Jolly, Becky <becky.jolly@dnr.iowa.gov>

Fwd: Grain Processing Corporation - Annual Water Quality Report 2025

1 message

Rath, Brian <brian.rath@dnr.iowa.gov> Tue, Jan 20, 2026 at 8:03 AM
To: Chris Hage <Christopher.Hage@grainprocessing.com>, Mackenzie Holladay <mackenzie.holladay@grainprocessing.com>, Paul Hagerty <phagerty@all4inc.com>, Bob Kuklentz <rkuklentz@all4inc.com>, Olana Costa <ocosta@all4inc.com>, Becky Jolly <becky.jolly@dnr.iowa.gov>

Good morning, we have received your responses. Once we've had a chance to review, we will set up a meeting with you.

Meanwhile, I am forwarding this to Becky who manages our electronic filing system. Please include her when submitting documents/reports in the future.

Thanks,
Brian

Brian Rath, P.E.
Environmental Engineer Senior
Solid Waste and Contaminated Sites Section
Iowa Department of Natural Resources
6200 Park Ave, Suite 200
Des Moines, IA 50321
515-537-4051
brian.rath@dnr.iowa.gov
www.iowadnr.gov
IOWA DEPARTMENT OF NATURAL RESOURCES

---------- Forwarded message ---------
From: **Olana Costa** <ocosta@all4inc.com>
Date: Mon, Jan 19, 2026 at 5:34 PM
Subject: RE: Grain Processing Corporation - Annual Water Quality Report 2025
To: Rath, Brian <brian.rath@dnr.iowa.gov>
Cc: Chris Hage <Christopher.Hage@grainprocessing.com>, Mackenzie Holladay <mackenzie.holladay@grainprocessing.com>, Paul Hagerty <phagerty@all4inc.com>, Bob Kuklentz <rkuklentz@all4inc.com>

Hi Brian,

On behalf of GPC, ALL4 is submitting the attached report, which includes the items requested per your review of the 2025 GPC AWQR.

After you have had time to review the report, we ask for the opportunity to meet as a group to address any questions or comments before issuing a formal response.

Thank you,

Olana

Olana Costa / Consulting Scientist

360.685.8343 / Profile / LinkedIn

www.all4inc.com / Locations / Articles / Podcast / Training

ALL4 // STRATEGY WITH SOLUTION. PARTNERSHIP WITH A PURPOSE.

From: Rath, Brian <brian.rath@dnr.iowa.gov>
Sent: Wednesday, November 12, 2025 9:38 AM
To: Olana Costa <ocosta@all4inc.com>
Cc: Chris Hage <Christopher.Hage@grainprocessing.com>; brian_peters <brian_peters@grainprocessing.com>; Mackenzie Holladay <mackenzie.holladay@grainprocessing.com>; Paul Hagerty <phagerty@all4inc.com>; Bob Kuklentz <rkuklentz@all4inc.com>
Subject: Re: Grain Processing Corporation - Annual Water Quality Report 2025

Sorry, forgot to answer that. No onsite/field component is required.

Brian Rath, P.E.
Environmental Engineer Senior
Solid Waste and Contaminated Sites Section
Iowa Department of Natural Resources
6200 Park Ave, Suite 200
Des Moines, IA 50321
515-537-4051
brian.rath@dnr.iowa.gov
www.iowadnr.gov

IOWA | DNR
IOWA DEPARTMENT OF NATURAL RESOURCES

On Mon, Nov 10, 2025 at 6:36 PM Olana Costa <ocosta@all4inc.com> wrote:

> Brian,
>
> Thank you for providing these resources. Will an on-site component to the survey be required?
>
> Thank you,
>
> Olana

Olana Costa / Consulting Scientist

360.685.8343 / Profile / LinkedIn

www.all4inc.com / Locations / Articles / Podcast / Training

ALL4 // *STRATEGY WITH SOLUTION. PARTNERSHIP WITH A PURPOSE.*

From: Rath, Brian <brian.rath@dnr.iowa.gov>
Sent: Monday, November 10, 2025 6:00 PM
To: Olana Costa <ocosta@all4inc.com>
Cc: Chris Hage <Christopher.Hage@grainprocessing.com>; brian_peters <brian_peters@grainprocessing.com>; Mackenzie Holladay <mackenzie.holladay@grainprocessing.com>; Paul Hagerty <phagerty@all4inc.com>; Bob Kuklentz <rkuklentz@all4inc.com>
Subject: Re: Grain Processing Corporation - Annual Water Quality Report 2025

Thanks for requesting clarification. I'd rather we all be on the same page upfront.

- Wells. Iowa has two different well databases and unfortunately some wells only show up in one or the other. Information on the databases is provided on our Well Logs and Reports webpage.
- Surface Water Intakes. We are switching some of our online GIS systems, so I just looked at our different resources. Our Solid Waste Map seems to be the best place for surface water intakes at this point - note that you can ignore the login request (we are working on fixing that). You can also use our Facility Explorer but sometimes it is non-responsive (another thing we are working on).
- Search Distances. Several recent receptor surveys have searched out to a mile from the facility for wells, which with topography, well logs, etc. provides a good picture of potential subsurface receptors. For surface water bodies and surface water intakes, that is more of a judgement call that depends on how offsite surface water flow travels. For this site, the creek to the east should be looked at closely as I believe there is a surface water intake downstream.

I hope that helps.

Thanks,

Brian

Brian Rath, P.E.
Environmental Engineer Senior
Solid Waste and Contaminated Sites Section
Iowa Department of Natural Resources
6200 Park Ave, Suite 200
Des Moines, IA 50321
515-537-4051
brian.rath@dnr.iowa.gov
www.iowadnr.gov

IOWA DEPARTMENT OF NATURAL RESOURCES

On Mon, Nov 10, 2025 at 2:57 PM Olana Costa <ocosta@all4inc.com> wrote:

Hi Brian,

I wanted to clarify what you'd like to see included in the receptor survey. We were anticipating including the identification of all wells listed on the Iowa Well Information System (IWIS) database within 1,000 feet of the property boundary, all surface water bodies listed on the IDNR GIS Services within 200 feet of the property boundary, and any registered water intake structures located on the surrounding water bodies.

Does this align with your expectations? Can you confirm if any on-site inspection is needed for this effort?

Thank you,

Olana

Olana Costa / Consulting Scientist

360.685.8343 / Profile / LinkedIn

www.all4inc.com / Locations / Articles / Podcast / Training

ALL4 // *STRATEGY WITH SOLUTION. PARTNERSHIP WITH A PURPOSE.*

From: Olana Costa
Sent: Friday, November 7, 2025 10:40 AM
To: 'Rath, Brian' <brian.rath@dnr.iowa.gov>
Cc: Becky Jolly <becky.jolly@dnr.iowa.gov>; Chris Hage <Christopher.Hage@grainprocessing.com>; brian_peters <brian_peters@grainprocessing.com>; Mackenzie Holladay <mackenzie.holladay@grainprocessing.com>; Paul Hagerty <phagerty@all4inc.com>; Bob Kuklentz <rkuklentz@all4inc.com>
Subject: RE: Grain Processing Corporation - Annual Water Quality Report 2025

Brian,

Thank you for your review. We'll dig into your observations and requested additional information and likely circle back with a follow-up meeting in the next few weeks to make sure we're aligned on expectations and methods. In the interim, if we have any questions, I'll be sure to reach out.

Thank you and have a great weekend,

Olana

Olana Costa / Consulting Scientist

360.685.8343 / Profile / LinkedIn

www.all4inc.com / Locations / Articles / Podcast / Training

ALL4 // STRATEGY WITH SOLUTION. PARTNERSHIP WITH A PURPOSE.

From: Rath, Brian <brian.rath@dnr.iowa.gov>
Sent: Thursday, November 6, 2025 12:56 PM
To: brian_peters <brian_peters@grainprocessing.com>
Cc: Becky Jolly <becky.jolly@dnr.iowa.gov>; Chris Hage <Christopher.Hage@grainprocessing.com>; Mackenzie Holladay <mackenzie.holladay@grainprocessing.com>; Olana Costa <ocosta@all4inc.com>; Paul Hagerty <phagerty@all4inc.com>; Bob Kuklentz <rkuklentz@all4inc.com>
Subject: Re: Grain Processing Corporation - Annual Water Quality Report 2025

The DNR has completed its review of the 2025 AWQR for the above-referenced facility.

There are multiple action level exceedances (arsenic, boron, lithium, sodium, and sulfate) at several downgradient monitoring wells, with the majority occurring at MW-10. However, similar exceedances of action levels are not noted in the background wells. In addition, there are numerous statistical exceedances of two times the standard deviation.

Considering the above, the DNR could require additional sampling or site assessment per Chapter 103. However, we believe that may be premature and instead are concerned that the current statistical methodology may be inadequate. Specifically, the current methodology assumes data is parametric when many times groundwater data is not, but this hasn't been addressed for this site. Further, there is no or limited consideration of statistical power and outliers. Therefore, the DNR requests a review of the current methodology that addresses the above concerns and takes into consideration the EPA's Unified Guidance. If these concerns cannot be adequately addressed using the current methodology, we request a more robust methodology be proposed for our consideration.

In conjunction with the above review, please perform a receptor survey (i.e. water wells, drinking water intakes, etc.). For potential receptors downgradient from or side gradient of the landfill, include a discussion of the potential impacts the landfill may be having or could have in the future on these receptors.

As noted in the report, MW-5 has not been sampled due to the point being dry. Therefore, the DNR requests that the HMSP be reviewed to determine a location for a replacement well, if applicable.

The leachate liquid levels appear to be within historical levels and trends. Therefore, please continue to monitor per the permit and regulations.

Please provide the above requested items on or before March 31, 2026.

Meanwhile, we acknowledge that the change in DNR project officers for this site may result in more questions or comments than you have been used to. Therefore, we are open to and encourage you to contact us to discuss these further with you.

Thanks,

Brian

Brian Rath, P.E.
Environmental Engineer Senior
Solid Waste and Contaminated Sites Section
Iowa Department of Natural Resources
6200 Park Ave, Suite 200
Des Moines, IA 50321

515-537-4051
brian.rath@dnr.iowa.gov
www.iowadnr.gov
IOWA | DNR
IOWA DEPARTMENT OF NATURAL RESOURCES

On Tue, Oct 14, 2025 at 4:04 PM Rath, Brian <brian.rath@dnr.iowa.gov> wrote:

> Good afternoon, Mackenzie. Thank you for asking your question again as I missed that the first time around. As noted in Doc 107756, please continue to sample in accordance with your permit.
>
> I would be happy to meet with you, your staff, and consultant. You can see my availability at the following link and send me a meeting invite using your system. Otherwise, you can schedule a meeting with me through the above link and use our Google Meets.
>
> Meanwhile, please let me know if you have any questions.
>
> Thanks,
> Brian
>
> **Brian Rath**, P.E.
> **Environmental Engineer Senior**
> Solid Waste and Contaminated Sites Section
> Iowa Department of Natural Resources
> 6200 Park Ave, Suite 200
> Des Moines, IA 50321
> 515-537-4051
> brian.rath@dnr.iowa.gov
> www.iowadnr.gov
> IOWA | DNR
> IOWA DEPARTMENT OF NATURAL RESOURCES
>
> On Tue, Oct 14, 2025 at 1:13 PM Mackenzie Holladay <Mackenzie.Holladay@grainprocessing.com> wrote:
>
>> Good Afternoon,
>>
>> Following up to see if you had any questions or concerns regarding the continuation of the proposed sampling schedule? Also, we would like to set up a conference call sometime during the week of October 27th to discuss post-closure activities along with our consultant. Please let me know your availability.

Thank you,

Mackenzie Holladay, Environmental Specialist

From Field to Family

A KENT Family Business

Office: 563-264-4870 | Mobile: 563-260-9533

mackenzie.holladay@grainprocessing.com

www.kentww.com

www.grainprocessing.com

"Working towards a sustainable future, one grain at a time."

From: Mackenzie Holladay
Sent: Monday, September 29, 2025 4:24 PM
To: Rath, Brian <brian.rath@dnr.iowa.gov>; Becky Jolly <becky.jolly@dnr.iowa.gov>
Cc: Chris Hage <Christopher.Hage@grainprocessing.com>; Brian Peters <brian_peters@grainprocessing.com>
Subject: Grain Processing Corporation - Annual Water Quality Report 2025
Importance: High

Good Afternoon,

Please find the attached 2025 Annual Water Quality Report for our Coal Combustion Residue Monofill (Permit No. #58-SDP-03-92C) completed by Stanley Consultants. Also, we plan to continue to sample at the same frequency since 2017 (see attached letter). Odd years will follow a Spring sampling schedule and even years will follow a Fall sampling schedule. Please let us know if you have any questions or concerns.

Thank you,

Mackenzie Holladay, Environmental Specialist

From Field to Family

A KENT Family Business

Office: 563-264-4870 | Mobile: 563-260-9533

mackenzie.holladay@grainprocessing.com

www.kentww.com

www.grainprocessing.com

"Working towards a sustainable future, one grain at a time."

GPC CCR Landfill Post-Closure Report_Jan 2026.pdf
11238K

Coal Combustion Residue Landfill

Post-Closure Monitoring Report

Grain Processing Corporation – Muscatine, Iowa

January 2026

Submitted by:

Grain Processing Corporation
Muscatine, Iowa
1600 Oregon Street
Muscatine, Iowa 52761

Submitted to:

Iowa Department of Natural Resources
Solid Waste and Contaminated Sites Section
6200 Park Ave, Suite 200
Des Moines, IA 50321

TABLE OF CONTENTS

Section Name **Page Number**

1. INTRODUCTION AND BACKGROUND....1-1
1.1 GENERAL SITE INFORMATION AND MONITORING WELL NETWORK....1-1
1.2 ANNUAL SAMPLING....1-2
2. STATISTICAL ANALYSIS....2-1
2.1 PURPOSE OF ANALYSIS....2-1
2.2 METHODS....2-1
2.2.1 Data Handling and Compilation....2-1
2.2.2 Evaluation of Concentration Distributions for Methods Selection....2-2
2.2.3 Background Thresholds and Regulatory Limit Comparison....2-3
2.2.4 Spatial Comparisons (Interwell Analysis)....2-3
2.2.5 Temporal Trend Analysis (Intrawell Analysis)....2-4
2.3 WILCOXON RANK-SUM TEST (INTERWELL ANALYSIS) RESULTS....2-4
2.4 MANN-KENDALL TREND TEST (INTRAWELL ANALYSIS) RESULTS....2-8
2.5 ANALYTE ASSESSMENT SUMMARY....2-10
2.6 AQUIFER ASSESSMENT CONCLUSIONS AND RECOMMENDATIONS....2-12
2.6.1 Upper Aquifer Conclusions and Monitoring Recommendations....2-12
2.6.2 Continuous Aquifer Conclusions and Monitoring Recommendations....2-12
3. MONITORING WELL 5 (MW-5) EVALUATION....3-1
3.1 DATA REVIEW....3-1
3.2 OTHER CONSIDERATIONS....3-1
3.3 RECOMMENDATIONS....3-2
4. RECEPTOR SURVEY....4-1
4.1 DATA SOURCES....4-1
4.2 RESULTS....4-2
5. REFERENCES....5-1

LIST OF APPENDICES

Appendix A - Figures

Appendix B - Tables

Appendix C - QQ Plots

Appendix D - Histograms

Appendix E - Boxplots

Appendix F - Mann-Kendall Timeseries Plots

Appendix G - MW-5 Timeseries Plots

1. INTRODUCTION AND BACKGROUND

Grain Processing Corporation (GPC) owns and maintains a closed Coal Combustion Residue (CCR) landfill located in Muscatine, Iowa (Site; Figure A-1). The landfill was acquired by GPC in 1993 for the disposal of CCR, spent carbon, and construction rubble generated at GPC's nearby corn processing plant.

GPC terminated its use of coal-fired boilers on July 14, 2015, and last disposed of CCR at the landfill on July 15, 2015. Spent carbon (produced by GPC's filtering process) continued to be disposed of until June 29, 2016. Following the completion of closure construction activities in 2018, GPC received a 10-year Closure Permit (Permit) from the Iowa Department of Natural Resources (IDNR) on January 3, 2019, thus commencing the post-closure period. GPC has conducted post-closure groundwater monitoring of the landfill in accordance with the Permit and their IDNR-approved Closure/Post-Closure Plan (Closure Plan), prepared by HR Green and dated September 20, 2016.

An Annual Water Quality Report (AWQR) is submitted to the IDNR in November of each year to provide IDNR with a summary of the year's post-closure monitoring activities and a groundwater data evaluation to identify potential effects the landfill may be having on local groundwater quality.

ALL4 LLC (ALL4) was retained by GPC to address comments made by the IDNR on the 2025 AWQR. Specifically, the IDNR requested three items; 1) a review of the current methods for statistically evaluating groundwater data, 2) an evaluation of Monitoring Well-5 (MW-5), as it regularly lacks sufficient water for annual sampling, and 3) a receptor survey to identify potential receptor pathways downgradient of the Site. This report was prepared specifically in response to the IDNR-requested items and also provides recommendations for future post-closure monitoring.

All figures referenced in this report are provided in Appendix A and all tables are provided in Appendix B.

1.1 GENERAL SITE INFORMATION AND MONITORING WELL NETWORK

The Site was first permitted for disposal by the IDNR in the early 1990's. The landfill disposal footprint encompasses approximately 28 acres and was constructed with no liner or leachate collection system.

Topographically, the landfill is built into a ridge to the west, and the Muscatine Slough bounds the property to the east, as shown on Figure A-2. The Site is bordered by undeveloped forestland to the north, and farmland to the east, south, and west.

As previously documented in the Hydrogeologic Investigation Report and Proposed Hydrologic Monitoring System Plan prepared by HR Green and dated March 30, 1994, the hydrogeology below the Site includes four water bearing zones (three perched and discontinuous zones, and one deep continuous zone). The uppermost zone cannot be monitored because it is limited to the upgradient portion of the Site and does not extend below the landfill to accommodate a downgradient monitoring well.

The second uppermost zone ("upper aquifer") and the deep continuous zone ("continuous aquifer") are monitored via a network of eight monitoring wells positioned upgradient, downgradient, and side gradient of the landfill, as shown on Figure A-2. MW-2 (upgradient) and MW-4 are used to monitor the upper aquifer, consisting of an intra-till sand unit perched on an underlying clay-rich glacial till. MW-3 (upgradient), MW-10, MW-15, MW-16, MW-17, and MW-18 are used to monitor the continuous aquifer, consisting of a lower intra-till sand unit, separated from the CCR fill by clay-rich till to the west and unsaturated intra-till sand and alluvium to the east (HR Green, 1994).

An additional perched water bearing zone is located near the northeast corner of the landfill and is separated from the continuous aquifer by a floodplain clay deposit, upon which the water bearing zone sits. MW-5, located adjacent to MW-15, is used to monitor groundwater in the zone, however, it has appeared to be dry during recent sampling events. This perched zone and MW-5 are further discussed in Section 3.

1.2 ANNUAL SAMPLING

The Closure Plan's sampling schedule includes an annual event conducted in September of each year; however, this was replaced with an IDNR-approved schedule modified to incorporate seasonal variability to establish a more robust background dataset, as recommended in the 2016 AWQR (HR Green, 2016). The modified schedule alternated between a fall/winter sampling followed by a spring/summer sampling the next year. As of 2023, given that an adequate background dataset consisting of eight samples has been established, the IDNR has approved GPC to revert to the originally proposed September sampling.

Groundwater samples are collected via a low-flow method and analyzed for total arsenic, barium, beryllium, boron, calcium, cobalt, copper, iron, lead, lithium, magnesium, manganese, potassium, selenium, sodium, and zinc (metals are not field filtered), pH, bicarbonate alkalinity, chloride, sulfate, and total suspended solids (TSS). This list of analytes is required per Special Provision 6(e) of the Permit.

2. STATISTICAL ANALYSIS

2.1 PURPOSE OF ANALYSIS

The statistical methodology employed for the Site's groundwater dataset up to and including the 2025 AWQR has generally been in accordance with the Closure Plan. However, due to the Closure Plan's limited specificity, the statistical methodology assumed a parametric dataset and does not generally conform to the United States Environmental Protection Agency's (U.S. EPA) "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance" (Unified Guidance), as recently commented on by the IDNR. To address this, ALL4 developed a revised approach for IDNR concurrence, as presented in the following sections.

2.2 METHODS

2.2.1 Data Handling and Compilation

Groundwater monitoring data collected from 2016-2025 (Table B-1) were included in this analysis, producing an initial sample size of ten (n = 10) (before consideration of non-detect values or other values requiring exclusion). A small sample size such as this limits the statistical power of both parametric and nonparametric tests, resulting in only relatively large differences in concentration able to be detected reliably, while moderate or subtle differences may go undetected (U.S. EPA, 2009, Chapter 6). Continued groundwater sampling will improve statistical power, thereby reducing uncertainty and providing greater confidence in a statistical evaluation.

Two data sufficiency criteria were applied prior to conducting statistical tests. First, analyte-well combinations with datasets containing greater than 50% (>50%) non-detect values were excluded from statistical analysis because trend and comparison tests are unreliable for highly censored datasets. Second, analyte-well combinations with fewer than eight (n<8) usable data points were excluded due to insufficient statistical power, as eight is the minimum sample size recommended for trend testing (U.S. EPA, 2009, p. 5-3).

Data were then screened for outliers (e.g., potential transcription or laboratory errors) through a technical review of chain of custodies and laboratory analytical reports and visually assessed using boxplots. All values were determined to be valid and were retained (U.S. EPA, 2009, p. 6-35). Non-detects in the remaining datasets were substituted at one-half the laboratory reporting limit. Given the small sample size, parametric methods to handle non-detects recommended in the Unified Guidance were not feasible, and therefore, assuming a uniform distribution of non-detects along the left tail and substituting at one-half the reporting limit was applied as the most practical, unbiased estimate of the left tale (U.S. EPA, 2009, p. 6-36 to 6-37). No additional data removals or exclusion criteria were applied.

MW-5 did not meet the minimum data sufficiency criteria (n≥8 and <50% non-detects) due to insufficient data as a result of intermittent dry well conditions and therefore, data from this well were not included in the statistical analysis. Further discussion of MW-5 is provided in Section 3.

Other analyte-well pairs with insufficient datasets are provided in Tables B-2 through B-6.

2.2.2 Evaluation of Concentration Distributions for Methods Selection

Analyte concentration distributions (i.e., data normality) observed in each aquifer were examined prior to selecting trend and comparison tests. Normality was assessed using the Shapiro-Wilk Test, quantile-quantile (Q-Q) plots, and histogram review. The majority of analytes exhibited non-normal distributions. Analytes that were classified as normally distributed by the Shapiro-Wilk Test were further assessed using Q-Q plots and histograms, which suggested that the apparent normality detected by the Shapiro-Wilk Test was likely an artifact of the small sample size, except for pH, which does appear normally distributed. Based on these findings, non-parametric statistical approaches were selected for both spatial comparisons (interwell analysis) and temporal trend analyses (intrawell analysis). The Wilcoxon Rank-Sum test was selected for interwell analysis, and the Mann-Kendall Trend Test was selected for intrawell analysis. All hypothesis tests were conducted using an alpha level (α) of 0.05. Shapiro-Wilk Test results are provided in Table B-2, Q-Q plots are provided in Appendix C, and histogram plots are provided in Appendix D.

2.2.3 Background Thresholds and Regulatory Limit Comparison

Background thresholds were established using the maximum historical concentration for each analyte observed in upgradient wells (MW-2 for the upper aquifer and MW-3 for the continuous aquifer). Given the non-normal distribution, small sample size, and that no statistical outliers were identified in the dataset and all measurements represent valid detections, the maximum historical concentration is considered representative of the background distribution (U.S. EPA, 2009, p. 18-17 to 18-22). Separate background thresholds were established for each aquifer.

Analytical results were also compared to applicable state and federal regulatory limits, including Maximum Contaminant Levels (MCLs), Health Advisory Levels (HALs), Iowa State-Wide Standards for a Protected Groundwater Source (PGW SWS), and Secondary Drinking Water Regulations (SDWRs).

Background thresholds and regulatory limit comparisons are provided in Tables B-3 and B-4.

2.2.4 Spatial Comparisons (Interwell Analysis)

The Wilcoxon Rank-Sum Test (U.S. EPA, 2009, Section 16.2) was used to evaluate differences in analyte concentrations between upgradient (background) and downgradient wells. The upper and continuous aquifers were tested separately. This test compares the distributions of two independent groups without assuming normality, making it appropriate for small sample sizes or datasets with non-normal distributions. The test produces a W statistic and p-value, where W is the sum of ranks assigned to the downgradient well group and p-values less than 0.05 indicate a statistically significant difference between the groups.

To visualize the distribution of concentrations and support statistical interpretation, boxplots were generated for each analyte, separated by aquifer. These figures illustrate central tendencies, variability, and potential exceedances relative to background thresholds (Appendix E).

2.2.5 Temporal Trend Analysis (Intrawell Analysis)

The Mann-Kendall Trend Test (U.S. EPA, 2009, Section 17.3.2) was used to evaluate temporal trends of analyte concentrations in each well independent of each other. The Mann-Kendall Trend Test assesses upward or downward trends without assuming normally distributed data or uniform sampling intervals. The test produces a tau statistic and an associated p-value. A positive tau indicates an increasing trend, while a negative tau indicates a decreasing trend. P-values less than 0.05 indicate a statistically significant trend.

Time series plots were generated for each analyte-well pair with a Thiel-Sen median slope trend line overlaid to illustrate the direction of the trend. In cases where an intrawell trend is not identified due to insufficient data, the corresponding Thiel-Sen trend line may be used as an early indicator of increasing or decreasing concentrations, which may become statistically significant with a larger sample size. Reference lines showing background thresholds and regulatory limits were also included to provide context for evaluating water quality (Appendix F).

2.3 WILCOXON RANK-SUM TEST (INTERWELL ANALYSIS) RESULTS

The complete Wilcoxon Rank-Sum Test results, including analytes not tested due to insufficient data (Section 2.2.1), and analytes with no statistically significant difference from background, are provided in Tables B-3 and B-4. To elucidate the results, the in-text tables provided below only identify the downgradient well-analyte pairs statistically above or below background.

Upper Aquifer Wilcoxon-Rank Sum Test Results

Analyte	Result	2025 Detected Concentration (mg/L)	Background Threshold (MW-2) (mg/L)	Regulatory Limit (mg/L)
MW-4				
Barium (total)	Above Background	0.147	0.0392	2[MCL]
Cobalt (total)	Above Background	***0.00588***	0.00134	0.0021[SWS]
Iron (total)	Above Background	***7.17***	0.597	0.3[SDWR]
Manganese (total)	Above Background	***0.514***	0.182	0.3[HAL]
Potassium (total)	Above Background	1.53	0.53	-
Sodium (total)	Above Background	19.4	13.1	20[HAL]
Sulfate	Above Background	66.0	48.1	250[SDWR]
Total Suspended Solids (TSS)	Above Background	8.25	27.5	-

Analytes above the regulatory limit are shown in **bold** ***italic***.

Superscript Key:

MCL – Maximum contaminant level

SWS – State-wide standard for protected groundwater source

SDWR – Secondary drinking water regulation

HAL – Federal health advisory level

Continuous Aquifer Wilcoxon-Rank Sum Test Results

Analyte	Result	2025 Detected Concentration (mg/L)	Background Threshold (MW-3) (mg/L)	Regulatory Limit (mg/L)
MW-10				
Barium (total)	Below Background	0.0314	0.23	2^MCL
Calcium (total)	Above Background	361	118	-
Cobalt (total)	Below Background	ND(<0.0005)	0.000855	0.0021^SWS
Iron (total)	Below Background	0.139	2.42	0.3^SDWR
Lithium (total)	Above Background	***0.214***	ND(<0.01)	0.014^SWS
Magnesium (total)	Above Background	106	35.2	-
Manganese (total)	Below Background	0.0786	0.444	0.3^HAL
Potassium (total)	Above Background	12.50	1.49	-
Sodium (total)	Above Background	***50.7***	18.5	20^HAL
Bicarbonate Alkalinity	Above Background	593	442	-
Sulfate	Above Background	***803***	42.8	250^SDWR
Total Suspended Solids (TSS)	Below Background	7.00	11.8	-
MW-15				
Barium (total)	Below Background	0.134	0.23	2^MCL
Calcium (total)	Above Background	113	118	-
Cobalt (total)	Above Background	0.000934	0.000855	0.0021^SWS
Iron (total)	Below Background	0.134	2.42	0.3^SDWR
Lithium (total)	Above Background	0.0119	ND(<0.01)	0.014^SWS
Magnesium (total)	Above Background	39.1	35.2	-
Manganese (total)	Below Background	0.294	0.444	0.3^HAL
Potassium (total)	Above Background	1.91	1.49	-
Sodium (total)	Above Background	***62.1***	18.5	20^HAL
Bicarbonate Alkalinity	Above Background	504	442	-
Sulfate	Above Background	59.2	42.8	250^SDWR

Analytes above the regulatory limit are shown in **bold *italic***.

Superscript Key:

MCL – Maximum contaminant level

SWS – State-wide standard for protected groundwater source

SDWR – Secondary drinking water regulation

HAL – Federal health advisory level

Continuous Aquifer Wilcoxon-Rank Sum Test Results (cont.)

Analyte	Result	2025 Detected Concentration (mg/L)	Background Threshold (MW-3) (mg/L)	Regulatory Limit (mg/L)
MW-16				
Barium (total)	Below Background	0.0557	0.23	2[MCL]
Calcium (total)	Above Background	236	118	-
Cobalt (total)	Above Background	0.00172	0.000855	0.0021[SWS]
Lithium (total)	Above Background	***0.500***	ND(<0.01)	0.014[SWS]
Magnesium (total)	Above Background	109	35.2	-
Manganese (total)	Above Background	***0.686***	0.444	0.3[HAL]
Potassium (total)	Above Background	6.98	1.49	-
Sodium (total)	Above Background	***179***	18.5	20[HAL]
Bicarbonate Alkalinity	Above Background	939	442	-
Sulfate	Above Background	243	42.8	250[SDWR]
Total Suspended Solids (TSS)	Above Background	19.7	11.8	-
MW-17				
Barium (total)	Below Background	0.0591	0.23	2[MCL]
Calcium (total)	Above Background	129	118	-
Cobalt (total)	Above Background	0.00203	0.000855	0.0021[SWS]
Magnesium (total)	Above Background	51.8	35.2	-
Manganese (total)	Above Background	***0.851***	0.444	0.3[HAL]
Potassium (total)	Above Background	1.67	1.49	-
Bicarbonate Alkalinity	Above Background	480	442	-
Sulfate	Above Background	69.7	42.8	250[SDWR]
MW-18				
Iron (total)	Above Background	***14.60***	2.42	0.3[SDWR]
Lithium (total)	Above Background	***0.0444***	ND(<0.01)	0.014[SWS]
Manganese (total)	Above Background	***0.399***	0.444	0.3[HAL]
Potassium (total)	Below Background	0.834	1.49	-
Total Suspended Solids (TSS)	Above Background	33.0	11.8	-

Analytes above the regulatory limit are shown in ***bold italic***.

Superscript Key:

MCL – Maximum contaminant level

SWS – State-wide standard for protected groundwater source

SDWR – Secondary drinking water regulation

HAL – Federal health advisory level

2.4 MANN-KENDALL TREND TEST (INTRAWELL ANALYSIS) RESULTS

The complete Mann-Kendall Trend Test results, including analytes not tested due to insufficient data, and analytes without a trend, are provided in Tables B-5 and B-6. The in-text tables provided below only identify each aquifer's well-analyte pairs that show an increasing or decreasing intrawell trend result.

Upper Aquifer Mann-Kendall Trend Test Results

Analyte & Regulatory Limit	**MW-2 Upgradient (Upper Aquifer)**	**MW-4 Downgradient (Upper Aquifer)**
Bicarbonate Alkalinity (No Regulatory Limit)	***Increasing***	No Trend
Total Suspended Solids (TSS) (No Regulatory Limit)	No Trend	Decreasing

Continuous Aquifer Mann-Kendall Trend Test Results

Analyte & Regulatory Limit	MW-10 Downgradient (Continuous Aquifer)	MW-15 Downgradient (Continuous Aquifer)	MW-16 Downgradient (Continuous Aquifer)	MW-17 Downgradient (Continuous Aquifer)	MW-18 Downgradient (Continuous Aquifer)
Boron (Total) HAL = 6 mg/L	No trend	Decreasing	***Increasing***	No trend	No trend
Calcium (Total) No Regulatory Limit	No trend	No trend	***Increasing***	No trend	No trend
Cobalt (Total) PGW SWS = 0.0021 mg/L	No trend	No trend	No trend	No trend	Decreasing
Lithium (Total) PGW SWS = 0.014 mg/L	Decreasing	No trend	***Increasing***	No trend	No trend
Magnesium (Total) No Regulatory Limit	No trend	Decreasing	***Increasing***	No trend	No trend
Manganese (Total) HAL = 0.3 mg/L	No trend	No trend	No trend	No trend	Decreasing
Potassium (Total) No Regulatory Limit	***Increasing***	No trend	***Increasing***	No trend	No trend
Sodium (Total) HAL (restricted diets) = 20 mg/L	No trend	No trend	***Increasing***	Decreasing	No trend
Bicarbonate Alkalinity No Regulatory Limit	No trend	Decreasing	***Increasing***	No trend	No trend
Chloride SDWR = 250 mg/L	No trend	Decreasing	***Increasing***	No trend	No trend

2.5 ANALYTE ASSESSMENT SUMMARY

The monitored analytes were categorized into subgroups, as shown in the tables below, based on potential groundwater impact, considering background comparisons, trend analyses, and regulatory limit exceedances. The subgroups were used to facilitate the assessment of analytes recommended for reduced or increased post-closure monitoring.

Upper Aquifer Analyte Subgroups

Analyte	Note
Analytes Above Background and/or Regulatory Limits	
Cobalt	Above background; Exceedances in MW-4; No intrawell trend; Negative Thiel-Sen slope
Iron	Above background; Exceedances in MW-4; No intrawell trend; Negative Thiel-Sen slope
Manganese	Above background; Exceedances in MW-4; No intrawell trend; Negative Thiel-Sen slope
Sodium	Fluctuates around regulatory limit; No intrawell trend
Analytes Above Background but Below Regulatory Limits	
Barium	Above background; No intrawell trend
Sulfate	Above background; No intrawell trend
Analytes without Regulatory Limits	
Potassium	Above background; No intrawell trend
TSS	Above background; Decreasing intrawell trend
Calcium	No inter/intrawell trends
Magnesium	No inter/intrawell trends
Bicarbonate Alkalinity	Increasing intrawell trend in upgradient well (MW-2)
Analytes Below Regulatory Limits with No Spatial or Temporal Trends	
Beryllium	>50% non-detect results; Excluded from annual evaluation
Copper	>50% non-detect results; Excluded from annual evaluation
Lead	>50% non-detect results; Excluded from annual evaluation
Selenium	>50% non-detect results; Excluded from annual evaluation
Lithium	>50% non-detect results; Excluded from annual evaluation
Zinc	>50% non-detect results; Excluded from annual evaluation
Arsenic	No inter/intrawell trends; Below regulatory limit
Boron	No inter/intrawell trends; Below regulatory limit
Chloride	No inter/intrawell trends; Below regulatory limit

Continuous Aquifer Analyte Subgroups

Analyte	Note
Analytes Above Background and/or Regulatory Limits	
Cobalt	Above background MW-15, MW-16, MW-17; Decreasing intrawell trend MW-18; Historic exceedances MW-16, MW-17
Iron	Above background MW-18; Exceedances MW-16, MW-17, MW-18; No intrawell trends
Lithium	Above background MW-10, MW-15, MW-16, MW-18; Exceedances MW-10, MW-16, MW-18; Decreasing intrawell MW-10; Increasing intrawell MW-16
Manganese	Above background MW-10, MW-16, MW-17, MW-18; Exceedances MW-15, MW-16, MW-17, MW-18; Decreasing intrawell MW-18
Sodium	Above background MW-10, MW-15, MW-16; Exceedances MW-10, MW-15, MW-16; Increasing intrawell MW-16; Decreasing intrawell MW-17
Sulfate	Above background MW-10, MW-15, MW-16, MW-17; Exceedances in MW-10; No intrawell trends
Arsenic	Insufficient background data for interwell test; Exceedances in MW-18; No intrawell trends; Elevated concentrations appear localized to MW-18
Boron	Insufficient background data for interwell test; Exceedances MW-10, MW-16; Increasing intrawell MW-16; Decreasing intrawell MW-15; Elevated concentrations appear localized to MW-10/MW-16
Analytes Above Background but Below Regulatory Limits	
Chloride	Insufficient background data for interwell test; Boxplots indicate downgradient wells are above background; Decreasing intrawell MW-15; Increasing intrawell MW-16
Analytes without Regulatory Limits	
Calcium	Above background MW-10, MW-15, MW-16, MW-17; Increasing intrawell MW-16
Magnesium	Above background MW-10, MW-15, MW-16, MW-17; Increasing intrawell MW-16; Decreasing intrawell MW-15
Potassium	Above background MW-10, MW-15, MW-16, MW-17; Below background MW-18; Increasing intrawell MW-10, MW-16
Bicarbonate Alkalinity	Above background MW-10, MW-15, MW-16, MW-17; Increasing intrawell MW-16; Decreasing intrawell MW-15
TSS	Above background MW-16, MW-18; Below background MW-10; No intrawell trends
Analytes Below Regulatory Limits with No Spatial or Temporal Trends	
Beryllium	>50% non-detect results; Excluded from annual evaluation
Copper	>50% non-detect results; Excluded from annual evaluation
Lead	>50% non-detect results; Excluded from annual evaluation
Selenium	>50% non-detect results; Excluded from annual evaluation
Zinc	>50% non-detect results; Excluded from annual evaluation
Barium	No inter/intrawell trends; Below regulatory limit

2.6 AQUIFER ASSESSMENT CONCLUSIONS AND RECOMMENDATIONS

Based on the statistical assessments above, the following conclusions and recommendations are offered for each of the two monitored aquifers.

2.6.1 Upper Aquifer Conclusions and Monitoring Recommendations

As presented above, beryllium, copper, lead, selenium, zinc, arsenic, boron, lithium, chloride, calcium, magnesium, and bicarbonate alkalinity all remain below regulatory limits and show no significant downgradient increasing spatial or temporal trends. As such, GPC is proposing to discontinue monitoring these analytes at all upper aquifer monitoring wells.

Barium, sulfate, potassium, and TSS show spatial trends that indicate concentrations downgradient are above background. However, as barium and sulfate remain well below regulatory limits, and potassium and TSS have no established regulatory limits, these analytes do not currently appear to pose a risk to human health or the environment. Therefore, GPC is proposing to discontinue monitoring these analytes at all upper aquifer monitoring wells.

Cobalt, iron, manganese, and sodium should continue to be monitored at the current frequency as they have been identified above background and/or above regulatory limits at MW-4.

2.6.2 Continuous Aquifer Conclusions and Monitoring Recommendations

As presented above, barium, beryllium, copper, lead, selenium, and zinc, all remain below regulatory limits and show no significant downgradient increasing spatial or temporal trends. As such, GPC is proposing to discontinue monitoring these analytes at all continuous aquifer monitoring wells.

Chloride, calcium, magnesium, potassium, bicarbonate alkalinity, and TSS show spatial and/or temporal trends that indicate concentrations downgradient of the landfill are above background and/or are temporally increasing. However, as chloride remains well below the regulatory limit, and the other listed analytes have no established regulatory limits, these analytes do not currently appear to pose a risk to human health or the environment. Therefore, GPC is proposing to discontinue monitoring these analytes at all continuous aquifer monitoring wells.

Cobalt, iron, lithium, manganese, sodium, sulfate, arsenic, and boron should continue to be monitored at the current frequency as they have been identified above background and/or above regulatory limits at one or more downgradient wells.

3. MONITORING WELL 5 (MW-5) EVALUATION

MW-5 has been dry for three of the past four annual sampling events. MW-5 is screened in a perched floodplain clay deposit, located above and hydraulically distinct from the upper and continuous aquifers monitored by the other wells in the network. MW-5 is nested with MW-15, located downgradient of the landfill, and in the northeast corner of the Site. MW-5 does not have a background comparison well because of the limited extent of the perched floodplain clay deposit.

3.1 DATA REVIEW

Historic MW-5 groundwater data show exceedances of cobalt, iron, lithium, manganese, and sodium, which have also been identified in the continuous aquifer monitoring wells (Sections 2.3 through 2.5), indicating a similar chemical signature. A time series plot with an overlaid trend line for each analyte is provided in Appendix G. Time series plots for cobalt, lithium, manganese, and sodium show a slightly negative trend line slope. Iron does not show a discernable slope direction. MW-5 has been included on the continuous aquifer boxplots (Appendix E) to visually assess if there are major concentration differences compared to the continuous aquifer wells. Potassium and sodium are the only analytes that show a higher median concentration in MW-5 compared to the rest of the wells.

3.2 OTHER CONSIDERATIONS

It is common for wells in perched or shallow aquifers to have reduced recharge and/or stop producing water completely after landfill closure and capping with an impermeable layer, which reduces infiltration of rainwater to the landfill and surrounding soils.

Sampling events that were conducted in the Spring show higher groundwater elevations, and the last successful MW-5 sample collection was in April of 2023. Sampling during wetter months may increase the likelihood of the well producing sufficient head for sampling; however, the semi-persistent dry conditions in MW-5 suggest there is limited groundwater flow in the perched zone.

3.3 RECOMMENDATIONS

Given these conditions, GPC is proposing not to proceed with MW-5 well replacement based on the following:

- Drilling a new well in the same zone is unlikely to produce sufficient water for sampling.
- There are likely no receptors impacted by the uppermost perched aquifer due to its limited extent.
- Analytes detected above regulatory limits in MW-5 are also monitored by the continuous aquifer wells, and therefore, potential impacts to human health and the environment are being adequately monitored.

Retaining MW-5 in its current state, while continuing to monitor the surrounding aquifers, provides the most practical approach moving forward. GPC will continue an annual attempt of sample collection from MW-5 to monitor whether water returns naturally. If MW-5 remains dry for the following two annual sampling events, GPC will evaluate alternative approaches to determine the most appropriate course of action.

4. RECEPTOR SURVEY

A receptor survey was conducted to identify potential exposure pathways to receptors within one mile of the Site. This information may be used to further assess potential impacts of the landfill on human health and the environment and how such impacts, or lack thereof, may support termination of the post-closure monitoring period.

4.1 DATA SOURCES

The following data sources were used to identify potential exposure pathways that may, in turn, lead to hypothetical or actual human health or environmental receptors:

Groundwater Wells:

- Iowa Institute of Hydraulic Research (IIHR) – Iowa Geological Survey (IGS) GeoSam Database
- DNR's Iowa Well Information System (IWIS)
- Iowa Geospatial Data Clearinghouse Geographic Information System (GIS) Data Layers:
  - "All Registered Wells in the State of Iowa"
  - "Water Use Wells"

Surface Water Bodies:

- Google Earth Pro
- Iowa DNR – Water Quality Assessment Database (ADBNet)
- Iowa Geospatial Data Clearinghouse GIS Data Layers:
  - "Protected Water Areas"

Surface Water Intakes:

- Iowa DNR – Solid Waste Map
- Iowa DNR – Facility Explorer
- Iowa Geospatial Data Clearinghouse GIS Data Layers:
  - "Water Use Surface Water Intakes"
  - "Public Surface Water Intake"

4.2 RESULTS

Potential exposure pathways identified during this survey are shown on Figures A-3 and A-4 and are provided in Table B-7. The potential exposure pathways include:

- Fifteen groundwater wells.
- Two surface water bodies (only one within one mile of Site).
- One surface water intake structure (not within one mile of Site).

Review of available well records from the IWIS and GeoSam databases indicate that, of the 15 groundwater wells within one mile of the Site, eight of them are either downgradient or cross gradient from the Site. Well identification numbers are available for these eight wells (Table B-7); however, the available data do not provide further information about their current status (e.g., active, inactive, decommissioned) nor their usage (e.g., monitoring, potable, irrigation, etc.). Surrounding land use, their total recorded depths (all are relatively shallow), and the lack of clear ownership/detailed well information suggest they may not be used for potable consumption and are more likely to be for agricultural irrigation, if in use at all.

The Muscatine Slough is the closest surface water body to the Site and is located approximately 1,300 feet east and downgradient of the Site. The Slough is designated by IDNR for recreational use, aquatic life, and human health consumption pathways, although these uses have not been assessed. The Slough is not currently listed on ADBNet as an impaired waterbody. The Klum Lake surface water intake is located approximately 2.5 miles downstream of the Site. It appears the water intake is used to pump the Klum Lake wetland for migratory waterfowl use in the fall and not used for drinking water consumption or agricultural irrigation. The Klum Lake wetland is designated for human health consumption, but has not been assessed for this use. Based on its distance from the Site, the Klum Lake surface water intake may be reasonably excluded from further consideration as it likely does not experience Site-related impacts.

Further consideration of the downgradient/cross gradient wells and the Muscatine Slough may benefit the evaluation of potential groundwater impacts and the extension or termination of the post-closure period. Specifically, further information is needed regarding the current status and use of the wells to confirm if they are active exposure pathways to human receptors. Site reconnaissance and/or contacting the current owner of downgradient wells identified in Table B-7 may establish if they are active and true potential exposure pathways. In addition, the downgradient wells located closest to the Slough (if active) should be evaluated relative to applicable regulatory limits to assess whether detected analytes have the potential to impact groundwater quality. Groundwater flow modeling may help to evaluate groundwater migration away from the Site and assess whether Site-related impacts have the potential to reach the Muscatine Slough.

5. REFERENCES

Howard R. Green Company, March 1994. Hydrogeologic Investigation Report and Proposed Hydrologic Monitoring System Plan, Grain Processing Corporation, Muscatine, Iowa.

Howard R. Green Company, 1995. Amended Hydrologic Monitoring System Plan Grain Processing Corporation, Muscatine, Iowa.

HR Green, September 19, 2016. Closure / Post-closure Plan Grain Processing Corporation, Muscatine, Iowa.

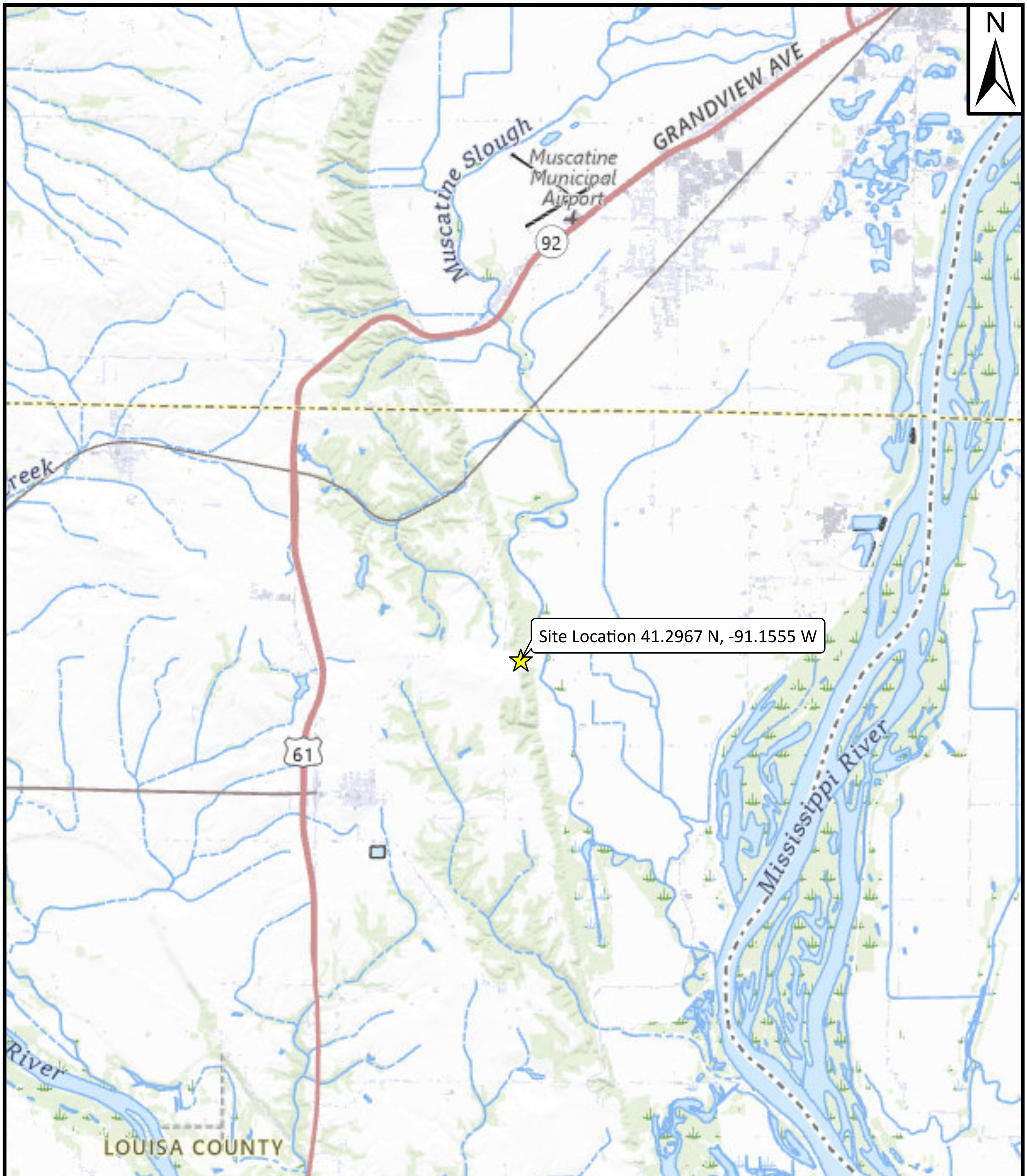
HR Green, 1997-2021. Annual Water Quality Reports, Grain Processing Corporation, Muscatine, Iowa.

Stanley Consultants, 2022-2025. Annual Water Quality Reports, Grain Processing Corporation, Muscatine, Iowa.

U.S. Environmental Protection Agency, 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance; EPA 530-R-09-007, March 2009.

U.S. Environmental Protection Agency, 2018. Drinking Water Standards and Health Advisories; EPA 822-F-18-001, March 2018.

APPENDIX A -
FIGURES



All data are approximate and should be used for relative location reference only.

Figure A-1
Site Location Map

0 5,000 10,000 20,000 Feet

1 inch = 10,000 feet

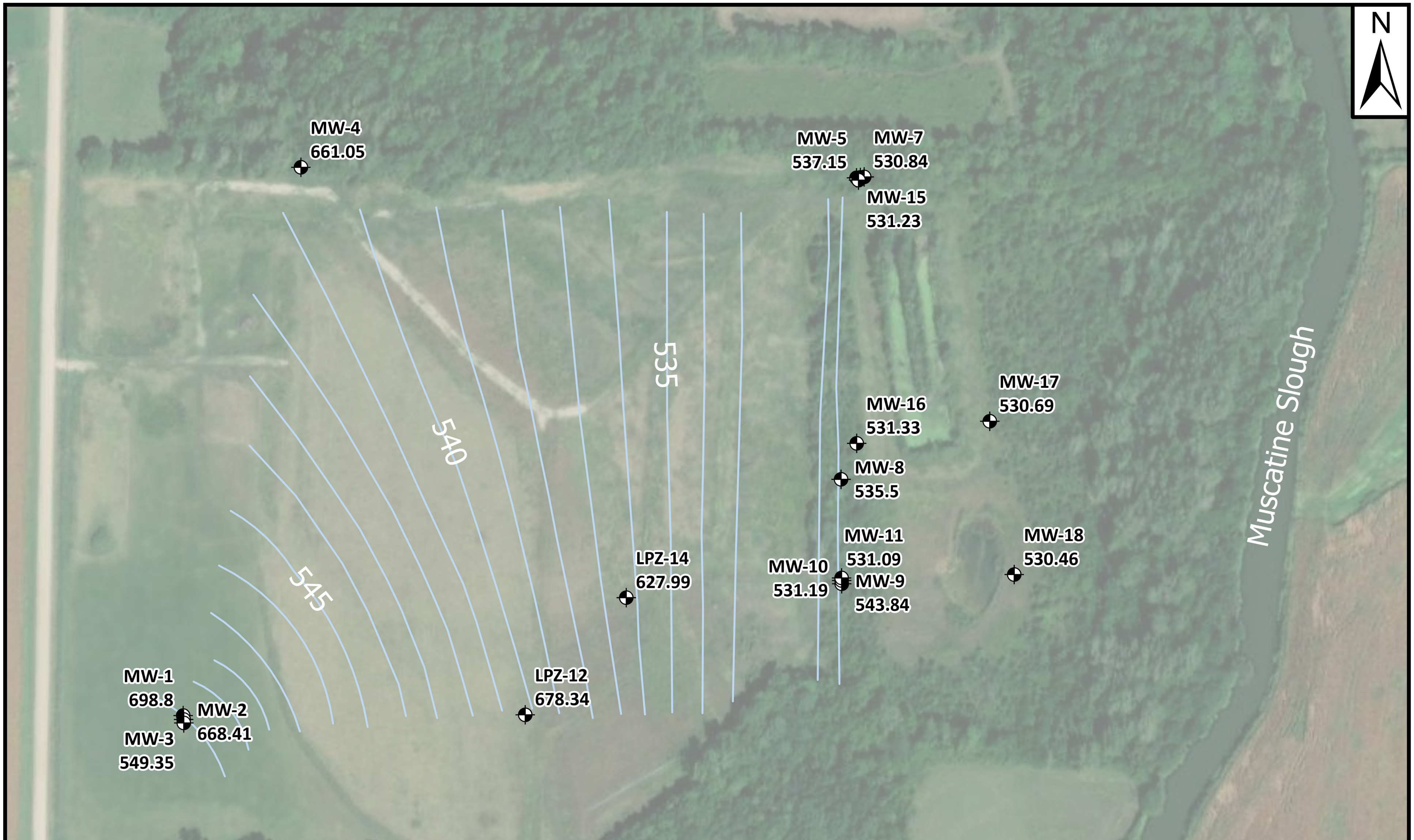
DATE: 12/08/2025

PROJECT: 001674-0018

ALL4

Grain Processing Corporation
Muscatine, Iowa

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road data; Natural Earth Data; U.S. Department of State HIU; NOAA National Centers for Environmental Information. Data refreshed October 27, 2025.



Monitoring Well

Groundwater Contours (ft amsl)

All data are approximate and should be used for relative location reference only.

0 350 Feet

1 inch = 350 feet

Figure A-2
Site Map

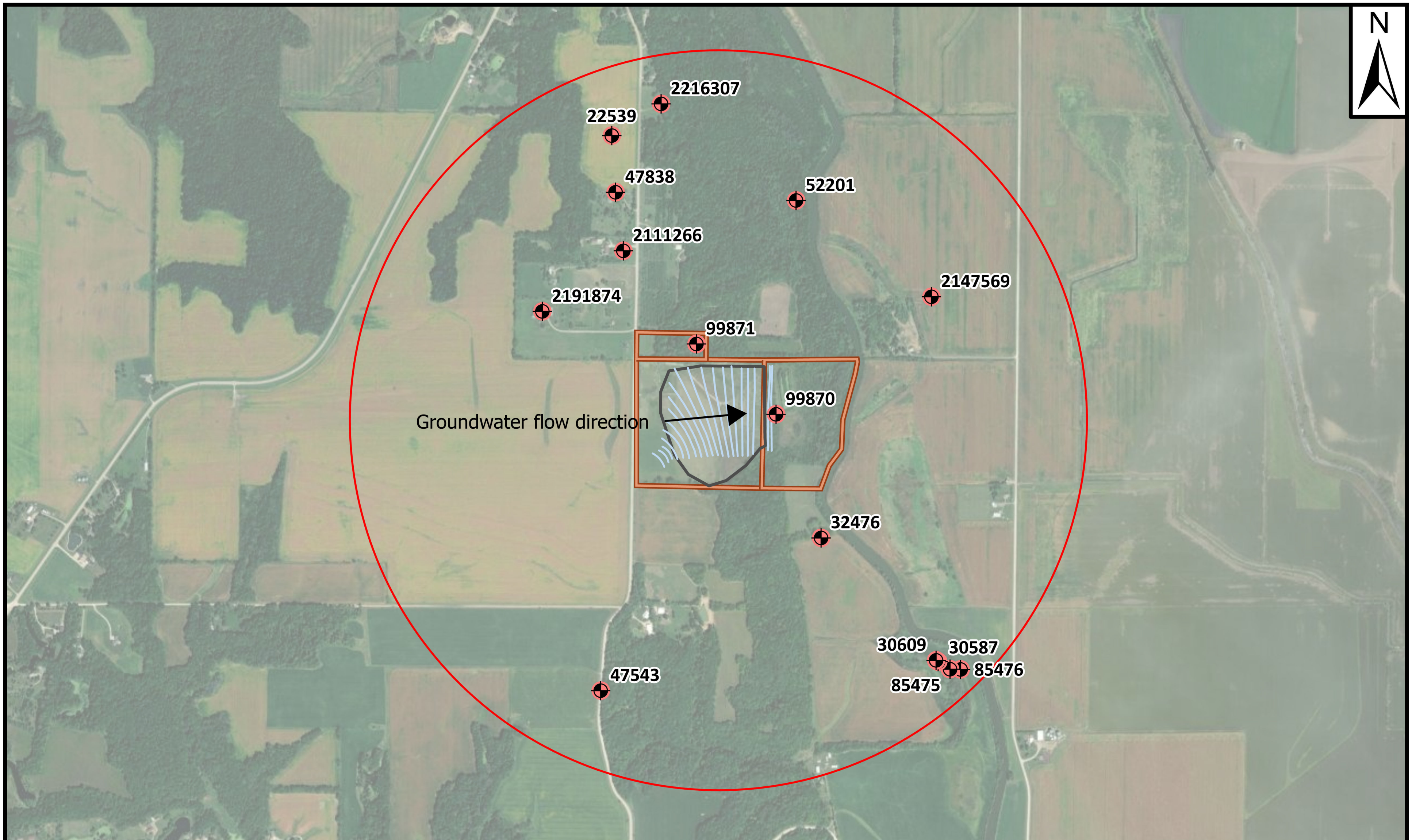
PROJECT: 001674-0018

DATE: 12/08/2025

ALL4

Grain Processing Corporation
Muscatine, Iowa

Coordinates based on NAD 1983 (2011) State Plane Iowa South. Map Data Courtesy of Esri Imagery Hybrid Basemap (2020)



Potential Well Receptors

1-Mile Search Radius

Groundwater Contours (ft amsl)

Landfill Boundary

Tax Parcel Boundaries

All data are approximate and should be used for relative location reference only.

0 2000 Feet

1 inch = 2,000 feet

PROJECT: 001674-0018

DATE: 12/08/2025

ALL4

Figure A-3
Potential Receptor Survey
Groundwater Wells

Grain Processing Corporation
Muscatine, Iowa

Coordinates based on NAD 1983 (2011) State Plane Iowa South. Map Data Courtesy of Esri Imagery Hybrid Basemap (2020)

Klum Lake Surface Water Intake

1-Mile Search Radius

Landfill Boundary

Tax Parcel Boundaries

All data are approximate and should be used for relative location reference only.

