 14:20	
50354022014	**MW-111WT_091423 Diss**					
EPA 8082	PCB-1248 (Aroclor 1248)	12.9	ug/L	0.091	09/28/23 21:41	

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SUMMARY OF DETECTION

Project: Saginaw SMI
Pace Project No.: 50354022

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
50354022016	**MW-108WT_091423**					
EPA 6010	Manganese	18000	ug/L	50.0	09/22/23 03:48	
EPA 8270	bis(2-Ethylhexyl)phthalate	51.3	ug/L	9.1	09/23/23 21:33	
EPA 8270	Phenol	10.2	ug/L	9.1	09/23/23 21:33	M1
SM 4500-NH3 G	Nitrogen, Ammonia	0.35	mg/L	0.10	09/29/23 15:31	
SM 4500-P F	Phosphorus	1.2	mg/L	0.10	09/26/23 13:02	
50354022018	**MW-108S2_091423**					
SM 4500-NH3 G	Nitrogen, Ammonia	5.2	mg/L	0.10	09/27/23 18:08	
50354022019	**DUP-10_091423**					
SM 4500-NH3 G	Nitrogen, Ammonia	5.8	mg/L	0.10	09/27/23 17:39	
50354022020	**MW-114WT_091423**					
EPA 6010	Manganese	1280	ug/L	50.0	09/22/23 03:57	
SM 4500-NH3 G	Nitrogen, Ammonia	1.0	mg/L	0.10	09/27/23 17:40	
SM 4500-P F	Phosphorus	0.92	mg/L	0.10	09/26/23 13:08	M1
50354022022	**MW-114S2_091423**					
SM 4500-NH3 G	Nitrogen, Ammonia	1.9	mg/L	0.10	09/27/23 17:43	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-149WT_091423 **Lab ID: 50354022001** Collected: 09/14/23 09:30 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	**178**	ug/L	5.0	1	09/18/23 16:00	09/22/23 02:50	7440-38-2	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	**37.0**	ug/L	5.0	1	09/18/23 08:44	09/20/23 16:28	7440-38-2	
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**2.1**	mg/L	0.10	1	09/29/23 12:37	09/29/23 15:18	7664-41-7	
SM4500P-F, Total Phosphorus	Analytical Method: SM 4500-P F Preparation Method: SM 4500-P B Pace Analytical Services - Minneapolis							
Phosphorus	**3.6**	mg/L	0.10	1	09/26/23 11:00	09/26/23 13:01	7723-14-0	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: DUP-09_091423 **Lab ID: 50354022002** Collected: 09/14/23 08:00 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	**164**	ug/L	5.0	1	09/18/23 16:00	09/22/23 02:52	7440-38-2	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	**36.7**	ug/L	5.0	1	09/18/23 08:44	09/20/23 16:30	7440-38-2	
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**2.2**	mg/L	0.10	1	09/29/23 12:37	09/29/23 15:19	7664-41-7	
SM4500P-F, Total Phosphorus	Analytical Method: SM 4500-P F Preparation Method: SM 4500-P B Pace Analytical Services - Minneapolis							
Phosphorus	**4.6**	mg/L	0.10	1	09/26/23 11:00	09/26/23 13:46	7723-14-0	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-107WT_091423 **Lab ID: 50354022003** Collected: 09/14/23 10:25 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	**52.0**	ug/L	5.0	1	09/18/23 16:00	09/22/23 02:55	7440-38-2	
Manganese	**5900**	ug/L	10.0	1	09/18/23 16:00	09/22/23 02:55	7439-96-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 08:44	09/20/23 16:32	7440-38-2	
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**0.19**	mg/L	0.10	1	09/29/23 12:37	09/29/23 15:20	7664-41-7	
SM4500P-F, Total Phosphorus	Analytical Method: SM 4500-P F Preparation Method: SM 4500-P B Pace Analytical Services - Minneapolis							
Phosphorus	**1.7**	mg/L	0.10	1	09/26/23 11:00	09/26/23 13:03	7723-14-0	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-107S1_091423 **Lab ID: 50354022004** Collected: 09/14/23 10:15 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**1.5**	mg/L	0.10	1	09/27/23 13:30	09/27/23 18:06	7664-41-7	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-110WTR_091423 **Lab ID: 50354022005** Collected: 09/14/23 11:45 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:17	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:17	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:17	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:17	53469-21-9	
PCB-1248 (Aroclor 1248)	**0.14**	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:17	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:17	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:17	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	43	%.	10-102	1	09/25/23 11:08	09/28/23 20:17	877-09-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Manganese	**2580**	ug/L	10.0	1	09/18/23 16:00	09/22/23 03:28	7439-96-5	
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**0.18**	mg/L	0.10	1	09/29/23 12:37	09/29/23 15:23	7664-41-7	
SM4500P-F, Total Phosphorus	Analytical Method: SM 4500-P F Preparation Method: SM 4500-P B Pace Analytical Services - Minneapolis							
Phosphorus	**0.63**	mg/L	0.10	1	09/26/23 11:00	09/26/23 13:04	7723-14-0	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: DUP-07_091423 **Lab ID: 50354022006** Collected: 09/14/23 08:00 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Manganese	**2610**	ug/L	10.0	1	09/18/23 16:00	09/22/23 03:30	7439-96-5	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-111WT_091423 **Lab ID: 50354022007** Collected: 09/14/23 12:45 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:31	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:31	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:31	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:31	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:31	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:31	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:31	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	40	%.	10-102	1	09/25/23 11:08	09/28/23 20:31	877-09-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Manganese	**1580**	ug/L	50.0	1	09/18/23 16:00	09/22/23 03:37	7439-96-5	
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**3.2**	mg/L	0.10	1	09/29/23 12:37	09/29/23 15:24	7664-41-7	
SM4500P-F, Total Phosphorus	Analytical Method: SM 4500-P F Preparation Method: SM 4500-P B Pace Analytical Services - Minneapolis							
Phosphorus	**4.0**	mg/L	0.10	1	09/26/23 11:00	09/26/23 13:05	7723-14-0	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: Dup-08_091423 **Lab ID: 50354022008** Collected: 09/14/23 08:00 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.10	1	09/25/23 11:08	09/28/23 21:27	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.10	1	09/25/23 11:08	09/28/23 21:27	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.10	1	09/25/23 11:08	09/28/23 21:27	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.10	1	09/25/23 11:08	09/28/23 21:27	53469-21-9	
PCB-1248 (Aroclor 1248)	**28.4**	ug/L	0.10	1	09/25/23 11:08	09/28/23 21:27	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.10	1	09/25/23 11:08	09/28/23 21:27	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.10	1	09/25/23 11:08	09/28/23 21:27	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	42	%.	10-102	1	09/25/23 11:08	09/28/23 21:27	877-09-8	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-185WT_091423 **Lab ID: 50354022009** Collected: 09/14/23 13:30 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.095	1	09/25/23 11:08	09/27/23 00:44	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.095	1	09/25/23 11:08	09/27/23 00:44	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.095	1	09/25/23 11:08	09/27/23 00:44	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.095	1	09/25/23 11:08	09/27/23 00:44	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.095	1	09/25/23 11:08	09/27/23 00:44	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.095	1	09/25/23 11:08	09/27/23 00:44	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.095	1	09/25/23 11:08	09/27/23 00:44	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	43	%.	10-102	1	09/25/23 11:08	09/27/23 00:44	877-09-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Manganese	**34300**	ug/L	30.0	3	09/18/23 16:00	09/22/23 03:54	7439-96-5	
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**0.64**	mg/L	0.10	1	09/29/23 12:37	09/29/23 15:25	7664-41-7	
SM4500P-F, Total Phosphorus	Analytical Method: SM 4500-P F Preparation Method: SM 4500-P B Pace Analytical Services - Minneapolis							
Phosphorus	**3.9**	mg/L	0.10	1	09/26/23 11:00	09/26/23 13:06	7723-14-0	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-185WT_091423 Diss **Lab ID: 50354022010** Collected: 09/14/23 13:30 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 00:58	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 00:58	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 00:58	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 00:58	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 00:58	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 00:58	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 00:58	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	43	%.	10-102	1	09/25/23 11:08	09/27/23 00:58	877-09-8	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-186WT_091423 **Lab ID: 50354022011** Collected: 09/14/23 14:00 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:12	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:12	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:12	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:12	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:12	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:12	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:12	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	50	%.	10-102	1	09/25/23 11:08	09/27/23 01:12	877-09-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Manganese	**6190**	ug/L	50.0	1	09/18/23 16:00	09/22/23 03:42	7439-96-5	
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**1.1**	mg/L	0.10	1	09/29/23 12:37	09/29/23 15:28	7664-41-7	
SM4500P-F, Total Phosphorus	Analytical Method: SM 4500-P F Preparation Method: SM 4500-P B Pace Analytical Services - Minneapolis							
Phosphorus	**17.7**	mg/L	1.0	10	09/26/23 11:00	09/26/23 14:20	7723-14-0	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-186WT_091424 Diss **Lab ID: 50354022012** Collected: 09/14/23 14:00 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:55	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:55	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:55	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:55	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:55	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:55	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:55	11096-82-5	R1
Surrogates								
Tetrachloro-m-xylene (S)	35	%.	10-102	1	09/25/23 11:08	09/27/23 01:55	877-09-8	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: Dup-08_091423 Diss **Lab ID: 50354022013** Collected: 09/14/23 08:00 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 02:37	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 02:37	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 02:37	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 02:37	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 02:37	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 02:37	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 02:37	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	52	%.	10-102	1	09/25/23 11:08	09/27/23 02:37	877-09-8	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-111WT_091423 Diss **Lab ID: 50354022014** Collected: 09/14/23 12:45 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 21:41	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 21:41	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 21:41	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 21:41	53469-21-9	
PCB-1248 (Aroclor 1248)	**12.9**	ug/L	0.091	1	09/25/23 11:08	09/28/23 21:41	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 21:41	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 21:41	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	45	%.	10-102	1	09/25/23 11:08	09/28/23 21:41	877-09-8	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-110WTR_091423 Diss **Lab ID: 50354022015** Collected: 09/14/23 11:45 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 03:05	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 03:05	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 03:05	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 03:05	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 03:05	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 03:05	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 03:05	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	48	%.	10-102	1	09/25/23 11:08	09/27/23 03:05	877-09-8	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-108WT_091423 **Lab ID: 50354022016** Collected: 09/14/23 09:45 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Manganese	**18000**	ug/L	50.0	1	09/18/23 16:00	09/22/23 03:48	7439-96-5	
8270 SVOC SS Water	Analytical Method: EPA 8270 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
Acenaphthene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	83-32-9	R1
Acenaphthylene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	208-96-8	R1
Anthracene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	120-12-7	M1,R1
Benzo(a)anthracene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	56-55-3	R1
Benzo(a)pyrene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	50-32-8	R1
Benzo(b)fluoranthene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	205-99-2	R1
Benzo(g,h,i)perylene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	191-24-2	R1
Benzo(k)fluoranthene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	207-08-9	
Benzyl alcohol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	100-51-6	
4-Bromophenylphenyl ether	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	101-55-3	
Butylbenzylphthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	85-68-7	
4-Chloro-3-methylphenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	59-50-7	
4-Chloroaniline	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	111-44-4	
bis(2chloro1methylethyl) ether	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	108-60-1	
2-Chloronaphthalene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	91-58-7	
2-Chlorophenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	95-57-8	R1
4-Chlorophenylphenyl ether	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	7005-72-3	
Chrysene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	218-01-9	R1
Dibenz(a,h)anthracene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	53-70-3	R1
Dibenzofuran	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	132-64-9	
3,3'-Dichlorobenzidine	ND	ug/L	18.2	1	09/21/23 20:39	09/23/23 21:33	91-94-1	
2,4-Dichlorophenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	120-83-2	
Diethylphthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	84-66-2	
2,4-Dimethylphenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	105-67-9	
Dimethylphthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	131-11-3	
Di-n-butylphthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/L	18.2	1	09/21/23 20:39	09/23/23 21:33	534-52-1	
2,4-Dinitrophenol	ND	ug/L	45.5	1	09/21/23 20:39	09/23/23 21:33	51-28-5	
2,4-Dinitrotoluene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	606-20-2	
Di-n-octylphthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	117-84-0	
bis(2-Ethylhexyl)phthalate	**51.3**	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	117-81-7	
Fluoranthene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	206-44-0	
Fluorene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	87-68-3	
Hexachlorobenzene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	118-74-1	
Hexachlorocyclopentadiene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	77-47-4	
Hexachloroethane	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	193-39-5	R1
Isophorone	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	78-59-1	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-108WT_091423 **Lab ID: 50354022016** Collected: 09/14/23 09:45 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 SVOC SS Water	Analytical Method: EPA 8270 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
1-Methylnaphthalene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	90-12-0	
2-Methylnaphthalene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	91-57-6	R1
2-Methylphenol(o-Cresol)	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33		
Naphthalene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	91-20-3	
2-Nitroaniline	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	88-74-4	
3-Nitroaniline	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	99-09-2	
4-Nitroaniline	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	100-01-6	
Nitrobenzene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	98-95-3	
2-Nitrophenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	88-75-5	
4-Nitrophenol	ND	ug/L	45.5	1	09/21/23 20:39	09/23/23 21:33	100-02-7	
N-Nitroso-di-n-propylamine	ND	ug/L	45.5	1	09/21/23 20:39	09/23/23 21:33	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	86-30-6	
Pentachlorophenol	ND	ug/L	45.5	1	09/21/23 20:39	09/23/23 21:33	87-86-5	
Phenanthrene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	85-01-8	
Phenol	**10.2**	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	108-95-2	M1
Pyrene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	129-00-0	R1
Pyridine	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	110-86-1	
2,4,5-Trichlorophenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	88-06-2	
Surrogates								
Nitrobenzene-d5 (S)	13	%.	17-107	1	09/21/23 20:39	09/23/23 21:33	4165-60-0	S2
2-Fluorobiphenyl (S)	7	%.	11-105	1	09/21/23 20:39	09/23/23 21:33	321-60-8	S2
p-Terphenyl-d14 (S)	75	%.	36-149	1	09/21/23 20:39	09/23/23 21:33	1718-51-0	
Phenol-d5 (S)	5	%.	10-58	1	09/21/23 20:39	09/23/23 21:33	4165-62-2	S2
2-Fluorophenol (S)	5	%.	10-71	1	09/21/23 20:39	09/23/23 21:33	367-12-4	S2
2,4,6-Tribromophenol (S)	43	%.	35-149	1	09/21/23 20:39	09/23/23 21:33	118-79-6	
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**0.35**	mg/L	0.10	1	09/29/23 12:37	09/29/23 15:31	7664-41-7	
SM4500P-F, Total Phosphorus	Analytical Method: SM 4500-P F Preparation Method: SM 4500-P B Pace Analytical Services - Minneapolis							
Phosphorus	**1.2**	mg/L	0.10	1	09/26/23 11:00	09/26/23 13:02	7723-14-0	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: DUP-06_091423 **Lab ID: 50354022017** Collected: 09/14/23 08:00 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 SVOC SS Water	Analytical Method: EPA 8270 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
Acenaphthene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	83-32-9	
Acenaphthylene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	208-96-8	
Anthracene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	120-12-7	
Benzo(a)anthracene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	56-55-3	
Benzo(a)pyrene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	207-08-9	
Benzyl alcohol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	100-51-6	
4-Bromophenylphenyl ether	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	101-55-3	
Butylbenzylphthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	85-68-7	
4-Chloro-3-methylphenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	59-50-7	
4-Chloroaniline	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	111-44-4	
bis(2chloro1methylethyl) ether	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	108-60-1	
2-Chloronaphthalene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	91-58-7	
2-Chlorophenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	7005-72-3	
Chrysene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	53-70-3	
Dibenzofuran	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	132-64-9	
3,3'-Dichlorobenzidine	ND	ug/L	18.2	1	09/21/23 20:39	09/23/23 22:23	91-94-1	
2,4-Dichlorophenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	120-83-2	
Diethylphthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	84-66-2	
2,4-Dimethylphenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	105-67-9	
Dimethylphthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	131-11-3	
Di-n-butylphthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/L	18.2	1	09/21/23 20:39	09/23/23 22:23	534-52-1	
2,4-Dinitrophenol	ND	ug/L	45.5	1	09/21/23 20:39	09/23/23 22:23	51-28-5	
2,4-Dinitrotoluene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	606-20-2	
Di-n-octylphthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	117-81-7	
Fluoranthene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	206-44-0	
Fluorene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	87-68-3	
Hexachlorobenzene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	118-74-1	
Hexachlorocyclopentadiene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	77-47-4	
Hexachloroethane	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	193-39-5	
Isophorone	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	78-59-1	
1-Methylnaphthalene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	90-12-0	
2-Methylnaphthalene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23		

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: DUP-06_091423 **Lab ID: 50354022017** Collected: 09/14/23 08:00 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 SVOC SS Water	Analytical Method: EPA 8270 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
Naphthalene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	91-20-3	
2-Nitroaniline	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	88-74-4	
3-Nitroaniline	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	99-09-2	
4-Nitroaniline	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	100-01-6	
Nitrobenzene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	98-95-3	
2-Nitrophenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	88-75-5	
4-Nitrophenol	ND	ug/L	45.5	1	09/21/23 20:39	09/23/23 22:23	100-02-7	
N-Nitroso-di-n-propylamine	ND	ug/L	45.5	1	09/21/23 20:39	09/23/23 22:23	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	86-30-6	
Pentachlorophenol	ND	ug/L	45.5	1	09/21/23 20:39	09/23/23 22:23	87-86-5	
Phenanthrene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	85-01-8	
Phenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	108-95-2	
Pyrene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	129-00-0	
Pyridine	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	110-86-1	
2,4,5-Trichlorophenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	88-06-2	
Surrogates								
Nitrobenzene-d5 (S)	25	%.	17-107	1	09/21/23 20:39	09/23/23 22:23	4165-60-0	
2-Fluorobiphenyl (S)	12	%.	11-105	1	09/21/23 20:39	09/23/23 22:23	321-60-8	
p-Terphenyl-d14 (S)	76	%.	36-149	1	09/21/23 20:39	09/23/23 22:23	1718-51-0	
Phenol-d5 (S)	4	%.	10-58	1	09/21/23 20:39	09/23/23 22:23	4165-62-2	P2,S0
2-Fluorophenol (S)	5	%.	10-71	1	09/21/23 20:39	09/23/23 22:23	367-12-4	P2,S0
2,4,6-Tribromophenol (S)	47	%.	35-149	1	09/21/23 20:39	09/23/23 22:23	118-79-6	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-108S2_091423 **Lab ID: 50354022018** Collected: 09/14/23 10:45 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**5.2**	mg/L	0.10	1	09/27/23 13:30	09/27/23 18:08	7664-41-7	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: DUP-10_091423 **Lab ID: 50354022019** Collected: 09/14/23 08:00 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**5.8**	mg/L	0.10	1	09/27/23 13:30	09/27/23 17:39	7664-41-7	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-114WT_091423 **Lab ID: 50354022020** Collected: 09/14/23 14:45 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.094	1	09/26/23 12:52	09/27/23 21:57	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.094	1	09/26/23 12:52	09/27/23 21:57	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.094	1	09/26/23 12:52	09/27/23 21:57	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.094	1	09/26/23 12:52	09/27/23 21:57	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.094	1	09/26/23 12:52	09/27/23 21:57	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.094	1	09/26/23 12:52	09/27/23 21:57	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.094	1	09/26/23 12:52	09/27/23 21:57	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	54	%.	10-102	1	09/26/23 12:52	09/27/23 21:57	877-09-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Manganese	**1280**	ug/L	50.0	1	09/18/23 16:00	09/22/23 03:57	7439-96-5	
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**1.0**	mg/L	0.10	1	09/27/23 13:30	09/27/23 17:40	7664-41-7	
SM4500P-F, Total Phosphorus	Analytical Method: SM 4500-P F Preparation Method: SM 4500-P B Pace Analytical Services - Minneapolis							
Phosphorus	**0.92**	mg/L	0.10	1	09/26/23 11:00	09/26/23 13:08	7723-14-0	M1

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-114WT_091423 Diss **Lab ID: 50354022021** Collected: 09/14/23 14:45 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 20:45	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 20:45	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 20:45	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 20:45	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 20:45	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 20:45	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 20:45	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	41	%.	10-102	1	09/25/23 11:08	09/28/23 20:45	877-09-8	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-114S2_091423 **Lab ID: 50354022022** Collected: 09/14/23 14:50 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**1.9**	mg/L	0.10	1	09/27/23 13:30	09/27/23 17:43	7664-41-7	

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QUALITY CONTROL DATA

Project: Saginaw SMI
Pace Project No.: 50354022

QC Batch: 753051
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50354022001, 50354022002, 50354022003, 50354022005, 50354022006, 50354022007, 50354022009, 50354022011, 50354022016, 50354022020

METHOD BLANK: 3451453 Matrix: Water
Associated Lab Samples: 50354022001, 50354022002, 50354022003, 50354022005, 50354022006, 50354022007, 50354022009, 50354022011, 50354022016, 50354022020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	5.0	09/22/23 02:47	
Manganese	ug/L	ND	10.0	09/22/23 02:47	

LABORATORY CONTROL SAMPLE: 3451454

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	1000	996	100	80-120	
Manganese	ug/L	1000	926	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3451455 3451456

Parameter	Units	50354022003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	52.0	1000	1000	1060	1060	101	100	75-125	0	20	
Manganese	ug/L	5900	1000	1000	6440	6550	54	65	75-125	2	20	P6

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3451457 3451458

Parameter	Units	50354022011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	462	5000	5000	5340	5210	98	95	75-125	2	20	
Manganese	ug/L	6190	5000	5000	10200	10100	81	77	75-125	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3451459 3451460

Parameter	Units	50354022016 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	25.5	5000	5000	4920	4890	98	97	75-125	1	20	
Manganese	ug/L	18000	5000	5000	22500	20700	90	54	75-125	8	20	M0

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QUALITY CONTROL DATA

Project: Saginaw SMI
Pace Project No.: 50354022

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3451461 3451462

Parameter	Units	50354022020 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	105	5000	5000	4960	4970	97	97	75-125	0	20	
Manganese	ug/L	1280	5000	5000	5750	5770	89	90	75-125	0	20	

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QUALITY CONTROL DATA

Project: Saginaw SMI
Pace Project No.: 50354022

QC Batch: 753058
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET Dissolved
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50354022001, 50354022002, 50354022003

METHOD BLANK: 3451485 Matrix: Water
Associated Lab Samples: 50354022001, 50354022002, 50354022003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	5.0	09/20/23 15:24	

LABORATORY CONTROL SAMPLE: 3451486

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	1000	1030	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3451487 3451488

Parameter	Units	50353955010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	13.1	1000	1000	1100	1090	109	108	75-125	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3451489 3451490

Parameter	Units	50354022003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	ND	1000	1000	1050	1020	105	102	75-125	3	20	

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QUALITY CONTROL DATA

Project: Saginaw SMI
Pace Project No.: 50354022

QC Batch: 754108
QC Batch Method: EPA 3510
Analysis Method: EPA 8082
Analysis Description: 8082 GCS PCB Mod
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50354022005, 50354022007, 50354022008, 50354022009, 50354022010, 50354022011, 50354022012, 50354022013, 50354022014, 50354022015, 50354022021

METHOD BLANK: 3456346 Matrix: Water
Associated Lab Samples: 50354022005, 50354022007, 50354022008, 50354022009, 50354022010, 50354022011, 50354022012, 50354022013, 50354022014, 50354022015, 50354022021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/L	ND	0.10	09/26/23 22:52	
PCB-1221 (Aroclor 1221)	ug/L	ND	0.10	09/26/23 22:52	
PCB-1232 (Aroclor 1232)	ug/L	ND	0.10	09/26/23 22:52	
PCB-1242 (Aroclor 1242)	ug/L	ND	0.10	09/26/23 22:52	
PCB-1248 (Aroclor 1248)	ug/L	ND	0.10	09/26/23 22:52	
PCB-1254 (Aroclor 1254)	ug/L	ND	0.10	09/26/23 22:52	
PCB-1260 (Aroclor 1260)	ug/L	ND	0.10	09/26/23 22:52	
Tetrachloro-m-xylene (S)	%.	36	10-102	09/26/23 22:52	

LABORATORY CONTROL SAMPLE: 3456347

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/L	5	3.7	74	35-157	
PCB-1260 (Aroclor 1260)	ug/L	5	4.2	84	32-145	
Tetrachloro-m-xylene (S)	%.			41	10-102	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3456348 3456349

Parameter	Units	50354022011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1016 (Aroclor 1016)	ug/L	ND	5	5	3.9	3.7	78	74	10-153	5	20	
PCB-1260 (Aroclor 1260)	ug/L	ND	5	5	4.0	4.4	81	88	10-130	8	20	
Tetrachloro-m-xylene (S)	%.						55	50	10-102			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3456350 3456351

Parameter	Units	50354022012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1016 (Aroclor 1016)	ug/L	ND	5	5	3.3	3.9	65	77	10-153	17	20	
PCB-1260 (Aroclor 1260)	ug/L	ND	5	5	2.1	3.0	42	60	10-130	37	20	R1
Tetrachloro-m-xylene (S)	%.						39	55	10-102			

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QUALITY CONTROL DATA

Project: Saginaw SMI
Pace Project No.: 50354022

QC Batch: 754388
QC Batch Method: EPA 3510
Analysis Method: EPA 8082
Analysis Description: 8082 GCS PCB Mod
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50354022020

METHOD BLANK: 3457231 Matrix: Water
Associated Lab Samples: 50354022020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/L	ND	0.10	09/27/23 21:29	
PCB-1221 (Aroclor 1221)	ug/L	ND	0.10	09/27/23 21:29	
PCB-1232 (Aroclor 1232)	ug/L	ND	0.10	09/27/23 21:29	
PCB-1242 (Aroclor 1242)	ug/L	ND	0.10	09/27/23 21:29	
PCB-1248 (Aroclor 1248)	ug/L	ND	0.10	09/27/23 21:29	
PCB-1254 (Aroclor 1254)	ug/L	ND	0.10	09/27/23 21:29	
PCB-1260 (Aroclor 1260)	ug/L	ND	0.10	09/27/23 21:29	
Tetrachloro-m-xylene (S)	%.	56	10-102	09/27/23 21:29	

LABORATORY CONTROL SAMPLE: 3457232

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/L	5	4.0	80	35-157	
PCB-1260 (Aroclor 1260)	ug/L	5	4.1	82	32-145	
Tetrachloro-m-xylene (S)	%.			37	10-102	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3457233 3457234

Parameter	Units	50354022020 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1016 (Aroclor 1016)	ug/L	ND	9.4	9.4	7.3	7.7	77	81	10-153	5	20	
PCB-1260 (Aroclor 1260)	ug/L	ND	9.4	9.4	5.8	6.4	61	68	10-130	10	20	
Tetrachloro-m-xylene (S)	%.						60	54	10-102			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3457516 3457517

Parameter	Units	50354616003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1016 (Aroclor 1016)	ug/L	ND	4.7	4.8	1.7	2.3	35	48	10-153	33	20	R1
PCB-1260 (Aroclor 1260)	ug/L	ND	4.7	4.8	0.78	1.3	17	28	10-130	51	20	R1
Tetrachloro-m-xylene (S)	%.						43	50	10-102			

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QUALITY CONTROL DATA

Project: Saginaw SMI
Pace Project No.: 50354022

QC Batch: 753809
QC Batch Method: EPA 3510
Analysis Method: EPA 8270
Analysis Description: 8270 Water MSSV
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50354022016, 50354022017

METHOD BLANK: 3454569 Matrix: Water
Associated Lab Samples: 50354022016, 50354022017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/L	ND	10.0	09/23/23 18:16	
2,4,5-Trichlorophenol	ug/L	ND	10.0	09/23/23 18:16	
2,4,6-Trichlorophenol	ug/L	ND	10.0	09/23/23 18:16	
2,4-Dichlorophenol	ug/L	ND	10.0	09/23/23 18:16	
2,4-Dimethylphenol	ug/L	ND	10.0	09/23/23 18:16	
2,4-Dinitrophenol	ug/L	ND	50.0	09/23/23 18:16	
2,4-Dinitrotoluene	ug/L	ND	10.0	09/23/23 18:16	
2,6-Dinitrotoluene	ug/L	ND	10.0	09/23/23 18:16	
2-Chloronaphthalene	ug/L	ND	10.0	09/23/23 18:16	
2-Chlorophenol	ug/L	ND	10.0	09/23/23 18:16	
2-Methylnaphthalene	ug/L	ND	10.0	09/23/23 18:16	
2-Methylphenol(o-Cresol)	ug/L	ND	10.0	09/23/23 18:16	
2-Nitroaniline	ug/L	ND	10.0	09/23/23 18:16	
2-Nitrophenol	ug/L	ND	10.0	09/23/23 18:16	
3&4-Methylphenol(m&p Cresol)	ug/L	ND	10.0	09/23/23 18:16	
3,3'-Dichlorobenzidine	ug/L	ND	20.0	09/23/23 18:16	
3-Nitroaniline	ug/L	ND	10.0	09/23/23 18:16	
4,6-Dinitro-2-methylphenol	ug/L	ND	20.0	09/23/23 18:16	
4-Bromophenylphenyl ether	ug/L	ND	10.0	09/23/23 18:16	
4-Chloro-3-methylphenol	ug/L	ND	10.0	09/23/23 18:16	
4-Chloroaniline	ug/L	ND	10.0	09/23/23 18:16	
4-Chlorophenylphenyl ether	ug/L	ND	10.0	09/23/23 18:16	
4-Nitroaniline	ug/L	ND	10.0	09/23/23 18:16	
4-Nitrophenol	ug/L	ND	50.0	09/23/23 18:16	
Acenaphthene	ug/L	ND	10.0	09/23/23 18:16	
Acenaphthylene	ug/L	ND	10.0	09/23/23 18:16	
Anthracene	ug/L	ND	10.0	09/23/23 18:16	
Benzo(a)anthracene	ug/L	ND	10.0	09/23/23 18:16	
Benzo(a)pyrene	ug/L	ND	10.0	09/23/23 18:16	
Benzo(b)fluoranthene	ug/L	ND	10.0	09/23/23 18:16	
Benzo(g,h,i)perylene	ug/L	ND	10.0	09/23/23 18:16	
Benzo(k)fluoranthene	ug/L	ND	10.0	09/23/23 18:16	
Benzyl alcohol	ug/L	ND	10.0	09/23/23 18:16	
bis(2-Chloroethoxy)methane	ug/L	ND	10.0	09/23/23 18:16	
bis(2-Chloroethyl) ether	ug/L	ND	10.0	09/23/23 18:16	
bis(2-Ethylhexyl)phthalate	ug/L	ND	10.0	09/23/23 18:16	
bis(2chloro1methylethyl) ether	ug/L	ND	10.0	09/23/23 18:16	
Butylbenzylphthalate	ug/L	ND	10.0	09/23/23 18:16	
Chrysene	ug/L	ND	10.0	09/23/23 18:16	
Di-n-butylphthalate	ug/L	ND	10.0	09/23/23 18:16	

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QUALITY CONTROL DATA

Project: Saginaw SMI
Pace Project No.: 50354022

METHOD BLANK: 3454569 Matrix: Water
Associated Lab Samples: 50354022016, 50354022017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Di-n-octylphthalate	ug/L	ND	10.0	09/23/23 18:16	
Dibenz(a,h)anthracene	ug/L	ND	10.0	09/23/23 18:16	
Dibenzofuran	ug/L	ND	10.0	09/23/23 18:16	
Diethylphthalate	ug/L	ND	10.0	09/23/23 18:16	
Dimethylphthalate	ug/L	ND	10.0	09/23/23 18:16	
Fluoranthene	ug/L	ND	10.0	09/23/23 18:16	
Fluorene	ug/L	ND	10.0	09/23/23 18:16	
Hexachloro-1,3-butadiene	ug/L	ND	10.0	09/23/23 18:16	
Hexachlorobenzene	ug/L	ND	10.0	09/23/23 18:16	
Hexachlorocyclopentadiene	ug/L	ND	10.0	09/23/23 18:16	
Hexachloroethane	ug/L	ND	10.0	09/23/23 18:16	
Indeno(1,2,3-cd)pyrene	ug/L	ND	10.0	09/23/23 18:16	
Isophorone	ug/L	ND	10.0	09/23/23 18:16	
N-Nitroso-di-n-propylamine	ug/L	ND	50.0	09/23/23 18:16	
N-Nitrosodiphenylamine	ug/L	ND	10.0	09/23/23 18:16	
Naphthalene	ug/L	ND	10.0	09/23/23 18:16	
Nitrobenzene	ug/L	ND	10.0	09/23/23 18:16	
Pentachlorophenol	ug/L	ND	50.0	09/23/23 18:16	
Phenanthrene	ug/L	ND	10.0	09/23/23 18:16	
Phenol	ug/L	ND	10.0	09/23/23 18:16	
Pyrene	ug/L	ND	10.0	09/23/23 18:16	
Pyridine	ug/L	ND	10.0	09/23/23 18:16	
2,4,6-Tribromophenol (S)	%.	55	35-149	09/23/23 18:16	
2-Fluorobiphenyl (S)	%.	9	11-105	09/23/23 18:16	S0
2-Fluorophenol (S)	%.	16	10-71	09/23/23 18:16	
Nitrobenzene-d5 (S)	%.	19	17-107	09/23/23 18:16	
p-Terphenyl-d14 (S)	%.	81	36-149	09/23/23 18:16	
Phenol-d5 (S)	%.	13	10-58	09/23/23 18:16	

LABORATORY CONTROL SAMPLE: 3454570

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4-Dinitrotoluene	ug/L	50.1	30.1	60	42-142	
2-Chlorophenol	ug/L	50	21.2	42	25-108	
2-Methylnaphthalene	ug/L	50	19.2	38	10-118	
4-Chloro-3-methylphenol	ug/L	50	32.0	64	38-136	
4-Nitrophenol	ug/L	50	18.5J	37	18-93	
Acenaphthene	ug/L	50	23.5	47	11-130	
Acenaphthylene	ug/L	50	24.6	49	14-123	
Anthracene	ug/L	50	32.0	64	52-139	
Benzo(a)anthracene	ug/L	50	41.2	82	61-152	
Benzo(a)pyrene	ug/L	50	38.3	77	55-142	
Benzo(b)fluoranthene	ug/L	50	38.9	78	59-149	
Benzo(g,h,i)perylene	ug/L	50	42.3	85	56-145	

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QUALITY CONTROL DATA

Project: Saginaw SMI
Pace Project No.: 50354022

LABORATORY CONTROL SAMPLE: 3454570

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzo(k)fluoranthene	ug/L	50	38.1	76	59-148	
Chrysene	ug/L	50	42.3	85	61-151	
Dibenz(a,h)anthracene	ug/L	50	40.9	82	58-148	
Fluoranthene	ug/L	50	42.4	85	61-147	
Fluorene	ug/L	50	27.9	56	29-135	
Indeno(1,2,3-cd)pyrene	ug/L	50	41.6	83	58-149	
N-Nitroso-di-n-propylamine	ug/L	50	22.6J	45	26-121	
Naphthalene	ug/L	50	18.9	38	10-105	
Pentachlorophenol	ug/L	50	30.7J	61	41-154	
Phenanthrene	ug/L	50	35.5	71	51-139	
Phenol	ug/L	50	12.6	25	11-67	
Pyrene	ug/L	50	38.1	76	60-155	
2,4,6-Tribromophenol (S)	%.			55	35-149	
2-Fluorobiphenyl (S)	%.			7	11-105	S0
2-Fluorophenol (S)	%.			14	10-71	
Nitrobenzene-d5 (S)	%.			16	17-107	S0
p-Terphenyl-d14 (S)	%.			72	36-149	
Phenol-d5 (S)	%.			14	10-58	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3454571 3454572

Parameter	Units	50354022016 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2,4-Dinitrotoluene	ug/L	ND	45.6	45.6	33.5	33.8	73	74	33-142	1	20	
2-Chlorophenol	ug/L	ND	45.5	45.5	9.6	15.2	21	33	14-108	45	20	R1
2-Methylnaphthalene	ug/L	ND	45.5	45.5	18.8	24.3	41	54	10-111	25	20	R1
4-Chloro-3-methylphenol	ug/L	ND	45.5	45.5	9J	17.6	20	39	10-160		20	
4-Nitrophenol	ug/L	ND	45.5	45.5	16.1J	13.3J	35	29	10-98		20	
Acenaphthene	ug/L	ND	45.5	45.5	11.5	22.0	25	48	12-123	63	20	R1
Acenaphthylene	ug/L	ND	45.5	45.5	22.1	28.3	49	62	13-118	25	20	R1
Anthracene	ug/L	ND	45.5	45.5	13.9	27.1	30	60	41-132	64	20	M1,R1
Benzo(a)anthracene	ug/L	ND	45.5	45.5	31.1	41.2	68	91	44-150	28	20	R1
Benzo(a)pyrene	ug/L	ND	45.5	45.5	25.1	34.8	55	77	40-143	32	20	R1
Benzo(b)fluoranthene	ug/L	ND	45.5	45.5	30.2	39.8	67	88	39-150	27	20	R1
Benzo(g,h,i)perylene	ug/L	ND	45.5	45.5	32.1	40.7	71	90	40-140	24	20	R1
Benzo(k)fluoranthene	ug/L	ND	45.5	45.5	31.7	38.1	70	84	42-144	19	20	
Chrysene	ug/L	ND	45.5	45.5	34.8	42.8	77	94	43-146	21	20	R1
Dibenz(a,h)anthracene	ug/L	ND	45.5	45.5	33.4	41.3	74	91	40-146	21	20	R1
Fluoranthene	ug/L	ND	45.5	45.5	35.6	41.1	78	90	47-145	14	20	
Fluorene	ug/L	ND	45.5	45.5	27.2	31.8	60	70	24-131	16	20	
Indeno(1,2,3-cd)pyrene	ug/L	ND	45.5	45.5	32.4	40.6	71	89	40-144	22	20	R1
N-Nitroso-di-n-propylamine	ug/L	ND	45.5	45.5	26.5J	26.8J	58	59	19-122		20	
Naphthalene	ug/L	ND	45.5	45.5	21.0	24.5	46	54	10-92	15	20	
Pentachlorophenol	ug/L	ND	45.5	45.5	18.2J	30.1J	40	66	25-164		20	
Phenanthrene	ug/L	ND	45.5	45.5	32.1	36.3	71	80	40-134	12	20	

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QUALITY CONTROL DATA

Project: Saginaw SMI
Pace Project No.: 50354022

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3454571 3454572

Parameter	Units	50354022016 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phenol	ug/L	10.2	45.5	45.5	8J	ND	-5	-3	10-68		20	M1
Pyrene	ug/L	ND	45.5	45.5	23.0	36.1	51	80	45-149	44	20	R1
2,4,6-Tribromophenol (S)	%.						24	54	35-149			S2
2-Fluorobiphenyl (S)	%.						15	16	11-105			
2-Fluorophenol (S)	%.						7	10	10-71			S2
Nitrobenzene-d5 (S)	%.						31	33	17-107			
p-Terphenyl-d14 (S)	%.						77	84	36-149			
Phenol-d5 (S)	%.						6	8	10-58			S2

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QUALITY CONTROL DATA

Project: Saginaw SMI
Pace Project No.: 50354022

QC Batch: 754548
QC Batch Method: SM 4500-NH3 B
Analysis Method: SM 4500-NH3 G
Analysis Description: 4500 Ammonia, Distilled
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50354022004

METHOD BLANK: 3458030 Matrix: Water
Associated Lab Samples: 50354022004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	09/27/23 17:13	

LABORATORY CONTROL SAMPLE: 3458031

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	1.7	1.6	94	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3458379 3458380

Parameter	Units	50353978007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	5.4	1.7	1.7	7.2	7.1	107	103	90-110	1	20	

MATRIX SPIKE SAMPLE: 3458381

Parameter	Units	50354010001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	14.7	1.7	16.3	94	90-110	

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QUALITY CONTROL DATA

Project: Saginaw SMI
Pace Project No.: 50354022

QC Batch: 754557
QC Batch Method: SM 4500-NH3 B
Analysis Method: SM 4500-NH3 G
Analysis Description: 4500 Ammonia, Distilled
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50354022018, 50354022019, 50354022020, 50354022022

METHOD BLANK: 3458063 Matrix: Water
Associated Lab Samples: 50354022018, 50354022019, 50354022020, 50354022022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	09/27/23 17:35	

LABORATORY CONTROL SAMPLE: 3458064

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	1.7	1.6	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3458065 3458066

Parameter	Units	50354022020 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	1.0	1.7	1.7	2.6	2.6	95	95	90-110	0	20	

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QUALITY CONTROL DATA

Project: Saginaw SMI
Pace Project No.: 50354022

QC Batch: 755000
QC Batch Method: SM 4500-NH3 B
Analysis Method: SM 4500-NH3 G
Analysis Description: 4500 Ammonia, Distilled
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50354022001, 50354022002, 50354022003, 50354022005, 50354022007, 50354022009, 50354022011, 50354022016

METHOD BLANK: 3460218 Matrix: Water
Associated Lab Samples: 50354022001, 50354022002, 50354022003, 50354022005, 50354022007, 50354022009, 50354022011, 50354022016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	09/29/23 15:16	

LABORATORY CONTROL SAMPLE: 3460219

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	1.7	1.7	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3460220 3460221

Parameter	Units	50354022003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	0.19	1.7	1.7	1.8	1.9	96	101	90-110	4	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3460222 3460223

Parameter	Units	50354022011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	1.1	1.7	1.7	2.8	2.8	99	100	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3460224 3460225

Parameter	Units	50354022016 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	0.35	1.7	1.7	2.0	2.0	98	99	90-110	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA

Project: Saginaw SMI
Pace Project No.: 50354022

QC Batch: 907873
QC Batch Method: SM 4500-P B
Analysis Method: SM 4500-P F
Analysis Description: SM4500P-F, Total Phosphorus
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 50354022001, 50354022003, 50354022005, 50354022007, 50354022009, 50354022011, 50354022016, 50354022020

METHOD BLANK: 4779997 Matrix: Water
Associated Lab Samples: 50354022001, 50354022003, 50354022005, 50354022007, 50354022009, 50354022011, 50354022016, 50354022020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	ND	0.10	09/26/23 12:59	

LABORATORY CONTROL SAMPLE: 4779998

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	2.5	2.5	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4779999 4780000

Parameter	Units	50354022020 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	0.92	2.5	2.5	1.3	1.4	16	18	80-120	3	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4780001 4780002

Parameter	Units	10669151001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	0.17	2.5	2.5	0.66	0.69	19	21	80-120	4	20	M1

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REPORT OF LABORATORY ANALYSIS

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7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA

Project: Saginaw SMI
Pace Project No.: 50354022

QC Batch: 907874
QC Batch Method: SM 4500-P B
Analysis Method: SM 4500-P F
Analysis Description: SM4500P-F, Total Phosphorus
Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 50354022002

METHOD BLANK: 4780003 Matrix: Water
Associated Lab Samples: 50354022002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	ND	0.10	09/26/23 16:09	

LABORATORY CONTROL SAMPLE: 4780004

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	2.5	2.5	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4780005 4780006

Parameter	Units	10669558004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	0.76	2.5	2.5	3.4	3.2	104	99	80-120	4	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4780007 4780008

Parameter	Units	10669747001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	1.5	2.5	2.5	4.6	4.6	122	124	80-120	1	20	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALIFIERS

Project: Saginaw SMI
Pace Project No.: 50354022

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
P2	Re-extraction or re-analysis could not be performed due to insufficient sample amount.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.
R1	RPD value was outside control limits.
S0	Surrogate recovery outside laboratory control limits.
S2	Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).

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7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Saginaw SMI
Pace Project No.: 50354022

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50354022005	**MW-110WTR_091423**	EPA 3510	754108	EPA 8082	754217
50354022007	**MW-111WT_091423**	EPA 3510	754108	EPA 8082	754217
50354022008	**Dup-08_091423**	EPA 3510	754108	EPA 8082	754217
50354022009	**MW-185WT_091423**	EPA 3510	754108	EPA 8082	754217
50354022010	**MW-185WT_091423 Diss**	EPA 3510	754108	EPA 8082	754217
50354022011	**MW-186WT_091423**	EPA 3510	754108	EPA 8082	754217
50354022012	**MW-186WT_091424 Diss**	EPA 3510	754108	EPA 8082	754217
50354022013	**Dup-08_091423 Diss**	EPA 3510	754108	EPA 8082	754217
50354022014	**MW-111WT_091423 Diss**	EPA 3510	754108	EPA 8082	754217
50354022015	**MW-110WTR_091423 Diss**	EPA 3510	754108	EPA 8082	754217
50354022020	**MW-114WT_091423**	EPA 3510	754388	EPA 8082	754507
50354022021	**MW-114WT_091423 Diss**	EPA 3510	754108	EPA 8082	754217
50354022001	**MW-149WT_091423**	EPA 3010	753051	EPA 6010	753860
50354022002	**DUP-09_091423**	EPA 3010	753051	EPA 6010	753860
50354022003	**MW-107WT_091423**	EPA 3010	753051	EPA 6010	753860
50354022005	**MW-110WTR_091423**	EPA 3010	753051	EPA 6010	753860
50354022006	**DUP-07_091423**	EPA 3010	753051	EPA 6010	753860
50354022007	**MW-111WT_091423**	EPA 3010	753051	EPA 6010	753860
50354022009	**MW-185WT_091423**	EPA 3010	753051	EPA 6010	753860
50354022011	**MW-186WT_091423**	EPA 3010	753051	EPA 6010	753860
50354022016	**MW-108WT_091423**	EPA 3010	753051	EPA 6010	753860
50354022020	**MW-114WT_091423**	EPA 3010	753051	EPA 6010	753860
50354022001	**MW-149WT_091423**	EPA 3010	753058	EPA 6010	753568
50354022002	**DUP-09_091423**	EPA 3010	753058	EPA 6010	753568
50354022003	**MW-107WT_091423**	EPA 3010	753058	EPA 6010	753568
50354022016	**MW-108WT_091423**	EPA 3510	753809	EPA 8270	754078
50354022017	**DUP-06_091423**	EPA 3510	753809	EPA 8270	754078
50354022001	**MW-149WT_091423**	SM 4500-NH3 B	755000	SM 4500-NH3 G	755069
50354022002	**DUP-09_091423**	SM 4500-NH3 B	755000	SM 4500-NH3 G	755069
50354022003	**MW-107WT_091423**	SM 4500-NH3 B	755000	SM 4500-NH3 G	755069
50354022004	**MW-107S1_091423**	SM 4500-NH3 B	754548	SM 4500-NH3 G	754680
50354022005	**MW-110WTR_091423**	SM 4500-NH3 B	755000	SM 4500-NH3 G	755069
50354022007	**MW-111WT_091423**	SM 4500-NH3 B	755000	SM 4500-NH3 G	755069
50354022009	**MW-185WT_091423**	SM 4500-NH3 B	755000	SM 4500-NH3 G	755069
50354022011	**MW-186WT_091423**	SM 4500-NH3 B	755000	SM 4500-NH3 G	755069
50354022016	**MW-108WT_091423**	SM 4500-NH3 B	755000	SM 4500-NH3 G	755069
50354022018	**MW-108S2_091423**	SM 4500-NH3 B	754557	SM 4500-NH3 G	754687
50354022019	**DUP-10_091423**	SM 4500-NH3 B	754557	SM 4500-NH3 G	754687
50354022020	**MW-114WT_091423**	SM 4500-NH3 B	754557	SM 4500-NH3 G	754687
50354022022	**MW-114S2_091423**	SM 4500-NH3 B	754557	SM 4500-NH3 G	754687
50354022001	**MW-149WT_091423**	SM 4500-P B	907873	SM 4500-P F	908178
50354022002	**DUP-09_091423**	SM 4500-P B	907874	SM 4500-P F	908179
50354022003	**MW-107WT_091423**	SM 4500-P B	907873	SM 4500-P F	908178

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Saginaw SMI
Pace Project No.: 50354022

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50354022005	**MW-110WTR_091423**	SM 4500-P B	907873	SM 4500-P F	908178
50354022007	**MW-111WT_091423**	SM 4500-P B	907873	SM 4500-P F	908178
50354022009	**MW-185WT_091423**	SM 4500-P B	907873	SM 4500-P F	908178
50354022011	**MW-186WT_091423**	SM 4500-P B	907873	SM 4500-P F	908178
50354022016	**MW-108WT_091423**	SM 4500-P B	907873	SM 4500-P F	908178
50354022020	**MW-114WT_091423**	SM 4500-P B	907873	SM 4500-P F	908178

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Pace® Location Requested (City/State):
Pace Analytical Indianapolis
7726 Moller Road, Indianapolis, IN 46268

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

WO# : 50354022

50354022

Company Name:	Arcadis U.S., Inc.	Contact/Report To:	Clearwater, Scott
Street Address:	28550 Cabot Drive, Novi, MI 48377	Phone #:	(810)225-1921
		E-Mail:	scott.clearwater@arcadis.com
		Cc E-Mail:	Amanda.Robinson@Arcadis.com
Customer Project #:	30169042.12000	Invoice To:	Arcadis U.S., Inc.
Project Name:	Saginaw SMI	Invoice E-Mail:	
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	
Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [ ] ET		County / State origin of sample(s):	Michigan
Data Deliverables: [ ] Level II [ ] Level III [ ] Level IV [ ] EQUIS [ ] Other_____		Regulatory Program (DW, RCRA, etc.) as applicable:	
		Rush (Pre-approval required): [ ] 2 Day [ ] 3 day [ ] 5 day [ ] Other_____	DW PWSID # or WW Permit # as applicable:
		Date Results Requested: STD 10 day TAT	Field Filtered (if applicable): [ ] Yes [ ] No

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Other (OT), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk

Specify Container Size **: 5 5 5 3 3 3 3 3

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) Other

Identify Container Preservative Type***: 1 1 1 2 2 3 3 2

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Analysis Requested

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res. CL2	Number & Type of Containers Total	SVOC 8270	PCB 8082	Dissolved PCB 8082 Field Filtered	Total As, Mn 6010	FF Dissolved As 6010	Total Phos 365.1	Ammonia 350.1	TOTAL MN 6010			Sample Comment	Preservation non-conformance identified for sample.
MW-149WT_091423	GW	G	9/14/23	930				3				X	X	X	X				001	
DUP-09-091423	GW	G	9/14/23	—				3				X	X	X	X				002	
MW-107WT_091423	GW	G	9/14/23	1025 ~~1065~~				7				X	X	X	X				MS/MSD FOR TOTAL & DISSOLVED As (FAR)	003
MW-107S1_091423	GW	G	9/14/23	1015				1						X	X				004	
MW-110WTR_091423	GW	G	9/14/23	1145				6		X	X			X	X	X			005/015	
DUP-07_091423	GW	G	9/14/23	—				1								X			006	
MW-111WT_091423	GW	G	9/14/23	1245				6		X	X			X	X	X			007/014	
DUP-08_091423	GW	G	9/14/23	—				4		X	X								008/013	
MW-185WT_091423	GW	G	9/14/23	1330				6 ~~4~~		X	X			X	X	X			009/010	
MW-186WT_091423	GW	G	9/14/23	1400				10		X	X			X	X	X			MS/MSD FOR TOTAL & DISSOLVED PCBS	

Lab Use Only:
Proj. Mgr: Olivia Deck
oliva.deck@pacelabs.com
AcctNum / Client ID:
Table #:
Profile / Template: 11397/3
Prelog / Bottle Ord. ID: 1142243

Customer Remarks / Special Conditions / Possible Hazards:

Collected By: Billy J-Cobean
Printed Name:
Signature:

Additional Instructions from Pace®: 010 011/012

Coolers: 2 Thermometer ID: F Correction Factor (°C): -0.1 Obs. Temp. (°C): 2.0 Corrected Temp. (°C): 1.9

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Arcadis	9-14-23 1700	FedEx		
FedEx	9/15/23 905		9/15/23 905	Delivered by: [ ] In- Person [ ] Courier [✓] FedEX [ ] UPS [ ] Other
				Page: of

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

Pace® Location Requested (City/State):
Pace Analytical Indianapolis
7726 Moller Road, Indianapolis, IN 46268

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

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Scan QR Code for instructions

Company Name:	Arcadis U.S., Inc.	Contact/Report To:	Clearwater, Scott
Street Address:	28550 Cabot Drive, Novi, MI 48377	Phone #:	(810)225-1921
		E-Mail:	scott.clearwater@arcadis.com
		Cc E-Mail:	Amanda.Robinson@arcadis.com
Customer Project #:	30169042.12000	Invoice To:	Arcadis U.S., Inc.
Project Name:	Saginaw SMI	Invoice E-Mail:	
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [X] ET

County / State origin of sample(s): Michigan

Data Deliverables:
[ ] Level II [ ] Level III [ ] Level IV
[ ] EQUIS
[ ] Other_____

Regulatory Program (DW, RCRA, etc.) as applicable:

Rush (Pre-approval required):
[ ] 2 Day [ ] 3 day [ ] 5 day [ ] Other_____

Date Results Requested: STD 10 day TAT

DW PWSID # or WW Permit # as applicable:

Field Filtered (if applicable): [X] Yes [ ] No
Analysis: Dissolved PCBs and Dissolved As

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Other (OT), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk

Specify Container Size **: 5 5 5 3 3 3 3

Identify Container Preservative Type***: 1 1 1 2 2 3 3

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Lab Use Only
Proj. Mgr: Olivia Deck
oliva.deck@pacelabs.com
AcctNum / Client ID:
Table #:
Profile / Template: 11397/3
Prelog / Bottle Ord. ID: 1142243

Preservation non-conformance identified for sample.