0 4000 Feet

1 inch = 4,000 feet

PROJECT: 001674-0018

DATE: 12/08/2025

ALL4

Figure A-4
Potential Receptor Survey
Surface Water Intake

Grain Processing Corporation
Muscatine, Iowa

Coordinates based on NAD 1983 (2011) State Plane Iowa South. Map Data Courtesy of Esri Imagery Hybrid Basemap (2020)

APPENDIX B -
TABLES

Table B-1
Groundwater Monitoring Dataset - CCR Landfill Groundwater Statistical Evaluation
Grain Processing Corporation

Analyte & Regulatory Limit	Sample Date	Units	MW-2 Upgradient (Upper Aquifer)	MW-4 Downgradient (Upper Aquifer)	MW-3 Upgradient (Continuous Aquifer)	MW-5 Downgradient (Perched Zone)	MW-10 Downgradient (Continuous Aquifer)	MW-15 Downgradient (Continuous Aquifer)	MW-16 Downgradient (Continuous Aquifer)	MW-17 Downgradient (Continuous Aquifer)	MW-18 Downgradient (Continuous Aquifer)
Arsenic (Total) MCL = 0.01 mg/L	September 27-29, 2016	mg/L	ND(<0.000672)	0.00143	ND(<0.000672)	ND(<0.000672)	ND(<0.000672)	ND(<0.000672)	ND(<0.000672)	0.00302	0.00328
	May 22-23, 2017	mg/L	ND(<0.000505)	0.000863	ND(<0.000505)	ND(<0.000505)	ND(<0.000505)	ND(<0.000505)	0.000662	0.00261	0.00306
	August 29 & September 28, 2018	mg/L	ND(<0.00057)	0.00106	ND(<0.00057)	ND(<0.00057)	ND(<0.00057)	0.000708	0.00582	0.00305	ND(<0.00057)
	June 25-26, 2019	mg/L	ND(<0.00075)	0.00116	ND(<0.00075)	ND(<0.00075)	ND(<0.00075)	ND(<0.00075)	ND(<0.00075)	0.00287	0.0287
	September 21-22, 2020	mg/L	ND(<0.00088)	ND(<0.00088)	ND(<0.00088)	0.00389	ND(<0.00088)	ND(<0.00088)	ND(<0.00088)	0.00285	0.0178
	April 29-30, 2021	mg/L	ND(<0.00075)	ND(<0.00075)	ND(<0.00075)	ND(<0.00075)	ND(<0.00075)	ND(<0.00075)	ND(<0.00075)	0.00196	0.0151
	September 20-21, 2022	mg/L	ND(<0.00075)	0.000841	ND(<0.00075)	Dry	ND(<0.00075)	ND(<0.00075)	0.00111	0.00261	0.0238
	April 3-5, 2023	mg/L	ND(<0.002)	ND(<0.002)	ND(<0.002)	ND(<0.002)	ND(<0.002)	ND(<0.002)	0.00428	0.00298	0.0198
	September 9-10, 2024	mg/L	ND(<0.002)	0.00206	ND(<0.002)	Dry	ND(<0.008)	ND(<0.002)	ND(<0.008)	0.00380	0.0211
	April 14-15, 2025	mg/L	ND(<0.002)	ND(<0.002)	ND(<0.002)	Dry	ND(<0.002)	ND(<0.002)	ND(<0.002)	0.00243	0.0128
Barium (Total) MCL = 2 mg/L	September 27-29, 2016	mg/L	0.0342	0.0844	0.195	0.262	0.0307	0.165	0.0677	0.0619	0.148
	May 22-23, 2017	mg/L	0.0335	0.0712	0.204	0.254	0.0344	0.147	0.0581	0.0675	0.15
	August 29 & September 28, 2018	mg/L	0.0366	0.0936	0.22	0.243	0.0355	0.165	0.174	0.0654	0.0715
	June 25-26, 2019	mg/L	0.0363	0.125	0.227	0.221	0.0312	0.125	0.034	0.0643	1.67
	September 21-22, 2020	mg/L	0.0341	0.078	0.202	0.267	0.0387	0.148	0.0375	0.0649	1.06
	April 29-30, 2021	mg/L	0.0346	0.0693	0.217	0.231	0.0364	0.135	0.0422	0.0479	0.67
	September 20-21, 2022	mg/L	0.0311	0.071	0.189	Dry	0.0341	0.134	0.0512	0.0484	0.489
	April 3-5, 2023	mg/L	0.0392	0.0963	0.230	0.261	0.0391	0.116	0.0870	0.0607	0.543
	September 9-10, 2024	mg/L	0.038	0.146	0.223	Dry	0.035	0.147	0.0639	0.055	1.03
	April 14-15, 2025	mg/L	0.0361	0.147	0.206	Dry	0.0314	0.134	0.0557	0.0591	0.352
Beryllium (Total) MCL = 0.004 mg/L	September 27-29, 2016	mg/L	ND(<0.000221)	ND(<0.000221)	ND(<0.000221)	ND(<0.000221)	ND(<0.000221)	ND(<0.000221)	0.000227	ND(<0.000221)	0.000241
	May 22-23, 2017	mg/L	ND(<0.000125)	ND(<0.000125)	ND(<0.000125)	ND(<0.000125)	ND(<0.000125)	ND(<0.000125)	ND(<0.000125)	ND(<0.000125)	ND(<0.000125)
	August 29 & September 28, 2018	mg/L	ND(<0.00019)	ND(<0.00019)	ND(<0.00019)	ND(<0.00019)	ND(<0.00019)	ND(<0.00019)	ND(<0.00019)	ND(<0.00019)	ND(<0.00019)
	June 25-26, 2019	mg/L	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)
	September 21-22, 2020	mg/L	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)
	April 29-30, 2021	mg/L	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)
	September 20-21, 2022	mg/L	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	Dry	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)
	April 3-5, 2023	mg/L	ND(<0.0011)	ND(<0.001)	ND(<0.001)	ND(<0.001)	ND(<0.001)	ND(<0.001)	ND(<0.001)	ND(<0.001)	ND(<0.001)
	September 9-10, 2024	mg/L	ND(<0.001)	ND(<0.001)	ND(<0.001)	Dry	ND(<0.004)	ND(<0.001)	ND(<0.004)	ND(<0.001)	ND(<0.001)
	April 14-15, 2025	mg/L	ND(<0.001)	ND(<0.001)	ND(<0.001)	Dry	ND(<0.001)	ND(<0.001)	ND(<0.001)	ND(<0.001)	ND(<0.001)
Boron (Total) HAL = 6 mg/L	September 27-29, 2016	mg/L	ND(<0.0434)	0.172	0.069	5.86	8.69	6.01	4.33	1.35	0.766
	May 22-23, 2017	mg/L	ND(<0.104)	0.116	ND(<0.104)	4.8	7.21	4.9	7.81	1.24	1.09
	August 29 & September 28, 2018	mg/L	ND(<0.1)	ND(<0.1)	0.125	4.6	7.81	4.57	ND(<0.1)	0.492	3.4
	June 25-26, 2019	mg/L	ND(<0.11)	0.321	ND(<0.11)	3.96	3.51	3.24	3.12	0.763	0.391
	September 21-22, 2020	mg/L	ND(<0.08)	0.1	ND(<0.08)	4.33	6.05	4.15	4.54	0.947	1.27
	April 29-30, 2021	mg/L	ND(<0.058)	0.0828	ND(<0.058)	4.57	4.61	3.39	4.41	0.285	0.202
	September 20-21, 2022	mg/L	ND(<0.058)	0.0805	0.0816	Dry	5.44	4.12	7.35	0.877	0.92
	April 3-5, 2023	mg/L	ND(<0.1)	ND(<0.1)	ND(<0.1)	5.14	4.77	2.46	7.12	0.833	0.126
	September 9-10, 2024	mg/L	ND(<0.1)	0.154	ND(<0.1)	Dry	5.56	3.30	9.90	0.611	0.625
	April 14-15, 2025	mg/L	0.211	0.244	ND(<0.1)	Dry	6.21	3.51	11.00	0.863	0.908

Table B-1
Groundwater Monitoring Dataset - CCR Landfill Groundwater Statistical Evaluation
Grain Processing Corporation

Analyte & Regulatory Limit	Sample Date	Units	MW-2 Upgradient (Upper Aquifer)	MW-4 Downgradient (Upper Aquifer)	MW-3 Upgradient (Continuous Aquifer)	MW-5 Downgradient (Perched Zone)	MW-10 Downgradient (Continuous Aquifer)	MW-15 Downgradient (Continuous Aquifer)	MW-16 Downgradient (Continuous Aquifer)	MW-17 Downgradient (Continuous Aquifer)	MW-18 Downgradient (Continuous Aquifer)
Calcium (Total) No Regulatory Limit	September 27-29, 2016	mg/L	73.1	77.6	104	132	379	146	195	113	123
	May 22-23, 2017	mg/L	71.1	65.9	97.5	131	354	122	241	116	109
	August 29 & September 28, 2018	mg/L	74.7	88.8	102	135	459	115	69.7	103	200
	June 25-26, 2019	mg/L	79.3	107	118	133	247	122	215	133	110
	September 21-22, 2020	mg/L	70.5	56.5	99.2	127	378	125	204	122	97
	April 29-30, 2021	mg/L	71.2	55.6	99.5	126	338	113	232	116	82.2
	September 20-21, 2022	mg/L	72.7	59	106	Dry	338	122	245	119	102
	April 3-5, 2023	mg/L	76.0	69.0	105	145	350	102	247	120	76.6
	September 9-10, 2024	mg/L	85.7	106.0	118.0	Dry	409	127.0	264.0	133.0	122.0
	April 14-15, 2025	mg/L	77.8	110.0	108.0	Dry	361	113.0	236.0	129.0	118.0
Cobalt (Total) PGW SWS = 0.0021 mg/L	September 27-29, 2016	mg/L	0.000102	0.0152	0.000663	0.00369	0.000273	0.00174	0.00301	0.00181	0.00212
	May 22-23, 2017	mg/L	0.0000740	0.00953	0.000757	0.00238	0.000249	0.00104	0.00272	0.00209	0.000663
	August 29 & September 28, 2018	mg/L	0.000356	0.00902	0.000801	0.00156	0.000416	0.00154	0.000329	0.00259	0.000833
	June 25-26, 2019	mg/L	ND(<0.000091)	0.00885	0.00067	0.00143	ND(<0.000091)	0.00051	0.000954	0.00322	0.00108
	September 21-22, 2020	mg/L	0.000348	0.00297	0.000584	0.00452	0.000364	0.00103	0.00122	0.00269	0.000523
	April 29-30, 2021	mg/L	ND(<0.000091)	0.00298	0.000594	0.00175	0.000119	0.000651	0.0011	0.00392	0.000451
	September 20-21, 2022	mg/L	0.000257	0.00451	0.000552	Dry	0.000559	0.00116	0.00287	0.00294	0.000461
	April 3-5, 2023	mg/L	0.00134	0.00553	0.000855	0.00167	0.000543	0.000620	0.00392	0.00237	ND(<0.0005)
	September 9-10, 2024	mg/L	ND(<0.0005)	0.00772	0.000598	Dry	ND(<0.0005)	0.000981	0.00217	0.00447	ND(<0.0005)
	April 14-15, 2025	mg/L	ND(<0.0005)	0.00588	0.000604	Dry	ND(<0.0005)	0.000934	0.00172	0.00203	ND(<0.0005)
Copper (Total) AL = 1.3 mg/L	September 27-29, 2016	mg/L	ND(<0.00122)	ND(<0.00122)	ND(<0.00122)	0.00402	ND(<0.00122)	0.00159	0.00193	ND(<0.00122)	0.00252
	May 22-23, 2017	mg/L	ND(<0.00219)	ND(<0.00219)	ND(<0.00219)	0.00303	ND(<0.00219)	ND(<0.00219)	ND(<0.00219)	ND(<0.00219)	ND(<0.00219)
	August 29 & September 28, 2018	mg/L	ND(<0.0016)	ND(<0.0016)	ND(<0.0016)	0.00285	ND(<0.0016)	ND(<0.0016)	ND(<0.0016)	ND(<0.0016)	ND(<0.0016)
	June 25-26, 2019	mg/L	ND(<0.002)	ND(<0.002)	ND(<0.002)	0.00254	ND(<0.002)	ND(<0.002)	ND(<0.002)	ND(<0.002)	ND(<0.002)
	September 21-22, 2020	mg/L	0.00153	ND(<0.0015)	ND(<0.0015)	ND(<0.0015)	ND(<0.0015)	ND(<0.0015)	ND(<0.0015)	ND(<0.0015)	ND(<0.0015)
	April 29-30, 2021	mg/L	ND(<0.0014)	ND(<0.0014)	ND(<0.0014)	0.00283	ND(<0.0014)	ND(<0.0014)	ND(<0.0014)	ND(<0.0014)	ND(<0.0014)
	September 20-21, 2022	mg/L	ND(<0.0018)	ND(<0.0018)	ND(<0.0018)	Dry	ND(<0.0018)	ND(<0.0018)	ND(<0.0018)	ND(<0.0018)	ND(<0.0018)
	April 3-5, 2023	mg/L	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	0.00590	ND(<0.005)	ND(<0.005)
	September 9-10, 2024	mg/L	ND(<0.005)	ND(<0.005)	ND(<0.005)	Dry	ND(<0.02)	ND(<0.005)	ND(<0.02)	ND(<0.005)	ND(<0.005)
	April 14-15, 2025	mg/L	ND(<0.005)	ND(<0.005)	ND(<0.005)	Dry	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
Iron (Total) SDWR = 0.3 mg/L	September 27-29, 2016	mg/L	0.0611	25.4	1.83	0.48	0.106	0.41	1.67	4.02	9.66
	May 22-23, 2017	mg/L	0.0553	15.7	1.79	0.31	0.0712	0.295	3.03	6.74	5.18
	August 29 & September 28, 2018	mg/L	0.138	9.9	2.15	0.16	ND(<0.066)	0.204	4.27	0.765	0.146
	June 25-26, 2019	mg/L	ND(<0.066)	11.5	2.42	0.143	ND(<0.066)	0.2	0.661	1.76	44.7
	September 21-22, 2020	mg/L	0.399	2.95	2.21	3.47	ND(<0.05)	0.0948	1.38	7.73	25.2
	April 29-30, 2021	mg/L	0.0466	2.51	2.34	0.191	0.0442	0.0635	1.08	0.725	21.3
	September 20-21, 2022	mg/L	0.0514	3.28	2.38	Dry	0.0602	0.155	2.92	4.37	25.2
	April 3-5, 2023	mg/L	0.597	4.72	2.08	0.254	0.907	0.424	13.8	3.11	22.3
	September 9-10, 2024	mg/L	ND(<0.1)	11.00	2.20	Dry	ND(<0.4)	0.117	1.60	12.10	24.40
	April 14-15, 2025	mg/L	ND(<0.1)	7.17	2.30	Dry	0.139	0.134	2.17	7.07	14.60

Table B-1
Groundwater Monitoring Dataset - CCR Landfill Groundwater Statistical Evaluation
Grain Processing Corporation

Analyte & Regulatory Limit	Sample Date	Units	MW-2 Upgradient (Upper Aquifer)	MW-4 Downgradient (Upper Aquifer)	MW-3 Upgradient (Continuous Aquifer)	MW-5 Downgradient (Perched Zone)	MW-10 Downgradient (Continuous Aquifer)	MW-15 Downgradient (Continuous Aquifer)	MW-16 Downgradient (Continuous Aquifer)	MW-17 Downgradient (Continuous Aquifer)	MW-18 Downgradient (Continuous Aquifer)
Lead (Total) AL =0.015 mg/L	September 27-29, 2016	mg/L	ND(<0.000211)	ND(<0.000211)	ND(<0.000211)	0.000637	ND(<0.000211)	0.000515	0.00232	0.000455	0.00247
	May 22-23, 2017	mg/L	ND(<0.000324)	ND(<0.000324)	ND(<0.000324)	ND(<0.000324)	ND(<0.000324)	ND(<0.000324)	0.00138	0.000433	0.000595
	August 29 & September 28, 2018	mg/L	ND(<0.00025)	ND(<0.00025)	0.000364	0.000256	ND(<0.00025)	0.000264	ND(<0.00025)	ND(<0.00025)	ND(<0.00025)
	June 25-26, 2019	mg/L	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	ND(<0.00027)	0.00033	ND(<0.00027)	0.00155
	September 21-22, 2020	mg/L	0.000595	ND(<0.00011)	0.000136	0.000476	ND(<0.00011)	0.000116	0.000422	0.000517	0.000343
	April 29-30, 2021	mg/L	ND(<0.00021)	ND(<0.00021)	ND(<0.00021)	0.000294	ND(<0.00021)	ND(<0.00021)	0.000314	ND(<0.00021)	0.000259
	September 20-21, 2022	mg/L	ND(<0.00024)	ND(<0.00024)	ND(<0.00024)	Dry	ND(<0.00024)	ND(<0.00024)	0.000879	0.00038	ND(<0.00024)
	April 3-5, 2023	mg/L	ND(<0.0005)	ND(<0.0005)	ND(<0.0005)	ND(<0.0005)	ND(<0.0005)	ND(<0.0005)	0.00223	0.000500	ND(<0.0005)
	September 9-10, 2024	mg/L	ND(<0.0005)	ND(<0.0005)	ND(<0.0005)	Dry	ND(<0.0005)	ND(<0.0005)	ND(<0.0005)	0.000954	ND(<0.0005)
	April 14-15, 2025	mg/L	ND(<0.0005)	ND(<0.0005)	ND(<0.0005)	Dry	ND(<0.0005)	ND(<0.0005)	ND(<0.0005)	ND(<0.0005)	ND(<0.0005)
Lithium (Total) PGW SWS = 0.014 mg/L	September 27-29, 2016	mg/L	ND(<0.00655)	ND(<0.00655)	ND(<0.00655)	0.0769	0.385	0.0169	0.194	ND(<0.00655)	0.048
	May 22-23, 2017	mg/L	0.00452	0.00265	0.00441	0.0786	0.324	0.0125	0.292	0.00537	0.0392
	August 29 & September 28, 2018	mg/L	0.00394	ND(<0.0028)	0.00412	0.0744	0.29	0.0111	ND(<0.0028)	0.00494	0.127
	June 25-26, 2019	mg/L	0.00656	0.00384	0.00557	0.0631	0.159	0.016	0.141	0.00715	0.0111
	September 21-22, 2020	mg/L	0.00691	ND(<0.0025)	0.00424	0.0635	0.28	0.0122	0.184	0.00539	0.0339
	April 29-30, 2021	mg/L	0.00532	0.00325	0.00507	0.0794	0.203	0.0143	0.181	0.0072	0.00525
	September 20-21, 2022	mg/L	0.00495	0.00422	0.0057	Dry	0.251	0.0115	0.331	0.00642	0.0347
	April 3-5, 2023	mg/L	ND(<0.01)	ND(<0.01)	ND(<0.01)	0.0697	0.160	0.0107	0.296	ND(<0.01)	ND(<0.01)
	September 9-10, 2024	mg/L	ND(<0.01)	ND(<0.01)	ND(<0.01)	Dry	0.250	0.0129	0.495	ND(<0.01)	0.0394
	April 14-15, 2025	mg/L	ND(<0.01)	ND(<0.01)	ND(<0.01)	Dry	0.214	0.0119	0.500	ND(<0.01)	0.0444
Magnesium (Total) No Regulatory Limit	September 27-29, 2016	mg/L	30.8	34.8	28.8	50.4	103	46	58.9	39.3	32.5
	May 22-23, 2017	mg/L	31.4	31.8	30.3	55.3	104	42	81	42.2	31
	August 29 & September 28, 2018	mg/L	31.2	40.5	29.9	49.9	123	44	16.2	36.3	64.3
	June 25-26, 2019	mg/L	36.9	52.3	35.2	47.5	66.6	40.2	73.7	48.5	24.1
	September 21-22, 2020	mg/L	27	25.2	28.3	48.2	105	38.1	66.5	41.3	22
	April 29-30, 2021	mg/L	33.2	27.3	31.6	51.9	84.8	39.9	81.9	39	18.7
	September 20-21, 2022	mg/L	30.2	26.5	30.5	Dry	111	39.7	85.4	41.4	25.2
	April 3-5, 2023	mg/L	34.4	33.4	32.8	56.7	102	35.5	89.2	44.7	17.1
	September 9-10, 2024	mg/L	33.2	44.7	30.6	Dry	99.4	38.7	95.0	44.9	28.7
	April 14-15, 2025	mg/L	32.7	50.9	31.5	Dry	106.0	39.1	109.0	51.8	32.2
Manganese (Total) HAL = 0.3 mg/L	September 27-29, 2016	mg/L	0.0263	1.13	0.333	1.62	0.146	0.467	0.878	0.695	0.886
	May 22-23, 2017	mg/L	0.0559	0.846	0.417	0.662	0.125	0.15	0.839	0.799	0.529
	August 29 & September 28, 2018	mg/L	0.147	0.533	0.353	0.224	0.202	0.527	0.72	0.775	0.709
	June 25-26, 2019	mg/L	0.0205	0.714	0.387	0.316	0.0104	0.104	0.635	0.735	1.3
	September 21-22, 2020	mg/L	0.138	0.386	0.365	2.1	0.144	0.116	0.608	0.922	0.67
	April 29-30, 2021	mg/L	0.0668	0.277	0.444	0.247	0.0698	0.235	0.764	0.72	0.6
	September 20-21, 2022	mg/L	0.182	0.335	0.343	Dry	0.0912	0.195	0.739	0.835	0.517
	April 3-5, 2023	mg/L	0.179	0.365	0.376	0.128	0.120	0.291	0.855	0.721	0.496
	September 9-10, 2024	mg/L	0.0966	0.635	0.326	Dry	0.0771	0.301	0.817	1.19	0.560
	April 14-15, 2025	mg/L	0.0935	0.514	0.366	Dry	0.0786	0.294	0.686	0.851	0.399

Table B-1
Groundwater Monitoring Dataset - CCR Landfill Groundwater Statistical Evaluation
Grain Processing Corporation

Analyte & Regulatory Limit	Sample Date	Units	MW-2 Upgradient (Upper Aquifer)	MW-4 Downgradient (Upper Aquifer)	MW-3 Upgradient (Continuous Aquifer)	MW-5 Downgradient (Perched Zone)	MW-10 Downgradient (Continuous Aquifer)	MW-15 Downgradient (Continuous Aquifer)	MW-16 Downgradient (Continuous Aquifer)	MW-17 Downgradient (Continuous Aquifer)	MW-18 Downgradient (Continuous Aquifer)
Potassium (Total) No Regulatory Limit	September 27-29, 2016	mg/L	0.373	1.49	1.36	17.9	4.92	1.92	4.45	1.76	0.893
	May 22-23, 2017	mg/L	0.414	1.11	1.28	16.8	5.19	1.76	5.19	1.95	0.876
	August 29 & September 28, 2018	mg/L	0.482	1.49	1.38	15.9	5.48	1.99	0.702	1.8	3.21
	June 25-26, 2019	mg/L	0.488	1.69	1.49	11.1	4.38	1.38	4.67	1.84	0.711
	September 21-22, 2020	mg/L	0.53	1.15	1.3	16.4	12.8	1.73	5.33	1.66	0.785
	April 29-30, 2021	mg/L	0.425	1.16	1.35	14.1	8.5	1.6	5.38	1.66	0.659
	September 20-21, 2022	mg/L	0.495	1.12	1.35	Dry	13.1	1.78	5.23	1.62	0.788
	April 3-5, 2023	mg/L	ND(<0.5)	1.17	1.40	16.5	7.59	1.42	5.46	1.90	0.609
	September 9-10, 2024	mg/L	ND(<0.5)	1.58	1.32	Dry	10.30	1.93	6.77	1.56	0.727
	April 14-15, 2025	mg/L	ND(<0.5)	1.53	1.31	Dry	12.50	1.91	6.98	1.67	0.834
Selenium (Total) MCL = 0.05 mg/L	September 27-29, 2016	mg/L	ND(<0.00063)	ND(<0.00063)	ND(<0.00063)	ND(<0.00063)	ND(<0.00063)	ND(<0.00063)	ND(<0.00063)	ND(<0.00063)	ND(<0.00063)
	May 22-23, 2017	mg/L	ND(<0.000928)	ND(<0.000928)	ND(<0.000928)	ND(<0.000928)	ND(<0.000928)	ND(<0.000928)	ND(<0.000928)	ND(<0.000928)	ND(<0.000928)
	August 29 & September 28, 2018	mg/L	ND(<0.0009)	ND(<0.0009)	ND(<0.0009)	ND(<0.0009)	ND(<0.0009)	ND(<0.0009)	ND(<0.0009)	ND(<0.0009)	ND(<0.0009)
	June 25-26, 2019	mg/L	0.00139	ND(<0.001)	ND(<0.001)	ND(<0.001)	0.00245	ND(<0.001)	ND(<0.001)	ND(<0.001)	ND(<0.001)
	September 21-22, 2020	mg/L	ND(<0.001)	ND(<0.001)	ND(<0.001)	ND(<0.001)	ND(<0.001)	ND(<0.001)	ND(<0.001)	ND(<0.001)	ND(<0.001)
	April 29-30, 2021	mg/L	ND(<0.00096)	ND(<0.00096)	ND(<0.00096)	ND(<0.00096)	0.000974	ND(<0.00096)	ND(<0.00096)	ND(<0.00096)	ND(<0.00096)
	September 20-21, 2022	mg/L	0.00148	0.00189	ND(<0.00096)	Dry	0.0015	0.0011	0.00106	ND(<0.00096)	0.00989
	April 3-5, 2023	mg/L	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
	September 9-10, 2024	mg/L	ND(<0.005)	ND(<0.005)	ND(<0.005)	Dry	ND(<0.02)	ND(<0.005)	ND(<0.02)	ND(<0.005)	ND(<0.005)
	April 14-15, 2025	mg/L	ND(<0.005)	ND(<0.005)	ND(<0.005)	Dry	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
Sodium (Total) HAL (restricted diets) = 20 mg/L	September 27-29, 2016	mg/L	12	17.8	17.4	85.5	78.2	87.1	46.1	21.3	18.6
	May 22-23, 2017	mg/L	12.8	13.5	15.8	83.3	63.3	68.9	75.1	22.4	19.5
	August 29 & September 28, 2018	mg/L	13.1	18.3	16.4	75.3	60.8	80.7	11.8	21	48.7
	June 25-26, 2019	mg/L	11.8	25.7	18.5	76.2	26.7	52.1	34	17.8	12.7
	September 21-22, 2020	mg/L	12.3	14	17.1	75.2	55	74.4	57.7	17	16.7
	April 29-30, 2021	mg/L	12.5	14.1	16.2	73.6	47.8	51.6	64.5	9.16	10.4
	September 20-21, 2022	mg/L	12.2	15	16.6	Dry	53.9	72.1	105	9.67	11.3
	April 3-5, 2023	mg/L	12.8	14.4	17.2	73.8	45.3	38.3	112	11.1	8.86
	September 9-10, 2024	mg/L	11.5	20.6	15.9	Dry	50.7	59.7	169.0	8.55	12.3
	April 14-15, 2025	mg/L	11.8	19.4	16.2	Dry	50.7	62.1	179.0	13.2	12.4
Zinc (Total) HAL = 2 mg/L	September 27-29, 2016	mg/L	0.00649	ND(<0.00521)	ND(<0.00521)	ND(<0.00521)	ND(<0.00521)	ND(<0.00521)	ND(<0.00521)	ND(<0.00521)	0.00739
	May 22-23, 2017	mg/L	ND(<0.0115)	ND(<0.0115)	ND(<0.0115)	ND(<0.0115)	ND(<0.0115)	ND(<0.0115)	ND(<0.0115)	0.017	ND(<0.0115)
	August 29 & September 28, 2018	mg/L	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)
	June 25-26, 2019	mg/L	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)
	September 21-22, 2020	mg/L	0.0225	ND(<0.01)	ND(<0.01)	0.0138	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)
	April 29-30, 2021	mg/L	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)
	September 20-21, 2022	mg/L	ND(<0.01)	ND(<0.01)	ND(<0.01)	Dry	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)
	April 3-5, 2023	mg/L	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
	September 9-10, 2024	mg/L	ND(<0.02)	ND(<0.02)	ND(<0.02)	Dry	ND(<0.08)	ND(<0.02)	0.0800	ND(<0.02)	ND(<0.02)
	April 14-15, 2025	mg/L	ND(<0.02)	ND(<0.02)	ND(<0.02)	Dry	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)

Table B-1
Groundwater Monitoring Dataset - CCR Landfill Groundwater Statistical Evaluation
Grain Processing Corporation

Analyte & Regulatory Limit	Sample Date	Units	MW-2 Upgradient (Upper Aquifer)	MW-4 Downgradient (Upper Aquifer)	MW-3 Upgradient (Continuous Aquifer)	MW-5 Downgradient (Perched Zone)	MW-10 Downgradient (Continuous Aquifer)	MW-15 Downgradient (Continuous Aquifer)	MW-16 Downgradient (Continuous Aquifer)	MW-17 Downgradient (Continuous Aquifer)	MW-18 Downgradient (Continuous Aquifer)
pH SDWR = 6.5-8.5 SU	September 27-29, 2016	SU	7.23	6.88	7.36	6.96	6.62	7.05	6.81	6.97	7.11
	May 22-23, 2017	SU	7.35	6.71	7.42	6.79	6.56	6.99	6.6	6.99	7.10
	August 29 & September 28, 2018	SU	6.81	6.15	6.62	6.22	6.2	6.51	6.32	6.78	6.94
	June 25-26, 2019	SU	7.62	6.9	7.39	7.15	7.01	7.18	7.05	7.36	7.56
	September 21-22, 2020	SU	7.22	6.46	6.87	6.44	6.34	6.72	6.44	6.88	7.16
	April 29-30, 2021	SU	7.06	6.64	6.81	6.56	6.38	6.73	6.36	7.05	7.14
	September 20-21, 2022	SU	7.48	6.83	7.24	Dry	6.87	7.17	6.79	7.35	7.23
	April 3-5, 2023	SU	7.49	6.74	7.23	6.90	6.89	7.17	6.89	7.36	7.60
	September 9-10, 2024	SU	7.37	6.61	7.49	Dry	7.00	7.37	6.64	7.45	7.10
	April 14-15, 2025	SU	7.90	6.80	7.16	Dry	6.77	7.28	7.28	7.27	7.76
Bicarbonate Alkalinity No Regulatory Limit	September 27-29, 2016	mg/L	257	296	385	587	602	597	528	405	370
	May 22-23, 2017	mg/L	268	278	397	587	608	551	736	438	397
	August 29 & September 28, 2018	mg/L	252	330	386	577	592	567	268	402	633
	June 25-26, 2019	mg/L	260	383	359	545	535	475	594	416	307
	September 21-22, 2020	mg/L	270	232	400	626	623	562	721	448	345
	April 29-30, 2021	mg/L	266	217	380	592	582	464	760	395	257
	September 20-21, 2022	mg/L	273	238	396	Dry	581	528	792	431	326
	April 3-5, 2023	mg/L	300	275	442	722	660	482	986	472	301
	September 9-10, 2024	mg/L	269	339	327	Dry	542	459	872	403	310
	April 14-15, 2025	mg/L	283	442	400	Dry	593	504	939	480	387
Chloride SDWR = 250 mg/L	September 27-29, 2016	mg/L	13.5	10.4	ND(<1.91)	22.4	36	29.8	27	19.8	13
	May 22-23, 2017	mg/L	12.9	12.8	1.89	17.2	32.4	19.7	84.3	18.4	12.7
	August 29 & September 28, 2018	mg/L	10.6	10.9	ND(<1.6)	14.4	27.9	18.1	4.34	11.8	40.3
	June 25-26, 2019	mg/L	9.96	14.5	1.68	11.2	9.44	8.81	33.4	12.3	8.81
	September 21-22, 2020	mg/L	11.4	7.65	ND(<2)	20.5	21.7	17.5	68.3	13.3	4.2
	April 29-30, 2021	mg/L	10.7	8.21	ND(<2.15)	17.5	14.8	12	95.6	6.2	3.84
	September 20-21, 2022	mg/L	21.7	10.8	2.42	Dry	24.3	16.7	96.2	9.65	9.9
	April 3-5, 2023	mg/L	11.4	12.8	ND(<5)	29.1	21.9	8.65	127	15.3	ND(<5)
	September 9-10, 2024	mg/L	10.1	13.5	ND(<5)	Dry	23.0	13.8	159	9.4	10.8
	April 14-15, 2025	mg/L	11.0	12.8	ND(<2)	Dry	25.7	12.2	135	14.2	13.20
Sulfate SDWR = 250 mg/L	September 27-29, 2016	mg/L	36.3	53.3	26.8	101	808	64.6	211	56.3	48.5
	May 22-23, 2017	mg/L	45.3	62.4	34.5	106	1630	61.7	266	58	45.9
	August 29 & September 28, 2018	mg/L	48.1	80.4	32.2	106	927	75.9	5.48	64.9	205
	June 25-26, 2019	mg/L	38.8	90.7	40.8	101	328	42.5	184	83.2	28.7
	September 21-22, 2020	mg/L	44.2	56.8	40	114	861	70.8	191	84.1	19.3
	April 29-30, 2021	mg/L	39.8	60.5	39.2	101	684	43.6	182	57.5	7.41
	September 20-21, 2022	mg/L	47.7	55.2	42.8	Dry	898	75.9	221	77.7	32.6
	April 3-5, 2023	mg/L	41.5	80.1	31.4	101	795	34.0	207	70.9	ND(<5)
	September 9-10, 2024	mg/L	39.8	78.5	34.6	Dry	876	62.7	224	62.3	46.2
	April 14-15, 2025	mg/L	43.5	66.0	38.8	Dry	803	59.2	243	69.7	63.6

Table B-1
Groundwater Monitoring Dataset - CCR Landfill Groundwater Statistical Evaluation
Grain Processing Corporation

Analyte & Regulatory Limit	Sample Date	Units	MW-2 Upgradient (Upper Aquifer)	MW-4 Downgradient (Upper Aquifer)	MW-3 Upgradient (Continuous Aquifer)	MW-5 Downgradient (Perched Zone)	MW-10 Downgradient (Continuous Aquifer)	MW-15 Downgradient (Continuous Aquifer)	MW-16 Downgradient (Continuous Aquifer)	MW-17 Downgradient (Continuous Aquifer)	MW-18 Downgradient (Continuous Aquifer)
Total Suspended Solids (TSS) No Regulatory Limit	September 27-29, 2016	mg/L	5.75	28.9	7	38	7.62	37.4	199	21.6	179
	May 22-23, 2017	mg/L	4.13	27.3	10.4	20.4	4	14.1	164	58	65
	August 29 & September 28, 2018	mg/L	4.62	18.1	11.3	14.4	2.63	17.8	10	3.13	12.1
	June 25-26, 2019	mg/L	4.13	14	6.63	9.12	3.13	3.63	56.3	5.25	160
	September 21-22, 2020	mg/L	27.5	5.75	9.5	17.5	3.38	8.13	38.7	95.1	317
	April 29-30, 2021	mg/L	1.5	2.63	11.8	13.6	3.13	6.75	27.9	3	66
	September 20-21, 2022	mg/L	4.75	2.25	7	Dry	12.8	6.38	104	43.5	104
	April 3-5, 2023	mg/L	4.13	5.88	8.50	7.50	5.50	4.00	86.0	21.3	70.0
	September 9-10, 2024	mg/L	2.38	11.00	8.88	Dry	ND(<1.88)	11.80	24.6	85.0	77.0
	April 14-15, 2025	mg/L	2.25	8.25	10.00	Dry	7.00	7.62	19.7	23.5	33.0

Red indicates concentration is above the regulatory limit.

Definitions

MCL: Maximum Contaminant Level (Federal)

HAL: Health Advisory Level (Federal)

PGW SWS: Protective of Groundwater State-Wide Standard (State)

AL: EPA Lead and Copper Rule Action Level (Federal; established for concentration at tap).

SDWR: Secondary Drinking Water Regulations (Federal). SDWR is a non-enforceable secondary drinking water regulation standard based on cosmetic effects or aesthetic effects.

Table B-2
2025 Shapiro-Wilk Normality Test Results - CCR Landfill Groundwater Statistical Evaluation
Grain Processing Corporation

Analyte	W	p-value	Result	Note
Upper Aquifer				
Arsenic (total)	0.921841987	0.37257438	Normal	OK
Barium (total)	0.824247619	0.002033338	Not Normal	OK
Beryllium (total)	NA	NA	NA	Insufficient data
Boron (total)	0.882011766	0.137610542	Normal	OK
Calcium (total)	0.894771203	0.032942635	Not Normal	OK
Cobalt (total)	0.824726393	0.002069002	Not Normal	OK
Copper (total)	NA	NA	NA	Insufficient data
Iron (total)	0.745345729	0.000147138	Not Normal	OK
Lead (total)	NA	NA	NA	Insufficient data
Lithium (total)	0.930605274	0.453872096	Normal	OK
Magnesium (total)	0.859306699	0.007663782	Not Normal	OK
Manganese (total)	0.880599847	0.018137709	Not Normal	OK
Potassium (total)	0.863494706	0.009048086	Not Normal	OK
Selenium (total)	NA	NA	NA	Insufficient data
Sodium (total)	0.792137931	0.000661112	Not Normal	OK
Zinc (total)	NA	NA	NA	Insufficient data
pH	0.978086577	0.90706879	Normal	OK
Bicarbonate Alkalinity	0.846541079	0.004666928	Not Normal	OK
Chloride	0.815708965	0.001496041	Not Normal	OK
Sulfate	0.896480293	0.035443358	Not Normal	OK
Total Suspended Solids (TSS)	0.752651399	0.000184283	Not Normal	OK
Continuous Aquifer				
Arsenic (total)	0.762502752	0.000250972	Not Normal	OK
Barium (total)	0.541950032	2.11E-12	Not Normal	OK
Beryllium (total)	NA	NA	NA	Insufficient data
Boron (total)	0.916975841	0.001836494	Not Normal	OK
Calcium (total)	0.775895329	3.55E-08	Not Normal	OK
Cobalt (total)	0.845844577	2.30E-06	Not Normal	OK
Copper (total)	NA	NA	NA	Insufficient data
Iron (total)	0.612310842	2.52E-11	Not Normal	OK
Lead (total)	0.719500619	6.81E-05	Not Normal	OK
Lithium (total)	0.72417515	2.67E-09	Not Normal	OK
Magnesium (total)	0.858423353	5.45E-06	Not Normal	OK
Manganese (total)	0.958228978	0.038568897	Not Normal	OK
Potassium (total)	0.739568694	5.57E-09	Not Normal	OK
Selenium (total)	NA	NA	NA	Insufficient data
Sodium (total)	0.798209461	1.22E-07	Not Normal	OK
Zinc (total)	NA	NA	NA	Insufficient data
pH	0.983954667	0.615917749	Normal	OK
Bicarbonate Alkalinity	0.924917633	0.001216837	Not Normal	OK
Chloride	0.64747479	1.06E-09	Not Normal	OK
Sulfate	0.613122981	2.59E-11	Not Normal	OK
Total Suspended Solids (TSS)	0.66038479	1.64E-10	Not Normal	OK

Definitions

W: Measure of normality. W close to 1.0 indicates a normal distribution, lower W indicates a greater deviation from normality.

p-value: Indicates a statistically significant departure from normality. $p < 0.05$ indicates data are significantly different from a normal distribution; $p \geq 0.05$ indicates data are not significantly different from a normal distribution.

Table B-3
2025 Wilcoxon Rank Sum Test Results (Interwell) - Upper Aquifer - CCR Landfill Groundwater Statistical Evaluation
Grain Processing Corporation

Analyte	Number of Upgradient Well Detections (Above the RL)	Number of Downgradient Well Detections (Above the RL)	Note	W	p-value	Significant/Reject Null Hypothesis?	Significance Direction	2025 Detected Concentration (mg/L)	Background Threshold[a] (MW-2) (mg/L)	Regulatory Limit (mg/L)	Regulatory Limit Type
MW-4											
Arsenic (total)	0	6	Not enough background data	NA	NA	NA	NA	ND(<0.002)	ND(<0.002)	0.01	MCL
Barium (total)	10	10	OK	100	0.000182672	Yes	Higher than background	**0.147**	0.0392	2	MCL
Beryllium (total)	0	0	Not enough background data	NA	NA	NA	NA	ND(<0.001)	ND(<0.001)	0.004	MCL
Boron (total)	1	8	Not enough background data	NA	NA	NA	NA	0.244	0.211	6	PGW SWS
Calcium (total)	10	10	OK	47	0.850106739	No	No significant difference	110.0	85.7	-	None
Cobalt (total)	6	10	OK	100	0.000180635	Yes	Higher than background	**0.00588**	0.00134	0.0021	PGW SWS
Copper (total)	1	0	Not enough background data	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)[b]	1.3	AL
Iron (total)	7	10	OK	100	0.000181651	Yes	Higher than background	**7.17**	0.597	0.3	SDWR
Lead (total)	1	0	Not enough background data	NA	NA	NA	NA	ND(<0.0005)	0.000595	0.015	AL
Lithium (total)	6	4	Not enough background data	NA	NA	NA	NA	ND(<0.01)	ND(<0.01)[b]	0.014	PGW SWS
Magnesium (total)	10	10	OK	63	0.344522779	No	No significant difference	50.9	36.9	-	None
Manganese (total)	10	10	OK	100	0.000182672	Yes	Higher than background	**0.514**	0.182	0.3	HAL
Potassium (total)	10	10	OK	100	0.000177611	Yes	Higher than background	**1.53**	0.53	-	None
Selenium (total)	2	1	Not enough background data	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)[b]	0.05	MCL
Sodium (total)	10	10	OK	100	0.000180635	Yes	Higher than background	**19.4**	13.1	20	HAL
Zinc (total)	2	0	Not enough background data	NA	NA	NA	NA	ND(<0.02)	0.0225	2	HAL
Bicarbonate Alkalinity	10	10	OK	65	0.27303634	No	No significant difference	442	300	-	None
Chloride	10	10	OK	48.5	0.93960687	No	No significant difference	12.8	21.7	250	SDWR
Sulfate	10	10	OK	100	0.000181651	Yes	Higher than background	**66.0**	48.1	250	SDWR
Total Suspended Solids (TSS)	10	10	OK	77	0.044670335	Yes	Higher than background	**8.25**	27.5	-	None

[a] Background Threshold set to the maximum historical concentration. The highest reporting limit is used when no detections exist in the upgradient well.

[b] Reporting limit has increased to above the maximum historical concentration.

Bold indicates the Wilcoxon Rank Sum Test identified the downgradient well concentrations to be statistically above the upgradient well, but below the regulatory limit.

Red Bold indicates the Wilcoxon Rank Sum Test identified the downgradient well concentrations to be statistically above the upgradient well and above the regulatory limit.

Definitions

RL: Reporting Limit

W: Sum of ranks assigned to the downgradient well group. A higher W indicates that the downgradient well has higher concentrations than the upgradient well.

p-value: Probability of observing the collected data, assuming the null hypothesis is true. $p < 0.05$ indicates that the observed downgradient concentrations are unlikely to have occurred by chance and there is evidence that downgradient concentrations are elevated; $p \geq 0.05$ indicates that the observed concentrations are consistent with background and there is no evidence of an increase.

Null hypothesis: The distribution of concentrations in the downgradient well is the same as the distribution in the upgradient well (the downgradient values are consistent with background).

MCL: Maximum Contaminant Level (Federal)

HAL: Health Advisory Level (Federal)

PGW SWS: Protective of Groundwater State-Wide Standard (State)

AL: EPA Lead and Copper Rule Action Level (Federal; established for concentration at tap)

SDWR: Secondary Drinking Water Regulations (Federal). SDWR is a non-enforceable secondary drinking water regulation standard based on cosmetic effects or aesthetic effects.

Table B-4
2025 Wilcoxon Rank Sum Test Results (Interwell) - Continuous Aquifer - CCR Landfill Groundwater Statistical Evaluation
Grain Processing Corporation

Analyte	Number of Upgradient Well Detections (Above the RL)	Number of Downgradient Well Detections (Above the RL)	Note	W	p-value	Significant/Reject Null Hypothesis?	Significance Direction	2025 Detected Concentration (mg/L)	Background Threshold[a] (MW-3) (mg/L)	Regulatory Limit (mg/L)	Regulatory Limit Type
MW-10											
Arsenic (total)	0	0	Not enough background data	NA	NA	NA	NA	ND(<0.002)	ND(<0.002)	0.01	MCL
Barium (total)	10	10	OK	0	0.000182672	Yes	Lower than background	0.0314	0.23	2	MCL
Beryllium (total)	0	0	Not enough background data	NA	NA	NA	NA	ND(<0.001)	ND(<0.001)	0.004	MCL
Boron (total)	3	10	Not enough background data	NA	NA	NA	NA	6.21*	0.125	6	PGW SWS
Calcium (total)	10	10	OK	100	0.000180635	Yes	Higher than background	**361**	118	-	None
Cobalt (total)	10	7	OK	1	0.000244805	Yes	Lower than background	ND(<0.0005)	0.000855	0.0021	PGW SWS
Copper (total)	0	0	Not enough background data	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	1.3	AL
Iron (total)	10	6	OK	0	0.000181651	Yes	Lower than background	0.139	2.42	0.3	SDWR
Lead (total)	2	0	Not enough background data	NA	NA	NA	NA	ND(<0.0005)	ND(<0.0005)[b]	0.015	AL
Lithium (total)	6	10	OK	100	0.000178614	Yes	Higher than background	**0.214**	ND(<0.01)[b]	0.014	PGW SWS
Magnesium (total)	10	10	OK	100	0.000182672	Yes	Higher than background	**106**	35.2	-	None
Manganese (total)	10	10	OK	0	0.000182672	Yes	Lower than background	0.0786	0.444	0.3	HAL
Potassium (total)	10	10	OK	100	0.000181651	Yes	Higher than background	**12.50**	1.49	-	None
Selenium (total)	0	3	Not enough background data	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	0.05	MCL
Sodium (total)	10	10	OK	100	0.000180635	Yes	Higher than background	**50.7**	18.5	20	HAL
Zinc (total)	0	0	Not enough background data	NA	NA	NA	NA	ND(<0.02)	ND(<0.02)	2	HAL
Bicarbonate Alkalinity	10	10	OK	100	0.000181651	Yes	Higher than background	**593**	442	-	None
Chloride	3	10	Not enough background data	NA	NA	NA	NA	25.7*	ND(<5)	250	SDWR
Sulfate	10	10	OK	100	0.000182672	Yes	Higher than background	**803**	42.8	250	SDWR
Total Suspended Solids (TSS)	10	9	OK	15	0.008978521	Yes	Lower than background	7.00	11.8	-	None
MW-15											
Arsenic (total)	0	1	Not enough background data	NA	NA	NA	NA	ND(<0.002)	ND(<0.002)	0.01	MCL
Barium (total)	10	10	OK	0	0.000179623	Yes	Lower than background	0.134	0.23	2	MCL
Beryllium (total)	0	0	Not enough background data	NA	NA	NA	NA	ND(<0.001)	ND(<0.001)	0.004	MCL
Boron (total)	3	10	Not enough background data	NA	NA	NA	NA	3.51*	0.125	6	PGW SWS
Calcium (total)	10	10	OK	87.5	0.005042179	Yes	Higher than background	**113**	118	-	None
Cobalt (total)	10	10	OK	80	0.025748081	Yes	Higher than background	**0.000934**	0.000855	0.0021	PGW SWS
Copper (total)	0	1	Not enough background data	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	1.3	AL
Iron (total)	10	10	OK	0	0.000182672	Yes	Lower than background	0.134	2.42	0.3	SDWR
Lead (total)	2	3	Not enough background data	NA	NA	NA	NA	ND(<0.0005)	ND(<0.0005)[b]	0.015	AL
Lithium (total)	6	10	OK	100	0.000178614	Yes	Higher than background	**0.0119**	ND(<0.01)[b]	0.014	PGW SWS
Magnesium (total)	10	10	OK	100	0.000182672	Yes	Higher than background	**39.1**	35.2	-	None
Manganese (total)	10	10	OK	20	0.025748081	Yes	Lower than background	0.294	0.444	0.3	HAL
Potassium (total)	10	10	OK	96.5	0.000501619	Yes	Higher than background	**1.91**	1.49	-	None
Selenium (total)	0	1	Not enough background data	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	0.05	MCL
Sodium (total)	10	10	OK	100	0.000181651	Yes	Higher than background	**62.1**	18.5	20	HAL
Zinc (total)	0	0	Not enough background data	NA	NA	NA	NA	ND(<0.02)	ND(<0.02)	2	HAL
Bicarbonate Alkalinity	10	10	OK	100	0.000181651	Yes	Higher than background	**504**	442	-	None
Chloride	3	10	Not enough background data	NA	NA	NA	NA	12.2*	ND(<5)	250	SDWR
Sulfate	10	10	OK	92	0.001699395	Yes	Higher than background	**59.2**	42.8	250	SDWR
Total Suspended Solids (TSS)	10	10	OK	46.5	0.820463099	No	No significant difference	7.62	11.8	-	None

Table B-4
2025 Wilcoxon Rank Sum Test Results (Interwell) - Continuous Aquifer - CCR Landfill Groundwater Statistical Evaluation
Grain Processing Corporation

Analyte	Number of Upgradient Well Detections (Above the RL)	Number of Downgradient Well Detections (Above the RL)	Note	W	p-value	Significant/Reject Null Hypothesis?	Significance Direction	2025 Detected Concentration (mg/L)	Background Threshold[a] (MW-3) (mg/L)	Regulatory Limit (mg/L)	Regulatory Limit Type
MW-16											
Arsenic (total)	0	4	Not enough background data	NA	NA	NA	NA	ND(<0.002)	ND(<0.002)	0.01	MCL
Barium (total)	10	10	OK	0	0.000182672	Yes	Lower than background	0.0557	0.23	2	MCL
Beryllium (total)	0	1	Not enough background data	NA	NA	NA	NA	ND(<0.001)	ND(<0.001)	0.004	MCL
Boron (total)	3	9	Not enough background data	NA	NA	NA	NA	11.0*	0.125	6	PGW SWS
Calcium (total)	10	10	OK	90	0.002816906	Yes	Higher than background	**236**	118	-	None
Cobalt (total)	10	10	OK	90	0.002827272	Yes	Higher than background	**0.00172**	0.000855	0.0021	PGW SWS
Copper (total)	0	2	Not enough background data	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	1.3	AL
Iron (total)	10	10	OK	44	0.677584958	No	No significant difference	2.17	2.42	0.3	SDWR
Lead (total)	2	7	Not enough background data	NA	NA	NA	NA	ND(<0.0005)	ND(<0.0005)[b]	0.015	AL
Lithium (total)	6	9	OK	90	0.002785945	Yes	Higher than background	**0.500**	ND(<0.01)[b]	0.014	PGW SWS
Magnesium (total)	10	10	OK	90	0.002827272	Yes	Higher than background	**109**	35.2	-	None
Manganese (total)	10	10	OK	100	0.000182672	Yes	Higher than background	**0.686**	0.444	0.3	HAL
Potassium (total)	10	10	OK	90	0.002816906	Yes	Higher than background	**6.98**	1.49	-	None
Selenium (total)	0	1	Not enough background data	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	0.05	MCL
Sodium (total)	10	10	OK	90	0.002816906	Yes	Higher than background	**179**	18.5	20	HAL
Zinc (total)	0	1	Not enough background data	NA	NA	NA	NA	ND(<0.02)	ND(<0.02)	2	HAL
Bicarbonate Alkalinity	10	10	OK	90	0.002816906	Yes	Higher than background	**939**	442	-	None
Chloride	3	10	Not enough background data	NA	NA	NA	NA	135*	ND(<5)	250	SDWR
Sulfate	10	10	OK	90	0.002827272	Yes	Higher than background	**243**	42.8	250	SDWR
Total Suspended Solids (TSS)	10	10	OK	96.5	0.000501619	Yes	Higher than background	**19.7**	11.8	-	None
MW-17											
Arsenic (total)	0	9	Not enough background data	NA	NA	NA	NA	0.00243*	ND(<0.002)	0.01	MCL
Barium (total)	10	10	OK	0	0.000182672	Yes	Lower than background	0.0591	0.23	2	MCL
Beryllium (total)	0	0	Not enough background data	NA	NA	NA	NA	ND(<0.001)	ND(<0.001)	0.004	MCL
Boron (total)	3	10	Not enough background data	NA	NA	NA	NA	0.863*	0.125	6	PGW SWS
Calcium (total)	10	10	OK	88	0.004540628	Yes	Higher than background	**129**	118	-	None
Cobalt (total)	10	10	OK	100	0.000182672	Yes	Higher than background	**0.00203**	0.000855	0.0021	PGW SWS
Copper (total)	0	0	Not enough background data	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	1.3	AL
Iron (total)	10	10	OK	70	0.140465048	No	No significant difference	7.07	2.42	0.3	SDWR
Lead (total)	2	6	Not enough background data	NA	NA	NA	NA	ND(<0.0005)	ND(<0.0005)[b]	0.015	AL
Lithium (total)	6	6	OK	67	0.206045641	No	No significant difference	ND(<0.01)	ND(<0.01)[b]	0.014	PGW SWS
Magnesium (total)	10	10	OK	100	0.000182672	Yes	Higher than background	**51.8**	35.2	-	None
Manganese (total)	10	10	OK	100	0.000182672	Yes	Higher than background	**0.851**	0.444	0.3	HAL
Potassium (total)	10	10	OK	100	0.000180635	Yes	Higher than background	**1.67**	1.49	-	None
Selenium (total)	0	0	Not enough background data	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	0.05	MCL
Sodium (total)	10	10	OK	45	0.733633644	No	No significant difference	13.2	18.5	20	HAL
Zinc (total)	0	1	Not enough background data	NA	NA	NA	NA	ND(<0.02)	ND(<0.02)	2	HAL
Bicarbonate Alkalinity	10	10	OK	89	0.003597887	Yes	Higher than background	**480**	442	-	None
Chloride	3	10	Not enough background data	NA	NA	NA	NA	14.2*	ND(<5)	250	SDWR
Sulfate	10	10	OK	100	0.000182672	Yes	Higher than background	**69.7**	42.8	250	SDWR
Total Suspended Solids (TSS)	10	10	OK	70	0.140315833	No	No significant difference	23.5	11.8	-	None

Table B-4
2025 Wilcoxon Rank Sum Test Results (Interwell) - Continuous Aquifer - CCR Landfill Groundwater Statistical Evaluation
Grain Processing Corporation

Analyte	Number of Upgradient Well Detections (Above the RL)	Number of Downgradient Well Detections (Above the RL)	Note	W	p-value	Significant/Reject Null Hypothesis?	Significance Direction	2025 Detected Concentration (mg/L)	Background Threshold[a] (MW-3) (mg/L)	Regulatory Limit (mg/L)	Regulatory Limit Type
MW-18											
Arsenic (total)	0	9	Not enough background data	NA	NA	NA	NA	0.0128*	ND(<0.002)	0.01	MCL
Barium (total)	10	10	OK	70	0.140465048	No	No significant difference	0.352	0.23	2	MCL
Beryllium (total)	0	1	Not enough background data	NA	NA	NA	NA	ND(<0.001)	ND(<0.001)	0.004	MCL
Boron (total)	3	10	Not enough background data	NA	NA	NA	NA	0.908*	0.125	6	PGW SWS
Calcium (total)	10	10	OK	58.5	0.544592378	No	No significant difference	118	118	-	None
Cobalt (total)	10	7	OK	34.5	0.255943663	No	No significant difference	ND(<0.0005)	0.000855	0.0021	PGW SWS
Copper (total)	0	1	Not enough background data	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	1.3	AL
Iron (total)	10	10	OK	90	0.002816906	Yes	Higher than background	**14.60**	2.42	0.3	SDWR
Lead (total)	2	5	Not enough background data	NA	NA	NA	NA	ND(<0.0005)	ND(<0.0005)[b]	0.015	AL
Lithium (total)	6	9	OK	93.5	0.001103237	Yes	Higher than background	**0.0444**	ND(<0.01)[b]	0.014	PGW SWS
Magnesium (total)	10	10	OK	33	0.212293836	No	No significant difference	32.2	35.2	-	None
Manganese (total)	10	10	OK	98	0.000329839	Yes	Higher than background	**0.399**	0.444	0.3	HAL
Potassium (total)	10	10	OK	10	0.002816906	Yes	Lower than background	0.834	1.49	-	None
Selenium (total)	0	1	Not enough background data	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	0.05	MCL
Sodium (total)	10	10	OK	36	0.307307533	No	No significant difference	12.4	18.5	20	HAL
Zinc (total)	0	1	Not enough background data	NA	NA	NA	NA	ND(<0.02)	ND(<0.02)	2	HAL
Bicarbonate Alkalinity	10	10	OK	24.5	0.058591662	No	No significant difference	387	442	-	None
Chloride	3	9	Not enough background data	NA	NA	NA	NA	13.2*	ND(<5)	250	SDWR
Sulfate	10	9	OK	54	0.79133678	No	No significant difference	63.6	42.8	250	SDWR
Total Suspended Solids (TSS)	10	10	OK	100	0.000181651	Yes	Higher than background	**33.0**	11.8	-	None

[a] Background Threshold set to the maximum historical concentration. The highest reporting limit is used when no detections exist in the upgradient well.

[b] Reporting limit has increased to above the maximum historical concentration.

Bold indicates the Wilcoxon Rank Sum Test identified the downgradient well concentrations to be signficantly above the upgradient well, but below the regulatory limit.

Red Bold indicates the Wilcoxon Rank Sum Test identified the downgradient well concentrations to be signficantly above the upgradient well and above the regulatory limit.

Red indicates the Wilcoxon Rank Sum Test did not identify a significant difference between the upgradient and downgradient well, but the concentration is above the regulatory limit.

* indicates the Wilcoxon Rank Sum Test could not be performed due to >50% non-detects in the background well, but concentrations appear above background.

Definitions

RL: Reporting Limit

W: Sum of ranks assigned to the downgradient well group. A higher W indicates that the downgradient well has higher concentrations than the upgradient well.

p-value: Probability of observing the collected data, assuming the null hypothesis is true. $p < 0.05$ indicates that the observed downgradient concentrations are unlikely to have occurred by chance and there is evidence that downgradient concentrations are elevated; $p \geq 0.05$ indicates that the observed concentrations are consistent with background and there is no evidence of an increase.

Null hypothesis: The distribution of concentrations in the downgradient well is the same as the distribution in the upgradient well (the downgradient values are consistent with background).

MCL: Maximum Contaminant Level (Federal)

HAL: Health Advisory Level (Federal)

PGW SWS: Protective of Groundwater State-Wide Standard (State)

AL: EPA Lead and Copper Rule Action Level (Federal; established for concentration at tap).

SDWR: Secondary Drinking Water Regulations (Federal). SDWR is a non-enforceable secondary drinking water regulation standard based on cosmetic effects or aesthetic effects.

Table B-5
2025 Mann-Kendall Trend Test Results (Intrawell) - Upper Aquifer - CCR Landfill Groundwater Statistical Evaluation
Grain Processing Corporation

Analyte	Tau	p-value	n[(a)]	Note	Trend
MW-2 (Upgradient)					
Arsenic (total)	NA	NA	NA	>50% non-detect	NA
Barium (total)	0.200000003	0.474274397	10	OK	No Trend
Beryllium (total)	NA	NA	NA	>50% non-detect	NA
Boron (total)	NA	NA	NA	>50% non-detect	NA
Calcium (total)	0.377777785	0.152406216	10	OK	No Trend
Cobalt (total)	0.11366573	0.718347788	10	OK	No Trend
Copper (total)	NA	NA	NA	>50% non-detect	NA
Iron (total)	-0.089893311	0.787615776	10	OK	No Trend
Lead (total)	NA	NA	NA	>50% non-detect	NA
Lithium (total)	0.276026219	0.317976117	10	OK	No Trend
Magnesium (total)	0.179786623	0.529598832	10	OK	No Trend
Manganese (total)	0.288888901	0.283130884	10	OK	No Trend
Potassium (total)	-0.184017494	0.525109649	10	OK	No Trend
Selenium (total)	NA	NA	NA	>50% non-detect	NA
Sodium (total)	-0.250064611	0.367232382	10	OK	No Trend
Zinc (total)	NA	NA	NA	>50% non-detect	NA
pH	0.377777785	0.152406216	10	OK	No Trend
Bicarbonate Alkalinity	0.600000024	0.020044684	10	OK	**Increasing**
Chloride	-0.179786623	0.529598832	10	OK	No Trend
Sulfate	0.044946656	0.928444028	10	OK	No Trend
Total Suspended Solids (TSS)	-0.414039344	0.122750685	10	OK	No Trend
MW-4 (Downgradient)					
Arsenic (total)	-0.044946656	0.928444028	10	OK	No Trend
Barium (total)	0.333333343	0.210497618	10	OK	No Trend
Beryllium (total)	NA	NA	NA	>50% non-detect	NA
Boron (total)	-0.089893311	0.787615776	10	OK	No Trend
Calcium (total)	0.200000003	0.474274397	10	OK	No Trend
Cobalt (total)	-0.377777785	0.15240626	10	OK	No Trend
Copper (total)	NA	NA	NA	>50% non-detect	NA
Iron (total)	-0.333333343	0.210497677	10	OK	No Trend
Lead (total)	NA	NA	NA	>50% non-detect	NA
Lithium (total)	NA	NA	NA	>50% non-detect	NA
Magnesium (total)	0.155555561	0.591505051	10	OK	No Trend
Manganese (total)	-0.422222227	0.107404657	10	OK	No Trend
Potassium (total)	0.179786623	0.529598832	10	OK	No Trend
Selenium (total)	NA	NA	NA	>50% non-detect	NA
Sodium (total)	0.244444445	0.371093273	10	OK	No Trend
Zinc (total)	NA	NA	NA	>50% non-detect	NA
pH	-0.022222223	1	10	OK	No Trend
Bicarbonate Alkalinity	0.155555561	0.591505051	10	OK	No Trend
Chloride	0.230021864	0.413895726	10	OK	No Trend
Sulfate	0.111111112	0.720514774	10	OK	No Trend
Total Suspended Solids (TSS)	-0.51111114	0.049097981	10	OK	**Decreasing**

[(a)] Half the reporting limit was used for non-detect values.

Definitions:

Tau: Strength and direction of a trend varying between -1 and 1. Positive values indicate an increasing trend, negative values indicate a decreasing trend.

p-value: Indicates whether a trend is statistically signifcant. $p < 0.05$ is statistically signifcant and $p \geq 0.05$ is not statistically significant.

n: Sample size (number of usable data points).

Table B-6
2025 Mann-Kendall Trend Test Results (Intrawell) - Continuous Aquifer - CCR Landfill Groundwater Statistical Evaluation
Grain Processing Corporation

Analyte	Tau	p-value	n[a]	Note	Trend
MW-3 (Upgradient)					
Arsenic (total)	NA	NA	NA	>50% non-detect	NA
Barium (total)	0.200000003	0.474274397	10	OK	No trend
Beryllium (total)	NA	NA	NA	>50% non-detect	NA
Boron (total)	NA	NA	NA	>50% non-detect	NA
Calcium (total)	0.404519916	0.126849294	10	OK	No trend
Cobalt (total)	-0.155555561	0.591505051	10	OK	No trend
Copper (total)	NA	NA	NA	>50% non-detect	NA
Iron (total)	0.288888901	0.283130884	10	OK	No trend
Lead (total)	NA	NA	NA	>50% non-detect	NA
Lithium (total)	0.368034989	0.173273087	10	OK	No trend
Magnesium (total)	0.333333343	0.210497618	10	OK	No trend
Manganese (total)	-0.06666667	0.858027637	10	OK	No trend
Potassium (total)	-0.089893311	0.787615776	10	OK	No trend
Selenium (total)	NA	NA	NA	>50% non-detect	NA
Sodium (total)	-0.179786623	0.529598832	10	OK	No trend
Zinc (total)	NA	NA	NA	>50% non-detect	NA
pH	-0.022222223	1	10	OK	No trend
Bicarbonate Alkalinity	0.134839967	0.653422117	10	OK	No trend
Chloride	NA	NA	NA	>50% non-detect	NA
Sulfate	0.200000003	0.474274397	10	OK	No trend
Total Suspended Solids (TSS)	0.089893311	0.787615776	10	OK	No trend
MW-10 (Downgradient)					
Arsenic (total)	NA	NA	NA	>50% non-detect	NA
Barium (total)	0.200000003	0.474274397	10	OK	No trend
Beryllium (total)	NA	NA	NA	>50% non-detect	NA
Boron (total)	-0.244444445	0.371093333	10	OK	No trend
Calcium (total)	-0.044946656	0.928444028	10	OK	No trend
Cobalt (total)	0.089893311	0.787615776	10	OK	No trend
Copper (total)	NA	NA	NA	>50% non-detect	NA
Iron (total)	0.269679934	0.323236227	10	OK	No trend
Lead (total)	NA	NA	NA	>50% non-detect	NA
Lithium (total)	-0.51111114	0.049097981	10	OK	**Decreasing**
Magnesium (total)	0.022222223	1	10	OK	No trend
Manganese (total)	-0.333333343	0.210497677	10	OK	No trend
Potassium (total)	0.51111114	0.049098015	10	OK	**Increasing**
Selenium (total)	NA	NA	NA	>50% non-detect	NA
Sodium (total)	-0.494413227	0.059314407	10	OK	No trend
Zinc (total)	NA	NA	NA	>50% non-detect	NA
pH	0.288888901	0.283130884	10	OK	No trend
Bicarbonate Alkalinity	-0.111111112	0.720514774	10	OK	No trend
Chloride	-0.200000003	0.474274337	10	OK	No trend
Sulfate	-0.155555561	0.591505051	10	OK	No trend
Total Suspended Solids (TSS)	0	1	10	OK	No trend

Table B-6
2025 Mann-Kendall Trend Test Results (Intrawell) - Continuous Aquifer - CCR Landfill Groundwater Statistical Evaluation
Grain Processing Corporation

Analyte	Tau	p-value	n[(a)]	Note	Trend
MW-15 (Downgradient)					
Arsenic (total)	NA	NA	NA	>50% non-detect	NA
Barium (total)	-0.460043728	0.085399866	10	OK	No trend
Beryllium (total)	NA	NA	NA	>50% non-detect	NA
Boron (total)	-0.555555582	0.031823125	10	OK	**Decreasing**
Calcium (total)	-0.302653104	0.273986995	10	OK	No trend
Cobalt (total)	-0.377777785	0.15240626	10	OK	No trend
Copper (total)	NA	NA	NA	>50% non-detect	NA
Iron (total)	-0.377777785	0.15240626	10	OK	No trend
Lead (total)	NA	NA	NA	>50% non-detect	NA
Lithium (total)	-0.333333343	0.210497677	10	OK	No trend
Magnesium (total)	-0.644444466	0.012266059	10	OK	**Decreasing**
Manganese (total)	0.155555561	0.591505051	10	OK	No trend
Potassium (total)	-0.022222223	1	10	OK	No trend
Selenium (total)	NA	NA	NA	>50% non-detect	NA
Sodium (total)	-0.422222227	0.107404657	10	OK	No trend
Zinc (total)	NA	NA	NA	>50% non-detect	NA
pH	0.449466556	0.087961435	10	OK	No trend
Bicarbonate Alkalinity	-0.51111114	0.049097981	10	OK	**Decreasing**
Chloride	-0.555555582	0.031823125	10	OK	**Decreasing**
Sulfate	-0.179786623	0.529598832	10	OK	No trend
Total Suspended Solids (TSS)	-0.377777785	0.15240626	10	OK	No trend
MW-16 (Downgradient)					
Arsenic (total)	NA	NA	NA	>50% non-detect	NA
Barium (total)	0.022222223	1	10	OK	No trend
Beryllium (total)	NA	NA	NA	>50% non-detect	NA
Boron (total)	0.555555582	0.031823158	10	OK	**Increasing**
Calcium (total)	0.555555582	0.031823158	10	OK	**Increasing**
Cobalt (total)	0.111111112	0.720514774	10	OK	No trend
Copper (total)	NA	NA	NA	>50% non-detect	NA
Iron (total)	0.06666667	0.858027697	10	OK	No trend
Lead (total)	-0.269679934	0.323236287	10	OK	No trend
Lithium (total)	0.555555582	0.031823158	10	OK	**Increasing**
Magnesium (total)	0.777777791	0.002357483	10	OK	**Increasing**
Manganese (total)	-0.155555561	0.591505051	10	OK	No trend
Potassium (total)	0.777777791	0.002357483	10	OK	**Increasing**
Selenium (total)	NA	NA	NA	>50% non-detect	NA
Sodium (total)	0.733333349	0.004207492	10	OK	**Increasing**
Zinc (total)	NA	NA	NA	>50% non-detect	NA
pH	0.244444445	0.371093273	10	OK	No trend
Bicarbonate Alkalinity	0.733333349	0.004207492	10	OK	**Increasing**
Chloride	0.777777791	0.002357483	10	OK	**Increasing**
Sulfate	0.288888901	0.283130884	10	OK	No trend
Total Suspended Solids (TSS)	-0.422222227	0.107404657	10	OK	No trend

Table B-6
2025 Mann-Kendall Trend Test Results (Intrawell) - Continuous Aquifer - CCR Landfill Groundwater Statistical Evaluation
Grain Processing Corporation

Analyte	Tau	p-value	n[(a)]	Note	Trend
MW-17 (Downgradient)					
Arsenic (total)	-0.134839967	0.653422117	10	OK	No trend
Barium (total)	-0.422222227	0.107404657	10	OK	No trend
Beryllium (total)	NA	NA	NA	>50% non-detect	NA
Boron (total)	-0.288888901	0.283130825	10	OK	No trend
Calcium (total)	0.477396071	0.071334958	10	OK	No trend
Cobalt (total)	0.288888901	0.283130884	10	OK	No trend
Copper (total)	NA	NA	NA	>50% non-detect	NA
Iron (total)	0.244444445	0.371093273	10	OK	No trend
Lead (total)	0.111111112	0.720514774	10	OK	No trend
Lithium (total)	0.092008747	0.785351038	10	OK	No trend
Magnesium (total)	0.466666669	0.07363832	10	OK	No trend
Manganese (total)	0.333333343	0.210497618	10	OK	No trend
Potassium (total)	-0.359573245	0.177967414	10	OK	No trend
Selenium (total)	NA	NA	NA	>50% non-detect	NA
Sodium (total)	-0.644444466	0.012266059	10	OK	**Decreasing**
Zinc (total)	NA	NA	NA	>50% non-detect	NA
pH	0.494413227	0.05931437	10	OK	No trend
Bicarbonate Alkalinity	0.288888901	0.283130884	10	OK	No trend
Chloride	-0.288888901	0.283130825	10	OK	No trend
Sulfate	0.200000003	0.474274397	10	OK	No trend
Total Suspended Solids (TSS)	0.111111112	0.720514774	10	OK	No trend
MW-18 (Downgradient)					
Arsenic (total)	0.244444445	0.371093273	10	OK	No trend
Barium (total)	0.155555561	0.591505051	10	OK	No trend
Beryllium (total)	NA	NA	NA	>50% non-detect	NA
Boron (total)	-0.244444445	0.371093333	10	OK	No trend
Calcium (total)	-0.244444445	0.371093333	10	OK	No trend
Cobalt (total)	-0.782074332	0.002736577	10	OK	**Decreasing**
Copper (total)	NA	NA	NA	>50% non-detect	NA
Iron (total)	0.134839967	0.653422117	10	OK	No trend
Lead (total)	NA	NA	NA	>50% non-detect	NA
Lithium (total)	-0.155555561	0.591505051	10	OK	No trend
Magnesium (total)	-0.244444445	0.371093333	10	OK	No trend
Manganese (total)	-0.600000024	0.02004467	10	OK	**Decreasing**
Potassium (total)	-0.333333343	0.210497677	10	OK	No trend
Selenium (total)	NA	NA	NA	>50% non-detect	NA
Sodium (total)	-0.466666669	0.073638275	10	OK	No trend
Zinc (total)	NA	NA	NA	>50% non-detect	NA
pH	0.404519916	0.126849294	10	OK	No trend
Bicarbonate Alkalinity	-0.244444445	0.371093333	10	OK	No trend
Chloride	-0.200000003	0.474274337	10	OK	No trend
Sulfate	-0.155555561	0.591505051	10	OK	No trend
Total Suspended Solids (TSS)	-0.155555561	0.591505051	10	OK	No trend

[(a)] Half the reporting limit was used for non-detect values.

Definitions:

Tau: Strength and direction of a trend varying between -1 and 1. Positive values indicate an increasing trend, negative values indicate a decreasing trend.

p-value: Indicates whether a trend is statistically signifcant. $p < 0.05$ is statistically signifcant and $p \geq 0.05$ is not statistically significant.

n: Sample size (number of usable data points).

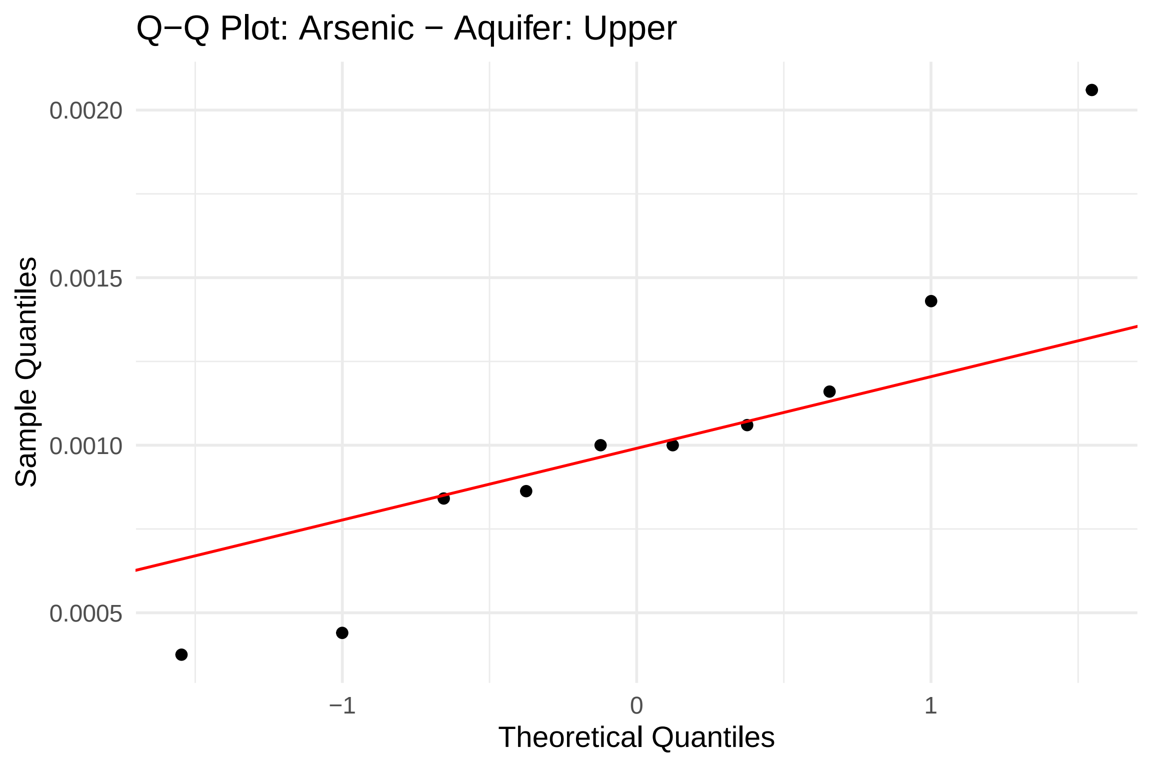
Table B-7
Potential Exposure Pathways- CCR Landfill Groundwater Receptor Survey
Grain Processing Corporation

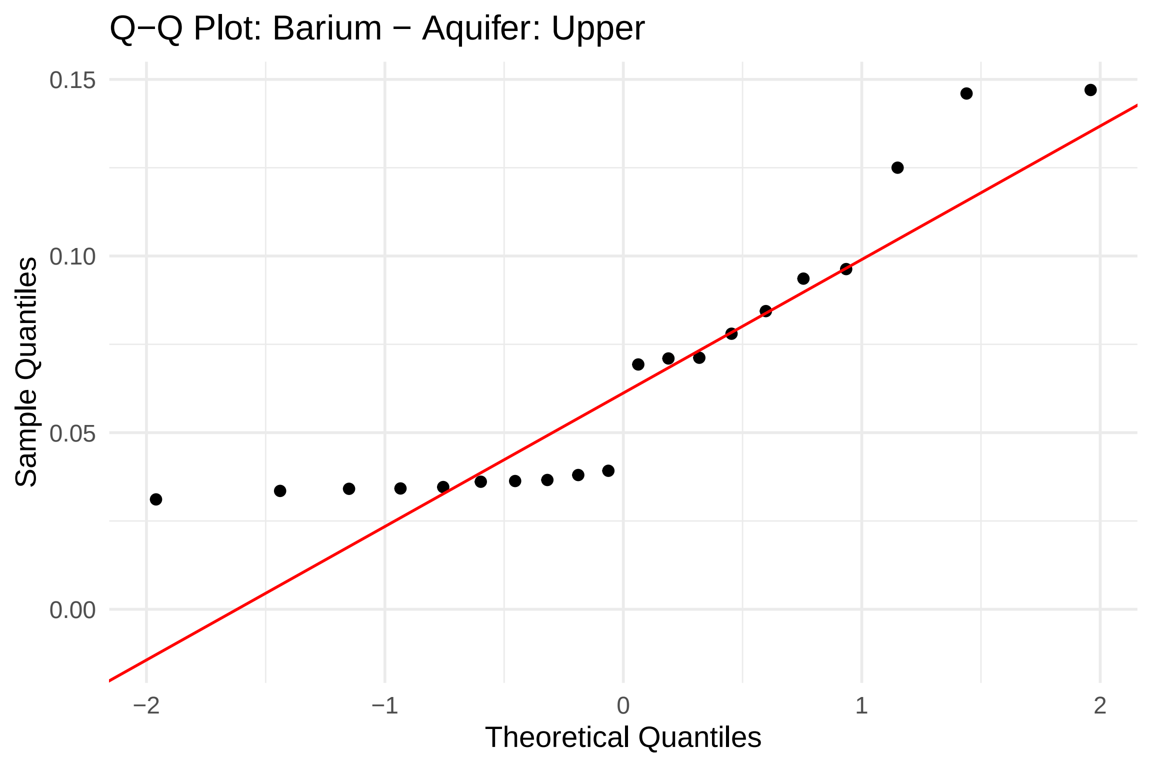
Type	ID	Data Source	Use/Type	Status	Total Depth (ft bgs)	Screened Interval (ft bgs)	Position Relative to Landfill	Approximate Distance from Landfill (ft)	Drilling Date	Owner	Latitude °N	Longitude °W
Groundwater Wells												
Well	22539	Clearinghouse	Household	-	-	-	North Northwest - Up/Crossgradient	4,170	8/24/1998	Hein	41.3047391	91.159717
Well	**52201**	**GeoSam**	**-**	**Unknown**	**0**	**Not Available**	**North Northeast - Down/Cross Gradient**	**3,075**	**-**	**58,3 Section-Miss. River**	**41.302778**	**-91.152454**
Well	**85476**	**GeoSam**	**-**	**Unknown**	**36**	**-**	**Southeast - Down/Cross Gradient**	**5,050**	**3/31/1988**	**IGS MS 37**	**41.28901044**	**-91.14601284**
Well	**85475**	**GeoSam**	**-**	**Unknown**	**21**	**-**	**Southeast - Down/Cross Gradient**	**4,950**	**3/31/1988**	**IGS MS 36**	**41.28901709**	**-91.14642569**
Well	**32476**	**GeoSam**	**-**	**Unknown**	**1**	**-**	**Southeast - Down/Cross Gradient**	**2,335**	**5/15/1990**	**Gsb**	41.292872	-91.151476
Well	2005085 (IWIS) 47542 (GeoSam)	IWIS/GeoSam	Household (IWIS) / Private (GeoSam)	Active (IWIS)	240	220-230	Southwest - Up Gradient	4,460	11/5/1997 (IWIS)	Beeding, Ron	41.288388	-91.160084
Well	2004816 (IWIS) 47838 (GeoSam)	IWIS/GeoSam	Household (IWIS) / Private (GeoSam)	Active (IWIS)	170	150-160	North Northwest - Upgradient	4,965	10/13/1998	Hein, James	41.30279922	-91.1595993
Well	2147569	IWIS	Household	Active	148	-	Northeast Downgradient - Across Slough	3,525	7/23/2009	Hiller Dennis	41.299951	-91.147153
Well	2191874	IWIS	Household	Active	100	-	Northwest - Upgradient	2,800	1/1/1975	Richard Hammond	41.299522	-91.162363
Well	2216307	IWIS	Household	Active Water Test	100	-	North - Cross Gradient	4,425	1/1/1900	Danny Reichert	41.305613	-91.157725
Well	2111266	IWIS	Household	Active Water Test	236	226-236	North Northwest - Upgradient	2,600	5/31/1994	John Schantz Jr.	41.3013	-91.1592
Well	**99871**	**GeoSam**	**-**	**Unknown**	**6**	**-**	**North - Down/Cross Gradient**	**1,100**	**12/31/1996**	**OSA-75N03W13-Auger Test31**	**41.298717**	**-91.156166**
Well	**99870**	**GeoSam**	**-**	**Unknown**	**13**	**-**	**East - Down/Cross Gradient**	**800**	**12/31/1996**	**OSA-75N03W13-Auger Test 25**	**41.296265**	**-91.153226**
Well	**30587**	**GeoSam**	**Unknown**	**Unknown**	**0**	**-**	**Southeast - Down/Cross Gradient**	**4,663**	**-**	**Gsb**	**41.289231**	-91.14654
Well	**30609**	**GeoSam**	**Unknown**	**Unknown**	**21**	**-**	**Southeast - Down/Cross Gradient**	**4,629**	**6/15/1987**	**Gsb**	41.28923865	-91.14654636
Surface Water Bodies												
River	Muscatine Slough (IA 01-NEM-79)	IDNR ADBNet	Primary Contact Recreation (A1) Warmwater Aquatic Life (BWW1) Human Health/Fish Consumption (HH)	Not Applicable	-	Not Applicable	East - Downgradient	1,700	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Wetland	Klum Lake (IA 01-NEM-66)	IDNR ADBNet	Primary Contact Recreation (A1) Lake and Wetland Aquatic Life (BLW) Human Health/Fish Consumption (HH)	Not Applicable	-	Not Applicable	South Southeast - Downgradient through hydrologic connection	13,200	Not Applicable	Not Applicable	41.26	-91.14
Surface Water Intakes												
Klum Lake	Klum Lake	Solid Waste Map	Surface Water Intake (pumped to Klum Lake)	Active	-	Not Applicable	South Southeast - Downgradient through hydrologic connection	13,200	Not Applicable	Not Applicable	41.26	-91.14

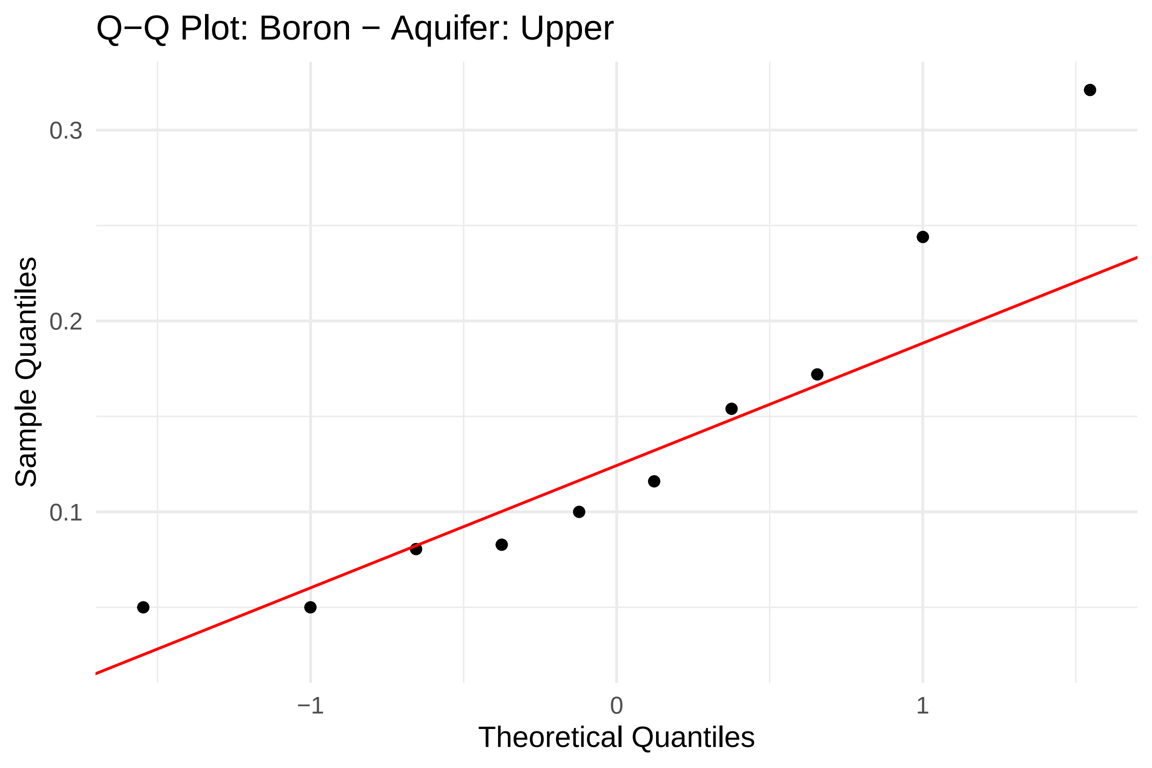
Bold indicates the well is downgradient or cross gradient from the Site.

APPENDIX C -
QQ PLOTS

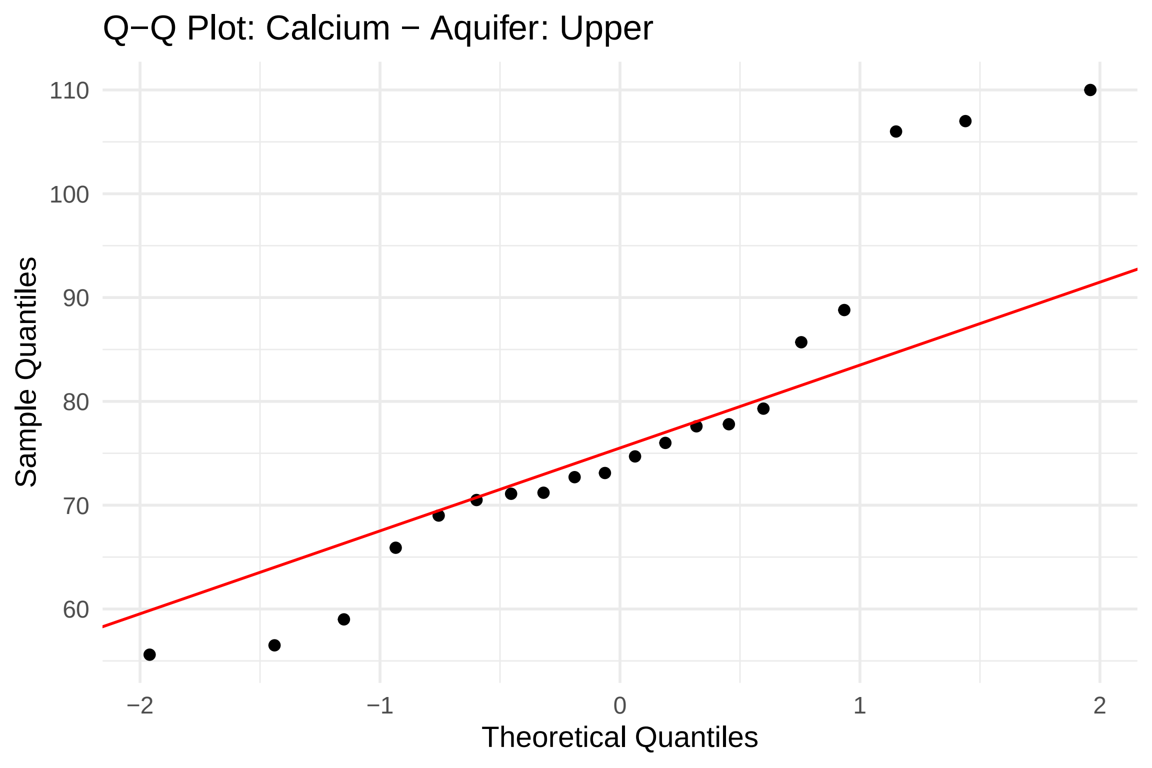
Upper Aquifer

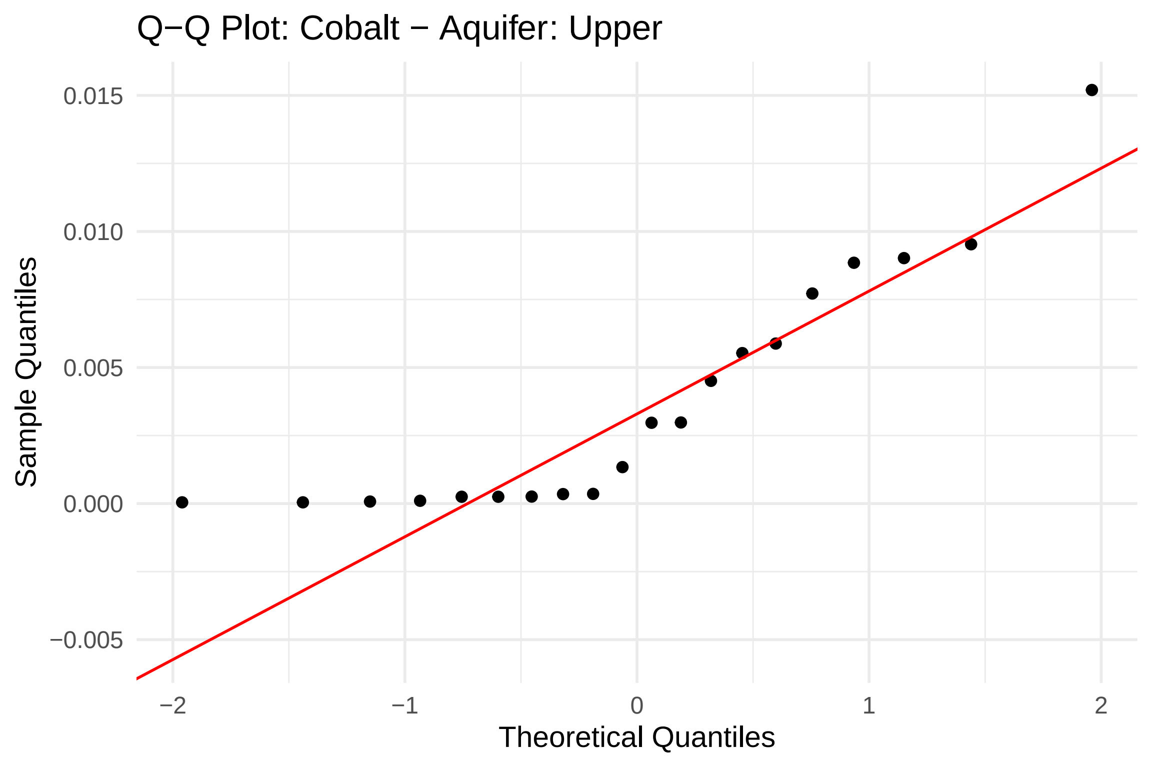

Q−Q Plot: Arsenic − Aquifer: Upper
0.0020
0.0015
0.0010
0.0005
Sample Quantiles
−1
0
1
Theoretical Quantiles


Q−Q Plot: Barium − Aquifer: Upper
Sample Quantiles
0.15
0.10
0.05
0.00
−2
−1
0
1
2
Theoretical Quantiles

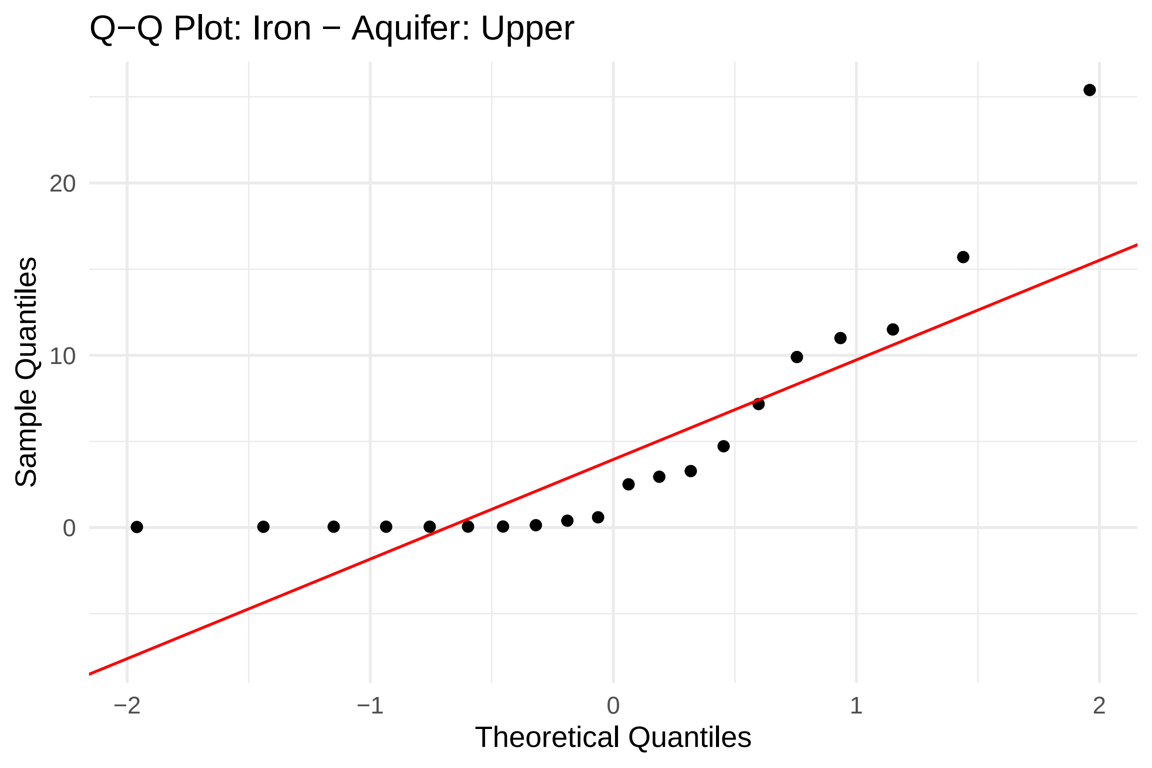


Q−Q Plot: Boron − Aquifer: Upper
0.3
0.2
0.1
Sample Quantiles
−1
0
1
Theoretical Quantiles

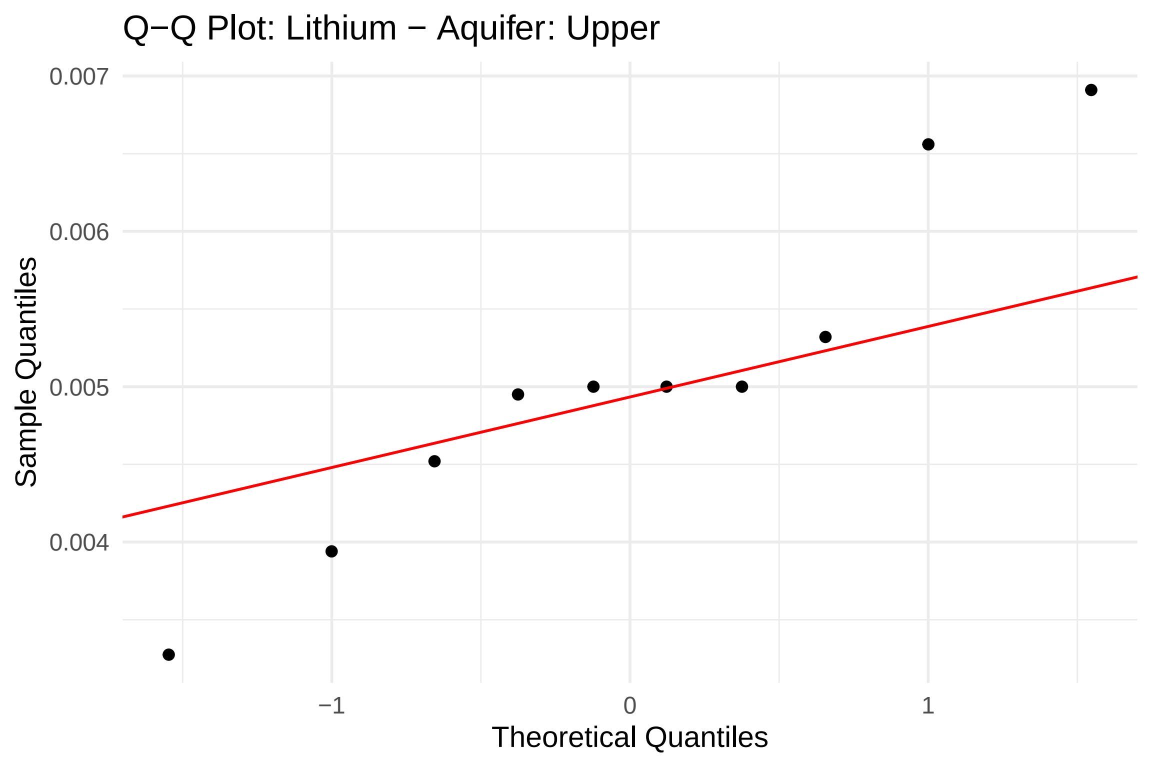

Q−Q Plot: Calcium − Aquifer: Upper
Sample Quantiles
110
100
90
80
70
60
−2
−1
0
1
2
Theoretical Quantiles

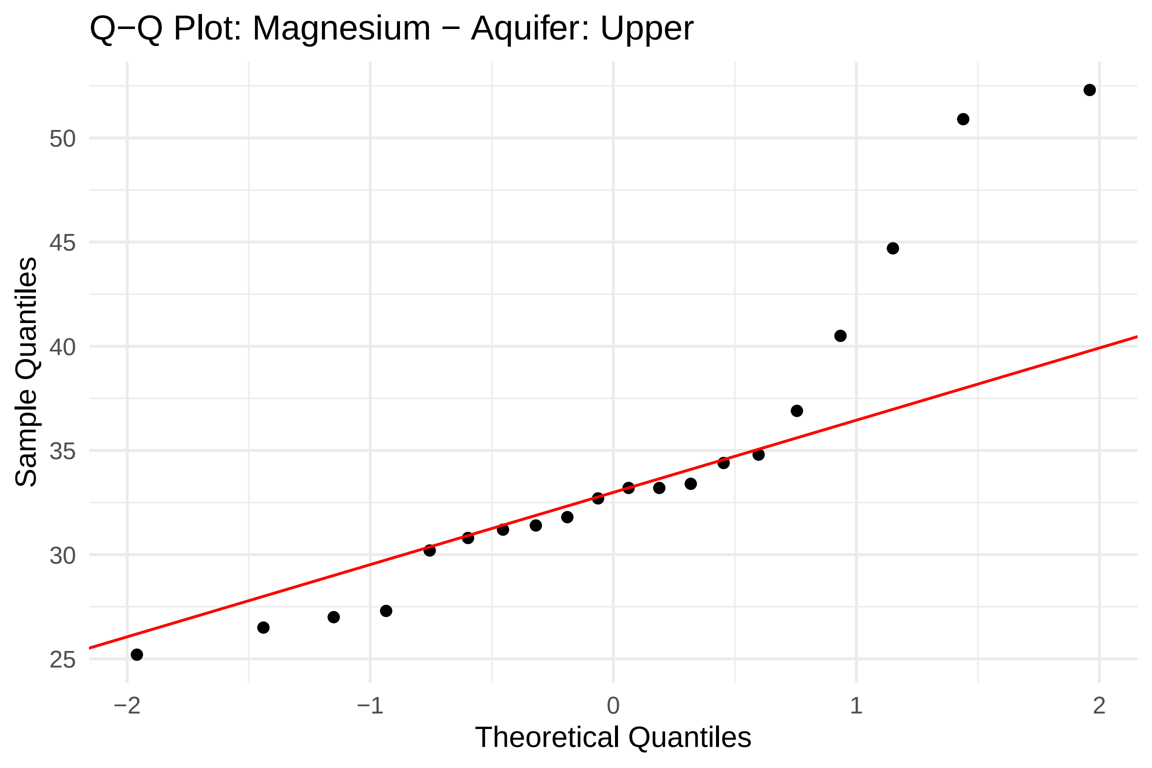


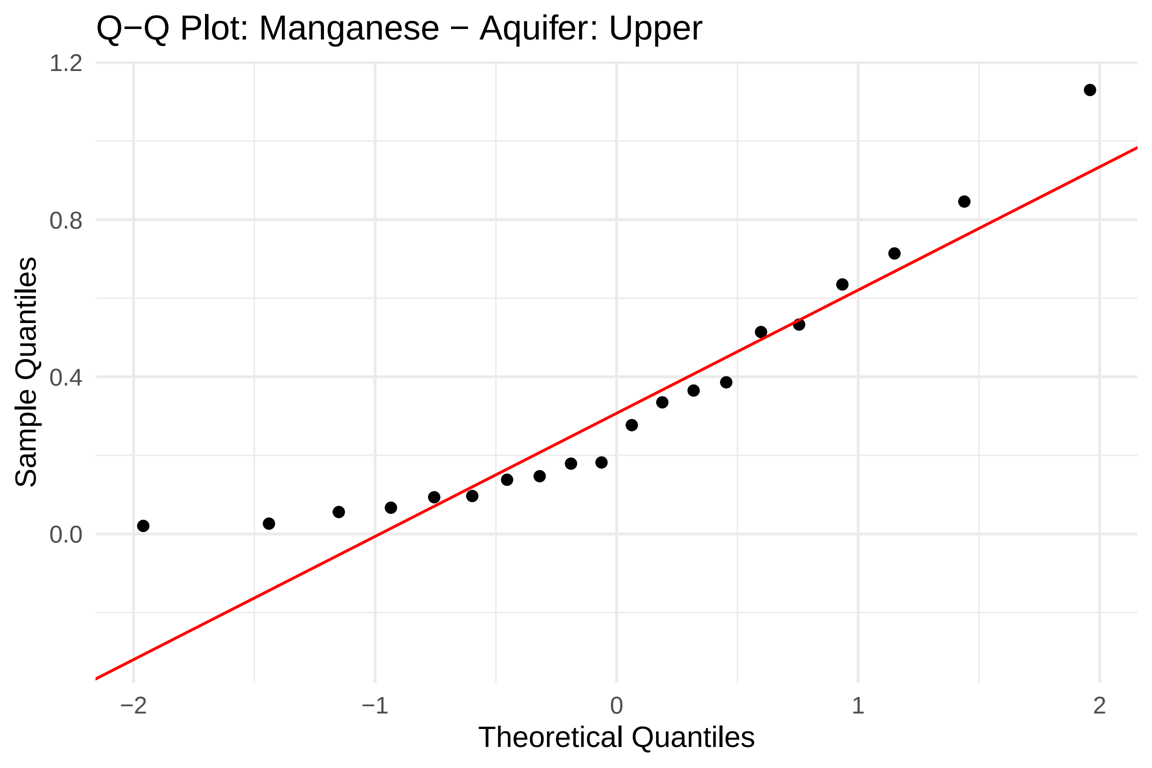
Q−Q Plot: Cobalt − Aquifer: Upper
0.015
0.010
0.005
0.000
−0.005
Sample Quantiles
−2
−1
0
1
2
Theoretical Quantiles

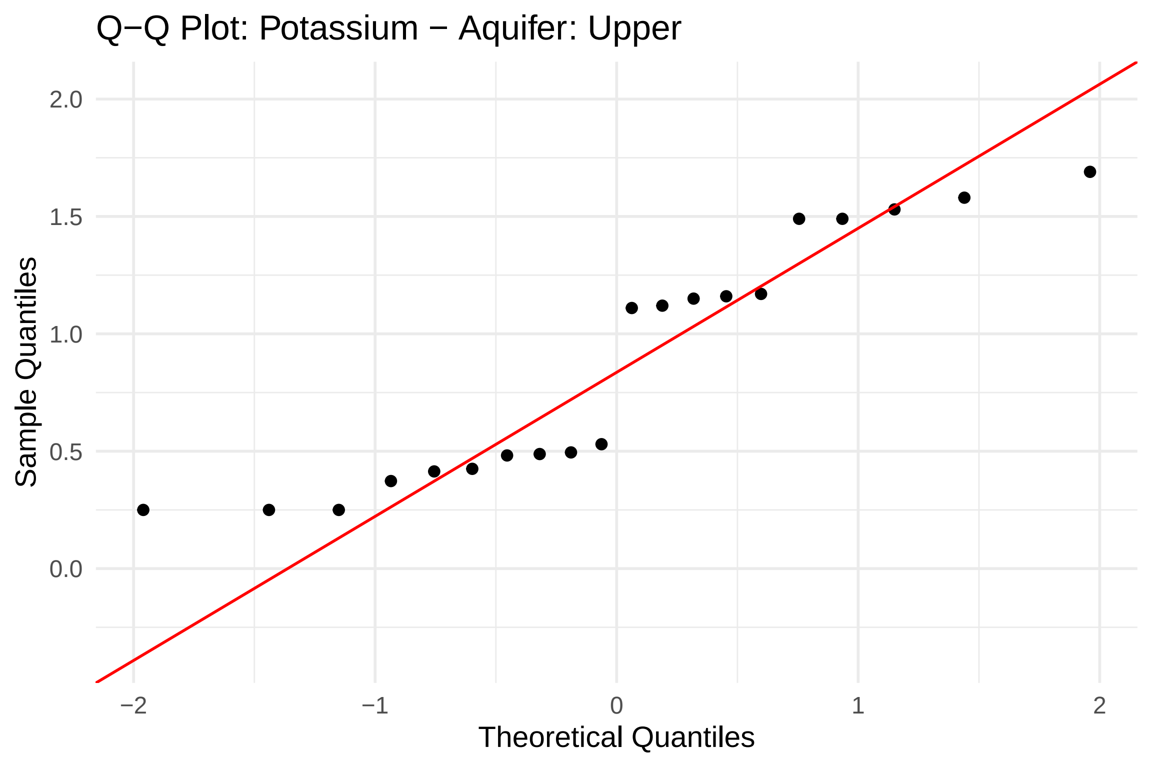


Q−Q Plot: Iron − Aquifer: Upper
Sample Quantiles
Theoretical Quantiles
20
10
0
−2
−1
0
1
2

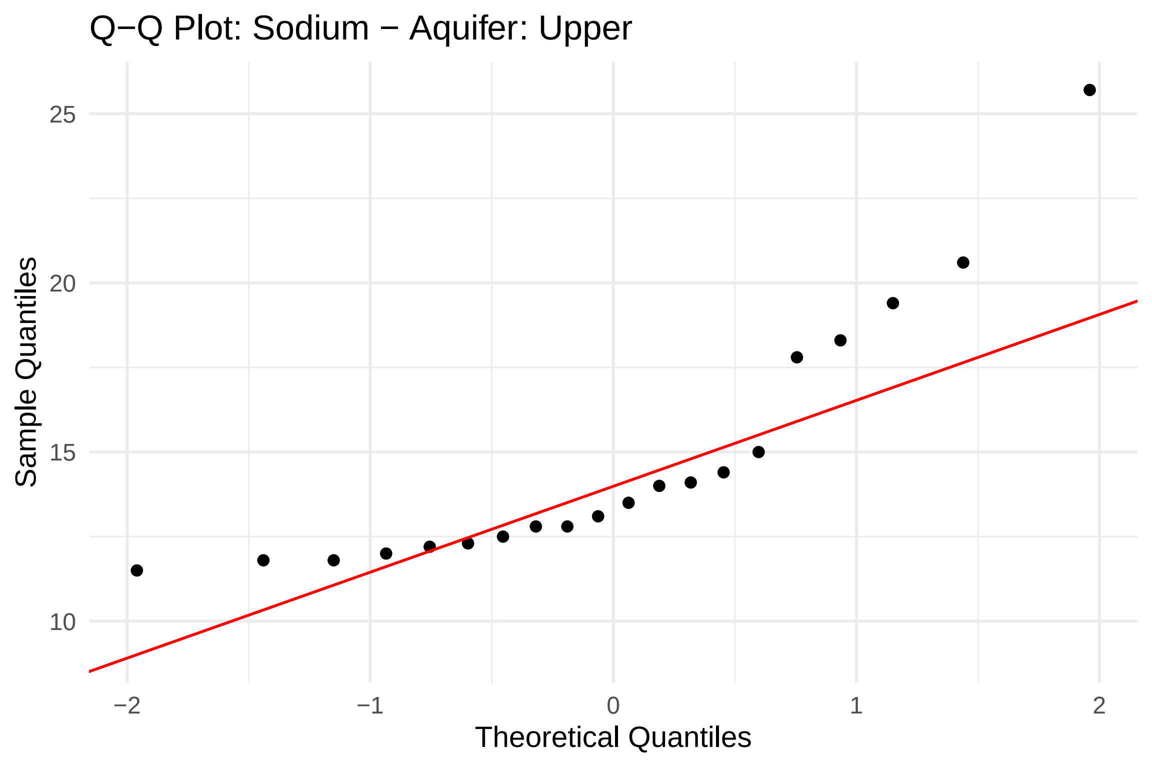

Q−Q Plot: Lithium − Aquifer: Upper
0.007
0.006
0.005
0.004
Sample Quantiles
−1
0
1
Theoretical Quantiles

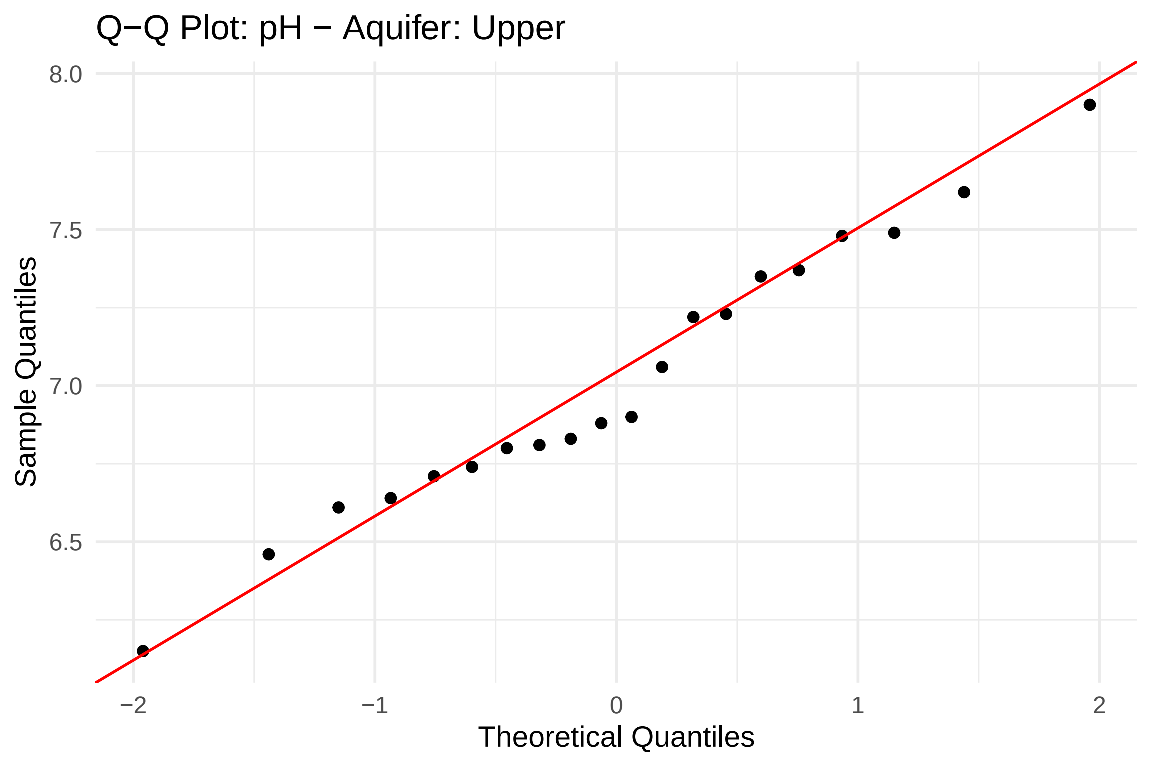

Q−Q Plot: Magnesium − Aquifer: Upper
Sample Quantiles
Theoretical Quantiles
25
30
35
40
45
50
−2
−1
0
1
2


Q−Q Plot: Manganese − Aquifer: Upper
1.2
0.8
0.4
0.0
Sample Quantiles
−2
−1
0
1
2
Theoretical Quantiles

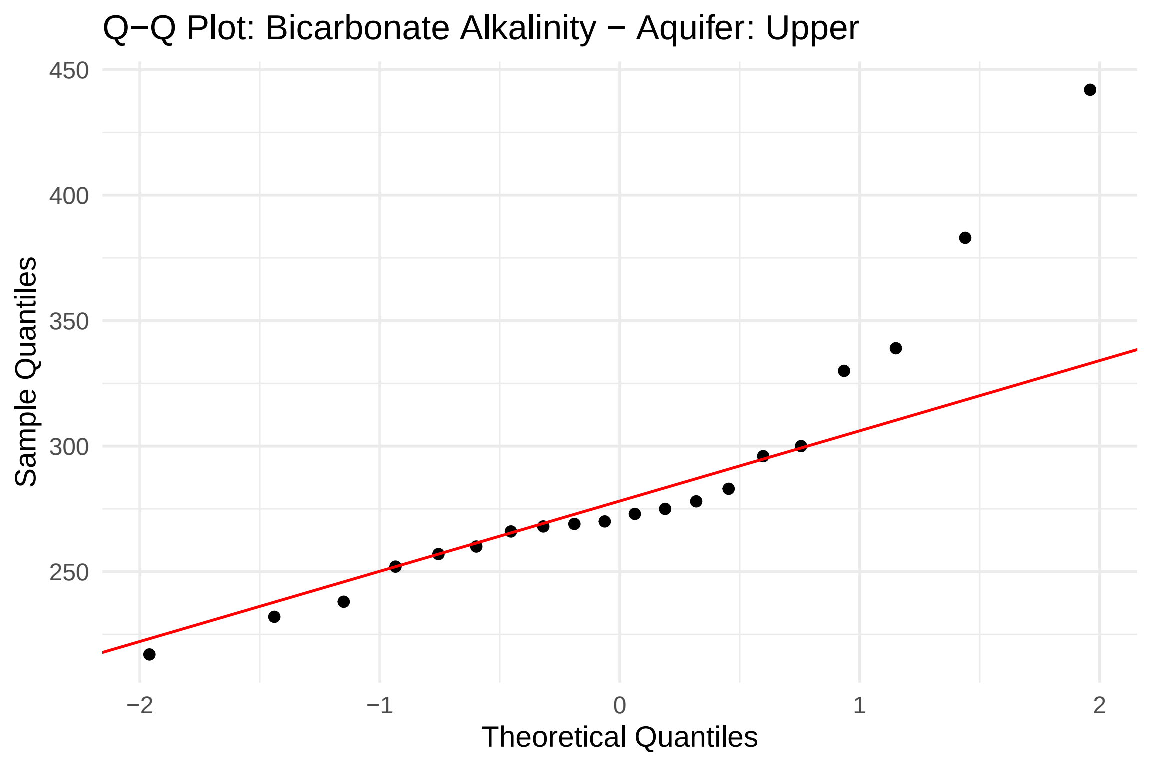


Q−Q Plot: Potassium − Aquifer: Upper
2.0
1.5
1.0
0.5
0.0
Sample Quantiles
−2
−1
0
1
2
Theoretical Quantiles

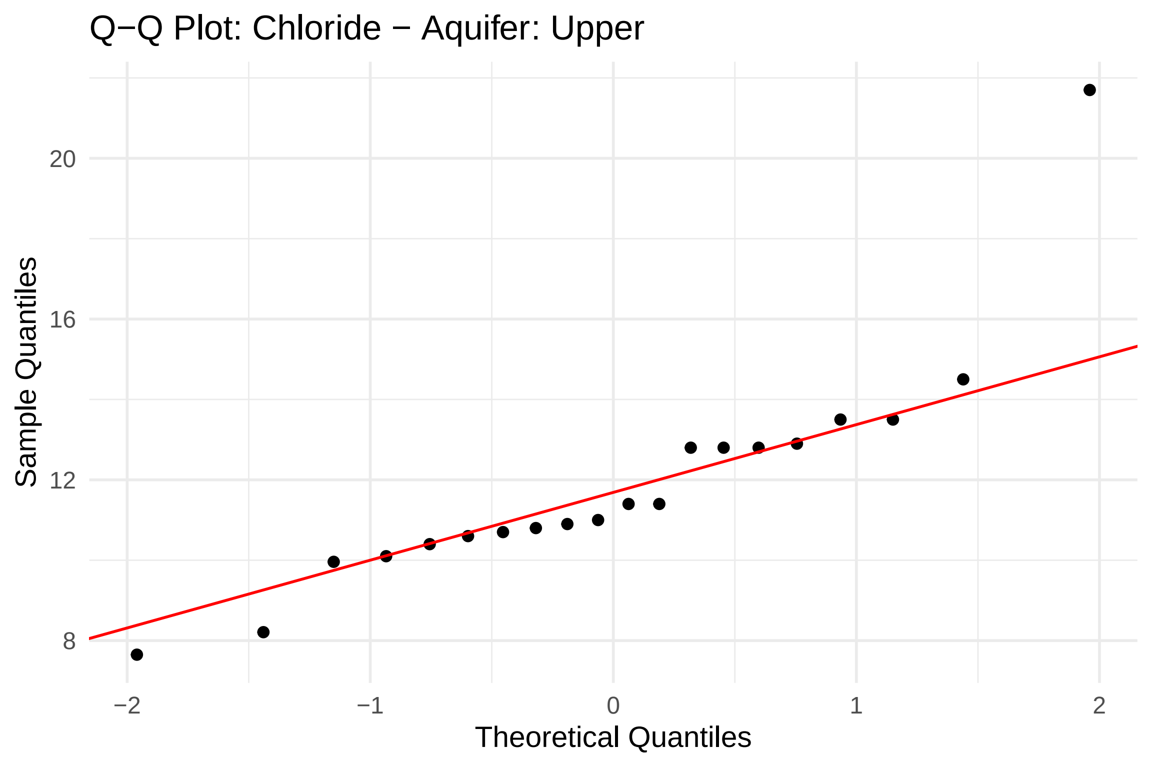

Q−Q Plot: Sodium − Aquifer: Upper
Sample Quantiles
25
20
15
10
−2
−1
0
1
2
Theoretical Quantiles



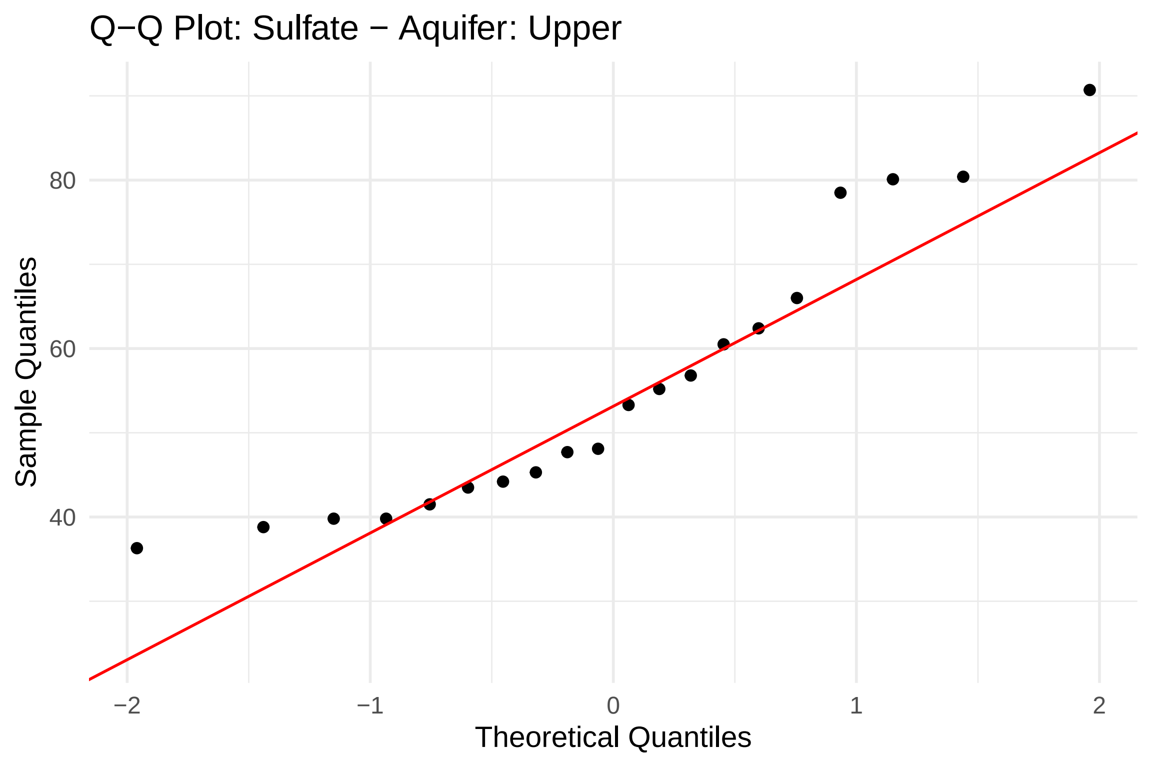
Q−Q Plot: pH − Aquifer: Upper
8.0
7.5
7.0
6.5
Sample Quantiles
−2
−1
0
1
2
Theoretical Quantiles

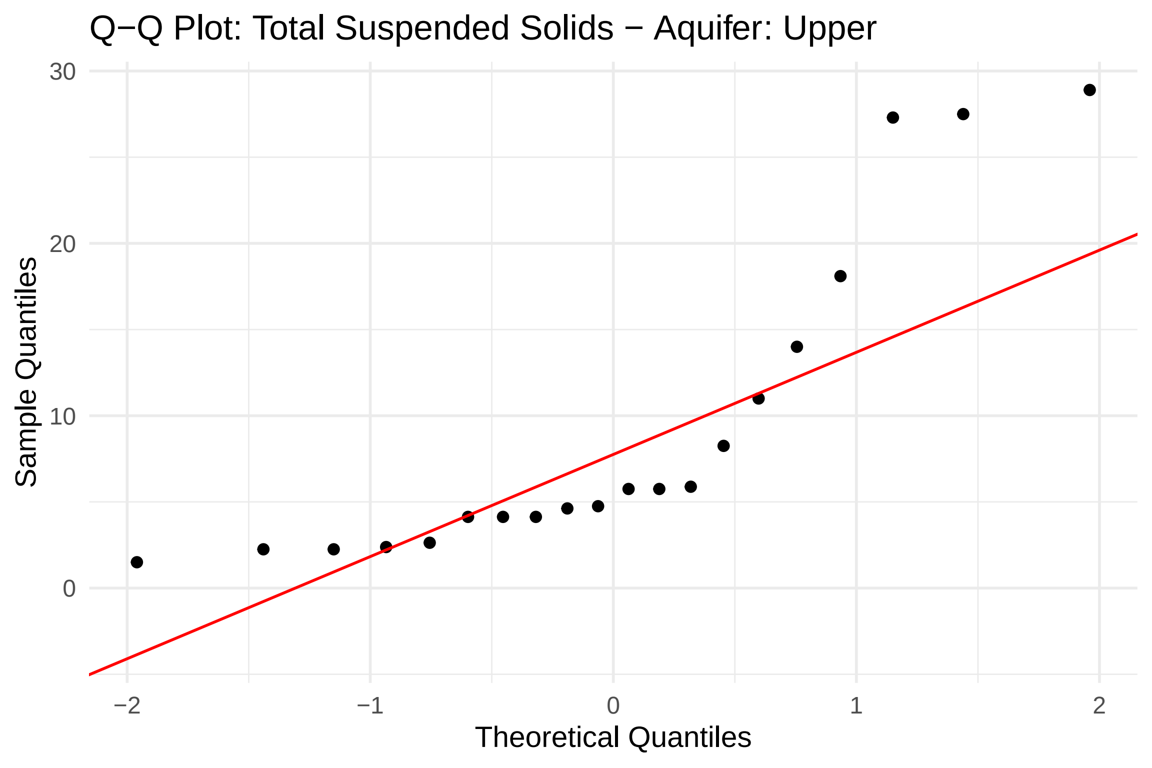


Q−Q Plot: Bicarbonate Alkalinity − Aquifer: Upper
Sample Quantiles
Theoretical Quantiles
450
400
350
300
250
−2
−1
0
1
2

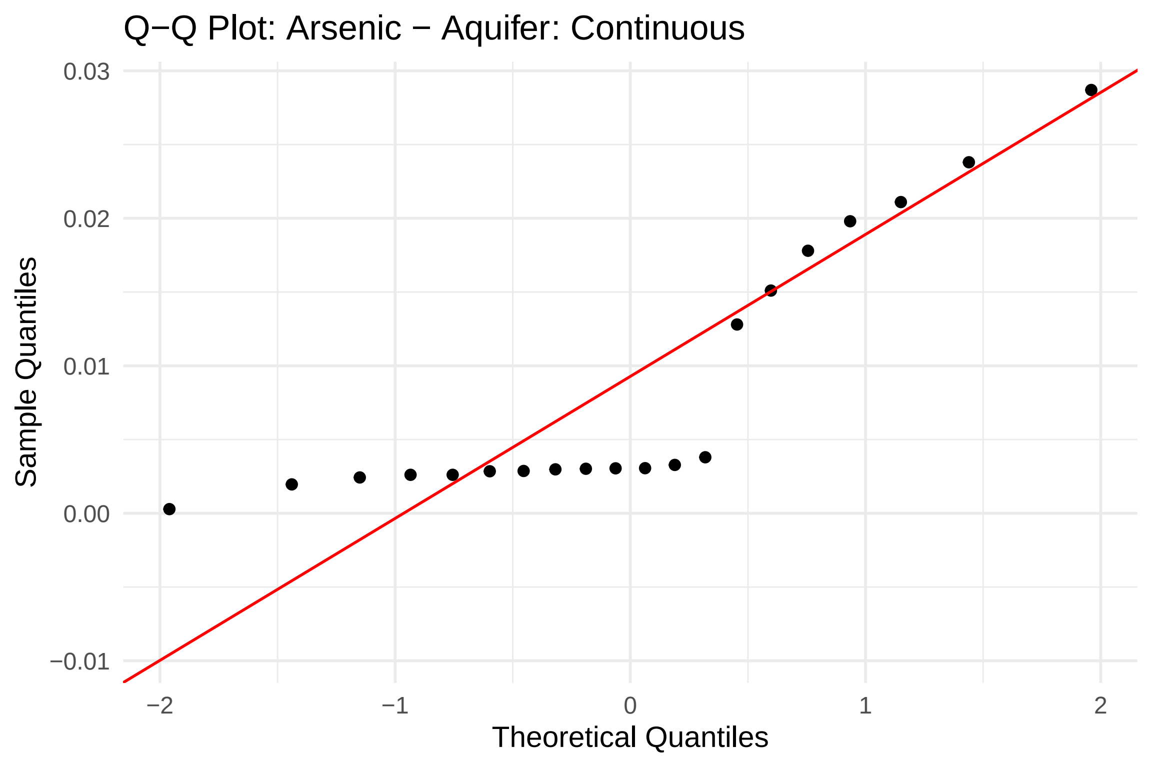


Q−Q Plot: Chloride − Aquifer: Upper
Sample Quantiles
20
16
12
8
−2
−1
0
1
2
Theoretical Quantiles

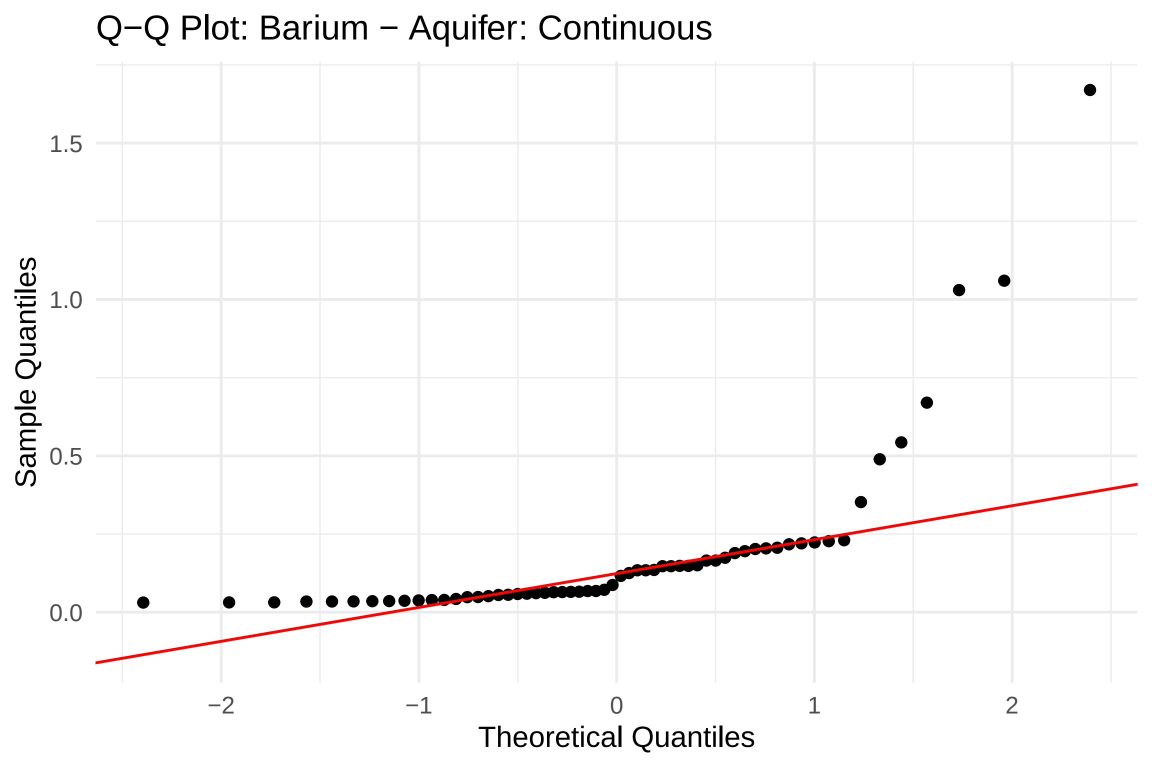

Q−Q Plot: Sulfate − Aquifer: Upper
Sample Quantiles
80
60
40
Theoretical Quantiles
−2
−1
0
1
2


Q−Q Plot: Total Suspended Solids − Aquifer: Upper
Sample Quantiles
Theoretical Quantiles
30
20
10
0
−2
−1
0
1
2

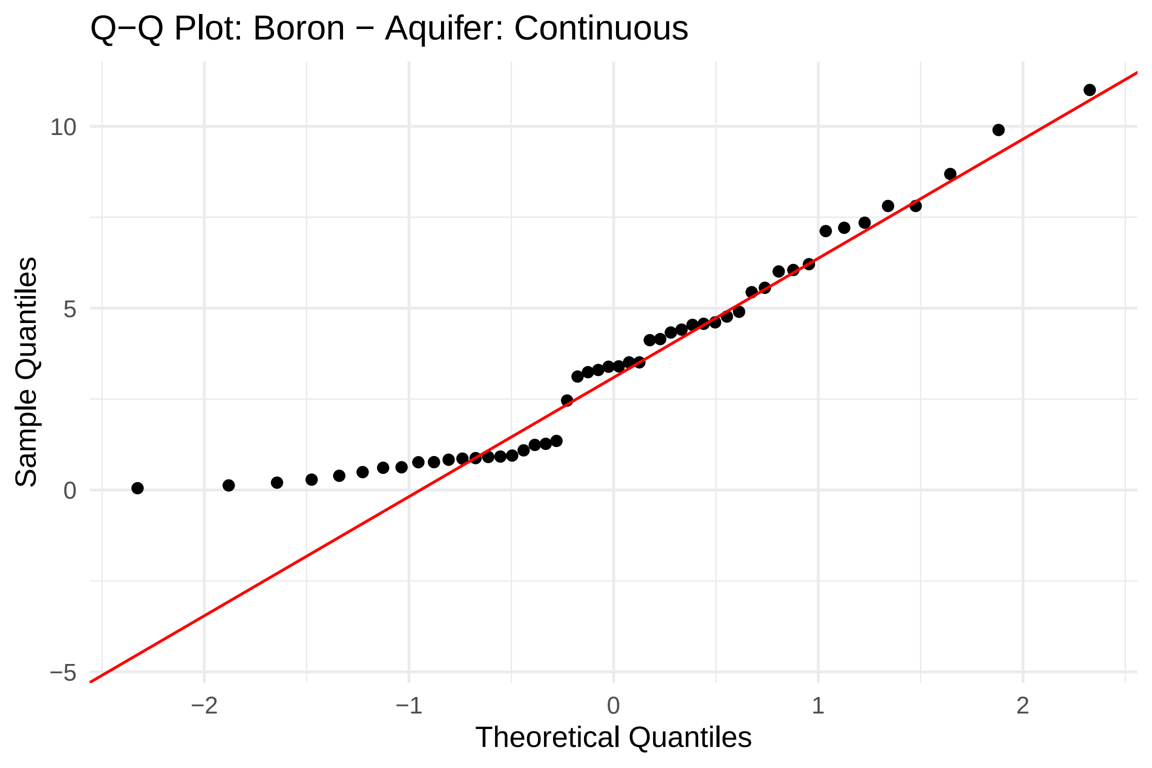
Continuous Aquifer

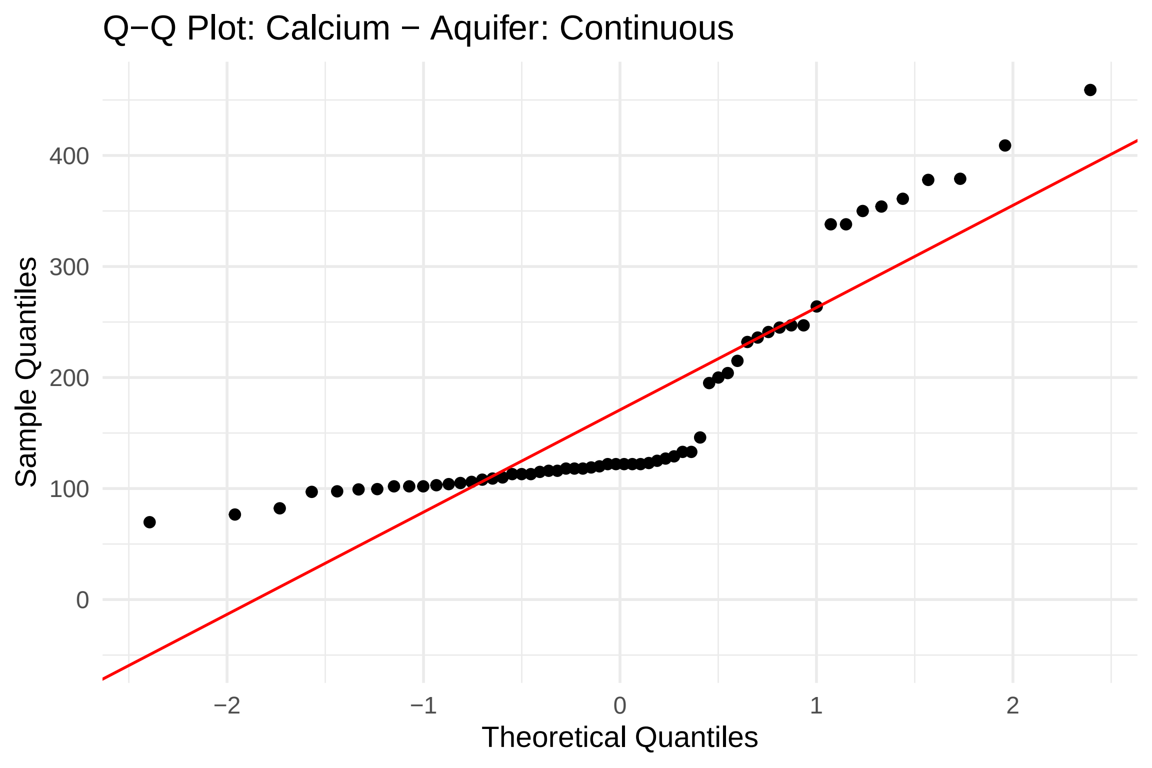


Q−Q Plot: Arsenic − Aquifer: Continuous
0.03
0.02
0.01
0.00
−0.01
Sample Quantiles
−2
−1
0
1
2
Theoretical Quantiles