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res. CL2	Number & Type of Containers Total	SVOC 8270	PCB 8082	Dissloved PCB 8082 Field Filtered	Total As, Mn 6010	FF Dissolved As 6010	Total Phos 365.1	Ammonia 350.1	Sample Comment
MW-108WT_091423	GW	G	9/14/23	0945	—	—		5	X			X		X	X	-MS/MSD for SVOCs 016
DUP-06_091423	GW	G	9/14/23	—	—	—		1	X							017
MW-108S2_091423	GW	G	9/14/23	1045	—	—		1							X	018
DUP-10_091423	GW	G	9/14/23	—	—	—		1							X	019
MW-114WT_091423	GW	G	9/14/23	1445	—	—		8		X	X	X		X	X	-Total Manganese only 020 -MS/MSD for Ammonia, Nitrogen and Phosphorus 50
MW-11452_091423	GW	G	9/14/23	1450				1							X	022

Customer Remarks / Special Conditions / Possible Hazards:
* Limited Sample Volumes

Collected By:
Printed Name:
Signature:

Additional Instructions from Pace®:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)
2	F	-0.1	2.0	1.9

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Austin Westhuis/Arcadis	9/14/23 1700	FedEx		
FedEx	9/15/23 905		9/15/23 905	Delivered by: [ ] In- Person [ ] Courier [X] FedEX [ ] UPS [ ] Other
				Page:

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

ENV-FRM-CORQ-0019_v01_082123 ©

Pace

SAMPLE CONDITION UPON RECEIPT FORM

Date/Time and Initials of person examining contents: 9/15/23 1320 TW

1. **Courier:** ☑ FED EX ☐ UPS ☐ CLIENT ☐ PACE ☐ NOW/JETT ☐ OTHER _____

2. **Custody Seal on Cooler/Box Present:** ☑ Yes ☐ No

(If yes)Seals Intact: ☑ Yes ☐ No **(leave blank if no seals were present)**

3. **Thermometer:** 1 2 3 4 5 6 7 8 A B C D E F G H

4. **Cooler Temperature(s):** 2.0/1.9 | | | |

(Initial/Corrected) RECORD TEMPS OF ALL COOLERS RECEIVED (use Comments below to add more)

5. **Packing Material:** ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☑ Other Plastic/ZBLC

6. **Ice Type:** ☑ Wet ☐ Blue ☐ None

7. **If temp. is over 6°C or under 0°C, was the PM notified?:** ☐ Yes ☐ No

Cooler temp should be above freezing to 6°C

All discrepancies will be written out in the comments section below.

	Yes	No		Yes	No	N/A
USDA Regulated Soils? (HI, ID, NY, WA, OR,CA, NM, TX, OK, AR, LA, TN, AL, MS, NC, SC, GA, FL, or Puerto Rico)		✓	All containers needing acid/base preservation have been pH CHECKED?: **Exceptions: VOA, coliform, LLHg, O&G, RAD CHEM, and any container with a septum cap or preserved with HCl.**	✓		
Short Hold Time Analysis (48 hours or less)? Analysis:		✓	**Circle: HNO3 (<2) H2SO4 (<2) NaOH (>10) NaOH/ZnAc (>9)** Any non-conformance to pH recommendations will be noted on the container count form			
Time 5035A TC placed in Freezer or Short Holds To Lab	Time:			Present	Absent	N/A
Rush TAT Requested (4 days or less):		✓	Residual Chlorine Check (SVOC 625 Pest/PCB 608)			✓
Custody Signatures Present?	✓		Residual Chlorine Check (Total/Amenable/Free Cyanide)			✓
Containers Intact?:	✓		Headspace Wisconsin Sulfide?			✓
Sample Label (IDs/Dates/Times) Match COC?: Except TCs, which only require sample ID	✓		Headspace in VOA Vials (>6mm): See Containter Count form for details	Present	Absent	No VOA Vials Sent ✓
Extra labels on Terracore Vials? (soils only)			Trip Blank Present?		✓	
			Trip Blank Custody Seals?:			✓

COMMENTS:

COC PAGE 2 of 2

Sample Container Count

** Place a RED dot on containers that are out of conformance **

COC Line Item	WGFU	WGKU BG1U	MeOH (only) SBS DI R	DG9H VG9H	VOA VIAL HS >6mm	VG9U DG9U	VG9T	AMBER GLASS AG0U	AG1H	AG1U	AG3U	AG3S	AG3SF	AG3B	PLASTIC BP1U	BP1N	BP2U	BP3U	BP3N	BP3F	BP3S	BP3B	BP3Z	OTHER CG3H	CG3F	Syringe Kit	Matrix	Nitric Red HNO3 <2	Sulfuric Yellow H2SO4 <2	Sodium Hydroxide Green NaOH >10	Sodium Hydroxide/ ZnAc Black NaOH/Zn Ac >9
1								3											1		1							WT	✓	✓		
2								1																							
3																					1								✓		
4																					1								✓		
5								4											1		3							✓	✓		
6																					1								✓		
7																															
8																															
9																															
10																															
11																															
12																															

Container Codes

Glass

DG9H	40mL HCl amber voa vial	BG1T	glass
DG9P	40mL TSP amber vial	BG1U	1L unpreserved glass
DG9S	40mL H2SO4 amber vial	CG3U	250mL Unpres Clear Glass
DG9T	40mL Na Thio amber vial	AG0U	100mL unpres amber glass
DG9U	40mL unpreserved amber vial	AG1H	1L HCl amber glass
VG9H	40mL HCl clear vial	AG1S	1L H2SO4 amber glass
VG9T	40mL Na Thio. clear vial	AG1T	1L Na Thiosulfate amber glass
VG9U	40mL unpreserved clear vial	AG1U	1liter unpres amber glass
I	40mL w/hexane wipe vial	AG2N	500mL HNO3 amber glass
WGKU	8oz unpreserved clear jar	AG2S	500mL H2SO4 amber glass
WGFU	4oz clear soil jar	AG2U	500mL unpres amber glass
JGFU	4oz unpreserved amber wide	AG3S	250mL H2SO4 amber glass
CG3H	250mL clear glass HCl	AG3SF	250mL H2SO4 amb glass -field filtered
CG3F	250mL clear glass HCl, Field Filter	AG3U	250mL unpres amber glass
BG1H	1L HCl clear glass	AG3B	250mL NaOH amber glass
BG1S	1L H2SO4 clear glass		

Plastic

BP1B	1L NaOH plastic	BP4U	125mL unpreserved plastic
BP1N	1L HNO3 plastic	BP4N	125mL HNO3 plastic
BP1S	1L H2SO4 plastic	BP4S	125mL H2SO4 plastic
BP1U	1L unpreserved plastic		
BP1Z	1L NaOH, Zn, Ac		
BP2N	500mL HNO3 plastic		
BP2C	500mL NaOH plastic		
BP2S	500mL H2SO4 plastic		
BP2U	500mL unpreserved plastic		
BP2Z	500mL NaOH, Zn Ac		
BP3B	250mL NaOH plastic		
BP3N	250mL HNO3 plastic		
BP3F	250mL HNO3 plastic-field filtered		
BP3U	250mL unpreserved plastic		
BP3S	250mL H2SO4 plastic		
BP3Z	250mL NaOH, ZnAc plastic		
BP3R	250mL Unpres FF SO4/OH buffer		

Miscellaneous

Syringe Kit	LL Cr+6 sampling kit
ZPLC	Ziploc Bag
R	Terracore Kit
SP5T	120mL Coliform Sodium Thiosulfate
GN	General Container
U	Summa Can (air sample)
WT	Water
SL	Solid
OL:	Oil
NAL	Non-aqueous liquid
WP	Wipe

COC PAGE 1 of 2

Sample Container Count

** Place a RED dot on containers that are out of conformance **

COC Line Item	WGFU	WGKU BG1U	MeOH (only) SBS DI R	DG9H VG9H	VOA VIAL HS >6mm	VG9U DG9U	VG9T	AMBER GLASS: AG0U	AG1H	AG1U	AG3U	AG3S	AG3SF	AG3B	PLASTIC: BP1U	BP1N	BP2U	BP3U	BP3N	BP3F	BP3S	BP3B	BP3Z	OTHER: CG3H	CG3F	Syringe Kit	Matrix	Nitric Red HNO3 <2	Sulfuric Yellow H2SO4 <2	Sodium Hydroxide Green NaOH >10	Sodium Hydroxide/ ZnAc Black NaOH/Zn Ac >9
1																			1	1	1							WT	✓	✓		
2																			1	1	1								✓	✓		
3																			1	3	1								✓	✓		
4																					1									✓		
5					—		—	4											1		1								✓	✓		
6																			1										✓			
7								4											1		1								✓	✓		
8								4																								
9								4				~		~				~	1		1								✓	✓		
10								8											1		1								✓	✓		
11																																
12																																

Container Codes

Glass

DG9H	40mL HCl amber voa vial	BG1T	glass
DG9P	40mL TSP amber vial	BG1U	1L unpreserved glass
DG9S	40mL H2SO4 amber vial	CG3U	250mL Unpres Clear Glass
DG9T	40mL Na Thio amber vial	AG0U	100mL unpres amber glass
DG9U	40mL unpreserved amber vial	AG1H	1L HCl amber glass
VG9H	40mL HCl clear vial	AG1S	1L H2SO4 amber glass
VG9T	40mL Na Thio. clear vial	AG1T	1L Na Thiosulfate amber glass
VG9U	40mL unpreserved clear vial	AG1U	1liter unpres amber glass
I	40mL w/hexane wipe vial	AG2N	500mL HNO3 amber glass
WGKU	8oz unpreserved clear jar	AG2S	500mL H2SO4 amber glass
WGFU	4oz clear soil jar	AG2U	500mL unpres amber glass
JGFU	4oz unpreserved amber wide	AG3S	250mL H2SO4 amber glass
CG3H	250mL clear glass HCl	AG3SF	250mL H2SO4 amb glass -field filtered
CG3F	250mL clear glass HCl, Field Filter	AG3U	250mL unpres amber glass
BG1H	1L HCl clear glass	AG3B	250mL NaOH amber glass
BG1S	1L H2SO4 clear glass		

Plastic

BP1B	1L NaOH plastic	BP4U	125mL unpreserved plastic
BP1N	1L HNO3 plastic	BP4N	125mL HNO3 plastic
BP1S	1L H2SO4 plastic	BP4S	125mL H2SO4 plastic
BP1U	1L unpreserved plastic		
BP1Z	1L NaOH, Zn, Ac		
BP2N	500mL HNO3 plastic		
BP2C	500mL NaOH plastic		
BP2S	500mL H2SO4 plastic		
BP2U	500mL unpreserved plastic		
BP2Z	500mL NaOH, Zn Ac		
BP3B	250mL NaOH plastic		
BP3N	250mL HNO3 plastic		
BP3F	250mL HNO3 plastic-field filtered		
BP3U	250mL unpreserved plastic		
BP3S	250mL H2SO4 plastic		
BP3Z	250mL NaOH, ZnAc plastic		
BP3R	250mL Unpres FF SO4/OH buffer		

Miscellaneous

Syringe Kit	LL Cr+6 sampling kit
ZPLC	Ziploc Bag
R	Terracore Kit
SP5T	120mL Coliform Sodium Thiosulfate
GN	General Container
U	Summa Can (air sample)
WT	Water
SL	Solid
OL	Oil
NAL	Non-aqueous liquid
WP	Wipe

Pace Container Order #1142243

Addresses

Order By :

Company Arcadis U.S., Inc.
Contact Clearwater, Scott
Email scott.clearwater@arcadis.com
Address 28550 Cabot Drive
Address 2 Suite 500
City Novi
State MI Zip 48377
Phone (810)225-1921

Ship To :

Company HOME
Contact Austin Westhuis
Email Austin.Westhuis@arcadis.com
Address 3819 Black Creek Drive
Address 2
City Hudsonville
State MI Zip 49426
Phone 248-994-2287

Return To:

Company Pace Analytical Indianapolis
Contact Deck, Olivia
Email olivia.deck@pacelabs.com
Address 7726 Moller Road
Address 2
City Indianapolis
State IN Zip 46268
Phone (317)228-3102

Info

Project Name Saginaw SMI
Due Date 09/08/2023
Profile 11397/3
Quote
Project Deck, Olivia
Return
Carrier FedEx Standard Overnight
Locatio MI

Trip Blanks

- [ ] Include Trip Blanks

Bottle Labels

- [ ] Blank
- [X] Pre-Printed No Sample IDs
- [ ] Pre-Printed With Sample IDs

Bottles

- [ ] Boxed Cases
- [ ] Individually Wrapped
- [ ] Grouped By Sample ID/Matrix

Return Shipping Labels

- [ ] No Shipper
- [X] With Shipper

COC Options

- [ ] Number of Blanks
- [X] Pre-Printed 3

Misc

- [ ] Sampling Instructions
- [X] Custody Seal
- [X] Temp. Blanks
- [X] Coolers
- [ ] Syringes
- [ ] Extra Bubble Wrap
- [ ] Short Hold/Rush Stickers
- [ ] DI Water Liter(s)
- [ ] USDA Regulated Soils

# of Samples	Matrix	Test	Container	Total	# of QC	Lot #	Notes
5	WT	IN SVOC by 8270	2-100mL amber, unpres	10	0		
9	WT	IN PCB by 8082	2- 100mL amber, unpres	18	0		
9	WT	IN PCB by 8082-Field Filtered	2- 100mL amber, unpres+FF Labels	18	0		include FF labels
13	WT	IN Metals, Total	250mL plastic, HNO3	13	0		
6	WT	IN Metals, Field Filtered	250mL plastic, HNO3 +FF labels	6	0		
15	WT	IN Phosphorus, Total 365.1/ Ammonia	250mL plastic, H2SO4	15	0		
15	WT	IN Various*	250mL plastic, unpres	15	0		

Pace®

Pace® Location Requested (City/State):
Pace Analytical Indianapolis
7726 Moller Road, Indianapolis, IN 46268

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

Scan QR Code for instructions

Company Name:	Arcadis U.S., Inc.
Street Address:	28550 Cabot Drive, Novi, MI 48377
Customer Project #:	30169042.12000
Project Name:	Saginaw SMI
Site Collection Info/Facility ID (as applicable):	
Time Zone Collected:	[ ] AK [ ] PT [ ] MT [ ] CT [ ] ET
Data Deliverables:	[ ] Level II [ ] Level III [ ] Level IV [ ] EQUIS [ ] Other
Contact/Report To:	Clearwater, Scott
Phone #:	(810)225-1921
E-Mail:	scott.clearwater@arcadis.com
Cc E-Mail:	Amanda.Robinson@Arcadis.com
Invoice To:	Arcadis U.S., Inc.
Invoice E-Mail:	
Purchase Order # (if applicable):	
Quote #:	
County / State origin of sample(s):	Michigan
Regulatory Program (DW, RCRA, etc.) as applicable:	
Rush (Pre-approval required):	[ ] 2 Day [ ] 3 day [ ] 5 day [ ] Other
Date Results Requested:	STD 10 day TAT
DW PWSID # or WW Permit # as applicable:	
Field Filtered (if applicable):	[ ] Yes [ ] No
Analysis:	

Specify Container Size **: 5 5 5 3 3 3 3 3

Identify Container Preservative Type***: 1 1 1 2 2 3 3 2

**Container Size: (1) 1L (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Analysis Requested

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res. Cl2	Number & Type of Containers Total	SVOC 8270	PCB 8082	Dissolved PCB 8082 Field Filtered	Total Mn 6010	FF Dissolved As 6010	Total Phos 365.1	Ammonia 350.1	TOTAL MN 6010	Sample Comment
MW-149WT_091423	GW	G	9/14/23	930				3				X	X	X	X		
DUP-09_091423	GW	G	9/14/23	—				3				X	X	X	X		
MW-107WT_091423	GW	G	9/14/23	1025 ~~1065~~				7				X	X	X	X	X	MS/MSD FOR TOTAL & DISSOLVED As (PAS)
MW-107S1_091423	GW	G	9/14/23	1015				1					*	X	X		
MW-110WTR_091423	GW	G	9/14/23	1145				6		X	X			X	X	X	
DUP-07_091423	GW	G	9/14/23	—				1								X	
MW-111WT_091423	GW	G	9/14/23	1245				6		X	X			X	X	X	
DUP-08_091423	GW	G	9/14/23	—				4		X	X						
MW-185WT_091423	GW	G	9/14/23	1330				6 ~~4~~		X	X			X	X	X	
MW-186WT_091423	GW	G	9/14/23	1400				10		X	X			X	X	X	MS/MSD FOR TOTAL & DISSOLVED PCBs

Lab Use Only

Proj. Mgr: Olivia Deck
olivia.deck@pacelabs.com
AcctNum / Client ID:
Table #:
Profile / Template: 11397/3
Prelog / Bottle Ord. ID: 1142243

Preservation non-conformance identified for sample

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Other (OT), Surface Water (SW), Sediment (SED), Sludge (SL), Caulk

Customer Remarks / Special Conditions / Possible Hazards:
*per client A.Robinson -OMD9/20/23

Collected By: Billy J. Cobern
Printed Name:
Signature:

Additional Instructions from Pace®:

Coolers: | Thermometer ID: | Correction Factor (°C): | Obs. Temp. (°C): | Corrected Temp. (°C):

Relinquished by/Company: (Signature) Arcadis	Date/Time: 9-14-23 1700	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Delivered by: [ ] In-Person [ ] Courier [ ] FedEx [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: of
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

ENV-FRM-CORO-0019_v01_082123 ©

Pace® Location Requested (City/State)
Pace Analytical Indianapolis
7726 Moller Road, Indianapolis, IN 46268

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

Scan QR Code for instructions

Company Name:	Arcadis U.S., Inc.
Street Address:	28550 Cabot Drive, Novi, MI 48377
Customer Project #:	30169042.12000
Project Name:	Saginaw SMI
Site Collection Info/Facility ID (as applicable):	
Time Zone Collected:	[ ] AK [ ] PT [ ] MT [ ] CT [X] ET
Data Deliverables:	[ ] Level II [ ] Level III [ ] Level IV [ ] EQUIS [ ] Other
Contact/Report To:	Clearwater, Scott
Phone #:	(810)225-1921
E-Mail:	scott.clearwater@arcadis.com
Cc E-Mail:	Amanda.Robinson@arcadis.com
Invoice To:	Arcadis U.S., Inc.
Invoice E-Mail:	
Purchase Order # (if applicable):	
Quote #:	
County / State origin of sample(s):	Michigan
Regulatory Program (DW, RCRA, etc.) as applicable:	
Rush (Pre-approval required):	[ ] 2 Day [ ] 3 day [ ] 5 day [ ] Other
Date Results Requested:	STD 10 day TAT
DW PWSID # or WW Permit # as applicable:	
Field Filtered (if applicable):	[X] Yes [ ] No
Analysis:	Dissolved PCBs and Dissolved As

Specify Container Size **: 5 5 5 3 3 3 3

Identify Container Preservative Type***: 1 1 1 2 2 3 3

**Container Size: (1) 1L (2) 500mL (3) 250mL (4) 125mL (5) 100mL (6) 40mL vial (7) EnCore (8) TerraCore (9) Other

*** Preservative Types: (1) None (2) HNO3 (3) H2SO4 (4) HCl (5) NaOH (6) Zn Acetate (7) NaHSO4 (8) Sod. Thiosulfate (9) Ascorbic Acid (10) MeOH (11) Other

Analysis Requested

Lab Use Only: Proj. Mgr: Olivia Dick (olivia.dick@arcadis.com); Acct/Rem / Client ID:; Table #:; Profile / Template: 11397/3; Prelog / Bottle Ord. ID: 1142243

Preservation cont confirmed + identified for sample

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Other (OT), Surface Water (SW), Sediment (SED), Sludge (SL), Caulk

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res. Cl2	Number & Type of Containers Total	SVOC 8270	PCB 8082	Dissolved PCB 8082 Field Filtered	Total Mn 6010	FF Dissolved As 6010	Total Phos 365.1	Ammonia 350.1	Sample Comment
MW-108WT_091423	GW	G	9/14/23	0945	—	—		5	X			X		X	X	MS/MSD for SVOCs
DUP-06_091423	GW	G	9/14/23	—	—	—		1	X							
MW-108S2_091423	GW	G	9/14/23	1045	—	—		1							X	
DUP-10_091423	GW	G	9/14/23	—	—	—		1							X	
MW-114WT_091423	GW	G	9/14/23	1445	—	—		8		X	X	X		X	X	Total Mn and Dissolved As MS/MSD for Inorganics Matrix Spike Duplicates
MW-11452_091423	GW	G	9/14/23	1450				1							X	

Customer Remarks / Special Conditions / Possible Hazards:
* Limited Sample Volumes

Collected By:
Printed Name:
Signature:

Additional Instructions from Pace®:
Coolers: Thermometer ID: Correction Factor (°C): Obs. Temp. (°C): Corrected Temp. (°C):

Relinquished by/Company: (Signature) Austin Westhuis/Arcadis	Date/Time: 9/14/23 1700	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Delivered by: [ ] In-Person [ ] Courier
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	[ ] FedEx [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: of

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ENV-FRM-CORD-0019_v01_082123

Report of Analysis

Arcadis U.S., Inc.
630 Plaza Drive
Suite 600
Highlands Ranch, CO 80129
Attention: Amanda Robinson

Project Name: Saginaw

Project Number: 30169042

Lot Number:**YI15030**

Date Completed:10/02/2023

10/03/2023 11:04 AM
Approved and released by:
Project Manager II: **Kathy E. Smith**

The electronic signature above is the equivalent of a handwritten signature.
This report shall not be reproduced, except in its entirety, without the written approval of Pace Analytical Services, LLC.

Case Narrative
Arcadis U.S., Inc.
Lot Number: YI15030

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.4 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples were compliant with DOD QSM 5.4 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). The CF is calculated as follows:

CF = DF * FV / Vo

FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18, PFAS by Isotope Dilution SOP.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

PFAS
Samples YI15030-001, YI15030-002, YI15030-003, YI15030-004, YI15030-005, YI15030-006 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <5mL and reconstituted to 5mL using MeOH by transfer pipet.

Surrogate recovery for the following samples was outside the upper control limit: YI15030-001, YI15030-002, YI15030-003, YI15030-004. These samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Surrogate recovery for the following samples was outside control limits: YI15030-005, YI15030-006. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Sample Summary
Arcadis U.S., Inc.
Lot Number: YI15030
Project Name: Saginaw
Project Number: 30169042

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-108WT_091423	Aqueous	09/14/2023 0945	09/15/2023
002	MW-131WT_091423	Aqueous	09/14/2023 1200	09/15/2023
003	MW-134WT_091423	Aqueous	09/14/2023 1220	09/15/2023
004	B-3R_091423	Aqueous	09/14/2023 1245	09/15/2023
005	QPTW-13R_091423	Aqueous	09/14/2023 1330	09/15/2023
006	DUP-11_091423	Aqueous	09/14/2023	09/15/2023

(6 samples)

Detection Summary

Arcadis U.S., Inc.

Lot Number: YI15030

Project Name: Saginaw

Project Number: 30169042

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-108WT_091423	Aqueous	PFHxS	PFAS by ID	1.7	J	ng/L	6
001	MW-108WT_091423	Aqueous	PFBA	PFAS by ID	2.1	J	ng/L	6
001	MW-108WT_091423	Aqueous	PFNA	PFAS by ID	0.45	J	ng/L	6
001	MW-108WT_091423	Aqueous	PFOA	PFAS by ID	1.6	J	ng/L	6
001	MW-108WT_091423	Aqueous	PFOS	PFAS by ID	7.0		ng/L	6
002	MW-131WT_091423	Aqueous	PFBS	PFAS by ID	1.4	J	ng/L	8
002	MW-131WT_091423	Aqueous	PFPeS	PFAS by ID	1.0	J	ng/L	8
002	MW-131WT_091423	Aqueous	PFHxS	PFAS by ID	5.9		ng/L	8
002	MW-131WT_091423	Aqueous	PFBA	PFAS by ID	2.5	J	ng/L	8
002	MW-131WT_091423	Aqueous	PFOA	PFAS by ID	2.1	J	ng/L	8
002	MW-131WT_091423	Aqueous	PFOS	PFAS by ID	7.4		ng/L	8
003	MW-134WT_091423	Aqueous	PFHxS	PFAS by ID	1.7	J	ng/L	10
003	MW-134WT_091423	Aqueous	PFBA	PFAS by ID	6.4		ng/L	10
003	MW-134WT_091423	Aqueous	PFHpA	PFAS by ID	1.5	J	ng/L	10
003	MW-134WT_091423	Aqueous	PFOA	PFAS by ID	3.7		ng/L	10
004	B-3R_091423	Aqueous	PFHxS	PFAS by ID	1.9	J	ng/L	12
004	B-3R_091423	Aqueous	PFOA	PFAS by ID	3.3	J	ng/L	12
004	B-3R_091423	Aqueous	PFOS	PFAS by ID	13		ng/L	12
005	QPTW-13R_091423	Aqueous	PFHxS	PFAS by ID	3.0	J	ng/L	14
005	QPTW-13R_091423	Aqueous	PFOA	PFAS by ID	5.1		ng/L	14
005	QPTW-13R_091423	Aqueous	PFOS	PFAS by ID	11		ng/L	14
006	DUP-11_091423	Aqueous	PFHxS	PFAS by ID	2.8	J	ng/L	16
006	DUP-11_091423	Aqueous	PFOA	PFAS by ID	6.2		ng/L	16
006	DUP-11_091423	Aqueous	PFOS	PFAS by ID	8.5		ng/L	16

(24 detections)

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15030-001**

Description: **MW-108WT_091423** Matrix: **Aqueous**

Date Sampled: **09/14/2023 0945** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/29/2023 1925	ARC2	09/27/2023 1602	85922

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.2	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.2	0.60	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.2	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.2	0.78	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.2	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.2	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.2	0.67	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.2	0.84	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.37	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.70	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.64	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.7**	**J**	**3.6**	**0.50**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**2.1**	**J**	**3.6**	**0.54**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.6	0.40	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.6	0.62	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.45**	**J**	**3.6**	**0.41**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**1.6**	**J**	**3.6**	**0.74**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.6	0.49	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**7.0**		**3.6**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	275	25-150
13C2_6:2FTS	N	193	25-150
13C2_8:2FTS		109	25-150
13C2_PFDoA		71	25-150
13C2_PFTeDA		45	25-150
13C3_PFBS		89	25-150
13C3_PFHxS		91	25-150
13C3-HFPO-DA		70	25-150
13C4_PFBA		48	25-150
13C4_PFHpA		81	25-150
13C5_PFHxA		90	25-150
13C5_PFPeA		69	25-150
13C6_PFDA		95	25-150
13C7_PFUdA		91	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **YI15030-001**
Description: **MW-108WT_091423**
Matrix: **Aqueous**
Date Sampled: **09/14/2023 0945**
Project Name: **Saginaw**
Date Received: **09/15/2023**
Project Number: **30169042**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		102	25-150
13C8_PFOS		97	25-150
13C8_PFOSA		92	10-150
13C9_PFNA		108	25-150
d5-EtFOSAA		83	25-150
d3-MeFOSAA		92	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15030-002**

Description: **MW-131WT_091423** Matrix: **Aqueous**

Date Sampled: **09/14/2023 1200** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/29/2023 1935	ARC2	09/27/2023 1602	85922

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.80	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.4**	**J**	**3.4**	**0.36**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**1.0**	**J**	**3.4**	**0.51**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**5.9**		**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**2.5**	**J**	**3.4**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.4	0.38	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.59	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**2.1**	**J**	**3.4**	**0.71**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**7.4**		**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	261	25-150
13C2_6:2FTS	N	180	25-150
13C2_8:2FTS		97	25-150
13C2_PFDoA		57	25-150
13C2_PFTeDA		41	25-150
13C3_PFBS		83	25-150
13C3_PFHxS		79	25-150
13C3-HFPO-DA		71	25-150
13C4_PFBA		82	25-150
13C4_PFHpA		80	25-150
13C5_PFHxA		91	25-150
13C5_PFPeA		68	25-150
13C6_PFDA		95	25-150
13C7_PFUdA		71	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **YI15030-002**
Description: **MW-131WT_091423**
Matrix: **Aqueous**
Date Sampled: **09/14/2023 1200**
Project Name: **Saginaw**
Date Received: **09/15/2023**
Project Number: **30169042**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		95	25-150
13C8_PFOS		87	25-150
13C8_PFOSA		80	10-150
13C9_PFNA		111	25-150
d5-EtFOSAA		74	25-150
d3-MeFOSAA		85	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
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DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15030-003**

Description: **MW-134WT_091423** Matrix: **Aqueous**

Date Sampled: **09/14/2023 1220** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/29/2023 1946	ARC2	09/27/2023 1602	85922

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.0	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	7.0	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.0	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.0	0.77	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.0	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.0	0.66	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.0	0.82	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.68	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.7**	**J**	**3.5**	**0.48**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**6.4**		**3.5**	**0.53**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.5**	**J**	**3.5**	**0.39**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.60	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**3.7**		**3.5**	**0.73**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.5	0.48	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.5	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	275	25-150
13C2_6:2FTS	N	245	25-150
13C2_8:2FTS	N	157	25-150
13C2_PFDoA		68	25-150
13C2_PFTeDA		53	25-150
13C3_PFBS		84	25-150
13C3_PFHxS		80	25-150
13C3-HFPO-DA		61	25-150
13C4_PFBA		42	25-150
13C4_PFHpA		69	25-150
13C5_PFHxA		75	25-150
13C5_PFPeA		60	25-150
13C6_PFDA		96	25-150
13C7_PFUdA		89	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **YI15030-003**
Description: **MW-134WT_091423**
Matrix: **Aqueous**
Date Sampled: **09/14/2023 1220**
Project Name: **Saginaw**
Date Received: **09/15/2023**
Project Number: **30169042**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		86	25-150
13C8_PFOS		87	25-150
13C8_PFOSA		82	10-150
13C9_PFNA		97	25-150
d5-EtFOSAA		91	25-150
d3-MeFOSAA		85	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15030-004**

Description: **B-3R_091423** Matrix: **Aqueous**

Date Sampled: **09/14/2023 1245** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/29/2023 1956	ARC2	09/27/2023 1602	85922

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.0	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	7.0	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.0	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.0	0.77	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.0	0.66	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.0	0.82	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.68	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.9**	**J**	**3.5**	**0.48**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.5	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.60	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**3.3**	**J**	**3.5**	**0.73**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.5	0.48	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**13**		**3.5**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	273	25-150
13C2_6:2FTS	N	291	25-150
13C2_8:2FTS	N	204	25-150
13C2_PFDoA		53	25-150
13C2_PFTeDA		30	25-150
13C3_PFBS		85	25-150
13C3_PFHxS		80	25-150
13C3-HFPO-DA		60	25-150
13C4_PFBA		58	25-150
13C4_PFHpA		67	25-150
13C5_PFHxA		69	25-150
13C5_PFPeA		48	25-150
13C6_PFDA		95	25-150
13C7_PFUdA		77	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15030-004**

Description: **B-3R_091423** Matrix: **Aqueous**

Date Sampled: **09/14/2023 1245** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		92	25-150
13C8_PFOS		80	25-150
13C8_PFOSA		73	10-150
13C9_PFNA		94	25-150
d5-EtFOSAA		99	25-150
d3-MeFOSAA		97	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15030-005**

Description: **QPTW-13R_091423** Matrix: **Aqueous**

Date Sampled: **09/14/2023 1330** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/29/2023 2007	ARC2	09/27/2023 1602	85922

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.0	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	7.0	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.0	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.0	0.76	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.0	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.0	0.81	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.68	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.0**	**J**	**3.5**	**0.48**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND	Q	3.5	0.52	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.5	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.60	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**5.1**		**3.5**	**0.72**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND	Q	3.5	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND	Q	3.5	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**11**		**3.5**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	197	25-150
13C2_6:2FTS	N	256	25-150
13C2_8:2FTS	N	249	25-150
13C2_PFDoA		36	25-150
13C2_PFTeDA	N	13	25-150
13C3_PFBS		62	25-150
13C3_PFHxS		63	25-150
13C3-HFPO-DA		38	25-150
13C4_PFBA	N	16	25-150
13C4_PFHpA		30	25-150
13C5_PFHxA		36	25-150
13C5_PFPeA	N	24	25-150
13C6_PFDA		65	25-150
13C7_PFUdA		57	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15030-005**

Description: **QPTW-13R_091423** Matrix: **Aqueous**

Date Sampled: **09/14/2023 1330** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		59	25-150
13C8_PFOS		63	25-150
13C8_PFOSA		38	10-150
13C9_PFNA		61	25-150
d5-EtFOSAA		76	25-150
d3-MeFOSAA		68	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15030-006**

Description: **DUP-11_091423** Matrix: **Aqueous**

Date Sampled: **09/14/2023** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/29/2023 2039	ARC2	09/27/2023 1602	85922

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.76	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.81	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.8**	**J**	**3.5**	**0.48**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND	Q	3.5	0.52	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.5	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.60	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**6.2**		**3.5**	**0.72**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.5	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND	Q	3.5	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**8.5**		**3.5**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	213	25-150
13C2_6:2FTS	N	267	25-150
13C2_8:2FTS	N	287	25-150
13C2_PFDoA		51	25-150
13C2_PFTeDA	N	22	25-150
13C3_PFBS		69	25-150
13C3_PFHxS		68	25-150
13C3-HFPO-DA		45	25-150
13C4_PFBA	N	17	25-150
13C4_PFHpA		37	25-150
13C5_PFHxA		36	25-150
13C5_PFPeA		27	25-150
13C6_PFDA		73	25-150
13C7_PFUdA		63	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
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Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15030-006**

Description: **DUP-11_091423** Matrix: **Aqueous**

Date Sampled: **09/14/2023** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		60	25-150
13C8_PFOS		71	25-150
13C8_PFOSA		45	10-150
13C9_PFNA		65	25-150
d5-EtFOSAA		84	25-150
d3-MeFOSAA		85	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
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P = The RPD between two GC columns exceeds 40%
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L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: YQ85922-001
Batch: 85922
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/27/2023 1602

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	09/29/2023 1903
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	09/29/2023 1903
8:2 FTS	ND		1	8.0	1.6	ng/L	09/29/2023 1903
6:2 FTS	ND		1	8.0	2.0	ng/L	09/29/2023 1903
4:2 FTS	ND		1	8.0	0.87	ng/L	09/29/2023 1903
GenX	ND		1	8.0	2.1	ng/L	09/29/2023 1903
ADONA	ND		1	8.0	0.48	ng/L	09/29/2023 1903
EtFOSAA	ND		1	8.0	0.75	ng/L	09/29/2023 1903
MeFOSAA	ND		1	8.0	0.93	ng/L	09/29/2023 1903
PFBS	ND		1	4.0	0.41	ng/L	09/29/2023 1903
PFDS	ND		1	4.0	0.78	ng/L	09/29/2023 1903
PFHpS	ND		1	4.0	0.50	ng/L	09/29/2023 1903
PFNS	ND		1	4.0	0.71	ng/L	09/29/2023 1903
PFOSA	ND		1	4.0	0.61	ng/L	09/29/2023 1903
PFPeS	ND		1	4.0	0.59	ng/L	09/29/2023 1903
PFHxS	ND		1	4.0	0.55	ng/L	09/29/2023 1903
PFBA	ND		1	4.0	0.60	ng/L	09/29/2023 1903
PFDA	ND		1	4.0	0.52	ng/L	09/29/2023 1903
PFDoA	ND		1	4.0	0.47	ng/L	09/29/2023 1903
PFHpA	ND		1	4.0	0.45	ng/L	09/29/2023 1903
PFHxA	ND		1	4.0	0.69	ng/L	09/29/2023 1903
PFNA	ND		1	4.0	0.46	ng/L	09/29/2023 1903
PFOA	ND		1	4.0	0.83	ng/L	09/29/2023 1903
PFPeA	ND		1	4.0	0.54	ng/L	09/29/2023 1903
PFTeDA	ND		1	4.0	0.60	ng/L	09/29/2023 1903
PFTrDA	ND		1	4.0	0.53	ng/L	09/29/2023 1903
PFUdA	ND		1	4.0	0.63	ng/L	09/29/2023 1903
PFOS	ND		1	4.0	2.0	ng/L	09/29/2023 1903

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		88	25-150
13C2_6:2FTS		100	25-150
13C2_8:2FTS		82	25-150
13C2_PFDoA		81	25-150
13C2_PFTeDA		85	25-150
13C3_PFBS		91	25-150
13C3_PFHxS		87	25-150
13C3-HFPO-DA		93	25-150
13C4_PFBA		92	25-150
13C4_PFHpA		89	25-150
13C5_PFHxA		91	25-150
13C5_PFPeA		89	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: YQ85922-001
Batch: 85922
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/27/2023 1602

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		89	25-150
13C7_PFUdA		82	25-150
13C8_PFOA		98	25-150
13C8_PFOS		82	25-150
13C8_PFOSA		86	10-150
13C9_PFNA		91	25-150
d5-EtFOSAA		85	25-150
d3-MeFOSAA		84	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: YQ85922-002
Batch: 85922
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/27/2023 1602

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	96	50-150	09/29/2023 1914
11Cl-PF3OUdS	15	14		1	96	50-150	09/29/2023 1914
8:2 FTS	15	19		1	124	50-150	09/29/2023 1914
6:2 FTS	15	15		1	99	50-150	09/29/2023 1914
4:2 FTS	15	14		1	95	50-150	09/29/2023 1914
GenX	32	31		1	98	50-150	09/29/2023 1914
ADONA	15	15		1	98	50-150	09/29/2023 1914
EtFOSAA	16	15		1	94	50-150	09/29/2023 1914
MeFOSAA	16	18		1	112	50-150	09/29/2023 1914
PFBS	14	15		1	103	50-150	09/29/2023 1914
PFDS	15	15		1	95	50-150	09/29/2023 1914
PFHpS	15	15		1	96	50-150	09/29/2023 1914
PFNS	15	17		1	109	50-150	09/29/2023 1914
PFOSA	16	16		1	98	50-150	09/29/2023 1914
PFPeS	15	15		1	103	50-150	09/29/2023 1914
PFHxS	15	16		1	109	50-150	09/29/2023 1914
PFBA	16	15		1	91	50-150	09/29/2023 1914
PFDA	16	17		1	104	50-150	09/29/2023 1914
PFDoA	16	16		1	98	50-150	09/29/2023 1914
PFHpA	16	16		1	98	50-150	09/29/2023 1914
PFHxA	16	16		1	98	50-150	09/29/2023 1914
PFNA	16	16		1	102	50-150	09/29/2023 1914
PFOA	16	15		1	95	50-150	09/29/2023 1914
PFPeA	16	16		1	101	50-150	09/29/2023 1914
PFTeDA	16	15		1	95	50-150	09/29/2023 1914
PFTrDA	16	15		1	95	50-150	09/29/2023 1914
PFUdA	16	16		1	101	50-150	09/29/2023 1914
PFOS	15	16		1	106	50-150	09/29/2023 1914

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		103	25-150
13C2_6:2FTS		96	25-150
13C2_8:2FTS		88	25-150
13C2_PFDoA		88	25-150
13C2_PFTeDA		95	25-150
13C3_PFBS		99	25-150
13C3_PFHxS		96	25-150
13C3-HFPO-DA		106	25-150
13C4_PFBA		102	25-150
13C4_PFHpA		101	25-150
13C5_PFHxA		107	25-150
13C5_PFPeA		97	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: YQ85922-002
Batch: 85922
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/27/2023 1602

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		92	25-150
13C7_PFUdA		90	25-150
13C8_PFOA		102	25-150
13C8_PFOS		97	25-150
13C8_PFOSA		94	10-150
13C9_PFNA		104	25-150
d5-EtFOSAA		96	25-150
d3-MeFOSAA		90	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody
and
Miscellaneous Documents

Pace Analytical®

PACE ANALYTICAL SERVICES, LLC
106 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.pacelabs.com

Number 150099

Client: Arcadis U.S., Inc.	Report to Contact: Amanda Robinson, Scott Clearwater	Telephone No. / E-mail: 919-854-6072 / Amanda.Robinson@arcadis.com, 248-344-5970 / Scott.Clearwater@arcadis.com	Quote No.
Address: 28550 Cabot Drive	Sampler's Signature: x Austin Westhuis	Analysis (Attach list if more space is needed)	Page 1 of 1
City: Novi	State: MI	Zip Code: 48377	Printed Name: Austin Westhuis		Lot # Bar Code: YI15030
Project Name: Saginaw SMI			
Project No.: 30169042.37000	P.O. No.		

Sample ID / Description (Combines for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	Grab/Comp	Matrix: Aqueous	Matrix: Solid	Matrix: Other	No. of Containers by Preservative Type: Unpres.	HCl	H2SO4	HNO3	NaOH	NaHSO4	Other	PFAS
MW-108WT_091423	9/14/23	0945	G	X			X							X
MW-131WT_091423	9/14/23	1200	G	X			X							X
MW-134WT_091423	9/14/23	1220	G	X			X							X
B-3R_091423	9/14/23	1245	G	X			X							X
QPTW-13R_091423	9/14/23	1330	G	X			X							X
DUP-11_091423	9/14/23	—	G	X			X							X

Turn Around Time Required (Prior lab approval required for expedited TAT.): X Standard ☐ Rush (Specify)	Sample Disposal: ☐ Return to Client X Disposal by Lab	Possible Hazard Identification: X Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown	QC Requirements (Specify)		
1. Relinquished by: Austin Westhuis / Arcadis	Date: 9/14/23	Time: 1700	1. Received by: FedEx	Date	Time
2. Relinquished by	Date	Time	2. Received by	Date	Time
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by: FedEx	Date: 9/15/23	Time: 0936	4. Laboratory received by	Date: 9/15/23	Time: 1080

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY — Received on ice (Circle): (Yes) No Ice Pack — Receipt Temp: 1.4 °C — Isotp Blank: Y ☐ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: ME003N2-01

PACE ANALYTICAL SERVICES, LLC

DC#_Title: ENV-FRM-WCOL-0286 v02_Samples Receipt Checklist (SRC)
Effective Date: 8/2/2022

Sample Receipt Checklist (SRC)

Client: ARCADIS Cooler Inspected by/date: CJH / 9/15/23 Lot #: YI15030

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other: NA

☑ Yes	☐ No		1. Were custody seals present on the cooler?
☑ Yes	☐ No	☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA

1.4 / 1.4 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: 8 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☑ Yes	☐ No	☐ NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC and all sample containers?
☑ Yes	☐ No		7. Was collection date & time listed on the COC and all sample containers?
☑ Yes	☐ No		8. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		9. Were tests to be performed listed on the COC?
☑ Yes	☐ No		10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)? NA
☑ Yes	☐ No		11. Was adequate sample volume available?
☑ Yes	☐ No		12. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☑ Yes	☐ No		13. Were all samples containers accounted for? (No missing/excess)
☐ Yes	☐ No	☑ NA	14. Were VOA, 8015C and RSK-175 samples free of bubbles >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	17. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☑ No	☐ NA	18. Was the quote number listed on the container label? If yes, Quote # NA

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA. ☐
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Unique ID: NA.

Comments: We received one sample container for sample 1, not sure if one is missing or it is supposed to be like that. Doesn't state on COC

Qualtrax ID: 56360 Pace® Analytical Services, LLC Page 1 of 1

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

October 02, 2023

Scott Clearwater
Arcadis U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, MI 48377

RE: Project: Saginaw GPL
Pace Project No.: 50353867

Dear Scott Clearwater:

Enclosed are the analytical results for sample(s) received by the laboratory on September 14, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Indianapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Olivia Deck
olivia.deck@pacelabs.com
(317)228-3102
Project Manager

Enclosures

cc: Amanda Robinson, Arcadis U.S., Inc.

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Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

CERTIFICATIONS

Project: Saginaw GPL
Pace Project No.: 50353867

Pace Analytical Services Indianapolis
7726 Moller Road, Indianapolis, IN 46268
Illinois Accreditation #: 200074
Indiana Drinking Water Laboratory #: C-49-06
Kansas/TNI Certification #: E-10177
Kentucky UST Agency Interest #: 80226
Kentucky WW Laboratory ID #: 98019
Michigan Drinking Water Laboratory #9050
Ohio VAP Certified Laboratory #: CL0065
Oklahoma Laboratory #: 9204
Texas Certification #: T104704355
Wisconsin Laboratory #: 999788130
USDA Foreign Soil Permit #: 525-23-13-23119
USDA Compliance Agreement #: IN-SL-22-001

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7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

SAMPLE SUMMARY

Project: Saginaw GPL
Pace Project No.: 50353867

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50353867001	**MW-118WT_091323**	Water	09/13/23 09:15	09/14/23 09:15
50353867002	**MW-118S1_091323**	Water	09/13/23 09:55	09/14/23 09:15
50353867003	**MW-117WT_091323**	Water	09/13/23 10:15	09/14/23 09:15
50353867004	**MW-117S1_091323**	Water	09/13/23 10:35	09/14/23 09:15
50353867005	**MW-183WT_091323**	Water	09/13/23 11:55	09/14/23 09:15
50353867006	**X-4AR_091323**	Water	09/13/23 12:45	09/14/23 09:15
50353867007	**X-4CAUGR_091323**	Water	09/13/23 14:15	09/14/23 09:15
50353867008	**DUP-01_091323**	Water	09/13/23 08:00	09/14/23 09:15
50353867009	**X-9D_091323**	Water	09/13/23 08:45	09/14/23 09:15
50353867010	**DUP-04_091323**	Water	09/13/23 08:00	09/14/23 09:15
50353867011	**X-9CAUG_091323**	Water	09/13/23 09:45	09/14/23 09:15
50353867012	**X-9BR_091323**	Water	09/13/23 12:45	09/14/23 09:15
50353867013	**DUP-03_091323**	Water	09/13/23 08:00	09/14/23 09:15
50353867014	**X-9AR_091323**	Water	09/13/23 13:30	09/14/23 09:15
50353867015	**X-4D_091323**	Water	09/13/23 14:15	09/14/23 09:15
50353867016	**DUP-02_091323**	Water	09/13/23 08:00	09/14/23 09:15
50353905001	**MW-118WT_091323 DISS**	Water	09/13/23 09:15	09/14/23 09:15
50353905002	**MW-118S1_091323 DISS**	Water	09/13/23 09:55	09/14/23 09:15
50353905003	**MW-117WT_091323 DISS**	Water	09/13/23 10:15	09/14/23 09:15
50353905004	**MW-117S1_091323 DISS**	Water	09/13/23 10:35	09/14/23 09:15
50353905005	**MW-183WT_091323 DISS**	Water	09/13/23 11:55	09/14/23 09:15
50353905006	**X-4AR_091323 DISS**	Water	09/13/23 12:45	09/14/23 09:15
50353905007	**X-4CAUGR_091323 DISS**	Water	09/13/23 14:15	09/14/23 09:15
50353905008	**DUP-01_091323 DISS**	Water	09/13/23 08:00	09/14/23 09:15
50353905009	**X-9D_091323 DISS**	Water	09/13/23 08:45	09/14/23 09:15
50353905011	**X-9CAUG_091323 DISS**	Water	09/13/23 09:45	09/14/23 09:15
50353905012	**X-9BR_091323 DISS**	Water	09/13/23 12:45	09/14/23 09:15
50353905014	**X-9AR_091323 DISS**	Water	09/13/23 13:30	09/14/23 09:15
50353905015	**X-4D_091323 DISS**	Water	09/13/23 14:15	09/14/23 09:15

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

SAMPLE ANALYTE COUNT

Project: Saginaw GPL
Pace Project No.: 50353867

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
50353867001	**MW-118WT_091323**	EPA 300.0	KBB	2	PASI-I
		EPA 300.0	KBB	2	PASI-I
		EPA 6010	MTM	6	PASI-I
		EPA 6010	MTM	6	PASI-I
		SM 2540C	IRH	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-CN-E	YAM	1	PASI-I
50353867002	**MW-118S1_091323**	EPA 300.0	KBB	2	PASI-I
		EPA 300.0	KBB	2	PASI-I
		EPA 6010	MTM	6	PASI-I
		EPA 6010	MTM	6	PASI-I
		SM 2540C	IRH	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-CN-E	YAM	1	PASI-I
50353867003	**MW-117WT_091323**	EPA 300.0	KBB	2	PASI-I
		EPA 300.0	KBB	2	PASI-I
		EPA 6010	MTM	6	PASI-I
		EPA 6010	MTM	6	PASI-I
		SM 2540C	IRH	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-CN-E	YAM	1	PASI-I
50353867004	**MW-117S1_091323**	EPA 300.0	KBB	2	PASI-I
		EPA 300.0	KBB	2	PASI-I
		EPA 6010	MTM	6	PASI-I
		EPA 6010	MTM	6	PASI-I
		SM 2540C	IRH	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-CN-E	YAM	1	PASI-I
50353867005	**MW-183WT_091323**	EPA 300.0	KBB	2	PASI-I
		EPA 300.0	KBB	2	PASI-I
		EPA 6010	MTM	6	PASI-I
		EPA 6010	MTM	6	PASI-I
		SM 2540C	IRH	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-CN-E	YAM	1	PASI-I
50353867006	**X-4AR_091323**	EPA 300.0	KBB	2	PASI-I
		EPA 300.0	KBB	2	PASI-I

REPORT OF LABORATORY ANALYSIS

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7726 Moller Road
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(317)228-3100

SAMPLE ANALYTE COUNT

Project: Saginaw GPL
Pace Project No.: 50353867

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6010	MTM	6	PASI-I
		EPA 6010	MTM	6	PASI-I
		SM 2540C	IRH	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-CN-E	YAM	1	PASI-I
50353867007	**X-4CAUGR_091323**	EPA 300.0	KBB	2	PASI-I
		EPA 300.0	KBB	2	PASI-I
		EPA 6010	MTM	6	PASI-I
		EPA 6010	MTM	6	PASI-I
		SM 2540C	IRH	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-CN-E	YAM	1	PASI-I
50353867008	**DUP-01_091323**	SM 4500-CN-E	YAM	1	PASI-I
50353867009	**X-9D_091323**	EPA 300.0	ADM, KBB	2	PASI-I
		EPA 300.0	KBB	2	PASI-I
		EPA 6010	MTM	6	PASI-I
		EPA 6010	MTM	6	PASI-I
		SM 2540C	IRH	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-CN-E	YAM	1	PASI-I
50353867010	**DUP-04_091323**	EPA 300.0	KBB	2	PASI-I
		EPA 300.0	KBB	2	PASI-I
50353867011	**X-9CAUG_091323**	EPA 300.0	ADM	2	PASI-I
		EPA 300.0	KBB	2	PASI-I
		EPA 6010	MTM	6	PASI-I
		EPA 6010	MTM	6	PASI-I
		SM 2540C	IRH	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-CN-E	YAM	1	PASI-I
50353867012	**X-9BR_091323**	EPA 300.0	KBB	2	PASI-I
		EPA 300.0	KBB	2	PASI-I
		EPA 6010	MTM	6	PASI-I
		EPA 6010	MTM	6	PASI-I
		SM 2540C	IRH	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-CN-E	YAM	1	PASI-I
50353867013	**DUP-03_091323**	EPA 6010	MTM	6	PASI-I

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Pace Analytical Services, LLC
7726 Moller Road
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(317)228-3100

SAMPLE ANALYTE COUNT

Project: Saginaw GPL
Pace Project No.: 50353867

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6010	MTM	6	PASI-I
50353867014	**X-9AR_091323**	EPA 300.0	KBB	2	PASI-I
		EPA 300.0	KBB	2	PASI-I
		EPA 6010	MTM	6	PASI-I
		EPA 6010	MTM	6	PASI-I
		SM 2540C	IRH	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-CN-E	YAM	1	PASI-I
50353867015	**X-4D_091323**	EPA 300.0	KBB	2	PASI-I
		EPA 300.0	KBB	2	PASI-I
		EPA 6010	MTM	6	PASI-I
		EPA 6010	MTM	6	PASI-I
		SM 2540C	IRH	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
		SM 4500-CN-E	YAM	1	PASI-I
50353867016	**DUP-02_091323**	SM 2540C	IRH	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
50353905001	**MW-118WT_091323 DISS**	SM 4500-CN-E	YAM	1	PASI-I
50353905002	**MW-118S1_091323 DISS**	SM 4500-CN-E	YAM	1	PASI-I
50353905003	**MW-117WT_091323 DISS**	SM 4500-CN-E	YAM	1	PASI-I
50353905004	**MW-117S1_091323 DISS**	SM 4500-CN-E	YAM	1	PASI-I
50353905005	**MW-183WT_091323 DISS**	SM 4500-CN-E	YAM	1	PASI-I
50353905006	**X-4AR_091323 DISS**	SM 4500-CN-E	YAM	1	PASI-I
50353905007	**X-4CAUGR_091323 DISS**	SM 4500-CN-E	YAM	1	PASI-I
50353905008	**DUP-01_091323 DISS**	SM 4500-CN-E	YAM	1	PASI-I
50353905009	**X-9D_091323 DISS**	SM 4500-CN-E	YAM	1	PASI-I
50353905011	**X-9CAUG_091323 DISS**	SM 4500-CN-E	YAM	1	PASI-I
50353905012	**X-9BR_091323 DISS**	SM 4500-CN-E	YAM	1	PASI-I
50353905014	**X-9AR_091323 DISS**	SM 4500-CN-E	YAM	1	PASI-I
50353905015	**X-4D_091323 DISS**	SM 4500-CN-E	YAM	1	PASI-I

PASI-I = Pace Analytical Services - Indianapolis

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7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