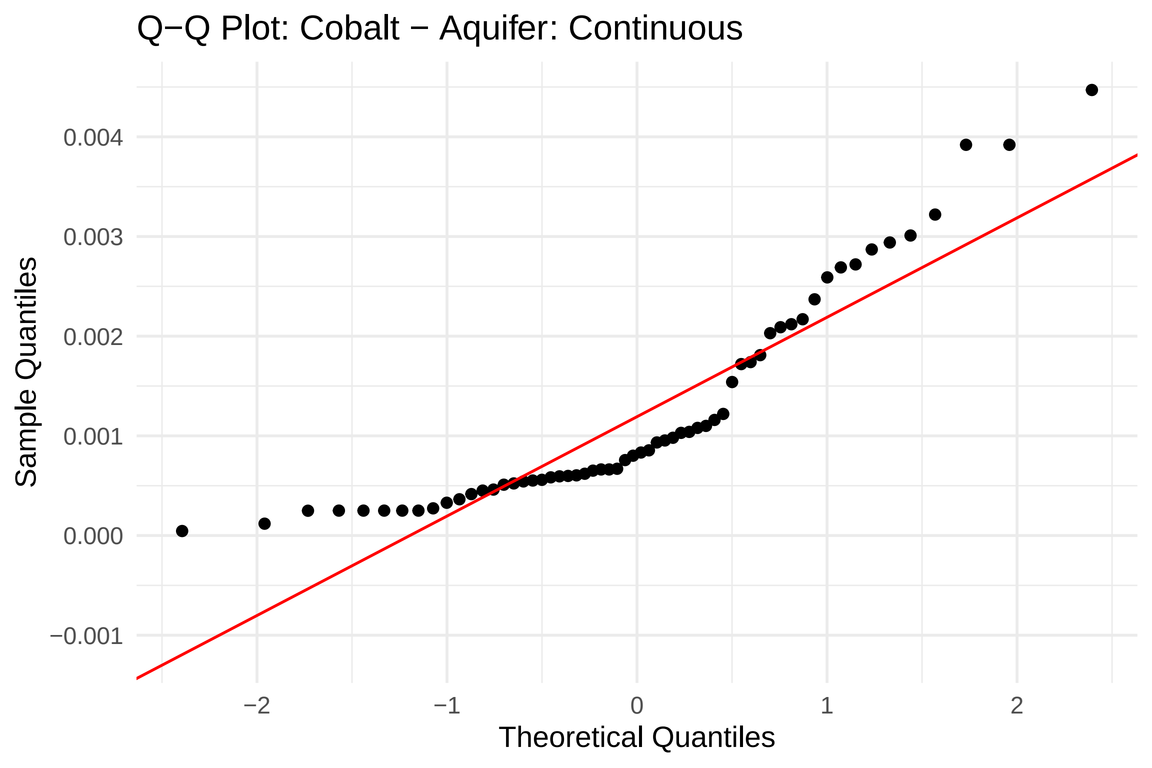


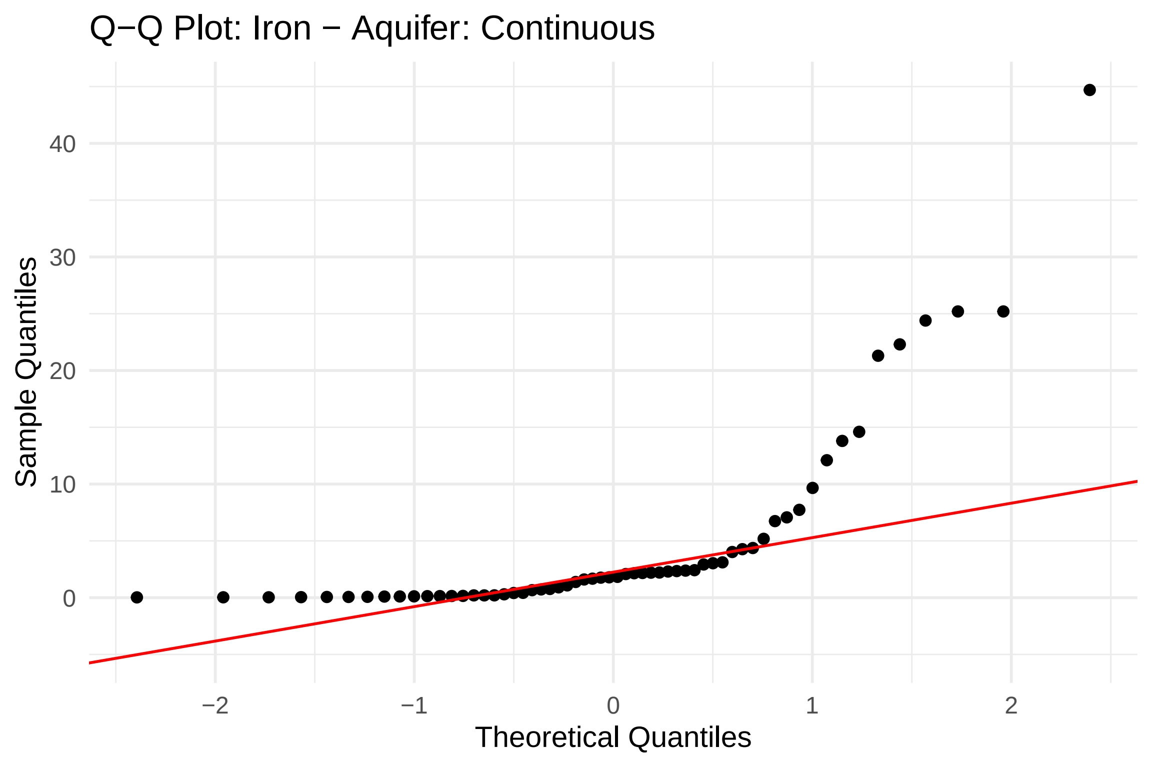
Q−Q Plot: Barium − Aquifer: Continuous
Sample Quantiles
1.5
1.0
0.5
0.0
−2
−1
0
1
2
Theoretical Quantiles

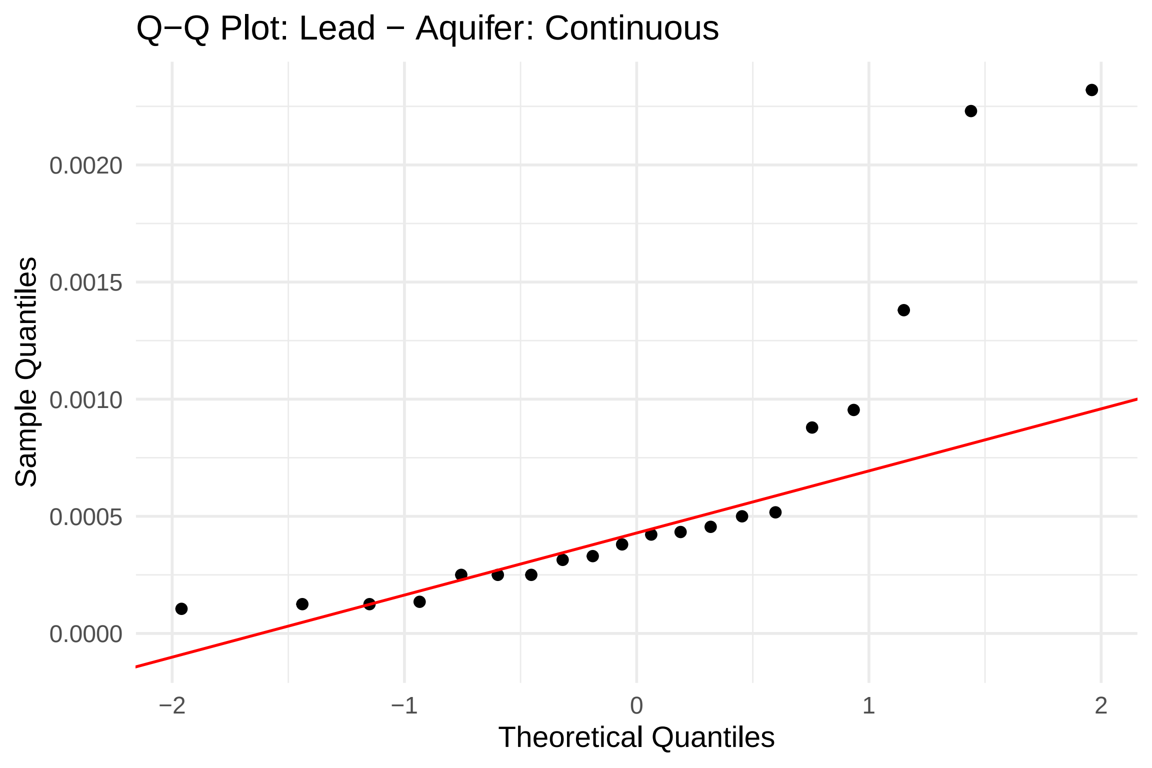

Q−Q Plot: Boron − Aquifer: Continuous
Sample Quantiles
Theoretical Quantiles
10
5
0
−5
−2
−1
0
1
2

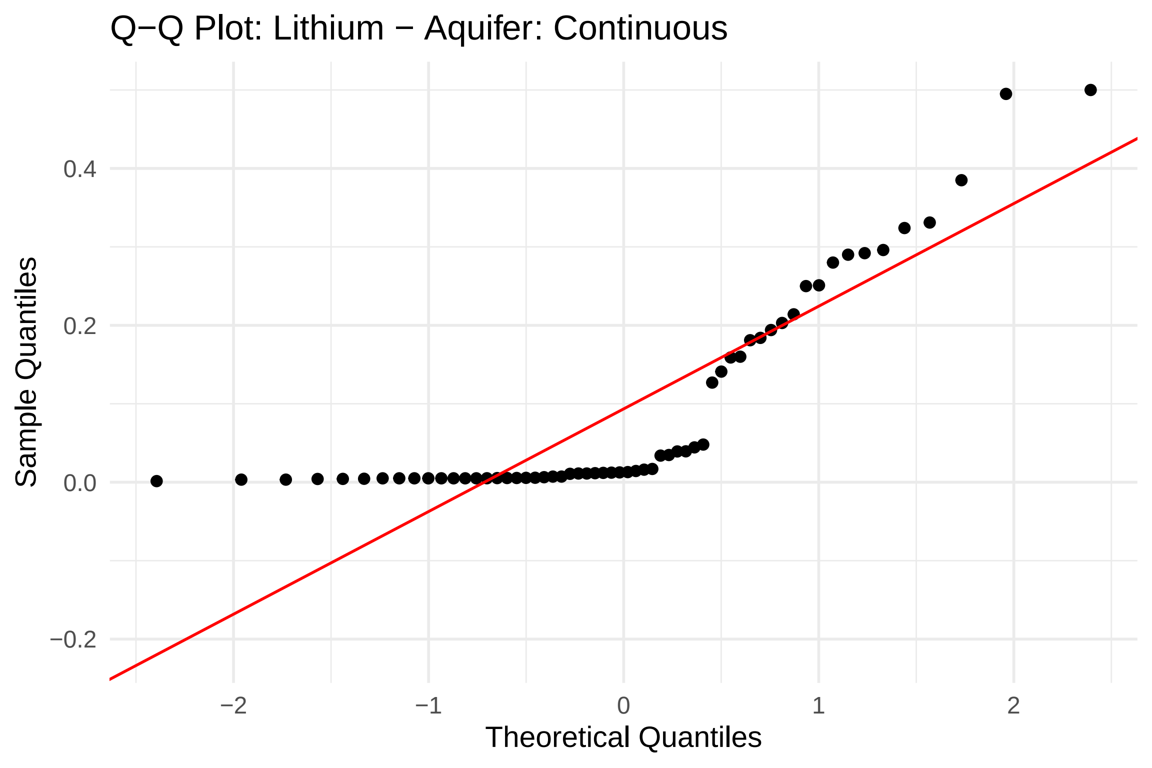


Q−Q Plot: Calcium − Aquifer: Continuous
Sample Quantiles
Theoretical Quantiles
400
300
200
100
0
−2
−1
0
1
2

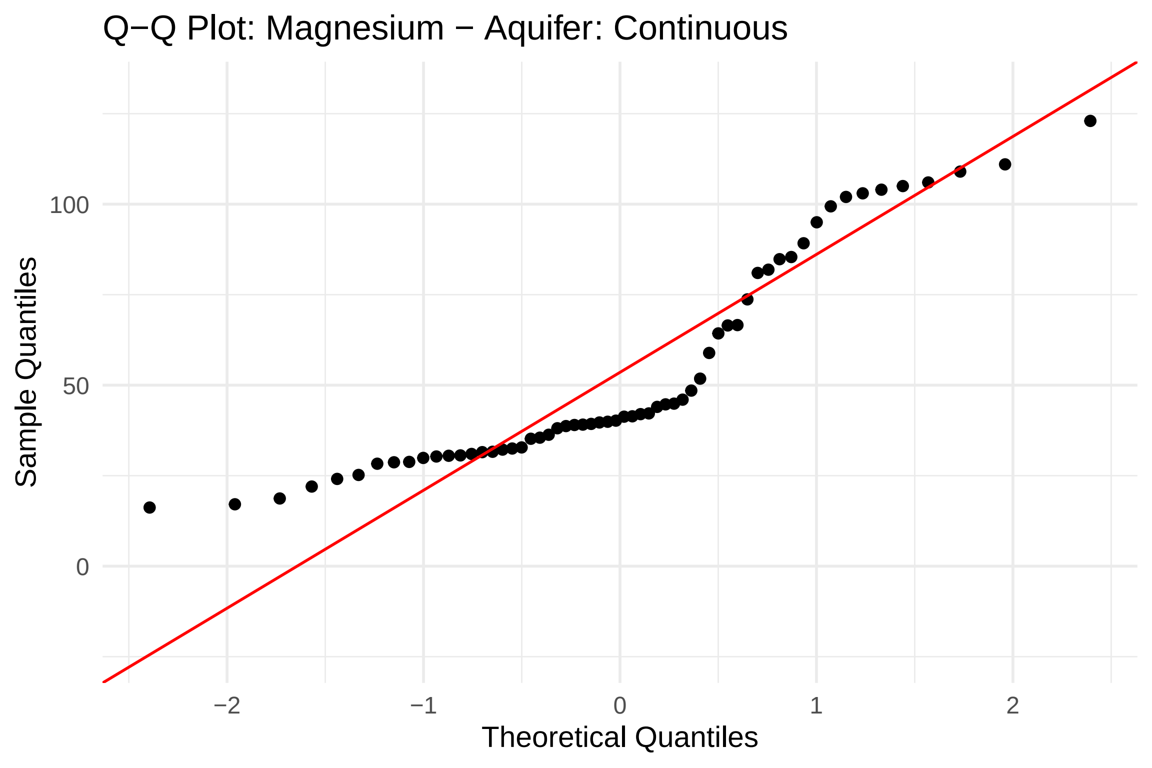

Q−Q Plot: Cobalt − Aquifer: Continuous
Sample Quantiles
0.004
0.003
0.002
0.001
0.000
−0.001
Theoretical Quantiles
−2
−1
0
1
2


Q−Q Plot: Iron − Aquifer: Continuous
Sample Quantiles
Theoretical Quantiles
0
10
20
30
40
−2
−1
0
1
2

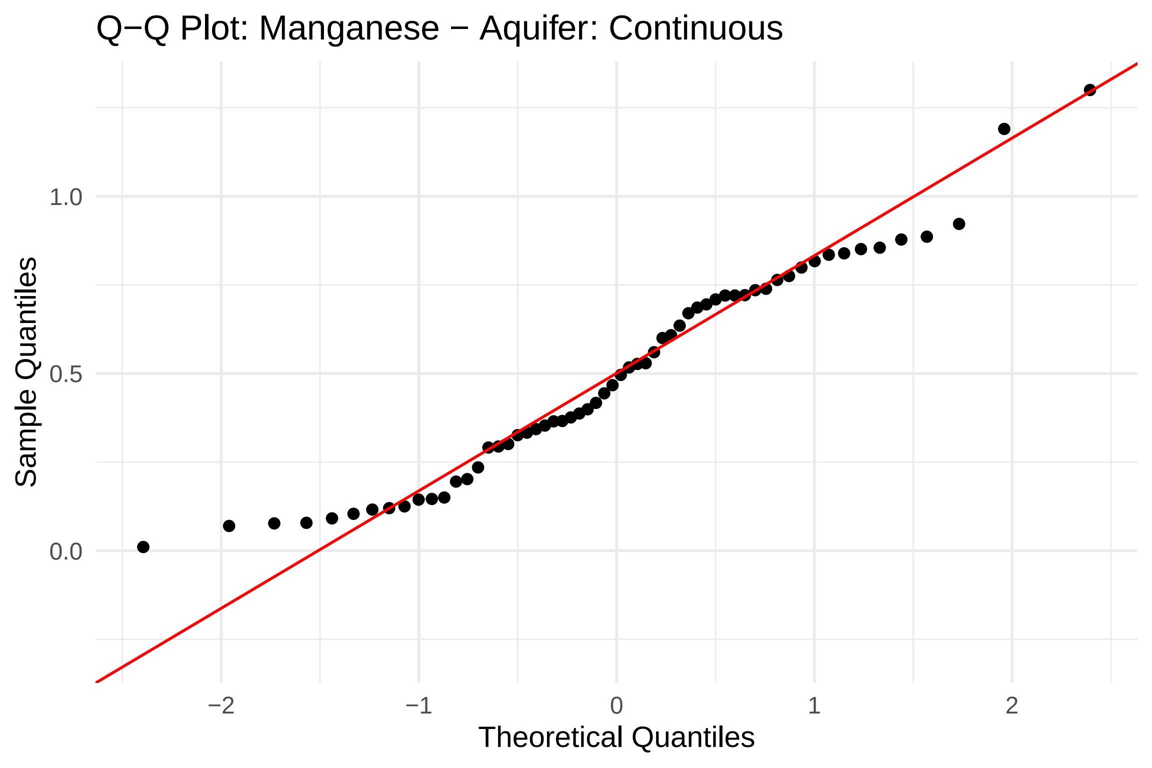

Q−Q Plot: Lead − Aquifer: Continuous
Sample Quantiles
0.0000
0.0005
0.0010
0.0015
0.0020
Theoretical Quantiles
−2
−1
0
1
2

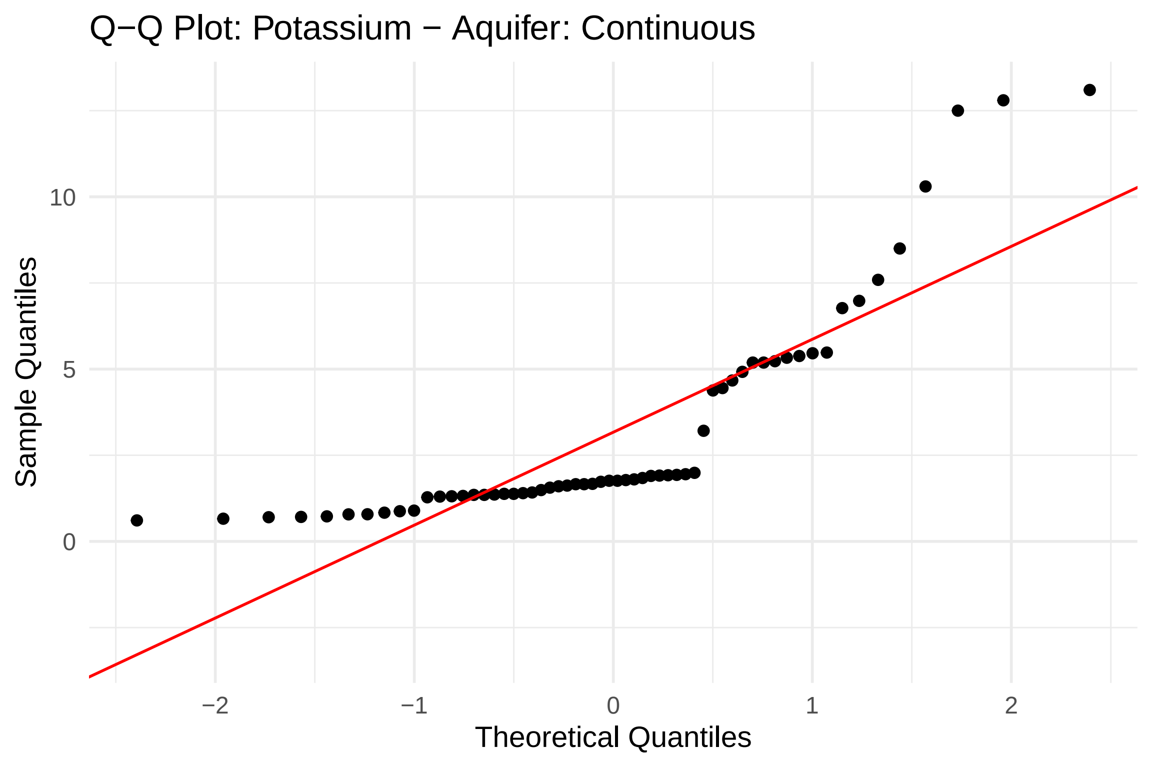


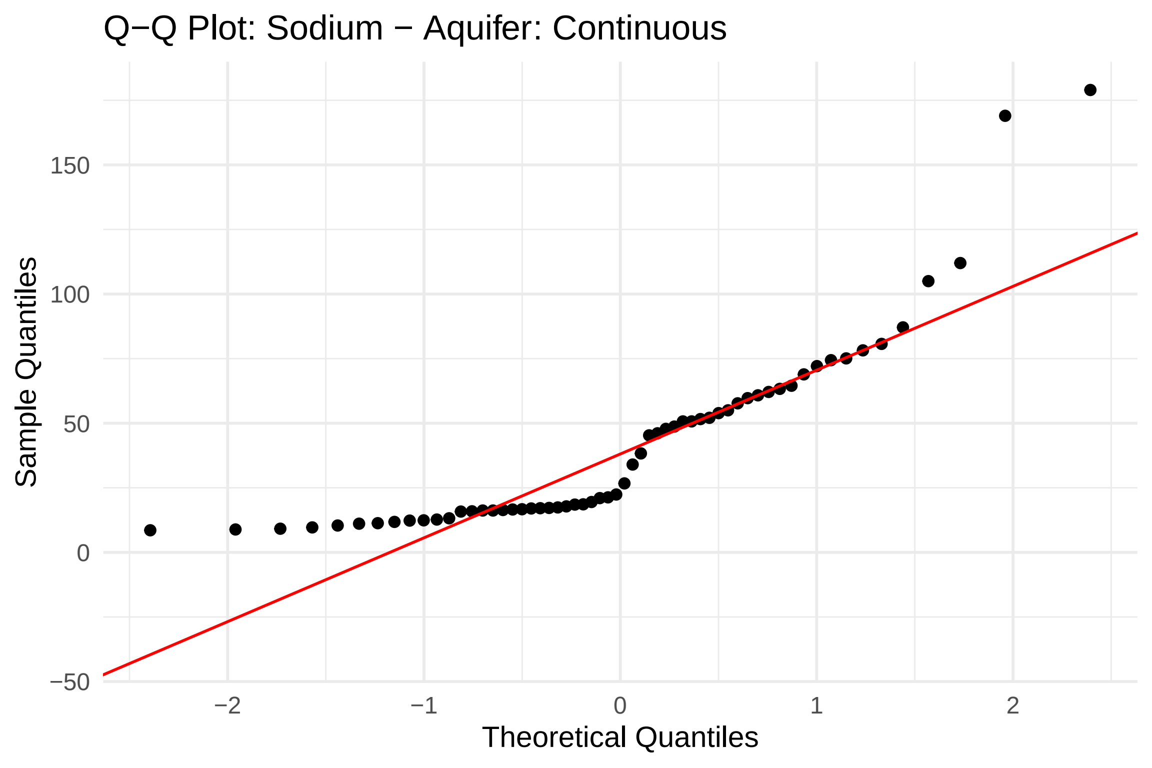
Q−Q Plot: Lithium − Aquifer: Continuous
Sample Quantiles
0.4
0.2
0.0
−0.2
−2
−1
0
1
2
Theoretical Quantiles

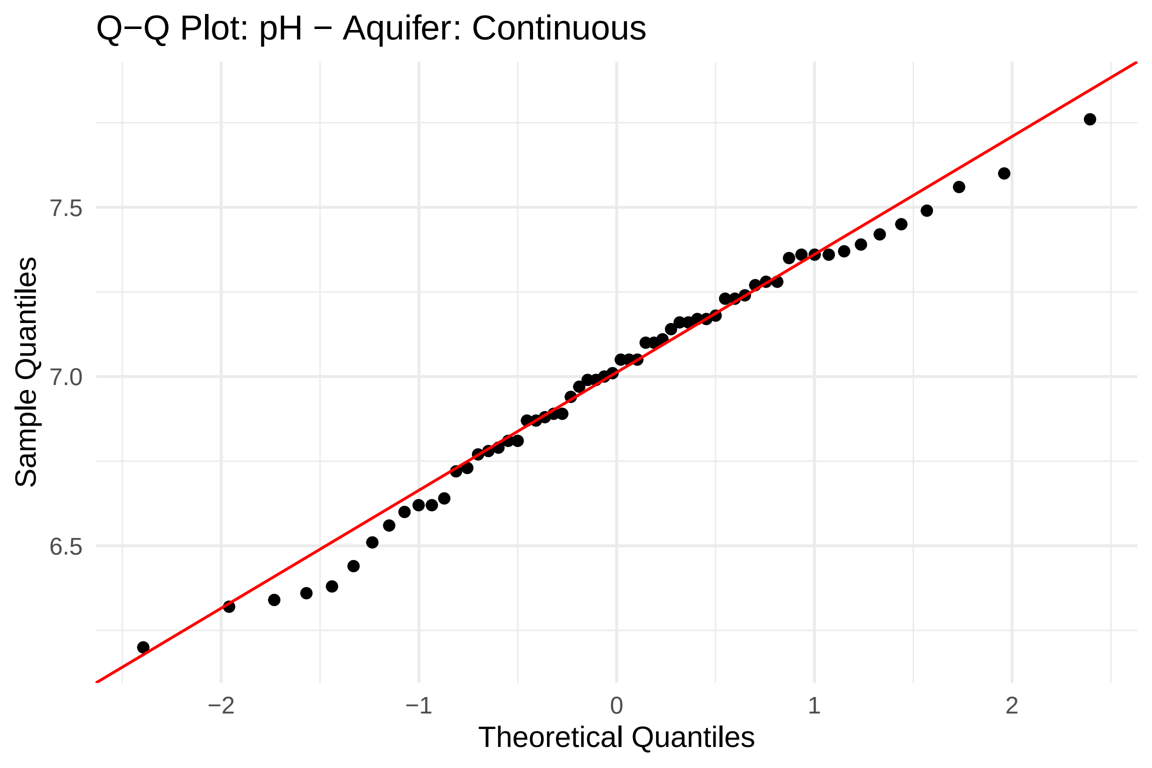


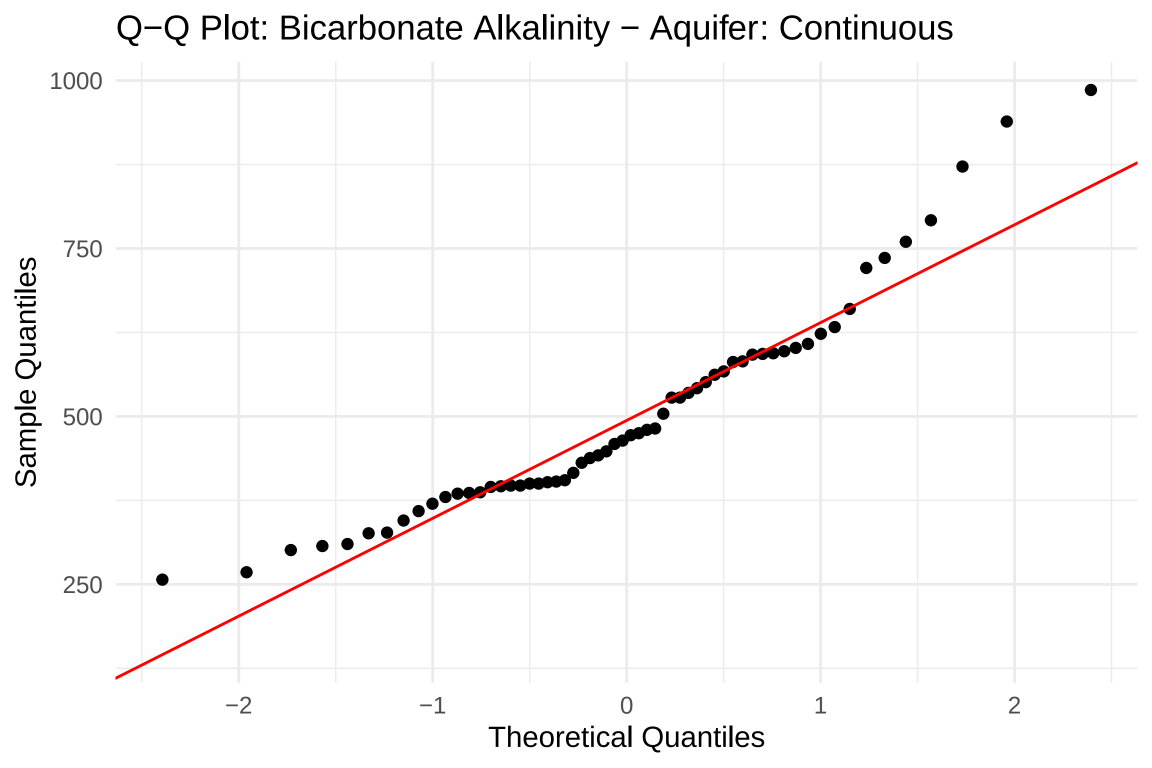
Q−Q Plot: Magnesium − Aquifer: Continuous
Sample Quantiles
Theoretical Quantiles
0
50
100
−2
−1
0
1
2

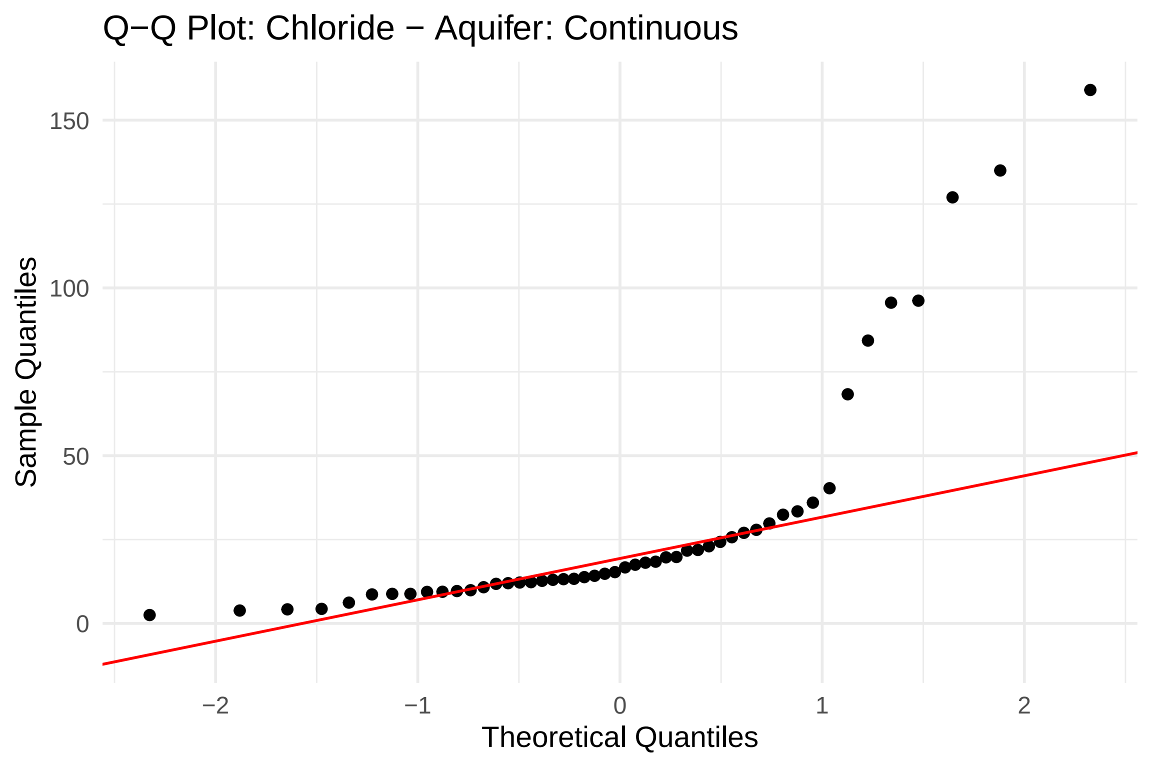

Q−Q Plot: Manganese − Aquifer: Continuous
Sample Quantiles
Theoretical Quantiles
1.0
0.5
0.0
−2
−1
0
1
2

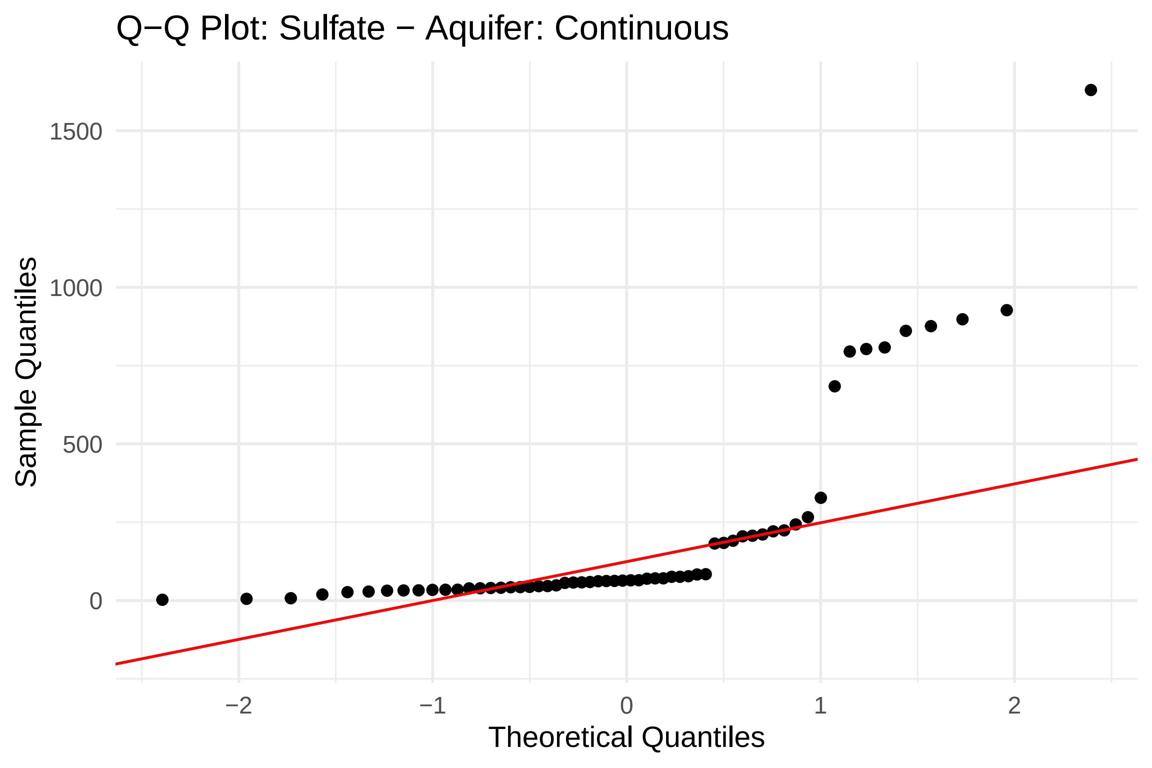

Q−Q Plot: Potassium − Aquifer: Continuous
Sample Quantiles
10
5
0
−2
−1
0
1
2
Theoretical Quantiles

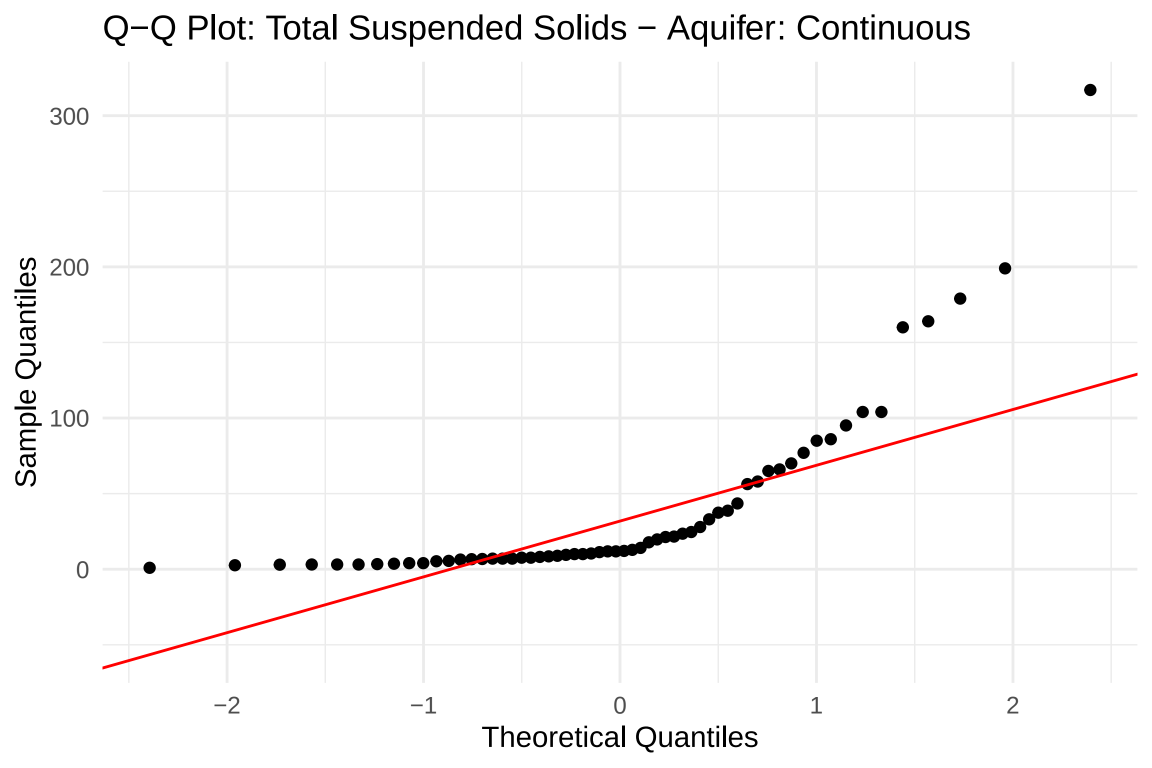

Q−Q Plot: Sodium − Aquifer: Continuous
Sample Quantiles
150
100
50
0
−50
−2
−1
0
1
2
Theoretical Quantiles


Q−Q Plot: pH − Aquifer: Continuous
Sample Quantiles
7.5
7.0
6.5
−2
−1
0
1
2
Theoretical Quantiles


Q−Q Plot: Bicarbonate Alkalinity − Aquifer: Continuous
Sample Quantiles
1000
750
500
250
−2
−1
0
1
2
Theoretical Quantiles


Q−Q Plot: Chloride − Aquifer: Continuous
Sample Quantiles
150
100
50
0
−2
−1
0
1
2
Theoretical Quantiles

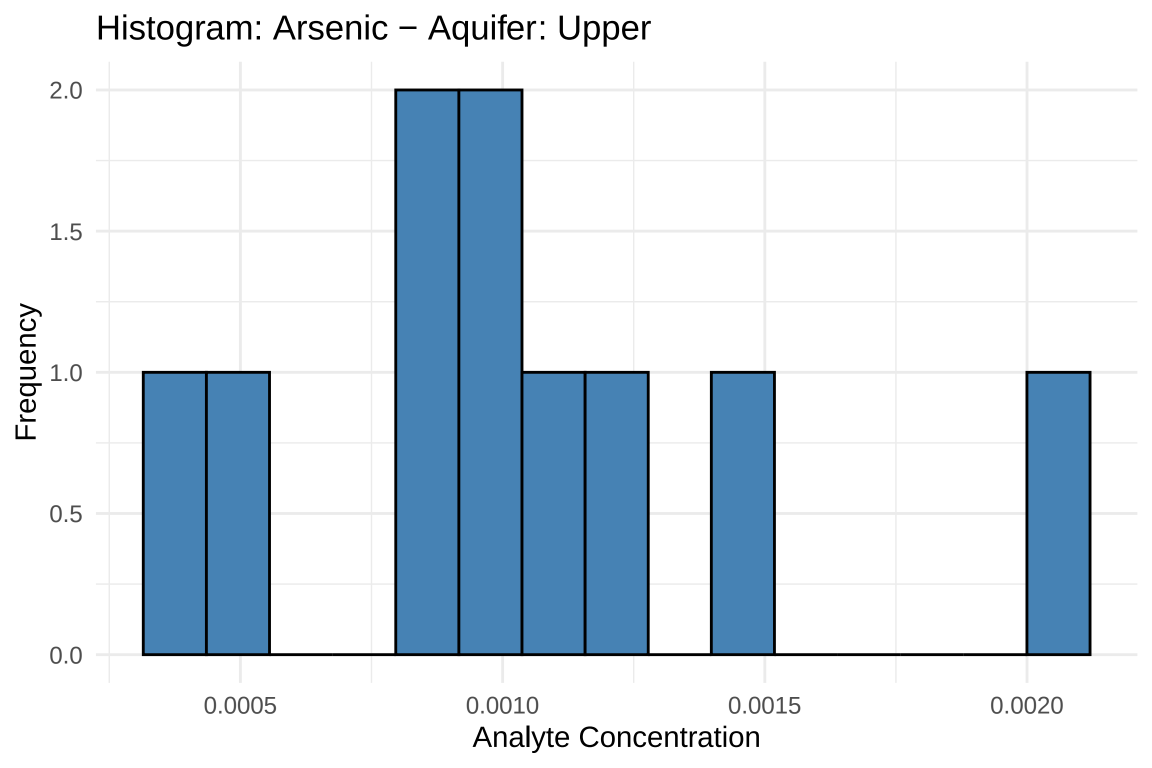

Q−Q Plot: Sulfate − Aquifer: Continuous
Sample Quantiles
0
500
1000
1500
−2
−1
0
1
2
Theoretical Quantiles

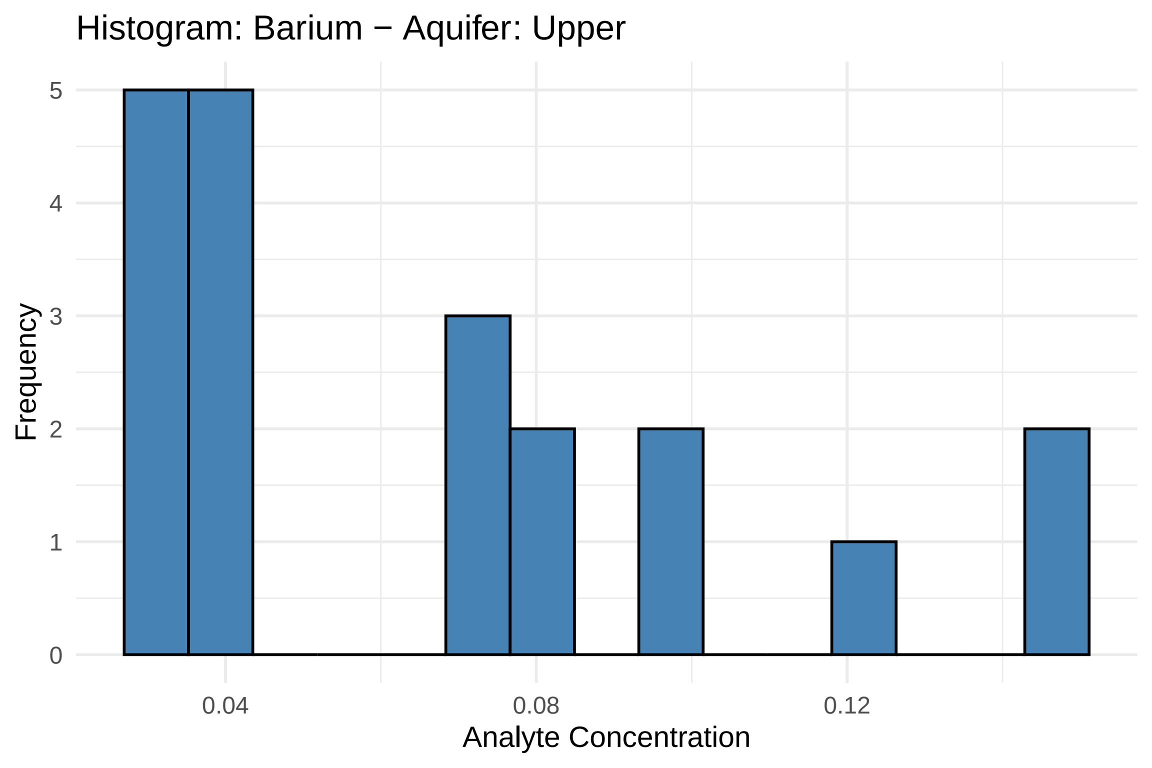


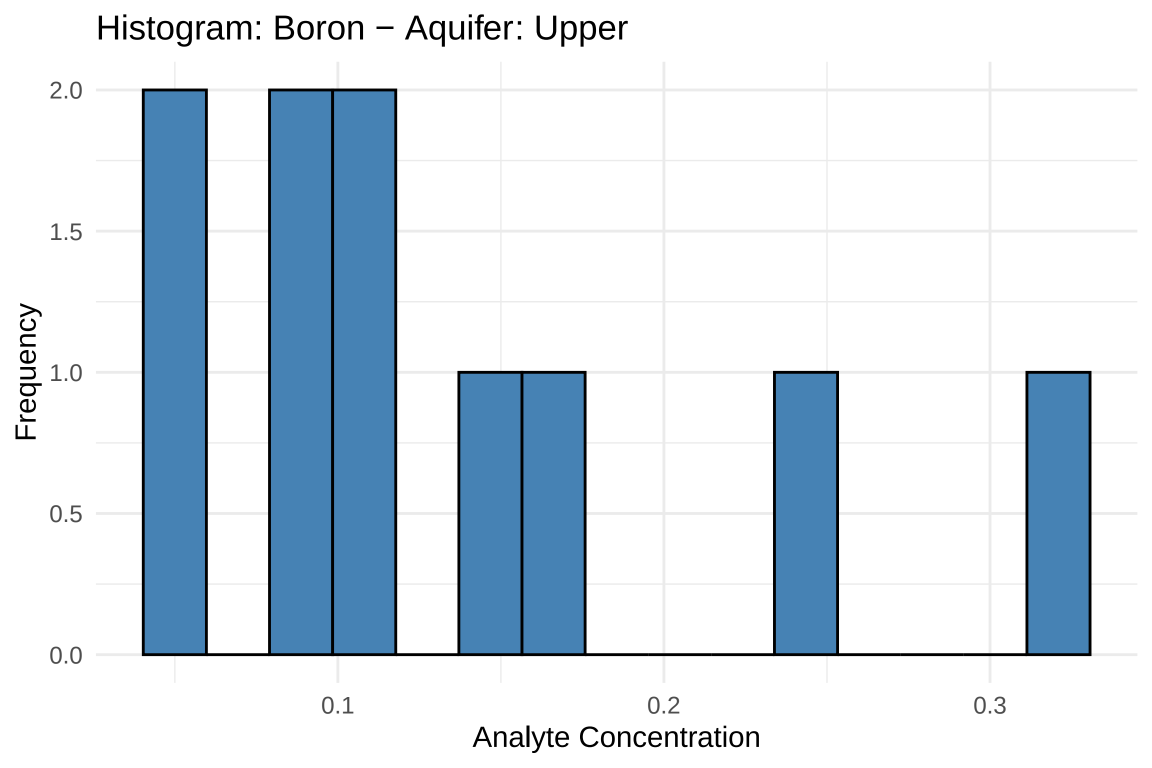
Q−Q Plot: Total Suspended Solids − Aquifer: Continuous
Sample Quantiles
300
200
100
0
−2
−1
0
1
2
Theoretical Quantiles

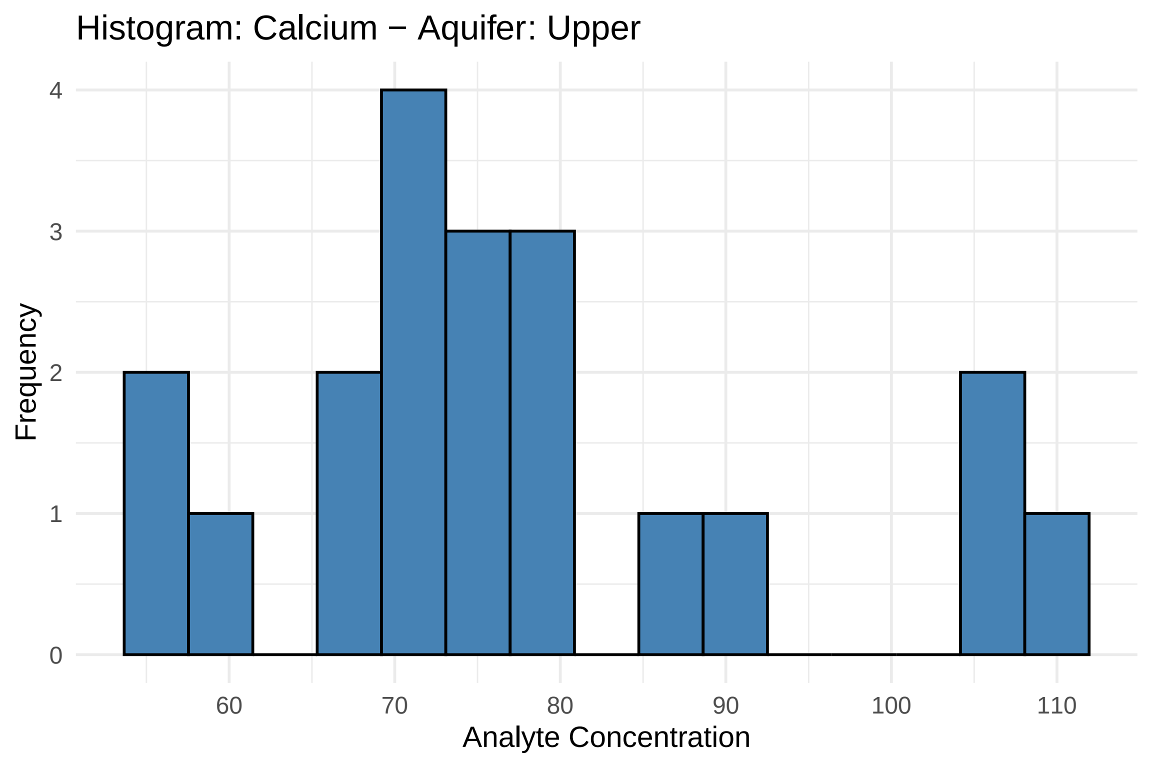
APPENDIX D - HISTOGRAMS

Upper Aquifer

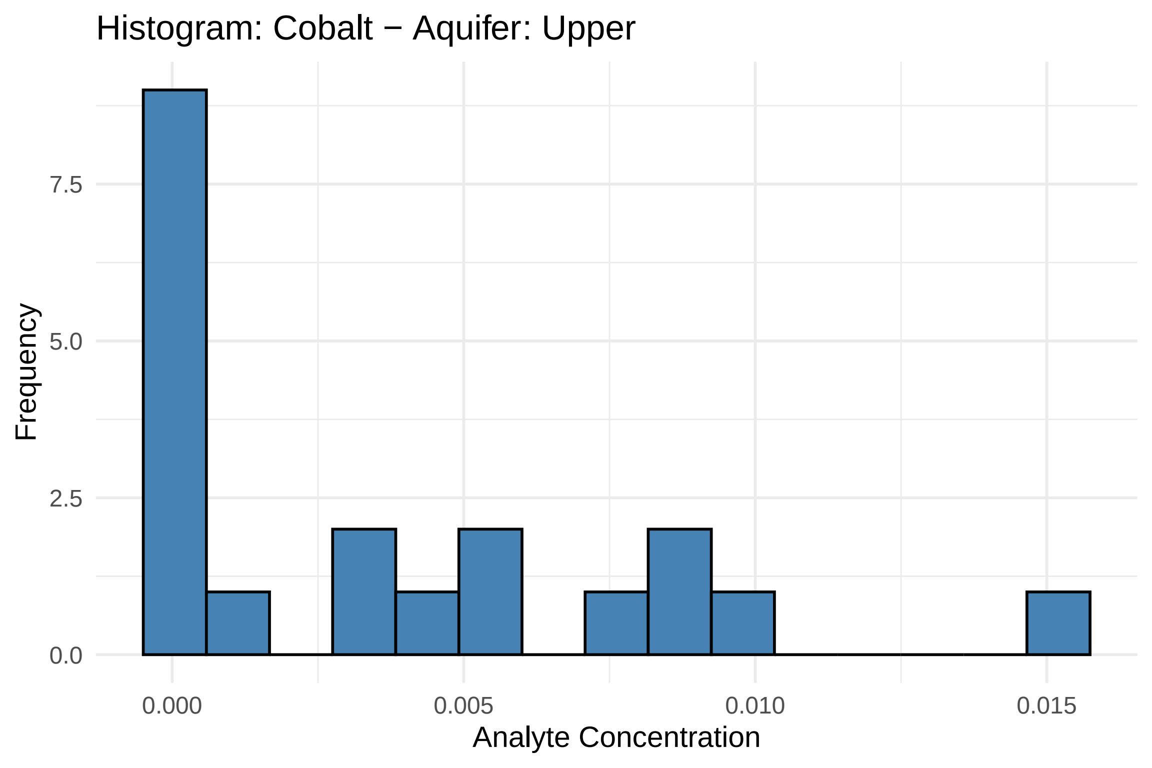

Histogram: Arsenic − Aquifer: Upper
2.0
1.5
1.0
0.5
0.0
Frequency
0.0005
0.0010
0.0015
0.0020
Analyte Concentration

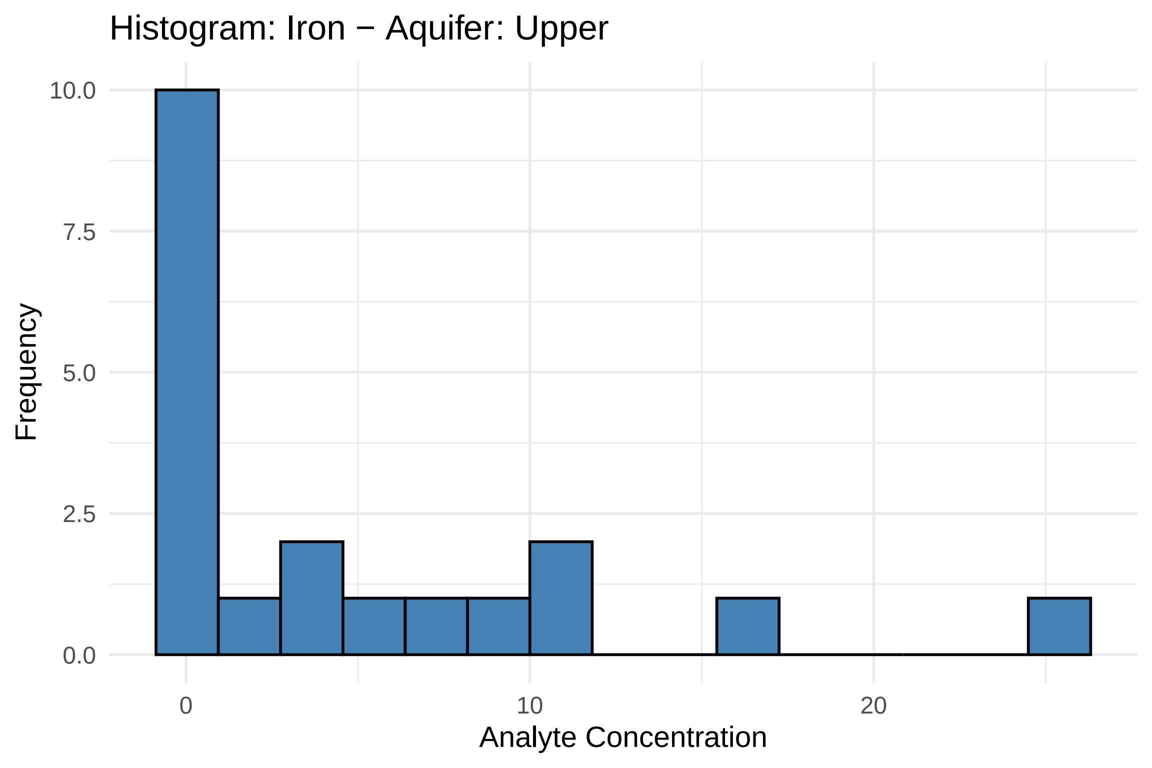

Histogram: Barium − Aquifer: Upper
Frequency
Analyte Concentration
0
1
2
3
4
5
0.04
0.08
0.12

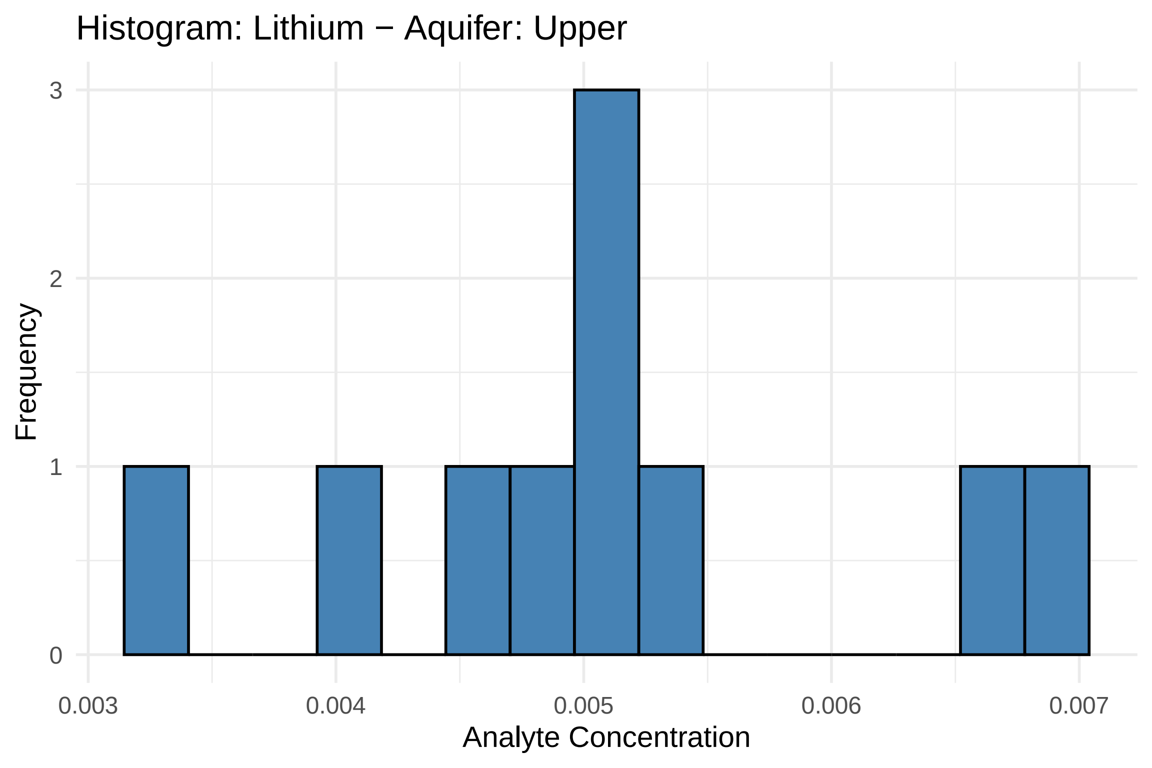

Histogram: Boron − Aquifer: Upper
Frequency
2.0
1.5
1.0
0.5
0.0
0.1
0.2
0.3
Analyte Concentration

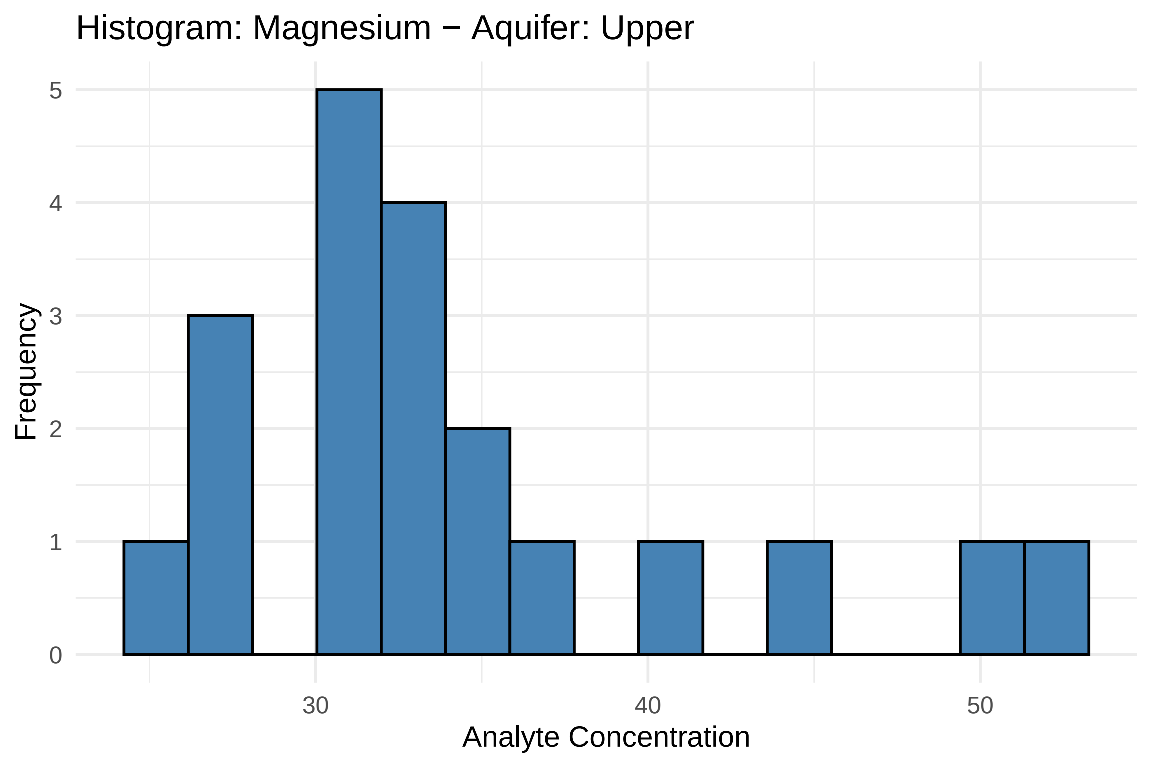


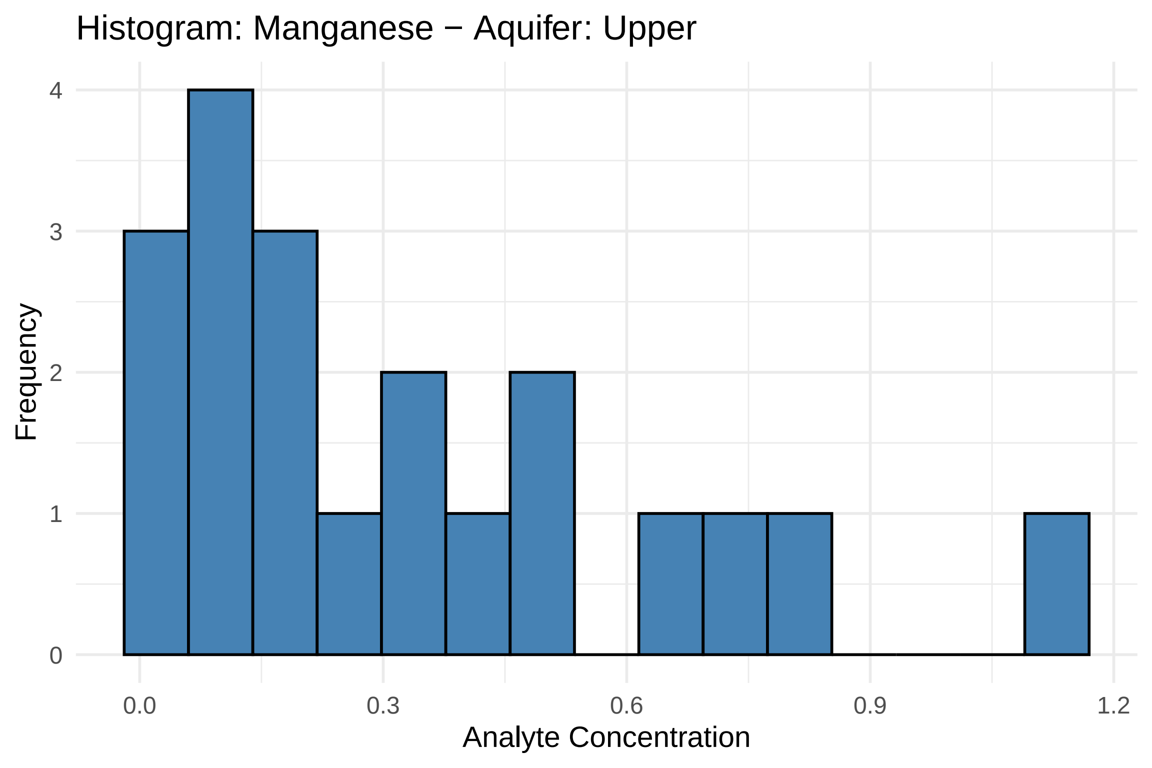
Histogram: Calcium − Aquifer: Upper
Frequency
0
1
2
3
4
60
70
80
90
100
110
Analyte Concentration


Histogram: Cobalt − Aquifer: Upper
Frequency
0.0
2.5
5.0
7.5
0.000
0.005
0.010
0.015
Analyte Concentration

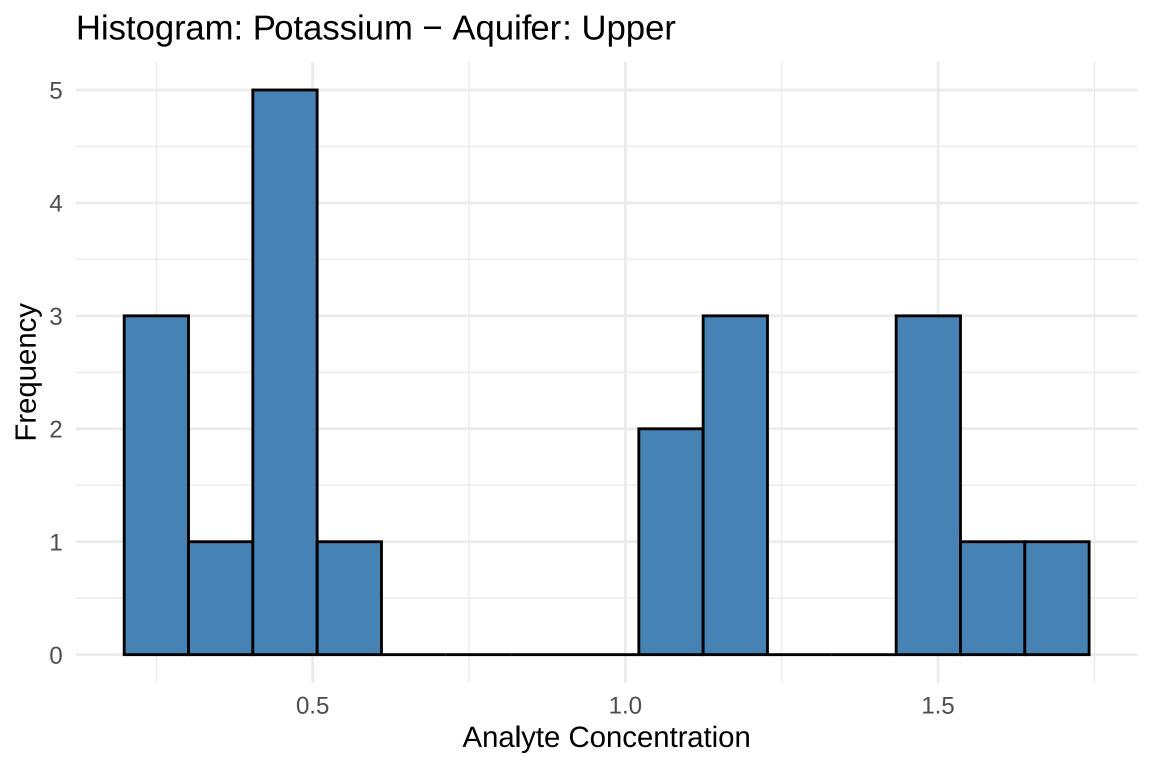

Histogram: Iron − Aquifer: Upper
Frequency
10.0
7.5
5.0
2.5
0.0
0
10
20
Analyte Concentration

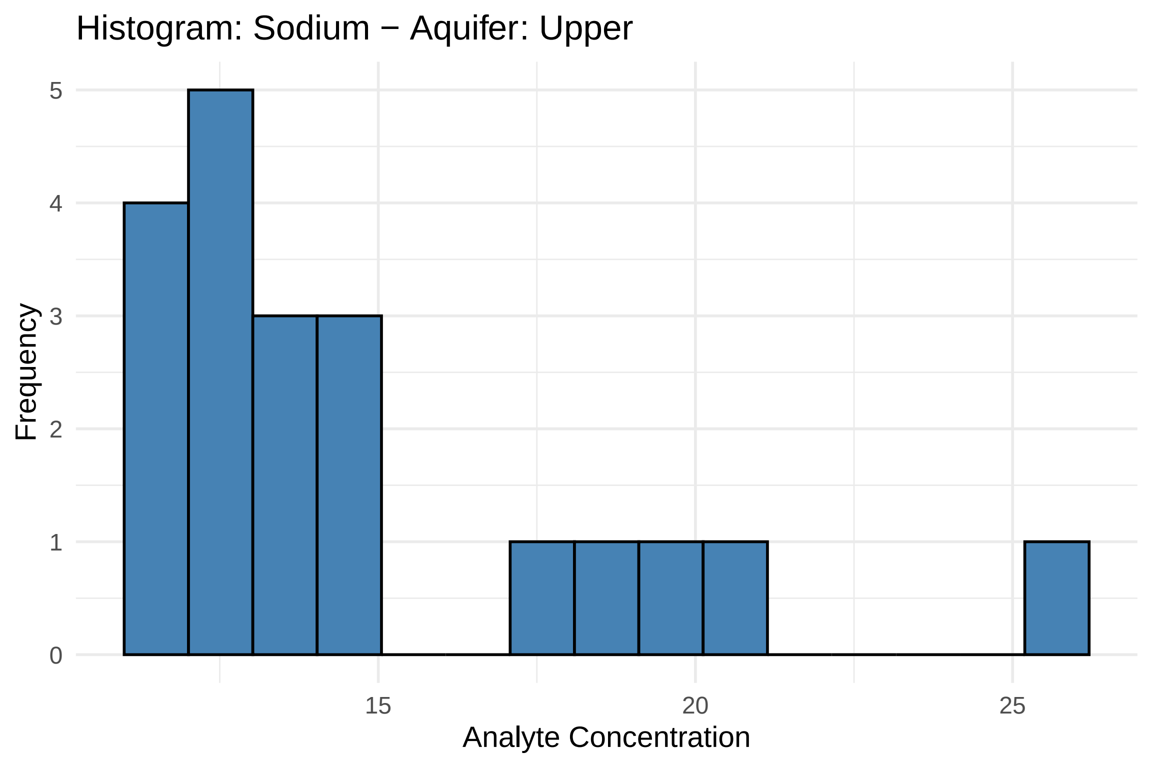

Histogram: Lithium − Aquifer: Upper
Frequency
0
1
2
3
0.003
0.004
0.005
0.006
0.007
Analyte Concentration


Histogram: Magnesium − Aquifer: Upper
Frequency
Analyte Concentration
0
1
2
3
4
5
30
40
50

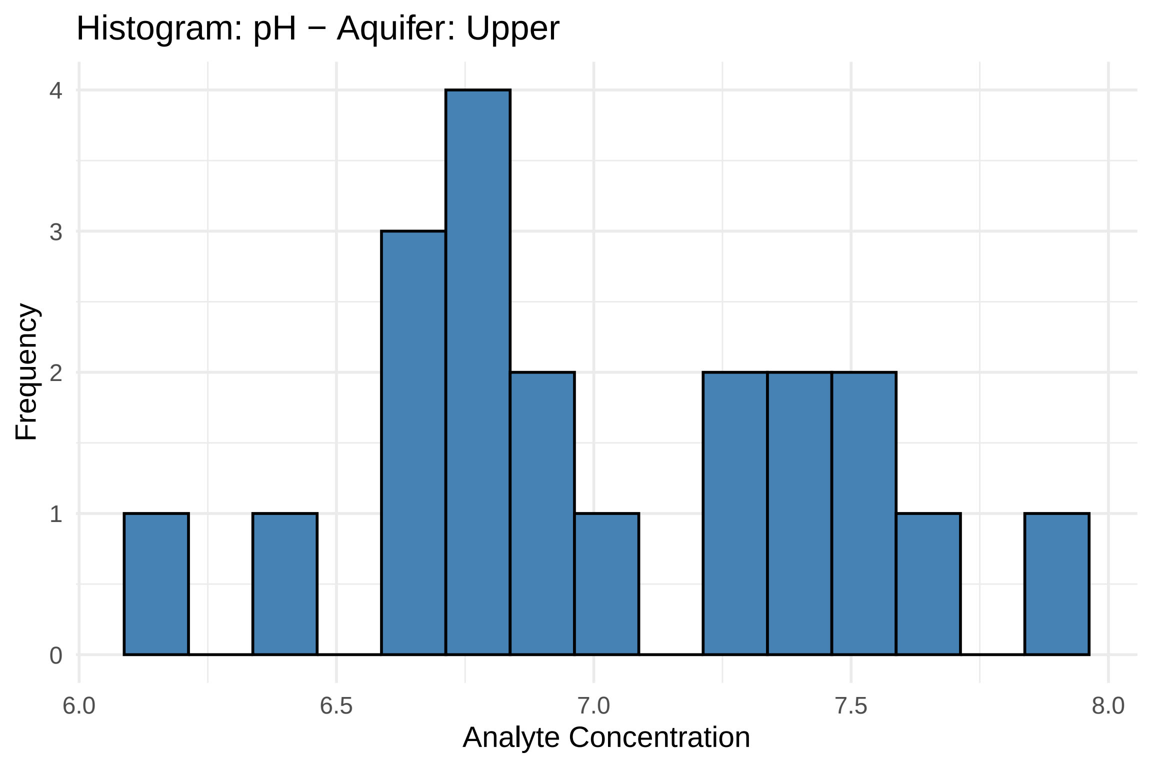


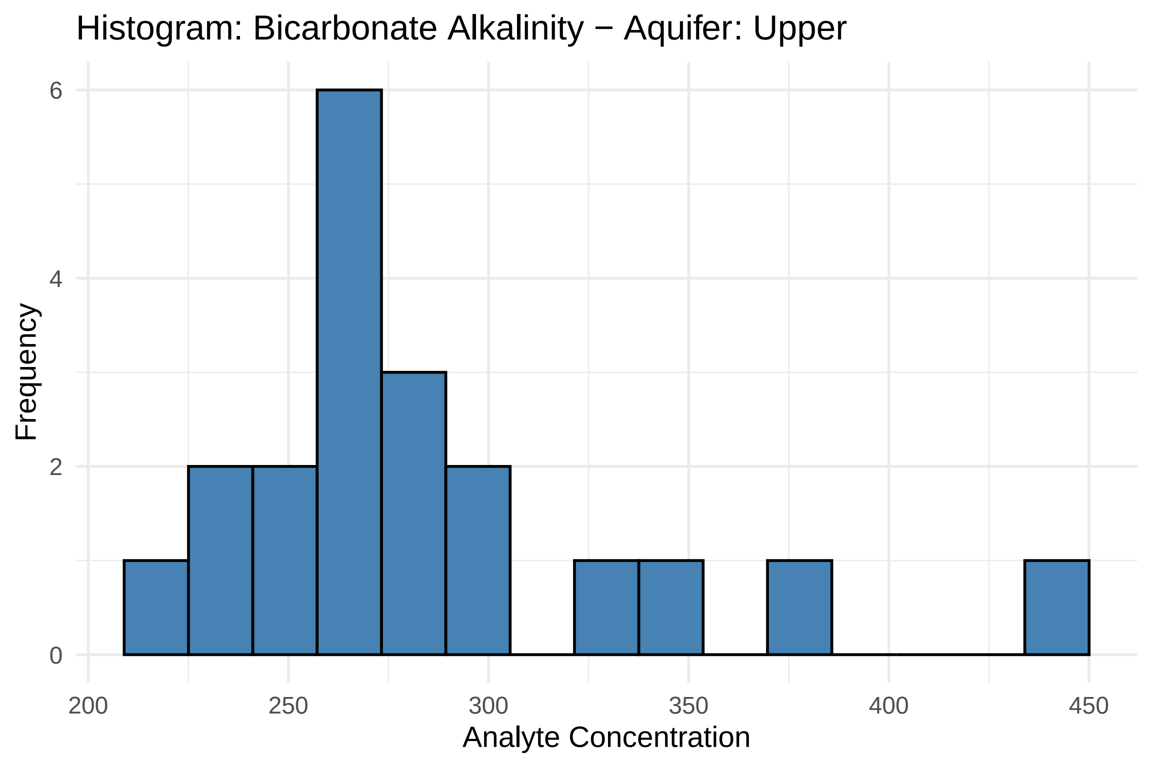
Histogram: Manganese − Aquifer: Upper
Frequency
0
1
2
3
4
0.0
0.3
0.6
0.9
1.2
Analyte Concentration


Histogram: Potassium − Aquifer: Upper
Frequency
0
1
2
3
4
5
0.5
1.0
1.5
Analyte Concentration

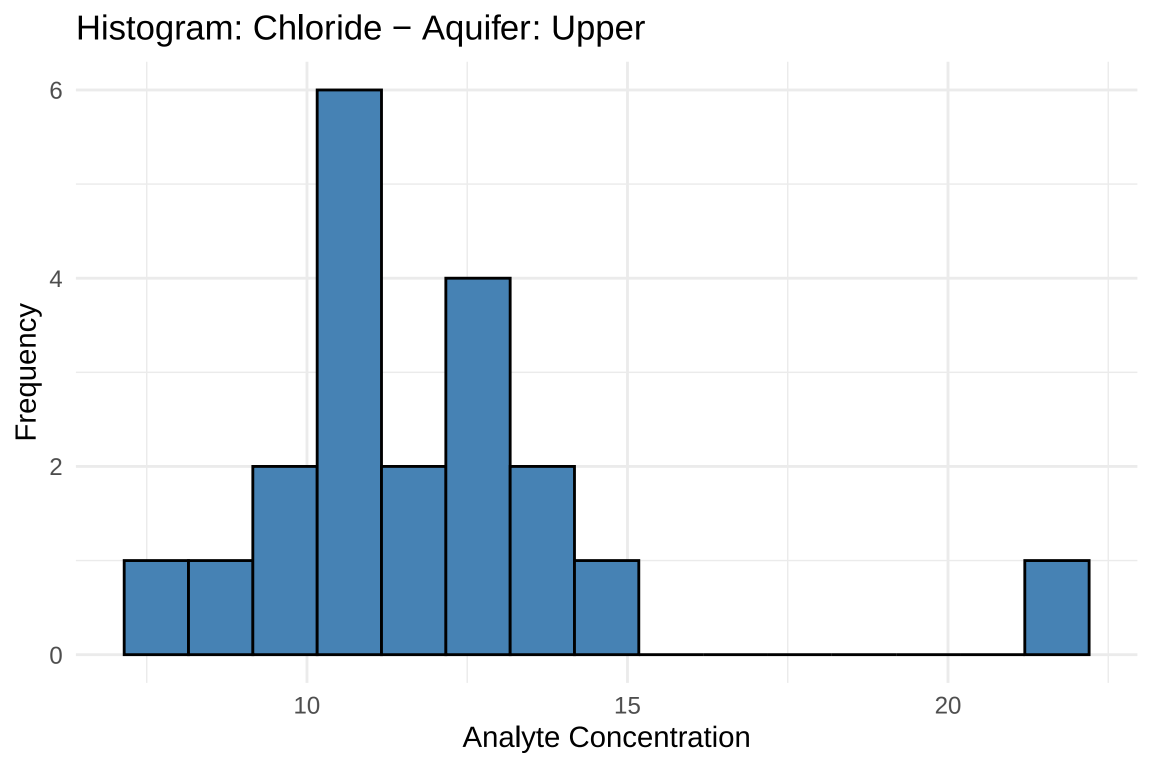


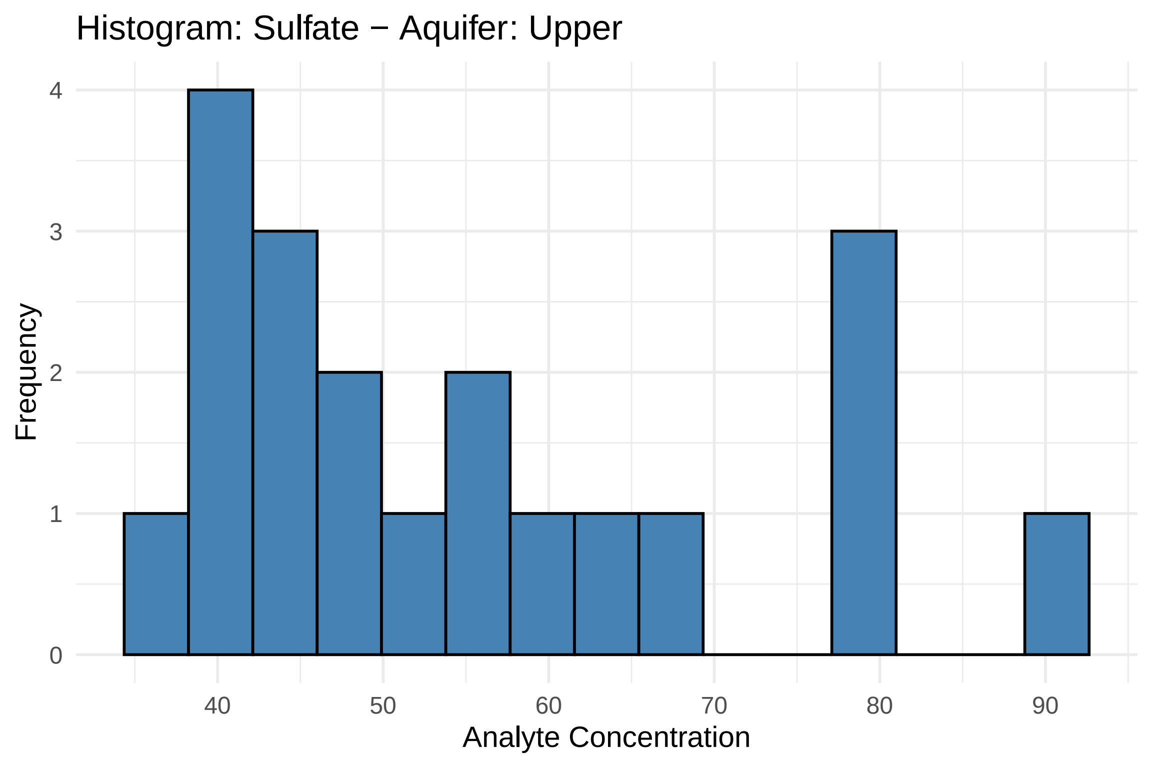
Histogram: Sodium − Aquifer: Upper
Frequency
0
1
2
3
4
5
15
20
25
Analyte Concentration


Histogram: pH − Aquifer: Upper
Frequency
0
1
2
3
4
6.0
6.5
7.0
7.5
8.0
Analyte Concentration

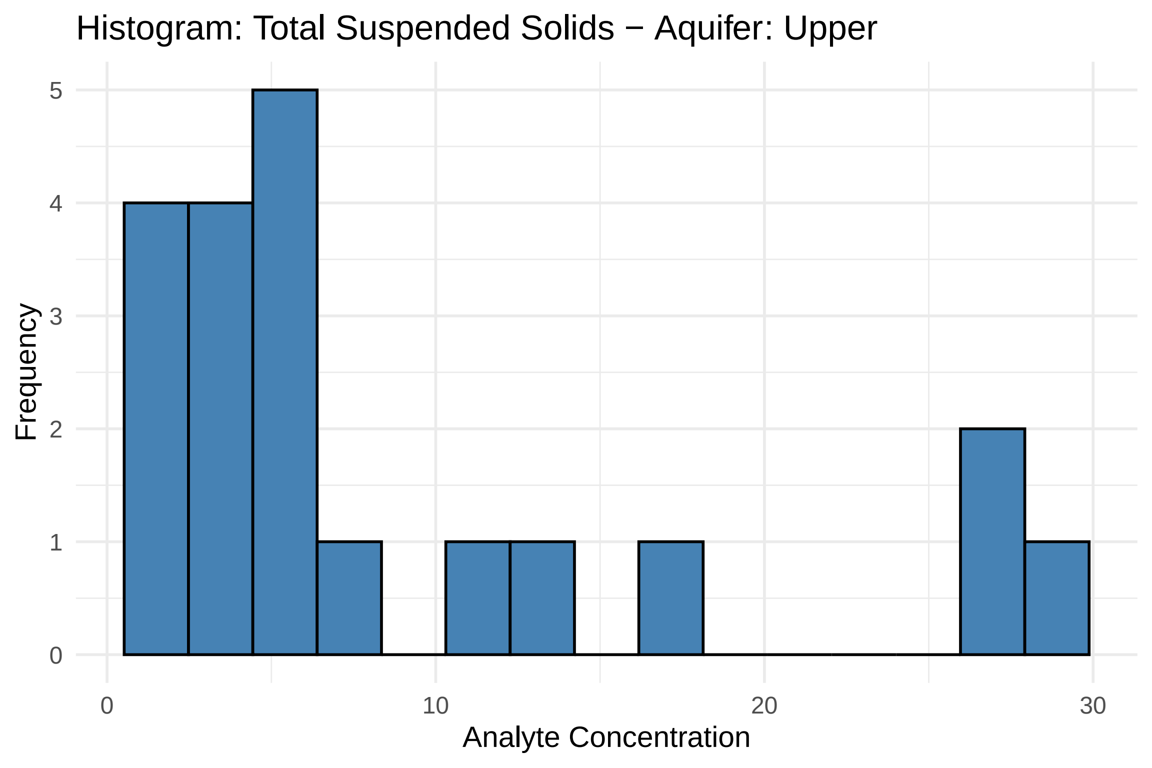


Histogram: Bicarbonate Alkalinity − Aquifer: Upper
Frequency
0
2
4
6
200
250
300
350
400
450
Analyte Concentration

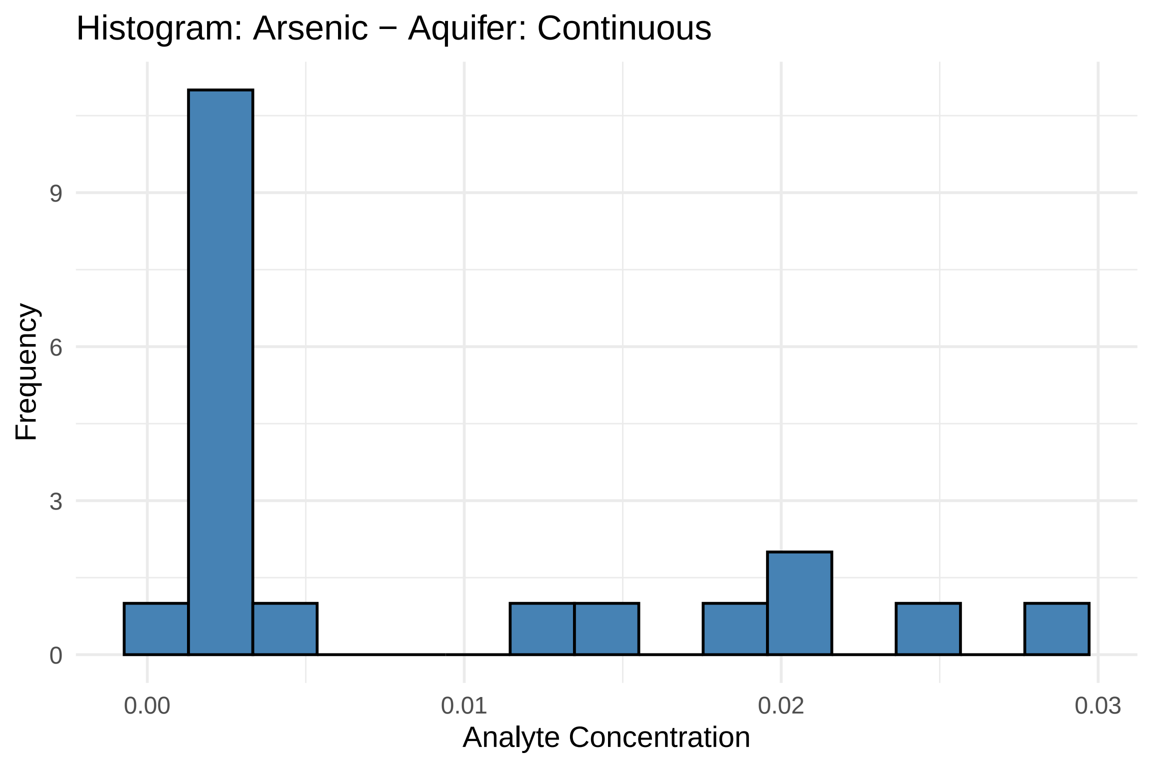

Histogram: Chloride − Aquifer: Upper
Frequency
0
2
4
6
10
15
20
Analyte Concentration



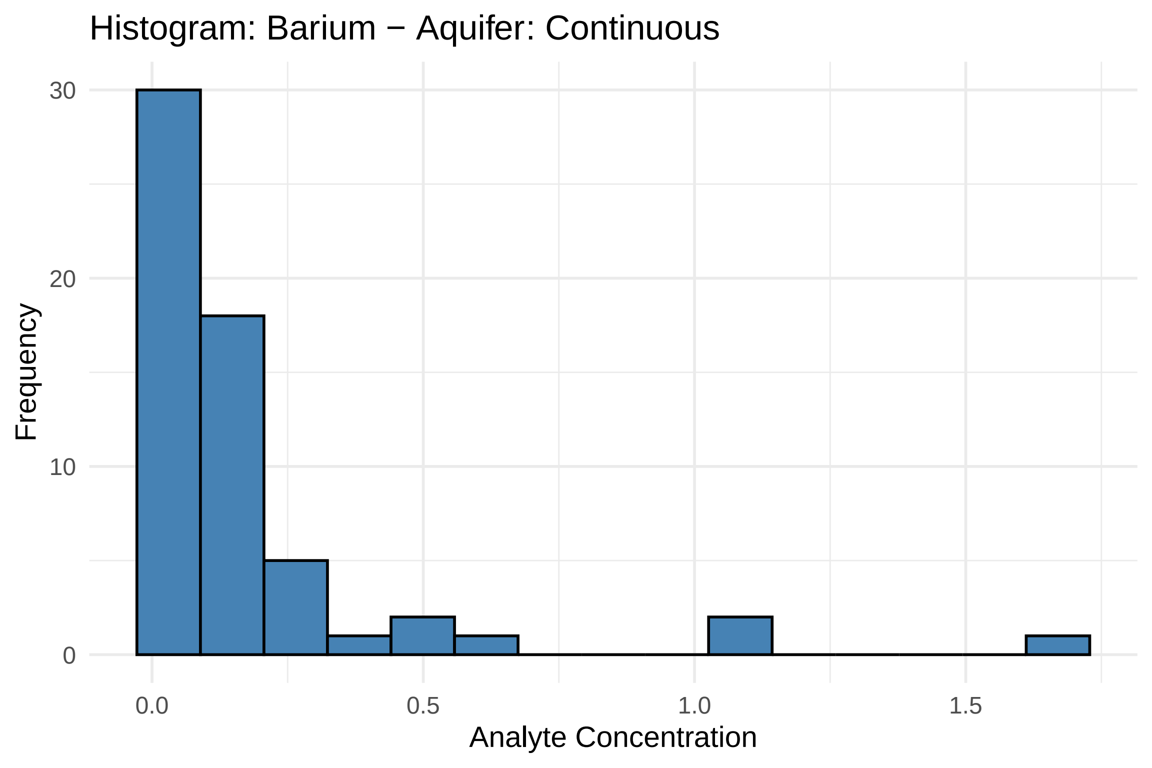
Histogram: Sulfate − Aquifer: Upper
Frequency
0
1
2
3
4
40
50
60
70
80
90
Analyte Concentration

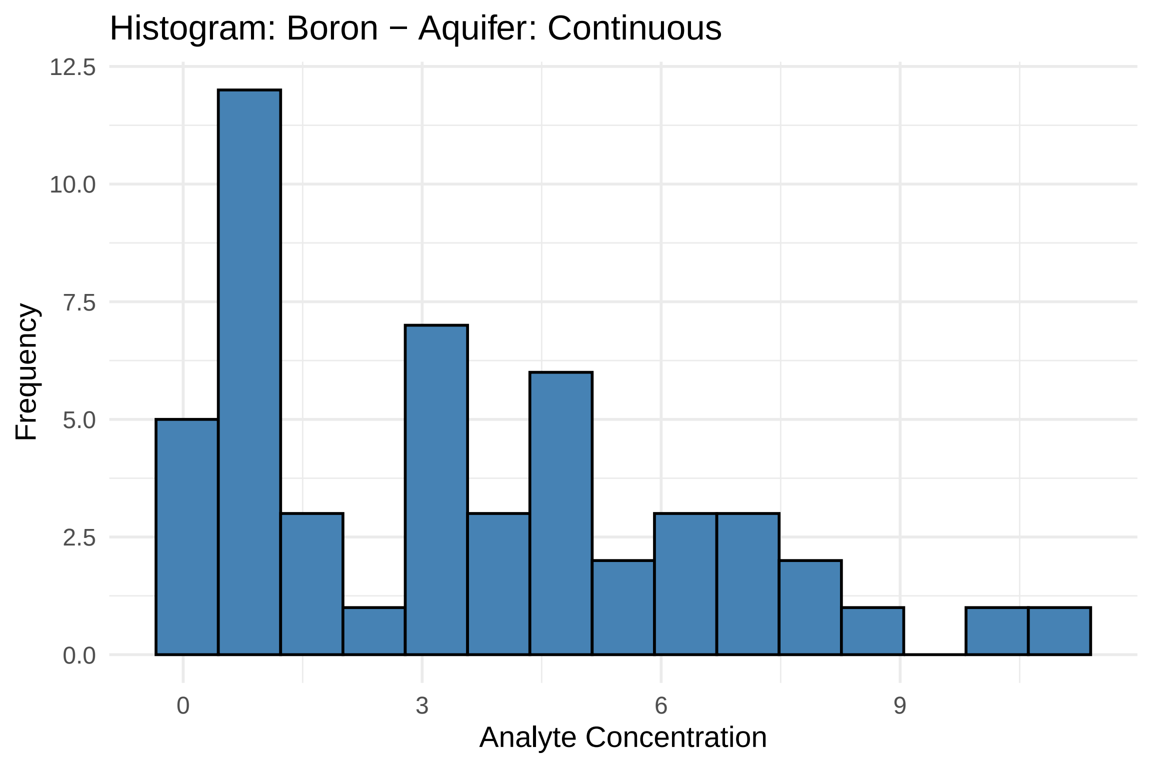

Histogram: Total Suspended Solids − Aquifer: Upper
Frequency
0
1
2
3
4
5
0
10
20
30
Analyte Concentration

Continuous Aquifer

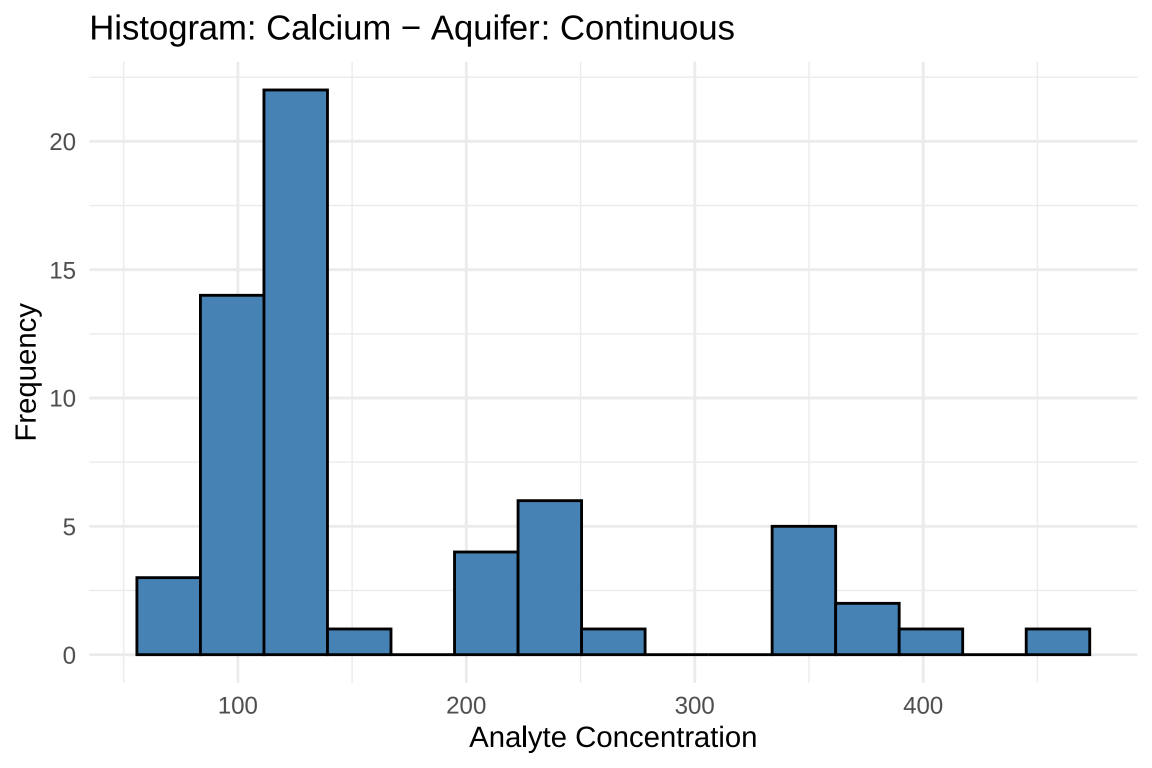


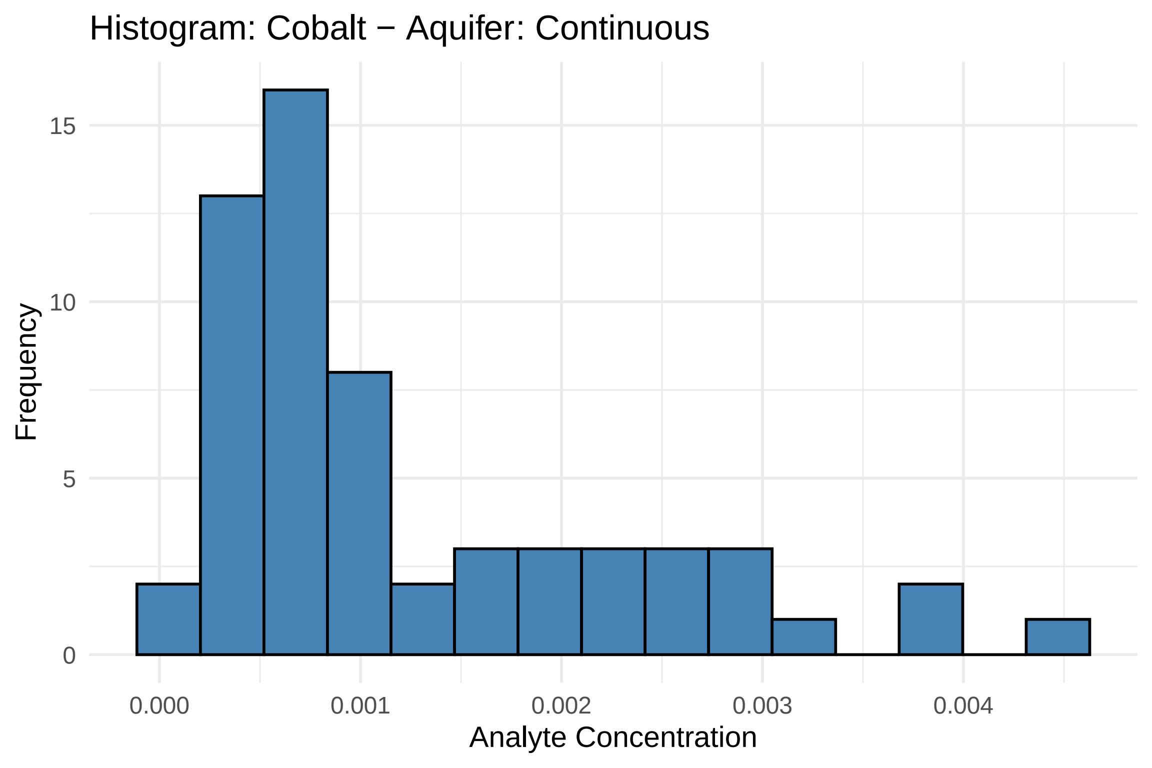
Histogram: Arsenic − Aquifer: Continuous
Frequency
9
6
3
0
0.00
0.01
0.02
0.03
Analyte Concentration

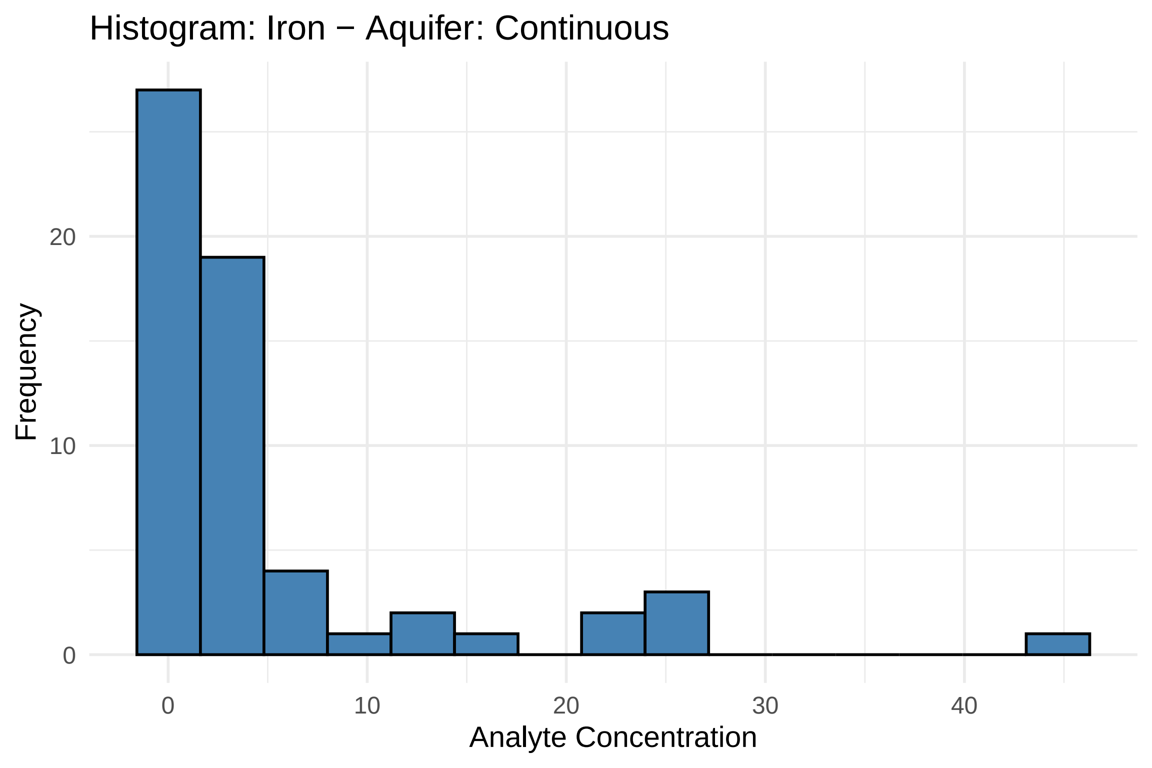

Histogram: Barium − Aquifer: Continuous
30
20
10
0
Frequency
0.0
0.5
1.0
1.5
Analyte Concentration



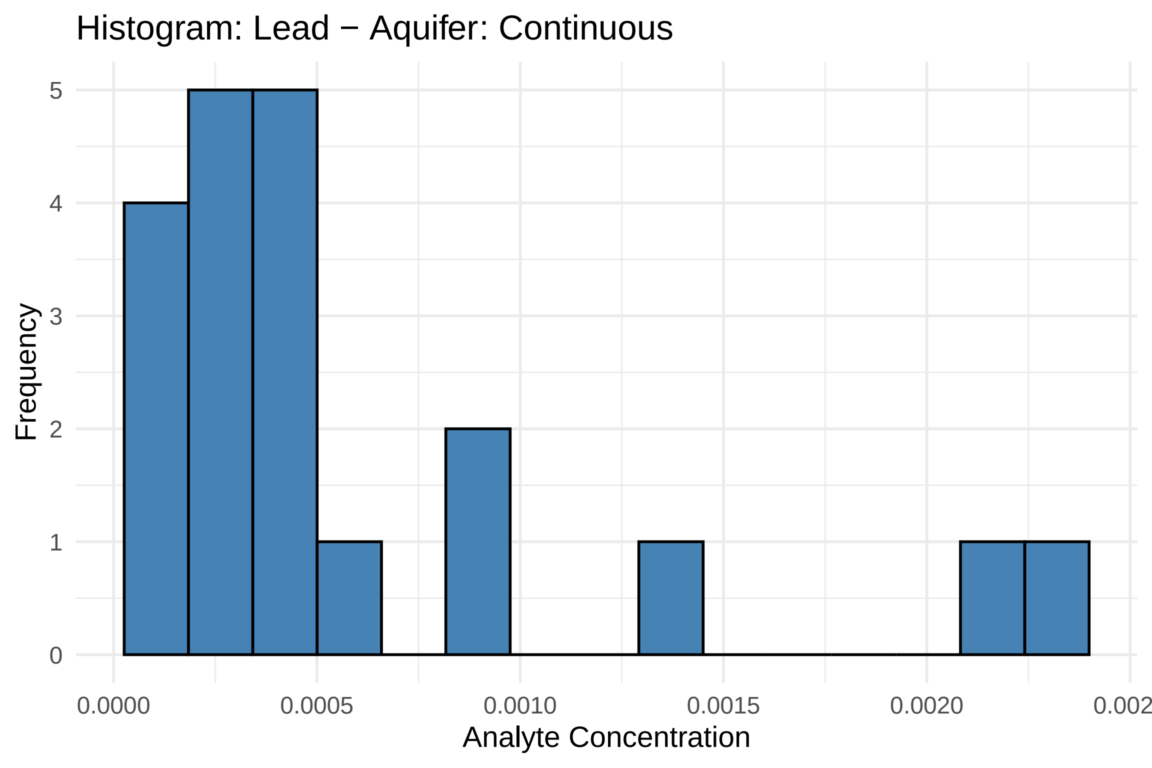
Histogram: Boron − Aquifer: Continuous
12.5
10.0
7.5
5.0
2.5
0.0
Frequency
0
3
6
9
Analyte Concentration

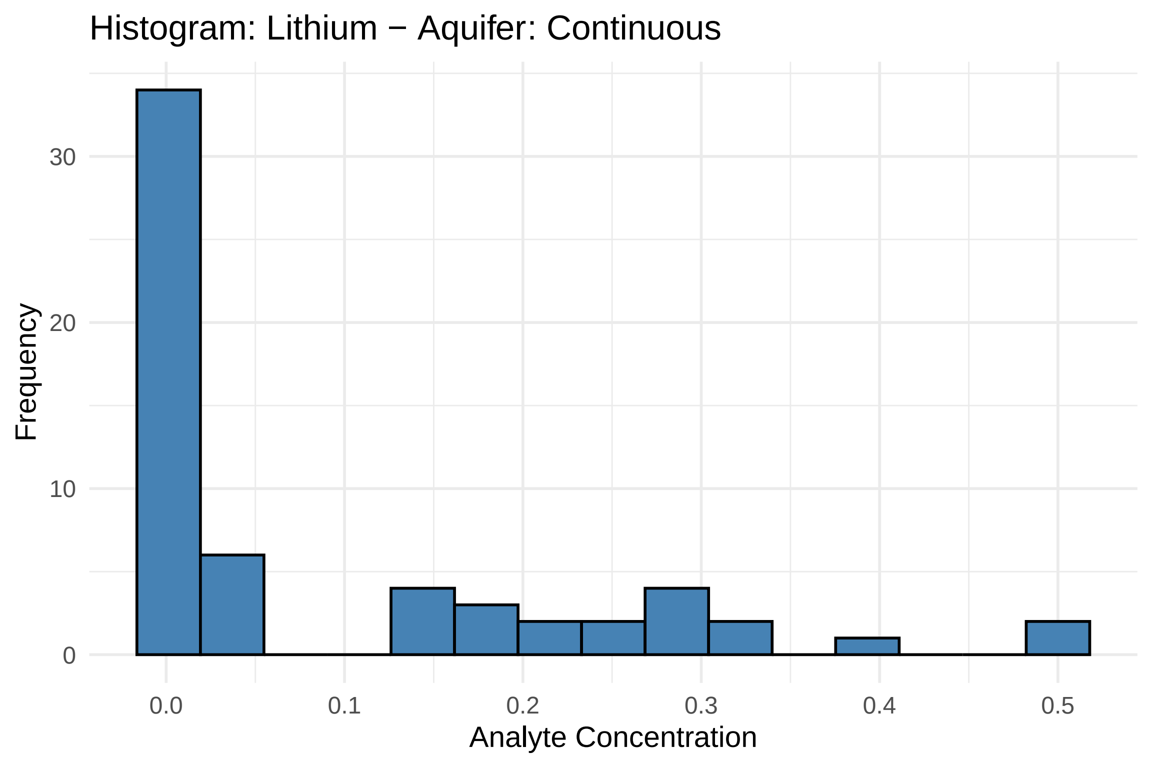

Histogram: Calcium − Aquifer: Continuous
Frequency
0
5
10
15
20
100
200
300
400
Analyte Concentration


Histogram: Cobalt − Aquifer: Continuous
Frequency
15
10
5
0
0.000
0.001
0.002
0.003
0.004
Analyte Concentration

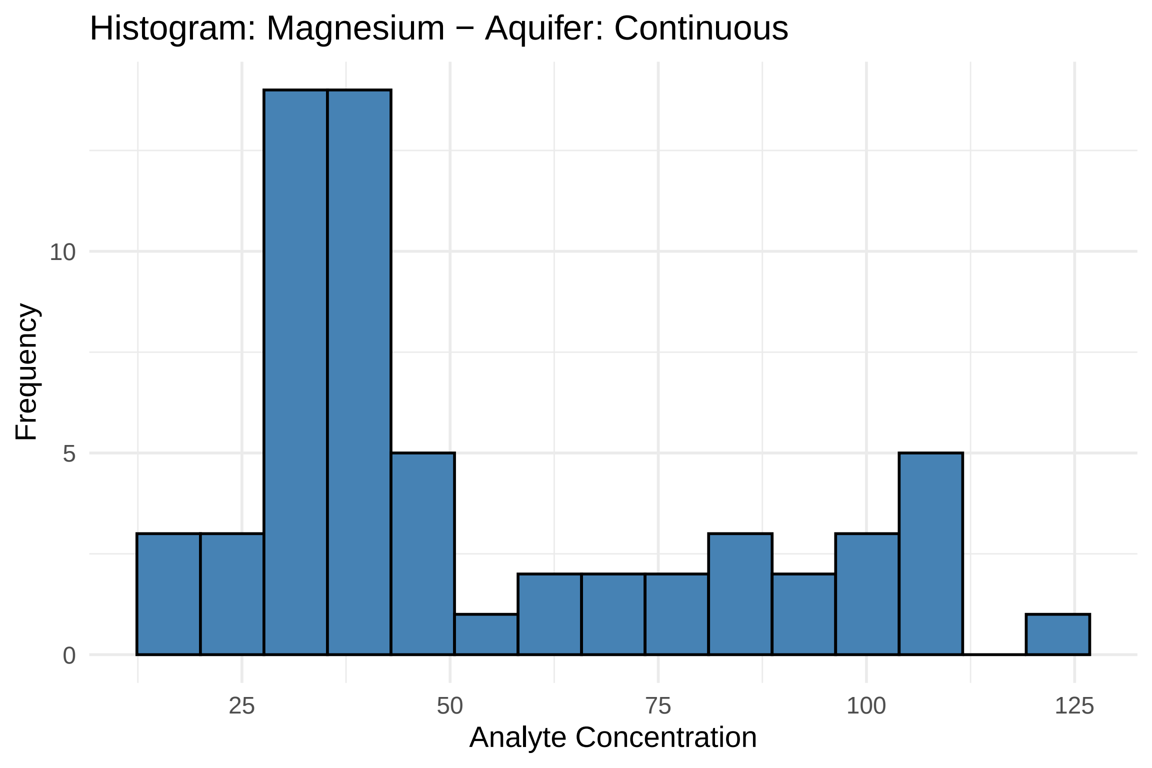


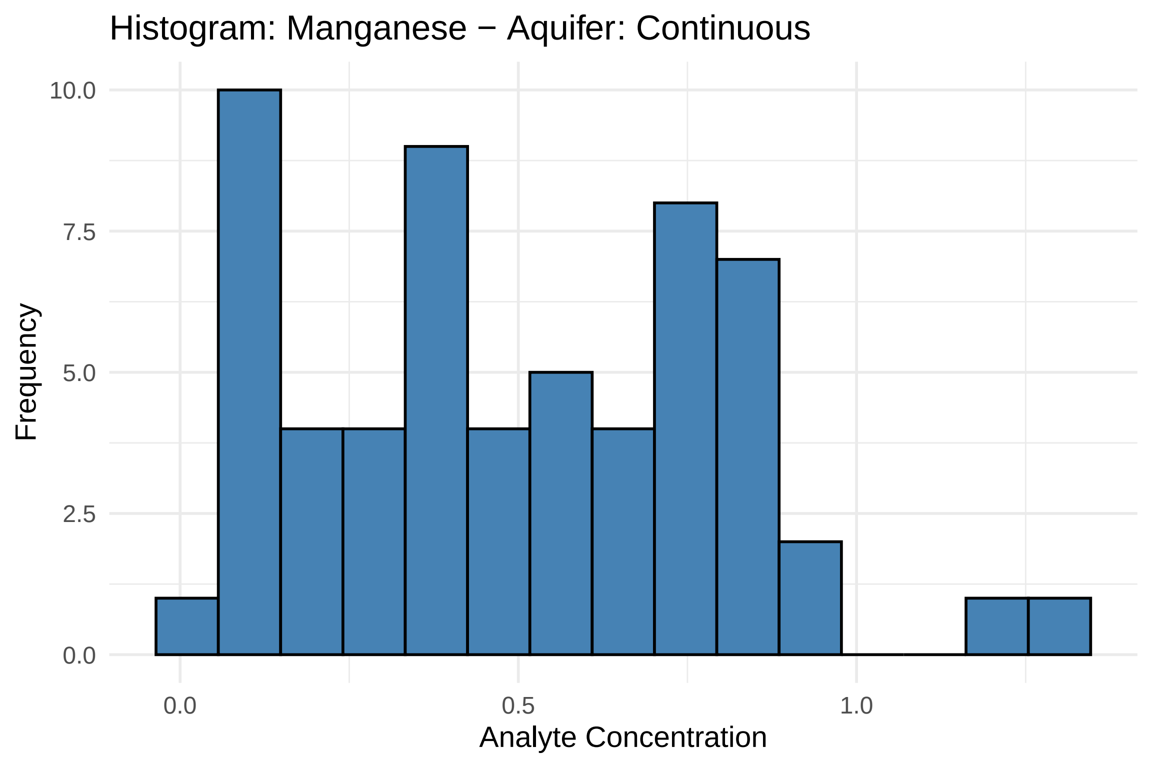
Histogram: Iron − Aquifer: Continuous
Frequency
0
10
20
0
10
20
30
40
Analyte Concentration


Histogram: Lead − Aquifer: Continuous
Frequency
5
4
3
2
1
0
0.0000
0.0005
0.0010
0.0015
0.0020
0.002
Analyte Concentration

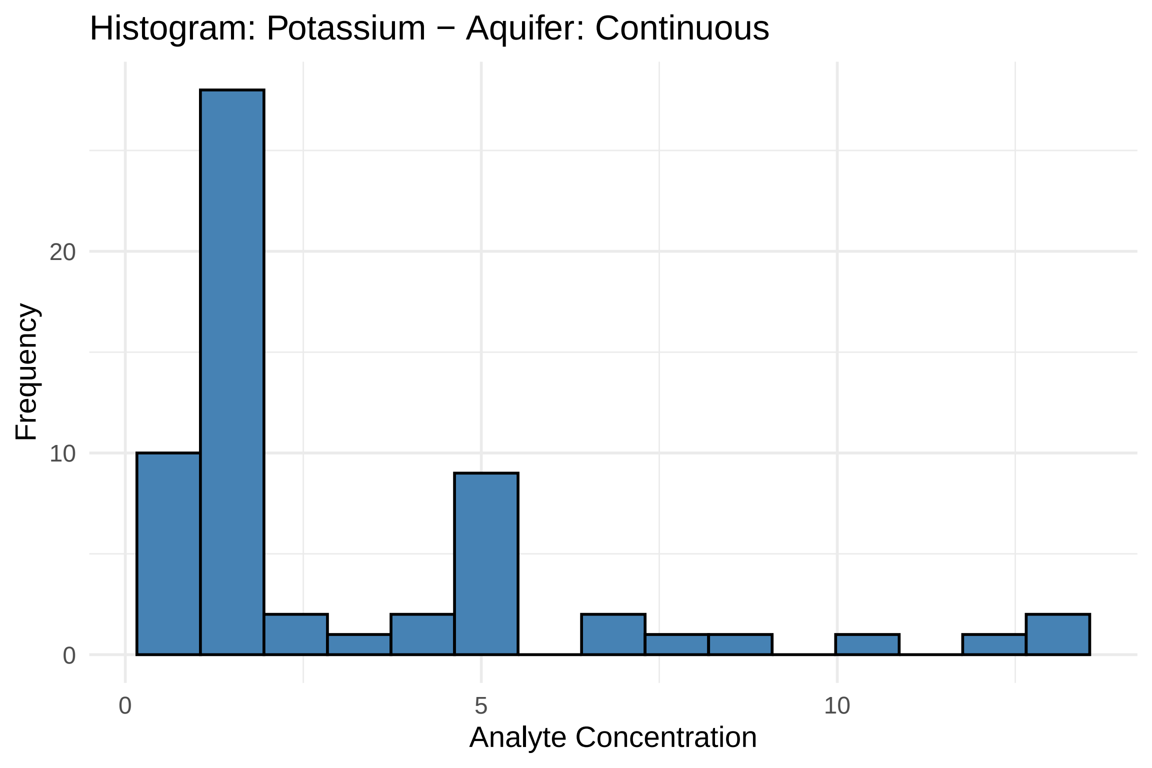


Histogram: Lithium − Aquifer: Continuous
30
20
10
0
Frequency
0.0
0.1
0.2
0.3
0.4
0.5
Analyte Concentration

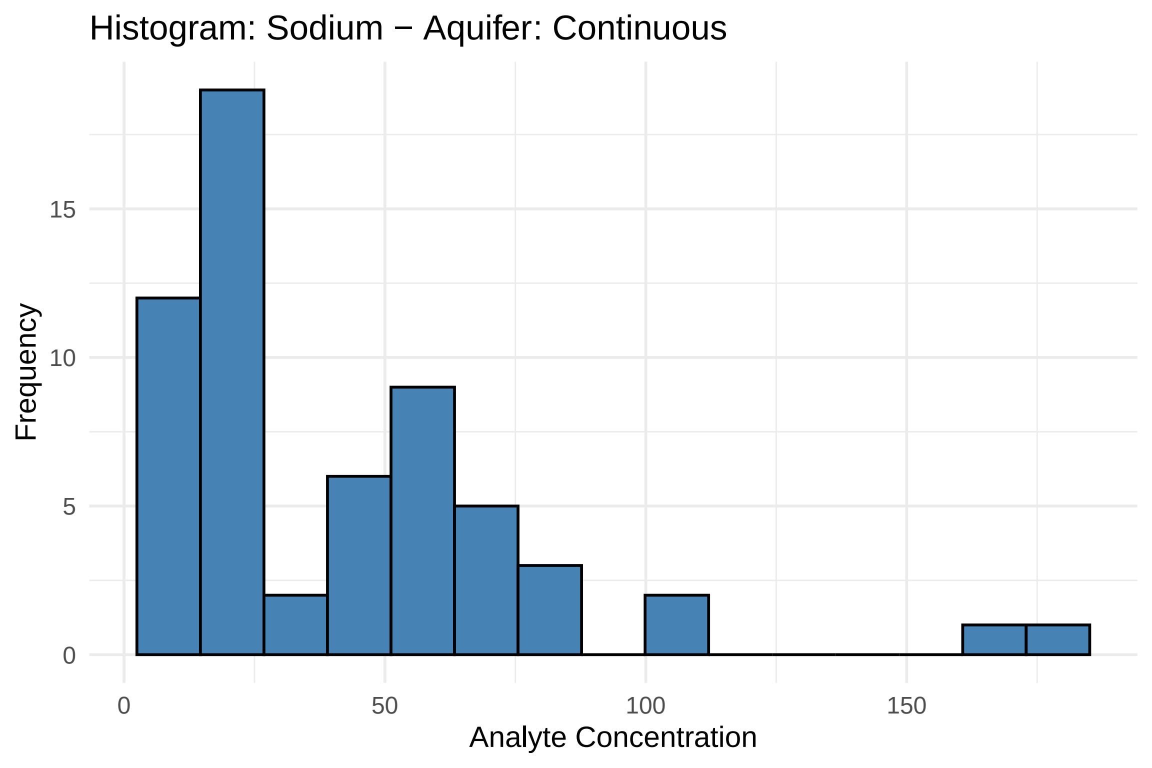

Histogram: Magnesium − Aquifer: Continuous
Frequency
0
5
10
25
50
75
100
125
Analyte Concentration



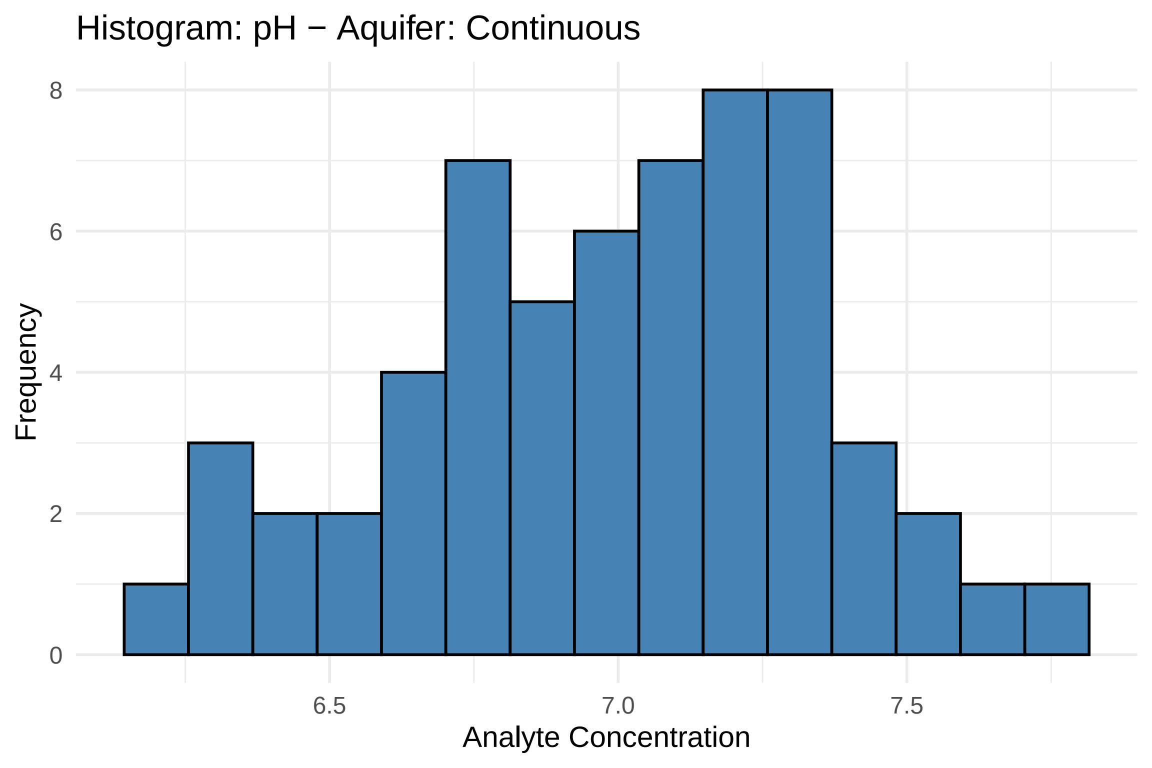
Histogram: Manganese − Aquifer: Continuous
Frequency
10.0
7.5
5.0
2.5
0.0
0.0
0.5
1.0
Analyte Concentration