SUMMARY OF DETECTION

Project: Saginaw GPL
Pace Project No.: 50353867

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
50353867001	**MW-118WT_091323**					
EPA 300.0	Chloride	388	mg/L	25.0	09/15/23 05:06	
EPA 300.0	Sulfate	0.30	mg/L	0.25	09/14/23 18:58	
EPA 6010	Arsenic	13.7	ug/L	5.0	09/22/23 13:53	
EPA 6010	Barium	354	ug/L	10.0	09/22/23 13:53	
EPA 6010	Iron	22400	ug/L	100	09/22/23 13:53	
EPA 6010	Manganese	779	ug/L	10.0	09/22/23 13:53	
EPA 6010	Sodium	98800	ug/L	1000	09/22/23 13:53	
EPA 6010	Arsenic, Dissolved	12.8	ug/L	5.0	09/21/23 15:38	
EPA 6010	Barium, Dissolved	266	ug/L	10.0	09/21/23 15:38	
EPA 6010	Iron, Dissolved	16000	ug/L	100	09/21/23 15:38	
EPA 6010	Manganese, Dissolved	791	ug/L	10.0	09/21/23 15:38	
EPA 6010	Sodium, Dissolved	85100	ug/L	1000	09/21/23 15:38	
SM 2540C	Total Dissolved Solids	1370	mg/L	20.0	09/19/23 12:29	
SM 4500-NH3 G	Nitrogen, Ammonia	15.6	mg/L	1.0	09/27/23 13:03	
50353867002	**MW-118S1_091323**					
EPA 300.0	Chloride	153	mg/L	25.0	09/15/23 05:41	
EPA 300.0	Sulfate	0.28	mg/L	0.25	09/14/23 20:07	
EPA 6010	Barium	99.9	ug/L	10.0	09/22/23 13:54	
EPA 6010	Iron	5400	ug/L	100	09/22/23 13:54	
EPA 6010	Manganese	187	ug/L	10.0	09/22/23 13:54	
EPA 6010	Sodium	30100	ug/L	1000	09/22/23 13:54	
EPA 6010	Barium, Dissolved	90.7	ug/L	10.0	09/21/23 15:40	
EPA 6010	Iron, Dissolved	4590	ug/L	100	09/21/23 15:40	
EPA 6010	Manganese, Dissolved	190	ug/L	10.0	09/21/23 15:40	
EPA 6010	Sodium, Dissolved	31000	ug/L	1000	09/21/23 15:40	
SM 2540C	Total Dissolved Solids	441	mg/L	10.0	09/19/23 12:29	
SM 4500-NH3 G	Nitrogen, Ammonia	2.9	mg/L	0.10	09/27/23 13:04	
50353867003	**MW-117WT_091323**					
EPA 300.0	Chloride	3640	mg/L	250	09/19/23 22:16	
EPA 300.0	Sulfate	0.33	mg/L	0.25	09/14/23 21:17	
EPA 6010	Arsenic	15.4	ug/L	5.0	09/22/23 13:56	
EPA 6010	Barium	1540	ug/L	10.0	09/22/23 13:56	
EPA 6010	Iron	83400	ug/L	100	09/22/23 13:56	
EPA 6010	Manganese	3470	ug/L	10.0	09/22/23 13:56	
EPA 6010	Sodium	390000	ug/L	3000	09/22/23 14:42	
EPA 6010	Barium, Dissolved	1480	ug/L	10.0	09/21/23 15:41	
EPA 6010	Iron, Dissolved	77900	ug/L	100	09/21/23 15:41	
EPA 6010	Manganese, Dissolved	3420	ug/L	10.0	09/21/23 15:41	
EPA 6010	Sodium, Dissolved	382000	ug/L	3000	09/21/23 16:07	
SM 2540C	Total Dissolved Solids	6340	mg/L	111	09/19/23 12:30	
SM 4500-NH3 G	Nitrogen, Ammonia	35.2	mg/L	2.0	09/27/23 13:05	
50353867004	**MW-117S1_091323**					
EPA 300.0	Nitrate as N	0.065	mg/L	0.050	09/14/23 21:52	
EPA 300.0	Chloride	169	mg/L	25.0	09/15/23 06:50	
EPA 300.0	Sulfate	2.6	mg/L	0.25	09/14/23 21:52	
EPA 6010	Barium	910	ug/L	10.0	09/22/23 13:57	

REPORT OF LABORATORY ANALYSIS

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7726 Moller Road
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SUMMARY OF DETECTION

Project: Saginaw GPL
Pace Project No.: 50353867

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
50353867004	**MW-117S1_091323**					
EPA 6010	Iron	3560	ug/L	100	09/22/23 13:57	
EPA 6010	Manganese	265	ug/L	10.0	09/22/23 13:57	
EPA 6010	Sodium	126000	ug/L	1000	09/22/23 13:57	
EPA 6010	Barium, Dissolved	862	ug/L	10.0	09/21/23 15:43	
EPA 6010	Iron, Dissolved	2260	ug/L	100	09/21/23 15:43	
EPA 6010	Manganese, Dissolved	211	ug/L	10.0	09/21/23 15:43	
EPA 6010	Sodium, Dissolved	123000	ug/L	1000	09/21/23 15:43	
SM 2540C	Total Dissolved Solids	814	mg/L	20.0	09/19/23 12:35	
SM 4500-NH3 G	Nitrogen, Ammonia	5.2	mg/L	0.10	09/27/23 13:06	
50353867005	**MW-183WT_091323**					
EPA 300.0	Chloride	16.2	mg/L	2.5	09/14/23 22:44	
EPA 300.0	Sulfate	1.1	mg/L	0.25	09/14/23 22:26	
EPA 6010	Arsenic	26.4	ug/L	5.0	09/22/23 13:59	
EPA 6010	Barium	94.1	ug/L	10.0	09/22/23 13:59	
EPA 6010	Iron	19700	ug/L	100	09/22/23 13:59	
EPA 6010	Manganese	1700	ug/L	10.0	09/22/23 13:59	
EPA 6010	Sodium	31700	ug/L	1000	09/22/23 13:59	
EPA 6010	Arsenic, Dissolved	6.1	ug/L	5.0	09/21/23 15:44	
EPA 6010	Barium, Dissolved	38.4	ug/L	10.0	09/21/23 15:44	
EPA 6010	Iron, Dissolved	3580	ug/L	100	09/21/23 15:44	
EPA 6010	Manganese, Dissolved	1290	ug/L	10.0	09/21/23 15:44	
EPA 6010	Sodium, Dissolved	31300	ug/L	1000	09/21/23 15:44	
SM 2540C	Total Dissolved Solids	344	mg/L	10.0	09/19/23 12:36	
50353867006	**X-4AR_091323**					
EPA 300.0	Nitrate as N	2.6	mg/L	0.050	09/14/23 23:01	
EPA 300.0	Chloride	12.8	mg/L	2.5	09/14/23 23:18	
EPA 300.0	Sulfate	1.2	mg/L	0.25	09/14/23 23:01	
EPA 6010	Arsenic	23.0	ug/L	5.0	09/22/23 14:09	
EPA 6010	Barium	223	ug/L	10.0	09/22/23 14:09	
EPA 6010	Iron	45300	ug/L	100	09/22/23 14:09	
EPA 6010	Manganese	3400	ug/L	10.0	09/22/23 14:09	
EPA 6010	Sodium	21800	ug/L	1000	09/22/23 14:09	
EPA 6010	Barium, Dissolved	23.6	ug/L	10.0	09/21/23 15:46	
EPA 6010	Manganese, Dissolved	156	ug/L	10.0	09/21/23 15:46	
EPA 6010	Sodium, Dissolved	25200	ug/L	1000	09/21/23 15:46	
SM 2540C	Total Dissolved Solids	339	mg/L	10.0	09/19/23 12:36	
SM 4500-NH3 G	Nitrogen, Ammonia	0.12	mg/L	0.10	09/27/23 12:43	
50353867007	**X-4CAUGR_091323**					
EPA 300.0	Chloride	13.9	mg/L	2.5	09/15/23 01:38	
EPA 300.0	Sulfate	0.65	mg/L	0.25	09/15/23 01:20	
EPA 6010	Barium	64.7	ug/L	10.0	09/22/23 14:11	
EPA 6010	Iron	5700	ug/L	100	09/22/23 14:11	
EPA 6010	Manganese	420	ug/L	10.0	09/22/23 14:11	
EPA 6010	Sodium	36500	ug/L	1000	09/22/23 14:11	
EPA 6010	Barium, Dissolved	41.5	ug/L	10.0	09/21/23 15:47	
EPA 6010	Manganese, Dissolved	342	ug/L	10.0	09/21/23 15:47	

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SUMMARY OF DETECTION

Project: Saginaw GPL
Pace Project No.: 50353867

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
50353867007	**X-4CAUGR_091323**					
EPA 6010	Sodium, Dissolved	38300	ug/L	1000	09/21/23 15:47	
SM 2540C	Total Dissolved Solids	381	mg/L	10.0	09/19/23 12:36	
SM 4500-NH3 G	Nitrogen, Ammonia	0.31	mg/L	0.10	09/27/23 12:44	
50353867009	**X-9D_091323**					
EPA 300.0	Chloride	1130	mg/L	25.0	09/15/23 04:48	
EPA 300.0	Sulfate	263	mg/L	2.5	09/14/23 18:40	
EPA 6010	Barium	64.1	ug/L	10.0	09/22/23 14:12	
EPA 6010	Iron	3740	ug/L	100	09/22/23 14:12	
EPA 6010	Manganese	279	ug/L	10.0	09/22/23 14:12	
EPA 6010	Sodium	455000	ug/L	3000	09/22/23 14:43	
EPA 6010	Barium, Dissolved	62.0	ug/L	10.0	09/21/23 15:49	
EPA 6010	Iron, Dissolved	2330	ug/L	100	09/21/23 15:49	
EPA 6010	Manganese, Dissolved	267	ug/L	10.0	09/21/23 15:49	
EPA 6010	Sodium, Dissolved	564000	ug/L	5000	09/21/23 16:09	
SM 2540C	Total Dissolved Solids	2560	mg/L	40.0	09/19/23 12:36	
SM 4500-NH3 G	Nitrogen, Ammonia	5.7	mg/L	0.10	09/27/23 12:45	
50353867010	**DUP-04_091323**					
EPA 300.0	Chloride	1280	mg/L	25.0	09/15/23 09:26	
EPA 300.0	Sulfate	242	mg/L	2.5	09/15/23 04:31	
50353867011	**X-9CAUG_091323**					
EPA 300.0	Chloride	63.9	mg/L	2.5	09/14/23 19:50	
EPA 300.0	Sulfate	0.27	mg/L	0.25	09/14/23 19:32	
EPA 6010	Barium	263	ug/L	10.0	09/22/23 14:14	
EPA 6010	Iron	21200	ug/L	100	09/22/23 14:14	
EPA 6010	Manganese	745	ug/L	10.0	09/22/23 14:14	
EPA 6010	Sodium	31300	ug/L	1000	09/22/23 14:14	
EPA 6010	Barium, Dissolved	138	ug/L	10.0	09/21/23 15:50	
EPA 6010	Iron, Dissolved	6890	ug/L	100	09/21/23 15:50	
EPA 6010	Manganese, Dissolved	595	ug/L	10.0	09/21/23 15:50	
EPA 6010	Sodium, Dissolved	26800	ug/L	1000	09/21/23 15:50	
SM 2540C	Total Dissolved Solids	633	mg/L	14.3	09/28/23 11:19	H5
SM 4500-NH3 G	Nitrogen, Ammonia	2.1	mg/L	0.10	09/27/23 12:46	
50353867012	**X-9BR_091323**					
EPA 300.0	Chloride	253	mg/L	25.0	09/15/23 08:17	
EPA 300.0	Sulfate	0.46	mg/L	0.25	09/14/23 23:36	
EPA 6010	Arsenic	5.1	ug/L	5.0	09/22/23 14:25	
EPA 6010	Barium	265	ug/L	10.0	09/22/23 14:25	
EPA 6010	Iron	22900	ug/L	100	09/22/23 14:25	
EPA 6010	Manganese	587	ug/L	10.0	09/22/23 14:25	
EPA 6010	Sodium	279000	ug/L	3000	09/22/23 14:45	
EPA 6010	Barium, Dissolved	96.4	ug/L	10.0	09/21/23 16:01	
EPA 6010	Iron, Dissolved	6670	ug/L	100	09/21/23 16:01	
EPA 6010	Manganese, Dissolved	421	ug/L	10.0	09/21/23 16:01	
EPA 6010	Sodium, Dissolved	209000	ug/L	2000	09/21/23 16:15	
SM 2540C	Total Dissolved Solids	920	mg/L	20.0	09/19/23 12:37	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Saginaw GPL
Pace Project No.: 50353867

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
50353867012	**X-9BR_091323**					
SM 4500-NH3 G	Nitrogen, Ammonia	11.1	mg/L	0.50	09/27/23 13:07	
50353867013	**DUP-03_091323**					
EPA 6010	Arsenic	6.1	ug/L	5.0	09/22/23 14:26	
EPA 6010	Barium	209	ug/L	10.0	09/22/23 14:26	
EPA 6010	Iron	17400	ug/L	100	09/22/23 14:26	
EPA 6010	Manganese	538	ug/L	10.0	09/22/23 14:26	
EPA 6010	Sodium	274000	ug/L	3000	09/22/23 14:47	
EPA 6010	Barium, Dissolved	108	ug/L	10.0	09/21/23 16:03	
EPA 6010	Iron, Dissolved	7330	ug/L	100	09/21/23 16:03	
EPA 6010	Manganese, Dissolved	441	ug/L	10.0	09/21/23 16:03	
EPA 6010	Sodium, Dissolved	216000	ug/L	2000	09/21/23 16:17	
50353867014	**X-9AR_091323**					
EPA 300.0	Chloride	8.9	mg/L	0.25	09/15/23 00:45	
EPA 300.0	Sulfate	4.1	mg/L	0.25	09/15/23 00:45	
EPA 6010	Arsenic	117	ug/L	5.0	09/22/23 14:28	
EPA 6010	Barium	757	ug/L	10.0	09/22/23 14:28	
EPA 6010	Iron	82300	ug/L	100	09/22/23 14:28	
EPA 6010	Manganese	2670	ug/L	10.0	09/22/23 14:28	
EPA 6010	Sodium	16300	ug/L	1000	09/22/23 14:28	
EPA 6010	Arsenic, Dissolved	19.8	ug/L	5.0	09/21/23 16:04	
EPA 6010	Barium, Dissolved	105	ug/L	10.0	09/21/23 16:04	
EPA 6010	Iron, Dissolved	23600	ug/L	100	09/21/23 16:04	
EPA 6010	Manganese, Dissolved	2230	ug/L	10.0	09/21/23 16:04	
EPA 6010	Sodium, Dissolved	11500	ug/L	1000	09/21/23 16:04	
SM 2540C	Total Dissolved Solids	515	mg/L	10.0	09/19/23 12:37	
SM 4500-NH3 G	Nitrogen, Ammonia	0.19	mg/L	0.10	09/27/23 13:08	
50353867015	**X-4D_091323**					
EPA 300.0	Nitrate as N	0.091	mg/L	0.050	09/15/23 03:04	
EPA 300.0	Chloride	1190	mg/L	25.0	09/15/23 09:09	
EPA 300.0	Sulfate	172	mg/L	2.5	09/15/23 03:22	
EPA 6010	Barium	115	ug/L	10.0	09/22/23 14:29	
EPA 6010	Iron	8920	ug/L	100	09/22/23 14:29	
EPA 6010	Manganese	324	ug/L	10.0	09/22/23 14:29	
EPA 6010	Sodium	627000	ug/L	5000	09/22/23 14:48	
EPA 6010	Barium, Dissolved	73.3	ug/L	10.0	09/21/23 16:06	
EPA 6010	Iron, Dissolved	892	ug/L	100	09/21/23 16:06	
EPA 6010	Manganese, Dissolved	189	ug/L	10.0	09/21/23 16:06	
EPA 6010	Sodium, Dissolved	630000	ug/L	5000	09/21/23 16:18	
SM 2540C	Total Dissolved Solids	2630	mg/L	20.0	09/19/23 12:37	
SM 4500-NH3 G	Nitrogen, Ammonia	6.8	mg/L	0.10	09/27/23 12:53	
50353867016	**DUP-02_091323**					
SM 2540C	Total Dissolved Solids	2120	mg/L	40.0	09/19/23 12:38	
SM 4500-NH3 G	Nitrogen, Ammonia	6.6	mg/L	0.10	09/27/23 12:54	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: MW-118WT_091323 **Lab ID: 50353867001** Collected: 09/13/23 09:15 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/14/23 18:58	14797-65-0	
Nitrate as N	ND	mg/L	0.050	1		09/14/23 18:58	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**388**	mg/L	25.0	100		09/15/23 05:06	16887-00-6	
Sulfate	**0.30**	mg/L	0.25	1		09/14/23 18:58	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	**13.7**	ug/L	5.0	1	09/18/23 21:51	09/22/23 13:53	7440-38-2	
Barium	**354**	ug/L	10.0	1	09/18/23 21:51	09/22/23 13:53	7440-39-3	
Iron	**22400**	ug/L	100	1	09/18/23 21:51	09/22/23 13:53	7439-89-6	
Manganese	**779**	ug/L	10.0	1	09/18/23 21:51	09/22/23 13:53	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 13:53	7782-49-2	
Sodium	**98800**	ug/L	1000	1	09/18/23 21:51	09/22/23 13:53	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	**12.8**	ug/L	5.0	1	09/18/23 16:22	09/21/23 15:38	7440-38-2	
Barium, Dissolved	**266**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:38	7440-39-3	
Iron, Dissolved	**16000**	ug/L	100	1	09/18/23 16:22	09/21/23 15:38	7439-89-6	
Manganese, Dissolved	**791**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:38	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:38	7782-49-2	
Sodium, Dissolved	**85100**	ug/L	1000	1	09/18/23 16:22	09/21/23 15:38	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**1370**	mg/L	20.0	1		09/19/23 12:29		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**15.6**	mg/L	1.0	10	09/26/23 11:45	09/27/23 13:03	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/18/23 09:35	09/20/23 12:48	57-12-5	M5

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: MW-118S1_091323 **Lab ID: 50353867002** Collected: 09/13/23 09:55 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/14/23 20:07	14797-65-0	
Nitrate as N	ND	mg/L	0.050	1		09/14/23 20:07	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**153**	mg/L	25.0	100		09/15/23 05:41	16887-00-6	
Sulfate	**0.28**	mg/L	0.25	1		09/14/23 20:07	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	ND	ug/L	5.0	1	09/18/23 21:51	09/22/23 13:54	7440-38-2	
Barium	**99.9**	ug/L	10.0	1	09/18/23 21:51	09/22/23 13:54	7440-39-3	
Iron	**5400**	ug/L	100	1	09/18/23 21:51	09/22/23 13:54	7439-89-6	
Manganese	**187**	ug/L	10.0	1	09/18/23 21:51	09/22/23 13:54	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 13:54	7782-49-2	
Sodium	**30100**	ug/L	1000	1	09/18/23 21:51	09/22/23 13:54	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 16:22	09/21/23 15:40	7440-38-2	
Barium, Dissolved	**90.7**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:40	7440-39-3	
Iron, Dissolved	**4590**	ug/L	100	1	09/18/23 16:22	09/21/23 15:40	7439-89-6	
Manganese, Dissolved	**190**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:40	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:40	7782-49-2	
Sodium, Dissolved	**31000**	ug/L	1000	1	09/18/23 16:22	09/21/23 15:40	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**441**	mg/L	10.0	1		09/19/23 12:29		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**2.9**	mg/L	0.10	1	09/26/23 11:45	09/27/23 13:04	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/18/23 09:35	09/20/23 12:50	57-12-5	M5

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: MW-117WT_091323 **Lab ID: 50353867003** Collected: 09/13/23 10:15 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.50	10		09/14/23 21:34	14797-65-0	D3
Nitrate as N	ND	mg/L	0.050	1		09/14/23 21:17	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**3640**	mg/L	250	1000		09/19/23 22:16	16887-00-6	
Sulfate	**0.33**	mg/L	0.25	1		09/14/23 21:17	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	**15.4**	ug/L	5.0	1	09/18/23 21:51	09/22/23 13:56	7440-38-2	
Barium	**1540**	ug/L	10.0	1	09/18/23 21:51	09/22/23 13:56	7440-39-3	
Iron	**83400**	ug/L	100	1	09/18/23 21:51	09/22/23 13:56	7439-89-6	
Manganese	**3470**	ug/L	10.0	1	09/18/23 21:51	09/22/23 13:56	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 13:56	7782-49-2	
Sodium	**390000**	ug/L	3000	3	09/18/23 21:51	09/22/23 14:42	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 16:22	09/21/23 15:41	7440-38-2	
Barium, Dissolved	**1480**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:41	7440-39-3	
Iron, Dissolved	**77900**	ug/L	100	1	09/18/23 16:22	09/21/23 15:41	7439-89-6	
Manganese, Dissolved	**3420**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:41	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:41	7782-49-2	
Sodium, Dissolved	**382000**	ug/L	3000	3	09/18/23 16:22	09/21/23 16:07	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**6340**	mg/L	111	1		09/19/23 12:30		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**35.2**	mg/L	2.0	20	09/26/23 11:45	09/27/23 13:05	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/18/23 09:35	09/20/23 12:50	57-12-5	M5

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: MW-117S1_091323 **Lab ID: 50353867004** Collected: 09/13/23 10:35 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/14/23 21:52	14797-65-0	
Nitrate as N	**0.065**	mg/L	0.050	1		09/14/23 21:52	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**169**	mg/L	25.0	100		09/15/23 06:50	16887-00-6	
Sulfate	**2.6**	mg/L	0.25	1		09/14/23 21:52	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	ND	ug/L	5.0	1	09/18/23 21:51	09/22/23 13:57	7440-38-2	
Barium	**910**	ug/L	10.0	1	09/18/23 21:51	09/22/23 13:57	7440-39-3	
Iron	**3560**	ug/L	100	1	09/18/23 21:51	09/22/23 13:57	7439-89-6	
Manganese	**265**	ug/L	10.0	1	09/18/23 21:51	09/22/23 13:57	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 13:57	7782-49-2	
Sodium	**126000**	ug/L	1000	1	09/18/23 21:51	09/22/23 13:57	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 16:22	09/21/23 15:43	7440-38-2	
Barium, Dissolved	**862**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:43	7440-39-3	
Iron, Dissolved	**2260**	ug/L	100	1	09/18/23 16:22	09/21/23 15:43	7439-89-6	
Manganese, Dissolved	**211**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:43	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:43	7782-49-2	
Sodium, Dissolved	**123000**	ug/L	1000	1	09/18/23 16:22	09/21/23 15:43	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**814**	mg/L	20.0	1		09/19/23 12:35		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**5.2**	mg/L	0.10	1	09/26/23 11:45	09/27/23 13:06	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/18/23 09:35	09/20/23 12:52	57-12-5	M5

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: MW-183WT_091323 **Lab ID: 50353867005** Collected: 09/13/23 11:55 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/14/23 22:26	14797-65-0	
Nitrate as N	ND	mg/L	0.050	1		09/14/23 22:26	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**16.2**	mg/L	2.5	10		09/14/23 22:44	16887-00-6	
Sulfate	**1.1**	mg/L	0.25	1		09/14/23 22:26	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	**26.4**	ug/L	5.0	1	09/18/23 21:51	09/22/23 13:59	7440-38-2	
Barium	**94.1**	ug/L	10.0	1	09/18/23 21:51	09/22/23 13:59	7440-39-3	
Iron	**19700**	ug/L	100	1	09/18/23 21:51	09/22/23 13:59	7439-89-6	
Manganese	**1700**	ug/L	10.0	1	09/18/23 21:51	09/22/23 13:59	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 13:59	7782-49-2	
Sodium	**31700**	ug/L	1000	1	09/18/23 21:51	09/22/23 13:59	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	**6.1**	ug/L	5.0	1	09/18/23 16:22	09/21/23 15:44	7440-38-2	
Barium, Dissolved	**38.4**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:44	7440-39-3	
Iron, Dissolved	**3580**	ug/L	100	1	09/18/23 16:22	09/21/23 15:44	7439-89-6	
Manganese, Dissolved	**1290**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:44	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:44	7782-49-2	
Sodium, Dissolved	**31300**	ug/L	1000	1	09/18/23 16:22	09/21/23 15:44	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**344**	mg/L	10.0	1		09/19/23 12:36		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	ND	mg/L	0.10	1	09/26/23 11:45	09/27/23 12:42	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/18/23 09:35	09/20/23 12:53	57-12-5	M5

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-4AR_091323 **Lab ID: 50353867006** Collected: 09/13/23 12:45 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/14/23 23:01	14797-65-0	
Nitrate as N	**2.6**	mg/L	0.050	1		09/14/23 23:01	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**12.8**	mg/L	2.5	10		09/14/23 23:18	16887-00-6	
Sulfate	**1.2**	mg/L	0.25	1		09/14/23 23:01	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	**23.0**	ug/L	5.0	1	09/18/23 21:51	09/22/23 14:09	7440-38-2	
Barium	**223**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:09	7440-39-3	
Iron	**45300**	ug/L	100	1	09/18/23 21:51	09/22/23 14:09	7439-89-6	
Manganese	**3400**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:09	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 14:09	7782-49-2	
Sodium	**21800**	ug/L	1000	1	09/18/23 21:51	09/22/23 14:09	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 16:22	09/21/23 15:46	7440-38-2	
Barium, Dissolved	**23.6**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:46	7440-39-3	
Iron, Dissolved	ND	ug/L	100	1	09/18/23 16:22	09/21/23 15:46	7439-89-6	
Manganese, Dissolved	**156**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:46	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:46	7782-49-2	
Sodium, Dissolved	**25200**	ug/L	1000	1	09/18/23 16:22	09/21/23 15:46	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**339**	mg/L	10.0	1		09/19/23 12:36		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**0.12**	mg/L	0.10	1	09/26/23 11:45	09/27/23 12:43	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/18/23 09:35	09/20/23 12:55	57-12-5	M5

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-4CAUGR_091323 **Lab ID: 50353867007** Collected: 09/13/23 14:15 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/15/23 01:20	14797-65-0	
Nitrate as N	ND	mg/L	0.050	1		09/15/23 01:20	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**13.9**	mg/L	2.5	10		09/15/23 01:38	16887-00-6	
Sulfate	**0.65**	mg/L	0.25	1		09/15/23 01:20	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	ND	ug/L	5.0	1	09/18/23 21:51	09/22/23 14:11	7440-38-2	
Barium	**64.7**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:11	7440-39-3	
Iron	**5700**	ug/L	100	1	09/18/23 21:51	09/22/23 14:11	7439-89-6	
Manganese	**420**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:11	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 14:11	7782-49-2	
Sodium	**36500**	ug/L	1000	1	09/18/23 21:51	09/22/23 14:11	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 16:22	09/21/23 15:47	7440-38-2	
Barium, Dissolved	**41.5**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:47	7440-39-3	
Iron, Dissolved	ND	ug/L	100	1	09/18/23 16:22	09/21/23 15:47	7439-89-6	
Manganese, Dissolved	**342**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:47	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:47	7782-49-2	
Sodium, Dissolved	**38300**	ug/L	1000	1	09/18/23 16:22	09/21/23 15:47	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**381**	mg/L	10.0	1		09/19/23 12:36		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**0.31**	mg/L	0.10	1	09/26/23 11:45	09/27/23 12:44	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 13:23	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: DUP-01_091323 **Lab ID: 50353867008** Collected: 09/13/23 08:00 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 13:25	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-9D_091323 **Lab ID: 50353867009** Collected: 09/13/23 08:45 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.50	10		09/14/23 18:40	14797-65-0	D3
Nitrate as N	ND	mg/L	0.050	1		09/14/23 18:23	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**1130**	mg/L	25.0	100		09/15/23 04:48	16887-00-6	
Sulfate	**263**	mg/L	2.5	10		09/14/23 18:40	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	ND	ug/L	5.0	1	09/18/23 21:51	09/22/23 14:12	7440-38-2	
Barium	**64.1**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:12	7440-39-3	
Iron	**3740**	ug/L	100	1	09/18/23 21:51	09/22/23 14:12	7439-89-6	
Manganese	**279**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:12	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 14:12	7782-49-2	
Sodium	**455000**	ug/L	3000	3	09/18/23 21:51	09/22/23 14:43	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 16:22	09/21/23 15:49	7440-38-2	
Barium, Dissolved	**62.0**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:49	7440-39-3	
Iron, Dissolved	**2330**	ug/L	100	1	09/18/23 16:22	09/21/23 15:49	7439-89-6	
Manganese, Dissolved	**267**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:49	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:49	7782-49-2	
Sodium, Dissolved	**564000**	ug/L	5000	5	09/18/23 16:22	09/21/23 16:09	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**2560**	mg/L	40.0	1		09/19/23 12:36		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**5.7**	mg/L	0.10	1	09/26/23 11:45	09/27/23 12:45	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 13:25	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: DUP-04_091323 **Lab ID: 50353867010** Collected: 09/13/23 08:00 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/15/23 04:14	14797-65-0	
Nitrate as N	ND	mg/L	0.050	1		09/15/23 04:14	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**1280**	mg/L	25.0	100		09/15/23 09:26	16887-00-6	
Sulfate	**242**	mg/L	2.5	10		09/15/23 04:31	14808-79-8	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-9CAUG_091323 **Lab ID: 50353867011** Collected: 09/13/23 09:45 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/14/23 19:32	14797-65-0	
Nitrate as N	ND	mg/L	0.050	1		09/14/23 19:32	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**63.9**	mg/L	2.5	10		09/14/23 19:50	16887-00-6	
Sulfate	**0.27**	mg/L	0.25	1		09/14/23 19:32	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	ND	ug/L	5.0	1	09/18/23 21:51	09/22/23 14:14	7440-38-2	
Barium	**263**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:14	7440-39-3	
Iron	**21200**	ug/L	100	1	09/18/23 21:51	09/22/23 14:14	7439-89-6	
Manganese	**745**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:14	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 14:14	7782-49-2	
Sodium	**31300**	ug/L	1000	1	09/18/23 21:51	09/22/23 14:14	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 16:22	09/21/23 15:50	7440-38-2	
Barium, Dissolved	**138**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:50	7440-39-3	
Iron, Dissolved	**6890**	ug/L	100	1	09/18/23 16:22	09/21/23 15:50	7439-89-6	
Manganese, Dissolved	**595**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:50	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:50	7782-49-2	
Sodium, Dissolved	**26800**	ug/L	1000	1	09/18/23 16:22	09/21/23 15:50	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**633**	mg/L	14.3	1		09/28/23 11:19		H5
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**2.1**	mg/L	0.10	1	09/26/23 11:45	09/27/23 12:46	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:21	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-9BR_091323 **Lab ID: 50353867012** Collected: 09/13/23 12:45 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/14/23 23:36	14797-65-0	
Nitrate as N	ND	mg/L	0.050	1		09/14/23 23:36	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**253**	mg/L	25.0	100		09/15/23 08:17	16887-00-6	
Sulfate	**0.46**	mg/L	0.25	1		09/14/23 23:36	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	**5.1**	ug/L	5.0	1	09/18/23 21:51	09/22/23 14:25	7440-38-2	
Barium	**265**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:25	7440-39-3	
Iron	**22900**	ug/L	100	1	09/18/23 21:51	09/22/23 14:25	7439-89-6	
Manganese	**587**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:25	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 14:25	7782-49-2	
Sodium	**279000**	ug/L	3000	3	09/18/23 21:51	09/22/23 14:45	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 16:22	09/21/23 16:01	7440-38-2	
Barium, Dissolved	**96.4**	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:01	7440-39-3	
Iron, Dissolved	**6670**	ug/L	100	1	09/18/23 16:22	09/21/23 16:01	7439-89-6	
Manganese, Dissolved	**421**	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:01	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:01	7782-49-2	
Sodium, Dissolved	**209000**	ug/L	2000	2	09/18/23 16:22	09/21/23 16:15	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**920**	mg/L	20.0	1		09/19/23 12:37		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**11.1**	mg/L	0.50	5	09/26/23 11:45	09/27/23 13:07	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:24	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: DUP-03_091323 **Lab ID: 50353867013** Collected: 09/13/23 08:00 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	**6.1**	ug/L	5.0	1	09/18/23 21:51	09/22/23 14:26	7440-38-2	
Barium	**209**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:26	7440-39-3	
Iron	**17400**	ug/L	100	1	09/18/23 21:51	09/22/23 14:26	7439-89-6	
Manganese	**538**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:26	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 14:26	7782-49-2	
Sodium	**274000**	ug/L	3000	3	09/18/23 21:51	09/22/23 14:47	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 16:22	09/21/23 16:03	7440-38-2	
Barium, Dissolved	**108**	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:03	7440-39-3	
Iron, Dissolved	**7330**	ug/L	100	1	09/18/23 16:22	09/21/23 16:03	7439-89-6	
Manganese, Dissolved	**441**	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:03	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:03	7782-49-2	
Sodium, Dissolved	**216000**	ug/L	2000	2	09/18/23 16:22	09/21/23 16:17	7440-23-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-9AR_091323 **Lab ID: 50353867014** Collected: 09/13/23 13:30 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/15/23 00:45	14797-65-0	
Nitrate as N	ND	mg/L	0.050	1		09/15/23 00:45	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**8.9**	mg/L	0.25	1		09/15/23 00:45	16887-00-6	
Sulfate	**4.1**	mg/L	0.25	1		09/15/23 00:45	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	**117**	ug/L	5.0	1	09/18/23 21:51	09/22/23 14:28	7440-38-2	
Barium	**757**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:28	7440-39-3	
Iron	**82300**	ug/L	100	1	09/18/23 21:51	09/22/23 14:28	7439-89-6	
Manganese	**2670**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:28	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 14:28	7782-49-2	
Sodium	**16300**	ug/L	1000	1	09/18/23 21:51	09/22/23 14:28	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	**19.8**	ug/L	5.0	1	09/18/23 16:22	09/21/23 16:04	7440-38-2	
Barium, Dissolved	**105**	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:04	7440-39-3	
Iron, Dissolved	**23600**	ug/L	100	1	09/18/23 16:22	09/21/23 16:04	7439-89-6	
Manganese, Dissolved	**2230**	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:04	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:04	7782-49-2	
Sodium, Dissolved	**11500**	ug/L	1000	1	09/18/23 16:22	09/21/23 16:04	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**515**	mg/L	10.0	1		09/19/23 12:37		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**0.19**	mg/L	0.10	1	09/26/23 11:45	09/27/23 13:08	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:26	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-4D_091323 **Lab ID: 50353867015** Collected: 09/13/23 14:15 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/15/23 03:04	14797-65-0	
Nitrate as N	**0.091**	mg/L	0.050	1		09/15/23 03:04	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**1190**	mg/L	25.0	100		09/15/23 09:09	16887-00-6	
Sulfate	**172**	mg/L	2.5	10		09/15/23 03:22	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	ND	ug/L	5.0	1	09/18/23 21:51	09/22/23 14:29	7440-38-2	
Barium	**115**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:29	7440-39-3	
Iron	**8920**	ug/L	100	1	09/18/23 21:51	09/22/23 14:29	7439-89-6	
Manganese	**324**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:29	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 14:29	7782-49-2	
Sodium	**627000**	ug/L	5000	5	09/18/23 21:51	09/22/23 14:48	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 16:22	09/21/23 16:06	7440-38-2	
Barium, Dissolved	**73.3**	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:06	7440-39-3	
Iron, Dissolved	**892**	ug/L	100	1	09/18/23 16:22	09/21/23 16:06	7439-89-6	
Manganese, Dissolved	**189**	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:06	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:06	7782-49-2	
Sodium, Dissolved	**630000**	ug/L	5000	5	09/18/23 16:22	09/21/23 16:18	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**2630**	mg/L	20.0	1		09/19/23 12:37		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**6.8**	mg/L	0.10	1	09/26/23 11:45	09/27/23 12:53	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:27	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: DUP-02_091323 **Lab ID: 50353867016** Collected: 09/13/23 08:00 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**2120**	mg/L	40.0	1		09/19/23 12:38		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**6.6**	mg/L	0.10	1	09/26/23 11:45	09/27/23 12:54	7664-41-7	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: MW-118WT_091323 DISS **Lab ID: 50353905001** Collected: 09/13/23 09:15 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:29	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: MW-118S1_091323 DISS **Lab ID: 50353905002** Collected: 09/13/23 09:55 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:31	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: MW-117WT_091323 DISS **Lab ID: 50353905003** Collected: 09/13/23 10:15 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:31	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: MW-117S1_091323 DISS **Lab ID: 50353905004** Collected: 09/13/23 10:35 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:36	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: MW-183WT_091323 DISS **Lab ID: 50353905005** Collected: 09/13/23 11:55 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:36	57-12-5	

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(317)228-3100

ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-4AR_091323 DISS **Lab ID: 50353905006** Collected: 09/13/23 12:45 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:38	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-4CAUGR_091323 DISS **Lab ID: 50353905007** Collected: 09/13/23 14:15 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:39	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: DUP-01_091323 DISS **Lab ID: 50353905008** Collected: 09/13/23 08:00 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:41	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-9D_091323 DISS **Lab ID: 50353905009** Collected: 09/13/23 08:45 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:41	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-9CAUG_091323 DISS **Lab ID: 50353905011** Collected: 09/13/23 09:45 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:43	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-9BR_091323 DISS **Lab ID: 50353905012** Collected: 09/13/23 12:45 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:46	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-9AR_091323 DISS **Lab ID: 50353905014** Collected: 09/13/23 13:30 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 13:58	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-4D_091323 DISS **Lab ID: 50353905015** Collected: 09/13/23 14:15 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0060	1	09/29/23 09:32	09/29/23 13:25	57-12-5	H1,T3

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QUALITY CONTROL DATA

Project: Saginaw GPL
Pace Project No.: 50353867

QC Batch: 752678 | Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 | Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50353867001, 50353867002, 50353867003, 50353867004, 50353867005, 50353867006, 50353867007, 50353867009, 50353867010, 50353867011, 50353867012, 50353867014, 50353867015

METHOD BLANK: 3449493 Matrix: Water
Associated Lab Samples: 50353867001, 50353867002, 50353867003, 50353867004, 50353867005, 50353867006, 50353867007, 50353867009, 50353867010, 50353867011, 50353867012, 50353867014, 50353867015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.050	09/15/23 09:44	
Nitrite as N	mg/L	ND	0.050	09/15/23 09:44	

LABORATORY CONTROL SAMPLE: 3449494

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	1	1.0	100	90-110	
Nitrite as N	mg/L	1	0.99	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3449646 3449647

Parameter	Units	50353867011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	ND	1	1	0.93	0.91	91	89	80-120	2	15	
Nitrite as N	mg/L	ND	1	1	0.88	0.88	88	88	80-120	0	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3458999 3459000

Parameter	Units	50353867005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	ND	1	1	0.88	0.88	88	88	80-120	0	15	H1
Nitrite as N	mg/L	ND	1	1	0.90	0.91	90	91	80-120	1	15	H1

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QUALITY CONTROL DATA

Project: Saginaw GPL
Pace Project No.: 50353867

QC Batch: 752717
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50353867001, 50353867002, 50353867003, 50353867004, 50353867005, 50353867006, 50353867007, 50353867009, 50353867010, 50353867011, 50353867012, 50353867014, 50353867015

METHOD BLANK: 3449654 Matrix: Water
Associated Lab Samples: 50353867001, 50353867002, 50353867003, 50353867004, 50353867005, 50353867006, 50353867007, 50353867009, 50353867010, 50353867011, 50353867012, 50353867014, 50353867015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	0.25	09/15/23 09:44	
Sulfate	mg/L	ND	0.25	09/15/23 09:44	

LABORATORY CONTROL SAMPLE: 3449655

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	2.5	2.3	93	90-110	
Sulfate	mg/L	5	4.7	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3449656 3449657

Parameter	Units	50353867011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	63.9	25	25	85.7	85.2	87	85	80-120	1	15	
Sulfate	mg/L	0.27	5	5	4.8	4.7	91	89	80-120	1	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3459169 3459170

Parameter	Units	50353867005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	16.2	25	25	39.9	39.9	95	95	80-120	0	15	
Sulfate	mg/L	1.1	5	5	6.1	6.1	100	100	80-120	0	15	

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QUALITY CONTROL DATA

Project: Saginaw GPL
Pace Project No.: 50353867

QC Batch: 752786
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50353867001, 50353867002, 50353867003, 50353867004, 50353867005, 50353867006, 50353867007, 50353867009, 50353867011, 50353867012, 50353867013, 50353867014, 50353867015

METHOD BLANK: 3450049 Matrix: Water
Associated Lab Samples: 50353867001, 50353867002, 50353867003, 50353867004, 50353867005, 50353867006, 50353867007, 50353867009, 50353867011, 50353867012, 50353867013, 50353867014, 50353867015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	5.0	09/22/23 13:51	
Barium	ug/L	ND	10.0	09/22/23 13:51	
Iron	ug/L	ND	100	09/22/23 13:51	
Manganese	ug/L	ND	10.0	09/22/23 13:51	
Selenium	ug/L	ND	25.0	09/22/23 13:51	
Sodium	ug/L	ND	1000	09/22/23 13:51	

LABORATORY CONTROL SAMPLE: 3450050

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	1000	983	98	80-120	
Barium	ug/L	1000	996	100	80-120	
Iron	ug/L	10000	9820	98	80-120	
Manganese	ug/L	1000	960	96	80-120	
Selenium	ug/L	1000	950	95	80-120	
Sodium	ug/L	10000	10100	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3450051 3450052

Parameter	Units	50353867011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	ND	1000	1000	966	955	96	95	75-125	1	20	
Barium	ug/L	263	1000	1000	1230	1210	97	94	75-125	2	20	
Iron	ug/L	21200	10000	10000	30000	28900	87	77	75-125	4	20	
Manganese	ug/L	745	1000	1000	1640	1610	89	86	75-125	2	20	
Selenium	ug/L	ND	1000	1000	929	919	93	92	75-125	1	20	
Sodium	ug/L	31300	10000	10000	40000	39400	87	81	75-125	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3450053 3450054

Parameter	Units	50353930001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	ND	1000	1000	972	988	97	99	75-125	2	20	
Barium	ug/L	140	1000	1000	1110	1110	97	97	75-125	0	20	

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QUALITY CONTROL DATA

Project: Saginaw GPL
Pace Project No.: 50353867

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3450053 3450054

Parameter	Units	50353930001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	13600	10000	10000	23200	23100	96	95	75-125	0	20	
Manganese	ug/L	553	1000	1000	1480	1470	93	92	75-125	1	20	
Selenium	ug/L	ND	1000	1000	939	952	94	95	75-125	1	20	
Sodium	ug/L	39200	10000	10000	48700	48000	96	89	75-125	1	20	

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QUALITY CONTROL DATA

Project: Saginaw GPL
Pace Project No.: 50353867

QC Batch: 752795
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET Dissolved
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50353867001, 50353867002, 50353867003, 50353867004, 50353867005, 50353867006, 50353867007, 50353867009, 50353867011, 50353867012, 50353867013, 50353867014, 50353867015

METHOD BLANK: 3450143 Matrix: Water
Associated Lab Samples: 50353867001, 50353867002, 50353867003, 50353867004, 50353867005, 50353867006, 50353867007, 50353867009, 50353867011, 50353867012, 50353867013, 50353867014, 50353867015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	5.0	09/21/23 15:27	
Barium, Dissolved	ug/L	ND	10.0	09/21/23 15:27	
Iron, Dissolved	ug/L	ND	100	09/21/23 15:27	
Manganese, Dissolved	ug/L	ND	10.0	09/21/23 15:27	
Selenium, Dissolved	ug/L	ND	10.0	09/21/23 15:27	
Sodium, Dissolved	ug/L	ND	1000	09/21/23 15:27	

LABORATORY CONTROL SAMPLE: 3450144

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	1000	1050	105	80-120	
Barium, Dissolved	ug/L	1000	1020	102	80-120	
Iron, Dissolved	ug/L	10000	10300	103	80-120	
Manganese, Dissolved	ug/L	1000	1020	102	80-120	
Selenium, Dissolved	ug/L	1000	1030	103	80-120	
Sodium, Dissolved	ug/L	10000	10300	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3450145 3450146

Parameter	Units	50353867011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	ND	1000	1000	1030	1080	103	108	75-125	4	20	
Barium, Dissolved	ug/L	138	1000	1000	1130	1170	99	104	75-125	4	20	
Iron, Dissolved	ug/L	6890	10000	10000	16700	17500	98	107	75-125	5	20	
Manganese, Dissolved	ug/L	595	1000	1000	1550	1610	96	101	75-125	3	20	
Selenium, Dissolved	ug/L	ND	1000	1000	1010	1060	101	106	75-125	4	20	
Sodium, Dissolved	ug/L	26800	10000	10000	36100	37500	93	107	75-125	4	20	

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QUALITY CONTROL DATA

Project: Saginaw GPL
Pace Project No.: 50353867

QC Batch: 753289
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50353867001, 50353867002, 50353867003

METHOD BLANK: 3452165 Matrix: Water
Associated Lab Samples: 50353867001, 50353867002, 50353867003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	09/19/23 12:23	

LABORATORY CONTROL SAMPLE: 3452166

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	300	292	97	80-120	

SAMPLE DUPLICATE: 3452167

Parameter	Units	50353918007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	161	166	3	10	

SAMPLE DUPLICATE: 3452168

Parameter	Units	50353862001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	129	134	4	10	

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QUALITY CONTROL DATA

Project: Saginaw GPL
Pace Project No.: 50353867

QC Batch: 753291 | Analysis Method: SM 2540C
QC Batch Method: SM 2540C | Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50353867004, 50353867005, 50353867006, 50353867007, 50353867009, 50353867012, 50353867014, 50353867015, 50353867016

METHOD BLANK: 3452169 Matrix: Water
Associated Lab Samples: 50353867004, 50353867005, 50353867006, 50353867007, 50353867009, 50353867012, 50353867014, 50353867015, 50353867016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	09/19/23 12:35	

LABORATORY CONTROL SAMPLE: 3452170

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	300	278	93	80-120	

SAMPLE DUPLICATE: 3452171

Parameter	Units	50353867004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	814	808	1	10	

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QUALITY CONTROL DATA

Project: Saginaw GPL
Pace Project No.: 50353867

QC Batch: 754810
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50353867011

METHOD BLANK: 3459190 Matrix: Water
Associated Lab Samples: 50353867011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	09/28/23 11:18	

LABORATORY CONTROL SAMPLE: 3459191

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	300	289	96	80-120	

SAMPLE DUPLICATE: 3459192

Parameter	Units	50353867011 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	633	656	4	10	H5

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QUALITY CONTROL DATA

Project: Saginaw GPL
Pace Project No.: 50353867

QC Batch: 754294
QC Batch Method: SM 4500-NH3 B
Analysis Method: SM 4500-NH3 G
Analysis Description: 4500 Ammonia, Distilled
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50353867001, 50353867002, 50353867003, 50353867004, 50353867005, 50353867006, 50353867007, 50353867009, 50353867011, 50353867012, 50353867014, 50353867015, 50353867016

METHOD BLANK: 3456900 Matrix: Water
Associated Lab Samples: 50353867001, 50353867002, 50353867003, 50353867004, 50353867005, 50353867006, 50353867007, 50353867009, 50353867011, 50353867012, 50353867014, 50353867015, 50353867016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	09/27/23 12:26	

LABORATORY CONTROL SAMPLE: 3456901

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	1.7	1.7	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3456902 3456903

Parameter	Units	50353867011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	2.1	1.7	1.7	3.6	3.5	94	88	90-110	3	20	M0

MATRIX SPIKE SAMPLE: 3456904

Parameter	Units	50353914001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	ND	1.7	1.5	88	90-110	M0

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REPORT OF LABORATORY ANALYSIS

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(317)228-3100

QUALITY CONTROL DATA

Project: Saginaw GPL
Pace Project No.: 50353867

QC Batch: 754964
QC Batch Method: SM 4500-CN-C
Analysis Method: SM 4500-CN-E
Analysis Description: 4500CNE Cyanide
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50353905015

METHOD BLANK: 3460064 Matrix: Water
Associated Lab Samples: 50353905015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide	mg/L	ND	0.0050	09/29/23 13:20	

LABORATORY CONTROL SAMPLE: 3460065

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	0.1	0.11	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3460066 3460067

Parameter	Units	50353789013 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cyanide	mg/L	ND	0.1	0.1	0.063	0.062	59	58	90-110	2	20	H1,M3

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QUALITY CONTROL DATA

Project: Saginaw GPL
Pace Project No.: 50353867

QC Batch: 755007
QC Batch Method: SM 4500-CN-C
Analysis Method: SM 4500-CN-E
Analysis Description: 4500CNE Cyanide
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50353905001, 50353905002, 50353905003, 50353905004, 50353905005, 50353905006, 50353905007, 50353905008, 50353905009, 50353905011, 50353905012, 50353905014

METHOD BLANK: 3460246 Matrix: Water
Associated Lab Samples: 50353905001, 50353905002, 50353905003, 50353905004, 50353905005, 50353905006, 50353905007, 50353905008, 50353905009, 50353905011, 50353905012, 50353905014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide	mg/L	ND	0.0050	09/20/23 13:20	

LABORATORY CONTROL SAMPLE: 3460247

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	0.1	0.10	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3460248 3460249

Parameter	Units	50353905011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cyanide	mg/L	ND	0.1	0.1	0.10	0.10	101	101	90-110	0	20	

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QUALITY CONTROL DATA

Project: Saginaw GPL
Pace Project No.: 50353867

QC Batch: 755039
QC Batch Method: SM 4500-CN-C
Analysis Method: SM 4500-CN-E
Analysis Description: 4500CNE Cyanide
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50353867001, 50353867002, 50353867003, 50353867004, 50353867005, 50353867006

METHOD BLANK: 3460366 Matrix: Water
Associated Lab Samples: 50353867001, 50353867002, 50353867003, 50353867004, 50353867005, 50353867006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide	mg/L	ND	0.0050	09/20/23 12:45	M5

LABORATORY CONTROL SAMPLE: 3460367

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	0.1	0.10	104	90-110	M5

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QUALITY CONTROL DATA

Project: Saginaw GPL
Pace Project No.: 50353867

QC Batch: 755049 | Analysis Method: SM 4500-CN-E
QC Batch Method: SM 4500-CN-C | Analysis Description: 4500CNE Cyanide
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50353867007, 50353867008, 50353867009, 50353867011, 50353867012, 50353867014, 50353867015

METHOD BLANK: 3460430 Matrix: Water
Associated Lab Samples: 50353867007, 50353867008, 50353867009, 50353867011, 50353867012, 50353867014, 50353867015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide	mg/L	ND	0.0050	09/20/23 13:20	

LABORATORY CONTROL SAMPLE: 3460431

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	0.1	0.10	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3460432 3460433

Parameter	Units	50353867011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cyanide	mg/L	ND	0.1	0.1	0.085	0.10	84	101	90-110	19	20	M0

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QUALIFIERS

Project: Saginaw GPL
Pace Project No.: 50353867

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: 755040

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
H1	Analysis conducted outside the recognized method holding time.
H5	Reanalysis conducted in excess of EPA method holding time. Results confirm original analysis performed in hold time.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.
M5	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
T3	Insufficient sample received from client to perform the analysis per EPA method requirements.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Saginaw GPL
Pace Project No.: 50353867

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50353867001	**MW-118WT_091323**	EPA 300.0	752678		
50353867002	**MW-118S1_091323**	EPA 300.0	752678		
50353867003	**MW-117WT_091323**	EPA 300.0	752678		
50353867004	**MW-117S1_091323**	EPA 300.0	752678		
50353867005	**MW-183WT_091323**	EPA 300.0	752678		
50353867006	**X-4AR_091323**	EPA 300.0	752678		
50353867007	**X-4CAUGR_091323**	EPA 300.0	752678		
50353867009	**X-9D_091323**	EPA 300.0	752678		
50353867010	**DUP-04_091323**	EPA 300.0	752678		
50353867011	**X-9CAUG_091323**	EPA 300.0	752678		
50353867012	**X-9BR_091323**	EPA 300.0	752678		
50353867014	**X-9AR_091323**	EPA 300.0	752678		
50353867015	**X-4D_091323**	EPA 300.0	752678		
50353867001	**MW-118WT_091323**	EPA 300.0	752717		
50353867002	**MW-118S1_091323**	EPA 300.0	752717		
50353867003	**MW-117WT_091323**	EPA 300.0	752717		
50353867004	**MW-117S1_091323**	EPA 300.0	752717		
50353867005	**MW-183WT_091323**	EPA 300.0	752717		
50353867006	**X-4AR_091323**	EPA 300.0	752717		
50353867007	**X-4CAUGR_091323**	EPA 300.0	752717		
50353867009	**X-9D_091323**	EPA 300.0	752717		
50353867010	**DUP-04_091323**	EPA 300.0	752717		
50353867011	**X-9CAUG_091323**	EPA 300.0	752717		
50353867012	**X-9BR_091323**	EPA 300.0	752717		
50353867014	**X-9AR_091323**	EPA 300.0	752717		
50353867015	**X-4D_091323**	EPA 300.0	752717		
50353867001	**MW-118WT_091323**	EPA 3010	752786	EPA 6010	753959
50353867002	**MW-118S1_091323**	EPA 3010	752786	EPA 6010	753959
50353867003	**MW-117WT_091323**	EPA 3010	752786	EPA 6010	753959
50353867004	**MW-117S1_091323**	EPA 3010	752786	EPA 6010	753959
50353867005	**MW-183WT_091323**	EPA 3010	752786	EPA 6010	753959
50353867006	**X-4AR_091323**	EPA 3010	752786	EPA 6010	753959
50353867007	**X-4CAUGR_091323**	EPA 3010	752786	EPA 6010	753959
50353867009	**X-9D_091323**	EPA 3010	752786	EPA 6010	753959
50353867011	**X-9CAUG_091323**	EPA 3010	752786	EPA 6010	753959
50353867012	**X-9BR_091323**	EPA 3010	752786	EPA 6010	753959
50353867013	**DUP-03_091323**	EPA 3010	752786	EPA 6010	753959
50353867014	**X-9AR_091323**	EPA 3010	752786	EPA 6010	753959
50353867015	**X-4D_091323**	EPA 3010	752786	EPA 6010	753959
50353867001	**MW-118WT_091323**	EPA 3010	752795	EPA 6010	753758
50353867002	**MW-118S1_091323**	EPA 3010	752795	EPA 6010	753758
50353867003	**MW-117WT_091323**	EPA 3010	752795	EPA 6010	753758
50353867004	**MW-117S1_091323**	EPA 3010	752795	EPA 6010	753758
50353867005	**MW-183WT_091323**	EPA 3010	752795	EPA 6010	753758
50353867006	**X-4AR_091323**	EPA 3010	752795	EPA 6010	753758
50353867007	**X-4CAUGR_091323**	EPA 3010	752795	EPA 6010	753758
50353867009	**X-9D_091323**	EPA 3010	752795	EPA 6010	753758