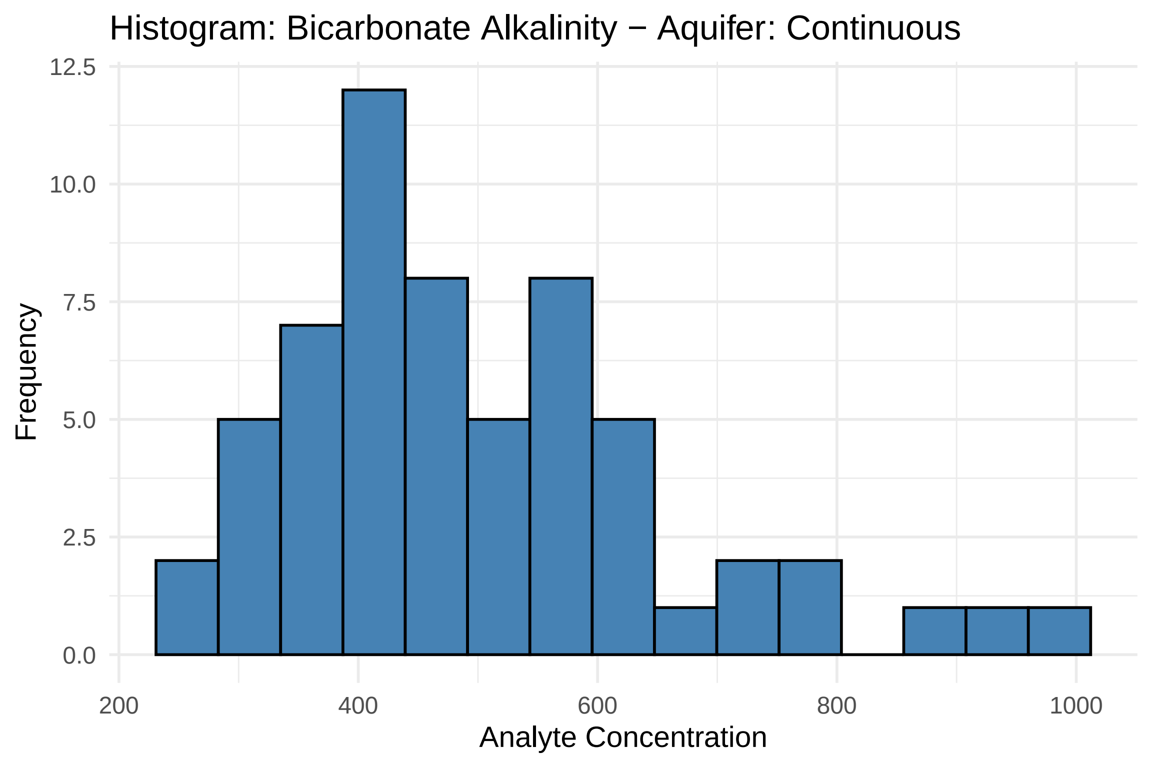


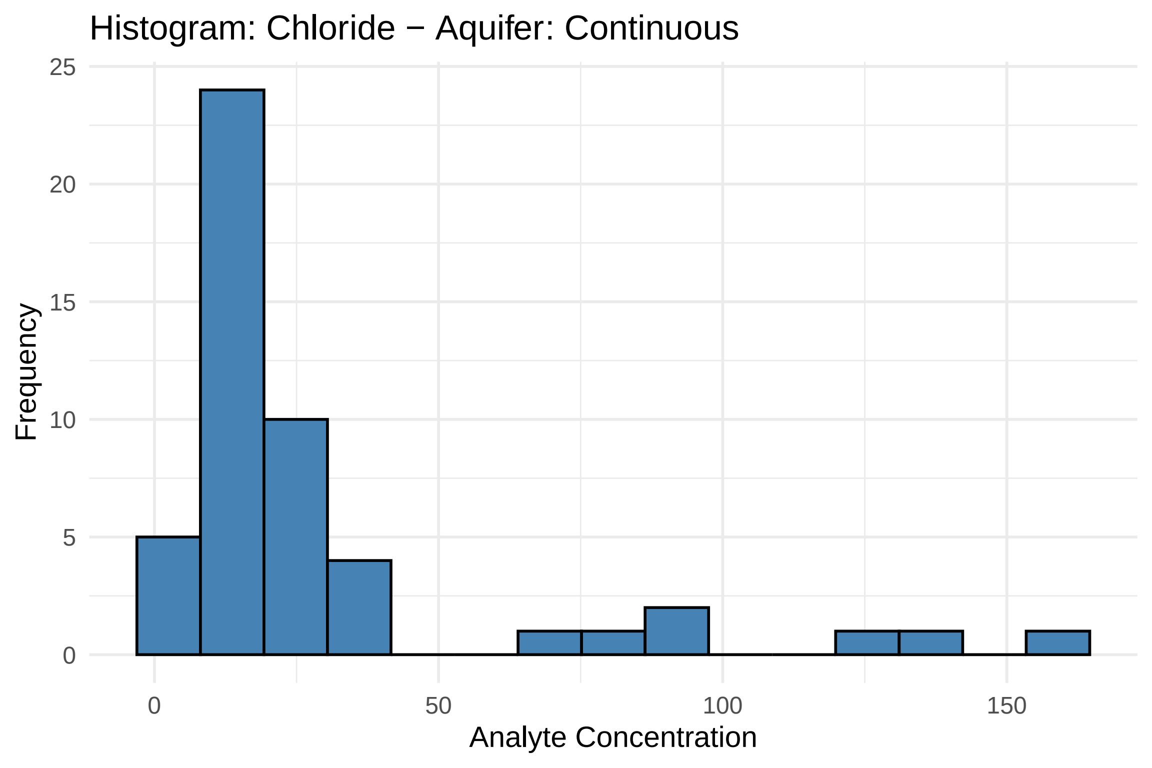
Histogram: Potassium − Aquifer: Continuous
Frequency
Analyte Concentration
0
10
20
0
5
10

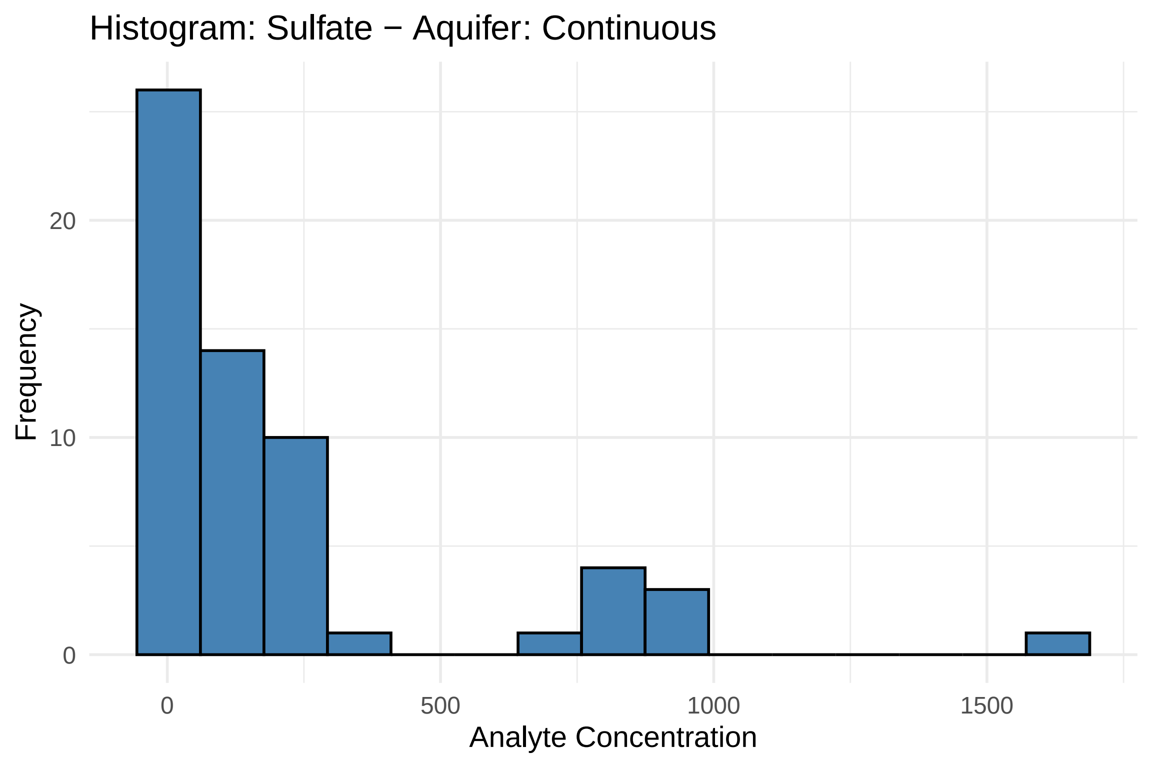


Histogram: Sodium − Aquifer: Continuous
Frequency
0
5
10
15
0
50
100
150
Analyte Concentration

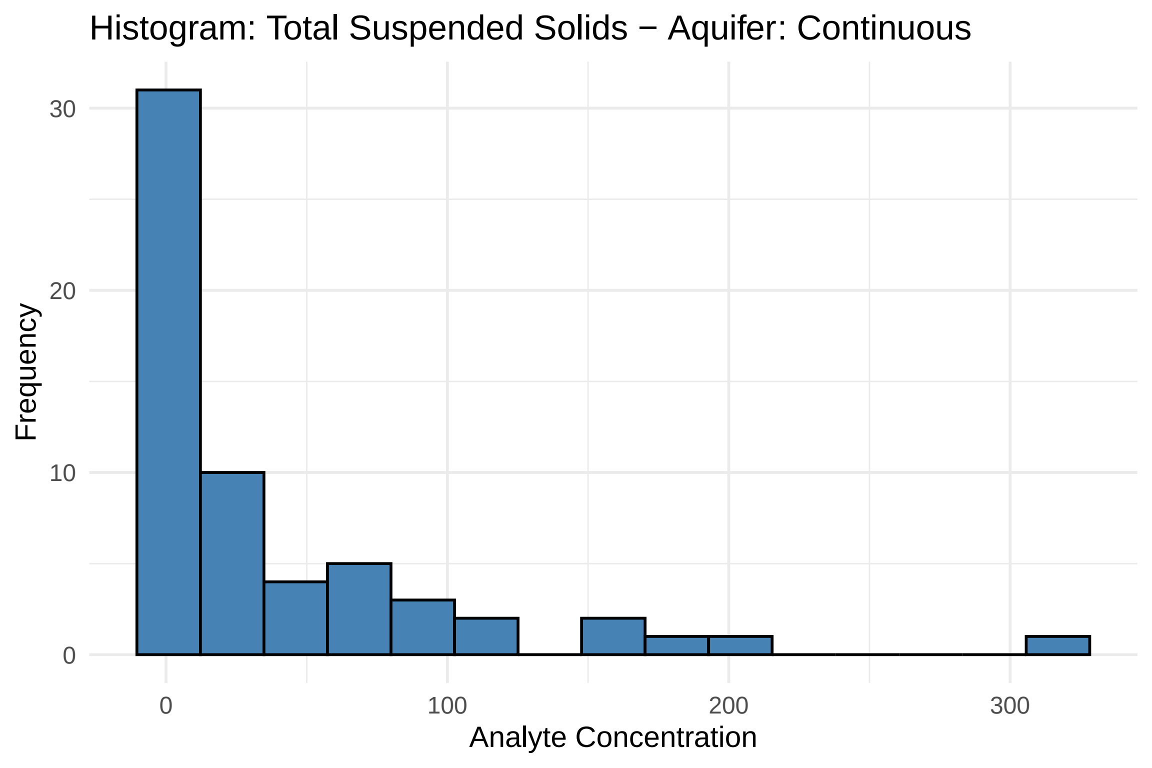

Histogram: pH − Aquifer: Continuous
Frequency
0
2
4
6
8
6.5
7.0
7.5
Analyte Concentration


Histogram: Bicarbonate Alkalinity − Aquifer: Continuous
Frequency
0.0
2.5
5.0
7.5
10.0
12.5
200
400
600
800
1000
Analyte Concentration


Histogram: Chloride − Aquifer: Continuous
Frequency
Analyte Concentration
0
5
10
15
20
25
0
50
100
150



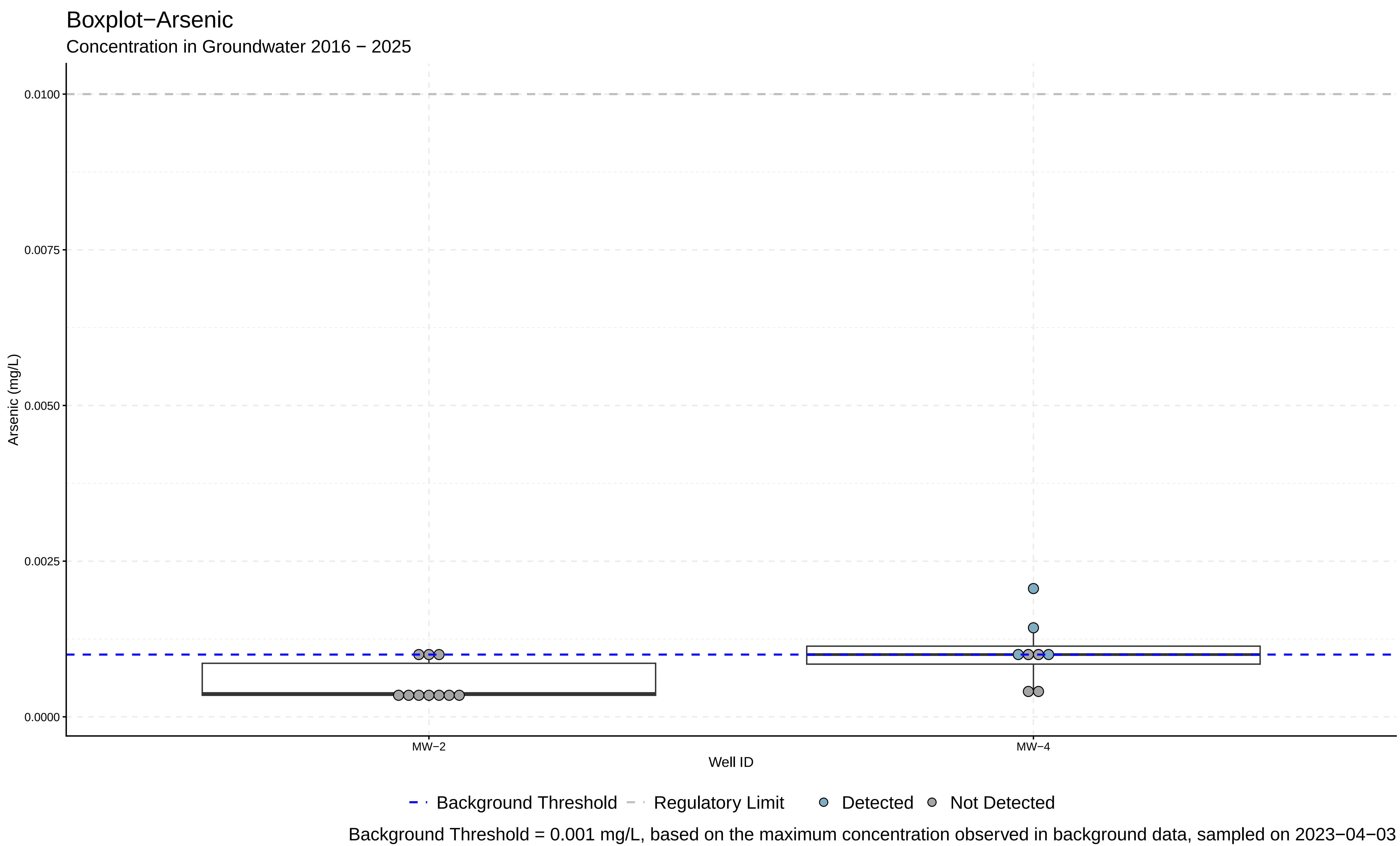
Histogram: Sulfate − Aquifer: Continuous
Frequency
20
10
0
0
500
1000
1500
Analyte Concentration



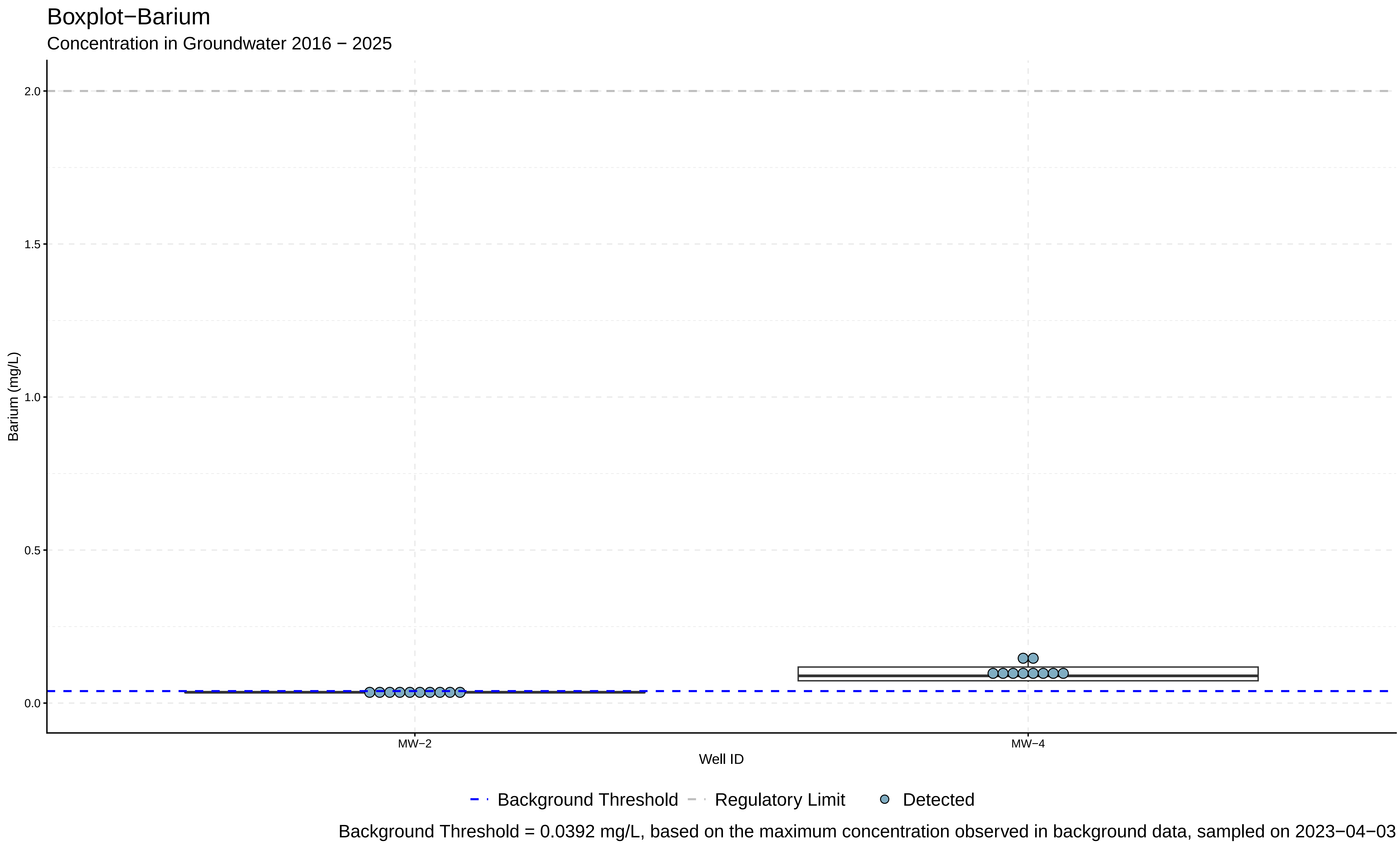
Histogram: Total Suspended Solids − Aquifer: Continuous
Frequency
30
20
10
0
0
100
200
300
Analyte Concentration

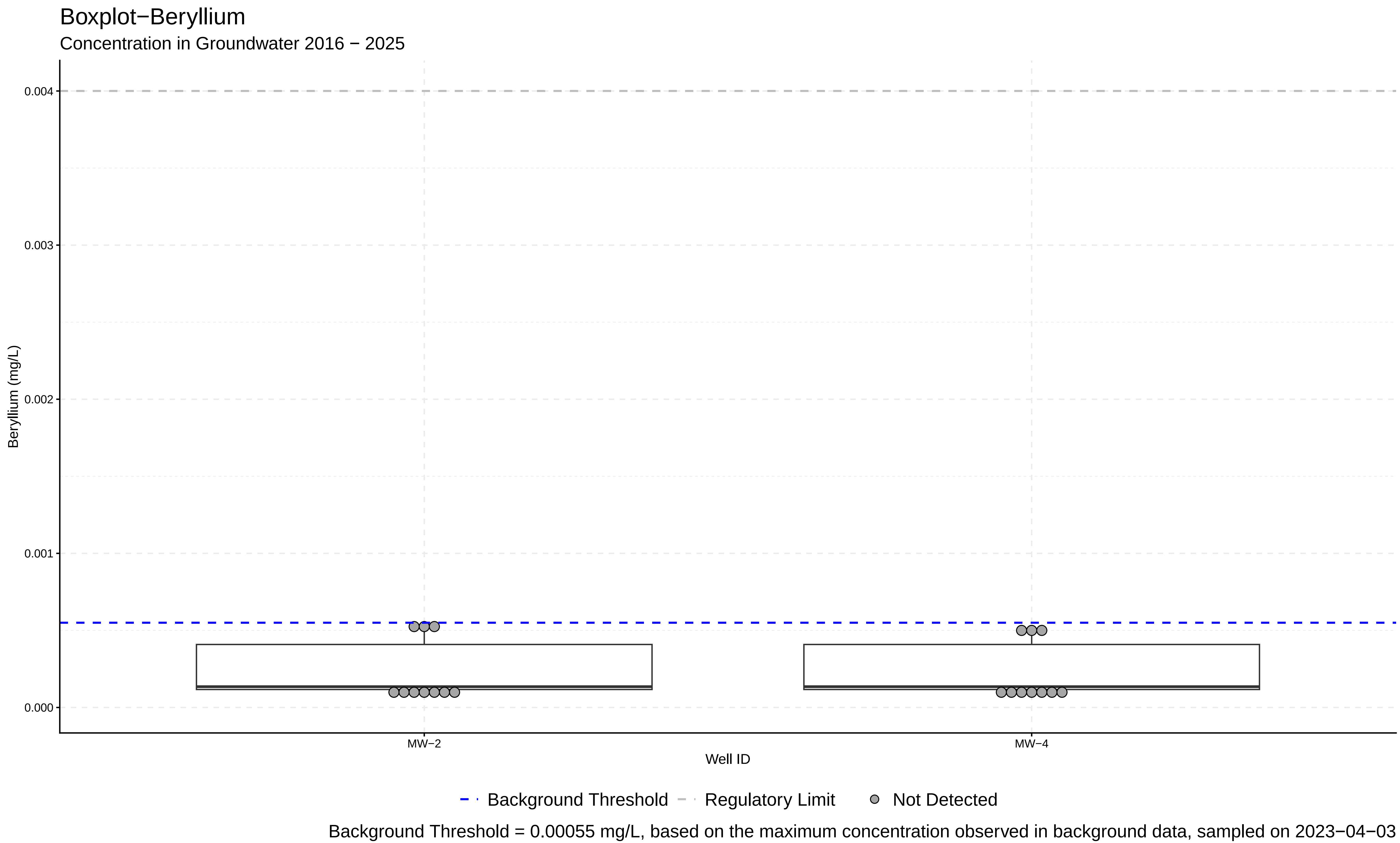
APPENDIX E -
BOXPLOTS

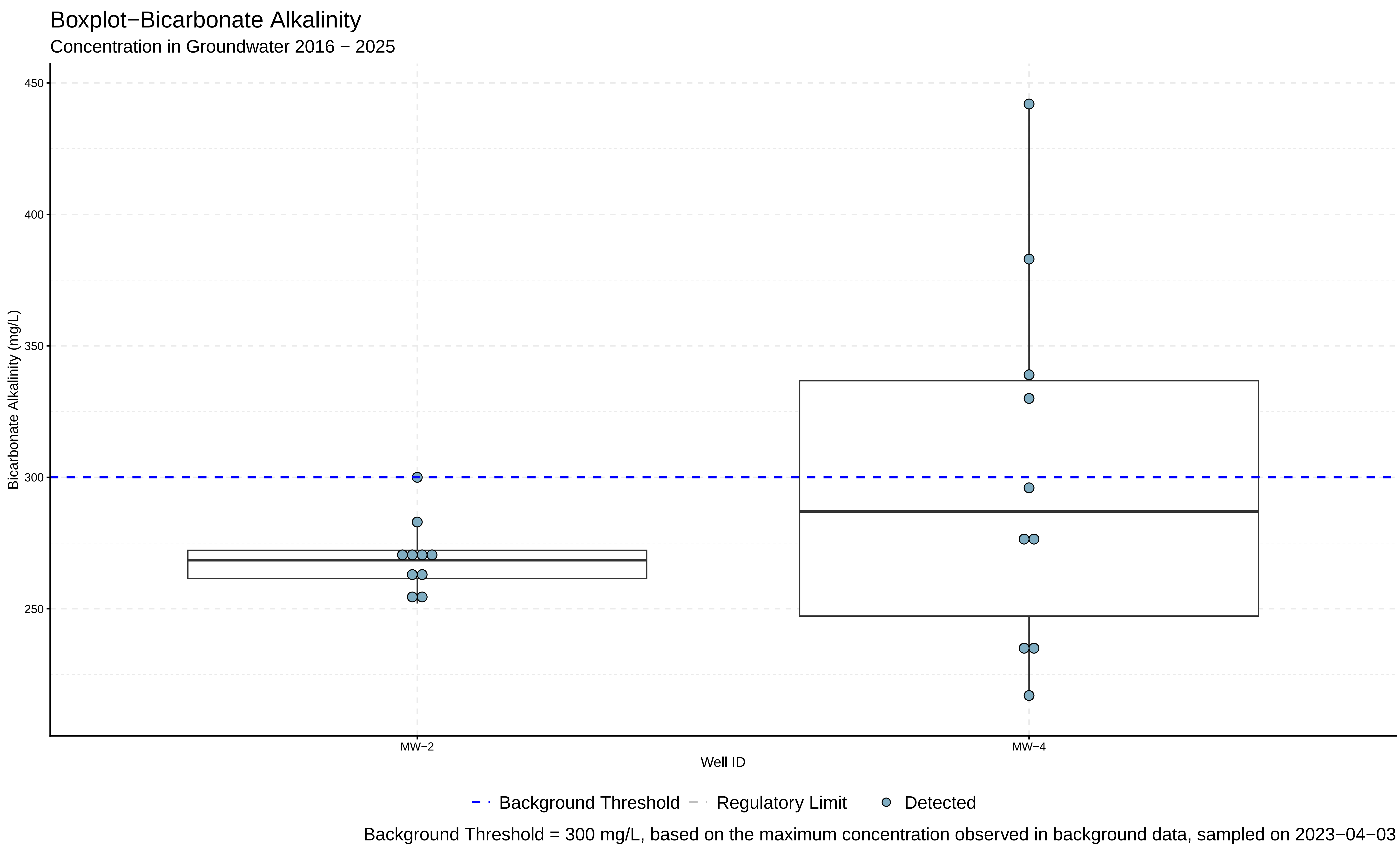
Upper Aquifer



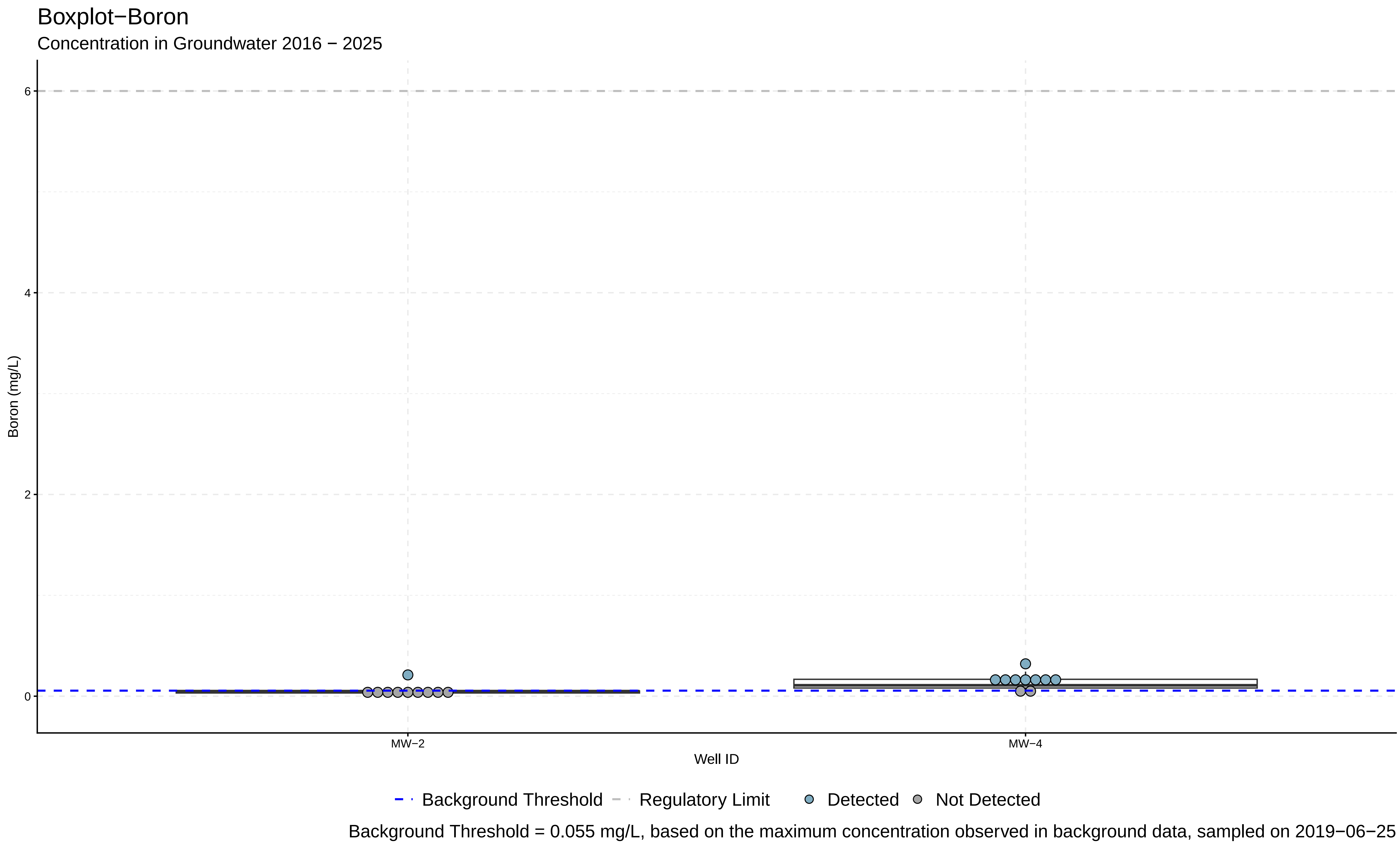
Boxplot−Arsenic
Concentration in Groundwater 2016 − 2025
Arsenic (mg/L)
0.0100
0.0075
0.0050
0.0025
0.0000
MW−2
MW−4
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 0.001 mg/L, based on the maximum concentration observed in background data, sampled on 2023−04−03

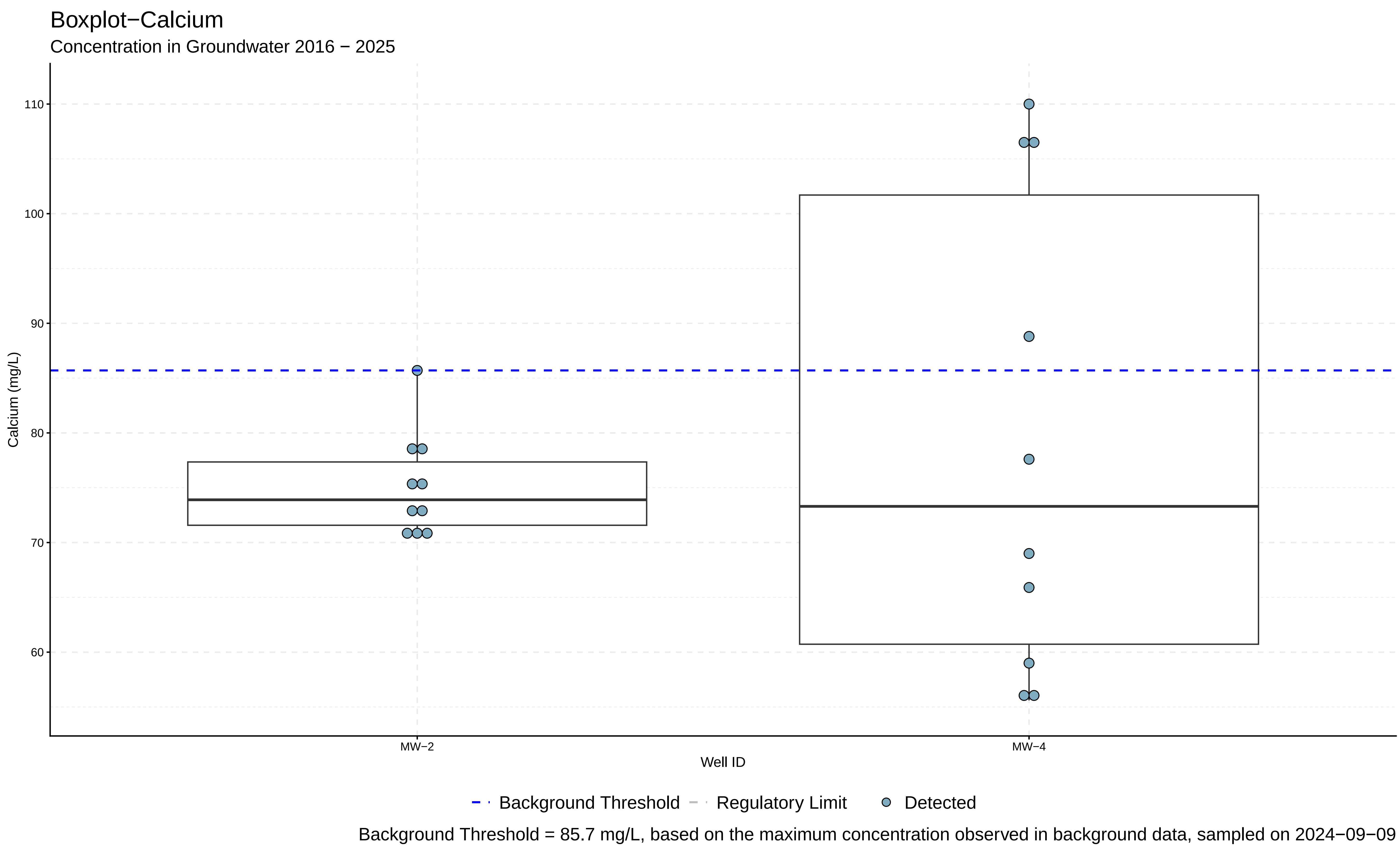

Boxplot−Barium
Concentration in Groundwater 2016 − 2025
Barium (mg/L)
2.0
1.5
1.0
0.5
0.0
MW−2
MW−4
Well ID
Background Threshold
Regulatory Limit
Detected
Background Threshold = 0.0392 mg/L, based on the maximum concentration observed in background data, sampled on 2023−04−03

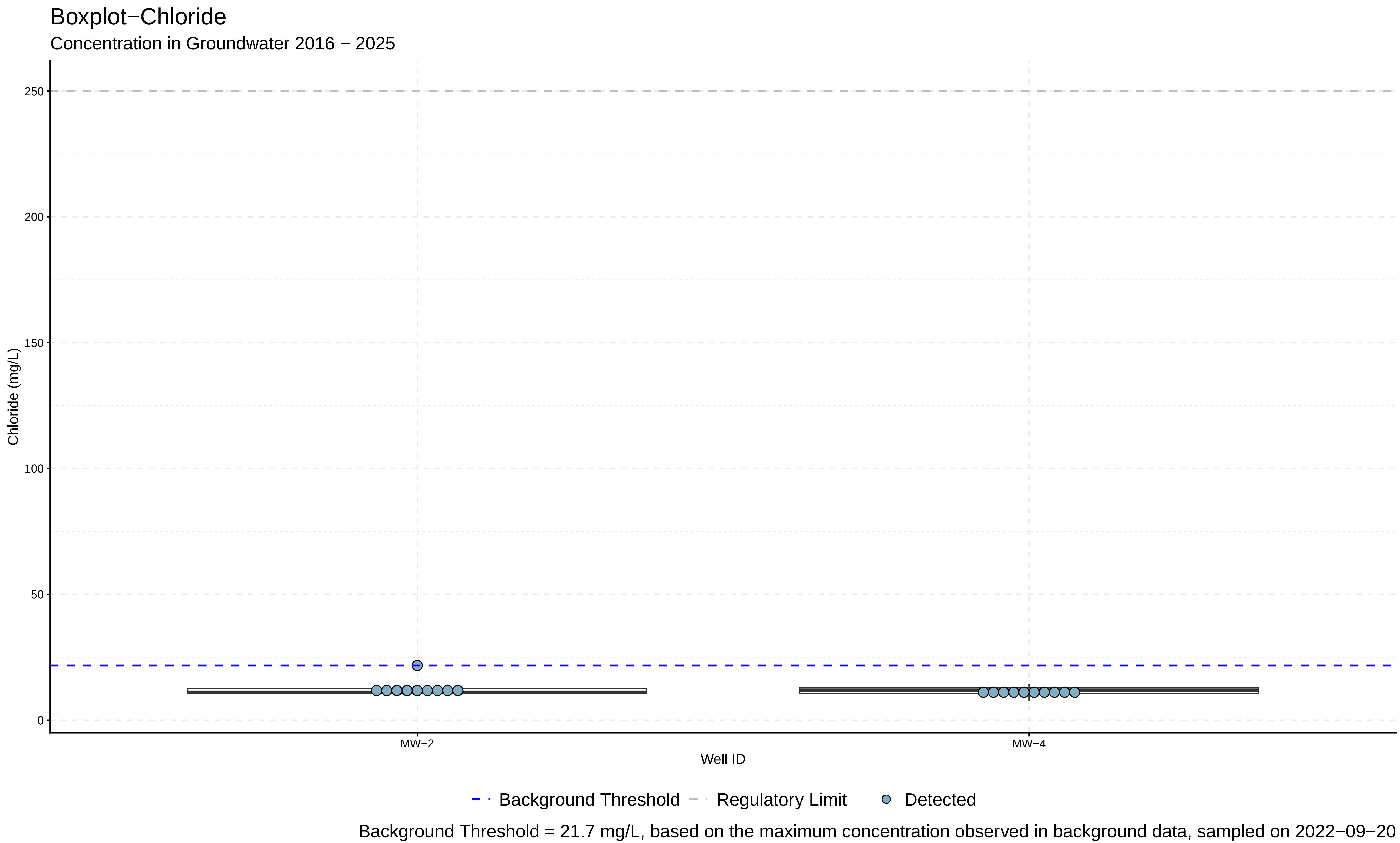

Boxplot−Beryllium
Concentration in Groundwater 2016 − 2025
Beryllium (mg/L)
0.004
0.003
0.002
0.001
0.000
MW−2
MW−4
Well ID
Background Threshold
Regulatory Limit
Not Detected
Background Threshold = 0.00055 mg/L, based on the maximum concentration observed in background data, sampled on 2023−04−03

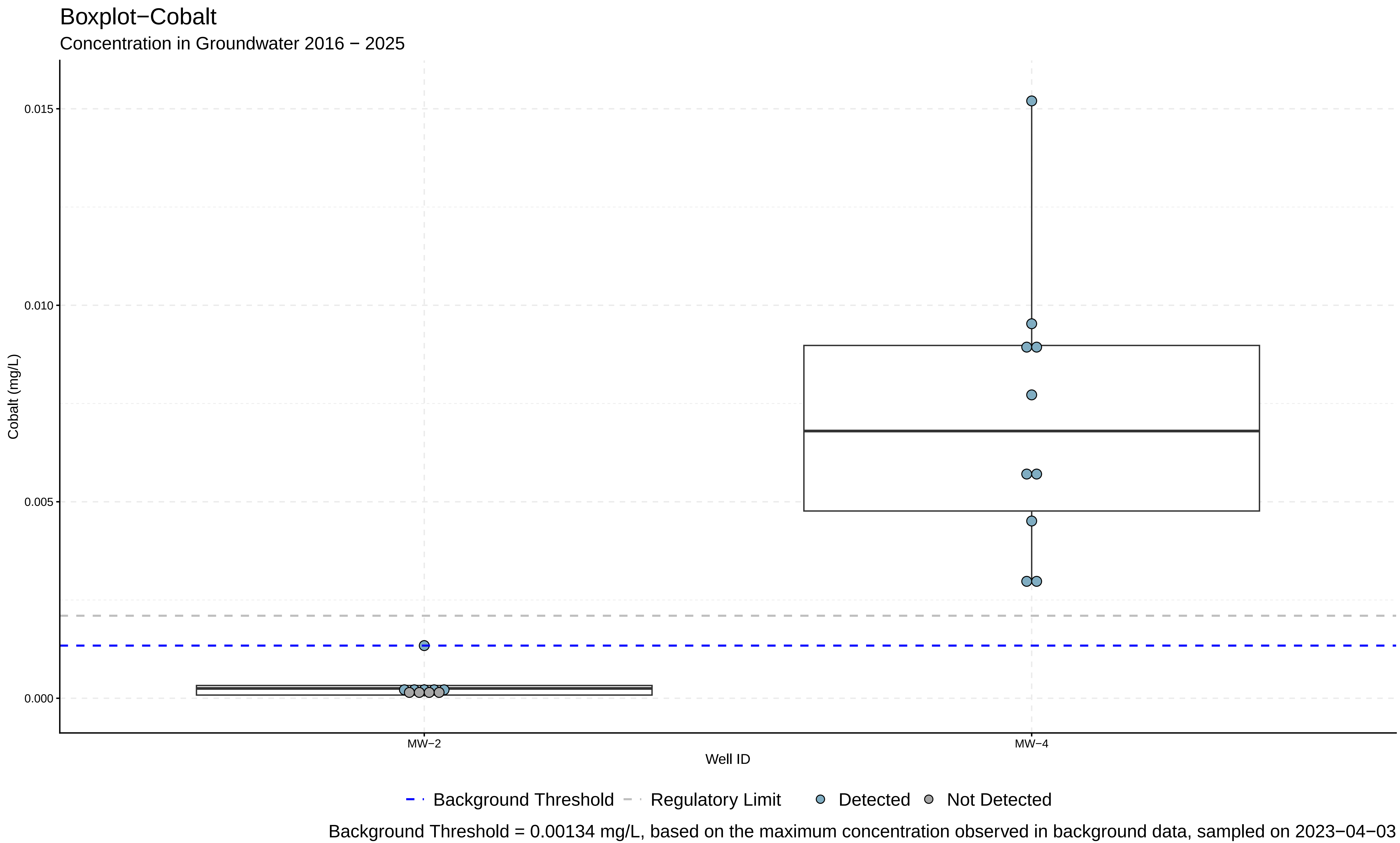


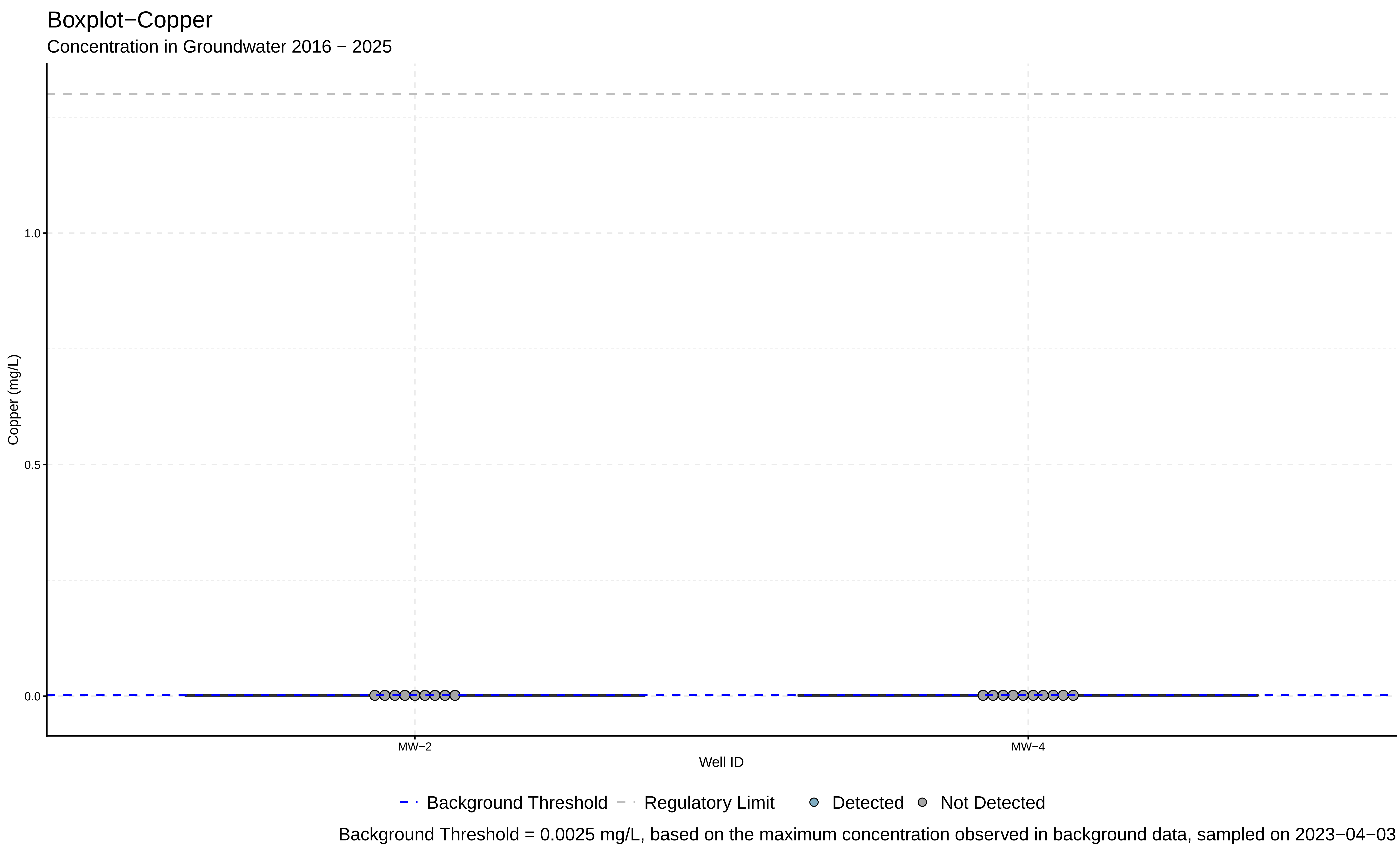
Boxplot−Bicarbonate Alkalinity
Concentration in Groundwater 2016 − 2025
Bicarbonate Alkalinity (mg/L)
450
400
350
300
250
MW−2
MW−4
Well ID
Background Threshold
Regulatory Limit
Detected
Background Threshold = 300 mg/L, based on the maximum concentration observed in background data, sampled on 2023−04−03

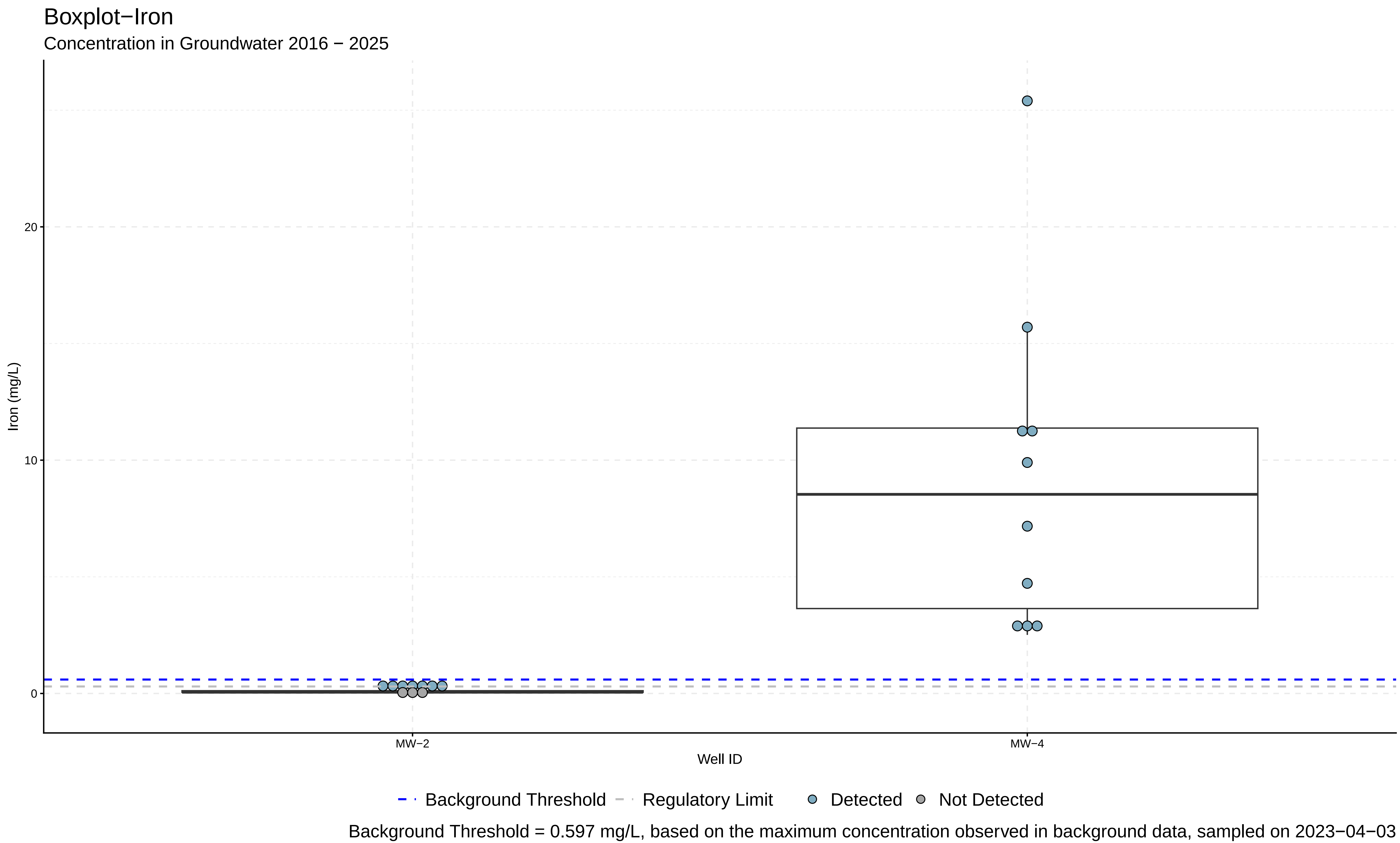

Boxplot−Boron
Concentration in Groundwater 2016 − 2025
Boron (mg/L)
6
4
2
0
MW−2
MW−4
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 0.055 mg/L, based on the maximum concentration observed in background data, sampled on 2019−06−25


Boxplot−Calcium
Concentration in Groundwater 2016 − 2025
Calcium (mg/L)
110
100
90
80
70
60
MW−2
MW−4
Well ID
Background Threshold
Regulatory Limit
Detected
Background Threshold = 85.7 mg/L, based on the maximum concentration observed in background data, sampled on 2024−09−09

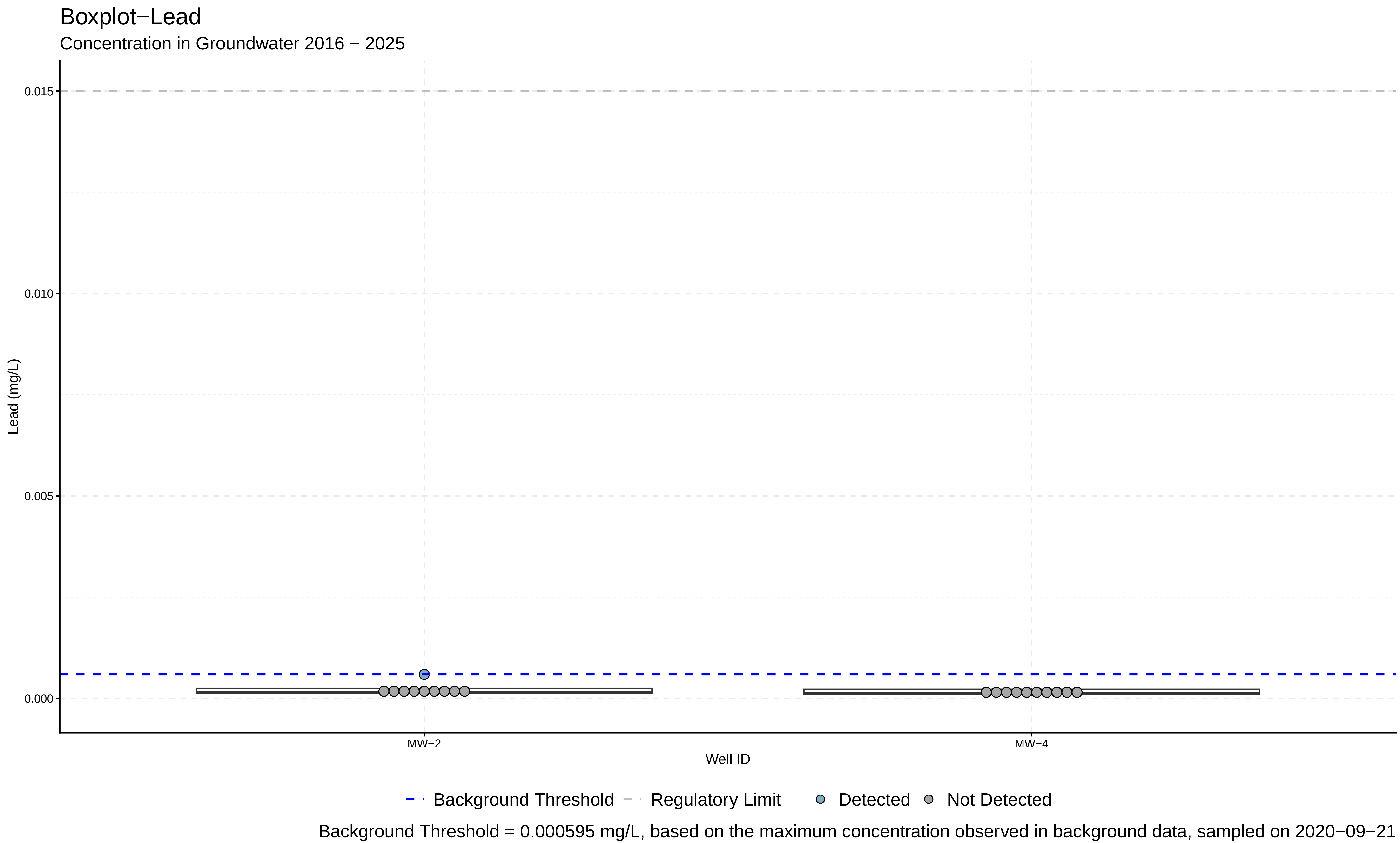

Boxplot−Chloride
Concentration in Groundwater 2016 − 2025
Chloride (mg/L)
0
50
100
150
200
250
MW−2
MW−4
Well ID
Background Threshold
Regulatory Limit
Detected
Background Threshold = 21.7 mg/L, based on the maximum concentration observed in background data, sampled on 2022−09−20

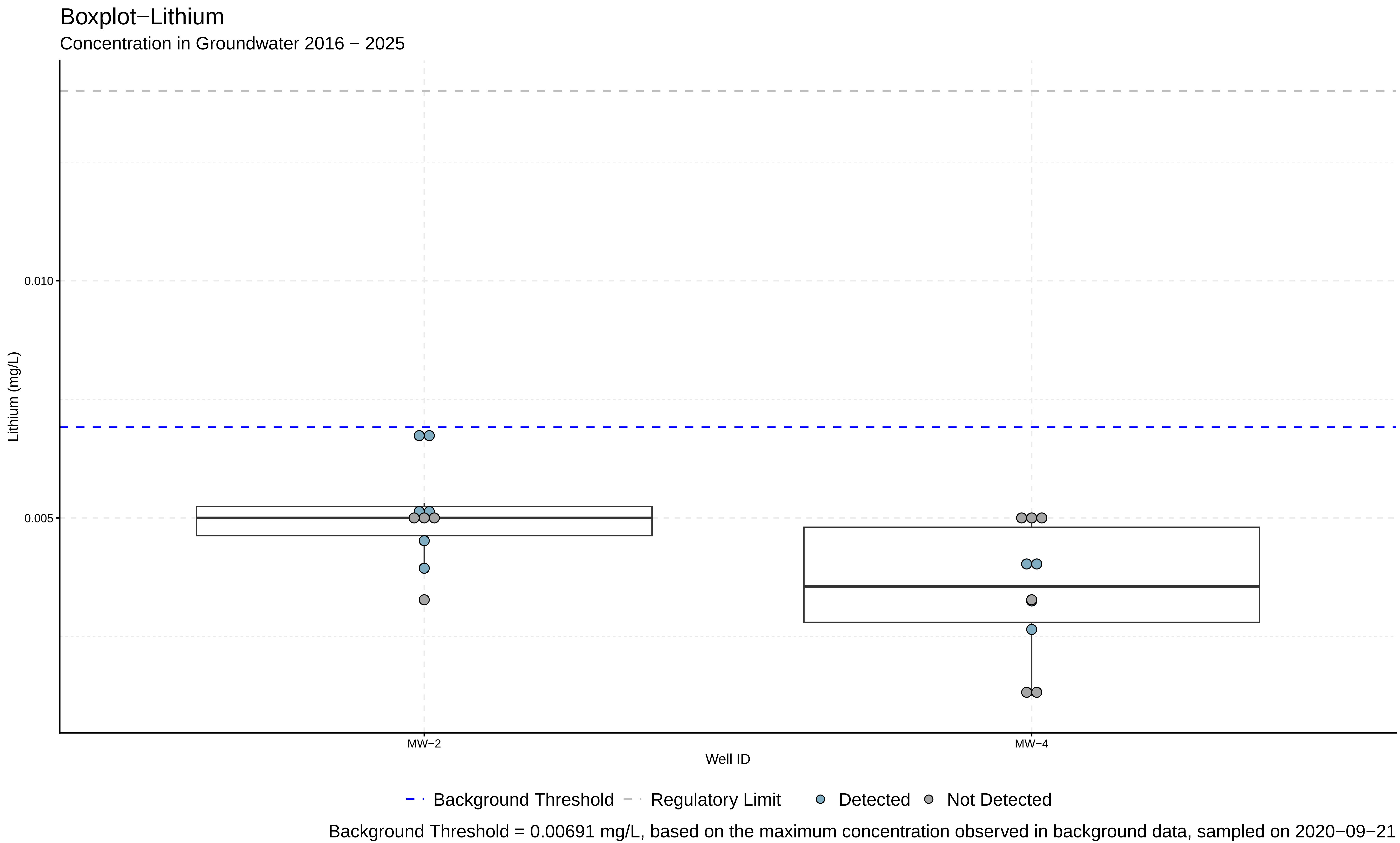

Boxplot−Cobalt
Concentration in Groundwater 2016 − 2025
Cobalt (mg/L)
0.015
0.010
0.005
0.000
MW−2
MW−4
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 0.00134 mg/L, based on the maximum concentration observed in background data, sampled on 2023−04−03


Boxplot−Copper
Concentration in Groundwater 2016 − 2025
Copper (mg/L)
1.0
0.5
0.0
MW−2
MW−4
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 0.0025 mg/L, based on the maximum concentration observed in background data, sampled on 2023−04−03

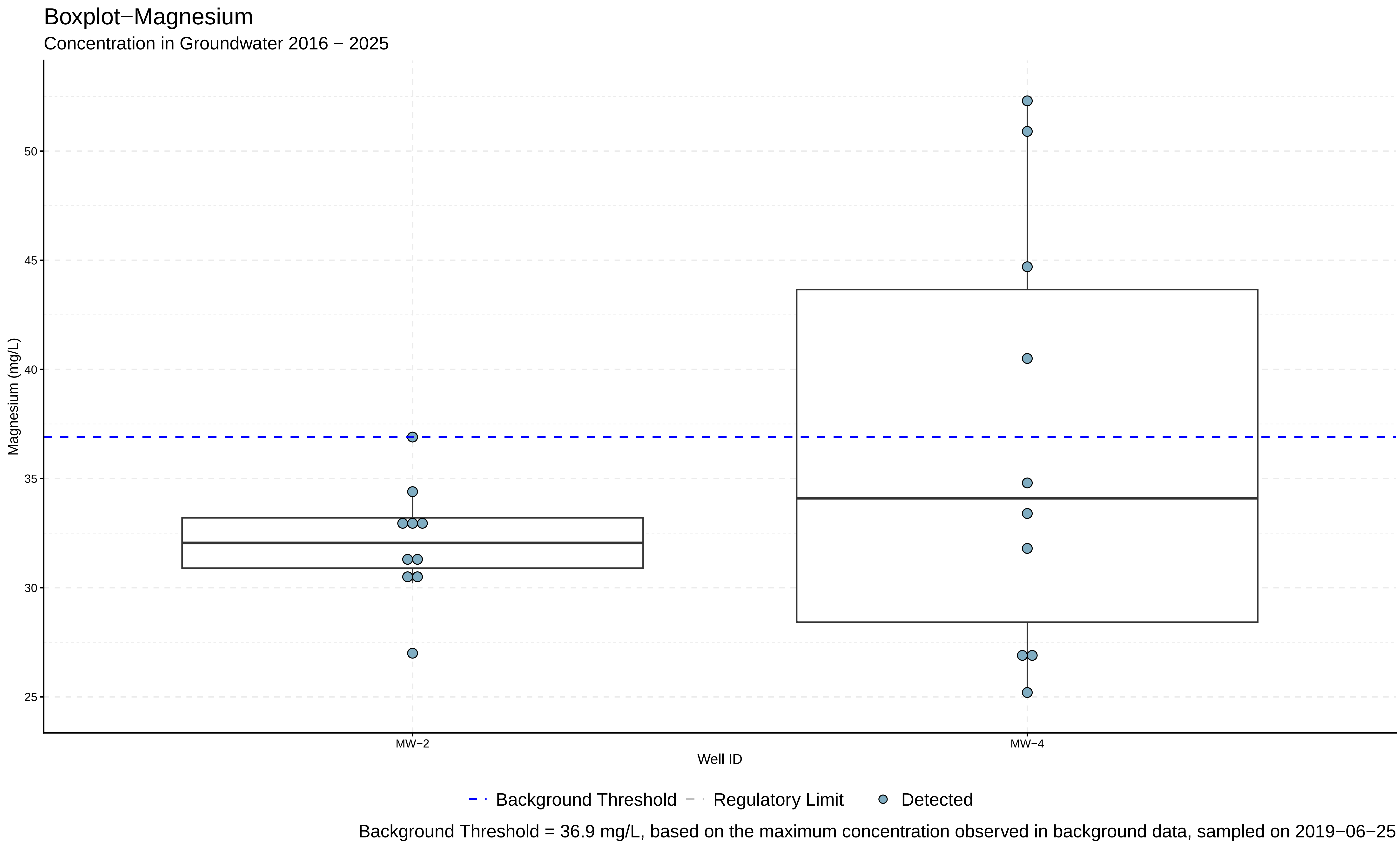


Boxplot−Iron
Concentration in Groundwater 2016 − 2025
Iron (mg/L)
20
10
0
MW−2
MW−4
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 0.597 mg/L, based on the maximum concentration observed in background data, sampled on 2023−04−03

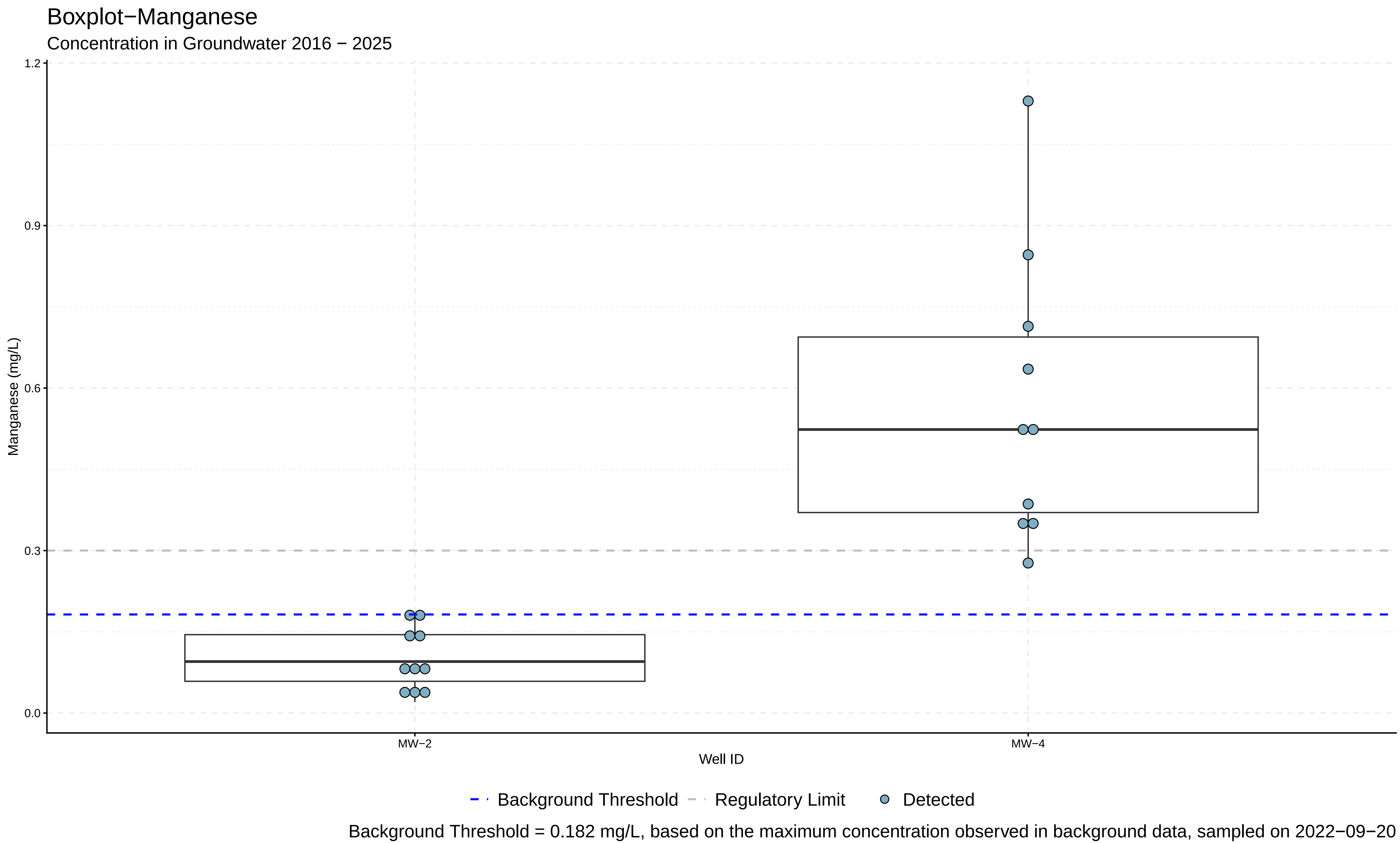

Boxplot−Lead
Concentration in Groundwater 2016 − 2025
0.015
0.010
0.005
0.000
Lead (mg/L)
MW−2
MW−4
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 0.000595 mg/L, based on the maximum concentration observed in background data, sampled on 2020−09−21