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Saginaw GPL
Pace Project No.: 50353867

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50353867011	**X-9CAUG_091323**	EPA 3010	752795	EPA 6010	753758
50353867012	**X-9BR_091323**	EPA 3010	752795	EPA 6010	753758
50353867013	**DUP-03_091323**	EPA 3010	752795	EPA 6010	753758
50353867014	**X-9AR_091323**	EPA 3010	752795	EPA 6010	753758
50353867015	**X-4D_091323**	EPA 3010	752795	EPA 6010	753758
50353867001	**MW-118WT_091323**	SM 2540C	753289		
50353867002	**MW-118S1_091323**	SM 2540C	753289		
50353867003	**MW-117WT_091323**	SM 2540C	753289		
50353867004	**MW-117S1_091323**	SM 2540C	753291		
50353867005	**MW-183WT_091323**	SM 2540C	753291		
50353867006	**X-4AR_091323**	SM 2540C	753291		
50353867007	**X-4CAUGR_091323**	SM 2540C	753291		
50353867009	**X-9D_091323**	SM 2540C	753291		
50353867011	**X-9CAUG_091323**	SM 2540C	754810		
50353867012	**X-9BR_091323**	SM 2540C	753291		
50353867014	**X-9AR_091323**	SM 2540C	753291		
50353867015	**X-4D_091323**	SM 2540C	753291		
50353867016	**DUP-02_091323**	SM 2540C	753291		
50353867001	**MW-118WT_091323**	SM 4500-NH3 B	754294	SM 4500-NH3 G	754459
50353867002	**MW-118S1_091323**	SM 4500-NH3 B	754294	SM 4500-NH3 G	754459
50353867003	**MW-117WT_091323**	SM 4500-NH3 B	754294	SM 4500-NH3 G	754459
50353867004	**MW-117S1_091323**	SM 4500-NH3 B	754294	SM 4500-NH3 G	754459
50353867005	**MW-183WT_091323**	SM 4500-NH3 B	754294	SM 4500-NH3 G	754459
50353867006	**X-4AR_091323**	SM 4500-NH3 B	754294	SM 4500-NH3 G	754459
50353867007	**X-4CAUGR_091323**	SM 4500-NH3 B	754294	SM 4500-NH3 G	754459
50353867009	**X-9D_091323**	SM 4500-NH3 B	754294	SM 4500-NH3 G	754459
50353867011	**X-9CAUG_091323**	SM 4500-NH3 B	754294	SM 4500-NH3 G	754459
50353867012	**X-9BR_091323**	SM 4500-NH3 B	754294	SM 4500-NH3 G	754459
50353867014	**X-9AR_091323**	SM 4500-NH3 B	754294	SM 4500-NH3 G	754459
50353867015	**X-4D_091323**	SM 4500-NH3 B	754294	SM 4500-NH3 G	754459
50353867016	**DUP-02_091323**	SM 4500-NH3 B	754294	SM 4500-NH3 G	754459
50353867001	**MW-118WT_091323**	SM 4500-CN-C	755039	SM 4500-CN-E	755040
50353867002	**MW-118S1_091323**	SM 4500-CN-C	755039	SM 4500-CN-E	755040
50353867003	**MW-117WT_091323**	SM 4500-CN-C	755039	SM 4500-CN-E	755040
50353867004	**MW-117S1_091323**	SM 4500-CN-C	755039	SM 4500-CN-E	755040
50353867005	**MW-183WT_091323**	SM 4500-CN-C	755039	SM 4500-CN-E	755040
50353867006	**X-4AR_091323**	SM 4500-CN-C	755039	SM 4500-CN-E	755040
50353867007	**X-4CAUGR_091323**	SM 4500-CN-C	755049	SM 4500-CN-E	755050
50353867008	**DUP-01_091323**	SM 4500-CN-C	755049	SM 4500-CN-E	755050
50353867009	**X-9D_091323**	SM 4500-CN-C	755049	SM 4500-CN-E	755050
50353867011	**X-9CAUG_091323**	SM 4500-CN-C	755049	SM 4500-CN-E	755050
50353867012	**X-9BR_091323**	SM 4500-CN-C	755049	SM 4500-CN-E	755050
50353867014	**X-9AR_091323**	SM 4500-CN-C	755049	SM 4500-CN-E	755050
50353867015	**X-4D_091323**	SM 4500-CN-C	755049	SM 4500-CN-E	755050
50353905001	**MW-118WT_091323 DISS**	SM 4500-CN-C	755007	SM 4500-CN-E	755009

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Saginaw GPL
Pace Project No.: 50353867

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50353905002	**MW-118S1_091323 DISS**	SM 4500-CN-C	755007	SM 4500-CN-E	755009
50353905003	**MW-117WT_091323 DISS**	SM 4500-CN-C	755007	SM 4500-CN-E	755009
50353905004	**MW-117S1_091323 DISS**	SM 4500-CN-C	755007	SM 4500-CN-E	755009
50353905005	**MW-183WT_091323 DISS**	SM 4500-CN-C	755007	SM 4500-CN-E	755009
50353905006	**X-4AR_091323 DISS**	SM 4500-CN-C	755007	SM 4500-CN-E	755009
50353905007	**X-4CAUGR_091323 DISS**	SM 4500-CN-C	755007	SM 4500-CN-E	755009
50353905008	**DUP-01_091323 DISS**	SM 4500-CN-C	755007	SM 4500-CN-E	755009
50353905009	**X-9D_091323 DISS**	SM 4500-CN-C	755007	SM 4500-CN-E	755009
50353905011	**X-9CAUG_091323 DISS**	SM 4500-CN-C	755007	SM 4500-CN-E	755009
50353905012	**X-9BR_091323 DISS**	SM 4500-CN-C	755007	SM 4500-CN-E	755009
50353905014	**X-9AR_091323 DISS**	SM 4500-CN-C	755007	SM 4500-CN-E	755009
50353905015	**X-4D_091323 DISS**	SM 4500-CN-C	754964	SM 4500-CN-E	755066

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Pace® Location Requested (City/State):
Pace Analytical Indianapolis
7726 Moller Road, Indianapolis, IN 46268

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

WO# : 50353867

50353867

Company Name:	Arcadis U.S., Inc.	Contact/Report To:	Clearwater, Scott
Street Address:	28550 Cabot Drive, Novi, MI 48377	Phone #:	(810)225-1921
		E-Mail:	scott.clearwater@arcadis.com
		Cc E-Mail:	Amanda.Robinson@arcadis.com
Customer Project #:	30169042.11000	Invoice To:	Arcadis U.S., Inc.
Project Name:	Saginaw GPL	Invoice E-Mail:	
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [X] ET

County / State origin of sample(s): Michigan

Data Deliverables:
[ ] Level II [ ] Level III [ ] Level IV
[ ] EQUIS
[ ] Other_____

Regulatory Program (DW, RCRA, etc.) as applicable:

Rush (Pre-approval required):
[ ] 2 Day [ ] 3 day [ ] 5 day [ ] Other_____

Date Results Requested: STD 10 day TAT

DW PWSID # or WW Permit # as applicable:

Field Filtered (if applicable): [X] Yes [ ] No

Analysis: Dissolved Metals and Dissolved Cyanide

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Other (OT), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res. CL2	Number & Type of Containers Total	Total Metals 6010*	FF Dissolved Metals 6010*	Chloride/Sulfate 300	Nitrate, Nitrite 300.0	Cyanide Total 335.4	Dissolved Cyandie-FF 335.4	Ammonia 350.1	TDS 2540	Sample Comment
MW-118WT_091323	GW	G	9/13/23	0915	—	—		7	X	X	X	X	X	X	X	X	001
MW-118SI_091323	GW	G	9/13/23	0955	—	—		7	X	X	X	X	X	X	X	X	002
MW-117WT_091323	GW	G	9/13/23	1015	—	—		7	X	X	X	X	X	X	X	X	003
MW-117SI_091323	GW	G	9/13/23	1035	—	—		7	X	X	X	X	X	X	X	X	004
MW-183WT_091323	GW	G	9/13/23	1155	—	—		7	X	X	X	X	X	X	X	X	005
X-4AR_091323	GW	G	9/13/23	1245	—	—		7	X	X	X	X	X	X	X	X	006
X-4CAUGR_091323	GW	G	9/13/23	1415	—	—		7	X	X	X	X	X	X	X	X	007
DUP-01_091323	GW	G	9/13/23	—	—	—		2					X	X			008

Specify Container Size **: 3 3 3 3 3 3 3 3

Identify Container Preservative Type***: 2 2 1 1 5 5 3 1

Analysis Requested

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Lab Use Only
Proj. Mgr: Olivia Deck
oliva.deck@pacelabs.com
AcctNum / Client ID:
Table #:
Profile / Template: 11397/3
Prelog / Bottle Ord. ID: 1142243

Preservation non-conformance identified for sample.

Customer Remarks / Special Conditions / Possible Hazards:
*Nitrate and Nitrite samples will be separate parameters not a combined result.
*Limited Volumes

Collected By:
Printed Name: Austin Westhuis
Signature:

Additional Instructions from Pace®:
Nitrate is 48HR Short Hold: 6010 As, Ba, Fe, Mn, Se, Na

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)
	see scan			

Relinquished by/Company: (Signature) Arcadis	Date/Time: 9/13/23 1545	Received by/Company: (Signature) FedEx	Date/Time:	Tracking Number:
Relinquished by/Company: (Signature) FedEx	Date/Time: 9-14-23 9:15	Received by/Company: (Signature)	Date/Time: 9-14-23 9:15	Delivered by: [ ] In- Person [ ] Courier [✓] FedEX [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	
Relinquished by/Company: (Signature)	Date/Time.	Received by/Company: (Signature)	Date/Time:	Page: of

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

Pace® Location Requested (City/State):
Pace Analytical Indianapolis
7726 Moller Road, Indianapolis, IN 46268

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

Scan QR Code for instructions

Company Name:	Arcadis U.S., Inc.	Contact/Report To:	Clearwater, Scott
Street Address:	28550 Cabot Drive, Novi, MI 48377	Phone #:	(810)225-1921
		E-Mail:	scott.clearwater@arcadis.com
		Cc E-Mail:	Amanda.Robinson@arcadis.com
Customer Project #:	30169042.11000	Invoice To:	Arcadis U.S., Inc.
Project Name:	Saginaw GPL	Invoice E-Mail:	
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [X] ET

County / State origin of sample(s): Michigan

Data Deliverables: [ ] Level II [ ] Level III [ ] Level IV [ ] EQUIS [ ] Other_____

Regulatory Program (DW, RCRA, etc.) as applicable:

Rush (Pre-approval required): [ ] 2 Day [ ] 3 day [ ] 5 day [ ] Other_____

Date Results Requested: STD 10 day TAT

DW PWSID # or WW Permit # as applicable:

Field Filtered (if applicable): [X] Yes [ ] No

Analysis: Dissolved Metals and Dissolved Cyanide

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Other (OT), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res. Cl2	Number & Type of Containers Total	Specify Container Size **	Identify Container Preservative Type***	Total Metals 6010*	FF Dissolved Metals 6010*	Chloride/Sulfate 300	Nitrate, Nitrite 300.0	Cyanide Total 335.4	Dissolved Cyandie-FF 335.4	Ammonia 350.1	TDS 2540	Sample Comment
									3 3 3 3 3 3 3 3	2 2 1 1 5 5 3 1									
X-9D_091323	GW	G	9/13/23	845				7			1	1	1		1	1	1	1	009
DUP-04_091323	GW	G	9/13/23	—				1					1						010
X-9CAUG_091323	GW	G	9/13/23	945				21 ~~22~~			3	3	3		3	3	3	3	MS/MSD 011
X-9BR_091323	GW	G	9/13/23	1245				7			1	1	1		1	1	1	1	012
DUP-03_091323	GW	G	9/13/23	—				2			1	1							013
X-9AR_091323	GW	G	9/13/23	1330				7			1	1	1		1	1	1	1	014
X-4D	GW	G	9/13/23	1415				7			1	1	1		1	1	1	1	015
DUP-02_091323	GW	G	9/13/23	—				2									1	1	016

Lab Use Only

Proj. Mgr: Olivia Deck
oliva.deck@pacelabs.com

AcctNum / Client ID:

Table #:

Profile / Template: 11397/3

Prelog / Bottle Ord. ID: 1142243

Preservation non-conformance identified for sample:

Customer Remarks / Special Conditions / Possible Hazards:
* Nitrate and Nitrite samples will be separate parameters not a combined result.
** Limited Volumes

Collected By: Billy J. Cobern
Printed Name:
Signature:

Additional Instructions from Pace®:
Nitrate is 48HR Short Hold: 6010 As, Ba, Fe, Mn, Se, Na

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)

Relinquished by/Company: (Signature) ARCADIS	Date/Time: 9-13-23 1545	Received by/Company: (Signature) FedEx	Date/Time:	Tracking Number:
Relinquished by/Company: (Signature) FedEx	Date/Time: 9-14-23 9:15	Received by/Company: (Signature)	Date/Time: 9-14-23 9:15	Delivered by: [ ] In- Person [ ] Courier [✓] FedEX [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: of

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

F-IN-Q-290-rev.23, 26Jun2023

SAMPLE CONDITION UPON RECEIPT FORM

Date/Time and Initials of person examining contents: BC 9-14-23 10:38

1. **Courier:** ☑ FED EX ☐ UPS ☐ CLIENT ☐ PACE ☐ NOW/JETT ☐ OTHER _____

2. **Custody Seal on Cooler/Box Present:** ☑ Yes ☐ No

(If yes)Seals Intact: ☑ Yes ☐ No **(leave blank if no seals were present)**

3. **Thermometer:** 1 2 3 4 5 6 7 8 A B C D E F G H

4. **Cooler Temperature(s):** 0.3/0.3 | 0.6/0.6 | 0.5/0.5 | (Initial/Corrected) RECORD TEMPS OF ALL COOLERS RECEIVED (use Comments below to add more)

5. **Packing Material:** ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other _____

6. **Ice Type:** ☑ Wet ☐ Blue ☐ None

7. **If temp. is over 6°C or under 0°C, was the PM notified?:** ☐ Yes ☐ No
Cooler temp should be above freezing to 6°C

All discrepancies will be written out in the comments section below.

	Yes	No
USDA Regulated Soils? (HI, ID, NY, WA, OR,CA, NM, TX, OK, AR, LA, TN, AL, MS, NC, SC, GA, FL, or Puerto Rico)		✓
Short Hold Time Analysis (48 hours or less)? **Analysis:** NO3	✓	
Time 5035A TC placed in Freezer or Short Holds To Lab	Time:	
Rush TAT Requested (4 days or less):		✓
Custody Signatures Present?	✓	
Containers Intact?:	✓	
Sample Label (IDs/Dates/Times) Match COC?: Except TCs, which only require sample ID	✓	
Extra labels on Terracore Vials? (soils only)		

	Yes	No	N/A
All containers needing acid/base preservation have been pH CHECKED?: **Exceptions: VOA, coliform, LLHg, O&G, RAD CHEM, and any container with a septum cap or preserved with HCl.** Circle: (HNO3 (<2)) (H2SO4 (<2)) (NaOH (>10)) NaOH/ZnAc (>9) Any non-conformance to pH recommendations will be noted on the container count form	✓		
	Present	Absent	N/A
Residual Chlorine Check (SVOC 625 Pest/PCB 608)			✓
Residual Chlorine Check (Total/Amenable/Free Cyanide)		✓	
Headspace Wisconsin Sulfide?			✓
	Present	Absent	No VOA Vials Sent
Headspace in VOA Vials (>6mm): See Containter Count form for details			✓
Trip Blank Present?		✓	
Trip Blank Custody Seals?:			✓

COMMENTS:

COC PAGE 1 **of** 2

Sample Container Count

** Place a RED dot on containers that are out of conformance **

COC Line Item	WGFU	WGKU BG1U	MeOH (only) SBS DI R	DG9H VG9H	VOA VIAL HS >6mm	VG9U DG9U	VG9T	AMBER GLASS: AG0U	AG1H	AG1U	AG3U	AG3S	AG3SF	AG3B	PLASTIC: BP1U	BP1N	BP2U	BP3U	BP3N	BP3F	BP3S	BP3B	BP3Z	OTHER: CG3H	CG3F	Syringe Kit	Matrix	Nitric Red HNO3 <2	Sulfuric Yellow H2SO4 <2	Sodium Hydroxide Green NaOH >10	Sodium Hydroxide/ ZnAc Black NaOH/Zn Ac >9
1																		2	1	1	1	2					WT	✓	✓	✓	
2																															
3																															
4																															
5																															
6																															
7																		2	1	1	1										
8																						2									
9																															
10																															
11																															
12																															

Container Codes

Glass

DG9H	40mL HCl amber voa vial	BG1T	glass
DG9P	40mL TSP amber vial	BG1U	1L unpreserved glass
DG9S	40mL H2SO4 amber vial	CG3U	250mL Unpres Clear Glass
DG9T	40mL Na Thio amber vial	AG0U	100mL unpres amber glass
DG9U	40mL unpreserved amber vial	AG1H	1L HCl amber glass
VG9H	40mL HCl clear vial	AG1S	1L H2SO4 amber glass
VG9T	40mL Na Thio. clear vial	AG1T	1L Na Thiosulfate amber glass
VG9U	40mL unpreserved clear vial	AG1U	1liter unpres amber glass
I	40mL w/hexane wipe vial	AG2N	500mL HNO3 amber glass
WGKU	8oz unpreserved clear jar	AG2S	500mL H2SO4 amber glass
WGFU	4oz clear soil jar	AG2U	500mL unpres amber glass
JGFU	4oz unpreserved amber wide	AG3S	250mL H2SO4 amber glass
CG3H	250mL clear glass HCl	AG3SF	250mL H2SO4 amb glass -field filtered
CG3F	250mL clear glass HCl, Field Filter	AG3U	250mL unpres amber glass
BG1H	1L HCl clear glass	AG3B	250mL NaOH amber glass
BG1S	1L H2SO4 clear glass		

Plastic

BP1B	1L NaOH plastic	BP4U	125mL unpreserved plastic
BP1N	1L HNO3 plastic	BP4N	125mL HNO3 plastic
BP1S	1L H2SO4 plastic	BP4S	125mL H2SO4 plastic
BP1U	1L unpreserved plastic		
BP1Z	1L NaOH, Zn, Ac		
BP2N	500mL HNO3 plastic		
BP2C	500mL NaOH plastic		
BP2S	500mL H2SO4 plastic		
BP2U	500mL unpreserved plastic		
BP2Z	500mL NaOH, Zn Ac		
BP3B	250mL NaOH plastic		
BP3N	250mL HNO3 plastic		
BP3F	250mL HNO3 plastic-field filtered		
BP3U	250mL unpreserved plastic		
BP3S	250mL H2SO4 plastic		
BP3Z	250mL NaOH, ZnAc plastic		
BP3R	250mL Unpres FF SO4/OH buffer		

Miscellaneous

Syringe Kit	LL Cr+6 sampling kit
ZPLC	Ziploc Bag
R	Terracore Kit
SP5T	120mL Coliform Sodium Thiosulfate
GN	General Container
U	Summa Can (air sample)
WT	Water
SL	Solid
OL	Oil
NAL	Non-aqueous liquid
WP	Wipe

COC PAGE 2 **of** 2

Sample Container Count

** Place a RED dot on containers that are out of conformance **

COC Line Item	WGFU	WGKU BG1U	MeOH (only) SBS DI R	DG9H VG9H	VOA VIAL HS >6mm	VG9U DG9U	VG9T	AMBER GLASS: AG0U	AG1H	AG1U	AG3U	AG3S	AG3SF	AG3B	PLASTIC: BP1U	BP1N	BP2U	BP3U	BP3N	BP3F	BP3S	BP3B	BP3Z	OTHER: CG3H	CG3F	Syringe Kit	Matrix	Nitric Red HNO3 <2	Sulfuric Yellow H2SO4 <2	Sodium Hydroxide Green NaOH >10	Sodium Hydroxide/ ZnAc Black NaOH/Zn Ac >9
1																		2	1	1	1	2					WT	✓	✓	✓	
2																		1													
3																		6	3	3	3	6						✓	✓	✓	
4																		2	1	1	1	2						1	1	1	
5																			1	1								1			
6																		2	1	1	1	2						✓	✓	✓	
7																		1	1	1	1	1						1	1	1	
8																		1			1								1		
9																															
10																															
11																															
12																															

Container Codes

Glass

DG9H	40mL HCl amber voa vial	BG1T	glass
DG9P	40mL TSP amber vial	BG1U	1L unpreserved glass
DG9S	40mL H2SO4 amber vial	CG3U	250mL Unpres Clear Glass
DG9T	40mL Na Thio amber vial	AG0U	100mL unpres amber glass
DG9U	40mL unpreserved amber vial	AG1H	1L HCl amber glass
VG9H	40mL HCl clear vial	AG1S	1L H2SO4 amber glass
VG9T	40mL Na Thio. clear vial	AG1T	1L Na Thiosulfate amber glass
VG9U	40mL unpreserved clear vial	AG1U	1liter unpres amber glass
I	40mL w/hexane wipe vial	AG2N	500mL HNO3 amber glass
WGKU	8oz unpreserved clear jar	AG2S	500mL H2SO4 amber glass
WGFU	4oz clear soil jar	AG2U	500mL unpres amber glass
JGFU	4oz unpreserved amber wide	AG3S	250mL H2SO4 amber glass
CG3H	250mL clear glass HCl	AG3SF	250mL H2SO4 amb glass -field filtered
CG3F	250mL clear glass HCl, Field Filter	AG3U	250mL unpres amber glass
BG1H	1L HCl clear glass	AG3B	250mL NaOH amber glass
BG1S	1L H2SO4 clear glass		

Plastic

BP1B	1L NaOH plastic
BP1N	1L HNO3 plastic
BP1S	1L H2SO4 plastic
BP1U	1L unpreserved plastic
BP1Z	1L NaOH, Zn, Ac
BP2N	500mL HNO3 plastic
BP2C	500mL NaOH plastic
BP2S	500mL H2SO4 plastic
BP2U	500mL unpreserved plastic
BP2Z	500mL NaOH, Zn Ac
BP3B	250mL NaOH plastic
BP3N	250mL HNO3 plastic
BP3F	250mL HNO3 plastic-field filtered
BP3U	250mL unpreserved plastic
BP3S	250mL H2SO4 plastic
BP3Z	250mL NaOH, ZnAc plastic
BP3R	250mL Unpres FF SO4/OH buffer
BP4U	125mL unpreserved plastic
BP4N	125mL HNO3 plastic
BP4S	125mL H2SO4 plastic

Miscellaneous

Syringe Kit	LL Cr+6 sampling kit
ZPLC	Ziploc Bag
R	Terracore Kit
SP5T	120mL Coliform Sodium Thiosulfate
GN	General Container
U	Summa Can (air sample)
WT	Water
SL	Solid
OL:	Oil
NAL	Non-aqueous liquid
WP	Wipe

Pace Container Order #1142305

Addresses

er By :	Ship To :	Return To:
mpany Arcadis U.S., Inc.	Company HOME	Company Pace Analytical Indianapolis
Contact Clearwater, Scott	Contact Austin Westhuis	Contact Deck, Olivia
Email scott.clearwater@arcadis.com	Email Austin.Westhuis@arcadis.com	Email olivia.deck@pacelabs.com
Address 28550 Cabot Drive	Address 3819 Black Creek Drive	Address 7726 Moller Road
Address 2 Suite 500	Address 2	Address 2
City Novi	City Hudsonville	City Indianapolis
State MI Zip 48377	State MI Zip 49426	State IN Zip 46268
Phone (810)225-1921	Phone 248-994-2287	Phone (317)228-3102

Info

Project Name Saginaw GPL **Due Date** 09/08/2023 **Profile** 11397/4 **Quote**

Project Deck, Olivia **Return** **Carrier** FedEx Standard Overnight **Locatio** MI

Trip Blanks

- [ ] Include Trip Blanks

Bottle Labels

- [ ] Blank
- [X] Pre-Printed No Sample IDs
- [ ] Pre-Printed With Sample IDs

Bottles

- [ ] Boxed Cases
- [ ] Individually Wrapped
- [X] Grouped By Sample ID/Matrix

Return Shipping Labels

- [ ] No Shipper
- [X] With Shipper

COC Options

- [ ] Number of Blanks
- [X] Pre-Printed 3

Misc

- [ ] Sampling Instructions
- [X] Custody Seal
- [X] Temp. Blanks
- [X] Coolers
- [ ] Syringes
- [ ] Extra Bubble Wrap
- [X] Short Hold/Rush Stickers
- [ ] DI Water Liter(s)
- [ ] USDA Regulated Soils

# of Samples	Matrix	Test	Container	Total	# of QC	Lot #	Notes
16	WT	IN Metals, Total	250mL plastic, HNO3	16	0		
16	WT	IN Metals, Field Filtered	250mL plastic, HNO3 +FF labels	16	0		
16	WT	IN Nitrate Nitrite/Sulfate Chloride IC	250mL plastic, unpres	16	0		Nitrate is 48HR short Hold
16	WT	IN Cyanide, Total	250mL plastic, NaOH	16	0		
16	WT	IN Cyanide, Total	250mL plastic, NaOH	16	0		+ FF labels
16	WT	IN Ammonia	250mL plastic, H2SO4	16	0		
16	WT	IN TDS 2540C	250mL plastic,unpres	16	0		
15	WT	IN Various*	250mL plastic, unpres	15	0		

Report of Analysis

Arcadis U.S., Inc.
630 Plaza Drive
Suite 600
Highlands Ranch, CO 80129
Attention: Amanda Robinson

Project Name: Saginaw

Project Number: 30169042.97000

Lot Number:**YI15023**

Date Completed:10/03/2023

10/03/2023 11:07 AM
Approved and released by:
Project Manager II: **Kathy E. Smith**

The electronic signature above is the equivalent of a handwritten signature.
This report shall not be reproduced, except in its entirety, without the written approval of Pace Analytical Services, LLC.

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
Arcadis U.S., Inc.
Lot Number: YI15023

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.4 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples were compliant with DOD QSM 5.4 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). The CF is calculated as follows:

CF = DF * FV / Vo

FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18, PFAS by Isotope Dilution SOP.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

PFAS
Samples YI15023-002, YI15023-003, YI15023-004, YI15023-005, YI15023-006, YI15023-007, YI15023-008, YI15023-009 (MS/MSD), YI15023-010, YI15023-011 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <5mL and reconstituted to 5mL using MeOH by transfer pipet.

The following sample was diluted due to the nature of the sample matrix (due to color of sample and because it was foamy): YI15023-002. The LOQ has been elevated to reflect the dilution.

Surrogate recovery for the following samples was outside the upper control limit: YI15023-001, YI15023-002, YI15023-003, YI15023-004, YI15023-005, YI15023-006, YI15023-007, YI15023-008, YI15023-009, YI15023-010, YI15023-011. These samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Sample Summary

Arcadis U.S., Inc.

Lot Number: YI15023

Project Name: Saginaw

Project Number: 30169042.97000

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-118WT_091323	Aqueous	09/13/2023 0915	09/15/2023
002	MW-117WT_091323	Aqueous	09/13/2023 1015	09/15/2023
003	MW-117SI_091323	Aqueous	09/13/2023 1035	09/15/2023
004	MW-183WT_091323	Aqueous	09/13/2023 1155	09/15/2023
005	X-9AR_091323	Aqueous	09/13/2023 1330	09/15/2023
006	MW-122WT_091323	Aqueous	09/13/2023 1620	09/15/2023
007	MW-125WT_091323	Aqueous	09/13/2023 1735	09/15/2023
008	TWW-1_091323	Aqueous	09/13/2023 1750	09/15/2023
009	X-10AR2_091323	Aqueous	09/13/2023 1810	09/15/2023
010	X-2A_091323	Aqueous	09/13/2023 1830	09/15/2023
011	DUP-05_091323	Aqueous	09/13/2023	09/15/2023

(11 samples)

Detection Summary

Arcadis U.S., Inc.

Lot Number: YI15023

Project Name: Saginaw

Project Number: 30169042.97000

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-118WT_091323	Aqueous	PFBS	PFAS by ID	2.9	J	ng/L	8
001	MW-118WT_091323	Aqueous	PFBA	PFAS by ID	110		ng/L	8
001	MW-118WT_091323	Aqueous	PFHpA	PFAS by ID	5.6		ng/L	8
001	MW-118WT_091323	Aqueous	PFHxA	PFAS by ID	35		ng/L	8
001	MW-118WT_091323	Aqueous	PFOA	PFAS by ID	7.0		ng/L	8
001	MW-118WT_091323	Aqueous	PFPeA	PFAS by ID	13		ng/L	8
002	MW-117WT_091323	Aqueous	PFBA	PFAS by ID	280		ng/L	10
002	MW-117WT_091323	Aqueous	PFHxA	PFAS by ID	91		ng/L	10
002	MW-117WT_091323	Aqueous	PFPeA	PFAS by ID	45		ng/L	10
003	MW-117SI_091323	Aqueous	PFBA	PFAS by ID	1.7	J	ng/L	12
003	MW-117SI_091323	Aqueous	PFHxA	PFAS by ID	1.2	J	ng/L	12
003	MW-117SI_091323	Aqueous	PFPeA	PFAS by ID	1.7	J	ng/L	12
003	MW-117SI_091323	Aqueous	PFOS	PFAS by ID	2.9	J	ng/L	12
004	MW-183WT_091323	Aqueous	PFBS	PFAS by ID	2.2	J	ng/L	14
004	MW-183WT_091323	Aqueous	PFPeS	PFAS by ID	0.95	J	ng/L	14
004	MW-183WT_091323	Aqueous	PFHxS	PFAS by ID	3.7		ng/L	14
004	MW-183WT_091323	Aqueous	PFBA	PFAS by ID	6.7		ng/L	14
004	MW-183WT_091323	Aqueous	PFHpA	PFAS by ID	1.3	J	ng/L	14
004	MW-183WT_091323	Aqueous	PFHxA	PFAS by ID	1.5	J	ng/L	14
004	MW-183WT_091323	Aqueous	PFNA	PFAS by ID	0.55	J	ng/L	14
004	MW-183WT_091323	Aqueous	PFOA	PFAS by ID	3.5	J	ng/L	14
004	MW-183WT_091323	Aqueous	PFPeA	PFAS by ID	1.0	J	ng/L	14
004	MW-183WT_091323	Aqueous	PFOS	PFAS by ID	2.1	J	ng/L	14
005	X-9AR_091323	Aqueous	PFBS	PFAS by ID	0.69	J	ng/L	16
005	X-9AR_091323	Aqueous	PFBA	PFAS by ID	4.0		ng/L	16
005	X-9AR_091323	Aqueous	PFHpA	PFAS by ID	0.45	J	ng/L	16
005	X-9AR_091323	Aqueous	PFHxA	PFAS by ID	0.79	J	ng/L	16
005	X-9AR_091323	Aqueous	PFOA	PFAS by ID	0.89	J	ng/L	16
005	X-9AR_091323	Aqueous	PFPeA	PFAS by ID	0.56	J	ng/L	16
006	MW-122WT_091323	Aqueous	PFBS	PFAS by ID	2.2	J	ng/L	18
006	MW-122WT_091323	Aqueous	PFBA	PFAS by ID	41		ng/L	18
006	MW-122WT_091323	Aqueous	PFHpA	PFAS by ID	1.2	J	ng/L	18
006	MW-122WT_091323	Aqueous	PFHxA	PFAS by ID	4.5		ng/L	18
006	MW-122WT_091323	Aqueous	PFOA	PFAS by ID	2.8	J	ng/L	18
006	MW-122WT_091323	Aqueous	PFPeA	PFAS by ID	4.6		ng/L	18
007	MW-125WT_091323	Aqueous	PFBS	PFAS by ID	3.1	J	ng/L	20
007	MW-125WT_091323	Aqueous	PFPeS	PFAS by ID	1.4	J	ng/L	20
007	MW-125WT_091323	Aqueous	PFHxS	PFAS by ID	9.1		ng/L	20
007	MW-125WT_091323	Aqueous	PFBA	PFAS by ID	12		ng/L	20
007	MW-125WT_091323	Aqueous	PFHpA	PFAS by ID	0.93	J	ng/L	20
007	MW-125WT_091323	Aqueous	PFOA	PFAS by ID	2.9	J	ng/L	20
007	MW-125WT_091323	Aqueous	PFPeA	PFAS by ID	1.4	J	ng/L	20
008	TWW-1_091323	Aqueous	PFBS	PFAS by ID	1.6	J	ng/L	22

Detection Summary (Continued)

Lot Number: YI15023

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
008	TWW-1_091323	Aqueous	PFHxS	PFAS by ID	1.2	J	ng/L	22
008	TWW-1_091323	Aqueous	PFBA	PFAS by ID	14		ng/L	22
008	TWW-1_091323	Aqueous	PFHpA	PFAS by ID	4.2		ng/L	22
008	TWW-1_091323	Aqueous	PFHxA	PFAS by ID	4.5		ng/L	22
008	TWW-1_091323	Aqueous	PFNA	PFAS by ID	0.90	J	ng/L	22
008	TWW-1_091323	Aqueous	PFOA	PFAS by ID	13		ng/L	22
008	TWW-1_091323	Aqueous	PFPeA	PFAS by ID	3.7		ng/L	22
008	TWW-1_091323	Aqueous	PFOS	PFAS by ID	2.5	J	ng/L	22
009	X-10AR2_091323	Aqueous	PFBS	PFAS by ID	1.2	J	ng/L	24
009	X-10AR2_091323	Aqueous	PFBA	PFAS by ID	6.5		ng/L	24
009	X-10AR2_091323	Aqueous	PFHpA	PFAS by ID	0.56	J	ng/L	24
009	X-10AR2_091323	Aqueous	PFHxA	PFAS by ID	1.0	J	ng/L	24
009	X-10AR2_091323	Aqueous	PFOA	PFAS by ID	7.3		ng/L	24
009	X-10AR2_091323	Aqueous	PFPeA	PFAS by ID	0.72	J	ng/L	24
010	X-2A_091323	Aqueous	PFHxS	PFAS by ID	3.3	J	ng/L	26
010	X-2A_091323	Aqueous	PFBA	PFAS by ID	6.7		ng/L	26
010	X-2A_091323	Aqueous	PFHpA	PFAS by ID	2.0	J	ng/L	26
010	X-2A_091323	Aqueous	PFHxA	PFAS by ID	5.5		ng/L	26
010	X-2A_091323	Aqueous	PFOA	PFAS by ID	22		ng/L	26
010	X-2A_091323	Aqueous	PFOS	PFAS by ID	16		ng/L	26
011	DUP-05_091323	Aqueous	PFHxS	PFAS by ID	3.4	J	ng/L	28
011	DUP-05_091323	Aqueous	PFBA	PFAS by ID	6.6		ng/L	28
011	DUP-05_091323	Aqueous	PFHpA	PFAS by ID	2.0	J	ng/L	28
011	DUP-05_091323	Aqueous	PFNA	PFAS by ID	0.54	J	ng/L	28
011	DUP-05_091323	Aqueous	PFOA	PFAS by ID	23		ng/L	28
011	DUP-05_091323	Aqueous	PFOS	PFAS by ID	20		ng/L	28

(69 detections)

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-001**

Description: **MW-118WT_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 0915** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	10/02/2023 1713	ARC2	09/21/2023 1924	85448

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	0.59	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.1	0.77	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	0.66	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	0.82	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.9**	**J**	**3.5**	**0.37**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.69	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.5	0.49	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**110**		**3.5**	**0.53**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**5.6**		**3.5**	**0.40**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**35**		**3.5**	**0.61**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**7.0**		**3.5**	**0.73**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**13**		**3.5**	**0.48**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.5	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	322	25-150
13C2_6:2FTS	N	310	25-150
13C2_8:2FTS		144	25-150
13C2_PFDoA		79	25-150
13C2_PFTeDA		44	25-150
13C3_PFBS		87	25-150
13C3_PFHxS		100	25-150
13C3-HFPO-DA		64	25-150
13C4_PFBA		62	25-150
13C4_PFHpA		90	25-150
13C5_PFHxA		80	25-150
13C5_PFPeA		63	25-150
13C6_PFDA		107	25-150
13C7_PFUdA		105	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **YI15023-001**
Description: **MW-118WT_091323**
Matrix: **Aqueous**
Date Sampled: **09/13/2023 0915**
Project Name: **Saginaw**
Date Received: **09/15/2023**
Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		108	25-150
13C8_PFOS		97	25-150
13C8_PFOSA		90	10-150
13C9_PFNA		109	25-150
d5-EtFOSAA		125	25-150
d3-MeFOSAA		96	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-002**

Description: **MW-117WT_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1015** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/29/2023 1749	ARC2	09/21/2023 1924	85448

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		80	4.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		80	6.6	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		80	16	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		80	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	80	8.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		80	21	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		80	4.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		80	7.5	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		80	9.3	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		40	4.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		40	7.8	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		40	5.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		40	7.1	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		40	6.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		40	5.9	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		40	5.5	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**280**		**40**	**6.0**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		40	5.2	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		40	4.7	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		40	4.5	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**91**		**40**	**6.9**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		40	4.6	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		40	8.3	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**45**		**40**	**5.4**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		40	6.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		40	5.3	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		40	6.3	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		40	20	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	212	25-150
13C2_6:2FTS		126	25-150
13C2_8:2FTS		102	25-150
13C2_PFDoA		76	25-150
13C2_PFTeDA		69	25-150
13C3_PFBS		100	25-150
13C3_PFHxS		100	25-150
13C3-HFPO-DA		93	25-150
13C4_PFBA		84	25-150
13C4_PFHpA		95	25-150
13C5_PFHxA		109	25-150
13C5_PFPeA		96	25-150
13C6_PFDA		101	25-150
13C7_PFUdA		86	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-002**

Description: **MW-117WT_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1015** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		98	25-150
13C8_PFOS		98	25-150
13C8_PFOSA		93	10-150
13C9_PFNA		107	25-150
d5-EtFOSAA		74	25-150
d3-MeFOSAA		86	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-003**

Description: **MW-117SI_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1035** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/27/2023 1408	ARC2	09/25/2023 2013	85696

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.2	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.2	0.60	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.2	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.2	0.79	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.2	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.2	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.2	0.68	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.2	0.84	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.38	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.70	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.64	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.50	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**1.7**	**J**	**3.6**	**0.54**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.6	0.40	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**1.2**	**J**	**3.6**	**0.62**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.6	0.75	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.7**	**J**	**3.6**	**0.49**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.57	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**2.9**	**J**	**3.6**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	353	25-150
13C2_6:2FTS	N	195	25-150
13C2_8:2FTS		114	25-150
13C2_PFDoA		55	25-150
13C2_PFTeDA		31	25-150
13C3_PFBS		82	25-150
13C3_PFHxS		93	25-150
13C3-HFPO-DA		75	25-150
13C4_PFBA		82	25-150
13C4_PFHpA		83	25-150
13C5_PFHxA		95	25-150
13C5_PFPeA		80	25-150
13C6_PFDA		90	25-150
13C7_PFUdA		88	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-003**

Description: **MW-117SI_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1035** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		105	25-150
13C8_PFOS		87	25-150
13C8_PFOSA		72	10-150
13C9_PFNA		89	25-150
d5-EtFOSAA		102	25-150
d3-MeFOSAA		87	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-004**

Description: **MW-183WT_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1155** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/27/2023 1419	ARC2	09/25/2023 2013	85696

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.2	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.2	0.60	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.2	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.2	0.79	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.2	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.2	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.2	0.68	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.2	0.84	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.2**	**J**	**3.6**	**0.38**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.70	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.64	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**0.95**	**J**	**3.6**	**0.54**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.7**		**3.6**	**0.50**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**6.7**		**3.6**	**0.54**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.3**	**J**	**3.6**	**0.40**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**1.5**	**J**	**3.6**	**0.62**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.55**	**J**	**3.6**	**0.42**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**3.5**	**J**	**3.6**	**0.75**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.0**	**J**	**3.6**	**0.49**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.57	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**2.1**	**J**	**3.6**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	303	25-150
13C2_6:2FTS	N	163	25-150
13C2_8:2FTS		107	25-150
13C2_PFDoA		69	25-150
13C2_PFTeDA		45	25-150
13C3_PFBS		94	25-150
13C3_PFHxS		103	25-150
13C3-HFPO-DA		81	25-150
13C4_PFBA		79	25-150
13C4_PFHpA		87	25-150
13C5_PFHxA		105	25-150
13C5_PFPeA		87	25-150
13C6_PFDA		89	25-150
13C7_PFUdA		84	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **YI15023-004**
Description: **MW-183WT_091323**
Matrix: **Aqueous**
Date Sampled: **09/13/2023 1155**
Project Name: **Saginaw**
Date Received: **09/15/2023**
Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		123	25-150
13C8_PFOS		94	25-150
13C8_PFOSA		82	10-150
13C9_PFNA		96	25-150
d5-EtFOSAA		80	25-150
d3-MeFOSAA		91	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-005**

Description: **X-9AR_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1330** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/27/2023 1430	ARC2	09/25/2023 2013	85696

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.80	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**0.69**	**J**	**3.4**	**0.36**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.4	0.48	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**4.0**		**3.4**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.45**	**J**	**3.4**	**0.39**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**0.79**	**J**	**3.4**	**0.59**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**0.89**	**J**	**3.4**	**0.71**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**0.56**	**J**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	376	25-150
13C2_6:2FTS	N	179	25-150
13C2_8:2FTS		144	25-150
13C2_PFDoA		100	25-150
13C2_PFTeDA		72	25-150
13C3_PFBS		99	25-150
13C3_PFHxS		99	25-150
13C3-HFPO-DA		94	25-150
13C4_PFBA		90	25-150
13C4_PFHpA		94	25-150
13C5_PFHxA		119	25-150
13C5_PFPeA		103	25-150
13C6_PFDA		104	25-150
13C7_PFUdA		107	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-005**

Description: **X-9AR_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1330** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		121	25-150
13C8_PFOS		101	25-150
13C8_PFOSA		83	10-150
13C9_PFNA		108	25-150
d5-EtFOSAA		126	25-150
d3-MeFOSAA		121	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-006**

Description: **MW-122WT_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1620** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/27/2023 1440	ARC2	09/25/2023 2013	85696

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.4	0.45	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.4	0.62	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.4	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.4	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.4	0.81	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.4	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.4	0.45	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.4	0.70	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.4	0.87	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.2**	**J**	**3.7**	**0.39**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.72	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.46	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.66	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.57	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.7	0.51	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**41**		**3.7**	**0.56**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.44	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.2**	**J**	**3.7**	**0.42**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**4.5**		**3.7**	**0.64**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**2.8**	**J**	**3.7**	**0.77**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**4.6**		**3.7**	**0.51**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.58	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.7	1.9	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	346	25-150
13C2_6:2FTS		150	25-150
13C2_8:2FTS		95	25-150
13C2_PFDoA		88	25-150
13C2_PFTeDA		65	25-150
13C3_PFBS		92	25-150
13C3_PFHxS		104	25-150
13C3-HFPO-DA		84	25-150
13C4_PFBA		55	25-150
13C4_PFHpA		94	25-150
13C5_PFHxA		102	25-150
13C5_PFPeA		79	25-150
13C6_PFDA		97	25-150
13C7_PFUdA		93	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-006**

Description: **MW-122WT_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1620** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		104	25-150
13C8_PFOS		104	25-150
13C8_PFOSA		87	10-150
13C9_PFNA		101	25-150
d5-EtFOSAA		85	25-150
d3-MeFOSAA		94	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-007**

Description: **MW-125WT_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1735** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/27/2023 1512	ARC2	09/25/2023 2013	85696

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	0.59	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.1	0.78	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	0.67	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	0.83	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.1**	**J**	**3.6**	**0.37**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.69	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**1.4**	**J**	**3.6**	**0.53**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**9.1**		**3.6**	**0.49**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**12**		**3.6**	**0.53**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.93**	**J**	**3.6**	**0.40**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.6	0.61	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**2.9**	**J**	**3.6**	**0.74**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.4**	**J**	**3.6**	**0.48**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	336	25-150
13C2_6:2FTS	N	184	25-150
13C2_8:2FTS		116	25-150
13C2_PFDoA		98	25-150
13C2_PFTeDA		68	25-150
13C3_PFBS		93	25-150
13C3_PFHxS		92	25-150
13C3-HFPO-DA		80	25-150
13C4_PFBA		88	25-150
13C4_PFHpA		86	25-150
13C5_PFHxA		93	25-150
13C5_PFPeA		77	25-150
13C6_PFDA		90	25-150
13C7_PFUdA		95	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-007**

Description: **MW-125WT_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1735** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		106	25-150
13C8_PFOS		94	25-150
13C8_PFOSA		90	10-150
13C9_PFNA		100	25-150
d5-EtFOSAA		94	25-150
d3-MeFOSAA		106	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
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P = The RPD between two GC columns exceeds 40%
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-008**

Description: **TWW-1_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1750** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/27/2023 1523	ARC2	09/25/2023 2013	85696

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.2	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.2	0.60	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.2	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.2	0.79	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.2	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.2	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.2	0.68	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.2	0.84	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.6**	**J**	**3.6**	**0.37**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.70	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.64	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.2**	**J**	**3.6**	**0.50**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**14**		**3.6**	**0.54**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**4.2**		**3.6**	**0.40**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**4.5**		**3.6**	**0.62**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.90**	**J**	**3.6**	**0.42**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**13**		**3.6**	**0.75**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**3.7**		**3.6**	**0.49**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.57	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**2.5**	**J**	**3.6**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	357	25-150
13C2_6:2FTS	N	194	25-150
13C2_8:2FTS		130	25-150
13C2_PFDoA		108	25-150
13C2_PFTeDA		77	25-150
13C3_PFBS		89	25-150
13C3_PFHxS		96	25-150
13C3-HFPO-DA		77	25-150
13C4_PFBA		82	25-150
13C4_PFHpA		86	25-150
13C5_PFHxA		98	25-150
13C5_PFPeA		80	25-150
13C6_PFDA		105	25-150
13C7_PFUdA		106	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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H = Out of holding time
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-008**

Description: **TWW-1_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1750** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		109	25-150
13C8_PFOS		95	25-150
13C8_PFOSA		87	10-150
13C9_PFNA		96	25-150
d5-EtFOSAA		108	25-150
d3-MeFOSAA		112	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-009**

Description: **X-10AR2_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1810** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/27/2023 1533	ARC2	09/25/2023 2013	85696

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.7	0.64	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.7	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.7	0.84	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.7	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.7	0.72	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.7	0.90	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.2**	**J**	**3.8**	**0.40**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.75	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.8	0.48	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.68	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.8	0.53	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**6.5**		**3.8**	**0.58**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.8	0.50	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.56**	**J**	**3.8**	**0.43**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**1.0**	**J**	**3.8**	**0.66**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.8	0.44	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**7.3**		**3.8**	**0.80**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**0.72**	**J**	**3.8**	**0.52**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.58	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.51	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.60	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.8	1.9	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	285	25-150
13C2_6:2FTS		147	25-150
13C2_8:2FTS		119	25-150
13C2_PFDoA		103	25-150
13C2_PFTeDA		87	25-150
13C3_PFBS		98	25-150
13C3_PFHxS		105	25-150
13C3-HFPO-DA		94	25-150
13C4_PFBA		103	25-150
13C4_PFHpA		97	25-150
13C5_PFHxA		111	25-150
13C5_PFPeA		104	25-150
13C6_PFDA		106	25-150
13C7_PFUdA		98	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-009**

Description: **X-10AR2_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1810** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		110	25-150
13C8_PFOS		104	25-150
13C8_PFOSA		98	10-150
13C9_PFNA		112	25-150
d5-EtFOSAA		103	25-150
d3-MeFOSAA		115	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-010**

Description: **X-2A_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1830** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/27/2023 1605	ARC2	09/25/2023 2013	85696

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.80	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.4	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.3**	**J**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**6.7**		**3.4**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**2.0**	**J**	**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**5.5**		**3.4**	**0.59**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**22**		**3.4**	**0.71**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**16**		**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	244	25-150
13C2_6:2FTS	N	304	25-150
13C2_8:2FTS	N	261	25-150
13C2_PFDoA		79	25-150
13C2_PFTeDA		32	25-150
13C3_PFBS		77	25-150
13C3_PFHxS		91	25-150
13C3-HFPO-DA		60	25-150
13C4_PFBA		53	25-150
13C4_PFHpA		59	25-150
13C5_PFHxA		60	25-150
13C5_PFPeA		46	25-150
13C6_PFDA		97	25-150
13C7_PFUdA		106	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-010**

Description: **X-2A_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1830** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		88	25-150
13C8_PFOS		88	25-150
13C8_PFOSA		77	10-150
13C9_PFNA		91	25-150
d5-EtFOSAA		137	25-150
d3-MeFOSAA		118	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-011**

Description: **DUP-05_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/27/2023 1615	ARC2	09/25/2023 2013	85696

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.2	0.49	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.2	0.68	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	8.2	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	8.2	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	8.2	0.90	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.2	0.50	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.2	0.77	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.2	0.96	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.1	0.42	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.1	0.80	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.1	0.51	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.1	0.73	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.1	0.63	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.1	0.61	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.4**	**J**	**4.1**	**0.57**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**6.6**		**4.1**	**0.61**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.1	0.54	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.1	0.48	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**2.0**	**J**	**4.1**	**0.46**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.1	0.70	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.54**	**J**	**4.1**	**0.47**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**23**		**4.1**	**0.85**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.1	0.56	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.1	0.61	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.1	0.54	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.1	0.64	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**20**		**4.1**	**2.1**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	243	25-150
13C2_6:2FTS	N	263	25-150
13C2_8:2FTS	N	224	25-150
13C2_PFDoA		52	25-150
13C2_PFTeDA		27	25-150
13C3_PFBS		71	25-150
13C3_PFHxS		76	25-150
13C3-HFPO-DA		57	25-150
13C4_PFBA		53	25-150
13C4_PFHpA		52	25-150
13C5_PFHxA		54	25-150
13C5_PFPeA		41	25-150
13C6_PFDA		89	25-150
13C7_PFUdA		87	25-150

LOQ = Limit of Quantitation
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DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-011**

Description: **DUP-05_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		80	25-150
13C8_PFOS		76	25-150
13C8_PFOSA		65	10-150
13C9_PFNA		76	25-150
d5-EtFOSAA		107	25-150
d3-MeFOSAA		98	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: YQ85448-001
Batch: 85448
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/21/2023 1924

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	09/29/2023 1635
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	09/29/2023 1635
8:2 FTS	ND		1	8.0	1.6	ng/L	09/29/2023 1635
6:2 FTS	ND		1	8.0	2.0	ng/L	09/29/2023 1635
4:2 FTS	ND		1	8.0	0.87	ng/L	09/29/2023 1635
GenX	ND		1	8.0	2.1	ng/L	09/29/2023 1635
ADONA	ND		1	8.0	0.48	ng/L	09/29/2023 1635
EtFOSAA	ND		1	8.0	0.75	ng/L	09/29/2023 1635
MeFOSAA	ND		1	8.0	0.93	ng/L	09/29/2023 1635
PFBS	ND		1	4.0	0.41	ng/L	09/29/2023 1635
PFDS	ND		1	4.0	0.78	ng/L	09/29/2023 1635
PFHpS	ND		1	4.0	0.50	ng/L	09/29/2023 1635
PFNS	ND		1	4.0	0.71	ng/L	09/29/2023 1635
PFOSA	ND		1	4.0	0.61	ng/L	09/29/2023 1635
PFPeS	ND		1	4.0	0.59	ng/L	09/29/2023 1635
PFHxS	ND		1	4.0	0.55	ng/L	09/29/2023 1635
PFBA	ND		1	4.0	0.60	ng/L	09/29/2023 1635
PFDA	ND		1	4.0	0.52	ng/L	09/29/2023 1635
PFDoA	ND		1	4.0	0.47	ng/L	09/29/2023 1635
PFHpA	ND		1	4.0	0.45	ng/L	09/29/2023 1635
PFHxA	ND		1	4.0	0.69	ng/L	09/29/2023 1635
PFNA	ND		1	4.0	0.46	ng/L	09/29/2023 1635
PFOA	ND		1	4.0	0.83	ng/L	09/29/2023 1635
PFPeA	ND		1	4.0	0.54	ng/L	09/29/2023 1635
PFTeDA	ND		1	4.0	0.60	ng/L	09/29/2023 1635
PFTrDA	ND		1	4.0	0.53	ng/L	09/29/2023 1635
PFUdA	ND		1	4.0	0.63	ng/L	09/29/2023 1635
PFOS	ND		1	4.0	2.0	ng/L	09/29/2023 1635

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		98	25-150
13C2_6:2FTS		87	25-150
13C2_8:2FTS		86	25-150
13C2_PFDoA		84	25-150
13C2_PFTeDA		90	25-150
13C3_PFBS		94	25-150
13C3_PFHxS		89	25-150
13C3-HFPO-DA		91	25-150
13C4_PFBA		92	25-150
13C4_PFHpA		89	25-150
13C5_PFHxA		97	25-150
13C5_PFPeA		92	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: YQ85448-001
Batch: 85448
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/21/2023 1924

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		98	25-150
13C7_PFUdA		95	25-150
13C8_PFOA		91	25-150
13C8_PFOS		94	25-150
13C8_PFOSA		87	10-150
13C9_PFNA		100	25-150
d5-EtFOSAA		90	25-150
d3-MeFOSAA		96	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: YQ85448-002
Batch: 85448
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/21/2023 1924

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	15		1	100	50-150	09/29/2023 1646
11Cl-PF3OUdS	15	14		1	92	50-150	09/29/2023 1646
8:2 FTS	15	14		1	94	50-150	09/29/2023 1646
6:2 FTS	15	18		1	118	50-150	09/29/2023 1646
4:2 FTS	15	14		1	96	50-150	09/29/2023 1646
GenX	32	34		1	106	50-150	09/29/2023 1646
ADONA	15	16		1	109	50-150	09/29/2023 1646
EtFOSAA	16	16		1	102	50-150	09/29/2023 1646
MeFOSAA	16	18		1	114	50-150	09/29/2023 1646
PFBS	14	14		1	97	50-150	09/29/2023 1646
PFDS	15	15		1	98	50-150	09/29/2023 1646
PFHpS	15	17		1	114	50-150	09/29/2023 1646
PFNS	15	14		1	91	50-150	09/29/2023 1646
PFOSA	16	15		1	91	50-150	09/29/2023 1646
PFPeS	15	15		1	99	50-150	09/29/2023 1646
PFHxS	15	17		1	114	50-150	09/29/2023 1646
PFBA	16	15		1	94	50-150	09/29/2023 1646
PFDA	16	17		1	106	50-150	09/29/2023 1646
PFDoA	16	16		1	98	50-150	09/29/2023 1646
PFHpA	16	14		1	86	50-150	09/29/2023 1646
PFHxA	16	15		1	94	50-150	09/29/2023 1646
PFNA	16	15		1	92	50-150	09/29/2023 1646
PFOA	16	17		1	104	50-150	09/29/2023 1646
PFPeA	16	16		1	101	50-150	09/29/2023 1646
PFTeDA	16	16		1	100	50-150	09/29/2023 1646
PFTrDA	16	15		1	94	50-150	09/29/2023 1646
PFUdA	16	15		1	94	50-150	09/29/2023 1646
PFOS	15	15		1	103	50-150	09/29/2023 1646

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		101	25-150
13C2_6:2FTS		98	25-150
13C2_8:2FTS		89	25-150
13C2_PFDoA		93	25-150
13C2_PFTeDA		95	25-150
13C3_PFBS		101	25-150
13C3_PFHxS		89	25-150
13C3-HFPO-DA		101	25-150
13C4_PFBA		98	25-150
13C4_PFHpA		99	25-150
13C5_PFHxA		101	25-150
13C5_PFPeA		97	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: YQ85448-002
Batch: 85448
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/21/2023 1924

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		98	25-150
13C7_PFUdA		102	25-150
13C8_PFOA		98	25-150
13C8_PFOS		97	25-150
13C8_PFOSA		95	10-150
13C9_PFNA		110	25-150
d5-EtFOSAA		95	25-150
d3-MeFOSAA		94	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: YQ85696-001
Batch: 85696
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/25/2023 2013

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	09/27/2023 1244
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	09/27/2023 1244
8:2 FTS	ND		1	8.0	1.6	ng/L	09/27/2023 1244
6:2 FTS	ND		1	8.0	2.0	ng/L	09/27/2023 1244
4:2 FTS	ND		1	8.0	0.87	ng/L	09/27/2023 1244
GenX	ND		1	8.0	2.1	ng/L	09/27/2023 1244
ADONA	ND		1	8.0	0.48	ng/L	09/27/2023 1244
EtFOSAA	ND		1	8.0	0.75	ng/L	09/27/2023 1244
MeFOSAA	ND		1	8.0	0.93	ng/L	09/27/2023 1244
PFBS	ND		1	4.0	0.41	ng/L	09/27/2023 1244
PFDS	ND		1	4.0	0.78	ng/L	09/27/2023 1244
PFHpS	ND		1	4.0	0.50	ng/L	09/27/2023 1244
PFNS	ND		1	4.0	0.71	ng/L	09/27/2023 1244
PFOSA	ND		1	4.0	0.61	ng/L	09/27/2023 1244
PFPeS	ND		1	4.0	0.59	ng/L	09/27/2023 1244
PFHxS	ND		1	4.0	0.55	ng/L	09/27/2023 1244
PFBA	ND		1	4.0	0.60	ng/L	09/27/2023 1244
PFDA	ND		1	4.0	0.52	ng/L	09/27/2023 1244
PFDoA	ND		1	4.0	0.47	ng/L	09/27/2023 1244
PFHpA	ND		1	4.0	0.45	ng/L	09/27/2023 1244
PFHxA	ND		1	4.0	0.69	ng/L	09/27/2023 1244
PFNA	ND		1	4.0	0.46	ng/L	09/27/2023 1244
PFOA	ND		1	4.0	0.83	ng/L	09/27/2023 1244
PFPeA	ND		1	4.0	0.54	ng/L	09/27/2023 1244
PFTeDA	ND		1	4.0	0.60	ng/L	09/27/2023 1244
PFTrDA	ND		1	4.0	0.53	ng/L	09/27/2023 1244
PFUdA	ND		1	4.0	0.63	ng/L	09/27/2023 1244
PFOS	ND		1	4.0	2.0	ng/L	09/27/2023 1244

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		115	25-150
13C2_6:2FTS		108	25-150
13C2_8:2FTS		105	25-150
13C2_PFDoA		103	25-150
13C2_PFTeDA		109	25-150
13C3_PFBS		101	25-150
13C3_PFHxS		102	25-150
13C3-HFPO-DA		115	25-150
13C4_PFBA		108	25-150
13C4_PFHpA		103	25-150
13C5_PFHxA		100	25-150
13C5_PFPeA		106	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: YQ85696-001
Batch: 85696
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/25/2023 2013

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		99	25-150
13C7_PFUdA		103	25-150
13C8_PFOA		118	25-150
13C8_PFOS		109	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		100	25-150
d5-EtFOSAA		103	25-150
d3-MeFOSAA		111	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: YQ85696-002
Batch: 85696
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/25/2023 2013

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	15		1	104	50-150	09/27/2023 1254
11Cl-PF3OUdS	15	15		1	99	50-150	09/27/2023 1254
8:2 FTS	15	14		1	90	50-150	09/27/2023 1254
6:2 FTS	15	15		1	96	50-150	09/27/2023 1254
4:2 FTS	15	14		1	92	50-150	09/27/2023 1254
GenX	32	32		1	100	50-150	09/27/2023 1254
ADONA	15	15		1	100	50-150	09/27/2023 1254
EtFOSAA	16	17		1	108	50-150	09/27/2023 1254
MeFOSAA	16	16		1	97	50-150	09/27/2023 1254
PFBS	14	13		1	95	50-150	09/27/2023 1254
PFDS	15	15		1	96	50-150	09/27/2023 1254
PFHpS	15	15		1	96	50-150	09/27/2023 1254
PFNS	15	17		1	107	50-150	09/27/2023 1254
PFOSA	16	16		1	102	50-150	09/27/2023 1254
PFPeS	15	15		1	103	50-150	09/27/2023 1254
PFHxS	15	15		1	106	50-150	09/27/2023 1254
PFBA	16	16		1	97	50-150	09/27/2023 1254
PFDA	16	16		1	100	50-150	09/27/2023 1254
PFDoA	16	15		1	95	50-150	09/27/2023 1254
PFHpA	16	16		1	98	50-150	09/27/2023 1254
PFHxA	16	16		1	100	50-150	09/27/2023 1254
PFNA	16	14		1	90	50-150	09/27/2023 1254
PFOA	16	15		1	94	50-150	09/27/2023 1254
PFPeA	16	16		1	98	50-150	09/27/2023 1254
PFTeDA	16	16		1	100	50-150	09/27/2023 1254
PFTrDA	16	16		1	97	50-150	09/27/2023 1254
PFUdA	16	14		1	89	50-150	09/27/2023 1254
PFOS	15	15		1	104	50-150	09/27/2023 1254

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		122	25-150
13C2_6:2FTS		115	25-150
13C2_8:2FTS		103	25-150
13C2_PFDoA		109	25-150
13C2_PFTeDA		104	25-150
13C3_PFBS		103	25-150
13C3_PFHxS		106	25-150
13C3-HFPO-DA		111	25-150
13C4_PFBA		108	25-150
13C4_PFHpA		102	25-150
13C5_PFHxA		106	25-150
13C5_PFPeA		112	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: YQ85696-002
Batch: 85696
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/25/2023 2013

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		104	25-150
13C7_PFUdA		111	25-150
13C8_PFOA		119	25-150
13C8_PFOS		106	25-150
13C8_PFOSA		95	10-150
13C9_PFNA		107	25-150
d5-EtFOSAA		95	25-150
d3-MeFOSAA		108	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: YI15023-009MS
Batch: 85696
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/25/2023 2013

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	14	13		1	92	50-150	09/27/2023 1544
11Cl-PF3OUdS	ND	14	9.0		1	65	50-150	09/27/2023 1544
8:2 FTS	ND	14	13		1	93	50-150	09/27/2023 1544
6:2 FTS	ND	14	12		1	88	50-150	09/27/2023 1544
4:2 FTS	ND	14	13		1	94	50-150	09/27/2023 1544
GenX	ND	29	29		1	100	50-150	09/27/2023 1544
ADONA	ND	14	14		1	99	50-150	09/27/2023 1544
EtFOSAA	ND	15	16		1	108	50-150	09/27/2023 1544
MeFOSAA	ND	15	15		1	105	50-150	09/27/2023 1544
PFBS	1.2	13	13		1	91	50-150	09/27/2023 1544
PFDS	ND	14	9.7		1	69	50-150	09/27/2023 1544
PFHpS	ND	14	13		1	96	50-150	09/27/2023 1544
PFNS	ND	14	12		1	84	50-150	09/27/2023 1544
PFOSA	ND	15	14		1	96	50-150	09/27/2023 1544
PFPeS	ND	14	14		1	103	50-150	09/27/2023 1544
PFHxS	ND	13	14		1	109	50-150	09/27/2023 1544
PFBA	6.5	15	17		1	75	50-150	09/27/2023 1544
PFDA	ND	15	15		1	103	50-150	09/27/2023 1544
PFDoA	ND	15	13		1	92	50-150	09/27/2023 1544
PFHpA	0.56	15	14		1	93	50-150	09/27/2023 1544
PFHxA	1.0	15	15		1	96	50-150	09/27/2023 1544
PFNA	ND	15	13		1	91	50-150	09/27/2023 1544
PFOA	7.3	15	21		1	94	50-150	09/27/2023 1544
PFPeA	0.72	15	14		1	91	50-150	09/27/2023 1544
PFTeDA	ND	15	14		1	96	50-150	09/27/2023 1544
PFTrDA	ND	15	10		1	71	50-150	09/27/2023 1544
PFUdA	ND	15	13		1	86	50-150	09/27/2023 1544
PFOS	ND	14	15		1	110	50-150	09/27/2023 1544

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	247	25-150
13C2_6:2FTS		141	25-150
13C2_8:2FTS		92	25-150
13C2_PFDoA		76	25-150
13C2_PFTeDA		56	25-150
13C3_PFBS		97	25-150
13C3_PFHxS		94	25-150
13C3-HFPO-DA		100	25-150
13C4_PFBA		82	25-150
13C4_PFHpA		92	25-150
13C5_PFHxA		98	25-150
13C5_PFPeA		91	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: YI15023-009MS
Batch: 85696
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/25/2023 2013

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		88	25-150
13C7_PFUdA		84	25-150
13C8_PFOA		107	25-150
13C8_PFOS		93	25-150
13C8_PFOSA		81	10-150
13C9_PFNA		98	25-150
d5-EtFOSAA		80	25-150
d3-MeFOSAA		87	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: YI15023-009MD
Batch: 85696
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/25/2023 2013

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	13	11		1	86	12	50-150	30	09/27/2023 1554
11Cl-PF3OUdS	ND	13	9.6		1	73	7.3	50-150	30	09/27/2023 1554
8:2 FTS	ND	13	12		1	91	6.2	50-150	30	09/27/2023 1554
6:2 FTS	ND	13	11		1	82	12	50-150	30	09/27/2023 1554
4:2 FTS	ND	13	12		1	93	5.4	50-150	30	09/27/2023 1554
GenX	ND	28	26		1	93	12	50-150	30	09/27/2023 1554
ADONA	ND	13	11		1	85	20	50-150	30	09/27/2023 1554
EtFOSAA	ND	14	14		1	102	10	50-150	30	09/27/2023 1554
MeFOSAA	ND	14	13		1	93	16	50-150	30	09/27/2023 1554
PFBS	1.2	12	12		1	85	9.6	50-150	30	09/27/2023 1554
PFDS	ND	13	10		1	77	7.3	50-150	30	09/27/2023 1554
PFHpS	ND	13	12		1	91	9.7	50-150	30	09/27/2023 1554
PFNS	ND	13	11		1	85	2.9	50-150	30	09/27/2023 1554
PFOSA	ND	14	13		1	91	9.5	50-150	30	09/27/2023 1554
PFPeS	ND	13	12		1	92	15	50-150	30	09/27/2023 1554
PFHxS	ND	13	12		1	97	16	50-150	30	09/27/2023 1554
PFBA	6.5	14	18		1	83	3.8	50-150	30	09/27/2023 1554
PFDA	ND	14	12		1	83	26	50-150	30	09/27/2023 1554
PFDoA	ND	14	13		1	91	4.9	50-150	30	09/27/2023 1554
PFHpA	0.56	14	12		1	84	13	50-150	30	09/27/2023 1554
PFHxA	1.0	14	14		1	90	9.7	50-150	30	09/27/2023 1554
PFNA	ND	14	13		1	95	0.29	50-150	30	09/27/2023 1554
PFOA	7.3	14	19		1	82	11	50-150	30	09/27/2023 1554
PFPeA	0.72	14	14		1	92	2.7	50-150	30	09/27/2023 1554
PFTeDA	ND	14	12		1	86	15	50-150	30	09/27/2023 1554
PFTrDA	ND	14	12		1	85	14	50-150	30	09/27/2023 1554
PFUdA	ND	14	13		1	96	6.4	50-150	30	09/27/2023 1554
PFOS	ND	13	13		1	103	10	50-150	30	09/27/2023 1554

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	235	25-150
13C2_6:2FTS		149	25-150
13C2_8:2FTS		97	25-150
13C2_PFDoA		90	25-150
13C2_PFTeDA		72	25-150
13C3_PFBS		94	25-150
13C3_PFHxS		97	25-150
13C3-HFPO-DA		101	25-150
13C4_PFBA		90	25-150
13C4_PFHpA		93	25-150
13C5_PFHxA		102	25-150
13C5_PFPeA		94	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: YI15023-009MD
Batch: 85696
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/25/2023 2013

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		92	25-150
13C7_PFUdA		89	25-150
13C8_PFOA		108	25-150
13C8_PFOS		97	25-150
13C8_PFOSA		88	10-150
13C9_PFNA		93	25-150
d5-EtFOSAA		82	25-150
d3-MeFOSAA		100	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody
and
Miscellaneous Documents

Pace Analytical®

PACE ANALYTICAL SERVICES, LLC
106 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.pacelabs.com

Number 150097

Client: Arcadis U.S., Inc.	Report to Contact: Amanda Robinson, Scott Clearwater	Telephone No. / Email: 989-854-8672 / Amanda.Robinson@arcadis.com; 248-374-5976 / Scott.Clearwater@arcadis.com	Page 1 of 2
Address: 28550 Cabot Drive	Sampler's Signature: x Austin Westhuis	Analysis (Attach list if more space is needed)	
City: Novi; State: MI; Zip Code: 48377	Printed Name: Austin Westhuis		
Project Name: Saginaw GPL			
Project No.: 30190042.37000	P.O. No.		

Sample ID / Description (Containers for each sample may be combined on one line)	Collection Date(s)	Collection Time (Military)	Sample Type (G=Grab, C=Composite)	Matrix: Aqueous	Matrix: Solid	Matrix: Non-Aqueous	No of Containers by Preservative Type: Unpres	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Zinc Acetate	PFAS	Remarks / Cooler I.D.
MW-118WT_091323	9/13/23	0915	G	X			X							X	
MW-117WT_091323	9/13/23	1015	G	X			X							X	
MW-117S1_091323	9/13/23	1035	G	X			X							X	
MW-183WT_091323	9/13/23	1155	G	X			X							X	
X-9AR_091323	9/13/23	1330	G	X			X							X	
MW-122WT_091323	9/13/23	1620	G	X			X							X	
MW-125WT_091323	9/13/23	1735	G	X			X							X	
TWW-1_091323	9/13/23	1750	G	X			X							X	
X-10AR2_091323	9/13/23	1810	G	X			X							X	
X-2A_091323	9/13/23	1830	G	X			X							X	MS/MSD

Lot # for Code: Y115023 KES2

Turn Around Time Required (Prior lab approval required for expedited TAT.): ☒ Standard ☐ Rush (Specify)

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

	Date	Time
1. Relinquished by: Austin Westhuis / Arcadis	9/14/23	1700
2. Relinquished by:		
3. Relinquished by:		
4. Relinquished by:	9/15/23	1030

	Date	Time
1. Received by:		
2. Received by:		
3. Received by:		
4. Laboratory received by:	9/15/23	1030

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Circle): (Yes) No Ice Pack: Receipt Temp: 1.4 °C Temp Blank: ☐ Y ☐ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

* Limited Sample Volumes

Document Number: ME003N2-01

PACE ANALYTICAL SERVICES, LLC

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Number 150098

Client: Arcadis U.S., Inc.	Report to Contact: Amanda Robinson, Scott Clearwater	Telephone No. / E-mail: 989-854-3672 / Amanda.Robinson@arcadis.com; 248-346-5970 / Scott.Clearwater@arcadis.com	Quote No.
Address: 28550 Cabot Drive	Sampler's Signature: x	Analysis (Attach list if more space is needed)	Page 2 of 2
City: Novi; State: MI; Zip Code: 48377	Printed Name: Austin Westhuis		
Project Name: Saginaw GPL			

Pace Lab No.: YI15023

Project No.	P.O. No.	Collection Date(s)	Collection Time (Military)	Grab/Comp/Composite	Matrix: Aqueous	Solid	Non Aqueous	No of Containers by Preservative Type: Unpres	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Field Filtered	PFAS	Remarks / Cooler I.D.
Sample ID / Description (Containers for each sample may be combined on one line.)																
DUP-05_091323	9/13/23			6	X			X							X	

Turn Around Time Required (Prior lab approval required for expedited TAT): ☑ Standard ☐ Rush (Specify)

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished by: Austin Westhuis / Arcadis	9/14/23	1700	1. Received by: FedEx		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by: FedEx	9/15/23	1030	4. Laboratory received by	9/15/23	1630

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY — Received on Ice (Circle): (Yes) No — Ice Pack — Receipt Temp. 1.4 °C — Temp Blank: ☒ Y ☐ N

DISTRIBUTION: WHITE & YELLOW Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: ME003N2-01

PACE ANALYTICAL SERVICES, LLC

DC#_Title: ENV-FRM-WCOL-0286 v02_Samples Receipt Checklist (SRC)
Effective Date: 8/2/2022

Sample Receipt Checklist (SRC)

Client: Arcadis Cooler Inspected by/date: CJH / 09/15/203 Lot #: YI15023

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other:

☑ Yes	☐ No		1. Were custody seals present on the cooler?
☑ Yes	☐ No	☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA

1.4 / 1.4 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: 8 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☑ Yes	☐ No	☐ NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC and all sample containers?
☑ Yes	☐ No		7. Was collection date & time listed on the COC and all sample containers?
☑ Yes	☐ No		8. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		9. Were tests to be performed listed on the COC?
☑ Yes	☐ No		10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☑ Yes	☐ No		11. Was adequate sample volume available?
☑ Yes	☐ No		12. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☑ Yes	☐ No		13. Were all samples containers accounted for? (No missing/excess)
☐ Yes	☐ No	☑ NA	14. Were VOA, 8015C and RSK-175 samples free of bubbles >"pea-size" (¼" or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	17. Were all applicable NH3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☑ No	☐ NA	18. Was the quote number listed on the container label? If yes, Quote #

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA. ☐ Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Unique ID: NA

Comments:

Quaitrax ID: 56360 Pace® Analytical Services, LLC Page 1 of 1

Attachment 7b

Laboratory Analytical Validation Reports

ARCADIS Design & Consultancy for natural and built assets

Racer

DATA REVIEW

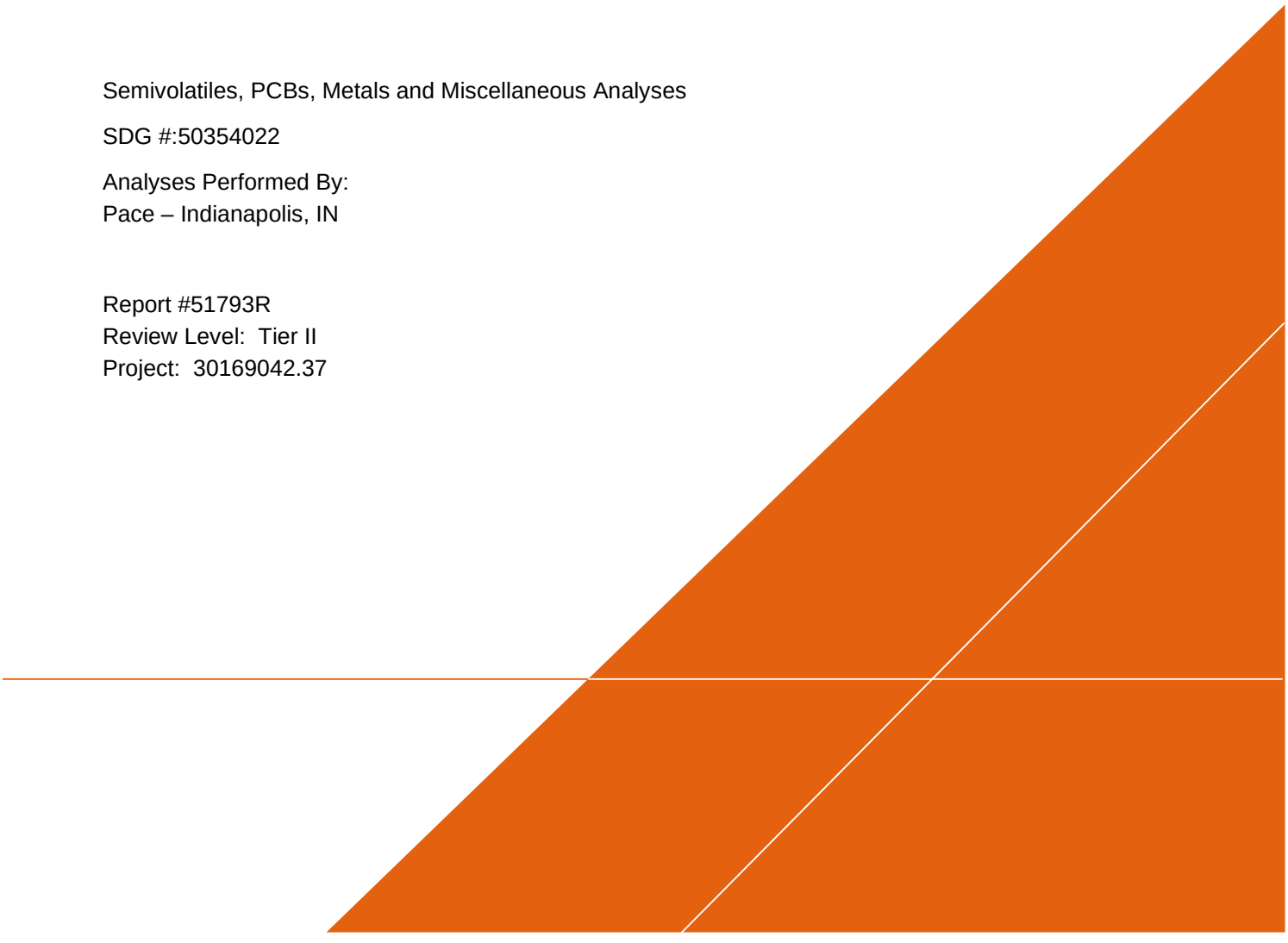
Saginaw, MI

Semivolatiles, PCBs, Metals and Miscellaneous Analyses

SDG #:50354022

Analyses Performed By:
Pace – Indianapolis, IN

Report #51793R
Review Level: Tier II
Project: 30169042.37



SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 50354022 for samples collected in association with the Racer Saginaw, MI Site. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis					
					VOC	SVOC	EDB	PCB	MET	MISC
MW-149WT	50354022-1	Water	09/14/23						X	X
DUP-09	50354022-2	Water	09/14/23	MW-149WT					X	X
MW-107WT	50354022-3	Water	09/14/23						X	X
MW-107SI	50354022-4	Water	09/14/23							X
MW-110WTR	50354022-5	Water	09/14/23						X	X
DUP-07	50354022-6	Water	09/14/23	MW-110WTR					X	
MW-111WT	50354022-7	Water	09/14/23					X	X	X
Dup-08	50354022-8	Water	09/14/23	MW-111WT				X		
MW-185WT	50354022-9	Water	09/14/23					X	X	X
MW-185WT Diss	50354022-10	Water	09/14/23					X		
MW-186WT	50354022-11	Water	09/14/23					X	X	X
MW-186WT Diss	50354022-12	Water	09/14/23					X		
Dup-08 Diss	50354022-13	Water	09/14/23	MW-111WT Diss				X		
MW-111WT Diss	50354022-14	Water	09/14/23					X		
MW-110WTR Diss	50354022-15	Water	09/14/23					X		
MW-108WT	50354022-16	Water	09/14/23			X			X	X
DUP-06	50354022-17	Water	09/14/23	MW-108WT		X				
MW-108S2	50354022-18	Water	09/14/23							X
DUP-10	50354022-19	Water	09/14/23	MW-108S2						X
MW-114WT	50354022-20	Water	09/14/23					X	X	X
MW-114WT Diss	50354022-21	Water	09/14/23					X		
MW-114S2	50354022-22	Water	09/14/23							X

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

Note:
QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Methods 8270 and 8082. Data were reviewed in accordance with USEPA National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540-R-20-005, November 2020 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999, as appropriate.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
  - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
  - UB Compound is considered non-detect at the listed value due to associated blank contamination.
  - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
  - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the foJllowing methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
MW-108WT	Phenol-d5	<10%
	2-Fluorophenol	<10%
	2,4,6-Tribromophenol	AC
	Nitrobenzene-d5	<LL but >10%
	2-Fluorobiphenyl	<10%
	p-Terphenyl-d14	AC
DUP-06	Phenol-d5	<10%
	2-Fluorophenol	<10%

Sample Locations	Surrogate	Recovery
DUP-06	2,4,6-Tribromophenol	AC
	Nitrobenzene-d5	AC
	2-Fluorobiphenyl	<10%
	p-Terphenyl-d14	AC

Notes:

LL Lower limit

AC Acceptable

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
	Detect	J
< LL but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Surrogates diluted below the calibration curve due to the high concentration of a target compounds	Non-detect	J[1]
	Detect	

Note:

[1] A more concentrated analysis was not performed with surrogate compounds within the calibration range; therefore, no determination of extraction efficiency could be made.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
MW-108WT	Anthracene	<LL but >10%	AC
	Phenol	<10%	<10%

Note:

AC Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Parent sample concentration > four times the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

Sample locations associated with MS/MSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

Sample Locations	Compound
MW-108WT	2-Chlrophenol
	2-Methylnaphthalene
	Acenaphthene
	Acenaphthylene
	Anthracene
	Benzo(a)anthracene
	Benzo(a)pyrene
	Benzo(b)fluoranthene
	Benzo(g,h,i)perylene
	Chrysene
	Dibenz(a,h)anthracene
	Fluoroene
	Pyrene

The criteria used to evaluate the RPD between the MS/MSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All LCS recoveries were within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-108WT / DUP-06	Bis(2-ethylhexyl)phthalate	51.3	9.1 U	NC
	Phenol	10.2	9.1 U	AC

Notes:

NC Not compliant

AC Acceptable

The compound bis-(2-ethylhexyl)phthalate associated with sample locations MW-108WT and DUP-06 exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed analyte were qualified as estimated.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R		X	X		
MS/MSD Precision (RPD)		X	X		
Field/Lab Duplicate (RPD)		X	X		
Surrogate Spike Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

POLYCHLORINATED BIPHENYLS

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8082	Water	1 year from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

Note:
s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. PCB analysis requires that one of the two PCB surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries reported from the primary column were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD performed on samples MW-186WT, MW-186WT Diss and MW-114WT exhibited recoveries within the control limits.

Sample locations associated with MS/MSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

Sample Locations	Compound
MW-186WT	Aroclor 1260

The criteria used to evaluate the RPD between the MS/MSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All LCS recoveries were within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-111WT / DUP-08	Aroclor 1248	0.087 U	28.4	NC
MW-111WT Diss / DUP-08 Diss	Aroclor 1248	12.9	0.10 u	NC

Notes:

AC Acceptable

NC Not compliant

The compound Aroclor 1248 associated with sample locations MW-111WT and DUP-08 exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed analyte were qualified as estimated.

The compound Aroclor 1248 associated with sample locations MW-111WT Diss and DUP-08 Diss exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed analyte were qualified as estimated.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR PCBs

Pesticides: SW-846 8082	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Field blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)		X		X	
Matrix Spike Duplicate(MSD)		X		X	
MS/MSD Precision (RPD)		X	X		
Field Duplicate (RPD)		X	X		
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Methods 6010 and Standard Methods SM4500-NH3-G and SM4500-P F. Data were reviewed in accordance with USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA-542-R-20-006 (November 2020), with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, OSWER 9240.1-45, October 2004, as appropriate.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
  - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
  - E The reported value is estimated due to the presence of interference.
  - N Spiked sample recovery is not within control limits.
  - * Duplicate analysis is not within control limits.
- Validation Qualifiers
  - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
  - UB Analyte considered non-detect at the listed value due to associated blank contamination.
  - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6010	Water	180 days from collection to analysis	Preserved to a pH of less than 2.

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Matrix Spike (MS) and Matrix Spike Duplicate(MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS/MSD performed on samples MW-107WT, MW-186WT and MW-114WT exhibited recoveries and RPDs within the control limits.

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analyte present in the table below.

Sample Location	Analyte	MS Recovery	MSD Recovery
MW-108WT	Manganese	AC	54%

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications are applied to all sample results associated with this SDG.

Control limit	Sample Result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery <30%	Non-detect	R
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

A laboratory duplicate was not included in the data package.

4 Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-149WT / DUP-09	Arsenic	178	164	8.2%
	Arsenic (D)	37	36.7	0.8%
MW-110WTR / DUP-07	Manganese	2610	1580	NC

Notes:

NC Non-compliant

The analyte manganese associated with sample locations MW-110WTR and DUP-07 exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed analyte were qualified as estimated.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. General Assessment – Total vs. Dissolved

When the dissolved concentration exceeded the associated total concentration, and both results were five times greater than the LOQ, then the %D between the total and dissolved concentrations must be less than 10%.

The calculated %D between the total and the dissolved sample results were within the control limits.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR METAL

METALS; SW-846 6010	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Instrument Blanks	X				X
B. Method Blanks		X		X	
C. Equipment/Field Blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X	X		
Total vs. Dissolved		X		X	
Reporting Limit Verification		X		X	

Notes:

%R Percent recovery

RPD Relative percent difference

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Phosphorous by SM4500-P F	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.
Ammonia-N by SM4500-NH3G	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD)/Laboratory Duplicate Analysis

MS and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS/MSD performed on samples MW-107WT, MW-186WT, MW-108WT and MW-114WT for the ammonia analysis exhibited recoveries and RPDs within the control limits.

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analyte present in the table below.

Sample Location	Analyte	MS Recovery	MSD Recovery
MW-114WT	Phosphorous	<30%	<30%

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications are applied to all sample results associated with this SDG.

Control limit	Sample Result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery <30%	Non-detect	R
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J

4.1 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

A laboratory duplicate was not included in the data package.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-149WT / DUP-09	Ammonia	2.1	2.2	4.7%
	Phosphorous	3.6	4.6	24.4%
MW-108S2 / DUP-10	Ammonia	5.2	5.8	10.9%

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

6. Laboratory Control Sample (LCS)

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS/LCSD analysis must exhibit a percent recovery between the control limits of 80% and 120%.

All LCS recoveries were within the control limits.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: Various Methods	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%R - percent recovery
RPD - relative percent difference,

VALIDATION PERFORMED BY: Rachelle Borne

SIGNATURE: 

DATE: November 9, 2023

PEER REVIEW: Joseph C. Houser

DATE: November 10, 2023

CHAIN OF CUSTODY

CORRECTED SAMPLE ANALYSIS DATA SHEETS

Pace® Location Requested (City/State):
Pace Analytical Indianapolis
7726 Moller Road, Indianapolis, IN 46268

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

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WO# : 50354022

50354022

Company Name:	Arcadis U.S., Inc.	Contact/Report To:	Clearwater, Scott
Street Address:	28550 Cabot Drive, Novi, MI 48377	Phone #:	(810)225-1921
		E-Mail:	scott.clearwater@arcadis.com
		Cc E-Mail:	Amanda.Robinson@Arcadis.com
Customer Project #:	30169042.12000	Invoice To:	Arcadis U.S., Inc.
Project Name:	Saginaw SMI	Invoice E-Mail:	
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	
Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [ ] ET		County / State origin of sample(s):	Michigan
Data Deliverables: [ ] Level II [ ] Level III [ ] Level IV [ ] EQUIS [ ] Other_____		Regulatory Program (DW, RCRA, etc.) as applicable:	
		Rush (Pre-approval required): [ ] 2 Day [ ] 3 day [ ] 5 day [ ] Other_____	DW PWSID # or WW Permit # as applicable:
		Date Results Requested: STD 10 day TAT	Field Filtered (if applicable): [ ] Yes [ ] No

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Other (OT), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk

Specify Container Size **: 5 5 5 3 3 3 3 3

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) Other

Identify Container Preservative Type***: 1 1 1 2 2 3 3 2

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Analysis Requested

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res. CL2	Number & Type of Containers Total	SVOC 8270	PCB 8082	Dissolved PCB 8082 Field Filtered	Total As, Mn 6010	FF Dissolved As 6010	Total Phos 365.1	Ammonia 350.1	TOTAL MN 6010			Sample Comment	Preservation non-conformance identified for sample.
MW-149WT_091423	GW	G	9/14/23	930				3				X	X	X	X				001	
DUP-09-091423	GW	G	9/14/23	—				3				X	X	X	X				002	
MW-107WT_091423	GW	G	9/14/23	1025 ~~1065~~				7				X	X	X	X				MS/MSD FOR TOTAL & DISSOLVED As (FAR)	003
MW-107S1_091423	GW	G	9/14/23	1015				1						X	X				004	
MW-110WTR_091423	GW	G	9/14/23	1145				6		X	X			X	X	X			005/015	
DUP-07_091423	GW	G	9/14/23	—				1								X			006	
MW-111WT_091423	GW	G	9/14/23	1245				6		X	X			X	X	X			007/014	
DUP-08_091423	GW	G	9/14/23	—				4		X	X								008/013	
MW-185WT_091423	GW	G	9/14/23	1330				6 ~~4~~		X	X			X	X	X			009/010	
MW-186WT_091423	GW	G	9/14/23	1400				10		X	X			X	X	X			MS/MSD FOR TOTAL & DISSOLVED PCBS	

Lab Use Only:
Proj. Mgr: Olivia Deck
oliva.deck@pacelabs.com
AcctNum / Client ID:
Table #:
Profile / Template: 11397/3
Prelog / Bottle Ord. ID: 1142243

Customer Remarks / Special Conditions / Possible Hazards:

Collected By: Billy J-Cobean
Printed Name:
Signature:

Additional Instructions from Pace®: 010 011/012

Coolers: 2 Thermometer ID: F Correction Factor (°C): -0.1 Obs. Temp. (°C): 2.0 Corrected Temp. (°C): 1.9

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Arcadis	9-14-23 1700	FedEx		
FedEx	9/15/23 905		9/15/23 905	Delivered by: [ ] In- Person [ ] Courier [✓] FedEX [ ] UPS [ ] Other
				Page: of

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

Pace® Location Requested (City/State):
Pace Analytical Indianapolis
7726 Moller Road, Indianapolis, IN 46268

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

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Scan QR Code for instructions

Company Name:	Arcadis U.S., Inc.	Contact/Report To:	Clearwater, Scott
Street Address:	28550 Cabot Drive, Novi, MI 48377	Phone #:	(810)225-1921
		E-Mail:	scott.clearwater@arcadis.com
		Cc E-Mail:	Amanda.Robinson@arcadis.com
Customer Project #:	30169042.12000	Invoice To:	Arcadis U.S., Inc.
Project Name:	Saginaw SMI	Invoice E-Mail:	
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [X] ET

County / State origin of sample(s): Michigan

Data Deliverables:
[ ] Level II [ ] Level III [ ] Level IV
[ ] EQUIS
[ ] Other_____

Regulatory Program (DW, RCRA, etc.) as applicable:

Rush (Pre-approval required):
[ ] 2 Day [ ] 3 day [ ] 5 day [ ] Other_____

Date Results Requested: STD 10 day TAT

DW PWSID # or WW Permit # as applicable:

Field Filtered (if applicable): [X] Yes [ ] No
Analysis: Dissolved PCBs and Dissolved As

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Other (OT), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk

Specify Container Size **: 5 5 5 3 3 3 3

Identify Container Preservative Type***: 1 1 1 2 2 3 3

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Lab Use Only
Proj. Mgr: Olivia Deck
oliva.deck@pacelabs.com
AcctNum / Client ID:
Table #:
Profile / Template: 11397/3
Prelog / Bottle Ord. ID: 1142243

Preservation non-conformance identified for sample.

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res. CL2	Number & Type of Containers Total	SVOC 8270	PCB 8082	Dissloved PCB 8082 Field Filtered	Total As, Mn 6010	FF Dissolved As 6010	Total Phos 365.1	Ammonia 350.1	Sample Comment
MW-108WT_091423	GW	G	9/14/23	0945	—	—		5	X			X		X	X	-MS/MSD for SVOCs 016
DUP-06_091423	GW	G	9/14/23	—	—	—		1	X							017
MW-108S2_091423	GW	G	9/14/23	1045	—	—		1							X	018
DUP-10_091423	GW	G	9/14/23	—	—	—		1							X	019
MW-114WT_091423	GW	G	9/14/23	1445	—	—		8		X	X	X		X	X	-Total Manganese only 020 -MS/MSD for Ammonia, Nitrogen and Phosphorus 50
MW-11452_091423	GW	G	9/14/23	1450				1							X	022

Customer Remarks / Special Conditions / Possible Hazards:
* Limited Sample Volumes

Collected By:
Printed Name:
Signature:

Additional Instructions from Pace®:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)
2	F	-0.1	2.0	1.9

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Austin Westhuis/Arcadis	9/14/23 1700	FedEx		
FedEx	9/15/23 905		9/15/23 905	Delivered by: [ ] In- Person [ ] Courier [X] FedEX [ ] UPS [ ] Other
				Page:

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

ENV-FRM-CORQ-0019_v01_082123 ©

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7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-149WT_091423 **Lab ID: 50354022001** Collected: 09/14/23 09:30 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	**178**	ug/L	5.0	1	09/18/23 16:00	09/22/23 02:50	7440-38-2	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	**37.0**	ug/L	5.0	1	09/18/23 08:44	09/20/23 16:28	7440-38-2	
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**2.1**	mg/L	0.10	1	09/29/23 12:37	09/29/23 15:18	7664-41-7	
SM4500P-F, Total Phosphorus	Analytical Method: SM 4500-P F Preparation Method: SM 4500-P B Pace Analytical Services - Minneapolis							
Phosphorus	**3.6**	mg/L	0.10	1	09/26/23 11:00	09/26/23 13:01	7723-14-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: DUP-09_091423 **Lab ID: 50354022002** Collected: 09/14/23 08:00 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	**164**	ug/L	5.0	1	09/18/23 16:00	09/22/23 02:52	7440-38-2	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	**36.7**	ug/L	5.0	1	09/18/23 08:44	09/20/23 16:30	7440-38-2	
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**2.2**	mg/L	0.10	1	09/29/23 12:37	09/29/23 15:19	7664-41-7	
SM4500P-F, Total Phosphorus	Analytical Method: SM 4500-P F Preparation Method: SM 4500-P B Pace Analytical Services - Minneapolis							
Phosphorus	**4.6**	mg/L	0.10	1	09/26/23 11:00	09/26/23 13:46	7723-14-0	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-107WT_091423 **Lab ID: 50354022003** Collected: 09/14/23 10:25 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	**52.0**	ug/L	5.0	1	09/18/23 16:00	09/22/23 02:55	7440-38-2	
Manganese	**5900**	ug/L	10.0	1	09/18/23 16:00	09/22/23 02:55	7439-96-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 08:44	09/20/23 16:32	7440-38-2	
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**0.19**	mg/L	0.10	1	09/29/23 12:37	09/29/23 15:20	7664-41-7	
SM4500P-F, Total Phosphorus	Analytical Method: SM 4500-P F Preparation Method: SM 4500-P B Pace Analytical Services - Minneapolis							
Phosphorus	**1.7**	mg/L	0.10	1	09/26/23 11:00	09/26/23 13:03	7723-14-0	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-107S1_091423 **Lab ID: 50354022004** Collected: 09/14/23 10:15 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**1.5**	mg/L	0.10	1	09/27/23 13:30	09/27/23 18:06	7664-41-7	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-110WTR_091423 **Lab ID: 50354022005** Collected: 09/14/23 11:45 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:17	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:17	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:17	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:17	53469-21-9	
PCB-1248 (Aroclor 1248)	**0.14**	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:17	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:17	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:17	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	43	%.	10-102	1	09/25/23 11:08	09/28/23 20:17	877-09-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Manganese	**2580**	J ug/L	10.0	1	09/18/23 16:00	09/22/23 03:28	7439-96-5	
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**0.18**	mg/L	0.10	1	09/29/23 12:37	09/29/23 15:23	7664-41-7	
SM4500P-F, Total Phosphorus	Analytical Method: SM 4500-P F Preparation Method: SM 4500-P B Pace Analytical Services - Minneapolis							
Phosphorus	**0.63**	mg/L	0.10	1	09/26/23 11:00	09/26/23 13:04	7723-14-0	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: DUP-07_091423 **Lab ID: 50354022006** Collected: 09/14/23 08:00 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Manganese	**2610** J	ug/L	10.0	1	09/18/23 16:00	09/22/23 03:30	7439-96-5	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-111WT_091423 **Lab ID: 50354022007** Collected: 09/14/23 12:45 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:31	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:31	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:31	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:31	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	UJ ug/L	0.087	1	09/25/23 11:08	09/28/23 20:31	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:31	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.087	1	09/25/23 11:08	09/28/23 20:31	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	40	%.	10-102	1	09/25/23 11:08	09/28/23 20:31	877-09-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Manganese	**1580**	J ug/L	50.0	1	09/18/23 16:00	09/22/23 03:37	7439-96-5	
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**3.2**	mg/L	0.10	1	09/29/23 12:37	09/29/23 15:24	7664-41-7	
SM4500P-F, Total Phosphorus	Analytical Method: SM 4500-P F Preparation Method: SM 4500-P B Pace Analytical Services - Minneapolis							
Phosphorus	**4.0**	mg/L	0.10	1	09/26/23 11:00	09/26/23 13:05	7723-14-0	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: Dup-08_091423 **Lab ID: 50354022008** Collected: 09/14/23 08:00 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results		Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis								
PCB-1016 (Aroclor 1016)	ND		ug/L	0.10	1	09/25/23 11:08	09/28/23 21:27	12674-11-2	
PCB-1221 (Aroclor 1221)	ND		ug/L	0.10	1	09/25/23 11:08	09/28/23 21:27	11104-28-2	
PCB-1232 (Aroclor 1232)	ND		ug/L	0.10	1	09/25/23 11:08	09/28/23 21:27	11141-16-5	
PCB-1242 (Aroclor 1242)	ND		ug/L	0.10	1	09/25/23 11:08	09/28/23 21:27	53469-21-9	
PCB-1248 (Aroclor 1248)	**28.4**	J	ug/L	0.10	1	09/25/23 11:08	09/28/23 21:27	12672-29-6	
PCB-1254 (Aroclor 1254)	ND		ug/L	0.10	1	09/25/23 11:08	09/28/23 21:27	11097-69-1	
PCB-1260 (Aroclor 1260)	ND		ug/L	0.10	1	09/25/23 11:08	09/28/23 21:27	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	42		%.	10-102	1	09/25/23 11:08	09/28/23 21:27	877-09-8	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-185WT_091423 **Lab ID: 50354022009** Collected: 09/14/23 13:30 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.095	1	09/25/23 11:08	09/27/23 00:44	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.095	1	09/25/23 11:08	09/27/23 00:44	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.095	1	09/25/23 11:08	09/27/23 00:44	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.095	1	09/25/23 11:08	09/27/23 00:44	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.095	1	09/25/23 11:08	09/27/23 00:44	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.095	1	09/25/23 11:08	09/27/23 00:44	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.095	1	09/25/23 11:08	09/27/23 00:44	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	43	%.	10-102	1	09/25/23 11:08	09/27/23 00:44	877-09-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Manganese	**34300** J	ug/L	30.0	3	09/18/23 16:00	09/22/23 03:54	7439-96-5	
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**0.64**	mg/L	0.10	1	09/29/23 12:37	09/29/23 15:25	7664-41-7	
SM4500P-F, Total Phosphorus	Analytical Method: SM 4500-P F Preparation Method: SM 4500-P B Pace Analytical Services - Minneapolis							
Phosphorus	**3.9**	mg/L	0.10	1	09/26/23 11:00	09/26/23 13:06	7723-14-0	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-185WT_091423 Diss **Lab ID: 50354022010** Collected: 09/14/23 13:30 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 00:58	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 00:58	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 00:58	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 00:58	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 00:58	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 00:58	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 00:58	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	43	%.	10-102	1	09/25/23 11:08	09/27/23 00:58	877-09-8	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-186WT_091423 **Lab ID: 50354022011** Collected: 09/14/23 14:00 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:12	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:12	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:12	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:12	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:12	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:12	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:12	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	50	%.	10-102	1	09/25/23 11:08	09/27/23 01:12	877-09-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Manganese	**6190**	ug/L	50.0	1	09/18/23 16:00	09/22/23 03:42	7439-96-5	
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**1.1**	mg/L	0.10	1	09/29/23 12:37	09/29/23 15:28	7664-41-7	
SM4500P-F, Total Phosphorus	Analytical Method: SM 4500-P F Preparation Method: SM 4500-P B Pace Analytical Services - Minneapolis							
Phosphorus	**17.7**	mg/L	1.0	10	09/26/23 11:00	09/26/23 14:20	7723-14-0	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-186WT_091424 Diss **Lab ID: 50354022012** Collected: 09/14/23 14:00 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:55	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:55	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:55	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:55	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:55	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:55	11097-69-1	
PCB-1260 (Aroclor 1260)	ND UJ	ug/L	0.10	1	09/25/23 11:08	09/27/23 01:55	11096-82-5	~~R1~~
Surrogates								
Tetrachloro-m-xylene (S)	35	%.	10-102	1	09/25/23 11:08	09/27/23 01:55	877-09-8	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: Dup-08_091423 Diss **Lab ID: 50354022013** Collected: 09/14/23 08:00 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results		Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis								
PCB-1016 (Aroclor 1016)	ND		ug/L	0.10	1	09/25/23 11:08	09/27/23 02:37	12674-11-2	
PCB-1221 (Aroclor 1221)	ND		ug/L	0.10	1	09/25/23 11:08	09/27/23 02:37	11104-28-2	
PCB-1232 (Aroclor 1232)	ND		ug/L	0.10	1	09/25/23 11:08	09/27/23 02:37	11141-16-5	
PCB-1242 (Aroclor 1242)	ND		ug/L	0.10	1	09/25/23 11:08	09/27/23 02:37	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	UJ	ug/L	0.10	1	09/25/23 11:08	09/27/23 02:37	12672-29-6	
PCB-1254 (Aroclor 1254)	ND		ug/L	0.10	1	09/25/23 11:08	09/27/23 02:37	11097-69-1	
PCB-1260 (Aroclor 1260)	ND		ug/L	0.10	1	09/25/23 11:08	09/27/23 02:37	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	52		%.	10-102	1	09/25/23 11:08	09/27/23 02:37	877-09-8	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-111WT_091423 Diss **Lab ID: 50354022014** Collected: 09/14/23 12:45 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 21:41	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 21:41	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 21:41	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 21:41	53469-21-9	
PCB-1248 (Aroclor 1248)	**12.9**	J ug/L	0.091	1	09/25/23 11:08	09/28/23 21:41	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 21:41	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 21:41	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	45	%.	10-102	1	09/25/23 11:08	09/28/23 21:41	877-09-8	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-110WTR_091423 Diss **Lab ID: 50354022015** Collected: 09/14/23 11:45 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 03:05	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 03:05	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 03:05	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 03:05	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 03:05	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 03:05	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.091	1	09/25/23 11:08	09/27/23 03:05	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	48	%.	10-102	1	09/25/23 11:08	09/27/23 03:05	877-09-8	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-108WT_091423 **Lab ID: 50354022016** Collected: 09/14/23 09:45 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Manganese	**18000**	ug/L	50.0	1	09/18/23 16:00	09/22/23 03:48	7439-96-5	
8270 SVOC SS Water	Analytical Method: EPA 8270 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
Acenaphthene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	83-32-9	R1
Acenaphthylene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	208-96-8	R1
Anthracene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	120-12-7	M1,R1
Benzo(a)anthracene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	56-55-3	R1
Benzo(a)pyrene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	50-32-8	R1
Benzo(b)fluoranthene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	205-99-2	R1
Benzo(g,h,i)perylene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	191-24-2	R1
Benzo(k)fluoranthene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	207-08-9	
Benzyl alcohol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	100-51-6	
4-Bromophenylphenyl ether	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	101-55-3	
Butylbenzylphthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	85-68-7	
4-Chloro-3-methylphenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	59-50-7	
4-Chloroaniline	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	111-44-4	
bis(2chloro1methylethyl) ether	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	108-60-1	
2-Chloronaphthalene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	91-58-7	
2-Chlorophenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	95-57-8	R1
4-Chlorophenylphenyl ether	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	7005-72-3	
Chrysene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	218-01-9	R1
Dibenz(a,h)anthracene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	53-70-3	R1
Dibenzofuran	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	132-64-9	
3,3'-Dichlorobenzidine	ND	ug/L	18.2	1	09/21/23 20:39	09/23/23 21:33	91-94-1	
2,4-Dichlorophenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	120-83-2	
Diethylphthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	84-66-2	
2,4-Dimethylphenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	105-67-9	
Dimethylphthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	131-11-3	
Di-n-butylphthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/L	18.2	1	09/21/23 20:39	09/23/23 21:33	534-52-1	
2,4-Dinitrophenol	ND	ug/L	45.5	1	09/21/23 20:39	09/23/23 21:33	51-28-5	
2,4-Dinitrotoluene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	606-20-2	
Di-n-octylphthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	117-84-0	
bis(2-Ethylhexyl)phthalate	**51.3** J	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	117-81-7	
Fluoranthene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	206-44-0	
Fluorene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	87-68-3	
Hexachlorobenzene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	118-74-1	
Hexachlorocyclopentadiene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	77-47-4	
Hexachloroethane	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	193-39-5	R1
Isophorone	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	78-59-1	

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7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-108WT_091423 **Lab ID: 50354022016** Collected: 09/14/23 09:45 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 SVOC SS Water	Analytical Method: EPA 8270 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
1-Methylnaphthalene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	90-12-0	
2-Methylnaphthalene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	91-57-6	R1
2-Methylphenol(o-Cresol)	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33		
Naphthalene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	91-20-3	
2-Nitroaniline	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	88-74-4	
3-Nitroaniline	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	99-09-2	
4-Nitroaniline	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	100-01-6	
Nitrobenzene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	98-95-3	
2-Nitrophenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	88-75-5	
4-Nitrophenol	ND	ug/L	45.5	1	09/21/23 20:39	09/23/23 21:33	100-02-7	
N-Nitroso-di-n-propylamine	ND	ug/L	45.5	1	09/21/23 20:39	09/23/23 21:33	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	86-30-6	
Pentachlorophenol	ND	ug/L	45.5	1	09/21/23 20:39	09/23/23 21:33	87-86-5	
Phenanthrene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	85-01-8	
Phenol	**10.2** J	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	108-95-2	M1
Pyrene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	129-00-0	R1
Pyridine	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	110-86-1	
2,4,5-Trichlorophenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 21:33	88-06-2	
Surrogates								
Nitrobenzene-d5 (S)	13	%.	17-107	1	09/21/23 20:39	09/23/23 21:33	4165-60-0	S2
2-Fluorobiphenyl (S)	7	%.	11-105	1	09/21/23 20:39	09/23/23 21:33	321-60-8	S2
p-Terphenyl-d14 (S)	75	%.	36-149	1	09/21/23 20:39	09/23/23 21:33	1718-51-0	
Phenol-d5 (S)	5	%.	10-58	1	09/21/23 20:39	09/23/23 21:33	4165-62-2	S2
2-Fluorophenol (S)	5	%.	10-71	1	09/21/23 20:39	09/23/23 21:33	367-12-4	S2
2,4,6-Tribromophenol (S)	43	%.	35-149	1	09/21/23 20:39	09/23/23 21:33	118-79-6	
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**0.35**	mg/L	0.10	1	09/29/23 12:37	09/29/23 15:31	7664-41-7	
SM4500P-F, Total Phosphorus	Analytical Method: SM 4500-P F Preparation Method: SM 4500-P B Pace Analytical Services - Minneapolis							
Phosphorus	**1.2**	mg/L	0.10	1	09/26/23 11:00	09/26/23 13:02	7723-14-0	