Boxplot−Lithium
Concentration in Groundwater 2016 − 2025
Lithium (mg/L)
0.010
0.005
MW−2
MW−4
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 0.00691 mg/L, based on the maximum concentration observed in background data, sampled on 2020−09−21

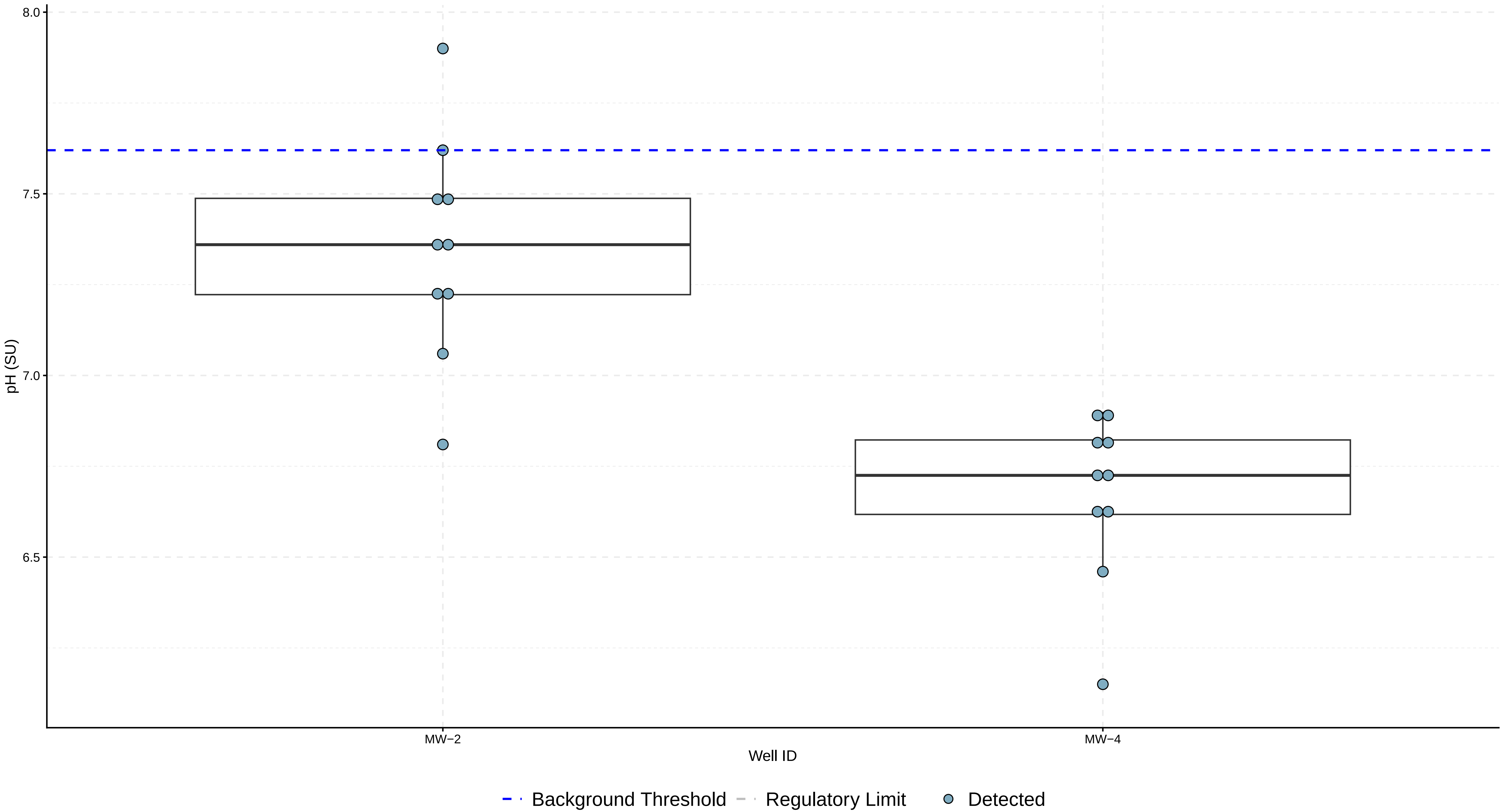


Boxplot−Magnesium
Concentration in Groundwater 2016 − 2025
Magnesium (mg/L)
50
45
40
35
30
25
MW−2
MW−4
Well ID
Background Threshold
Regulatory Limit
Detected
Background Threshold = 36.9 mg/L, based on the maximum concentration observed in background data, sampled on 2019−06−25

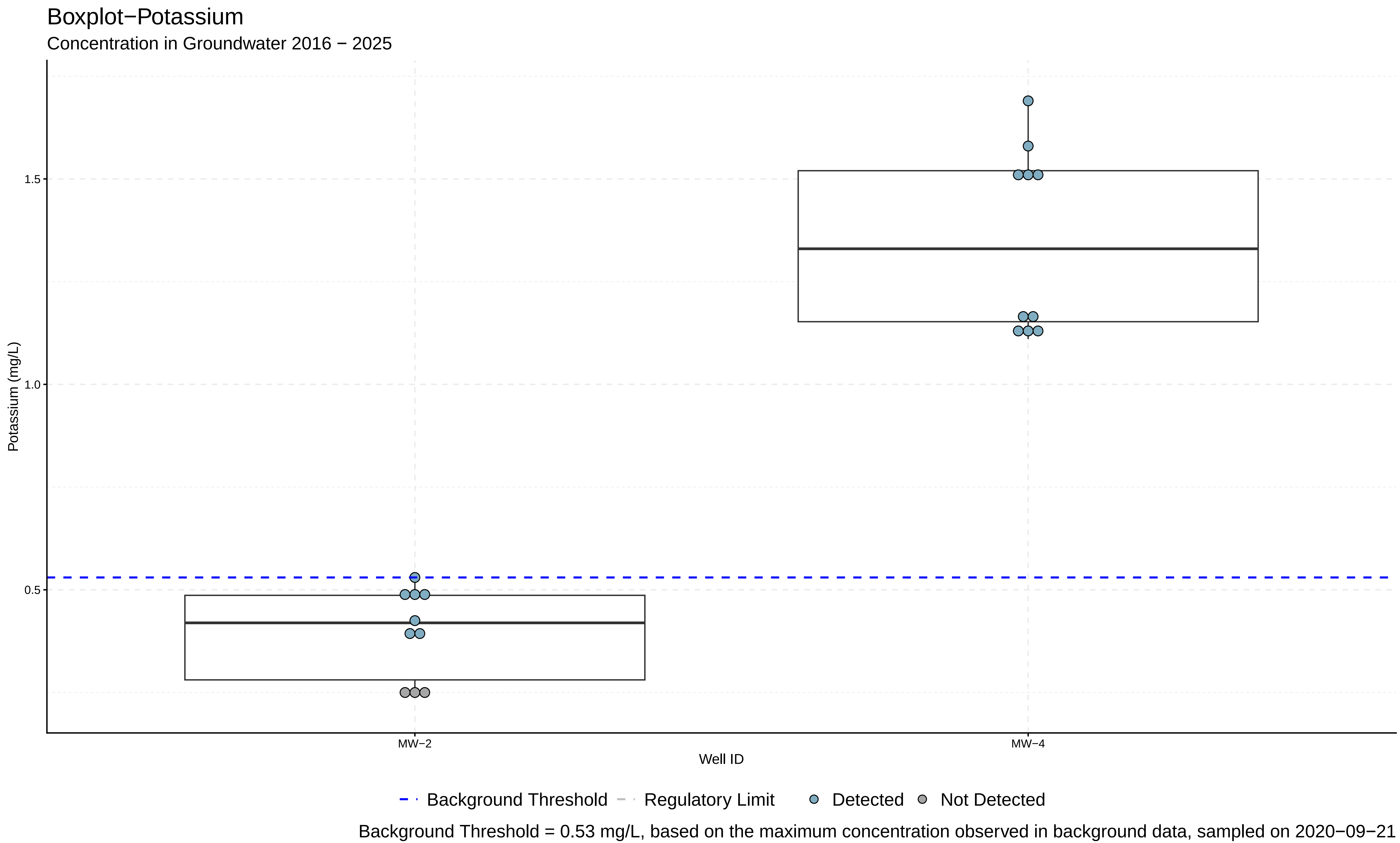

Boxplot−Manganese
Concentration in Groundwater 2016 − 2025
Manganese (mg/L)
1.2
0.9
0.6
0.3
0.0
MW−2
MW−4
Well ID
Background Threshold
Regulatory Limit
Detected
Background Threshold = 0.182 mg/L, based on the maximum concentration observed in background data, sampled on 2022−09−20

Boxplot−pH

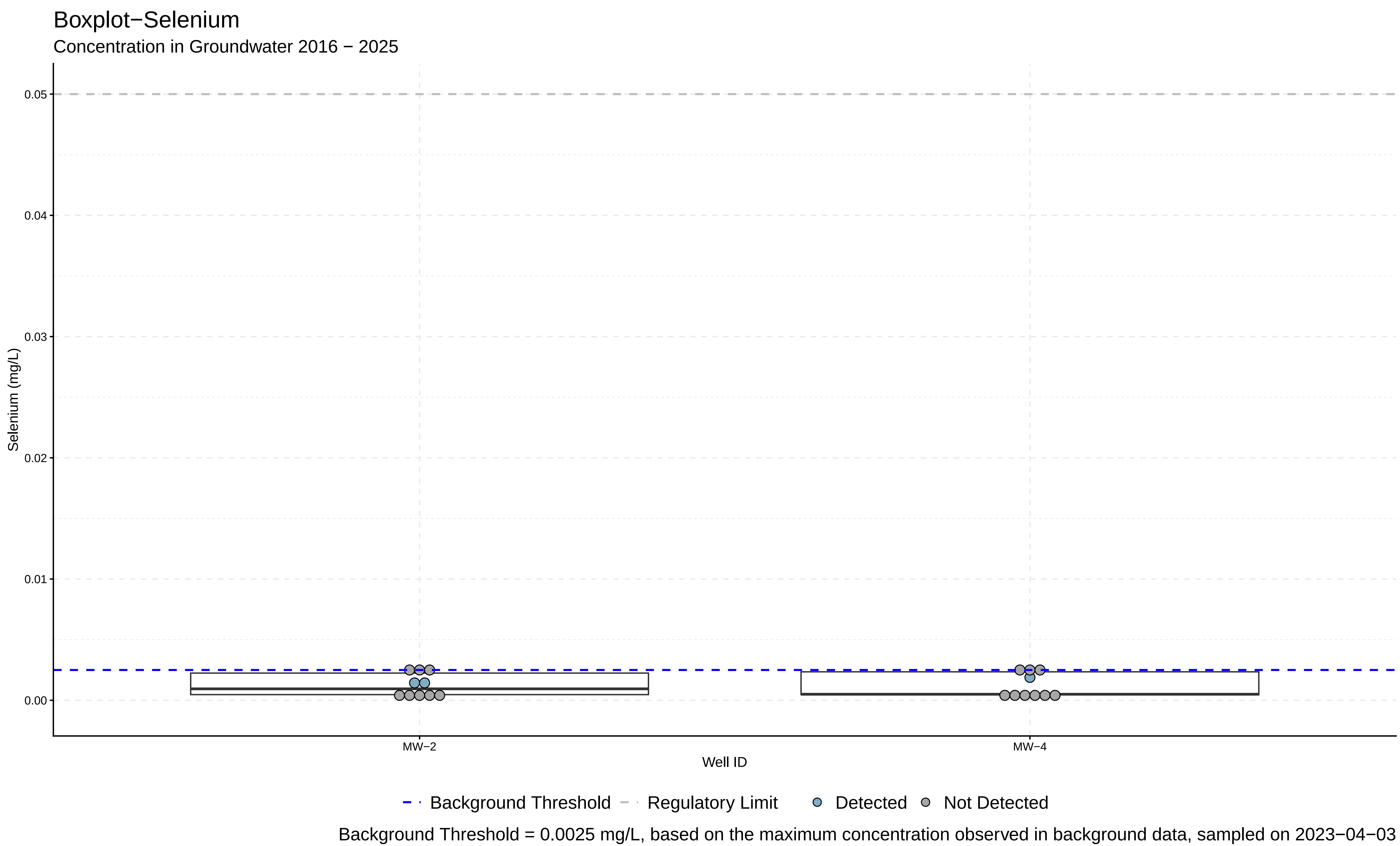
Concentration in Groundwater 2016 − 2025



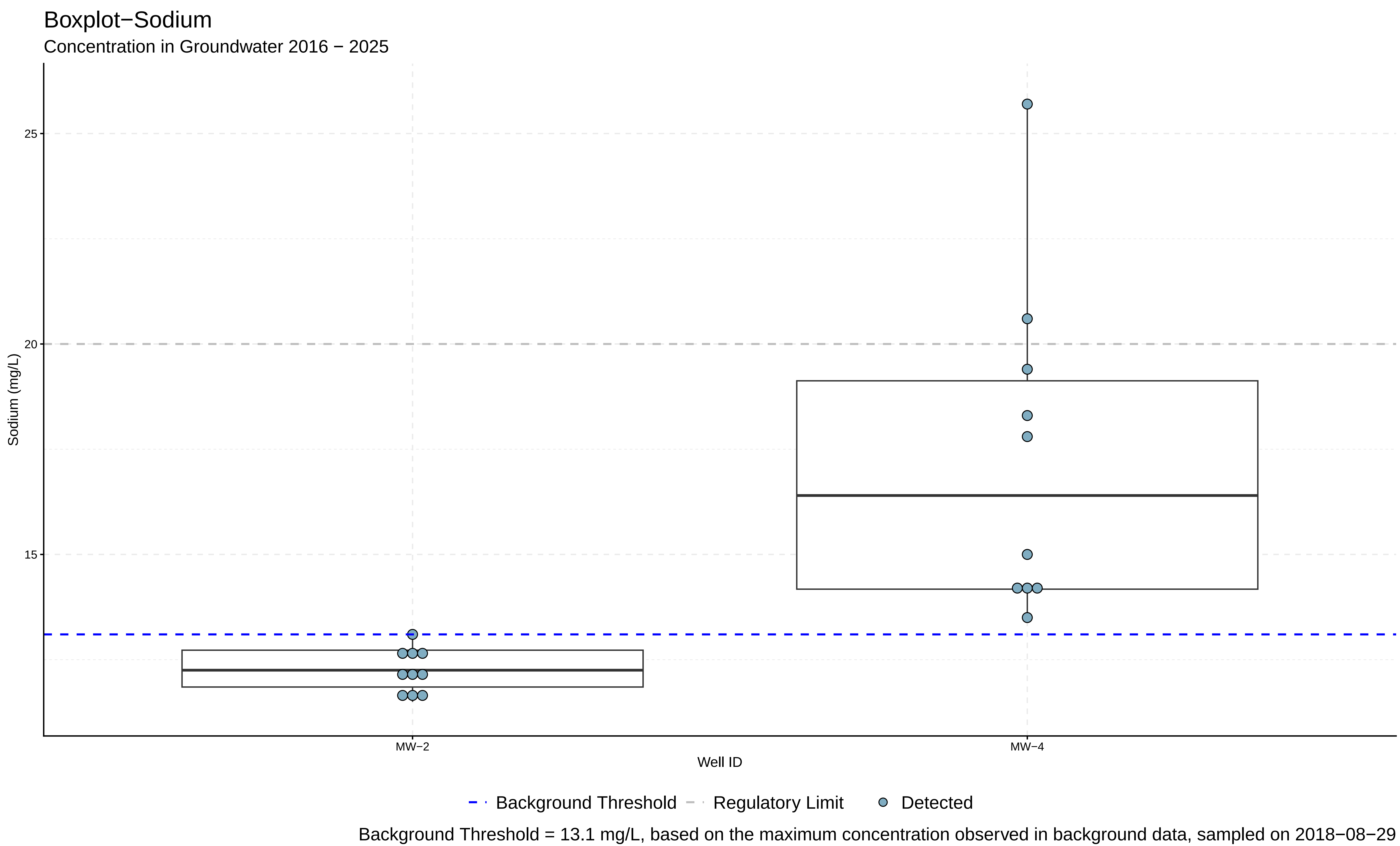
Background Threshold = 7.62 mg/L, based on the maximum concentration observed in background data, sampled on 2019−06−25

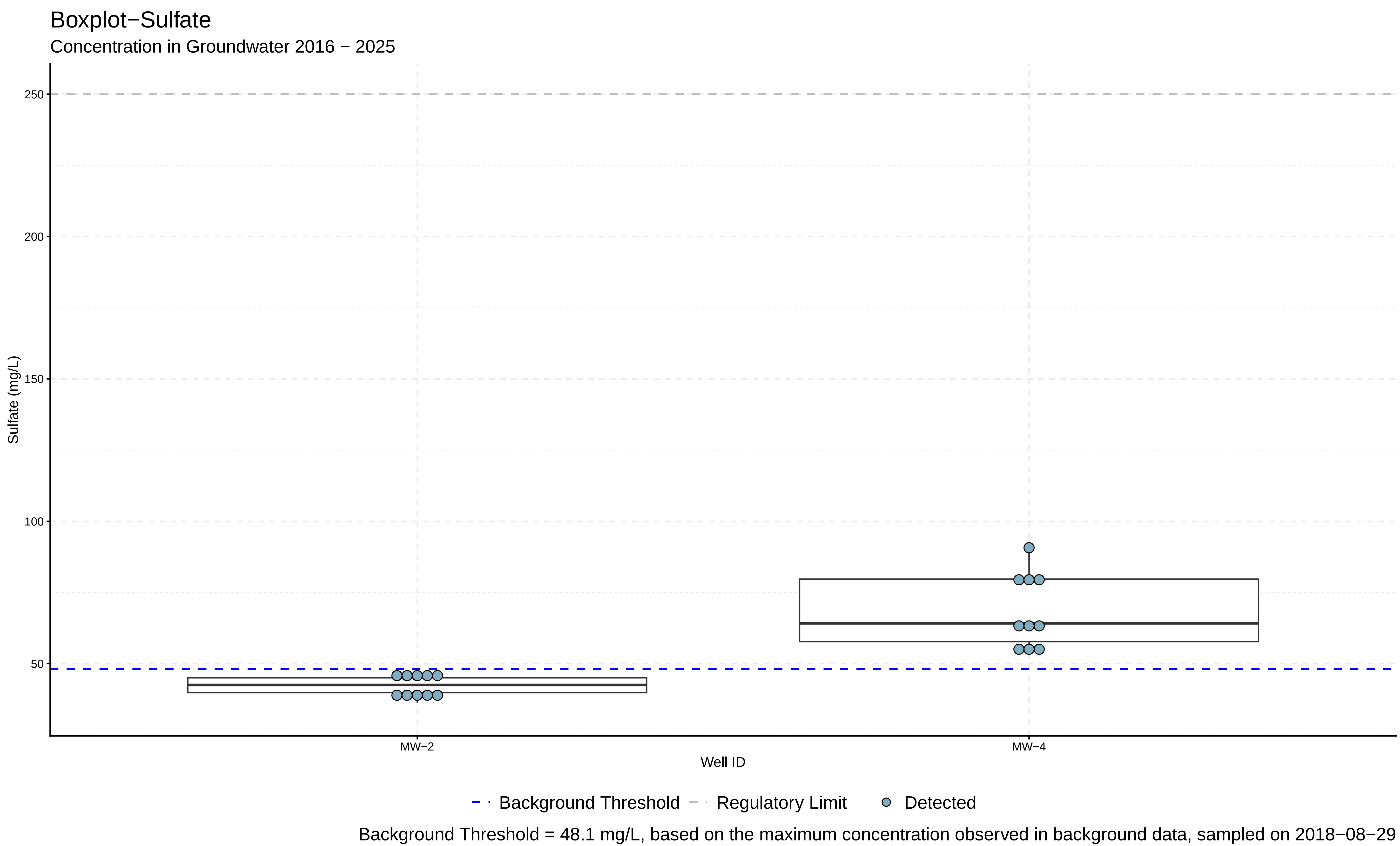


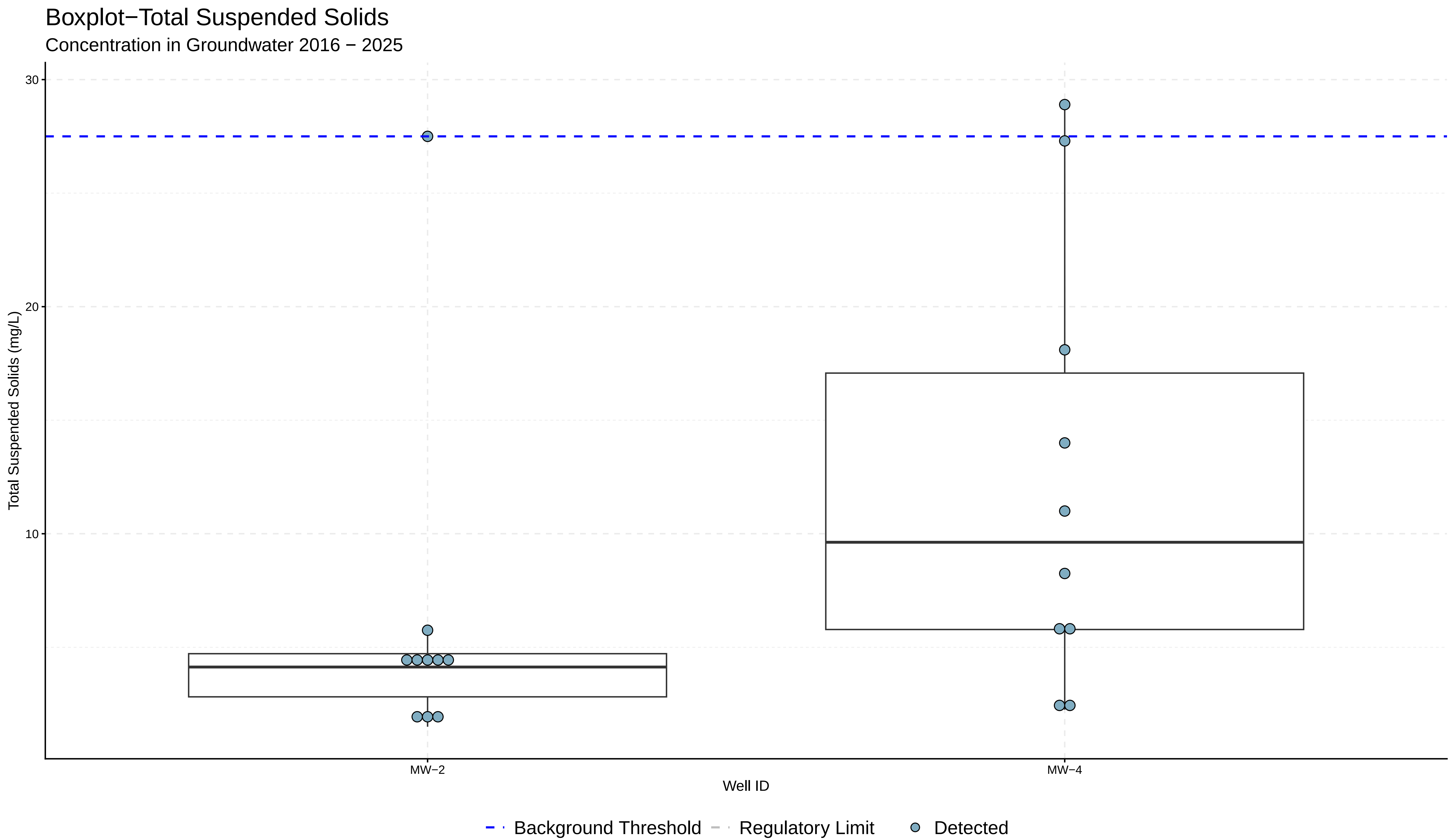
Boxplot−Potassium
Concentration in Groundwater 2016 − 2025
Potassium (mg/L)
1.5
1.0
0.5
MW−2
MW−4
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 0.53 mg/L, based on the maximum concentration observed in background data, sampled on 2020−09−21



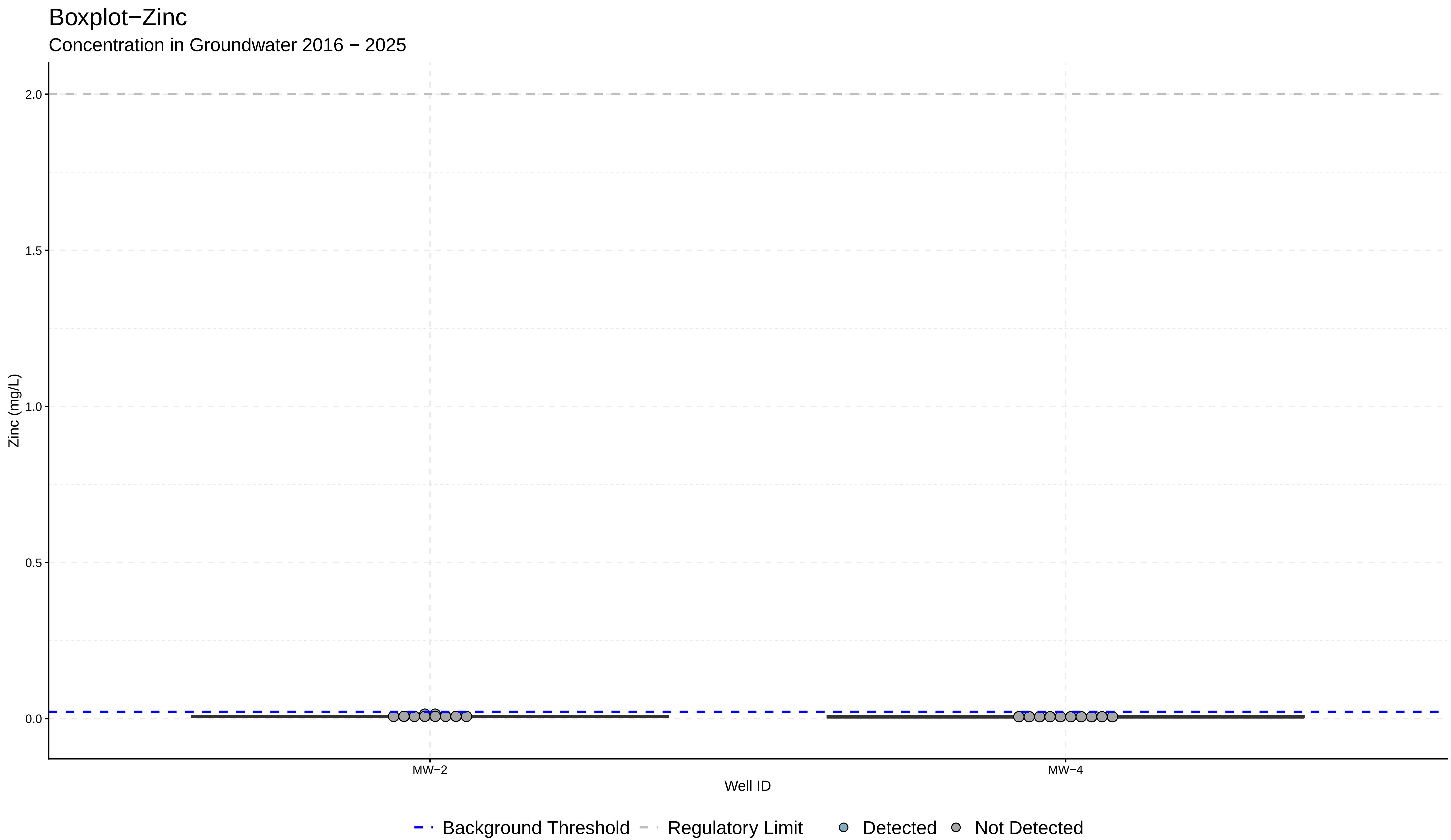
Boxplot−Selenium
Concentration in Groundwater 2016 − 2025
Selenium (mg/L)
0.05
0.04
0.03
0.02
0.01
0.00
MW−2
MW−4
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 0.0025 mg/L, based on the maximum concentration observed in background data, sampled on 2023−04−03


Boxplot−Sodium
Concentration in Groundwater 2016 − 2025
Sodium (mg/L)
25
20
15
MW−2
MW−4
Well ID
Background Threshold
Regulatory Limit
Detected
Background Threshold = 13.1 mg/L, based on the maximum concentration observed in background data, sampled on 2018−08−29


Boxplot−Sulfate
Concentration in Groundwater 2016 − 2025
Sulfate (mg/L)
250
200
150
100
50
MW−2
MW−4
Well ID
Background Threshold
Regulatory Limit
Detected
Background Threshold = 48.1 mg/L, based on the maximum concentration observed in background data, sampled on 2018−08−29

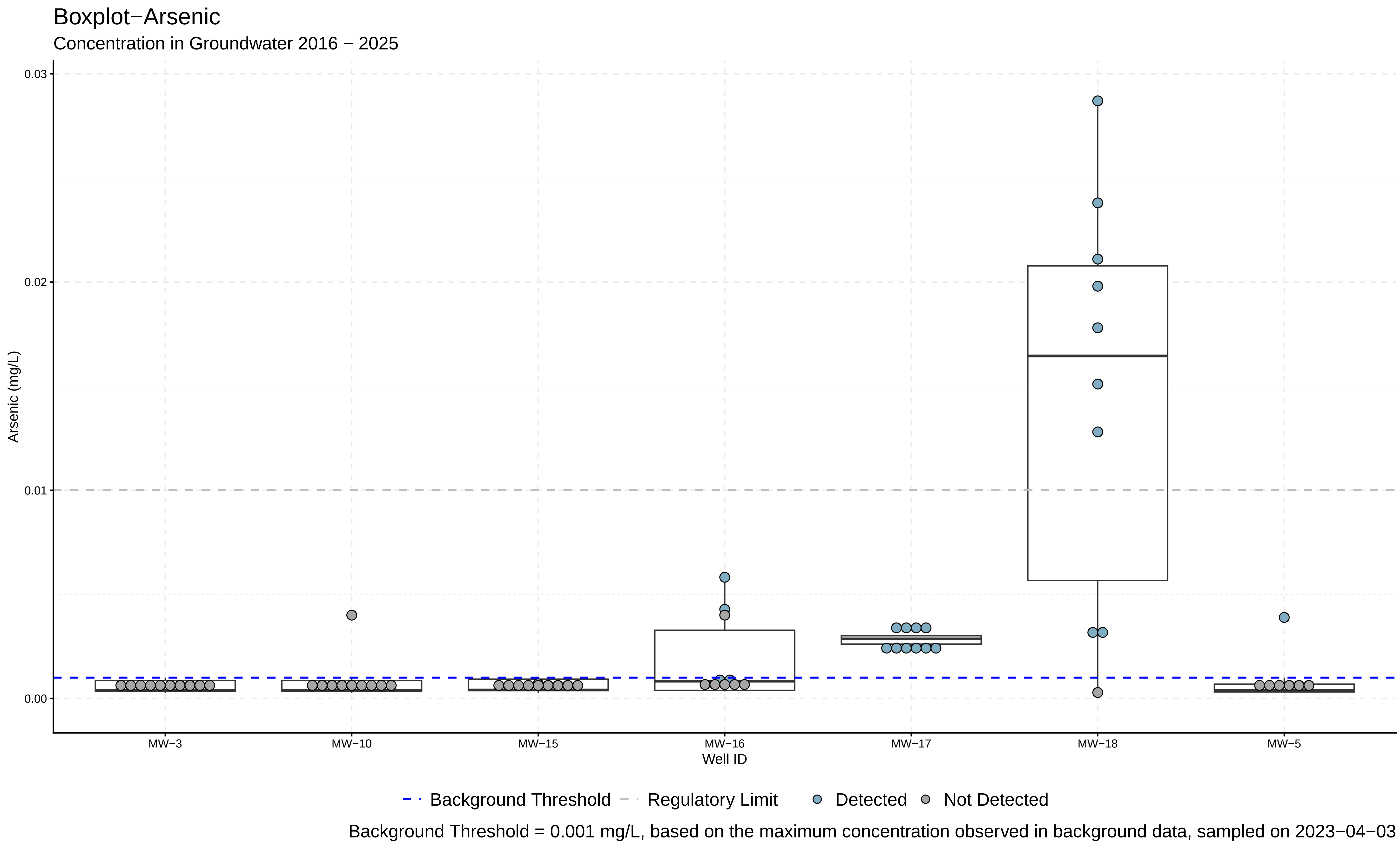


Background Threshold = 27.5 mg/L, based on the maximum concentration observed in background data, sampled on 2020−09−21

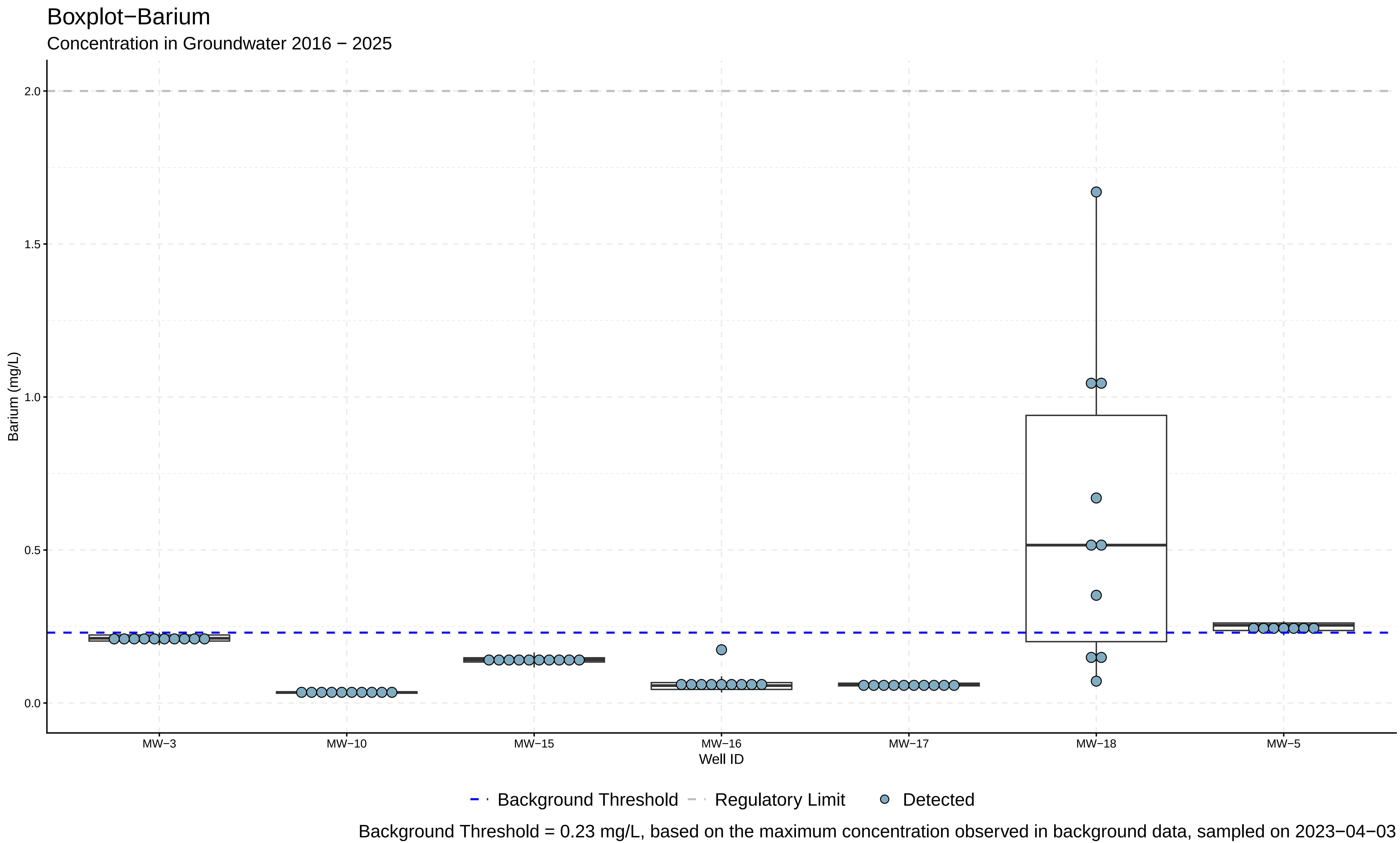


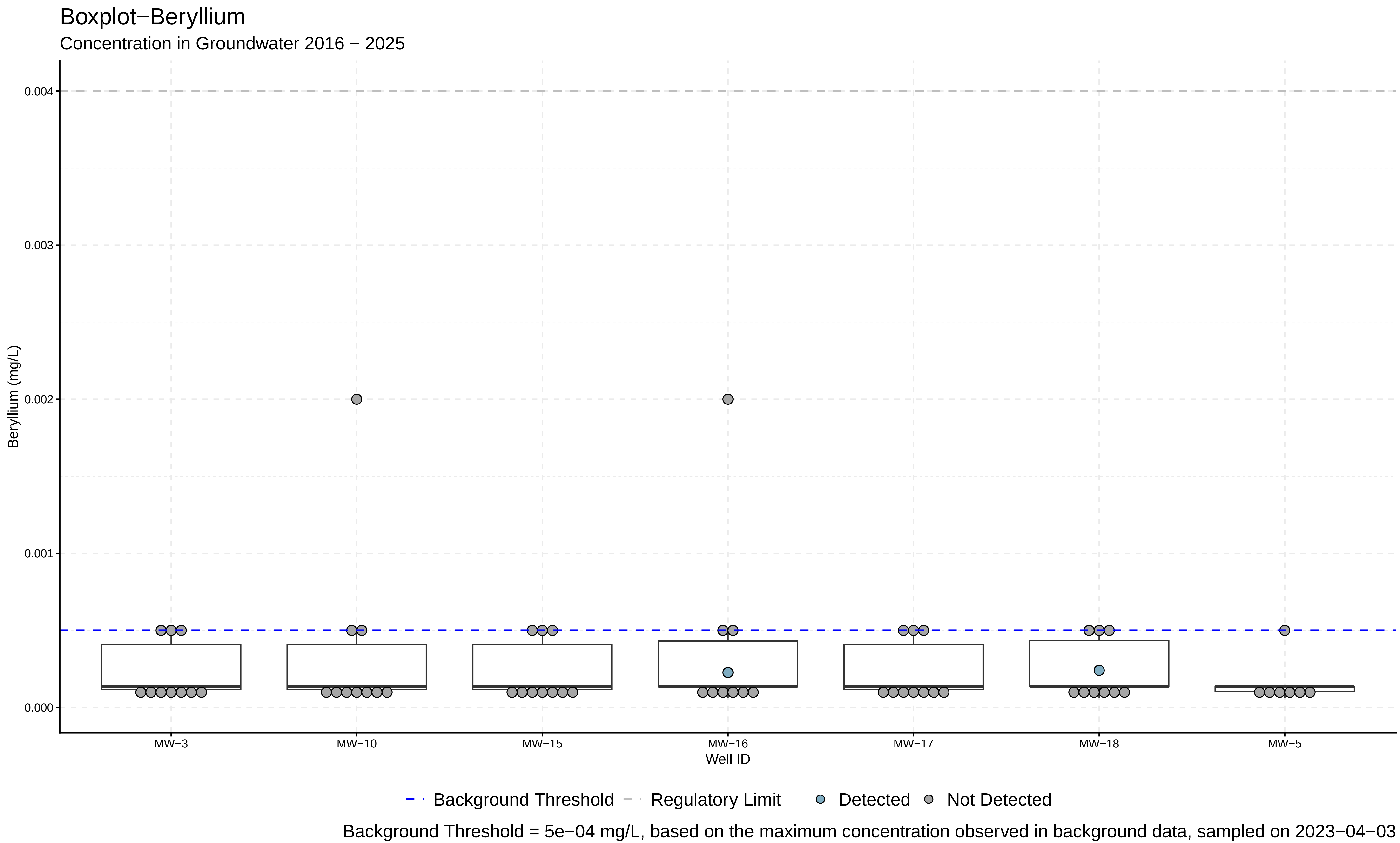
Background Threshold = 0.0225 mg/L, based on the maximum concentration observed in background data, sampled on 2020−09−21

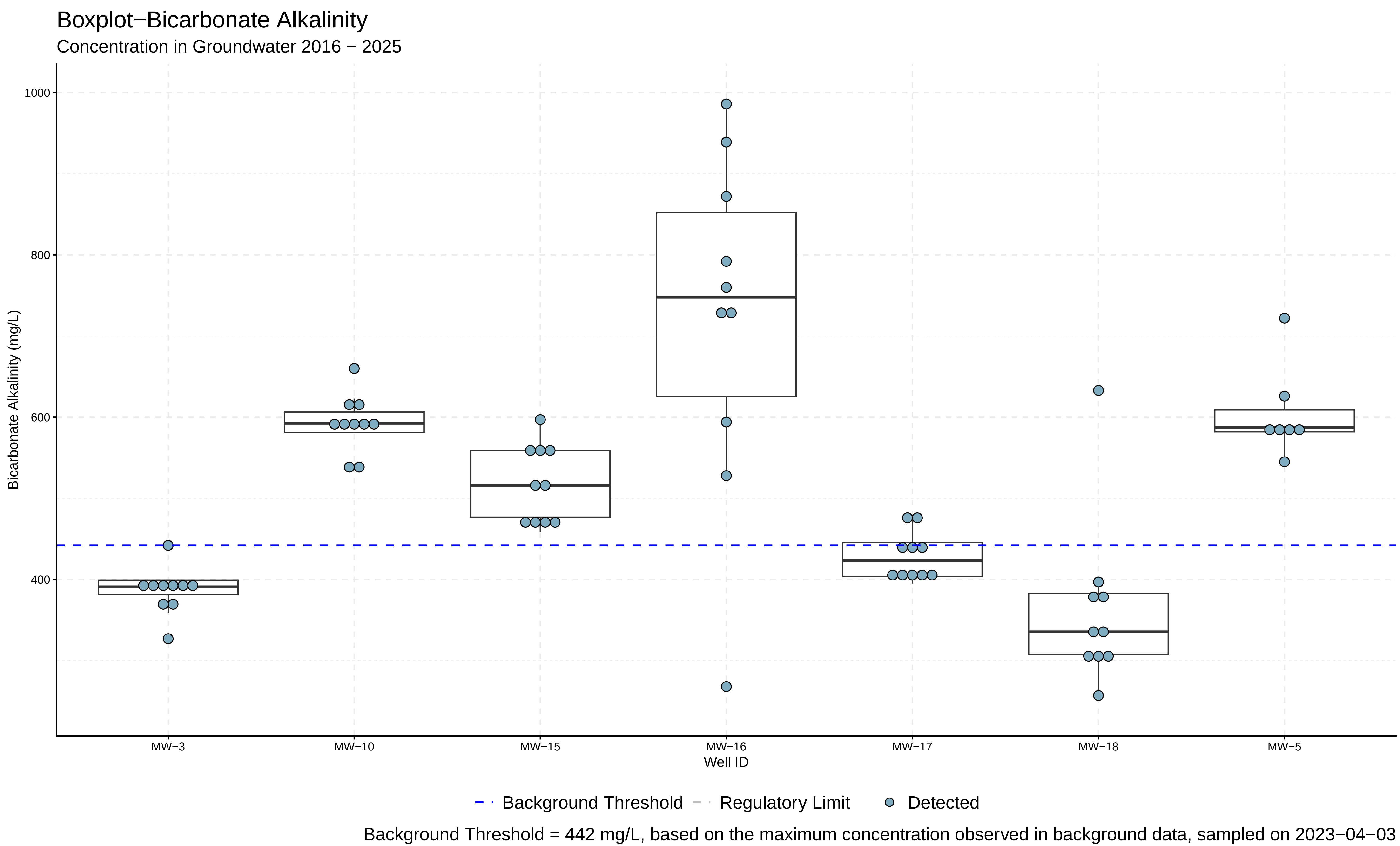
Continuous Aquifer



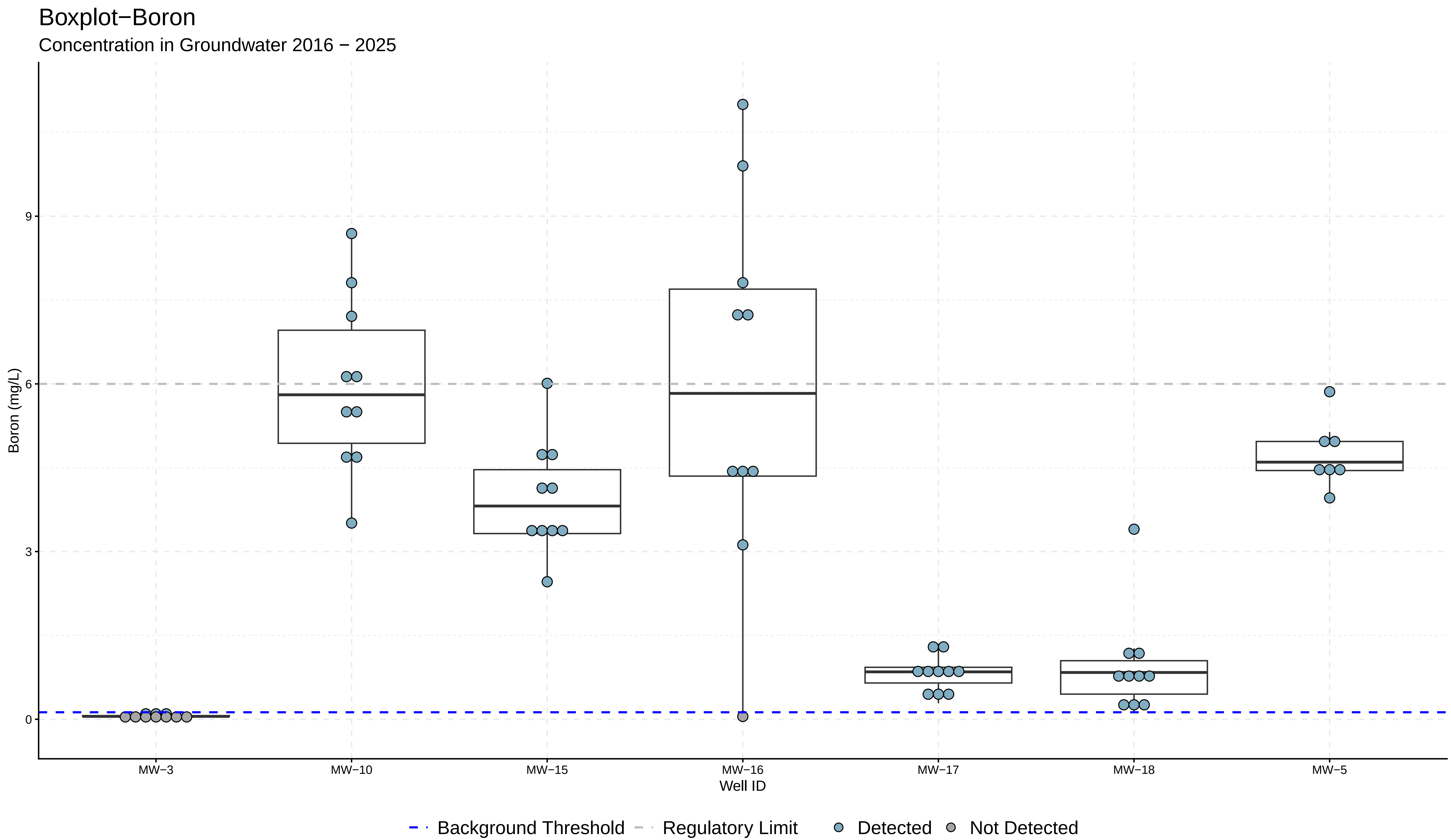
Boxplot−Arsenic
Concentration in Groundwater 2016 − 2025
Arsenic (mg/L)
0.03
0.02
0.01
0.00
MW−3
MW−10
MW−15
MW−16
MW−17
MW−18
MW−5
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 0.001 mg/L, based on the maximum concentration observed in background data, sampled on 2023−04−03


Boxplot−Barium
Concentration in Groundwater 2016 − 2025
Barium (mg/L)
2.0
1.5
1.0
0.5
0.0
MW−3
MW−10
MW−15
MW−16
MW−17
MW−18
MW−5
Well ID
Background Threshold
Regulatory Limit
Detected
Background Threshold = 0.23 mg/L, based on the maximum concentration observed in background data, sampled on 2023−04−03

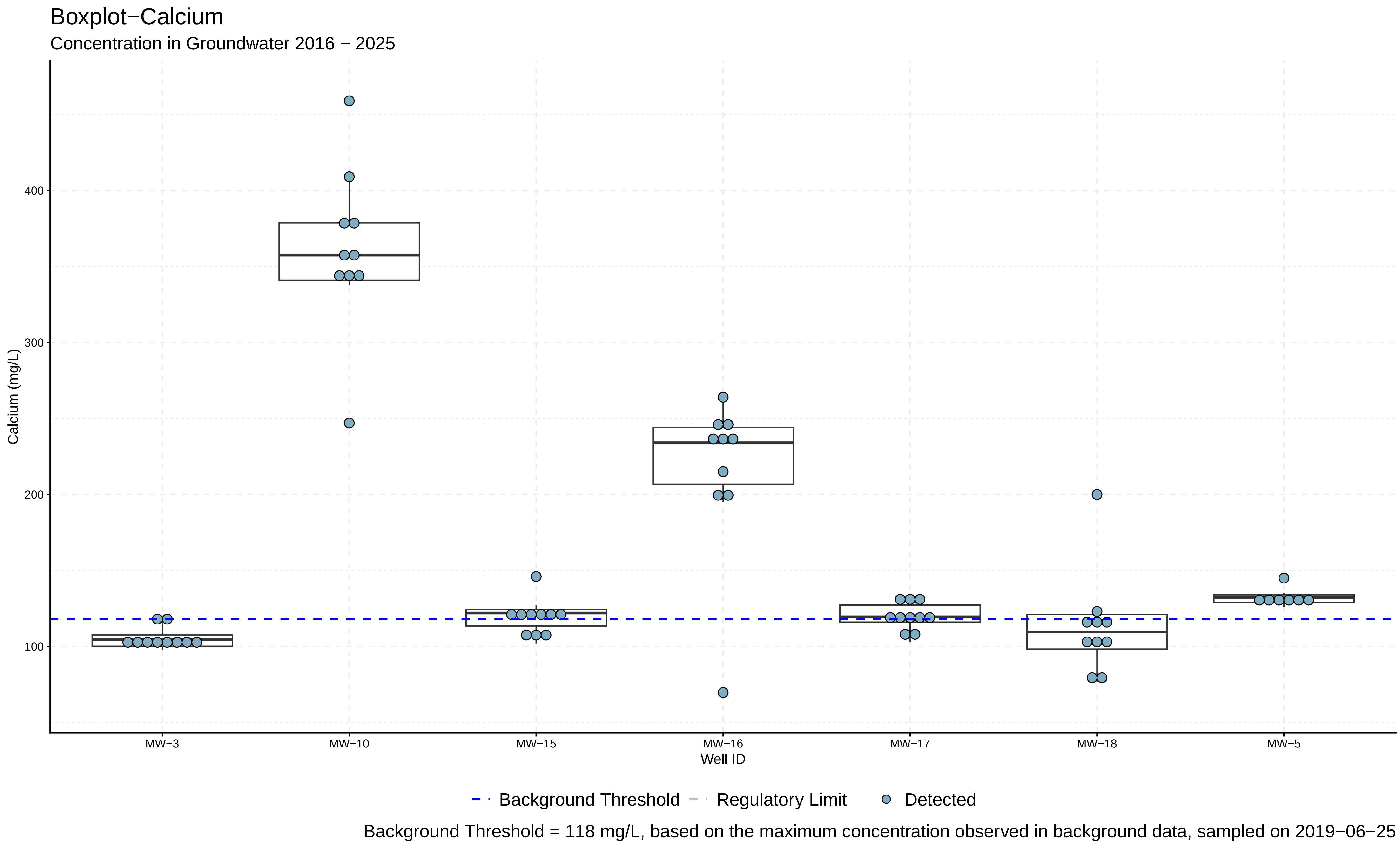

Boxplot−Beryllium
Concentration in Groundwater 2016 − 2025
Beryllium (mg/L)
0.004
0.003
0.002
0.001
0.000
MW−3
MW−10
MW−15
MW−16
MW−17
MW−18
MW−5
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 5e−04 mg/L, based on the maximum concentration observed in background data, sampled on 2023−04−03



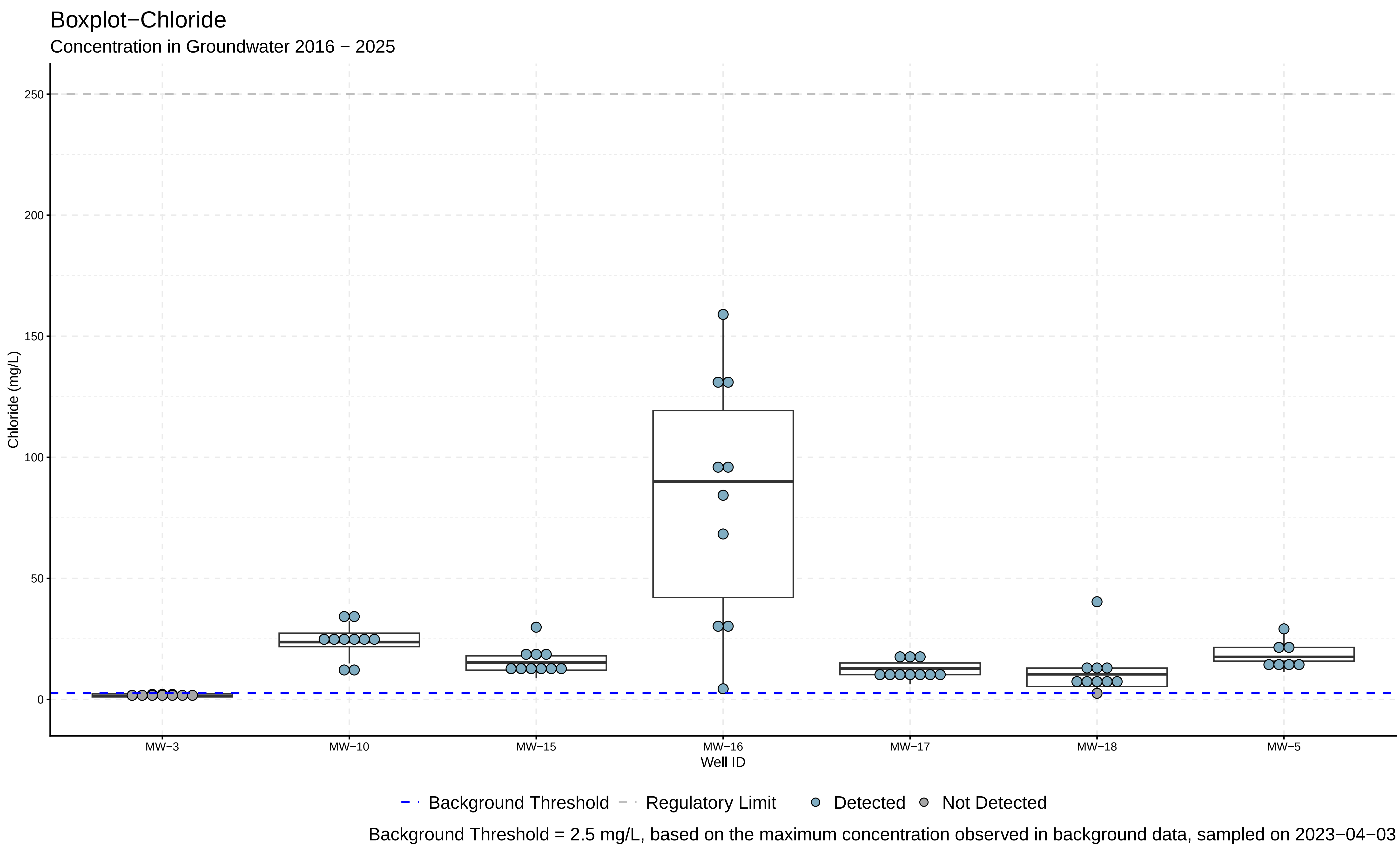
Boxplot−Bicarbonate Alkalinity
Concentration in Groundwater 2016 − 2025
Bicarbonate Alkalinity (mg/L)
1000
800
600
400
MW−3
MW−10
MW−15
MW−16
MW−17
MW−18
MW−5
Well ID
Background Threshold
Regulatory Limit
Detected
Background Threshold = 442 mg/L, based on the maximum concentration observed in background data, sampled on 2023−04−03



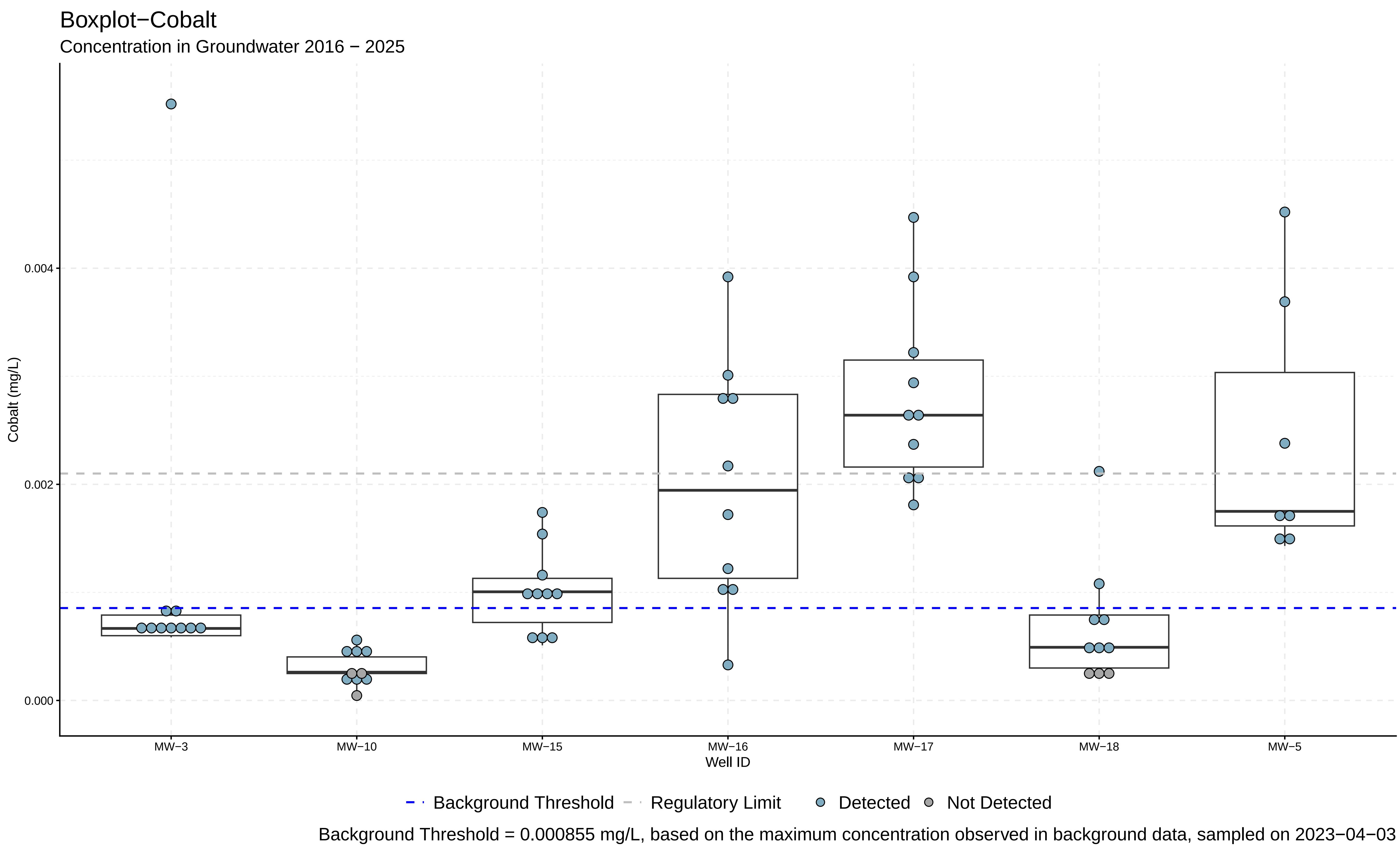
Background Threshold = 0.125 mg/L, based on the maximum concentration observed in background data, sampled on 2018−08−29



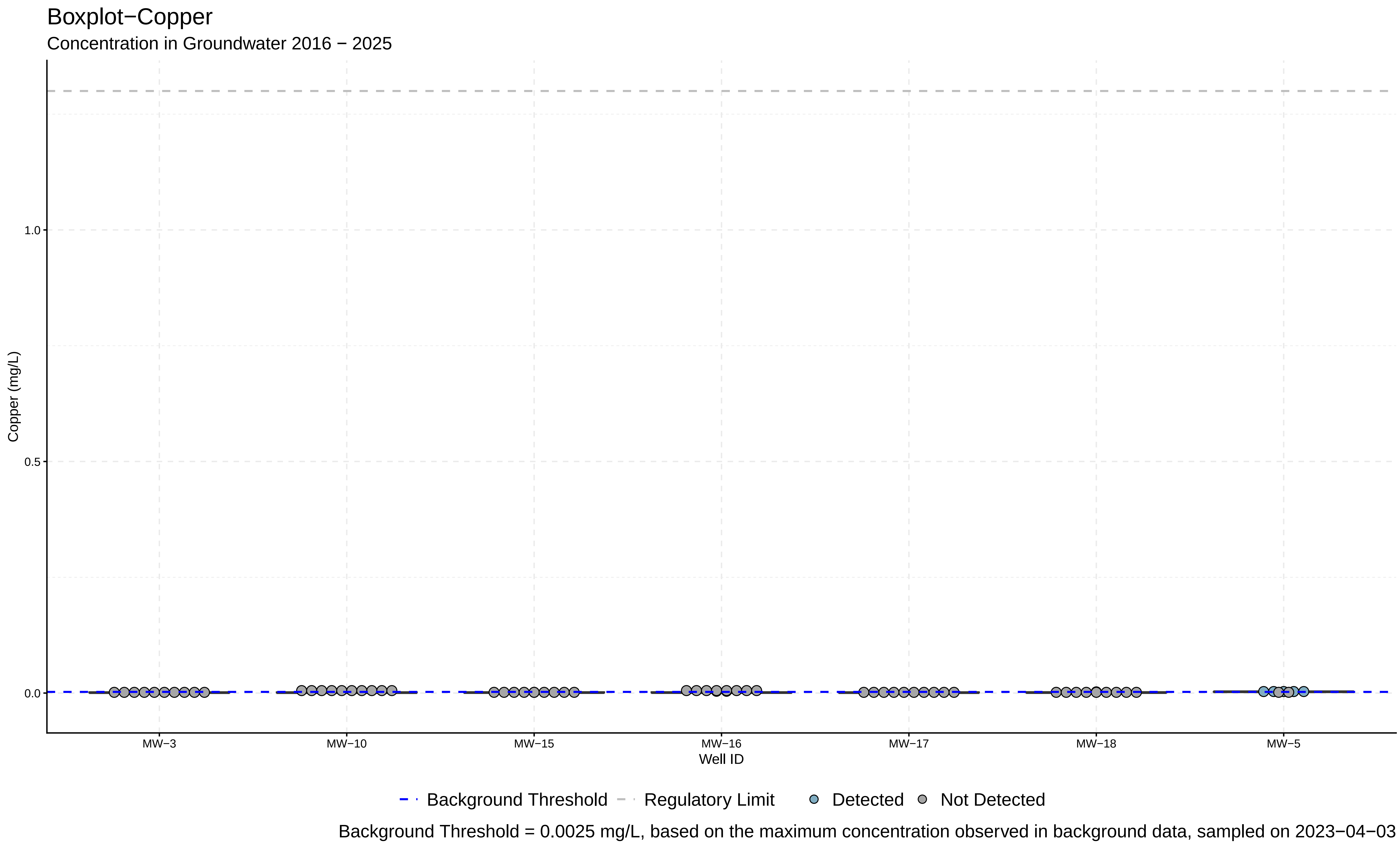
Boxplot−Calcium
Concentration in Groundwater 2016 − 2025
Calcium (mg/L)
400
300
200
100
MW−3
MW−10
MW−15
MW−16
MW−17
MW−18
MW−5
Well ID
Background Threshold
Regulatory Limit
Detected
Background Threshold = 118 mg/L, based on the maximum concentration observed in background data, sampled on 2019−06−25