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(317)228-3100

ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: DUP-06_091423 **Lab ID: 50354022017** Collected: 09/14/23 08:00 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 SVOC SS Water	Analytical Method: EPA 8270 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
Acenaphthene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	83-32-9	R
Acenaphthylene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	208-96-8	
Anthracene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	120-12-7	
Benzo(a)anthracene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	56-55-3	
Benzo(a)pyrene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	207-08-9	
Benzyl alcohol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	100-51-6	
4-Bromophenylphenyl ether	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	101-55-3	
Butylbenzylphthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	85-68-7	
4-Chloro-3-methylphenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	59-50-7	
4-Chloroaniline	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	111-44-4	
bis(2chloro1methylethyl) ether	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	108-60-1	
2-Chloronaphthalene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	91-58-7	
2-Chlorophenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	7005-72-3	
Chrysene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	53-70-3	
Dibenzofuran	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	132-64-9	
3,3'-Dichlorobenzidine	ND	ug/L	18.2	1	09/21/23 20:39	09/23/23 22:23	91-94-1	
2,4-Dichlorophenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	120-83-2	
Diethylphthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	84-66-2	
2,4-Dimethylphenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	105-67-9	
Dimethylphthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	131-11-3	
Di-n-butylphthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/L	18.2	1	09/21/23 20:39	09/23/23 22:23	534-52-1	
2,4-Dinitrophenol	ND	ug/L	45.5	1	09/21/23 20:39	09/23/23 22:23	51-28-5	
2,4-Dinitrotoluene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	606-20-2	
Di-n-octylphthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	117-81-7	
Fluoranthene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	206-44-0	
Fluorene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	87-68-3	
Hexachlorobenzene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	118-74-1	
Hexachlorocyclopentadiene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	77-47-4	
Hexachloroethane	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	193-39-5	
Isophorone	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	78-59-1	
1-Methylnaphthalene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	90-12-0	
2-Methylnaphthalene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23		

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(317)228-3100

ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: DUP-06_091423 **Lab ID: 50354022017** Collected: 09/14/23 08:00 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 SVOC SS Water	Analytical Method: EPA 8270 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
Naphthalene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	91-20-3	R
2-Nitroaniline	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	88-74-4	
3-Nitroaniline	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	99-09-2	
4-Nitroaniline	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	100-01-6	
Nitrobenzene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	98-95-3	
2-Nitrophenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	88-75-5	
4-Nitrophenol	ND	ug/L	45.5	1	09/21/23 20:39	09/23/23 22:23	100-02-7	
N-Nitroso-di-n-propylamine	ND	ug/L	45.5	1	09/21/23 20:39	09/23/23 22:23	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	86-30-6	
Pentachlorophenol	ND	ug/L	45.5	1	09/21/23 20:39	09/23/23 22:23	87-86-5	
Phenanthrene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	85-01-8	
Phenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	108-95-2	
Pyrene	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	129-00-0	
Pyridine	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	110-86-1	
2,4,5-Trichlorophenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	9.1	1	09/21/23 20:39	09/23/23 22:23	88-06-2	
Surrogates								
Nitrobenzene-d5 (S)	25	%.	17-107	1	09/21/23 20:39	09/23/23 22:23	4165-60-0	
2-Fluorobiphenyl (S)	12	%.	11-105	1	09/21/23 20:39	09/23/23 22:23	321-60-8	
p-Terphenyl-d14 (S)	76	%.	36-149	1	09/21/23 20:39	09/23/23 22:23	1718-51-0	
Phenol-d5 (S)	4	%.	10-58	1	09/21/23 20:39	09/23/23 22:23	4165-62-2	P2,S0
2-Fluorophenol (S)	5	%.	10-71	1	09/21/23 20:39	09/23/23 22:23	367-12-4	P2,S0
2,4,6-Tribromophenol (S)	47	%.	35-149	1	09/21/23 20:39	09/23/23 22:23	118-79-6	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-108S2_091423 **Lab ID: 50354022018** Collected: 09/14/23 10:45 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**5.2**	mg/L	0.10	1	09/27/23 13:30	09/27/23 18:08	7664-41-7	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: DUP-10_091423 **Lab ID: 50354022019** Collected: 09/14/23 08:00 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**5.8**	mg/L	0.10	1	09/27/23 13:30	09/27/23 17:39	7664-41-7	

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-114WT_091423 **Lab ID: 50354022020** Collected: 09/14/23 14:45 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.094	1	09/26/23 12:52	09/27/23 21:57	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.094	1	09/26/23 12:52	09/27/23 21:57	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.094	1	09/26/23 12:52	09/27/23 21:57	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.094	1	09/26/23 12:52	09/27/23 21:57	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.094	1	09/26/23 12:52	09/27/23 21:57	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.094	1	09/26/23 12:52	09/27/23 21:57	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.094	1	09/26/23 12:52	09/27/23 21:57	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	54	%.	10-102	1	09/26/23 12:52	09/27/23 21:57	877-09-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Manganese	**1280**	ug/L	50.0	1	09/18/23 16:00	09/22/23 03:57	7439-96-5	
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**1.0**	mg/L	0.10	1	09/27/23 13:30	09/27/23 17:40	7664-41-7	
SM4500P-F, Total Phosphorus	Analytical Method: SM 4500-P F Preparation Method: SM 4500-P B Pace Analytical Services - Minneapolis							
Phosphorus	**0.92** J	mg/L	0.10	1	09/26/23 11:00	09/26/23 13:08	7723-14-0	M1

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ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-114WT_091423 Diss **Lab ID: 50354022021** Collected: 09/14/23 14:45 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB RV Waters	Analytical Method: EPA 8082 Preparation Method: EPA 3510 Pace Analytical Services - Indianapolis							
PCB-1016 (Aroclor 1016)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 20:45	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 20:45	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 20:45	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 20:45	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 20:45	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 20:45	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.091	1	09/25/23 11:08	09/28/23 20:45	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	41	%.	10-102	1	09/25/23 11:08	09/28/23 20:45	877-09-8	

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Saginaw SMI
Pace Project No.: 50354022

Sample: MW-114S2_091423 **Lab ID: 50354022022** Collected: 09/14/23 14:50 Received: 09/15/23 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**1.9**	mg/L	0.10	1	09/27/23 13:30	09/27/23 17:43	7664-41-7	

REPORT OF LABORATORY ANALYSIS

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Racer

DATA REVIEW

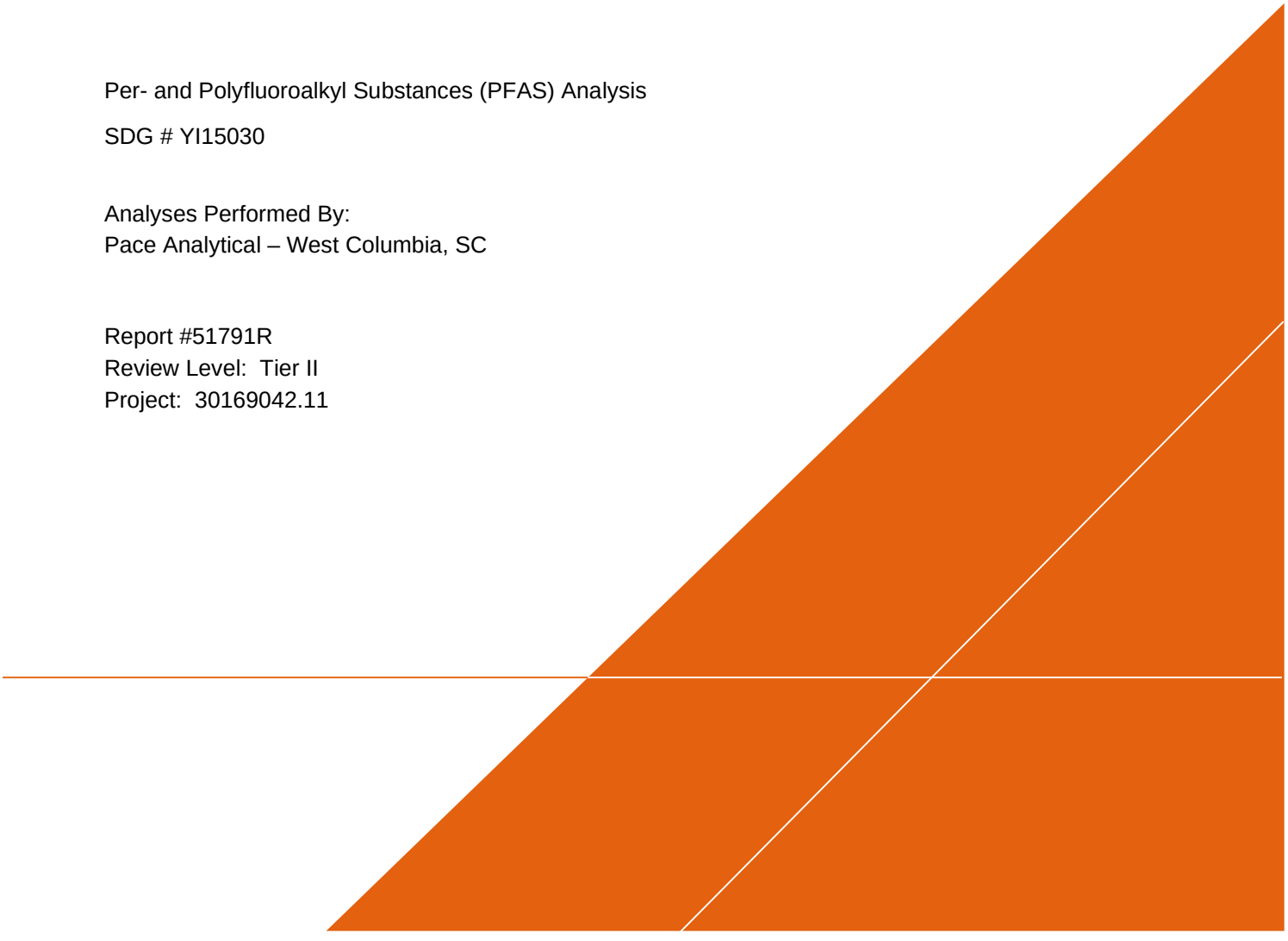
Saginaw, MI

Per- and Polyfluoroalkyl Substances (PFAS) Analysis

SDG # YI15030

Analyses Performed By:
Pace Analytical – West Columbia, SC

Report #51791R
Review Level: Tier II
Project: 30169042.11



SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) #YI15030 for samples collected in association with the Racer Saginaw, MI Site. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
					PFAS	SVOC	PCB	MET	MISC
MW-108WT	YI15030-1	Water	09/14/23		X				
MW-131WT	YI15030-2	Water	09/14/23		X				
MW-134WT	YI15030-3	Water	09/14/23		X				
B-3R	YI15030-4	Water	09/14/23		X				
QPTW-13R	YI15030-5	Water	09/14/23		X				
DUP-11	YI15030-6	Water	09/14/23	QPTW-13R	X				

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

Note:
QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Modified Method 537. Data were reviewed in accordance with the USEPA National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540-R-20-005, November 2020 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999 as appropriate) and USEPA Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537, EPA 910-R-18-001, November 2018; and Department of Defense (DoD) Quality Systems Manual (QSM) 5.3, DoD Final General Data Validation Guidelines, November 2019.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
  - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
  - UB Compound considered non-detect at the listed value due to associated blank contamination.
  - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
  - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and

provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) ANALYSIS

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
USEPA modified Method 537	Water	28 days to extraction; 28 days from extraction to analysis	Cool to <6 °C

All samples were initially analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method, field, and equipment blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Equipment blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (DL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the DL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Extracted Internal Standard (EIS)/Surrogate Compounds

Labeled standards must be added to all field samples and QC samples prior to extraction. EIS recoveries must be within DoD QSM 5.3 specified limits of 50% to150%.

Sample locations associated with EIS exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	EIS	Associated Compound	%R
MW-108WT	13C2_4:2FTS	1H,1H, 2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	>150
	13C2_6:2FTS	1H,1H, 2H,2H-perfluorooctane sulfonic acid (6:2 FTS)	>150
	13C2_PFTeDA	Perfluoro-n-tetredecanoic acid (PFTeDA)	<50 but >20
	13C4-PFBA	Perfluoro-n-butanoic acid	<50 but >20
MW-131WT	13C2_4:2FTS	1H,1H, 2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	>150
	13C2_6:2FTS	1H,1H, 2H,2H-perfluorooctane sulfonic acid (6:2 FTS)	>150

Sample Locations	EIS	Associated Compound	%R
MW-131WT	13C2_PFTeDA	Perfluoro-n-tetredecanoic acid (PFTeDA)	<50 but >20
MW-134WT	13C2_4:2FTS	1H,1H, 2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	>150
	13C2_6:2FTS	1H,1H, 2H,2H-perfluorooctane sulfonic acid (6:2 FTS)	>150
	13C2_8:2FTS	1H,1H, 2H,2H-perfluorodecane sulfonic acid (8:2 FTS)	>150
	13C4-PFBA	Perfluoro-n-butanoic acid	<50 but >20
B-3R	13C2_4:2FTS	1H,1H, 2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	>150
	13C2_6:2FTS	1H,1H, 2H,2H-perfluorooctane sulfonic acid (6:2 FTS)	>150
	13C2_8:2FTS	1H,1H, 2H,2H-perfluorodecane sulfonic acid (8:2 FTS)	>150
	13C2_PFTeDA	Perfluoro-n-tetredecanoic acid (PFTeDA)	<50 but >20
	13C5-PFPeA	Perfluoro-n-pentanoic acid (PFPeA)	<50 but >20
QPTW-13R	13C2_4:2FTS	1H,1H, 2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	>150
	13C2_6:2FTS	1H,1H, 2H,2H-perfluorooctane sulfonic acid (6:2 FTS)	>150
	13C2_8:2FTS	1H,1H, 2H,2H-perfluorodecane sulfonic acid (8:2 FTS)	>150
	13C2_PFDoA	Perfluoro-n-dodecanoic acid (PFDoA)	<50 but >20
	13C2_PFTeDA	Perfluoro-n-tetredecanoic acid (PFTeDA)	<20
	13C3-HFPO-DA	Hexafluoropropylene oxide dimer acid (GenX)	<50 but >20
	13C4-PFBA	Perfluoro-n-butanoic acid (PFBA)	<20
	13C4-PFHpA	Perfluoro-n-heptanoic acid (PFHpA)	<50 but >20
	13C5-PFHxA	Perfluoro-n-hexanoic acid (PFHxA)	<50 but >20
	13C5-PFPeA	Perfluoro-n-pentanoic acid (PFPeA)	<50 but >20
	13C8-PFOSA	Perfluoro-1-octansulfonamide	<50 but >20
DUP-11	13C2_4:2FTS	1H,1H, 2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	>150
	13C2_6:2FTS	1H,1H, 2H,2H-perfluorooctane sulfonic acid (6:2 FTS)	>150

Sample Locations	EIS	Associated Compound	%R
DUP-11	13C2_8:2FTS	1H,1H, 2H,2H-perfluorodecane sulfonic acid (8:2 FTS)	>150
	13C2_PFTeDA	Perfluoro-n-tetredecanoic acid (PFTeDA)	<50 but >20
	13C3-HFPO-DA	Hexafluoropropylene oxide dimer acid (GenX)	<50 but >20
	13C4-PFBA	Perfluoro-n-butanoic acid (PFBA)	<20
	13C4-PFHpA	Perfluoro-n-heptanoic acid (PFHpA)	<50 but >20
	13C5-PFHxA	Perfluoro-n-hexanoic acid (PFHxA)	<50 but >20
	13C5-PFPeA	Perfluoro-n-pentanoic acid (PFPeA)	<50 but >20
	13C8-PFOSA	Perfluoro-1-octansulfonamide	<50 but >20

The criteria used to evaluate the EIS recoveries are presented in the following table. In the case of an EIS deviation, the sample results associated with the EIS are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
< 50% but > 20%	Non-detect	UJ
	Detect	J
> 150%	Non-detect	No Action
	Detect	J
< 20%	Non-detect	R
	Detect	R

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within 50-150%. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within 30%.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD was not included in the data package.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
QPTW-13R / DUP-11	Perfluorohexanesulfonic acid	3.0 J	2.8 J	AC
	Perfluoro-n-octanoic acid	5.1	6.2	AC
	Perfluorooctanesulfonic acid	11	8.5	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR PFAs

PFAs: USEPA modified Method 537	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
LIQUID CHROMATOGRAPHY/MASS SPECTROMETRY (LC/MS/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Field blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate (MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field Duplicate (RPD)		X		X	
Extracted Internal Standards (EIS) Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Rachelle Borne

SIGNATURE: 

DATE: November 7, 2023

PEER REVIEW: Joseph C. Houser

DATE: November 10, 2023

CHAIN OF CUSTODY

CORRECTED SAMPLE ANALYSIS DATA SHEETS

Pace Analytical®

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www.pacelabs.com

Number 150099

Client: Arcadis U.S., Inc.	Report to Contact: Amanda Robinson, Scott Clearwater	Telephone No. / E-mail: 919-854-6072 / Amanda.Robinson@arcadis.com, 248-344-5970 / Scott.Clearwater@arcadis.com	Quote No.
Address: 28550 Cabot Drive	Sampler's Signature: x Austin Westhuis	Analysis (Attach list if more space is needed)	Page 1 of 1
City: Novi	State: MI	Zip Code: 48377	Printed Name: Austin Westhuis		Lot # Bar Code: YI15030
Project Name: Saginaw SMI			
Project No.: 30169042.37000	P.O. No.		

Sample ID / Description (Combines for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	Grab/Comp	Matrix: Aqueous	Matrix: Solid	Matrix: Other	No. of Containers by Preservative Type: Unpres.	HCl	H2SO4	HNO3	NaOH	NaHSO4	Other	PFAS
MW-108WT_091423	9/14/23	0945	G	X			X							X
MW-131WT_091423	9/14/23	1200	G	X			X							X
MW-134WT_091423	9/14/23	1220	G	X			X							X
B-3R_091423	9/14/23	1245	G	X			X							X
QPTW-13R_091423	9/14/23	1330	G	X			X							X
DUP-11_091423	9/14/23	—	G	X			X							X

Turn Around Time Required (Prior lab approval required for expedited TAT.): X Standard ☐ Rush (Specify)	Sample Disposal: ☐ Return to Client X Disposal by Lab	Possible Hazard Identification: X Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown	QC Requirements (Specify)		
1. Relinquished by: Austin Westhuis / Arcadis	Date: 9/14/23	Time: 1700	1. Received by: FedEx	Date	Time
2. Relinquished by	Date	Time	2. Received by	Date	Time
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by: FedEx	Date: 9/15/23	Time: 0936	4. Laboratory received by	Date: 9/15/23	Time: 1080

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY — Received on ice (Circle): (Yes) No Ice Pack — Receipt Temp: 1.4 °C — Isotp Blank: Y ☐ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: ME003N2-01

PACE ANALYTICAL SERVICES, LLC

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15030-001**

Description: **MW-108WT_091423** Matrix: **Aqueous**

Date Sampled: **09/14/2023 0945** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/29/2023 1925	ARC2	09/27/2023 1602	85922

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.2	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.2	0.60	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.2	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.2	0.78	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.2	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.2	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.2	0.67	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.2	0.84	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.37	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.70	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.64	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.7**	**J**	**3.6**	**0.50**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**2.1**	**J**	**3.6**	**0.54**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.6	0.40	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.6	0.62	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.45**	**J**	**3.6**	**0.41**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**1.6**	**J**	**3.6**	**0.74**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.6	0.49	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND	UJ	3.6	0.54	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**7.0**		**3.6**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	275	25-150
13C2_6:2FTS	N	193	25-150
13C2_8:2FTS		109	25-150
13C2_PFDoA		71	25-150
13C2_PFTeDA		45	25-150
13C3_PFBS		89	25-150
13C3_PFHxS		91	25-150
13C3-HFPO-DA		70	25-150
13C4_PFBA		48	25-150
13C4_PFHpA		81	25-150
13C5_PFHxA		90	25-150
13C5_PFPeA		69	25-150
13C6_PFDA		95	25-150
13C7_PFUdA		91	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **YI15030-001**
Description: **MW-108WT_091423**
Matrix: **Aqueous**
Date Sampled: **09/14/2023 0945**
Project Name: **Saginaw**
Date Received: **09/15/2023**
Project Number: **30169042**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		102	25-150
13C8_PFOS		97	25-150
13C8_PFOSA		92	10-150
13C9_PFNA		108	25-150
d5-EtFOSAA		83	25-150
d3-MeFOSAA		92	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15030-002**

Description: **MW-131WT_091423** Matrix: **Aqueous**

Date Sampled: **09/14/2023 1200** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/29/2023 1935	ARC2	09/27/2023 1602	85922

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.80	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.4**	**J**	**3.4**	**0.36**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**1.0**	**J**	**3.4**	**0.51**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**5.9**		**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**2.5**	**J**	**3.4**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.4	0.38	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.59	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**2.1**	**J**	**3.4**	**0.71**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND	UJ	3.4	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**7.4**		**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	261	25-150
13C2_6:2FTS	N	180	25-150
13C2_8:2FTS		97	25-150
13C2_PFDoA		57	25-150
13C2_PFTeDA		41	25-150
13C3_PFBS		83	25-150
13C3_PFHxS		79	25-150
13C3-HFPO-DA		71	25-150
13C4_PFBA		82	25-150
13C4_PFHpA		80	25-150
13C5_PFHxA		91	25-150
13C5_PFPeA		68	25-150
13C6_PFDA		95	25-150
13C7_PFUdA		71	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **YI15030-002**
Description: **MW-131WT_091423**
Matrix: **Aqueous**
Date Sampled: **09/14/2023 1200**
Project Name: **Saginaw**
Date Received: **09/15/2023**
Project Number: **30169042**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		95	25-150
13C8_PFOS		87	25-150
13C8_PFOSA		80	10-150
13C9_PFNA		111	25-150
d5-EtFOSAA		74	25-150
d3-MeFOSAA		85	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
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W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15030-003**

Description: **MW-134WT_091423** Matrix: **Aqueous**

Date Sampled: **09/14/2023 1220** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/29/2023 1946	ARC2	09/27/2023 1602	85922

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.0	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	7.0	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.0	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.0	0.77	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.0	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.0	0.66	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.0	0.82	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.68	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.7**	**J**	**3.5**	**0.48**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**6.4**	**J**	**3.5**	**0.53**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.5**	**J**	**3.5**	**0.39**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.60	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**3.7**		**3.5**	**0.73**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.5	0.48	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.5	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	275	25-150
13C2_6:2FTS	N	245	25-150
13C2_8:2FTS	N	157	25-150
13C2_PFDoA		68	25-150
13C2_PFTeDA		53	25-150
13C3_PFBS		84	25-150
13C3_PFHxS		80	25-150
13C3-HFPO-DA		61	25-150
13C4_PFBA		42	25-150
13C4_PFHpA		69	25-150
13C5_PFHxA		75	25-150
13C5_PFPeA		60	25-150
13C6_PFDA		96	25-150
13C7_PFUdA		89	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **YI15030-003**
Description: **MW-134WT_091423**
Matrix: **Aqueous**
Date Sampled: **09/14/2023 1220**
Project Name: **Saginaw**
Date Received: **09/15/2023**
Project Number: **30169042**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		86	25-150
13C8_PFOS		87	25-150
13C8_PFOSA		82	10-150
13C9_PFNA		97	25-150
d5-EtFOSAA		91	25-150
d3-MeFOSAA		85	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15030-004**

Description: **B-3R_091423** Matrix: **Aqueous**

Date Sampled: **09/14/2023 1245** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/29/2023 1956	ARC2	09/27/2023 1602	85922

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.0	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	7.0	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.0	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.0	0.77	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.0	0.66	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.0	0.82	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.68	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.9**	**J**	**3.5**	**0.48**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.5	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.60	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**3.3**	**J**	**3.5**	**0.73**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND	UJ	3.5	0.48	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND	UJ	3.5	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**13**		**3.5**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	273	25-150
13C2_6:2FTS	N	291	25-150
13C2_8:2FTS	N	204	25-150
13C2_PFDoA		53	25-150
13C2_PFTeDA		30	25-150
13C3_PFBS		85	25-150
13C3_PFHxS		80	25-150
13C3-HFPO-DA		60	25-150
13C4_PFBA		58	25-150
13C4_PFHpA		67	25-150
13C5_PFHxA		69	25-150
13C5_PFPeA		48	25-150
13C6_PFDA		95	25-150
13C7_PFUdA		77	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15030-004**

Description: **B-3R_091423** Matrix: **Aqueous**

Date Sampled: **09/14/2023 1245** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		92	25-150
13C8_PFOS		80	25-150
13C8_PFOSA		73	10-150
13C9_PFNA		94	25-150
d5-EtFOSAA		99	25-150
d3-MeFOSAA		97	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15030-005**

Description: **QPTW-13R_091423** Matrix: **Aqueous**

Date Sampled: **09/14/2023 1330** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/29/2023 2007	ARC2	09/27/2023 1602	85922

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.0	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	7.0	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.0	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.0	0.76	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND	UJ	7.0	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.0	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.0	0.81	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.68	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND	UJ	3.5	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.0**	**J**	**3.5**	**0.48**	**ng/L**	**1**
~~Perfluoro-n-butanoic acid (PFBA)~~	~~375-22-4~~	~~PFAS by ID SOP~~	~~ND~~	~~Q~~	~~3.5~~	~~0.52~~	~~ng/L~~	~~1~~ R
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND	UJ	3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND	UJ	3.5	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND	UJ	3.5	0.60	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**5.1**		**3.5**	**0.72**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND	Q UJ	3.5	0.47	ng/L	1
~~Perfluoro-n-tetradecanoic acid (PFTeDA)~~	~~376-06-7~~	~~PFAS by ID SOP~~	~~ND~~	~~Q~~	~~3.5~~	~~0.52~~	~~ng/L~~	~~1~~ R
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**11**		**3.5**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	197	25-150
13C2_6:2FTS	N	256	25-150
13C2_8:2FTS	N	249	25-150
13C2_PFDoA		36	25-150
13C2_PFTeDA	N	13	25-150
13C3_PFBS		62	25-150
13C3_PFHxS		63	25-150
13C3-HFPO-DA		38	25-150
13C4_PFBA	N	16	25-150
13C4_PFHpA		30	25-150
13C5_PFHxA		36	25-150
13C5_PFPeA	N	24	25-150
13C6_PFDA		65	25-150
13C7_PFUdA		57	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15030-005**

Description: **QPTW-13R_091423** Matrix: **Aqueous**

Date Sampled: **09/14/2023 1330** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		59	25-150
13C8_PFOS		63	25-150
13C8_PFOSA		38	10-150
13C9_PFNA		61	25-150
d5-EtFOSAA		76	25-150
d3-MeFOSAA		68	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15030-006**

Description: **DUP-11_091423** Matrix: **Aqueous**

Date Sampled: **09/14/2023** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/29/2023 2039	ARC2	09/27/2023 1602	85922

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.76	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND	UJ	6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.81	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND	UJ	3.5	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.8**	**J**	**3.5**	**0.48**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND	Q	3.5	0.52	ng/L	1 R
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND	UJ	3.5	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND	UJ	3.5	0.60	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**6.2**		**3.5**	**0.72**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND	UJ	3.5	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND	Q UJ	3.5	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**8.5**		**3.5**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	213	25-150
13C2_6:2FTS	N	267	25-150
13C2_8:2FTS	N	287	25-150
13C2_PFDoA		51	25-150
13C2_PFTeDA	N	22	25-150
13C3_PFBS		69	25-150
13C3_PFHxS		68	25-150
13C3-HFPO-DA		45	25-150
13C4_PFBA	N	17	25-150
13C4_PFHpA		37	25-150
13C5_PFHxA		36	25-150
13C5_PFPeA		27	25-150
13C6_PFDA		73	25-150
13C7_PFUdA		63	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15030-006**

Description: **DUP-11_091423** Matrix: **Aqueous**

Date Sampled: **09/14/2023** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		60	25-150
13C8_PFOS		71	25-150
13C8_PFOSA		45	10-150
13C9_PFNA		65	25-150
d5-EtFOSAA		84	25-150
d3-MeFOSAA		85	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
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J = Estimated result < LOQ and ≥ DL
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DATA REVIEW

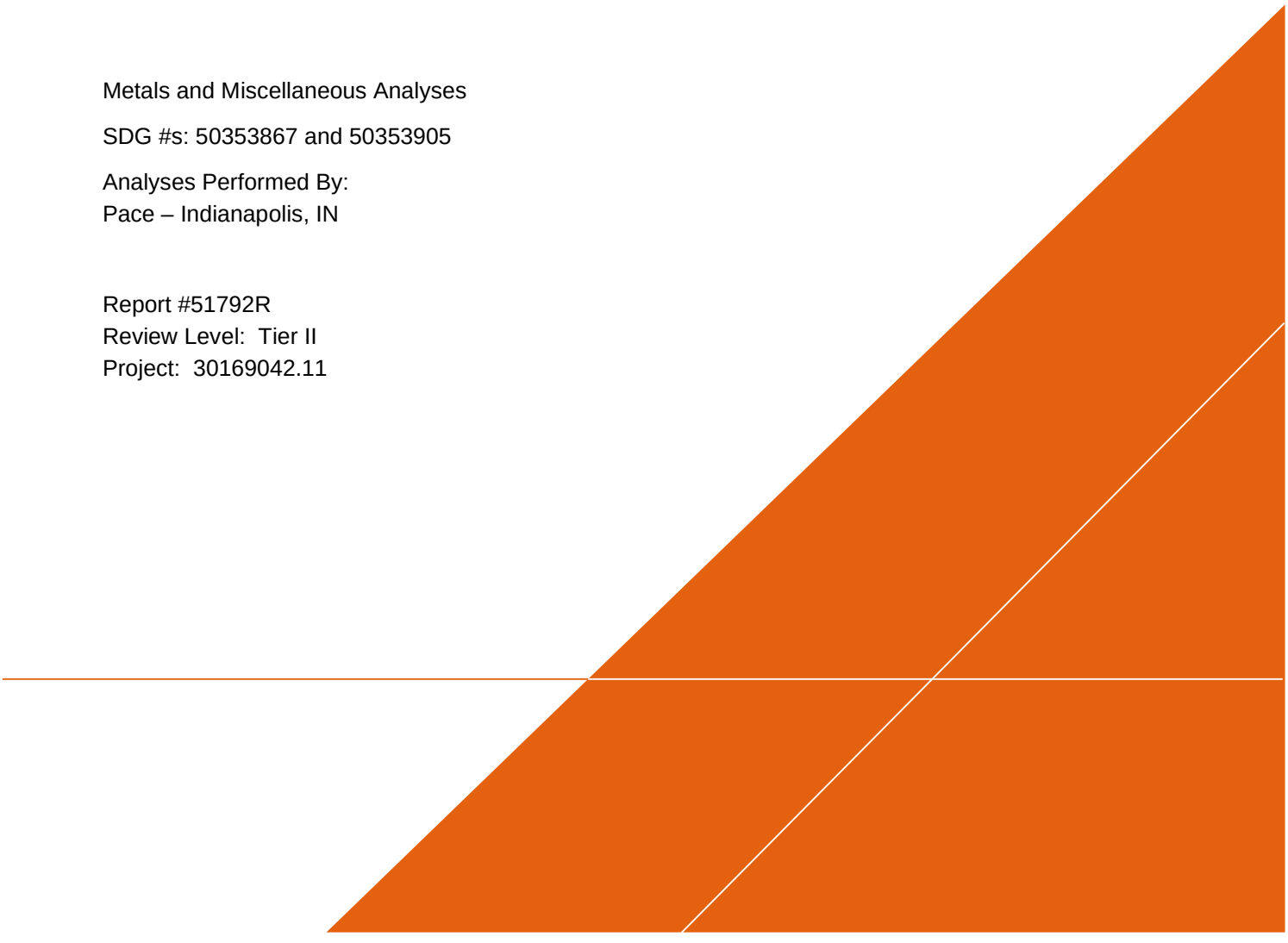
Saginaw, MI

Metals and Miscellaneous Analyses

SDG #s: 50353867 and 50353905

Analyses Performed By:
Pace – Indianapolis, IN

Report #51792R
Review Level: Tier II
Project: 30169042.11



SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 50353867 and 50353905 for samples collected in association with the Racer Saginaw, MI Site. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis					
					VOC	SVOC	EDB	PCB/ PEST	MET	MISC
MW-118WT	50353867-1	Water	09/13/23						X	X
MW-118SI	50353867-2	Water	09/13/23						X	X
MW-117WT	50353867-3	Water	09/13/23						X	X
MW-117SI	50353867-4	Water	09/13/23						X	X
MW-183WT	50353867-5	Water	09/13/23						X	X
X-4AR	50353867-6	Water	09/13/23						X	X
X-4CAUGR	50353867-7	Water	09/13/23						X	X
DUP-01	50353867-8	Water	09/13/23	X-4CAUGR						X
X-9D	50353867-9	Water	09/13/23						X	X
DUP-04	50353867-10	Water	09/13/23	X-9D						X
X-9CAUG	50353867-11	Water	09/13/23						X	X
X-9BR	50353867-12	Water	09/13/23						X	X
DUP-03	50353867-13	Water	09/13/23	X-9BR					X	
X-9AR	50353867-14	Water	09/13/23						X	X
X-4D	50353867-15	Water	09/13/23						X	X
DUP-02	50353867-16	Water	09/13/23	X-4D						X
MW-118WT	50353905-1	Water	09/13/23							X
MW-118SI	50353905-2	Water	09/13/23							X
MW-117WT	50353905-3	Water	09/13/23							X
MW-117SI	50353905-4	Water	09/13/23							X
MW-183WT	50353905-5	Water	09/13/23							X
X-4AR	50353905-6	Water	09/13/23							X
X-4CGAUGR	50353905-7	Water	09/13/23							X
DUP-01	50353905-8	Water	09/13/23	X-4CAUGR						X

DATA REVIEW REPORT

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis					
					VOC	SVOC	EDB	PCB/ PEST	MET	MISC
X-9D	50353905-9	Water	09/13/23							X
DUP-04	50353905-10	Water	09/13/23	X-9D						X
X-9CAUG	50353905-11	Water	09/13/23							X
X-9BR	50353905-12	Water	09/13/23							X
DUP-03	50353905-13	Water	09/13/23	X-4D						X
X-9AR	50353905-14	Water	09/13/23							X
X-4D	50353905-15	Water	09/13/23							X

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

Note:
QA - Quality Assurance

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Methods 6010, 300, and Standard Methods SM2540C, SM4500-NH3-G and SM4500-CN-E. Data were reviewed in accordance with USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA-542-R-20-006 (November 2020), with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, OSWER 9240.1-45, October 2004, as appropriate.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
  - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
  - E The reported value is estimated due to the presence of interference.
  - N Spiked sample recovery is not within control limits.
  - * Duplicate analysis is not within control limits.
- Validation Qualifiers
  - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
  - UB Analyte considered non-detect at the listed value due to associated blank contamination.
  - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6010	Water	180 days from collection to analysis	Preserved to a pH of less than 2.

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Matrix Spike (MS) and Matrix Spike Duplicate(MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS/MSD performed on sample X-9CAUG exhibited recoveries and RPDs within the control limits.

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

A laboratory duplicate was not included in the data package.

4 Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
X-9BR / DUP-03	Arsenic	5.1	6.1	AC
	Barium	265	209	23.6%
	Iron	22900	17400	27.3%
	Manganese	587	538	8.7%
	Sodium	279000	274000	1.8%
	Barium (D)	96.4	108	11.4%
	Iron (D)	6670	7330	9.4%
	Manganese (D)	421	441	4.6%
	Sodium (D)	209000	216000	3.3%

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. General Assessment – Total vs. Dissolved

When the dissolved concentration exceeded the associated total concentration, and both results were five times greater than the LOQ, then the %D between the total and dissolved concentrations must be less than 10%.

The calculated %D between the total and the dissolved sample results were within the control limit, with the exception of the analytes presented in the following table.

Sample Location	Analytes	%D
X-4AR	Sod0ium	13.5%
X-9D	Sodium	19.3%

The criteria used to evaluate total and dissolved %D are presented in the following table. In the case of a total and dissolved %D deviation, the sample results are qualified. The qualifications are applied to the associated total and dissolved sample results associated with the sample location referenced above.

Sample Concentration	Control Limit	Sample Result	Qualification
Dissolved sample concentration > total sample concentration and > 5x RL	>10%	Non-detect	UJ
		Detect	J
Dissolved sample concentration > total sample concentration and > 5x RL	>50%	Non-detect	R
		Detect	R

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR METAL

METALS; SW-846 6010	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Instrument Blanks	X				X
B. Method Blanks		X		X	
C. Equipment/Field Blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Total vs. Dissolved		X	X		
Reporting Limit Verification		X		X	

Notes:

%R Percent recovery

RPD Relative percent difference

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Anions by EPA 300.0	Water	28 days from collection to analysis	Cool to <6 °C.
Nitrate by EPA 300.0	Water	48 hours from collection to analysis	Cool to <6 °C.
Ammonia-N by SM4500-NH3G	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.
Total Dissolved Solids By SM2540C-11	Water	7 days from collection to analysis	Cool to <6 °C.
Cyanide by SM4500-CN-E	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH greater than 12.

The analyses that exceeded the holding are presented in the following table.

Sample Locations	Holding Time	Criteria
X-9CAUG (TDS)	15 days	<7 days
X-4D (Cyanide)	16 days	<14 days

Sample results associated with sample locations analyzed by analytical methods SM2450C-11 and SM4500-CN-E were qualified, as specified in the table below. All other holding times were met.

Criteria	Qualification	
	Detected Analytes	Non-detect Analytes
Analysis completed less than two times holding time	J	UJ
Analysis completed greater than two times holding time	J	R

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD)/Laboratory Duplicate Analysis

MS and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS/MSD performed on samples MW-183WT and X-9CAUG for the anions analysis exhibited recoveries and RPDs within the control limits.

The MS/MSD performed on sample X-9CAUG for the ammonia and cyanide analysis exhibited recoveries and RPDs within the control limits.

4.1 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

The laboratory duplicate performed on samples X-9CAUG and MW-117SI for the TDS analysis exhibited RPDs within the control limits.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
X-4CAUGR / DUP-01	Cyanide	U	U	AC
X-9D / DUP04	Chloride	1280	1130	12.4%
	Sulfate	242	263	8.3%
X-4D / DUP-02	TDS	2630	2120	21.5%

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
X-4D / DUP-02	Ammonia	6.8	6.6	3.0%

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

6. Laboratory Control Sample (LCS)

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS/LCSD analysis must exhibit a percent recovery between the control limits of 80% and 120%.

All LCS recoveries were within the control limits.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: Various Methods	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X	X		
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%R - percent recovery
RPD - relative percent difference,

VALIDATION PERFORMED BY: Rachelle Borne

SIGNATURE: 

DATE: November 8, 2023

PEER REVIEW: Joseph C. Houser

DATE: November 10, 2023

CHAIN OF CUSTODY

CORRECTED SAMPLE ANALYSIS DATA SHEETS

Pace® Location Requested (City/State):
Pace Analytical Indianapolis
7726 Moller Road, Indianapolis, IN 46268

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

WO# : 50353867

50353867

Company Name:	Arcadis U.S., Inc.	Contact/Report To:	Clearwater, Scott
Street Address:	28550 Cabot Drive, Novi, MI 48377	Phone #:	(810)225-1921
		E-Mail:	scott.clearwater@arcadis.com
		Cc E-Mail:	Amanda.Robinson@arcadis.com
Customer Project #:	30169042.11000	Invoice To:	Arcadis U.S., Inc.
Project Name:	Saginaw GPL	Invoice E-Mail:	
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [X] ET

County / State origin of sample(s): Michigan

Data Deliverables:
[ ] Level II [ ] Level III [ ] Level IV
[ ] EQUIS
[ ] Other_____

Regulatory Program (DW, RCRA, etc.) as applicable:

Rush (Pre-approval required):
[ ] 2 Day [ ] 3 day [ ] 5 day [ ] Other_____

Date Results Requested: STD 10 day TAT

DW PWSID # or WW Permit # as applicable:

Field Filtered (if applicable): [X] Yes [ ] No

Analysis: Dissolved Metals and Dissolved Cyanide

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Other (OT), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk

Specify Container Size **: 3 3 3 3 3 3 3 3

Identify Container Preservative Type***: 2 2 1 1 5 5 3 1

Analysis Requested

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Lab Use Only
Proj. Mgr: Olivia Deck
oliva.deck@pacelabs.com
AcctNum / Client ID:
Table #:
Profile / Template: 11397/3
Prelog / Bottle Ord. ID: 1142243

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res. CL2	Number & Type of Containers Total	Total Metals 6010*	FF Dissolved Metals 6010*	Chloride/Sulfate 300	Nitrate, Nitrite 300.0	Cyanide Total 335.4	Dissolved Cyandie-FF 335.4	Ammonia 350.1	TDS 2540	Sample Comment
MW-118WT_091323	GW	G	9/13/23	0915	—	—		7	X	X	X	X	X	X	X	X	001
MW-118SI_091323	GW	G	9/13/23	0955	—	—		7	X	X	X	X	X	X	X	X	002
MW-117WT_091323	GW	G	9/13/23	1015	—	—		7	X	X	X	X	X	X	X	X	003
MW-117SI_091323	GW	G	9/13/23	1035	—	—		7	X	X	X	X	X	X	X	X	004
MW-183WT_091323	GW	G	9/13/23	1155	—	—		7	X	X	X	X	X	X	X	X	005
X-4AR_091323	GW	G	9/13/23	1245	—	—		7	X	X	X	X	X	X	X	X	006
X-4CAUGR_091323	GW	G	9/13/23	1415	—	—		7	X	X	X	X	X	X	X	X	007
DUP-01_091323	GW	G	9/13/23	—	—	—		2					X	X			008

Preservation non-conformance identified for sample.

Customer Remarks / Special Conditions / Possible Hazards:
*Nitrate and Nitrite samples will be separate parameters not a combined result.
*Limited Volumes

Collected By:
Printed Name: Austin Westhuis
Signature:

Additional Instructions from Pace®:
Nitrate is 48HR Short Hold: 6010 As, Ba, Fe, Mn, Se, Na

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)
	see scan			

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Arcadis	9/13/23 1545	FedEx		
FedEx	9-14-23 9:15		9-14-23 9:15	Delivered by: [ ] In- Person [ ] Courier [✓] FedEX [ ] UPS [ ] Other
				Page: of

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

Pace® Location Requested (City/State):
Pace Analytical Indianapolis
7726 Moller Road, Indianapolis, IN 46268

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

Scan QR Code for instructions

Company Name:	Arcadis U.S., Inc.	Contact/Report To:	Clearwater, Scott
Street Address:	28550 Cabot Drive, Novi, MI 48377	Phone #:	(810)225-1921
		E-Mail:	scott.clearwater@arcadis.com
		Cc E-Mail:	Amanda.Robinson@arcadis.com
Customer Project #:	30169042.11000	Invoice To:	Arcadis U.S., Inc.
Project Name:	Saginaw GPL	Invoice E-Mail:	
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [X] ET

County / State origin of sample(s): Michigan

Data Deliverables: [ ] Level II [ ] Level III [ ] Level IV [ ] EQUIS [ ] Other_____

Regulatory Program (DW, RCRA, etc.) as applicable:

Rush (Pre-approval required): [ ] 2 Day [ ] 3 day [ ] 5 day [ ] Other_____

Date Results Requested: STD 10 day TAT

DW PWSID # or WW Permit # as applicable:

Field Filtered (if applicable): [X] Yes [ ] No

Analysis: Dissolved Metals and Dissolved Cyanide

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Other (OT), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res. Cl2	Number & Type of Containers Total	Specify Container Size **	Identify Container Preservative Type***	Total Metals 6010*	FF Dissolved Metals 6010*	Chloride/Sulfate 300	Nitrate, Nitrite 300.0	Cyanide Total 335.4	Dissolved Cyandie-FF 335.4	Ammonia 350.1	TDS 2540	Sample Comment
									3 3 3 3 3 3 3 3	2 2 1 1 5 5 3 1									
X-9D_091323	GW	G	9/13/23	845				7			1	1	1		1	1	1	1	009
DUP-04_091323	GW	G	9/13/23	—				1					1						010
X-9CAUG_091323	GW	G	9/13/23	945				21 ~~22~~			3	3	3		3	3	3	3	MS/MSD 011
X-9BR_091323	GW	G	9/13/23	1245				7			1	1	1		1	1	1	1	012
DUP-03_091323	GW	G	9/13/23	—				2			1	1							013
X-9AR_091323	GW	G	9/13/23	1330				7			1	1	1		1	1	1	1	014
X-4D	GW	G	9/13/23	1415				7			1	1	1		1	1	1	1	015
DUP-02_091323	GW	G	9/13/23	—				2									1	1	016

Lab Use Only

Proj. Mgr: Olivia Deck
oliva.deck@pacelabs.com

AcctNum / Client ID:

Table #:

Profile / Template: 11397/3

Prelog / Bottle Ord. ID: 1142243

Preservation non-conformance identified for sample:

Customer Remarks / Special Conditions / Possible Hazards:
* Nitrate and Nitrite samples will be separate parameters not a combined result.
** Limited Volumes

Collected By: Billy J. Cobern
Printed Name:
Signature:

Additional Instructions from Pace®:
Nitrate is 48HR Short Hold: 6010 As, Ba, Fe, Mn, Se, Na

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)

Relinquished by/Company: (Signature) ARCADIS	Date/Time: 9-13-23 1545	Received by/Company: (Signature) FedEx	Date/Time:	Tracking Number:
Relinquished by/Company: (Signature) FedEx	Date/Time: 9-14-23 9:15	Received by/Company: (Signature)	Date/Time: 9-14-23 9:15	Delivered by: [ ] In- Person [ ] Courier [✓] FedEX [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: of

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

F-IN-Q-290-rev.23, 26Jun2023

SAMPLE CONDITION UPON RECEIPT FORM

Date/Time and Initials of person examining contents: BC 9-14-23 10:38

1. **Courier:** ☑ FED EX ☐ UPS ☐ CLIENT ☐ PACE ☐ NOW/JETT ☐ OTHER _____

2. **Custody Seal on Cooler/Box Present:** ☑ Yes ☐ No

(If yes)Seals Intact: ☑ Yes ☐ No **(leave blank if no seals were present)**

3. **Thermometer:** 1 2 3 4 5 6 7 8 A B C D E F G H

4. **Cooler Temperature(s):** 0.3/0.3 | 0.6/0.6 | 0.5/0.5 | (Initial/Corrected) RECORD TEMPS OF ALL COOLERS RECEIVED (use Comments below to add more)

5. **Packing Material:** ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other _____

6. **Ice Type:** ☑ Wet ☐ Blue ☐ None

7. **If temp. is over 6°C or under 0°C, was the PM notified?:** ☐ Yes ☐ No
Cooler temp should be above freezing to 6°C

All discrepancies will be written out in the comments section below.

	Yes	No		Yes	No	N/A
USDA Regulated Soils? (HI, ID, NY, WA, OR,CA, NM, TX, OK, AR, LA, TN, AL, MS, NC, SC, GA, FL, or Puerto Rico)		✓	All containers needing acid/base preservation have been pH CHECKED?: **Exceptions: VOA, coliform, LLHg, O&G, RAD CHEM, and any container with a septum cap or preserved with HCl.** Circle: (HNO3 (<2)) (H2SO4 (<2)) (NaOH (>10)) NaOH/ZnAc (>9) Any non-conformance to pH recommendations will be noted on the container count form	✓		
Short Hold Time Analysis (48 hours or less)? Analysis: NO3	✓					
Time 5035A TC placed in Freezer or Short Holds To Lab	Time:			Present	Absent	N/A
			Residual Chlorine Check (SVOC 625 Pest/PCB 608)			✓
Rush TAT Requested (4 days or less):		✓	Residual Chlorine Check (Total/Amenable/Free Cyanide)		✓	
Custody Signatures Present?	✓		Headspace Wisconsin Sulfide?			✓
Containers Intact?:	✓		Headspace in VOA Vials (>6mm): See Containter Count form for details	Present	Absent	No VOA Vials Sent ✓
Sample Label (IDs/Dates/Times) Match COC?: Except TCs, which only require sample ID	✓		Trip Blank Present?		✓	
Extra labels on Terracore Vials? (soils only)			Trip Blank Custody Seals?:			✓

COMMENTS:

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: MW-118WT_091323 **Lab ID: 50353867001** Collected: 09/13/23 09:15 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/14/23 18:58	14797-65-0	
Nitrate as N	ND	mg/L	0.050	1		09/14/23 18:58	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**388**	mg/L	25.0	100		09/15/23 05:06	16887-00-6	
Sulfate	**0.30**	mg/L	0.25	1		09/14/23 18:58	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	**13.7**	ug/L	5.0	1	09/18/23 21:51	09/22/23 13:53	7440-38-2	
Barium	**354**	ug/L	10.0	1	09/18/23 21:51	09/22/23 13:53	7440-39-3	
Iron	**22400**	ug/L	100	1	09/18/23 21:51	09/22/23 13:53	7439-89-6	
Manganese	**779**	ug/L	10.0	1	09/18/23 21:51	09/22/23 13:53	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 13:53	7782-49-2	
Sodium	**98800**	ug/L	1000	1	09/18/23 21:51	09/22/23 13:53	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	**12.8**	ug/L	5.0	1	09/18/23 16:22	09/21/23 15:38	7440-38-2	
Barium, Dissolved	**266**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:38	7440-39-3	
Iron, Dissolved	**16000**	ug/L	100	1	09/18/23 16:22	09/21/23 15:38	7439-89-6	
Manganese, Dissolved	**791**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:38	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:38	7782-49-2	
Sodium, Dissolved	**85100**	ug/L	1000	1	09/18/23 16:22	09/21/23 15:38	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**1370**	mg/L	20.0	1		09/19/23 12:29		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**15.6**	mg/L	1.0	10	09/26/23 11:45	09/27/23 13:03	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/18/23 09:35	09/20/23 12:48	57-12-5	~~M5~~

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: MW-118S1_091323 **Lab ID: 50353867002** Collected: 09/13/23 09:55 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/14/23 20:07	14797-65-0	
Nitrate as N	ND	mg/L	0.050	1		09/14/23 20:07	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**153**	mg/L	25.0	100		09/15/23 05:41	16887-00-6	
Sulfate	**0.28**	mg/L	0.25	1		09/14/23 20:07	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	ND	ug/L	5.0	1	09/18/23 21:51	09/22/23 13:54	7440-38-2	
Barium	**99.9**	ug/L	10.0	1	09/18/23 21:51	09/22/23 13:54	7440-39-3	
Iron	**5400**	ug/L	100	1	09/18/23 21:51	09/22/23 13:54	7439-89-6	
Manganese	**187**	ug/L	10.0	1	09/18/23 21:51	09/22/23 13:54	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 13:54	7782-49-2	
Sodium	**30100**	ug/L	1000	1	09/18/23 21:51	09/22/23 13:54	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 16:22	09/21/23 15:40	7440-38-2	
Barium, Dissolved	**90.7**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:40	7440-39-3	
Iron, Dissolved	**4590**	ug/L	100	1	09/18/23 16:22	09/21/23 15:40	7439-89-6	
Manganese, Dissolved	**190**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:40	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:40	7782-49-2	
Sodium, Dissolved	**31000**	ug/L	1000	1	09/18/23 16:22	09/21/23 15:40	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**441**	mg/L	10.0	1		09/19/23 12:29		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**2.9**	mg/L	0.10	1	09/26/23 11:45	09/27/23 13:04	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/18/23 09:35	09/20/23 12:50	57-12-5	~~M5~~

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: MW-117WT_091323 **Lab ID: 50353867003** Collected: 09/13/23 10:15 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.50	10		09/14/23 21:34	14797-65-0	~~D3~~
Nitrate as N	ND	mg/L	0.050	1		09/14/23 21:17	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**3640**	mg/L	250	1000		09/19/23 22:16	16887-00-6	
Sulfate	**0.33**	mg/L	0.25	1		09/14/23 21:17	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	**15.4**	ug/L	5.0	1	09/18/23 21:51	09/22/23 13:56	7440-38-2	
Barium	**1540**	ug/L	10.0	1	09/18/23 21:51	09/22/23 13:56	7440-39-3	
Iron	**83400**	ug/L	100	1	09/18/23 21:51	09/22/23 13:56	7439-89-6	
Manganese	**3470**	ug/L	10.0	1	09/18/23 21:51	09/22/23 13:56	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 13:56	7782-49-2	
Sodium	**390000**	ug/L	3000	3	09/18/23 21:51	09/22/23 14:42	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 16:22	09/21/23 15:41	7440-38-2	
Barium, Dissolved	**1480**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:41	7440-39-3	
Iron, Dissolved	**77900**	ug/L	100	1	09/18/23 16:22	09/21/23 15:41	7439-89-6	
Manganese, Dissolved	**3420**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:41	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:41	7782-49-2	
Sodium, Dissolved	**382000**	ug/L	3000	3	09/18/23 16:22	09/21/23 16:07	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**6340**	mg/L	111	1		09/19/23 12:30		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**35.2**	mg/L	2.0	20	09/26/23 11:45	09/27/23 13:05	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/18/23 09:35	09/20/23 12:50	57-12-5	~~M5~~

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: MW-117S1_091323 **Lab ID: 50353867004** Collected: 09/13/23 10:35 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/14/23 21:52	14797-65-0	
Nitrate as N	**0.065**	mg/L	0.050	1		09/14/23 21:52	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**169**	mg/L	25.0	100		09/15/23 06:50	16887-00-6	
Sulfate	**2.6**	mg/L	0.25	1		09/14/23 21:52	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	ND	ug/L	5.0	1	09/18/23 21:51	09/22/23 13:57	7440-38-2	
Barium	**910**	ug/L	10.0	1	09/18/23 21:51	09/22/23 13:57	7440-39-3	
Iron	**3560**	ug/L	100	1	09/18/23 21:51	09/22/23 13:57	7439-89-6	
Manganese	**265**	ug/L	10.0	1	09/18/23 21:51	09/22/23 13:57	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 13:57	7782-49-2	
Sodium	**126000**	ug/L	1000	1	09/18/23 21:51	09/22/23 13:57	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 16:22	09/21/23 15:43	7440-38-2	
Barium, Dissolved	**862**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:43	7440-39-3	
Iron, Dissolved	**2260**	ug/L	100	1	09/18/23 16:22	09/21/23 15:43	7439-89-6	
Manganese, Dissolved	**211**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:43	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:43	7782-49-2	
Sodium, Dissolved	**123000**	ug/L	1000	1	09/18/23 16:22	09/21/23 15:43	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**814**	mg/L	20.0	1		09/19/23 12:35		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**5.2**	mg/L	0.10	1	09/26/23 11:45	09/27/23 13:06	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/18/23 09:35	09/20/23 12:52	57-12-5	M5

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: MW-183WT_091323 **Lab ID: 50353867005** Collected: 09/13/23 11:55 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/14/23 22:26	14797-65-0	
Nitrate as N	ND	mg/L	0.050	1		09/14/23 22:26	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**16.2**	mg/L	2.5	10		09/14/23 22:44	16887-00-6	
Sulfate	**1.1**	mg/L	0.25	1		09/14/23 22:26	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	**26.4**	ug/L	5.0	1	09/18/23 21:51	09/22/23 13:59	7440-38-2	
Barium	**94.1**	ug/L	10.0	1	09/18/23 21:51	09/22/23 13:59	7440-39-3	
Iron	**19700**	ug/L	100	1	09/18/23 21:51	09/22/23 13:59	7439-89-6	
Manganese	**1700**	ug/L	10.0	1	09/18/23 21:51	09/22/23 13:59	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 13:59	7782-49-2	
Sodium	**31700**	ug/L	1000	1	09/18/23 21:51	09/22/23 13:59	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	**6.1**	ug/L	5.0	1	09/18/23 16:22	09/21/23 15:44	7440-38-2	
Barium, Dissolved	**38.4**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:44	7440-39-3	
Iron, Dissolved	**3580**	ug/L	100	1	09/18/23 16:22	09/21/23 15:44	7439-89-6	
Manganese, Dissolved	**1290**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:44	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:44	7782-49-2	
Sodium, Dissolved	**31300**	ug/L	1000	1	09/18/23 16:22	09/21/23 15:44	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**344**	mg/L	10.0	1		09/19/23 12:36		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	ND	mg/L	0.10	1	09/26/23 11:45	09/27/23 12:42	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/18/23 09:35	09/20/23 12:53	57-12-5	M5

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-4AR_091323 **Lab ID: 50353867006** Collected: 09/13/23 12:45 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/14/23 23:01	14797-65-0	
Nitrate as N	**2.6**	mg/L	0.050	1		09/14/23 23:01	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**12.8**	mg/L	2.5	10		09/14/23 23:18	16887-00-6	
Sulfate	**1.2**	mg/L	0.25	1		09/14/23 23:01	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	**23.0**	ug/L	5.0	1	09/18/23 21:51	09/22/23 14:09	7440-38-2	
Barium	**223**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:09	7440-39-3	
Iron	**45300**	ug/L	100	1	09/18/23 21:51	09/22/23 14:09	7439-89-6	
Manganese	**3400**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:09	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 14:09	7782-49-2	
Sodium	**21800** J	ug/L	1000	1	09/18/23 21:51	09/22/23 14:09	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 16:22	09/21/23 15:46	7440-38-2	
Barium, Dissolved	**23.6**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:46	7440-39-3	
Iron, Dissolved	ND	ug/L	100	1	09/18/23 16:22	09/21/23 15:46	7439-89-6	
Manganese, Dissolved	**156**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:46	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:46	7782-49-2	
Sodium, Dissolved	**25200** J	ug/L	1000	1	09/18/23 16:22	09/21/23 15:46	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**339**	mg/L	10.0	1		09/19/23 12:36		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**0.12**	mg/L	0.10	1	09/26/23 11:45	09/27/23 12:43	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/18/23 09:35	09/20/23 12:55	57-12-5	~~M5~~

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-4CAUGR_091323 **Lab ID: 50353867007** Collected: 09/13/23 14:15 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/15/23 01:20	14797-65-0	
Nitrate as N	ND	mg/L	0.050	1		09/15/23 01:20	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**13.9**	mg/L	2.5	10		09/15/23 01:38	16887-00-6	
Sulfate	**0.65**	mg/L	0.25	1		09/15/23 01:20	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	ND	ug/L	5.0	1	09/18/23 21:51	09/22/23 14:11	7440-38-2	
Barium	**64.7**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:11	7440-39-3	
Iron	**5700**	ug/L	100	1	09/18/23 21:51	09/22/23 14:11	7439-89-6	
Manganese	**420**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:11	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 14:11	7782-49-2	
Sodium	**36500**	ug/L	1000	1	09/18/23 21:51	09/22/23 14:11	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 16:22	09/21/23 15:47	7440-38-2	
Barium, Dissolved	**41.5**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:47	7440-39-3	
Iron, Dissolved	ND	ug/L	100	1	09/18/23 16:22	09/21/23 15:47	7439-89-6	
Manganese, Dissolved	**342**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:47	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:47	7782-49-2	
Sodium, Dissolved	**38300**	ug/L	1000	1	09/18/23 16:22	09/21/23 15:47	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**381**	mg/L	10.0	1		09/19/23 12:36		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**0.31**	mg/L	0.10	1	09/26/23 11:45	09/27/23 12:44	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 13:23	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: DUP-01_091323 **Lab ID: 50353867008** Collected: 09/13/23 08:00 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 13:25	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-9D_091323 **Lab ID: 50353867009** Collected: 09/13/23 08:45 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.50	10		09/14/23 18:40	14797-65-0	D3
Nitrate as N	ND	mg/L	0.050	1		09/14/23 18:23	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**1130**	mg/L	25.0	100		09/15/23 04:48	16887-00-6	
Sulfate	**263**	mg/L	2.5	10		09/14/23 18:40	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	ND	ug/L	5.0	1	09/18/23 21:51	09/22/23 14:12	7440-38-2	
Barium	**64.1**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:12	7440-39-3	
Iron	**3740**	ug/L	100	1	09/18/23 21:51	09/22/23 14:12	7439-89-6	
Manganese	**279**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:12	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 14:12	7782-49-2	
Sodium	**455000** J	ug/L	3000	3	09/18/23 21:51	09/22/23 14:43	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 16:22	09/21/23 15:49	7440-38-2	
Barium, Dissolved	**62.0**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:49	7440-39-3	
Iron, Dissolved	**2330**	ug/L	100	1	09/18/23 16:22	09/21/23 15:49	7439-89-6	
Manganese, Dissolved	**267**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:49	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:49	7782-49-2	
Sodium, Dissolved	**564000** J	ug/L	5000	5	09/18/23 16:22	09/21/23 16:09	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**2560**	mg/L	40.0	1		09/19/23 12:36		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**5.7**	mg/L	0.10	1	09/26/23 11:45	09/27/23 12:45	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 13:25	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: DUP-04_091323 **Lab ID: 50353867010** Collected: 09/13/23 08:00 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/15/23 04:14	14797-65-0	
Nitrate as N	ND	mg/L	0.050	1		09/15/23 04:14	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**1280**	mg/L	25.0	100		09/15/23 09:26	16887-00-6	
Sulfate	**242**	mg/L	2.5	10		09/15/23 04:31	14808-79-8	

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7726 Moller Road
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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-9CAUG_091323 **Lab ID: 50353867011** Collected: 09/13/23 09:45 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/14/23 19:32	14797-65-0	
Nitrate as N	ND	mg/L	0.050	1		09/14/23 19:32	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**63.9**	mg/L	2.5	10		09/14/23 19:50	16887-00-6	
Sulfate	**0.27**	mg/L	0.25	1		09/14/23 19:32	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	ND	ug/L	5.0	1	09/18/23 21:51	09/22/23 14:14	7440-38-2	
Barium	**263**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:14	7440-39-3	
Iron	**21200**	ug/L	100	1	09/18/23 21:51	09/22/23 14:14	7439-89-6	
Manganese	**745**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:14	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 14:14	7782-49-2	
Sodium	**31300**	ug/L	1000	1	09/18/23 21:51	09/22/23 14:14	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 16:22	09/21/23 15:50	7440-38-2	
Barium, Dissolved	**138**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:50	7440-39-3	
Iron, Dissolved	**6890**	ug/L	100	1	09/18/23 16:22	09/21/23 15:50	7439-89-6	
Manganese, Dissolved	**595**	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:50	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 15:50	7782-49-2	
Sodium, Dissolved	**26800**	ug/L	1000	1	09/18/23 16:22	09/21/23 15:50	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**633** J	mg/L	14.3	1		09/28/23 11:19		~~H5~~
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**2.1**	mg/L	0.10	1	09/26/23 11:45	09/27/23 12:46	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:21	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-9BR_091323 **Lab ID: 50353867012** Collected: 09/13/23 12:45 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/14/23 23:36	14797-65-0	
Nitrate as N	ND	mg/L	0.050	1		09/14/23 23:36	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**253**	mg/L	25.0	100		09/15/23 08:17	16887-00-6	
Sulfate	**0.46**	mg/L	0.25	1		09/14/23 23:36	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	**5.1**	ug/L	5.0	1	09/18/23 21:51	09/22/23 14:25	7440-38-2	
Barium	**265**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:25	7440-39-3	
Iron	**22900**	ug/L	100	1	09/18/23 21:51	09/22/23 14:25	7439-89-6	
Manganese	**587**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:25	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 14:25	7782-49-2	
Sodium	**279000**	ug/L	3000	3	09/18/23 21:51	09/22/23 14:45	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 16:22	09/21/23 16:01	7440-38-2	
Barium, Dissolved	**96.4**	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:01	7440-39-3	
Iron, Dissolved	**6670**	ug/L	100	1	09/18/23 16:22	09/21/23 16:01	7439-89-6	
Manganese, Dissolved	**421**	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:01	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:01	7782-49-2	
Sodium, Dissolved	**209000**	ug/L	2000	2	09/18/23 16:22	09/21/23 16:15	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**920**	mg/L	20.0	1		09/19/23 12:37		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**11.1**	mg/L	0.50	5	09/26/23 11:45	09/27/23 13:07	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:24	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: DUP-03_091323 **Lab ID: 50353867013** Collected: 09/13/23 08:00 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	**6.1**	ug/L	5.0	1	09/18/23 21:51	09/22/23 14:26	7440-38-2	
Barium	**209**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:26	7440-39-3	
Iron	**17400**	ug/L	100	1	09/18/23 21:51	09/22/23 14:26	7439-89-6	
Manganese	**538**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:26	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 14:26	7782-49-2	
Sodium	**274000**	ug/L	3000	3	09/18/23 21:51	09/22/23 14:47	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 16:22	09/21/23 16:03	7440-38-2	
Barium, Dissolved	**108**	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:03	7440-39-3	
Iron, Dissolved	**7330**	ug/L	100	1	09/18/23 16:22	09/21/23 16:03	7439-89-6	
Manganese, Dissolved	**441**	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:03	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:03	7782-49-2	
Sodium, Dissolved	**216000**	ug/L	2000	2	09/18/23 16:22	09/21/23 16:17	7440-23-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-9AR_091323 **Lab ID: 50353867014** Collected: 09/13/23 13:30 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/15/23 00:45	14797-65-0	
Nitrate as N	ND	mg/L	0.050	1		09/15/23 00:45	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**8.9**	mg/L	0.25	1		09/15/23 00:45	16887-00-6	
Sulfate	**4.1**	mg/L	0.25	1		09/15/23 00:45	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	**117**	ug/L	5.0	1	09/18/23 21:51	09/22/23 14:28	7440-38-2	
Barium	**757**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:28	7440-39-3	
Iron	**82300**	ug/L	100	1	09/18/23 21:51	09/22/23 14:28	7439-89-6	
Manganese	**2670**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:28	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 14:28	7782-49-2	
Sodium	**16300**	ug/L	1000	1	09/18/23 21:51	09/22/23 14:28	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	**19.8**	ug/L	5.0	1	09/18/23 16:22	09/21/23 16:04	7440-38-2	
Barium, Dissolved	**105**	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:04	7440-39-3	
Iron, Dissolved	**23600**	ug/L	100	1	09/18/23 16:22	09/21/23 16:04	7439-89-6	
Manganese, Dissolved	**2230**	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:04	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:04	7782-49-2	
Sodium, Dissolved	**11500**	ug/L	1000	1	09/18/23 16:22	09/21/23 16:04	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**515**	mg/L	10.0	1		09/19/23 12:37		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**0.19**	mg/L	0.10	1	09/26/23 11:45	09/27/23 13:08	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:26	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-4D_091323 **Lab ID: 50353867015** Collected: 09/13/23 14:15 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Nitrite as N	ND	mg/L	0.050	1		09/15/23 03:04	14797-65-0	
Nitrate as N	**0.091**	mg/L	0.050	1		09/15/23 03:04	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Indianapolis							
Chloride	**1190**	mg/L	25.0	100		09/15/23 09:09	16887-00-6	
Sulfate	**172**	mg/L	2.5	10		09/15/23 03:22	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic	ND	ug/L	5.0	1	09/18/23 21:51	09/22/23 14:29	7440-38-2	
Barium	**115**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:29	7440-39-3	
Iron	**8920**	ug/L	100	1	09/18/23 21:51	09/22/23 14:29	7439-89-6	
Manganese	**324**	ug/L	10.0	1	09/18/23 21:51	09/22/23 14:29	7439-96-5	
Selenium	ND	ug/L	25.0	1	09/18/23 21:51	09/22/23 14:29	7782-49-2	
Sodium	**627000**	ug/L	5000	5	09/18/23 21:51	09/22/23 14:48	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	ND	ug/L	5.0	1	09/18/23 16:22	09/21/23 16:06	7440-38-2	
Barium, Dissolved	**73.3**	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:06	7440-39-3	
Iron, Dissolved	**892**	ug/L	100	1	09/18/23 16:22	09/21/23 16:06	7439-89-6	
Manganese, Dissolved	**189**	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:06	7439-96-5	
Selenium, Dissolved	ND	ug/L	10.0	1	09/18/23 16:22	09/21/23 16:06	7782-49-2	
Sodium, Dissolved	**630000**	ug/L	5000	5	09/18/23 16:22	09/21/23 16:18	7440-23-5	
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**2630**	mg/L	20.0	1		09/19/23 12:37		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**6.8**	mg/L	0.10	1	09/26/23 11:45	09/27/23 12:53	7664-41-7	
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:27	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: DUP-02_091323 **Lab ID: 50353867016** Collected: 09/13/23 08:00 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**2120**	mg/L	40.0	1		09/19/23 12:38		
4500 Ammonia Water, Distilled	Analytical Method: SM 4500-NH3 G Preparation Method: SM 4500-NH3 B Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**6.6**	mg/L	0.10	1	09/26/23 11:45	09/27/23 12:54	7664-41-7	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: MW-118WT_091323 DISS **Lab ID: 50353905001** Collected: 09/13/23 09:15 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:29	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: MW-118S1_091323 DISS **Lab ID: 50353905002** Collected: 09/13/23 09:55 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:31	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: MW-117WT_091323 DISS **Lab ID: 50353905003** Collected: 09/13/23 10:15 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:31	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: MW-117S1_091323 DISS **Lab ID: 50353905004** Collected: 09/13/23 10:35 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:36	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: MW-183WT_091323 DISS **Lab ID: 50353905005** Collected: 09/13/23 11:55 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:36	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-4AR_091323 DISS **Lab ID: 50353905006** Collected: 09/13/23 12:45 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:38	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-4CAUGR_091323 DISS **Lab ID: 50353905007** Collected: 09/13/23 14:15 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:39	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: DUP-01_091323 DISS **Lab ID: 50353905008** Collected: 09/13/23 08:00 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:41	57-12-5	

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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-9D_091323 DISS **Lab ID: 50353905009** Collected: 09/13/23 08:45 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:41	57-12-5	

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-9CAUG_091323 DISS **Lab ID: 50353905011** Collected: 09/13/23 09:45 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:43	57-12-5	

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Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-9BR_091323 DISS **Lab ID: 50353905012** Collected: 09/13/23 12:45 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 15:46	57-12-5	

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Indianapolis, IN 46268
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ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-9AR_091323 DISS **Lab ID: 50353905014** Collected: 09/13/23 13:30 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND	mg/L	0.0050	1	09/19/23 11:19	09/20/23 13:58	57-12-5	

REPORT OF LABORATORY ANALYSIS

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7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Saginaw GPL
Pace Project No.: 50353867

Sample: X-4D_091323 DISS **Lab ID: 50353905015** Collected: 09/13/23 14:15 Received: 09/14/23 09:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide	Analytical Method: SM 4500-CN-E Preparation Method: SM 4500-CN-C Pace Analytical Services - Indianapolis							
Cyanide	ND UJ	mg/L	0.0060	1	09/29/23 09:32	09/29/23 13:25	57-12-5	~~H1,T3~~

REPORT OF LABORATORY ANALYSIS

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Racer

DATA REVIEW

Saginaw, MI

Per- and Polyfluoroalkyl Substances (PFAS) Analysis

SDG # YI15023

Analyses Performed By:
Pace Analytical – West Columbia, SC

Report #51790R
Review Level: Tier II
Project: 30169042.11

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) #YI15023 for samples collected in association with the Racer Saginaw, MI Site. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
					PFAS	SVOC	PCB	MET	MISC
MW-118WT	YI15023-1	Water	09/13/23		X				
MW-117WT	YI15023-2	Water	09/13/23		X				
MW-117SI	YI15023-3	Water	09/13/23		X				
MW-183WT	YI15023-4	Water	09/13/23		X				
X-9AR	YI15023-5	Water	09/13/23		X				
MW-122WT	YI15023-6	Water	09/13/23		X				
MW-125WT	YI15023-7	Water	09/13/23		X				
TWW-1	YI15023-8	Water	09/13/23		X				
X-10AR2	YI15023-9	Water	09/13/23		X				
X-2A	YI15023-10	Water	09/13/23		X				
DUP-05	YI15023-11	Water	09/13/23	X-2A	X				

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

Note:
QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Modified Method 537. Data were reviewed in accordance with the USEPA National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540-R-20-005, November 2020 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999 as appropriate) and USEPA Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537, EPA 910-R-18-001, November 2018; and Department of Defense (DoD) Quality Systems Manual (QSM) 5.3, DoD Final General Data Validation Guidelines, November 2019.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
  - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
  - UB Compound considered non-detect at the listed value due to associated blank contamination.
  - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
  - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and

provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) ANALYSIS

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
USEPA modified Method 537	Water	28 days to extraction; 28 days from extraction to analysis	Cool to <6 °C

All samples were initially analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method, field, and equipment blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Equipment blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (DL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the DL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Extracted Internal Standard (EIS)/Surrogate Compounds

Labeled standards must be added to all field samples and QC samples prior to extraction. EIS recoveries must be within DoD QSM 5.3 specified limits of 50% to150%.

Sample locations associated with EIS exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	EIS	Associated Compound	%R
MW-118WT	13C2_4:2FTS	1H,1H, 2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	>150
	13C2_6:2FTS	1H,1H, 2H,2H-perfluorooctane sulfonic acid (6:2 FTS)	>150
	13C2_PFTeDA	Perfluoro-n-tetredecanoic acid (PFTeDA)	<50 but >20
MW-117WT	13C2_4:2FTS	1H,1H, 2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	>150
MW-117SI	13C2_4:2FTS	1H,1H, 2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	>150
	13C2_6:2FTS	1H,1H, 2H,2H-perfluorooctane sulfonic acid (6:2 FTS)	>150

Sample Locations	EIS	Associated Compound	%R
MW-117SI	13C2_PFTeDA	Perfluoro-n-tetredecanoic acid (PFTeDA)	<50 but >20
MW-183WT	13C2_4:2FTS	1H,1H, 2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	>150
	13C2_6:2FTS	1H,1H, 2H,2H-perfluorooctane sulfonic acid (6:2 FTS)	>150
	13C2_PFTeDA	Perfluoro-n-tetredecanoic acid (PFTeDA)	<50 but >20
X-9AR	13C2_4:2FTS	1H,1H, 2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	>150
	13C2_6:2FTS	1H,1H, 2H,2H-perfluorooctane sulfonic acid (6:2 FTS)	>150
MW-122WT	13C2_4:2FTS	1H,1H, 2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	>150
MW-125WT	13C2_4:2FTS	1H,1H, 2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	>150
	13C2_6:2FTS	1H,1H, 2H,2H-perfluorooctane sulfonic acid (6:2 FTS)	>150
TWW-1	13C2_4:2FTS	1H,1H, 2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	>150
	13C2_6:2FTS	1H,1H, 2H,2H-perfluorooctane sulfonic acid (6:2 FTS)	>150
X-10AR2	13C2_4:2FTS	1H,1H, 2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	>150
X-2A	13C2_4:2FTS	1H,1H, 2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	>150
	13C2_6:2FTS	1H,1H, 2H,2H-perfluorooctane sulfonic acid (6:2 FTS)	>150
	13C2_8:2FTS	1H,1H, 2H,2H-perfluorodecane sulfonic acid (8:2 FTS)	>150
	13C2_PFTeDA	Perfluoro-n-tetredecanoic acid (PFTeDA)	<50 but >20
	13C2_PFPeA	Perfluoro-n-pentanoic acid (PFPeA)	<50 but >20
DUP-05	13C2_4:2FTS	1H,1H, 2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	>150
	13C2_6:2FTS	1H,1H, 2H,2H-perfluorooctane sulfonic acid (6:2 FTS)	>150
	13C2_8:2FTS	1H,1H, 2H,2H-perfluorodecane sulfonic acid (8:2 FTS)	>150

Sample Locations	EIS	Associated Compound	%R
DUP-05	13C2_PFTeDA	Perfluoro-n-tetredecanoic acid (PFTeDA)	<50 but >20
	13C2_PFPeA	Perfluoro-n-pentanoic acid (PFPeA)	<50 but >20

The criteria used to evaluate the EIS recoveries are presented in the following table. In the case of an EIS deviation, the sample results associated with the EIS are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
< 50% but > 20%	Non-detect	UJ
	Detect	J
> 150%	Non-detect	No Action
	Detect	J
< 20%	Non-detect	R
	Detect	R

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within 50-150%. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within 30%.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD performed on sample X-10AR2 exhibited recoveries and RPDs within the control limits.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
X-2A / DUP-05	Perfluorohexanesulfonic acid	3.3 J	3.4 J	AC
	Perfluoro-n-butanoic acid	6.7	6.6	AC
	Perfluoro-n-heptanoic acid	2.0 J	2.0 J	AC
	Perfluoro-n-hexanoic acid	5.5	4.1 U	AC
	Perfluoro-n-nonanoic acid	3.4 U	0.54 J	AC
	Perfluoro-n-octanoic acid	22	23	4.4%
	Perfluorooctanesulfonic acid	16	20	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR PFAs

PFAs: USEPA modified Method 537	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
LIQUID CHROMATOGRAPHY/MASS SPECTROMETRY (LC/MS/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Field blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field Duplicate (RPD)		X		X	
Extracted Internal Standards (EIS) Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Rachelle Borne

SIGNATURE: 

DATE: November 6, 2023

PEER REVIEW: Joseph C. Houser

DATE: November 10, 2023

CHAIN OF CUSTODY

CORRECTED SAMPLE ANALYSIS DATA SHEETS

Pace Analytical®

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Number 150097

Client: Arcadis U.S., Inc.	Report to Contact: Amanda Robinson, Scott Clearwater	Telephone No. / Email: 989-854-8672 / Amanda.Robinson@arcadis.com; 248-374-5976 / Scott.Clearwater@arcadis.com	Page 1 of 2
Address: 28550 Cabot Drive	Sampler's Signature: x Austin Westhuis	Analysis (Attach list if more space is needed)	
City: Novi; State: MI; Zip Code: 48377	Printed Name: Austin Westhuis		
Project Name: Saginaw GPL			
Project No.: 30190042.37000	P.O. No.		

Sample ID / Description (Containers for each sample may be combined on one line)	Collection Date(s)	Collection Time (Military)	Sample Type (G=Grab, C=Composite)	Matrix: Aqueous	Matrix: Solid	Matrix: Non-Aqueous	No of Containers by Preservative Type: Unpres	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Zinc Acetate	PFAS	Remarks / Cooler I.D.
MW-118WT_091323	9/13/23	0915	G	X			X							X	
MW-117WT_091323	9/13/23	1015	G	X			X							X	
MW-117S1_091323	9/13/23	1035	G	X			X							X	
MW-183WT_091323	9/13/23	1155	G	X			X							X	
X-9AR_091323	9/13/23	1330	G	X			X							X	
MW-122WT_091323	9/13/23	1620	G	X			X							X	
MW-125WT_091323	9/13/23	1735	G	X			X							X	
TWW-1_091323	9/13/23	1750	G	X			X							X	
X-10AR2_091323	9/13/23	1810	G	X			X							X	
X-2A_091323	9/13/23	1830	G	X			X							X	MS/MSD

Lot # for Code: Y115023 KES2

Turn Around Time Required (Prior lab approval required for expedited TAT.): ☒ Standard ☐ Rush (Specify)

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

	Date	Time
1. Relinquished by: Austin Westhuis / Arcadis	9/14/23	1700
2. Relinquished by:		
3. Relinquished by:		
4. Relinquished by:	9/15/23	1030

	Date	Time
1. Received by:		
2. Received by:		
3. Received by:		
4. Laboratory received by:	9/15/23	1030

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Circle): (Yes) No Ice Pack: Receipt Temp: 1.4 °C Temp Blank: ☐ Y ☐ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

* Limited Sample Volumes

Document Number: ME003N2-01

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www.pacelabs.com

Number 150098

Client: Arcadis U.S., Inc.	Report to Contact: Amanda Robinson, Scott Clearwater	Telephone No. / E-mail: 989-854-3672 / Amanda.Robinson@arcadis.com; 248-346-5970 / Scott.Clearwater@arcadis.com	Quote No.
Address: 28550 Cabot Drive	Sampler's Signature: x	Analysis (Attach list if more space is needed)	Page 2 of 2
City: Novi; State: MI; Zip Code: 48377	Printed Name: Austin Westhuis		
Project Name: Saginaw GPL			

Pace Lab No.: YI15023

Project No.	P.O. No.	Collection Date(s)	Collection Time (Military)	Grab/Comp/Composite	Matrix: Aqueous	Solid	Non Aqueous	No of Containers by Preservative Type: Unpres	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Field Filtered	PFAS	Remarks / Cooler I.D.
Sample ID / Description (Containers for each sample may be combined on one line.)																
DUP-05_091323	9/13/23			6	X			X							X	

Turn Around Time Required (Prior lab approval required for expedited TAT): ☑ Standard ☐ Rush (Specify)

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished by: Austin Westhuis / Arcadis	9/14/23	1700	1. Received by: FedEx		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by: FedEx	9/15/23	1030	4. Laboratory received by	9/15/23	1630

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY — Received on Ice (Circle): (Yes) No — Ice Pack — Receipt Temp. 1.4 °C — Temp Blank: ☒ Y ☐ N

DISTRIBUTION: WHITE & YELLOW Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: ME003N2-01

PACE ANALYTICAL SERVICES, LLC

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-001**

Description: **MW-118WT_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 0915** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	10/02/2023 1713	ARC2	09/21/2023 1924	85448

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	0.59	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.1	0.77	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	0.66	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	0.82	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.9**	**J**	**3.5**	**0.37**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.69	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.5	0.49	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**110**		**3.5**	**0.53**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**5.6**		**3.5**	**0.40**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**35**		**3.5**	**0.61**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**7.0**		**3.5**	**0.73**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**13**		**3.5**	**0.48**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND	UJ	3.5	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.5	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	322	25-150
13C2_6:2FTS	N	310	25-150
13C2_8:2FTS		144	25-150
13C2_PFDoA		79	25-150
13C2_PFTeDA		44	25-150
13C3_PFBS		87	25-150
13C3_PFHxS		100	25-150
13C3-HFPO-DA		64	25-150
13C4_PFBA		62	25-150
13C4_PFHpA		90	25-150
13C5_PFHxA		80	25-150
13C5_PFPeA		63	25-150
13C6_PFDA		107	25-150
13C7_PFUdA		105	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **YI15023-001**
Description: **MW-118WT_091323**
Matrix: **Aqueous**
Date Sampled: **09/13/2023 0915**
Project Name: **Saginaw**
Date Received: **09/15/2023**
Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		108	25-150
13C8_PFOS		97	25-150
13C8_PFOSA		90	10-150
13C9_PFNA		109	25-150
d5-EtFOSAA		125	25-150
d3-MeFOSAA		96	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-002**

Description: **MW-117WT_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1015** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/29/2023 1749	ARC2	09/21/2023 1924	85448

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		80	4.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		80	6.6	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		80	16	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		80	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	80	8.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		80	21	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		80	4.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		80	7.5	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		80	9.3	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		40	4.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		40	7.8	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		40	5.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		40	7.1	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		40	6.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		40	5.9	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		40	5.5	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**280**		**40**	**6.0**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		40	5.2	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		40	4.7	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		40	4.5	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**91**		**40**	**6.9**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		40	4.6	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		40	8.3	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**45**		**40**	**5.4**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		40	6.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		40	5.3	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		40	6.3	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		40	20	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	212	25-150
13C2_6:2FTS		126	25-150
13C2_8:2FTS		102	25-150
13C2_PFDoA		76	25-150
13C2_PFTeDA		69	25-150
13C3_PFBS		100	25-150
13C3_PFHxS		100	25-150
13C3-HFPO-DA		93	25-150
13C4_PFBA		84	25-150
13C4_PFHpA		95	25-150
13C5_PFHxA		109	25-150
13C5_PFPeA		96	25-150
13C6_PFDA		101	25-150
13C7_PFUdA		86	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-002**

Description: **MW-117WT_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1015** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		98	25-150
13C8_PFOS		98	25-150
13C8_PFOSA		93	10-150
13C9_PFNA		107	25-150
d5-EtFOSAA		74	25-150
d3-MeFOSAA		86	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-003**

Description: **MW-117SI_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1035** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/27/2023 1408	ARC2	09/25/2023 2013	85696

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.2	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.2	0.60	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.2	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.2	0.79	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.2	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.2	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.2	0.68	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.2	0.84	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.38	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.70	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.64	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.50	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**1.7**	**J**	**3.6**	**0.54**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.6	0.40	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**1.2**	**J**	**3.6**	**0.62**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.6	0.75	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.7**	**J**	**3.6**	**0.49**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND	UJ	3.6	0.54	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.57	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**2.9**	**J**	**3.6**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	353	25-150
13C2_6:2FTS	N	195	25-150
13C2_8:2FTS		114	25-150
13C2_PFDoA		55	25-150
13C2_PFTeDA		31	25-150
13C3_PFBS		82	25-150
13C3_PFHxS		93	25-150
13C3-HFPO-DA		75	25-150
13C4_PFBA		82	25-150
13C4_PFHpA		83	25-150
13C5_PFHxA		95	25-150
13C5_PFPeA		80	25-150
13C6_PFDA		90	25-150
13C7_PFUdA		88	25-150

LOQ = Limit of Quantitation
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E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-003**

Description: **MW-117SI_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1035** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		105	25-150
13C8_PFOS		87	25-150
13C8_PFOSA		72	10-150
13C9_PFNA		89	25-150
d5-EtFOSAA		102	25-150
d3-MeFOSAA		87	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-004**

Description: **MW-183WT_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1155** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/27/2023 1419	ARC2	09/25/2023 2013	85696

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.2	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.2	0.60	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.2	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.2	0.79	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.2	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.2	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.2	0.68	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.2	0.84	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.2**	**J**	**3.6**	**0.38**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.70	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.64	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**0.95**	**J**	**3.6**	**0.54**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.7**		**3.6**	**0.50**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**6.7**		**3.6**	**0.54**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.3**	**J**	**3.6**	**0.40**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**1.5**	**J**	**3.6**	**0.62**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.55**	**J**	**3.6**	**0.42**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**3.5**	**J**	**3.6**	**0.75**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.0**	**J**	**3.6**	**0.49**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.57	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**2.1**	**J**	**3.6**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	303	25-150
13C2_6:2FTS	N	163	25-150
13C2_8:2FTS		107	25-150
13C2_PFDoA		69	25-150
13C2_PFTeDA		45	25-150
13C3_PFBS		94	25-150
13C3_PFHxS		103	25-150
13C3-HFPO-DA		81	25-150
13C4_PFBA		79	25-150
13C4_PFHpA		87	25-150
13C5_PFHxA		105	25-150
13C5_PFPeA		87	25-150
13C6_PFDA		89	25-150
13C7_PFUdA		84	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **YI15023-004**
Description: **MW-183WT_091323**
Matrix: **Aqueous**
Date Sampled: **09/13/2023 1155**
Project Name: **Saginaw**
Date Received: **09/15/2023**
Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		123	25-150
13C8_PFOS		94	25-150
13C8_PFOSA		82	10-150
13C9_PFNA		96	25-150
d5-EtFOSAA		80	25-150
d3-MeFOSAA		91	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-005**

Description: **X-9AR_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1330** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/27/2023 1430	ARC2	09/25/2023 2013	85696

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.80	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**0.69**	**J**	**3.4**	**0.36**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.4	0.48	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**4.0**		**3.4**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.45**	**J**	**3.4**	**0.39**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**0.79**	**J**	**3.4**	**0.59**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**0.89**	**J**	**3.4**	**0.71**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**0.56**	**J**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	376	25-150
13C2_6:2FTS	N	179	25-150
13C2_8:2FTS		144	25-150
13C2_PFDoA		100	25-150
13C2_PFTeDA		72	25-150
13C3_PFBS		99	25-150
13C3_PFHxS		99	25-150
13C3-HFPO-DA		94	25-150
13C4_PFBA		90	25-150
13C4_PFHpA		94	25-150
13C5_PFHxA		119	25-150
13C5_PFPeA		103	25-150
13C6_PFDA		104	25-150
13C7_PFUdA		107	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-005**

Description: **X-9AR_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1330** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		121	25-150
13C8_PFOS		101	25-150
13C8_PFOSA		83	10-150
13C9_PFNA		108	25-150
d5-EtFOSAA		126	25-150
d3-MeFOSAA		121	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
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P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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H = Out of holding time
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-006**

Description: **MW-122WT_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1620** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/27/2023 1440	ARC2	09/25/2023 2013	85696

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.4	0.45	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.4	0.62	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.4	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.4	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.4	0.81	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.4	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.4	0.45	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.4	0.70	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.4	0.87	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.2**	**J**	**3.7**	**0.39**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.72	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.46	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.66	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.57	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.7	0.51	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**41**		**3.7**	**0.56**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.44	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.2**	**J**	**3.7**	**0.42**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**4.5**		**3.7**	**0.64**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**2.8**	**J**	**3.7**	**0.77**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**4.6**		**3.7**	**0.51**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.58	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.7	1.9	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	346	25-150
13C2_6:2FTS		150	25-150
13C2_8:2FTS		95	25-150
13C2_PFDoA		88	25-150
13C2_PFTeDA		65	25-150
13C3_PFBS		92	25-150
13C3_PFHxS		104	25-150
13C3-HFPO-DA		84	25-150
13C4_PFBA		55	25-150
13C4_PFHpA		94	25-150
13C5_PFHxA		102	25-150
13C5_PFPeA		79	25-150
13C6_PFDA		97	25-150
13C7_PFUdA		93	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-006**

Description: **MW-122WT_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1620** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		104	25-150
13C8_PFOS		104	25-150
13C8_PFOSA		87	10-150
13C9_PFNA		101	25-150
d5-EtFOSAA		85	25-150
d3-MeFOSAA		94	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-007**

Description: **MW-125WT_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1735** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/27/2023 1512	ARC2	09/25/2023 2013	85696

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	0.59	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.1	0.78	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	0.67	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	0.83	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.1**	**J**	**3.6**	**0.37**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.69	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**1.4**	**J**	**3.6**	**0.53**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**9.1**		**3.6**	**0.49**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**12**		**3.6**	**0.53**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.93**	**J**	**3.6**	**0.40**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.6	0.61	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**2.9**	**J**	**3.6**	**0.74**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.4**	**J**	**3.6**	**0.48**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	336	25-150
13C2_6:2FTS	N	184	25-150
13C2_8:2FTS		116	25-150
13C2_PFDoA		98	25-150
13C2_PFTeDA		68	25-150
13C3_PFBS		93	25-150
13C3_PFHxS		92	25-150
13C3-HFPO-DA		80	25-150
13C4_PFBA		88	25-150
13C4_PFHpA		86	25-150
13C5_PFHxA		93	25-150
13C5_PFPeA		77	25-150
13C6_PFDA		90	25-150
13C7_PFUdA		95	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-007**

Description: **MW-125WT_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1735** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		106	25-150
13C8_PFOS		94	25-150
13C8_PFOSA		90	10-150
13C9_PFNA		100	25-150
d5-EtFOSAA		94	25-150
d3-MeFOSAA		106	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-008**

Description: **TWW-1_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1750** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/27/2023 1523	ARC2	09/25/2023 2013	85696

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.2	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.2	0.60	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.2	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.2	0.79	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.2	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.2	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.2	0.68	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.2	0.84	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.6**	**J**	**3.6**	**0.37**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.70	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.64	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.2**	**J**	**3.6**	**0.50**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**14**		**3.6**	**0.54**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**4.2**		**3.6**	**0.40**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**4.5**		**3.6**	**0.62**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.90**	**J**	**3.6**	**0.42**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**13**		**3.6**	**0.75**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**3.7**		**3.6**	**0.49**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.57	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**2.5**	**J**	**3.6**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	357	25-150
13C2_6:2FTS	N	194	25-150
13C2_8:2FTS		130	25-150
13C2_PFDoA		108	25-150
13C2_PFTeDA		77	25-150
13C3_PFBS		89	25-150
13C3_PFHxS		96	25-150
13C3-HFPO-DA		77	25-150
13C4_PFBA		82	25-150
13C4_PFHpA		86	25-150
13C5_PFHxA		98	25-150
13C5_PFPeA		80	25-150
13C6_PFDA		105	25-150
13C7_PFUdA		106	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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H = Out of holding time
W = Reported on wet weight basis
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-008**

Description: **TWW-1_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1750** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		109	25-150
13C8_PFOS		95	25-150
13C8_PFOSA		87	10-150
13C9_PFNA		96	25-150
d5-EtFOSAA		108	25-150
d3-MeFOSAA		112	25-150

LOQ = Limit of Quantitation
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-009**

Description: **X-10AR2_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1810** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/27/2023 1533	ARC2	09/25/2023 2013	85696

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.7	0.64	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.7	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	~~Q~~	7.7	0.84	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.7	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.7	0.72	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.7	0.90	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.2**	**J**	**3.8**	**0.40**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.75	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.8	0.48	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.68	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.8	0.53	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**6.5**		**3.8**	**0.58**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.8	0.50	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.56**	**J**	**3.8**	**0.43**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**1.0**	**J**	**3.8**	**0.66**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.8	0.44	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**7.3**		**3.8**	**0.80**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**0.72**	**J**	**3.8**	**0.52**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.58	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.51	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.60	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.8	1.9	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	285	25-150
13C2_6:2FTS		147	25-150
13C2_8:2FTS		119	25-150
13C2_PFDoA		103	25-150
13C2_PFTeDA		87	25-150
13C3_PFBS		98	25-150
13C3_PFHxS		105	25-150
13C3-HFPO-DA		94	25-150
13C4_PFBA		103	25-150
13C4_PFHpA		97	25-150
13C5_PFHxA		111	25-150
13C5_PFPeA		104	25-150
13C6_PFDA		106	25-150
13C7_PFUdA		98	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-009**

Description: **X-10AR2_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1810** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		110	25-150
13C8_PFOS		104	25-150
13C8_PFOSA		98	10-150
13C9_PFNA		112	25-150
d5-EtFOSAA		103	25-150
d3-MeFOSAA		115	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-010**

Description: **X-2A_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1830** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/27/2023 1605	ARC2	09/25/2023 2013	85696

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.80	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.4	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.3**	**J**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**6.7**		**3.4**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**2.0**	**J**	**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**5.5**		**3.4**	**0.59**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**22**		**3.4**	**0.71**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND	UJ	3.4	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND	UJ	3.4	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**16**		**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	244	25-150
13C2_6:2FTS	N	304	25-150
13C2_8:2FTS	N	261	25-150
13C2_PFDoA		79	25-150
13C2_PFTeDA		32	25-150
13C3_PFBS		77	25-150
13C3_PFHxS		91	25-150
13C3-HFPO-DA		60	25-150
13C4_PFBA		53	25-150
13C4_PFHpA		59	25-150
13C5_PFHxA		60	25-150
13C5_PFPeA		46	25-150
13C6_PFDA		97	25-150
13C7_PFUdA		106	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-010**

Description: **X-2A_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023 1830** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		88	25-150
13C8_PFOS		88	25-150
13C8_PFOSA		77	10-150
13C9_PFNA		91	25-150
d5-EtFOSAA		137	25-150
d3-MeFOSAA		118	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-011**

Description: **DUP-05_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/27/2023 1615	ARC2	09/25/2023 2013	85696

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.2	0.49	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.2	0.68	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	8.2	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	8.2	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	8.2	0.90	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.2	0.50	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.2	0.77	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.2	0.96	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.1	0.42	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.1	0.80	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.1	0.51	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.1	0.73	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.1	0.63	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.1	0.61	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.4**	**J**	**4.1**	**0.57**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**6.6**		**4.1**	**0.61**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.1	0.54	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.1	0.48	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**2.0**	**J**	**4.1**	**0.46**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.1	0.70	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.54**	**J**	**4.1**	**0.47**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**23**		**4.1**	**0.85**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND	UJ	4.1	0.56	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND	UJ	4.1	0.61	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.1	0.54	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.1	0.64	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**20**		**4.1**	**2.1**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	243	25-150
13C2_6:2FTS	N	263	25-150
13C2_8:2FTS	N	224	25-150
13C2_PFDoA		52	25-150
13C2_PFTeDA		27	25-150
13C3_PFBS		71	25-150
13C3_PFHxS		76	25-150
13C3-HFPO-DA		57	25-150
13C4_PFBA		53	25-150
13C4_PFHpA		52	25-150
13C5_PFHxA		54	25-150
13C5_PFPeA		41	25-150
13C6_PFDA		89	25-150
13C7_PFUdA		87	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **YI15023-011**

Description: **DUP-05_091323** Matrix: **Aqueous**

Date Sampled: **09/13/2023** Project Name: **Saginaw**

Date Received: **09/15/2023** Project Number: **30169042.97000**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		80	25-150
13C8_PFOS		76	25-150
13C8_PFOSA		65	10-150
13C9_PFNA		76	25-150
d5-EtFOSAA		107	25-150
d3-MeFOSAA		98	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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Attachment 8

Field Sampling Logs

Hydrasleeve™ Field Form

Site and Well Information

Site: RACER Saginaw	**Location and Well ID:** Saginaw, MI, MW-117WT
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 3 to 13
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/12/2023 09:20		**Weather Condition:** Cloudy, Rain, 60's
Depth to water at time of deployment (ft btoc): 2.96		**Total well depth at time of deployment (ft btoc):** 18.45
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/13/2023 10:15	**Total Days of Deployment:** 1
Weather Condition: Sunny	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
14.3	-48.6	6.17	1.78	8.225
Turbidity Meter: YSI Pro DSS			**Serial #:** 17L101012	

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial#:** 17L101012
Pre-filtered Turbidity (NTU): 206.30		**Post-filtered Turbidity (NTU):** N/A
Sample ID: MW-117WT_091323	**Replicate ID:** N/A	**Sample Time:** 10:15
Notes/Observations: N/A		
Sampled for (minimum volume (mL) in parentheses): Total and Dissolved Metals, Total and Dissolved Cyanide, TDS, Sulfate, Chloride, Nitrite, Nitrate, Ammonia Nitrogen, and PFAS		
QA/QC: N/A		**Field Sampling Technician(S):** Austin Westhuis

Hydrasleeve™ Field Form

Site and Well Information

Site: RACER Saginaw	**Location and Well ID:** Saginaw, MI, MW-117S1
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 24.2 to 29.2
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/12/2023 09:25		**Weather Condition:** Cloudy, Rain, 60's
Depth to water at time of deployment (ft btoc): 3.78		**Total well depth at time of deployment (ft btoc):** 35.5
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/13/2023 10:35	**Total Days of Deployment:** 1
Weather Condition: Sunny	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
12.9	-47.4	7.25	4.11	1.528

Turbidity Meter: YSI Pro DSS	**Serial #:** 17L101012

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial#:** 17L101012
Pre-filtered Turbidity (NTU): 373.53		**Post-filtered Turbidity (NTU):** N/A
Sample ID: MW-117S1_091323	**Replicate ID:** N/A	**Sample Time:** 10:35
Notes/Observations: N/A		
Sampled for (minimum volume (mL) in parentheses): Total and Dissolved Metals, Total and Dissolved Cyanide, TDS, Sulfate, Chloride, Nitrite, Nitrate, Ammonia Nitrogen, and PFAS		
QA/QC: N/A		**Field Sampling Technician(S):** Austin Westhuis

Hydrasleeve™ Field Form

Site and Well Information

Site: RACER Saginaw	**Location and Well ID:** Saginaw, MI, MW-118WT
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 1.6 to 11.6
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/12/2023 08:45		**Weather Condition:** Cloudy, Rain, 60's
Depth to water at time of deployment (ft btoc): 2.97		**Total well depth at time of deployment (ft btoc):** 16.9
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/13/2023 09:15	**Total Days of Deployment:** 1
Weather Condition: Sunny	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
14.8	-29.9	6.52	4.21	1.576

Turbidity Meter: YSI Pro DSS	**Serial #:** 17L101012

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial#:** 17L101012
Pre-filtered Turbidity (NTU): 83.71		**Post-filtered Turbidity (NTU):** N/A
Sample ID: MW-118WT_091323	**Replicate ID:** N/A	**Sample Time:** 09:15
Notes/Observations: N/A		
Sampled for (minimum volume (mL) in parentheses): Total and Dissolved Metals, Total and Dissolved Cyanide, TDS, Sulfate, Chloride, Nitrite, Nitrate, Ammonia Nitrogen, and PFAS		
QA/QC: N/A		**Field Sampling Technician(S):** Austin Westhuis

Hydrasleeve™ Field Form

Site and Well Information

Site: RACER Saginaw	**Location and Well ID:** Saginaw, MI, MW-118S1
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 23.5 to 28.5
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/12/2023 08:50		**Weather Condition:** Cloudy, Rain, 60's
Depth to water at time of deployment (ft btoc): 3.49		**Total well depth at time of deployment (ft btoc):** 34.5
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/13/2023 09:55	**Total Days of Deployment:** 1
Weather Condition: Sunny	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval) (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
12.9	-85.3	7.05	3.08	0.709

Turbidity Meter: YSI Pro DSS	**Serial #:** 17L101012

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial#:** 17L101012
Pre-filtered Turbidity (NTU): 40.67		**Post-filtered Turbidity (NTU):** N/A
Sample ID: MW-118S1_091323	**Replicate ID:** N/A	**Sample Time:** 09:55
Notes/Observations: N/A		
Sampled for (minimum volume (mL) in parentheses): Total and Dissolved Metals, Total and Dissolved Cyanide, TDS, Sulfate, Chloride, Nitrite, Nitrate, and Ammonia Nitrogen.		
QA/QC: N/A		**Field Sampling Technician(S):** Austin Westhuis

Hydrasleeve™ Field Form

Site and Well Information

Site: RACER Saginaw	**Location and Well ID:** Saginaw, MI, MW-122WT
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 2 to 12
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 15:50		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 3.08		**Total well depth at time of deployment (ft btoc):** 14.95
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/13/2023 16:20	**Total Days of Deployment:** 2
Weather Condition: Sunny	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
18	-103.7	7.14	3.92	1.181

Turbidity Meter: YSI Pro DSS	**Serial #:** 17L101012

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial#:** 17L101012
Pre-filtered Turbidity (NTU): 450.86		**Post-filtered Turbidity (NTU):** N/A
Sample ID: MW-122WT_091323	**Replicate ID:** N/A	**Sample Time:** 16:20
Notes/Observations: N/A		
Sampled for (minimum volume (mL) in parentheses): PFAS		
QA/QC: N/A		**Field Sampling Technician(S):** Austin Westhuis

Hydrasleeve™ Field Form

Site and Well Information

Site: RACER Saginaw	**Location and Well ID:** Saginaw, MI, MW-125WT
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 2.5 to 12.5
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 15:15		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 4.37		**Total well depth at time of deployment (ft btoc):** 15.46
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/13/2023 17:35	**Total Days of Deployment:** 2
Weather Condition: Sunny	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
16.2	103.3	7.13	3.99	0.934

Turbidity Meter: YSI Pro DSS	**Serial #:** 17L101012

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial#:** 17L101012
Pre-filtered Turbidity (NTU): 472.11		**Post-filtered Turbidity (NTU):** N/A
Sample ID: MW-125WT_091323	**Replicate ID:** N/A	**Sample Time:** 17:35
Notes/Observations: N/A		
Sampled for (minimum volume (mL) in parentheses): PFAS		
QA/QC: N/A		**Field Sampling Technician(S):** Austin Westhuis

Hydrasleeve™ Field Form

Site and Well Information

Site: RACER Saginaw	**Location and Well ID:** Saginaw, MI, MW-183WT
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 6 to 16
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 12:49		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 8		**Total well depth at time of deployment (ft btoc):** 18.32
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/13/2023 11:55	**Total Days of Deployment:** 2
Weather Condition: Sunny	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
15.8	-97.4	7.34	2	0.567

Turbidity Meter: YSI Pro DSS	**Serial #:** 17L101012

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial#:** 17L101012
Pre-filtered Turbidity (NTU): 273.54		**Post-filtered Turbidity (NTU):** N/A
Sample ID: MW-183WT_091323	**Replicate ID:** N/A	**Sample Time:** 11:55
Notes/Observations: N/A		
Sampled for (minimum volume (mL) in parentheses): Total and Dissolved Metals, Total and Dissolved Cyanide, TDS, Sulfate, Chloride, Nitrite, Nitrate, Ammonia Nitrogen, and PFAS		
QA/QC: N/A		**Field Sampling Technician(S):** Austin Westhuis

Hydrasleeve™ Field Form

Site and Well Information

Site: RACER Saginaw	**Location and Well ID:** Saginaw, MI, X-2A
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 8.6 to 11.6
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 13:45		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 4.45		**Total well depth at time of deployment (ft btoc):** N/A
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/13/2023 18:30	**Total Days of Deployment:** 2
Weather Condition: Sunny	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
16.1	-70.8	8.73	3.17	0.663

Turbidity Meter: YSI Pro DSS	**Serial #:** 17L101012

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial#:** 17L101012
Pre-filtered Turbidity (NTU): 220.82		**Post-filtered Turbidity (NTU):** N/A
Sample ID: X-2A_091323	**Replicate ID:** DUP-05_091323	**Sample Time:** 18:30
Notes/Observations: DUP-05_091323 collected here for PFAS.		
Sampled for (minimum volume (mL) in parentheses): PFAS		
QA/QC: Duplicate		**Field Sampling Technician(S):** Austin Westhuis

Groundwater Sampling Form

ARCADIS

Project Number	30169042	**Well ID**	X-4AR			**Date**	9/13/2023
Project Name/Location	RACER Saginaw 2023		**Weather(°F)**	59.0 degrees F and Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	6.12	**Total Depth (ft-bmp)**	7.75	**Water Column (ft)**	1.63	**Gallons in Well**	0.26
Purge Start	12:40	**Pump Intake (ft-bmp)**		**Purge Method**	No-Purge	**Purge Equipment**	Bailer
Purge End	NA	**Volumes Purged**	NA	**Sample ID**	X-4AR_091323	**Sampled by**	Austin Westhuis
Sample Time	12:45	**Gallons Purged**		**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:45	0	0	0	0.00	0.00	0	0	0	0	0	0	Clear	

Constituent Sampled	Container	Number	Preservative
Dissolved Metals	250 mL Plastic	1	HNO3
Dissolved Cyanide	250 mL Plastic	1	NaOh
Total Metals	250 mL Plastic	1	HNO3
Total Cyanide	250 mL Plastic	1	NaOh
Sulfate, Chloride, Nitrite, and Nitrate	250 mL Plastic	1	None
Ammonia Nitrogen	250 mL Plastic	1	H2SO4
Total Dissolved Solids	250 mL Plastic	1	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: GPL
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Hydrasleeve™ Field Form

Site and Well Information

Site: RACER Saginaw	**Location and Well ID:** Saginaw, MI, X-4CAUGR
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 14 to 19
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 13:03		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 5.2		**Total well depth at time of deployment (ft btoc):** 16.8
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/13/2023 14:15	**Total Days of Deployment:** 2
Weather Condition: Sunny	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
18.3	193.8	8.09	3.55	0.593

Turbidity Meter: YSI Pro DSS	**Serial #:** 17L101012

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial#:** 17L101012
Pre-filtered Turbidity (NTU): 58.91		**Post-filtered Turbidity (NTU):** N/A
Sample ID: X-4CAUGR_091323	**Replicate ID:** DUP-01_091323	**Sample Time:** 14:15
Notes/Observations: DUP-01_091323 collected here for Total and Dissolved Cyanide.		
Sampled for (minimum volume (mL) in parentheses): Total and Dissolved Metals, Total and Dissolved Cyanide, TDS, Sulfate, Chloride, Nitrite, Nitrate, and Ammonia Nitrogen.		
QA/QC: Duplicate		**Field Sampling Technician(S):** Austin Westhuis

Hydrasleeve™ Field Form

Site and Well Information

Site: Racer Saginaw	**Location and Well ID:** Saginaw, Michigan , X-4D
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 40 to 45
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 13:08		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 2.28		**Total well depth at time of deployment (ft btoc):** 47.45
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/13/2023 14:15	**Total Days of Deployment:** 2
Weather Condition: Partly Cloudy	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
15.1	-81.3	7.41	2.14	4.549

Turbidity Meter: YSI Pro DSS	**Serial #:** 14M101509

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial #:** 14M101509
Pre-filtered Turbidity (NTU): 141.23		**Post-filtered Turbidity (NTU):** N/A
Sample ID: X-4D_091323	**Replicate ID:** DUP-02_091323	**Sample Time:** 14:15
Notes/Observations: DUP-02_091323 collected here for TDS and Ammonia Nitrogen		
Sampled for (minimum volume (mL) in parentheses): Cyanide, dissolved cyanide, nitrate, nitrite, Ammonia Nitrogen, sulfate, chloride, TDS,Dissolved Metals,Metals		
QA/QC: Duplicate		**Field Sampling Technician(S):** Bill Cobern

Hydrasleeve™ Field Form

Site and Well Information

Site: Racer Saginaw	**Location and Well ID:** Saginaw, Michigan , X-9AR
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 3 to 13
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 13:13		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 6.42		**Total well depth at time of deployment (ft btoc):** 16.05
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/13/2023 13:30	**Total Days of Deployment:** 2
Weather Condition: Partly Cloudy	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
14.4	-99.3	7.02	2.92	0.934

Turbidity Meter: YSI Pro DSS	**Serial #:** 14M101509

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial #:** 14M101509
Pre-filtered Turbidity (NTU): 27.58		**Post-filtered Turbidity (NTU):** N/A
Sample ID: X-9AR_091323	**Replicate ID:** N/A	**Sample Time:** 13:30
Notes/Observations: N/A		
Sampled for (minimum volume (mL) in parentheses): Cyanide, dissolved cyanide, nitrate, nitrite, sulfate, chloride, ammonia, TDS, PFAS,Dissolved Metals,Metals		
QA/QC: N/A		**Field Sampling Technician(S):** Bill Cobern

Hydrasleeve™ Field Form

Site and Well Information

Site: Racer Saginaw	**Location and Well ID:** Saginaw, Michigan , X-9BR
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 26 to 31
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 13:17		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 6.94		**Total well depth at time of deployment (ft btoc):** 34.15
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/13/2023 12:45	**Total Days of Deployment:** 2
Weather Condition: Partly Cloudy	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
14.1	-134.6	7.18	1.25	1.74

Turbidity Meter: YSI Pro DSS	**Serial #:** 14M101509

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial #:** 14M101509
Pre-filtered Turbidity (NTU): 320.75		**Post-filtered Turbidity (NTU):** N/A
Sample ID: X-9BR_091323	**Replicate ID:** DUP-03_091323	**Sample Time:** 12:45
Notes/Observations: Duplicate for total and dissolved metals		
Sampled for (minimum volume (mL) in parentheses): Cyanide, dissolved cyanide, nitrate, nitrite, Ammonia Nitrogen, chloride, sulfate, TDS,Dissolved Metals,Metals		
QA/QC: Duplicate		**Field Sampling Technician(S):** Bill Cobern

Hydrasleeve™ Field Form

Site and Well Information

Site: Racer Saginaw	**Location and Well ID:** Saginaw, Michigan , X-9CAUG
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 20 to 25
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 13:23		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 6.7		**Total well depth at time of deployment (ft btoc):** 28.35
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/13/2023 09:45	**Total Days of Deployment:** 2
Weather Condition: Partly Cloudy	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
14.6	256.3	7.41	5.21	1.251

Turbidity Meter: YSI Pro DSS	**Serial #:** 14M101509

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial #:** 14M101509
Pre-filtered Turbidity (NTU): 1872.2		**Post-filtered Turbidity (NTU):** N/A
Sample ID: X-9CAUG_091323	**Replicate ID:** N/A	**Sample Time:** 09:45
Notes/Observations: N/A		
Sampled for (minimum volume (mL) in parentheses): Cyanide, dissolved cyanide, nitrate, nitrite, Ammonia Nitrogen, Chloride, sulfate, TDS,Dissolved Metals,Metals		
QA/QC: MS/MSD		**Field Sampling Technician(S):** Bill Cobern

Hydrasleeve™ Field Form

Site and Well Information

Site: Racer Saginaw	**Location and Well ID:** Saginaw, Michigan , X-9D
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 42.5 to 47.5
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 13:28		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 3.35		**Total well depth at time of deployment (ft btoc):** 50.2
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/13/2023 08:45	**Total Days of Deployment:** 2
Weather Condition: Partly Cloudy	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
14.2	288.8	7.61	8.21	1.176

Turbidity Meter: YSI Pro DSS	**Serial #:** 14M101509

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial #:** 14M101509
Pre-filtered Turbidity (NTU): 21.55		**Post-filtered Turbidity (NTU):** N/A
Sample ID: X-9D_091323	**Replicate ID:** DUP-04_091323	**Sample Time:** 08:45
Notes/Observations: Dup-04 for nitrate, nitrite, chloride, sulfate		
Sampled for (minimum volume (mL) in parentheses): Cyanide, dissolved cyanide, nitrate, nitrate, Ammonia Nitrogen, TDS, chloride, sulfate ,Dissolved Metals,Metals		
QA/QC: Duplicate		**Field Sampling Technician(S):** Bill Cobern

Hydrasleeve™ Field Form

Site and Well Information

Site: RACER Saginaw	**Location and Well ID:** Saginaw, MI, X-10AR2
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 6 to 16
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 17:00		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc):		**Total well depth at time of deployment (ft btoc):**
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/13/2023 18:10	**Total Days of Deployment:** 0
Weather Condition: Sunny	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
15.8	-37.8	6.96	2.98	1.044

Turbidity Meter: YSI Pro DSS	**Serial #:** 17L101012

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial#:** 17L101012
Pre-filtered Turbidity (NTU): 128.12		**Post-filtered Turbidity (NTU):** N/A
Sample ID: X-10AR2_091323	**Replicate ID:** N/A	**Sample Time:** 18:10
Notes/Observations: MS/MSD collected here for PFAS.		
Sampled for (minimum volume (mL) in parentheses): PFAS		
QA/QC: MS/MSD		**Field Sampling Technician(S):** Austin Westhuis

Hydrasleeve™ Field Form

Site and Well Information

Site: RACER Saginaw	**Location and Well ID:** Saginaw, MI, TWW-1
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 1.5 to 6.5
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 15:00		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc):		**Total well depth at time of deployment (ft btoc):**
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/13/2023 17:50	**Total Days of Deployment:** 0
Weather Condition: Sunny	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
17.3	-62.8	7.05	3.4	1.739

Turbidity Meter: YSI Pro DSS	**Serial #:** 17L101012

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial#:** 17L101012
Pre-filtered Turbidity (NTU): 63.81		**Post-filtered Turbidity (NTU):** N/A
Sample ID: TWW-1_091323	**Replicate ID:** N/A	**Sample Time:** 17:50
Notes/Observations: N/A		
Sampled for (minimum volume (mL) in parentheses): PFAS		
QA/QC: N/A		**Field Sampling Technician(S):** Austin Westhuis

Hydrasleeve™ Field Form

Site and Well Information

Site: RACER Saginaw	**Location and Well ID:** Saginaw, MI, B-3R
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 16 to 26
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 14:15		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 7.92		**Total well depth at time of deployment (ft btoc):** 18.6
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/14/2023 12:45	**Total Days of Deployment:** 3
Weather Condition: Sunny	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
14.1	-148.5	7.82	1.84	0.75

Water Quality Meter: YSI Pro DSS	**Serial #:** 17L101012

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial#:** 17L101012
Pre-filtered Turbidity (NTU): 92.61		**Post-filtered Turbidity (NTU):** N/A
Sample ID: B-3R_091423	**Replicate ID:** N/A	**Sample Time:** 12:45
Notes/Observations: N/A		
Sampled for (minimum volume (mL) in parentheses): PFAS		
QA/QC: N/A		**Field Sampling Technician(S):** Austin Westhuis

Groundwater Sampling Form

Project Number	30169042	**Well ID**	MW-107WT			**Date**	9/14/2023
Project Name/Location	RACER Saginaw 2023		**Weather(°F)**	It is Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	7.01	**Total Depth (ft-bmp)**	8.85	**Water Column (ft)**	1.84	**Gallons in Well**	0.30
Purge Start		**Pump Intake (ft-bmp)**	8.85	**Purge Method**	No-Purge	**Purge Equipment**	Bailer
Purge End	NA	**Volumes Purged**	NA	**Sample ID**	MW-107WT	**Sampled by**	Billy Cobern
Sample Time	10:25	**Gallons Purged**		**Replicate/ Code No.**	MW-107WT_091423	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:49	0	0	100	7.01	0.00	7.24	1.099	277.84	3.52	13.7	-32.4	Dark Brown	None

Constituent Sampled	Container	Number	Preservative
Ammonia Nitrogen and Phosphorus	250 mL Plastic	1	H2SO4
Dissolved Arsenic	250 mL Plastic	3	HNO3
Total Arsenic and Total Manganese	250 mL Plastic	3	HNO3

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: SMI

Well Locked at Arrival: no

Condition of Well: Needs repairs

Well Locked at Departure: no

Well Completion: Flush mount

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Hydrasleeve™ Field Form

Site and Well Information

Site: Racer Saginaw	**Location and Well ID:** Saginaw, Michigan , MW-107S1
Well Finish: Flushmount	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 12.5 to 17.5
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 11:01		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 8.15		**Total well depth at time of deployment (ft btoc):** 17.3
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/14/2023 10:15	**Total Days of Deployment:** 3
Weather Condition: Partly Cloudy	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
12.4	-106.5	7.44	1.96	1.304

Water Quality Meter: YSI Pro DSS	**Serial #:** 14M101509

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial#:** 14M101509
Pre-filtered Turbidity (NTU): 7.64		**Post-filtered Turbidity (NTU):** N/A
Sample ID: MW-107S1_091423	**Replicate ID:** N/A	**Sample Time:** 10:15
Notes/Observations: N/A		
Sampled for (minimum volume (mL) in parentheses): Ammonia Nitrogen		
QA/QC: N/A		**Field Sampling Technician(S):** Billy Cobern

Groundwater Sampling Form

ARCADIS

Project Number	30169042	**Well ID**	MW-108WT			**Date**	9/14/2023
Project Name/Location	RACER Saginaw 2023		**Weather(°F)**	It is Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.54	**Total Depth (ft-bmp)**	10.4	**Water Column (ft)**	0.86	**Gallons in Well**	0.14
Purge Start	09:40	**Pump Intake (ft-bmp)**	10.4	**Purge Method**	No-Purge	**Purge Equipment**	Bailer
Purge End	NA	**Volumes Purged**	NA	**Sample ID**	MW-108WT_091423	**Sampled by**	Austin Westhuis
Sample Time	09:45	**Gallons Purged**		**Replicate/ Code No.**	DUP-06_091423	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:45	0	0	200	9.54	0.26	6.82	0.649	144.8	5.61	14.8	225	Clear	

Constituent Sampled	Container	Number	Preservative
SVOCs	100 mL Amber	1	None
Ammonia Nitrogen and Phosphorus	250 mL Plastic	1	H2SO4
Total Arsenic and Total Manganese	250 mL Plastic	1	HNO3
PFAS	250mL HDPE Plastic	1	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: SMI

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Hydrasleeve™ Field Form

Site and Well Information

Site: RACER Saginaw	**Location and Well ID:** Saginaw, MI, MW-108S2
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 22 to 27
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 11:21		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 10.74		**Total well depth at time of deployment (ft btoc):** 30.3
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/14/2023 10:45	**Total Days of Deployment:** 3
Weather Condition: Sunny	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
12.3	-77.8	7.35	2.13	0.891

Water Quality Meter: YSI Pro DSS	**Serial #:** 17L101012

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial#:** 17L101012
Pre-filtered Turbidity (NTU): 91.33		**Post-filtered Turbidity (NTU):** N/A
Sample ID: MW-108S2_091423	**Replicate ID:** DUP-10_091423	**Sample Time:** 10:45
Notes/Observations: DUP-10_091423 collected here for Ammonia Nitrogen.		
Sampled for (minimum volume (mL) in parentheses): Ammonia Nitrogen		
QA/QC: Duplicate		**Field Sampling Technician(S):** Austin Westhuis

Hydrasleeve™ Field Form

Site and Well Information

Site: Racer Saginaw	**Location and Well ID:** Saginaw, Michigan , MW-110WTR
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 3 to 8
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 11:29		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 12.02		**Total well depth at time of deployment (ft btoc):** 14.05
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/14/2023 11:45	**Total Days of Deployment:** 3
Weather Condition: Partly Cloudy	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
15.3	-83.2	6.94	2.9	1.08

Water Quality Meter: YSI Pro DSS	**Serial#:** 14M101509

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Water Quality Meter: YSI Pro DSS		**Serial#:** 14M101509
Pre-filtered Turbidity (NTU): 111.1		**Post-filtered Turbidity (NTU):** N/A
Sample ID: MW-110WTR_091423	**Replicate ID:** DUP-07_091423	**Sample Time:** 11:45
Notes/Observations: PCBs were collected from the first pull. HydraSleeve was redeployed to collect sample for ammonia nitrogen, phosphorus, and total manganese.		
Sampled for (minimum volume (mL) in parentheses): Total PCBs, dissolved PCB's, phosphorus and ammonia nitrogen, total manganese		
QA/QC: Duplicate		**Field Sampling Technician(S):** Billy Cobern

Hydrasleeve™ Field Form

Site and Well Information

Site: Racer Saginaw	**Location and Well ID:** Saginaw, Michigan , MW-111WT
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 5.5 to 10.5
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 12:16		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 9.1		**Total well depth at time of deployment (ft btoc):** 12.5
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/14/2023 12:45	**Total Days of Deployment:** 3
Weather Condition: Partly Cloudy	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
15.8	-119.8	7.11	1.62	0.885

Water Quality Meter: YSI Pro DSS	**Serial#:** 14M101509

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Water Quality Meter: YSI Pro DSS		**Serial#:** 14M101509
Pre-filtered Turbidity (NTU): 80.73		**Post-filtered Turbidity (NTU):** N/A
Sample ID: MW-111WT_091423	**Replicate ID:** DUP-08_091423	**Sample Time:** 12:45
Notes/Observations: All PCBs were collected from the first pull		
Sampled for (minimum volume (mL) in parentheses): Total and dissolved PCBs, total manganese, phosphorus, ammonia nitrogen		
QA/QC: Duplicate		**Field Sampling Technician(S):** Billy Cobern

Hydrasleeve™ Field Form

Site and Well Information

Site: RACER Saginaw	**Location and Well ID:** Saginaw, MI, MW-114WT
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 3.5 to 8.5
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 12:39		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 7.82		**Total well depth at time of deployment (ft btoc):** 11
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/14/2023 14:45	**Total Days of Deployment:** 3
Weather Condition: Sunny	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
18.6	-113	7.1	1.84	0.648

Water Quality Meter: YSI Pro DSS	**Serial #:** 17L101012

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial#:** 17L101012
Pre-filtered Turbidity (NTU): 34.91		**Post-filtered Turbidity (NTU):** N/A
Sample ID: MW-108S2_091423	**Replicate ID:** N/A	**Sample Time:** 14:45
Notes/Observations: MS/MSD collected here for Ammonia Nitrogen and Phosphorus.		
Sampled for (minimum volume (mL) in parentheses): Ammonia Nitrogen, Phosphorus, Total Manganese, Total PCBs, and Dissolved PCBs.		
QA/QC: MS/MSD		**Field Sampling Technician(S):** Austin Westhuis

Hydrasleeve™ Field Form

Site and Well Information

Site: Racer Saginaw	**Location and Well ID:** Saginaw, Michigan , MW-114S2
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 22.5 to 27.5
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 12:33		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 10.6		**Total well depth at time of deployment (ft btoc):** 30.85
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/14/2023 14:50	**Total Days of Deployment:** 3
Weather Condition: Partly Cloudy	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
16.2	-114.6	7.55	1.48	0.526

Water Quality Meter: YSI Pro DSS	**Serial#:** 14M101509

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Water Quality Meter: YSI Pro DSS		**Serial#:** 14M101509
Pre-filtered Turbidity (NTU): 258.51		**Post-filtered Turbidity (NTU):** N/A
Sample ID: MW-114S2_091424	**Replicate ID:** N/A	**Sample Time:** 14:50
Notes/Observations: N/A		
Sampled for (minimum volume (mL) in parentheses): Ammonia Nitrogen		
QA/QC: N/A		**Field Sampling Technician(S):** Billy Cobern

Hydrasleeve™ Field Form

Site and Well Information

Site: RACER Saginaw	**Location and Well ID:** Saginaw, MI, MW-131WT
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 2 to 12
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 11:51		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 5.12		**Total well depth at time of deployment (ft btoc):** 14.49
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/14/2023 12:00	**Total Days of Deployment:** 3
Weather Condition: Sunny	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
17	189.2	7.06	2.51	0.599

Water Quality Meter: YSI Pro DSS	**Serial #:** 17L101012

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial#:** 17L101012
Pre-filtered Turbidity (NTU): 16.94		**Post-filtered Turbidity (NTU):** N/A
Sample ID: MW-131WT_091423	**Replicate ID:** N/A	**Sample Time:** 12:00
Notes/Observations: N/A		
Sampled for (minimum volume (mL) in parentheses): PFAS		
QA/QC: N/A		**Field Sampling Technician(S):** Austin Westhuis

Hydrasleeve™ Field Form

Site and Well Information

Site: RACER Saginaw	**Location and Well ID:** Saginaw, MI, MW-134WT
Well Finish: Flushmount	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 4 to 9
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 17:45		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 3.85		Total well depth at time of deployment (ft btoc): 12.53
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/14/2023 12:20	**Total Days of Deployment:** 3
Weather Condition: Sunny	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
15	-97.4	6.96	2.71	0.69

Water Quality Meter: YSI Pro DSS	**Serial #:** 17L101012

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Turbidity Meter: YSI Pro DSS		**Serial#:** 17L101012
Pre-filtered Turbidity (NTU): 42.57		**Post-filtered Turbidity (NTU):** N/A
Sample ID: MW-134WT_091423	**Replicate ID:** N/A	**Sample Time:** 12:20
Notes/Observations: N/A		
Sampled for (minimum volume (mL) in parentheses): PFAS		
QA/QC: N/A		**Field Sampling Technician(S):** Austin Westhuis

Hydrasleeve™ Field Form

Site and Well Information

Site: Racer Saginaw	**Location and Well ID:** Saginaw, Michigan , MW-149WT
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 7 to 17
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 11:09		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 12		**Total well depth at time of deployment (ft btoc):** 20.35
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/14/2023 09:30	**Total Days of Deployment:** 3
Weather Condition: Partly Cloudy	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
12.5	-81.1	6.89	3.01	1.11

Water Quality Meter: YSI Pro DSS	**Serial#:** 14M101509

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Water Quality Meter: YSI Pro DSS		**Serial#:** 14M101509
Pre-filtered Turbidity (NTU): 138.83		**Post-filtered Turbidity (NTU):** N/A
Sample ID: MW-149WT_091423	**Replicate ID:** DUP-09_091423	**Sample Time:** 09:30
Notes/Observations: Duplicate for Ammonia Nitrogen, phosphorus, and total and dissolved arsenic		
Sampled for (minimum volume (mL) in parentheses): Dissolved Metals,Metals,Phosphorus, Ammonia Nitrogen		
QA/QC: Duplicate		**Field Sampling Technician(S):** Billy Cobern

Hydrasleeve™ Field Form

Site and Well Information

Site: Racer Saginaw	**Location and Well ID:** Saginaw, Michigan , MW-185WT_091423
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 3 to 8
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 12:19		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 6.65		**Total well depth at time of deployment (ft btoc):** 10.19
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/14/2023 13:30	**Total Days of Deployment:** 3
Weather Condition: Partly Cloudy	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
17.8	-88.8	7.64	3.29	0.559

Water Quality Meter: YSI Pro DSS	**Serial#:** 14M101509

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Water Quality Meter: YSI Pro DSS		**Serial#:** 14M101509
Pre-filtered Turbidity (NTU): 143.83		**Post-filtered Turbidity (NTU):** N/A
Sample ID: MW-185WT_091423	**Replicate ID:** N/A	**Sample Time:** 13:30
Notes/Observations: All samples collected from the first pull		
Sampled for (minimum volume (mL) in parentheses): Total and dissolved PCBs, phosphorus, ammonia nitrogen, total manganese		
QA/QC: N/A		**Field Sampling Technician(S):** Billy Cobern

Hydrasleeve™ Field Form

Site and Well Information

Site: Racer Saginaw	**Location and Well ID:** Saginaw, Michigan , MW-186WT
Well Finish: Stick-up	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 8 to 18
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 12:23		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 8.85		**Total well depth at time of deployment (ft btoc):** 21.2
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/14/2023 14:00	**Total Days of Deployment:** 3
Weather Condition: Partly Cloudy	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
18.1	-127.5	7.43	1.64	0.508

Water Quality Meter: YSI Pro DSS	**Serial#:** 14M101509

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Water Quality Meter: YSI Pro DSS		**Serial#:** 14M101509
Pre-filtered Turbidity (NTU): 260.73		**Post-filtered Turbidity (NTU):** N/A
Sample ID: MW-186WT_091423	**Replicate ID:** N/A	**Sample Time:** 14:00
Notes/Observations: All samples collected from first pull		
Sampled for (minimum volume (mL) in parentheses): Total and dissolved PCBs, total manganese, phosphorus, ammonia nitrogen		
QA/QC: MS/MSD		**Field Sampling Technician(S):** Billy Cobern

Hydrasleeve™ Field Form

Site and Well Information

Site: RACER Saginaw	**Location and Well ID:** Saginaw, MI, QPTW-13R
Well Finish: Flushmount	**Measuring Point:** Top of Casing
Total Depth as Constructed (ft btoc): N/A	**Screened Interval (ft bgs):** 4 to 14
Well Casing Diameter: 2 inch	**Well Casing Material:** PVC

Deployment

Date and Time of Deployment: 09/11/2023 17:38		**Weather Condition:** Cloudy, periods of rain, 50's - 60's
Depth to water at time of deployment (ft btoc): 4.58		**Total well depth at time of deployment (ft btoc):** 14.41
Hydrasleeve length (in): 38	**Hydrasleeve diameter (in):** 1.75	**Hydrasleeve™ model:** HDPE SuperSleeve for PFC sampling
Deployment Method/Position of weight: Deployed by hand using aqualine string fastened to top weight		
Deployment Depth: Bottom of well		

Retrieval

Date and time of Retrieval: 09/14/2023 13:30	**Total Days of Deployment:** 3
Weather Condition: Sunny	**PID (ppm):** N/A
Depth to Groundwater at Time of Retrieval (measured before retrieval) (ft btoc): N/A	**Total Well Depth at Time of Retrieval (measured before retrieval (ft btoc):** N/A

Downhole Field Parameter Upon Retrieval

Temp (deg C)	ORP (mV)	pH	DO (mg/L)	Cond (mS/cm)
16.7	-63.1	6.82	1.5	0.834

Water Quality Meter: YSI Pro DSS	**Serial #:** 17L101012

Turbidity of Groundwater Sample (dispensed from Hydrasleeve™)

Water Quality Meter: YSI Pro DSS		**Serial #:** 17L101012
Pre-filtered Turbidity (NTU): 1130.88		**Post-filtered Turbidity (NTU):** N/A
Sample ID: QPTW-13R_091423	**Replicate ID:** DUP-11_091423	**Sample Time:** 13:30
Notes/Observations: DUP-11_091423 collected here for PFAS.		
Sampled for (minimum volume (mL) in parentheses): PFAS		
QA/QC: Duplicate		**Field Sampling Technician(S):** Austin Westhuis

Attachment 9

GPL Well Construction Logs, Sampling Parameters, and Field Parameters

Attachment 9
Monitoring Well Sampling Plan and Construction Summary
2023 Annual Report
RACER Trust
Green Point Landfill
Saginaw, Michigan

Well ID	Screen Interval (ft bgs)[1]	Screened Unit/Zone	Well Construction	Date Installed	TIC[2] Elevation (ft AMSL)[3]
MW-117WT	3-13	Water Table	2" PVC	5/3/1995	582.37
MW-117S1	24.2-29.2	Lower Sand	2" PVC	5/3/1995	583.70
MW-118WT	1.6-11.6	Water Table	2" PVC	5/2/1995	582.98
MW-118S1	23.5-28.5	Lower Sand	2" PVC	5/2/1995	583.28
MW-122WT	2-12	Water Table	2” PVC	1/11/1995	584.97
MW-125WT	2.5-12.5	Water Table	2” PVC	1/4/1995	586.98
MW-183WT	6-16	Water Table	2" PVC	7/24/2000	588.77
X-2A	8.6-11.6	Water Table	2” PVC	6/2/1980	593.12
X-4AR	3.3-8.3	Water Table	2" PVC	NA	586.82
X-4CAUGR	14-19	Upper Sand	2" PVC	7/24/2007	586.36
X-4D	40-45	Lower Sand	2" PVC	7/23/2007	586.32
X-9AR	3-13	Water Table	2" PVC	5/26/1995	586.95
X-9BR	26-31	Upper Sand	2" PVC	5/17/1995	586.85
X-9CAUG	20-25	Upper Sand	2" PVC	5/5/1995	586.62
X-9D	42.5-47.5	Lower Sand	2" PVC	7/23/2007	587.47
X-10AR2	6-16	Water Table	2” PVC	11/6/2001	594.67
TWW-1	1.5-6.5	Water Table	2” PVC	1/22/1997	587.31

Notes:

[1] Depths are in feet below ground surface (ft bgs)

[2] TIC = top of inner casing

[3] Elevations are in feet above mean sea level (ft AMSL)

“ PVC = inch polyvinyl chloride

NA = not available

Attachment 9
Groundwater Sampling Analytical Parameters
RACER Green Point Landfill
Saginaw, Michigan

		Constituent & Preservative - Container Description												
Well ID	Proposed Monitoring Plan (2020)	6010 Total TAL Metals [1] HNO_3 - 250mL Poly	6010 TAL Dissolved Metals [1] HNO_3 - 250mL Poly	Total Cyanide NaOH - 250mL Poly	Dissolved Cyanide NaOH - 250mL Poly	TDS unpreserved - 250 mL Poly	Sulfate, Chloride, Nitrite, Nitrate [2] unpreserved - 250 mL Poly	Ammonia nitrogen H_2SO_4 - 250mL Poly	PFAS unpreserved - 2x250mL HDPE	Screen Interval	QA/QC/Comments	Sampling Comments	Previous Total Volume (mL)	PACE Minimum Total Volume (mL)	PACE Recommended Total Volume (mL)
MW-117S1	TAL metals (total and dissolved), cyanide (total and dissolved), TDS, chloride, sulfate, nitrite, nitrate, ammonia nitrogen, and PFAS	50 - 100 mL	50 - 100 mL	50 - 100 mL	50 - 100 mL	100 - 125 mL	120 - 175 mL	10 - 50 mL	1 x 250 mL	24.2-29.2	Note: Collect only one 250 mL bottle for PFAs, if extra volume fill a second 250 mL bottle.	Sample collected with hydrasleeve.	3,000	680	2,250
MW-117WT	TAL metals (total and dissolved), cyanide (total and dissolved), TDS, chloride, sulfate, nitrite, nitrate, ammonia nitrogen, and PFAS	50 - 100 mL	50 - 100 mL	50 - 100 mL	50 - 100 mL	100 - 125 mL	120 - 175 mL	10 - 50 mL	1 x 250 mL	3-13	Note: Collect only one 250 mL bottle for PFAs, if extra volume fill a second 250 mL bottle.	Sample collected with hydrasleeve.	3,000	680	2,250
MW-118S1	TAL metals (total and dissolved), cyanide (total and dissolved), TDS, chloride, sulfate, nitrite, nitrate, and ammonia nitrogen	50 - 100 mL	50 - 100 mL	50 - 100 mL	50 - 100 mL	100 - 250 mL	120 - 200 mL	10 - 50 mL		23.5-28.5		Sample collected with hydrasleeve.	2,500	430	1,750
MW-118WT	TAL metals (total and dissolved), cyanide (total and dissolved), TDS, chloride, sulfate, nitrite, nitrate, ammonia nitrogen, and PFAS	50 - 100 mL	50 - 100 mL	50 - 100 mL	50 - 100 mL	100 - 125 mL	120 - 175 mL	10 - 50 mL	1 x 250 mL	1.6-11.6	Note: Collect only one 250 mL bottle for PFAs, if extra volume fill a second 250 mL bottle.	Sample collected with hydrasleeve.	3,000	680	2,250
MW-183WT	TAL metals (total and dissolved), cyanide (total and dissolved), TDS, chloride, sulfate, nitrite, nitrate, ammonia nitrogen, and PFAS	50 - 100 mL	50 - 100 mL	50 - 100 mL	50 - 100 mL	100 - 125 mL	120 - 175 mL	10 - 50 mL	1 x 250 mL	6-16	Note: Collect only one 250 mL bottle for PFAs, if extra volume fill a second 250 mL bottle.	Sample collected with hydrasleeve.	7,000	680	2,250
X-4AR	TAL metals (total and dissolved), cyanide (total and dissolved), TDS, chloride, sulfate, nitrite, nitrate, and ammonia nitrogen	50 - 100 mL	50 - 100 mL	50 - 100 mL	50 - 100 mL	100 - 250 mL	120 - 200 mL	10 - 50 mL		NA-8.3		Sample collected with bailer. The hydrasleeve was not able to fit within the well. Unable to collect water quality parameters and well went dry.	2,500	430	1,750
X-4CAUGR	TAL metals (total and dissolved), cyanide (total and dissolved), TDS, chloride, sulfate, nitrite, nitrate, and ammonia nitrogen	50 - 100 mL	50 - 100 mL	2 x (50 - 100) mL	2 x (50 - 100) mL	100 - 125 mL	120 - 175 mL	10 - 50 mL		14-19	Duplicate for total and dissolved cyanide	Sample collected with hydrasleeve.	2,500	530	2,250
X-4D	TAL metals (total and dissolved), cyanide (total and dissolved), TDS, chloride, sulfate, nitrite, nitrate, and ammonia nitrogen	50 - 100 mL	50 - 100 mL	50 - 100 mL	50 - 100 mL	2 x (100 -125) mL	120 - 200 mL	2 x (10 - 50) mL		40-45	Duplicate for TDS and ammonia nitrogen	Sample collected with hydrasleeve.	2,500	540	2,250
X-9AR	TAL metals (total and dissolved), cyanide (total and dissolved), TDS, chloride, sulfate, nitrite, nitrate, ammonia nitrogen, and PFAS	50 - 100 mL	50 - 100 mL	50 - 100 mL	50 - 100 mL	100 - 125 mL	120 - 175 mL	10 - 50 mL	1 x 250 mL	3-13	Note: Collect only one 250 mL bottle for PFAs, if extra volume fill a second 250 mL bottle.	Sample collected with hydrasleeve.	5,500	680	2,250
X-9BR	TAL metals (total and dissolved), cyanide (total and dissolved), TDS, chloride, sulfate, nitrite, nitrate, and ammonia nitrogen	2 x (50 - 100) mL	2 x (50 - 100) mL	50 - 100 mL	50 - 100 mL	100 - 125 mL	120 - 175 mL	10 - 50 mL		26-31	Duplicate total and dissolved TAL metals	Sample collected with hydrasleeve.	2,500	530	2,250
X-9CAUG	TAL metals (total and dissolved), cyanide (total and dissolved), TDS, chloride, sulfate, nitrite, nitrate, and ammonia nitrogen	3 x (50 - 80) mL	3 x (50 - 80) mL	3 x (50 - 80) mL	3 x (50 - 80) mL	3 x (100 - 125) mL	3 x (120 - 150) mL	3 x (10 - 50) mL		20-25	MS/MSD for total and dissolved TAL metals, total and dissolved cyanide, chloride, sulfate, nitrite, nitrate, and TDS. 2 be completed in 2 deployments. Metals should be in first deployment.	Sample collected with hydrasleeve.	2,500	1,290	5,250
X-9D	TAL metals (total and dissolved), cyanide (total and dissolved), TDS, chloride, sulfate, nitrite, nitrate, and ammonia nitrogen	50 - 100 mL	50 - 100 mL	50 - 100 mL	50 - 100 mL	100 - 200 mL	2 x (120 - 175) mL	10 - 50 mL		42.5-47.5	Duplicate for chloride, sulfate, nitrite, and nitrate	Sample collected with hydrasleeve.	2,500	550	2,000
TWW-1	PFAS								2 x 250 mL	1.5-6.5		Sample collected with hydrasleeve.	740	250	500
MW-122WT	PFAS								2 x 250 mL	2-12		Sample collected with hydrasleeve.	500	250	500
MW-125WT	PFAS								2 x 250 mL	2.5-12.5		Sample collected with hydrasleeve.	500	250	500
X-10AR2	PFAS								4 x 250 mL	6-16	MS/MSD for PFAS Note: Collect two 250 mL bottles for the initial sample and one 250 mL bottle for the MS and MSD samples.	Sample collected with hydrasleeve.	1,500	750	1,500
X-2A	PFAS								4 x 250 mL	8.6-11.6	Duplicate for PFAS	Sample collected with hydrasleeve.	1,000	500	1,000

Notes:

[1]TAL dissolved metals plus cyanide, and indicator parameters (sulfate, chloride, total dissolved solids, nitrate, nitrite, and ammonia nitrogen).

[2] Sulfate, chloride, nitrite, and nitrate will all be included in one unpreserved 250 mL poly bottle and will be reported seperately.

HDPE = high-density ployethylene

HNO_3 = nitric acid

H_2SO_4 = sulfuric acid

mL = milliliter

MS/MSD = matrix spike/matrix spike duplicate

NA = not available

NaOH = sodium hydroxide

PFAS = per- and ploy fluoroalkyl substances

VOC = volatile organic compound

Note: Each sample location are provided ranges of sample volumes to collect. The minimum limit is the absolute minimum volume that can be collected in order to run the analysis and the upper limit is what can be collected in order to conserve sample volume and be able to obtain samples for the remaining parameters.

Attachment 9
Field Parameters, 2023 Annual Report
RACER Trust
Green Point Landfill
Saginaw, Michigan

Well ID	Date Sampled	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH (SU)	Temperature (ºC)	Turbidity (NTUs)
MW-117S1	**10/01/10**	1.243	0.21	-82.5	8.14	13.2	1.3
MW-117S1	**09/27/11**	1.700	1.26	-82.3	6.89	15.7	0.8
MW-117S1	**09/13/12**	1.310	-[2]	-90.3	6.77	15.6	0.42
MW-117S1	**09/24/13**	4.123	0.75	-126.0	6.87	11.2	0.4
MW-117S1	**09/22/14**	1.307	0.58	-50.4	6.45	12.1	4.5
MW-117S1	**10/01/15**	1.681	0.17	127.91	6.69	13.3	8.03
MW-117S1	**09/27/16**	0.643	0.89	-34.7	6.56	15.6	7.99
MW-117S1	**11/13/17**	1.043	0.20	161.4	5.88	10.3	3.58
MW-117S1	**08/21/19**	0.464	7.87	-44.6	6.88	18.6	1.49
MW-117S1	**08/13/20**	1.520	0.20	-90.6	6.91	27.0	8.98
MW-117S1	**08/17/21**	1.528	0.10	-104.2	6.94	21.4	1.82
MW-117S1	**09/21/22**	1.680	1.02	-117.2	6.82	23.1	0.02
MW-117S1[7]	**09/13/23**	1.528	4.11	-47.4	7.25	12.9	374
MW-117WT	**10/01/10**	8.450	0.11	-90	8.45	16.5	0.9
MW-117WT	**09/27/11**	9.535	0.68	-103	6.60	13.4	1.1
MW-117WT	**09/13/12**	10.33	-[2]	-77.2	6.23	16.3	0.68
MW-117WT	**09/24/13**	29.95	0.41	-109.8	6.37	12.7	0.80
MW-117WT	**09/23/14**	8.050	0.70	-57.8	6.25	12.1	8.60
MW-117WT	**10/01/15**	9.684	0.43	-97.38	6.55	12.7	5.96
MW-117WT	**09/27/16**	9.531	0.30	-157.64	6.71	15.9	2.72
MW-117WT	**08/13/20**	9.250	0.13	-95.7	6.41	25.1	12.2
MW-117WT	**08/17/21**	12.30	0.11	-95.5	6.45	21.2	1.79
MW-117WT	**09/22/22**	10.40	1.23	-106.0	6.40	14.9	0.02
MW-117WT[7]	**09/13/23**	8.225	1.78	-48.6	6.17	14.3	206
MW-118S1[1]	**09/27/11**	1.810	1.19	-91.9	7.02	17.6	0.3
MW-118S1	**09/13/12**	1.803	3.82	-230.3	6.83	15.8	1.03
MW-118S1	**09/24/13**	4.289	0.72	-95.8	6.36	13.2	0.9
MW-118S1	**09/22/14**	1.380	0.30	-56	6.35	12.5	9.7
MW-118S1	**10/01/15**	1.753	0.20	116.27	6.77	12.8	1.4
MW-118S1	**09/27/16**	0.662	0.94	13.84	6.71	14.3	7.91
MW-118S1	**11/13/17**	1.303	0.20	4.2	5.94	10.2	7.41
MW-118S1	**08/14/20**	0.370	0.10	-101.7	7.03	24.2	8.87
MW-118S1	**08/17/21**	1.358	0.14	-110.9	7.01	20.4	1.51
MW-118S1	**09/26/22**	0.630	0.16	-138.8	7.13	16.1	0.02
MW-118S1[7]	**09/13/23**	0.709	3.08	-85.3	7.05	12.9	40.7
MW-118WT	**09/30/10**	3.435	0.22	-104.2	7.27	14.9	1.8
MW-118WT	**09/27/11**	3.261	0.71	-92.8	6.43	17.1	0.3
MW-118WT	**09/13/12**	2.451	1.37	-201.4	6.74	17.0	0.66
MW-118WT	**09/24/13**	5.017	0.95	-115.3	6.38	15.2	0.4
MW-118WT	**09/22/14**	1.521	0.20	-60.4	6.72	12.9	8.2
MW-118WT	**10/01/15**	1.939	0.36	-126.86	6.99	17.0	1.4
MW-118WT	**09/27/16**	2.072	0.79	-161.44	6.99	15.7	0.79
MW-118WT	**11/13/17**	1.654	0.26	-27.8	6.05	11.5	0.87
MW-118WT	**08/14/20**	1.580	0.15	-114.6	6.79	22.2	5.45
MW-118WT	**08/17/21**	2.045	0.13	-109.4	6.92	22.9	1.31
MW-118WT	**09/22/22**	2.190	0.67	-99.8	6.70	16.1	0.87
MW-118WT[7]	**09/13/23**	1.576	4.21	-29.9	6.52	14.8	83.7
MW-122WT	**08/18/21**	0.809	0.12	-107.1	6.89	18.8	8.79
MW-122WT	**09/23/22**	1.080	0.68	-77.9	7.02	12.9	17.40
MW-122WT[7]	**09/13/23**	1.181	3.92	-103.7	7.14	18.0	450.86
MW-125WT	**09/08/20**	1.210	0.21	-47.1	6.80	16.9	8.85
MW-125WT[7]	**09/13/23**	0.934	3.99	103.3	7.13	16.2	472
MW-183WT	**09/28/10**	0.633	0.33	-119.6	7.45	13.0	3.5
MW-183WT	**09/28/11**	0.814	0.26	-128.1	7.73	13.8	1.2
MW-183WT	**09/14/12**	0.962	0.25	-207.6	7.11	15.3	0.43

Attachment 9
Field Parameters, 2023 Annual Report
RACER Trust
Green Point Landfill
Saginaw, Michigan

Well ID	Date Sampled	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH (SU)	Temperature (ºC)	Turbidity (NTUs)
MW-183WT	**09/24/13**	2.390	0.51	-105.2	6.56	17.1	1.8
MW-183WT	**09/22/14**	Missing field notes					
MW-183WT	**10/01/15**	0.750	0.37	-139.06	7.28	13.5	0.9
MW-183WT	**09/28/16**	1.299	0.20	-125.02	7.23	16.5	0.20
MW-183WT	**08/29/17**	0.665	1.09	-91.4	6.94	20.5	1.74
MW-183WT	**09/26/18**	0.550	0.60	-83.7	6.65	16.0	0.96
MW-183WT	**08/21/19**	0.700	0.27	-67.5	7.11	15.2	1.96
MW-183WT	**08/18/20**	0.670	0.50	-69.8	6.86	17.6	0.02
MW-183WT	**08/19/21**	0.640	0.33	-84.8	7.04	19.7	0.02
MW-183WT	**08/24/21**	0.660	0.37	-77.9	7.09	19.5	0.41
MW-183WT	**09/26/22**	0.636	0.12	-129.1	7.32	13.4	1.92
MW-183WT[7]	**09/13/23**	0.567	2.00	-97.4	7.34	15.8	274
TW-242	**08/30/17**	1.019	0.45	-96.1	7.01	17.1	9.02
TW-242	**09/25/18**	0.780	1.29	81.71	7.11	19.0	20.16
TW-242	**08/22/19**	1.110	0.37	-1.5	7.03	17.7	49.4
TW-242	**08/12/20**	1.130	0.31	21.1	7.04	21.4	2.42
TW-242	**08/18/21**	0.862	0.26	-31.1	7.07	18.7	2.81
TW-242	**09/23/22**	1.110	0.61	-6.20	7.13	14.6	9.73
TWW-1	**09/29/10**	3.924	1.15	-54.7	6.99	15.1	9.1
TWW-1	**09/21/11**	2.890	3.11	-7.1	6.87	18.4	1.2
TWW-1	**09/14/12**	2.289	-[2]	19.0	6.87	19.3	0.59
TWW-1	**09/24/13**	3.004	0.64	-139.6	6.84	17.5	2.27
TWW-1	**09/23/14**	2.342	0.23	-89.9	6.91	17.4	1.01
TWW-1	**10/01/15**	2.534	0.49	84.32	6.79	17.8	6.09
TWW-1	**09/28/16**	2.531	0.34	-156.95	7.06	18.0	1.56
TWW-1	**08/30/17**	1.712	7.70	-52.6	7.22	19.1	8.43
TWW-1	**09/25/18**	1.48[3]	0.54	-89.8	6.75	21.3	0.58
TWW-1	**08/22/19**	1.590	0.21	-10.1	6.91	20.8	0.02
TWW-1	**08/12/20**	1.920	0.22	-90.2	6.88	22.8	0.65
TWW-1	**09/08/20**	1.710	1.69	-51.3	6.94	17.6	11.20
TWW-1	**08/18/21**	1.622	0.11	-74.1	6.89	20.8	1.32
TWW-1	**09/23/22**	1.930	0.08	-90.10	6.99	17.9	9.40
TWW-1[7]	**09/13/23**	1.739	3.40	-62.80	7.05	17.3	63.8
X-2A	**08/11/20**	0.720	0.62	61.8	8.88	20.4	6.68
X-2A	**09/08/20**	0.710	0.08	-124.6	8.83	15.3	9.73
X-2A	**08/18/21**	0.652	0.06	-143.5	9.29	17.6	4.11
X-2A	**09/21/22**	0.790	0.18	-106.4	9.36	20.6	9.77
X-2A[7]	**09/13/23**	0.663	3.17	-70.8	8.73	16.1	221
X-4AR	**DRY 2010, 2011, 2012, 2013**	NA	NA	NA	NA	NA	NA
X-4AR	**10/01/15**	1.008	8.26	45.81	8.00	22.1	142.9
X-4AR[4]	**09/28/16**	0.360	2.07	9.63	7.23	17.1	20.11
X-4AR[4]	**08/29/17**	Well was pumped dry and sampled upon recharge					
X-4AR[5]	**09/26/18**	0.710	0.53	3.1	7.37	17.1	8.14
X-4AR	**08/18/20**	0.510	3.82	118.9	8.27	26.2	0.02
X-4AR	**08/17/21**	Well was pumped dry, unable to sample					
X-4AR	**09/21/22**	Well has previously pumped dry, sample collected after no-purge					
X-4AR	**09/13/23**	Unable to collect parameters, sample collected with bailer					
X-4CAUGR	**09/28/10**	1.030	0.34	-79.8	7.11	12.3	1.1
X-4CAUGR	**09/26/11**	0.971	1.17	-97.1	6.96	17.3	1.2
X-4CAUGR	**09/14/12**	1.050	0.19	-293.7	6.93	11.8	0.48
X-4CAUGR	**09/24/13**	0.783	0.19	-64.1	6.22	13.2	1.49
X-4CAUGR	**09/22/14**	Missing field notes					
X-4CAUGR	**10/01/15**	1.225	0.25	-116.75	7.10	13.4	2.29
X-4CAUGR	**09/28/16**	0.396	0.85	-14.23	6.78	14.9	0.68

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RACER Trust
Green Point Landfill
Saginaw, Michigan

Well ID	Date Sampled	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH (SU)	Temperature (ºC)	Turbidity (NTUs)
X-4CAUGR	**08/29/17**	0.910	0.16	-45.2	7.26	25.8	1.89
X-4CAUGR	**09/26/18**	0.500	0.40	-23.1	6.72	16.1	4.69
X-4CAUGR	**08/22/19**	0.568	0.23	-62.8	7.02	17.8	1.83
X-4CAUGR	**08/17/20**	0.528	0.25	-72.9	6.85	19.6	0.02
X-4CAUGR	**08/17/21**	0.540	0.25	-86.5	7.05	22.9	1.98
X-4CAUGR	**09/21/22**	0.610	0.21	-124.6	7.31	22.6	0.02
X-4CAUGR[7]	**09/13/23**	0.593	3.55	193.8	8.09	18.3	58.9
X-4D	**09/28/10**	4.580	0.53	-146.7	7.41	13.5	1.3
X-4D	**09/26/11**	4.897	1.67	-105.7	7.62	15.9	0.0
X-4D	**09/14/12**	4.884	0.50	-208.1	7.20	11.9	0.4
X-4D	**09/24/13**	3.937	0.23	-36.8	6.40	13.3	1.45
X-4D	**09/22/14**	Missing field notes					
X-4D	**10/01/15**	4.561	0.18	110.66	7.19	12.9	4.08
X-4D	**09/28/16**	4.908	0.22	-151.91	7.35	15.1	0.10
X-4D	**08/29/17**	4.451	0.94	117.2	7.18	24.2	0.38
X-4D	**09/26/18**	2.890	0.39	2.4	6.82	16.2	3.87
X-4D	**08/22/19**	0.710	0.37	18.7	7.11	17.9	1.93
X-4D	**08/17/20**	4.470	0.30	-97.7	7.33	23.5	0.02
X-4D	**08/17/21**	0.730	1.92	109.4	6.96	22.0	1.96
X-4D	**09/21/22**	4.850	0.91	-125.8	7.43	22.5	1.91
X-4D[7]	**09/13/23**	4.549	2.14	-81.3	7.41	15.1	141
X-9AR	**09/29/10**	0.815	0.24	-81.5	7.45	11.4	0.9
X-9AR	**09/23/11**	1.142	0.38	-114.8	7.09	11.6	0.0
X-9AR	**09/12/12**	1.056	8.20	-92.7	6.88	14.0	0.45
X-9AR	**09/25/13**	5.685	0.26	-122.6	6.95	10.5	1.90
X-9AR	**09/22/14**	Missing field notes					
X-9AR	**10/01/15**	1.224	0.71	-126.9	6.90	12.1	1.34
X-9AR	**09/28/16**	0.417	0.66	-56.94	6.63	15.0	1.95
X-9AR	**08/29/17**	0.816	0.28	-55.5	7.33	19.7	1.09
X-9AR	**09/26/18**	0.790	0.27	-70.4	6.30	17.6	2.54
X-9AR	**08/21/19**	0.730	0.28	-61.2	7.06	20.1	0.02
X-9AR	**08/17/20**	0.556	0.34	-94.7	7.09	19.3	0.02
X-9AR	**08/18/21**	0.720	0.27	-100.2	7.06	15.8	0.93
X-9AR	**09/22/22**	0.770	0.96	-122.8	7.28	10.6	1.98
X-9AR[7]	**09/13/23**	0.934	2.92	-99.3	7.02	14.4	27.6
X-9BR	**09/28/10**	1.215	0.10	-93.4	7.09	14.5	0.8
X-9BR	**09/23/11**	1.410	0.20	-113.8	7.13	11.3	0.0
X-9BR	**09/12/12**	1.358	0.21	-217.9	6.69	14.0	0.97
X-9BR	**09/25/13**	6.571	0.24	-146.0	6.98	11.3	1.76
X-9BR	**09/22/14**	Missing field notes					
X-9BR	**10/01/15**	1.859	0.36	129.69	6.92	11.5	7.27
X-9BR	**09/28/16**	2.020	0.08	-168.87	7.19	15.3	2.36
X-9BR	**08/29/17**	1.595	1.42	-168.3	7.06	17.3	1.64
X-9BR	**09/26/18**	0.428	0.30	-23.6	6.64	16.1	3.06
X-9BR	**08/21/19**	1.290	2.47	-145.5	7.04	20.9	1.95
X-9BR	**08/18/20**	0.720	0.46	-91.4	7.08	21.2	0.02
X-9BR	**08/18/21**	0.595	0.06	-105.3	6.97	15.7	0.02
X-9BR	**09/22/22**	1.140	0.26	-153.6	7.38	12.8	0.02
X-9BR[7]	**09/13/23**	1.740	1.25	-134.6	7.18	14.1	321
X-9CAUG	**09/28/10**	0.995	0.29	-72.3	6.97	12.5	0.1
X-9CAUG	**09/23/11**	1.070	0.45	-116.9	7.03	12.8	0.0
X-9CAUG	**09/12/12**	1.132	1.98	-137.1	6.65	21.0	0.76
X-9CAUG	**09/25/13**	5.046	0.27	-69.0	6.54	15.6	1.29
X-9CAUG	**09/22/14**	Missing field notes					
X-9CAUG	**10/01/15**	1.469	0.27	-156.66	7.12	12.3	4.73

Attachment 9
Field Parameters, 2023 Annual Report
RACER Trust
Green Point Landfill
Saginaw, Michigan

Well ID	Date Sampled	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH (SU)	Temperature (ºC)	Turbidity (NTUs)
X-9CAUG	**09/28/16**	0.634	0.60	0.50	6.74	12.2	3.95
X-9CAUG	**08/29/17**	0.956	0.34	-99.40	7.33	17.0	1.71
X-9CAUG	**09/25/18**	0.80[3]	0.43	-98.2	7.11	19.8	516.53[6]
X-9CAUG	**08/21/19**	0.930	0.35	-109.5	6.92	18.8	1.97
X-9CAUG	**08/18/20**	0.870	0.91	-88.0	6.92	17.4	1.82
X-9CAUGR	**08/18/21**	0.910	0.19	-97.3	6.97	19.4	1.92
X-9CAUGR	**09/22/22**	1.100	0.23	-99.80	7.12	14.2	1.89
X-9CAUGR[7]	**09/13/23**	1.251	5.21	256.30	7.41	14.6	1872
X-9D	**09/28/10**	3.257	0.41	-93.2	7.31	12.5	0.1
X-9D	**09/23/11**	4.270	0.56	-113.8	7.44	11.7	0.0
X-9D	**09/12/12**	3.510	-[2]	-83.1	7.13	14.2	0.10
X-9D	**09/25/13**	19.53	0.17	-113.1	7.08	13.0	1.71
X-9D	**09/22/14**	Missing field notes					
X-9D	**10/01/15**	4.496	0.16	89.53	7.24	12.7	6.59
X-9D	**09/28/16**	4.567	0.12	166.31	7.23	11.2	1.24
X-9D	**08/29/17**	2.140	0.82	133.4	7.00	17.0	1.07
X-9D	**09/25/18**	3.44[3]	0.15	-138.8	7.11	18.6	14.86[6]
X-9D	**08/20/19**	4.520	0.30	-101.9	7.21	22.2	7.82
X-9D	**08/17/20**	1.050	0.33	-167.8	7.43	23.8	1.89
X-9D	**08/18/21**	1.140	0.42	-129.7	7.32	21.2	1.98
X-9D	**09/22/22**	1.240	0.16	21.60	7.44	17.9	0.02
X-9D[7]	**09/13/23**	1.176	8.21	288.80	7.61	14.2	21.6
X-10AR2	**08/12/20**	0.870	0.17	-62.4	6.89	17.1	0.02
X-10AR2	**09/08/20**	0.880	0.31	-63.3	7.01	15.5	9.45
X-10AR2	**08/18/21**	0.825	0.11	-70.4	6.99	19.1	1.90
X-10AR2	**09/22/22**	0.950	0.15	-77.9	7.11	15.0	8.19
X-10AR2[7]	**09/13/23**	1.044	2.98	-37.8	6.96	15.8	128
X-10BR	**09/29/10**	2.446	0.20	-101.2	6.69	14.2	1.4
X-10BR	**09/22/11**	1.692	0.79	-88.1	6.87	13.3	4.8
X-10BR	**09/14/12**	1.953	-[2]	-91.6	6.59	14.6	0.42
X-10BR	**09/24/13**	21.55	0.28	-104.5	6.40	14.2	4.89
X-10BR	**Well Abandoned**						

Notes:

ºC = Celsius.

mg/L = milligrams per liter.

mV = millivolts.

NTUs = Nephelometric Turbidity Units.

SU = Standard Units.

mS/cm = milliSiemens per centimeter.

NA = not applicable/not available.

1. Monitoring well MW-188S1 was sampled on October 10, 2010 but the sampling log was not found.
2. No reading due to faulty dissolved oxygen sensor.
3. Conductivity not recorded. Specific conductance reported instead.
4. Monitoring well purged dry upon sampling. Well was allowed to recharge and then a sample was collected.
5. Monitoring well purged dry. Well did not sufficiently recharge during sampling event; therefore, no sample was collected.
6. Turbidimeter malfunctioned during sampling. Turbidity result is not accurate.
7. Sample collected with hydrasleeve.