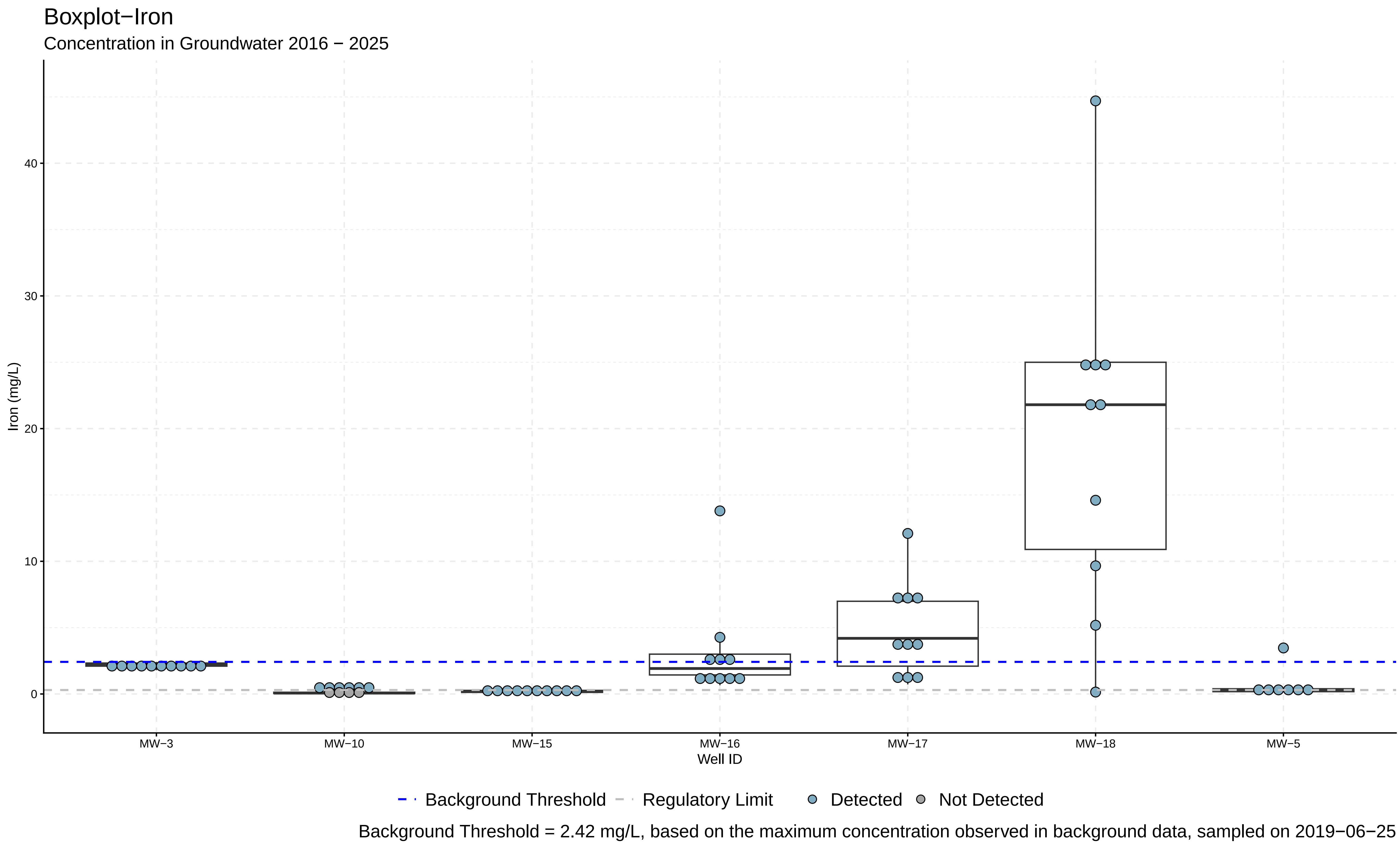


Boxplot−Chloride
Concentration in Groundwater 2016 − 2025
Chloride (mg/L)
250
200
150
100
50
0
MW−3
MW−10
MW−15
MW−16
MW−17
MW−18
MW−5
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 2.5 mg/L, based on the maximum concentration observed in background data, sampled on 2023−04−03

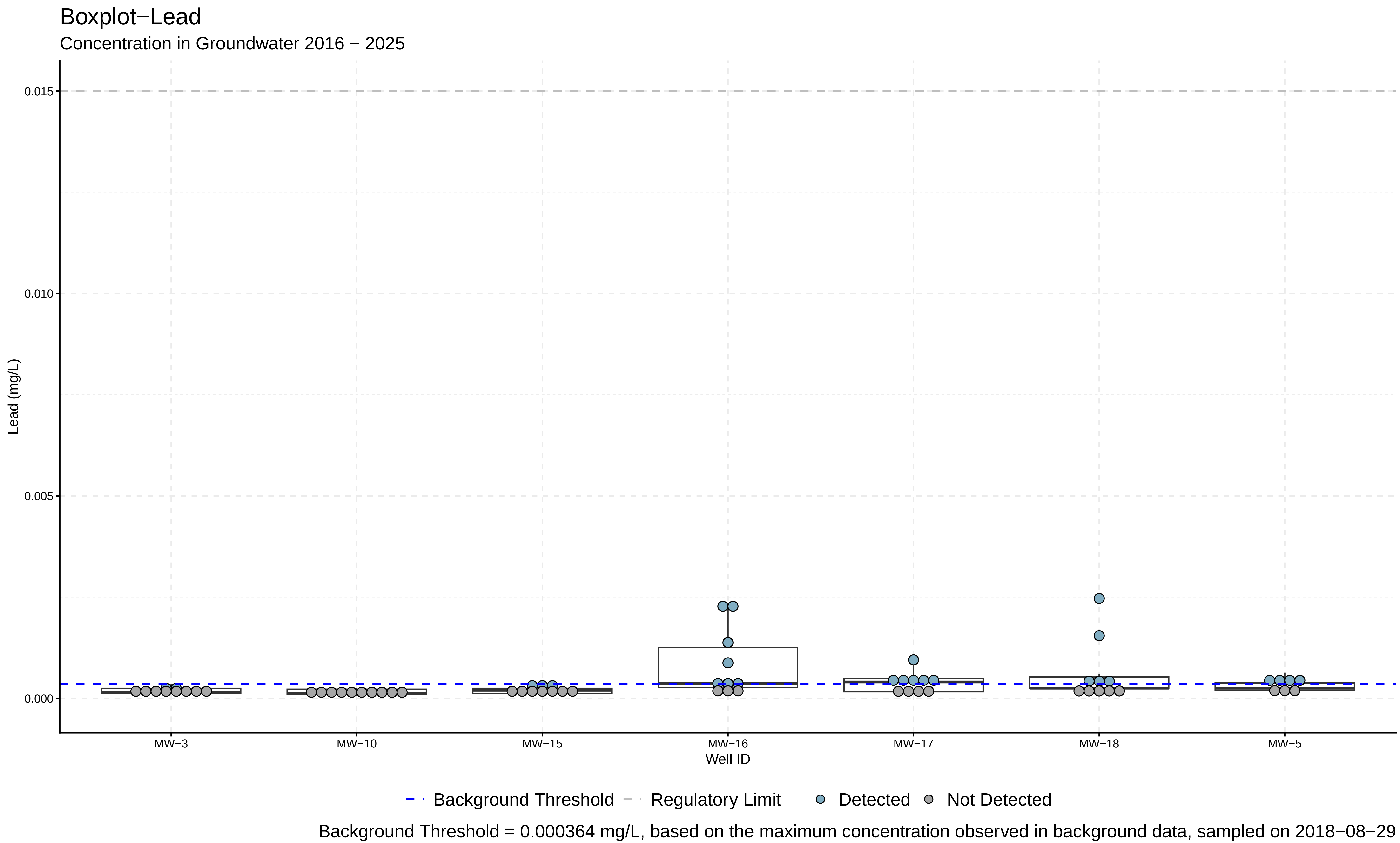


Boxplot−Cobalt
Concentration in Groundwater 2016 − 2025
Cobalt (mg/L)
0.004
0.002
0.000
MW−3
MW−10
MW−15
MW−16
MW−17
MW−18
MW−5
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 0.000855 mg/L, based on the maximum concentration observed in background data, sampled on 2023−04−03

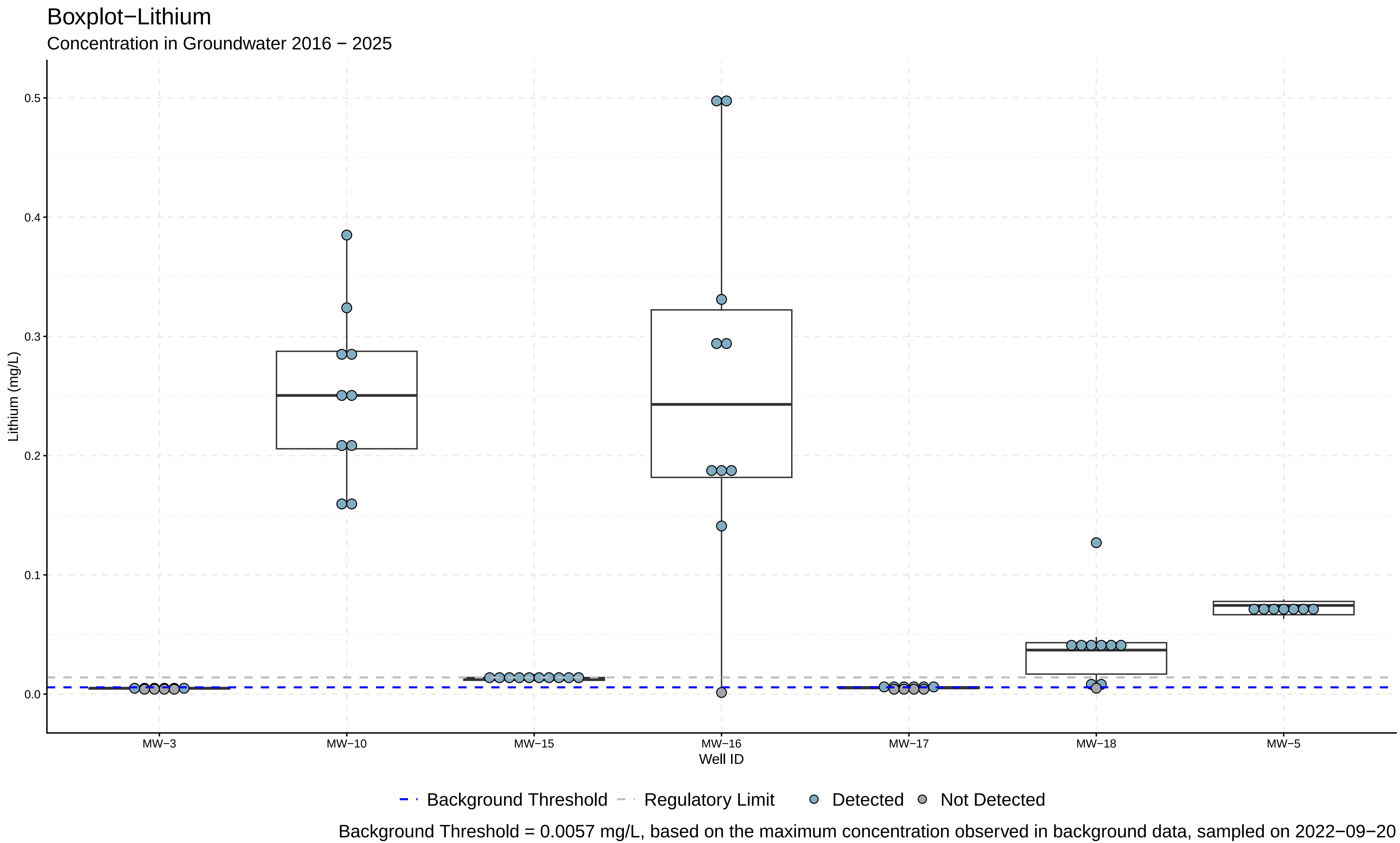

Boxplot−Copper
Concentration in Groundwater 2016 − 2025
Copper (mg/L)
1.0
0.5
0.0
MW−3
MW−10
MW−15
MW−16
MW−17
MW−18
MW−5
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 0.0025 mg/L, based on the maximum concentration observed in background data, sampled on 2023−04−03



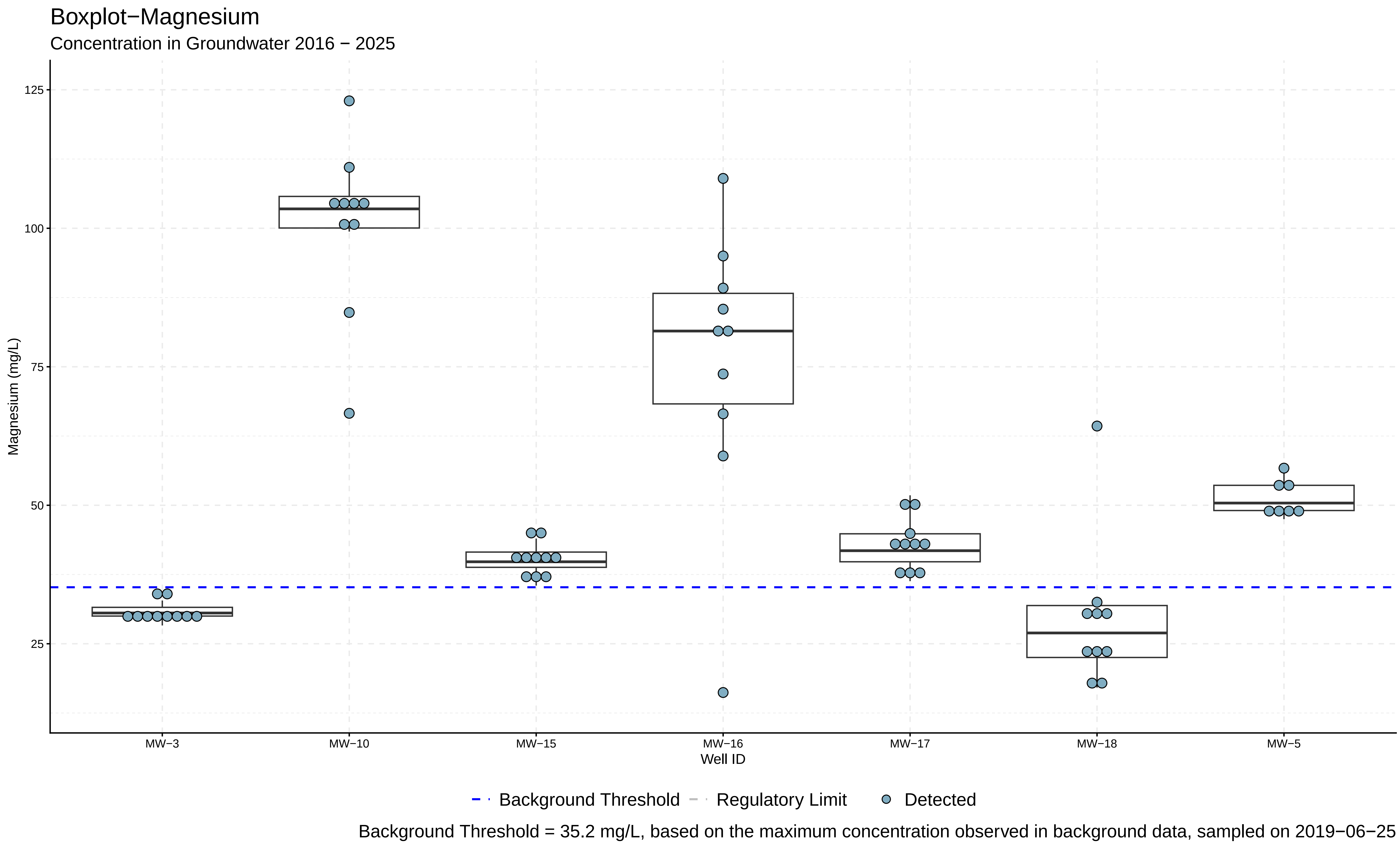
Boxplot−Iron
Concentration in Groundwater 2016 − 2025
Iron (mg/L)
0
10
20
30
40
MW−3
MW−10
MW−15
MW−16
MW−17
MW−18
MW−5
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 2.42 mg/L, based on the maximum concentration observed in background data, sampled on 2019−06−25



Boxplot−Lead
Concentration in Groundwater 2016 − 2025
Lead (mg/L)
0.015
0.010
0.005
0.000
MW−3
MW−10
MW−15
MW−16
MW−17
MW−18
MW−5
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 0.000364 mg/L, based on the maximum concentration observed in background data, sampled on 2018−08−29



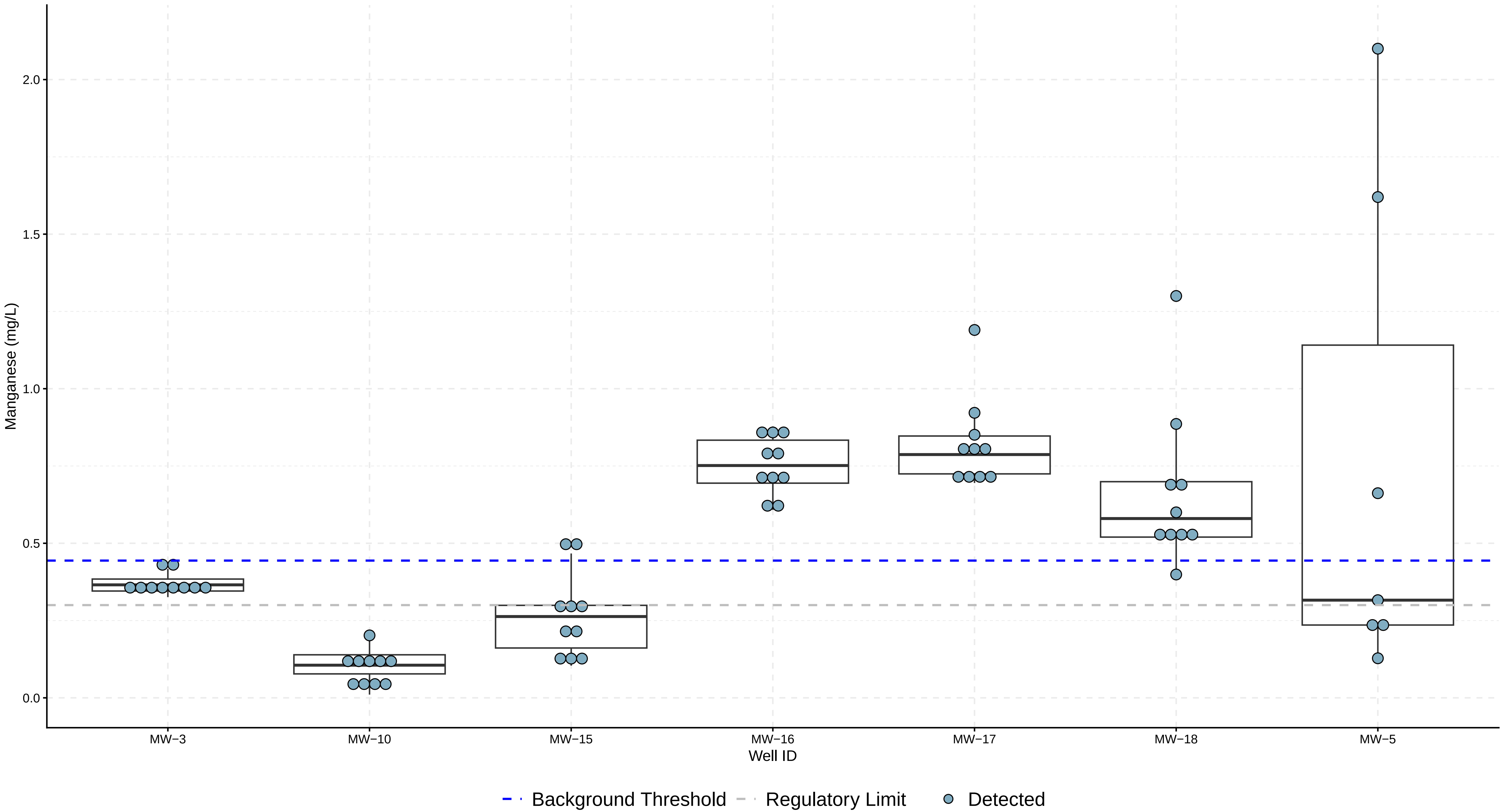
Boxplot−Lithium
Concentration in Groundwater 2016 − 2025
Lithium (mg/L)
0.0
0.1
0.2
0.3
0.4
0.5
MW−3
MW−10
MW−15
MW−16
MW−17
MW−18
MW−5
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 0.0057 mg/L, based on the maximum concentration observed in background data, sampled on 2022−09−20



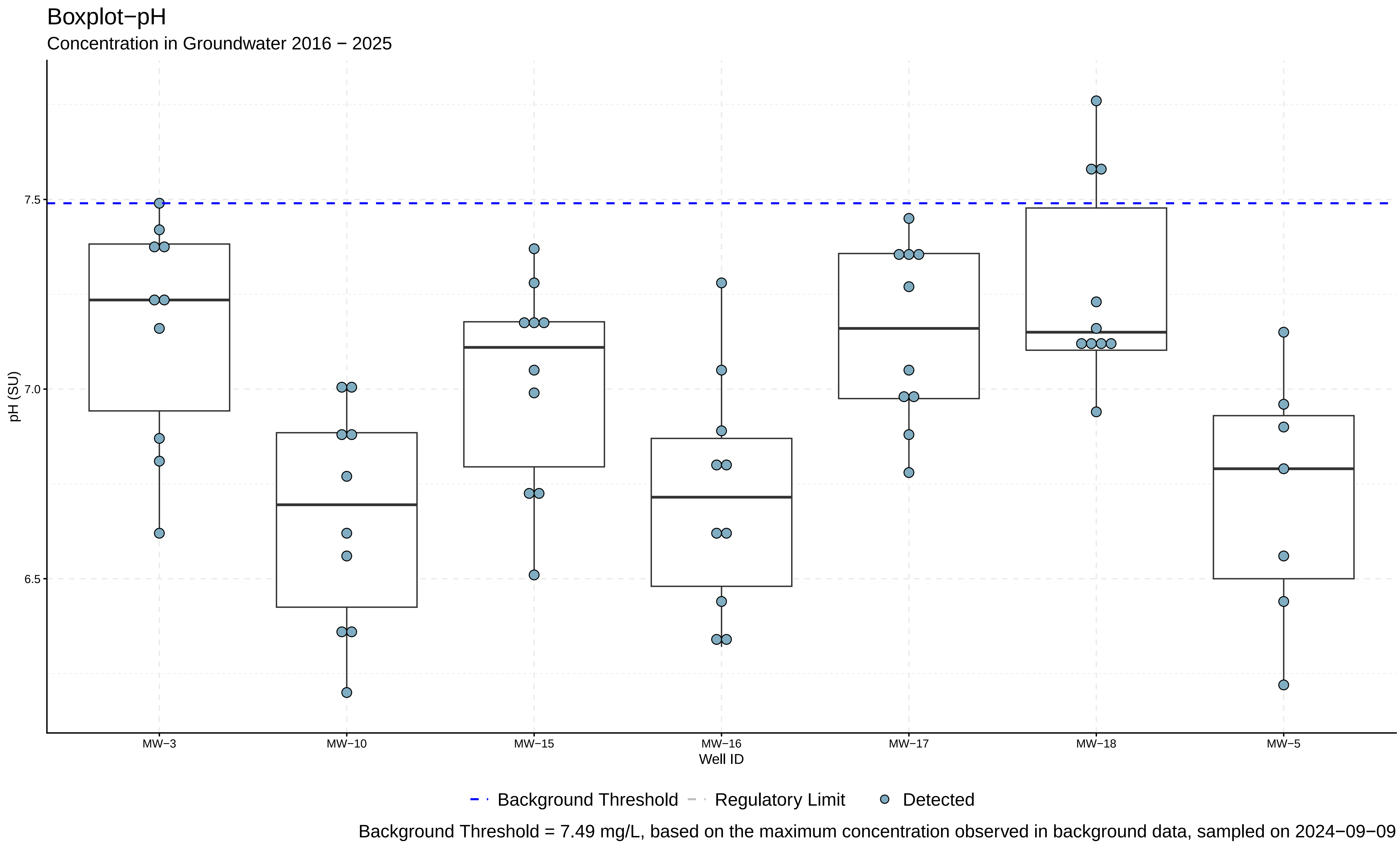
Boxplot−Magnesium
Concentration in Groundwater 2016 − 2025
Magnesium (mg/L)
125
100
75
50
25
MW−3
MW−10
MW−15
MW−16
MW−17
MW−18
MW−5
Well ID
Background Threshold
Regulatory Limit
Detected
Background Threshold = 35.2 mg/L, based on the maximum concentration observed in background data, sampled on 2019−06−25

Boxplot−Manganese

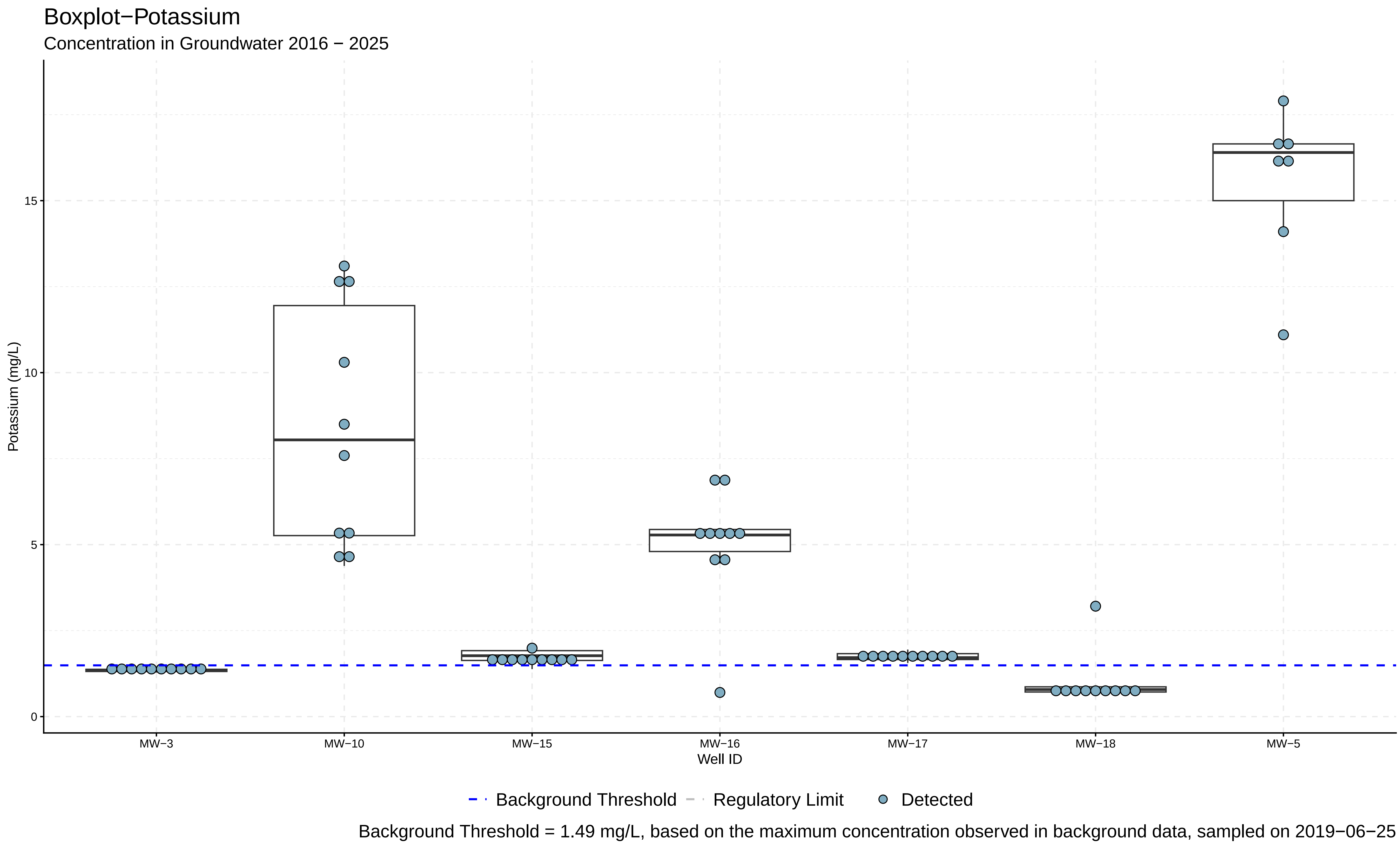
Concentration in Groundwater 2016 − 2025



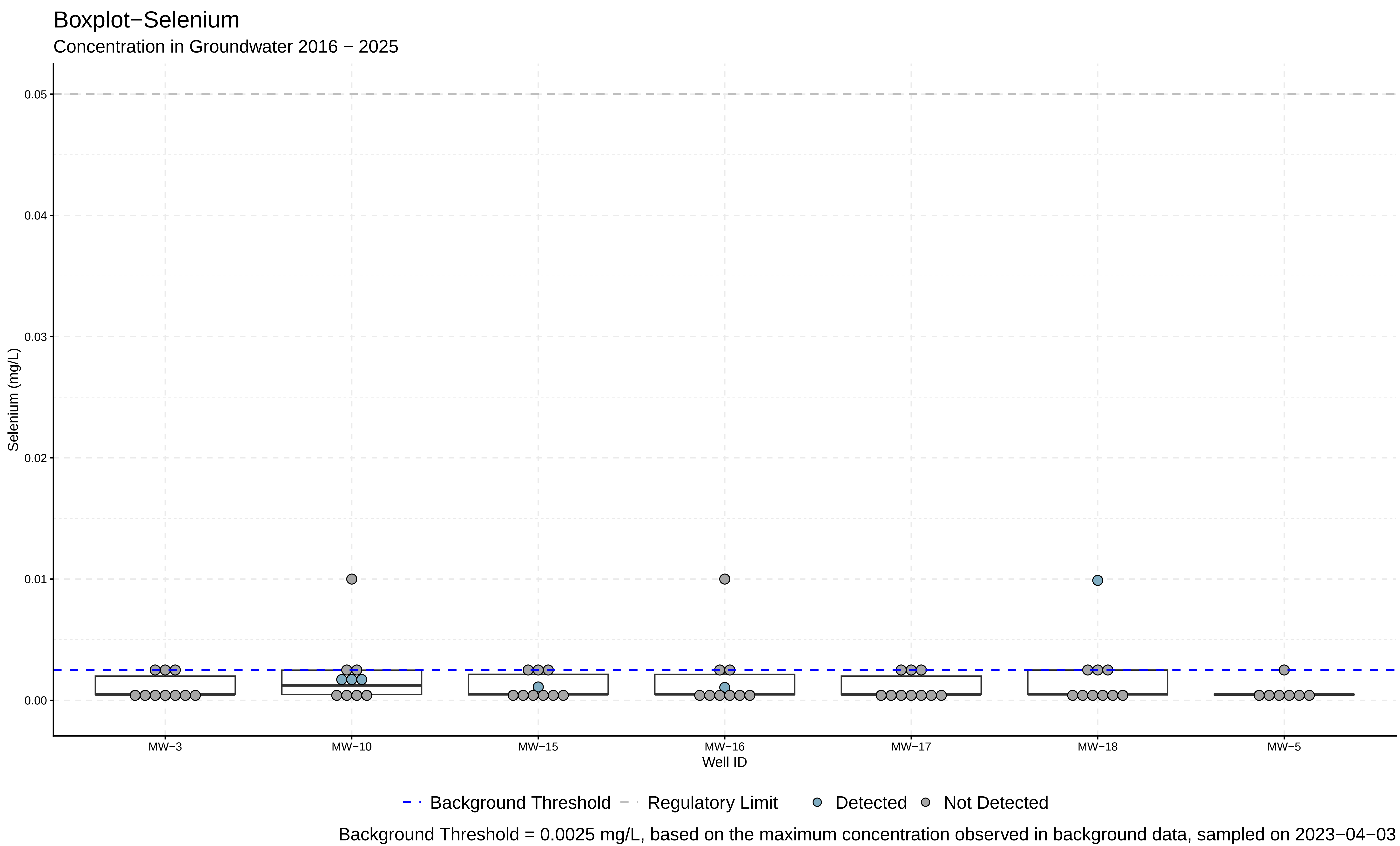
Background Threshold = 0.444 mg/L, based on the maximum concentration observed in background data, sampled on 2021−04−29

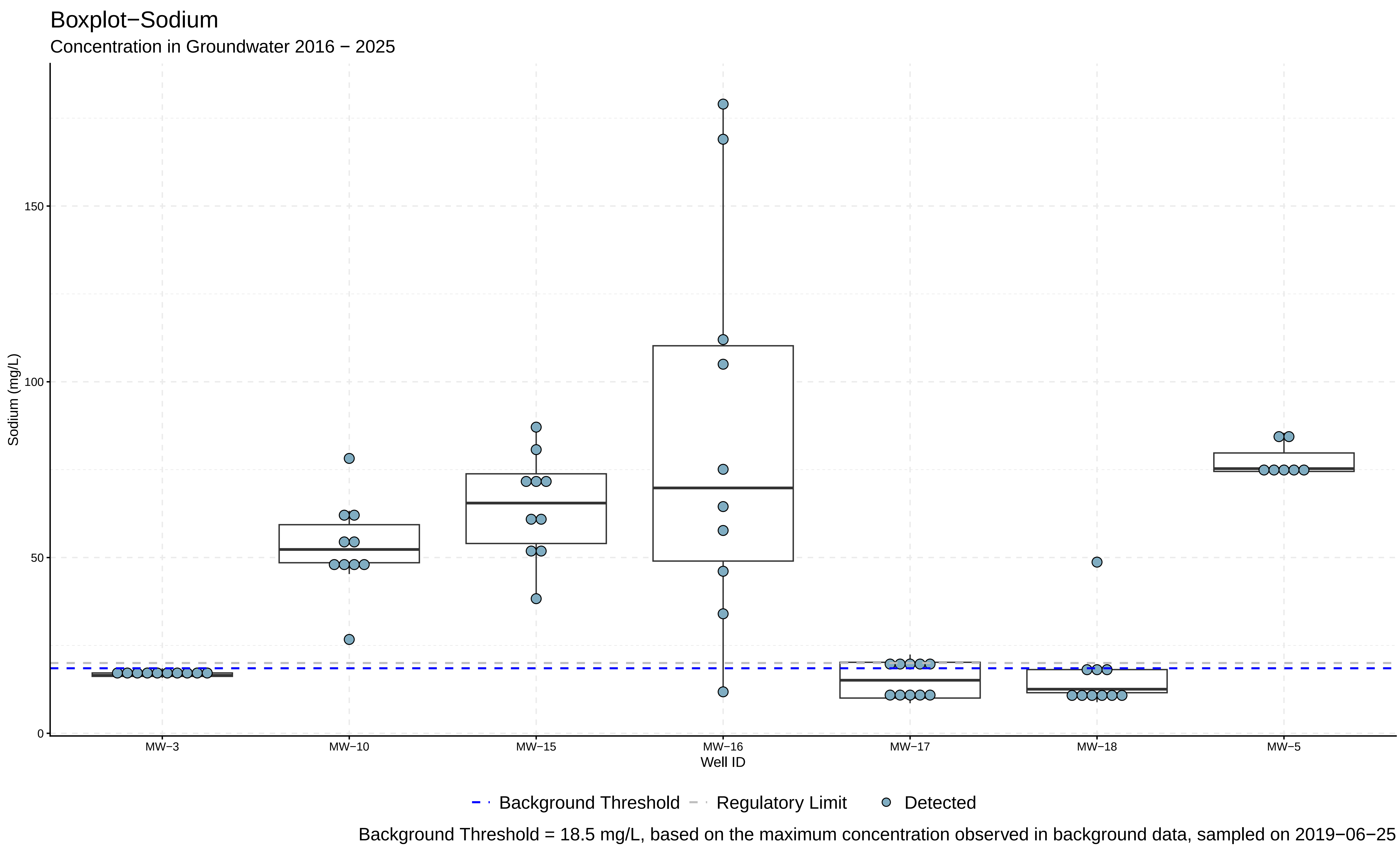


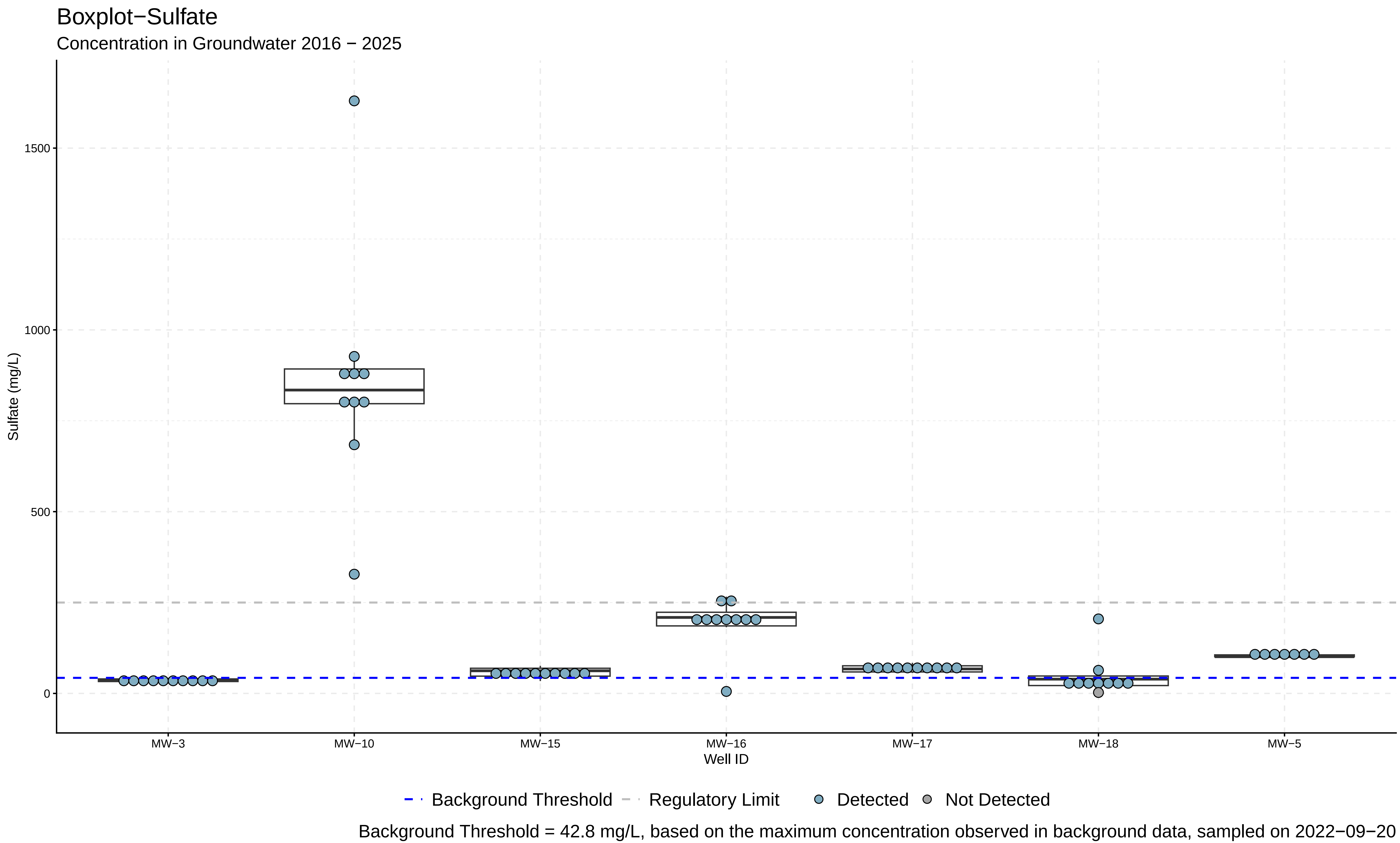
Boxplot−pH
Concentration in Groundwater 2016 − 2025
pH (SU)
7.5
7.0
6.5
MW−3
MW−10
MW−15
MW−16
MW−17
MW−18
MW−5
Well ID
Background Threshold
Regulatory Limit
Detected
Background Threshold = 7.49 mg/L, based on the maximum concentration observed in background data, sampled on 2024−09−09



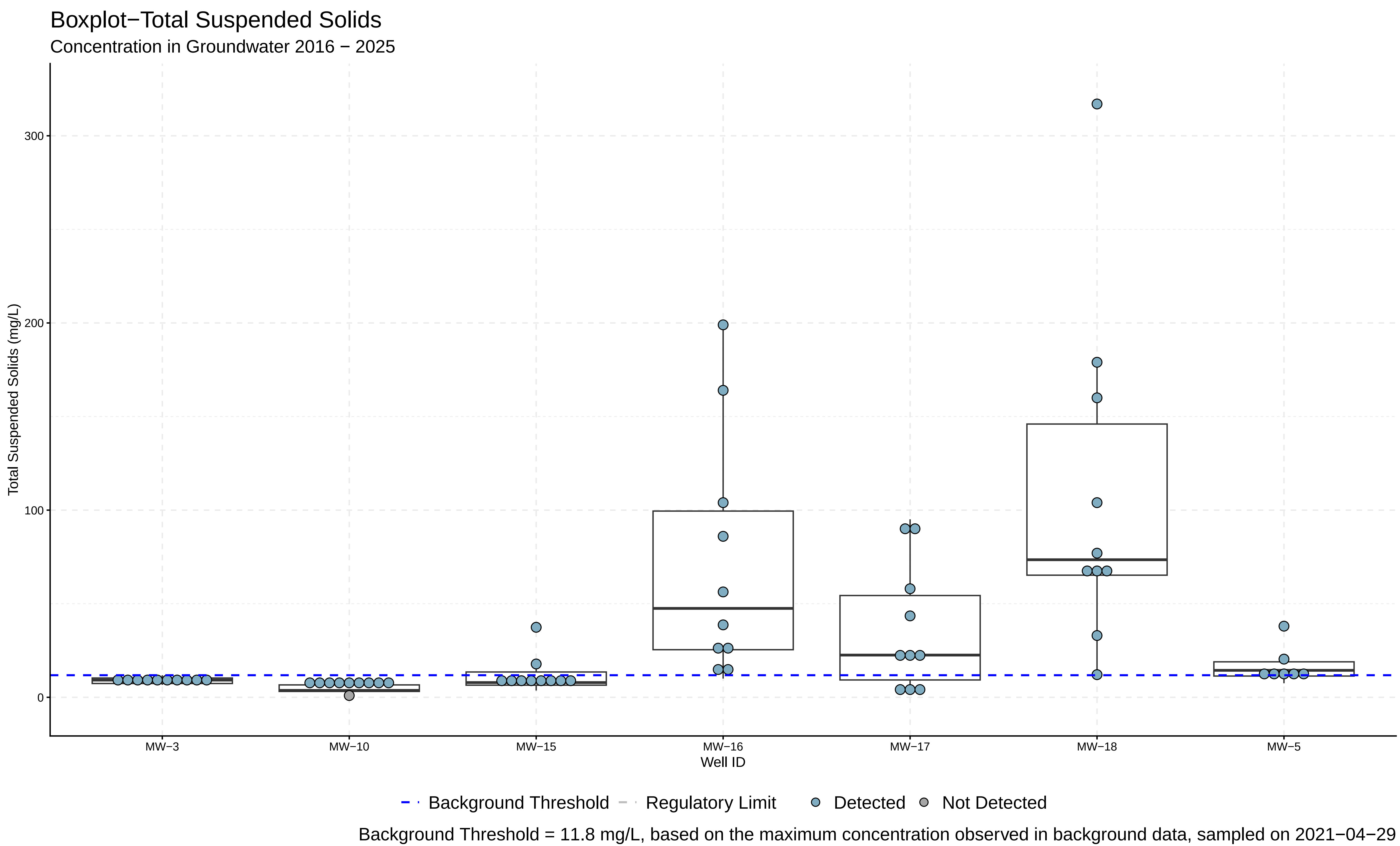
Boxplot−Potassium
Concentration in Groundwater 2016 − 2025
Potassium (mg/L)
0
5
10
15
MW−3
MW−10
MW−15
MW−16
MW−17
MW−18
MW−5
Well ID
Background Threshold
Regulatory Limit
Detected
Background Threshold = 1.49 mg/L, based on the maximum concentration observed in background data, sampled on 2019−06−25


Boxplot−Selenium
Concentration in Groundwater 2016 − 2025
Selenium (mg/L)
0.05
0.04
0.03
0.02
0.01
0.00
MW−3
MW−10
MW−15
MW−16
MW−17
MW−18
MW−5
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 0.0025 mg/L, based on the maximum concentration observed in background data, sampled on 2023−04−03

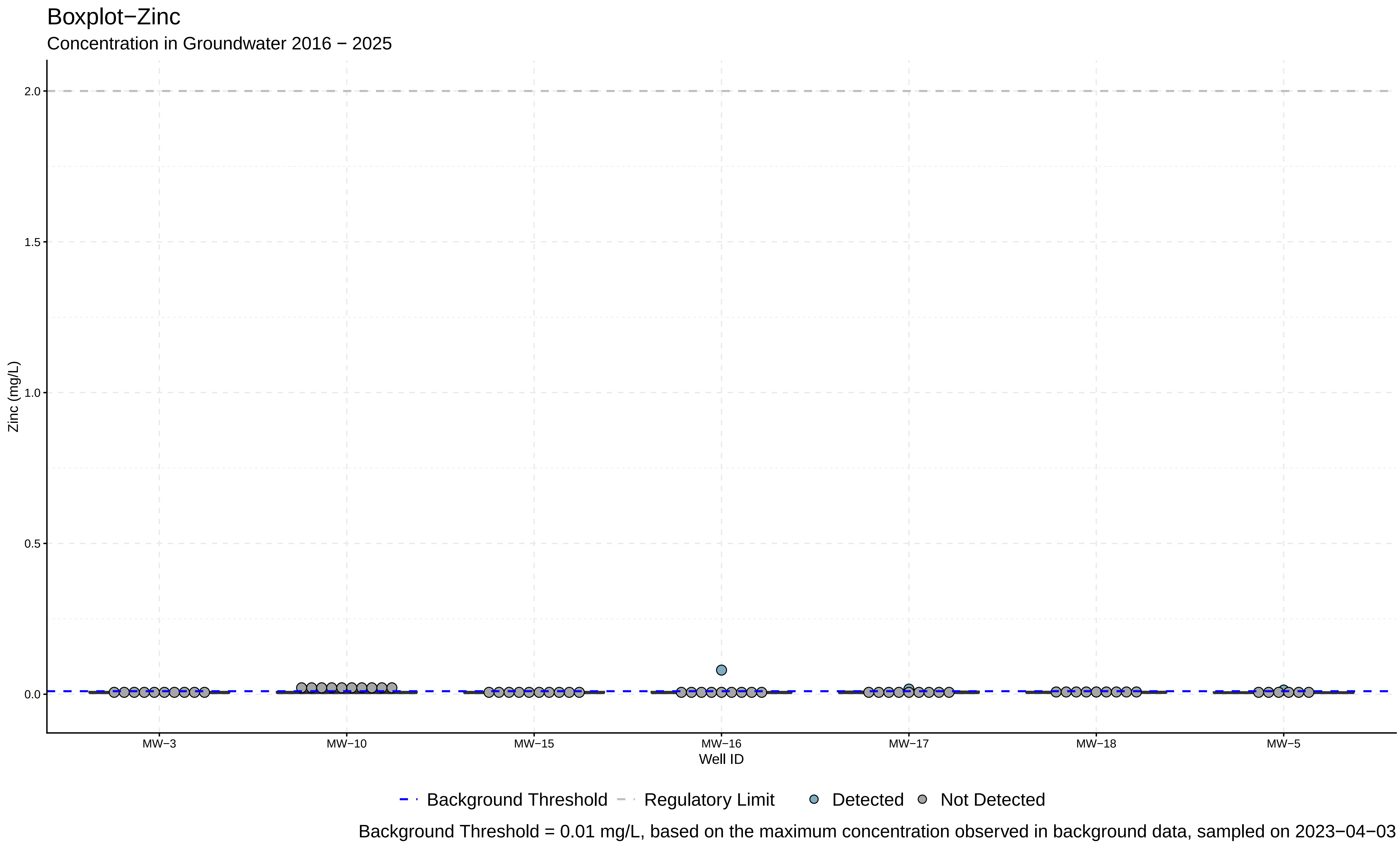

Boxplot−Sodium
Concentration in Groundwater 2016 − 2025
Sodium (mg/L)
150
100
50
0
MW−3
MW−10
MW−15
MW−16
MW−17
MW−18
MW−5
Well ID
Background Threshold
Regulatory Limit
Detected
Background Threshold = 18.5 mg/L, based on the maximum concentration observed in background data, sampled on 2019−06−25



Boxplot−Sulfate
Concentration in Groundwater 2016 − 2025
Sulfate (mg/L)
1500
1000
500
0
MW−3
MW−10
MW−15
MW−16
MW−17
MW−18
MW−5
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 42.8 mg/L, based on the maximum concentration observed in background data, sampled on 2022−09−20

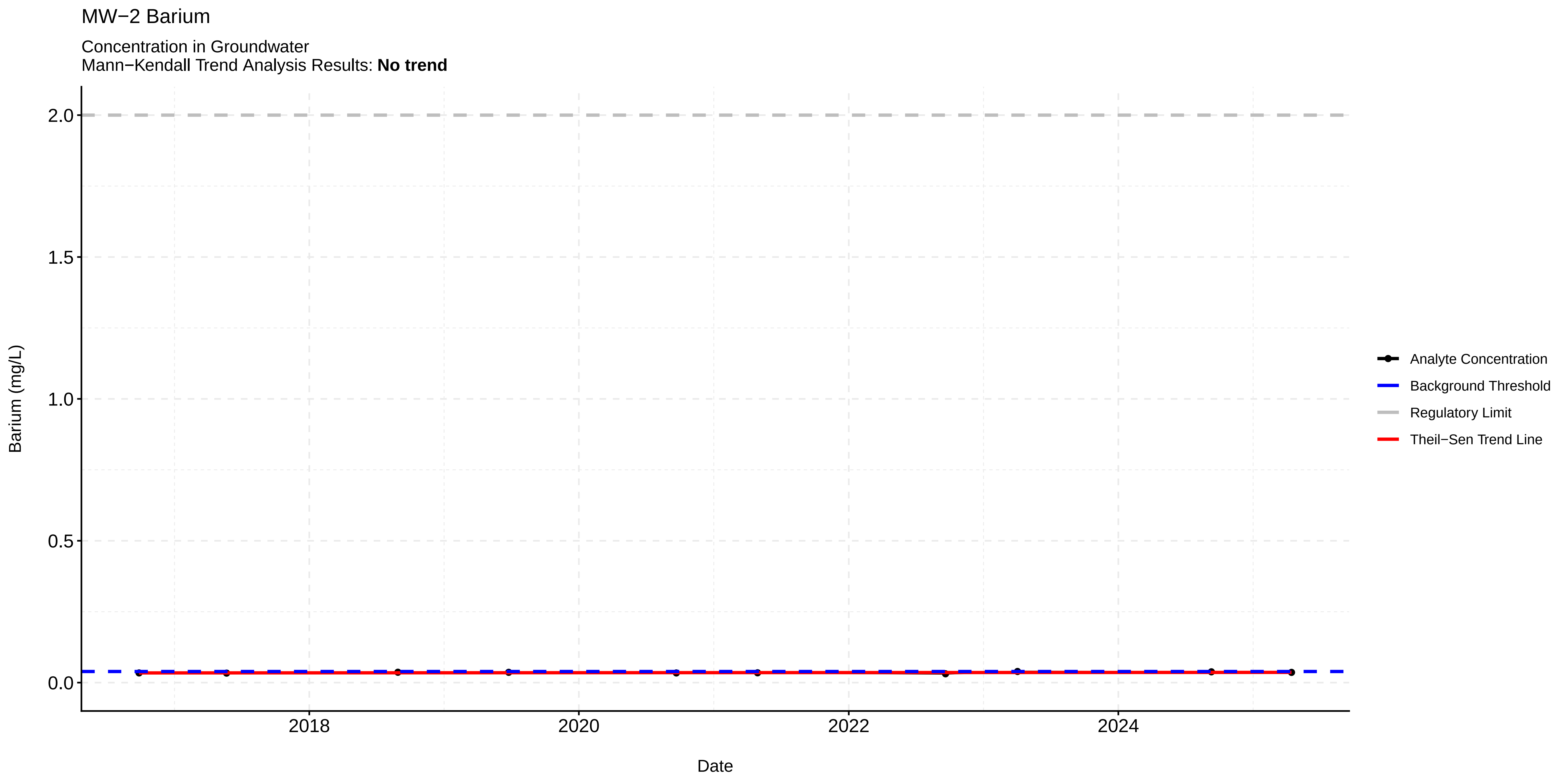


Boxplot−Total Suspended Solids
Concentration in Groundwater 2016 − 2025
Total Suspended Solids (mg/L)
300
200
100
0
MW−3
MW−10
MW−15
MW−16
MW−17
MW−18
MW−5
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 11.8 mg/L, based on the maximum concentration observed in background data, sampled on 2021−04−29


Boxplot−Zinc
Concentration in Groundwater 2016 − 2025
Zinc (mg/L)
2.0
1.5
1.0
0.5
0.0
MW−3
MW−10
MW−15
MW−16
MW−17
MW−18
MW−5
Well ID
Background Threshold
Regulatory Limit
Detected
Not Detected
Background Threshold = 0.01 mg/L, based on the maximum concentration observed in background data, sampled on 2023−04−03

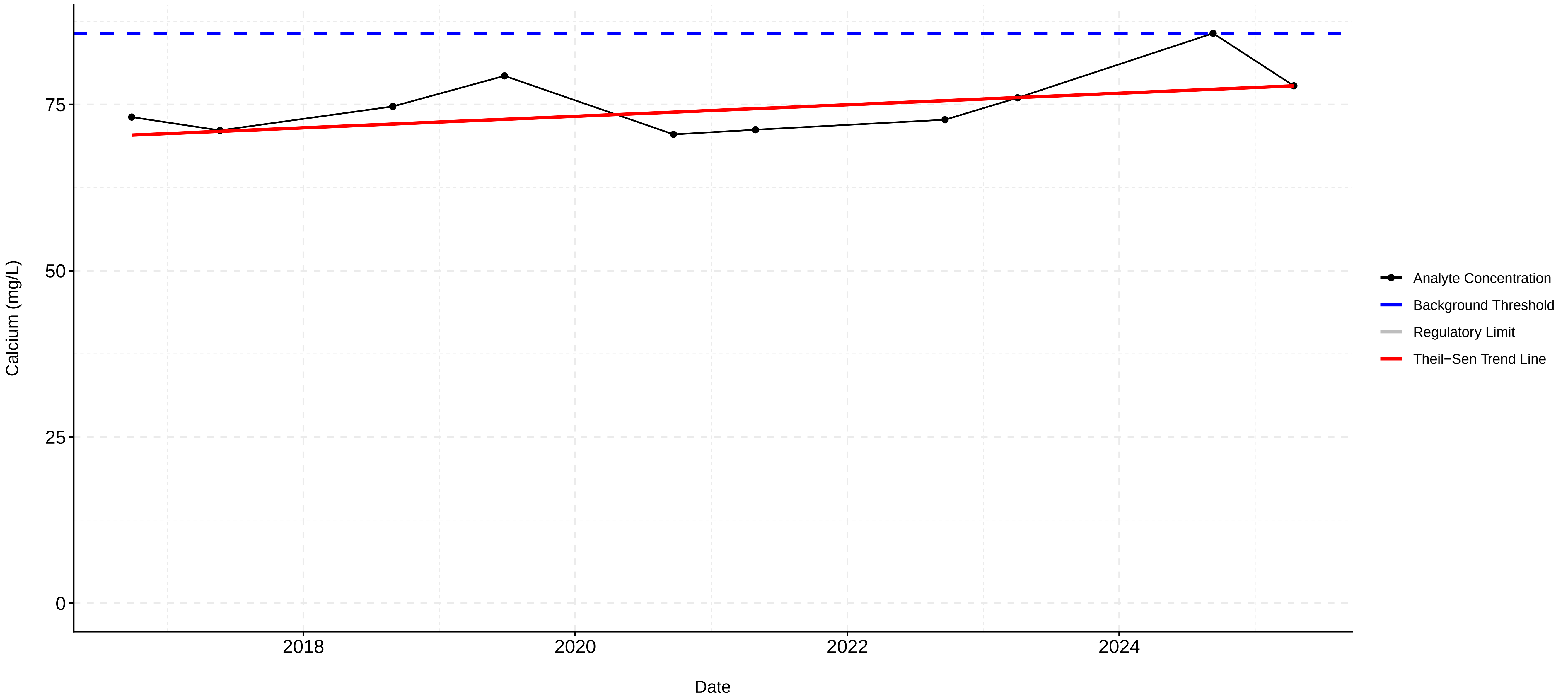
APPENDIX F -
MANN-KENDALL TIMESERIES PLOTS

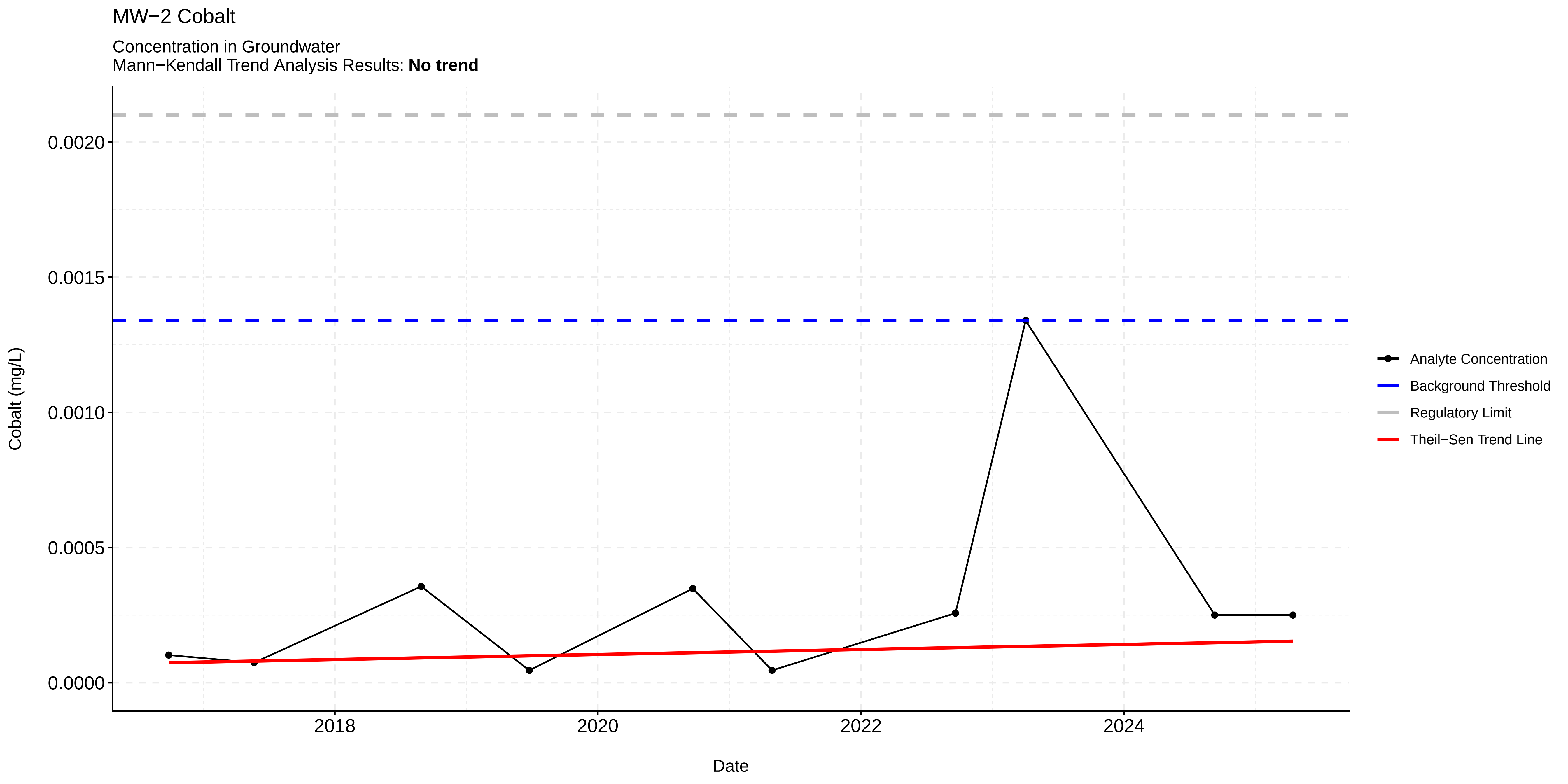
Upper Aquifer

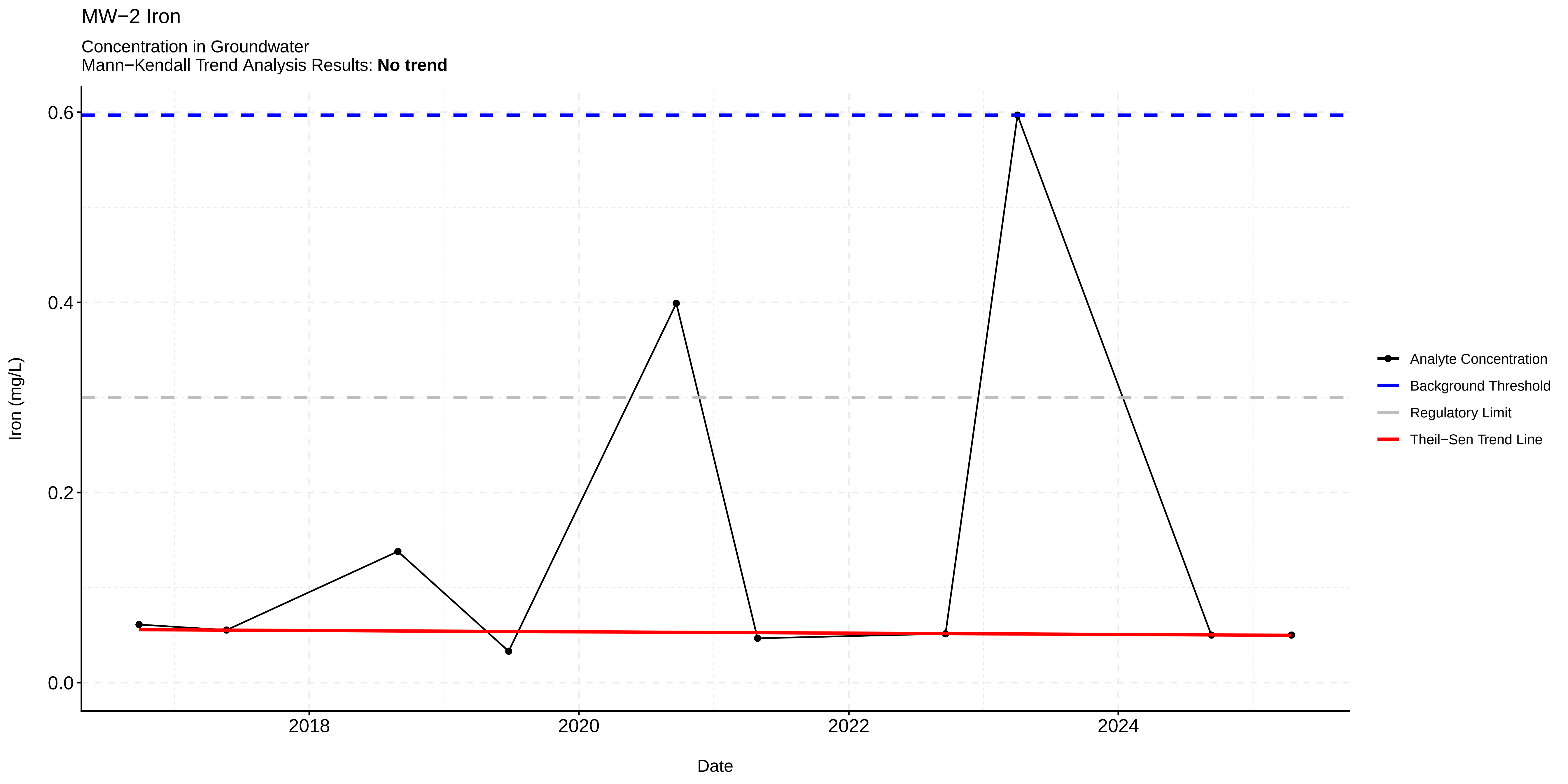

MW−2 Barium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Barium (mg/L)
2.0
1.5
1.0
0.5
0.0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

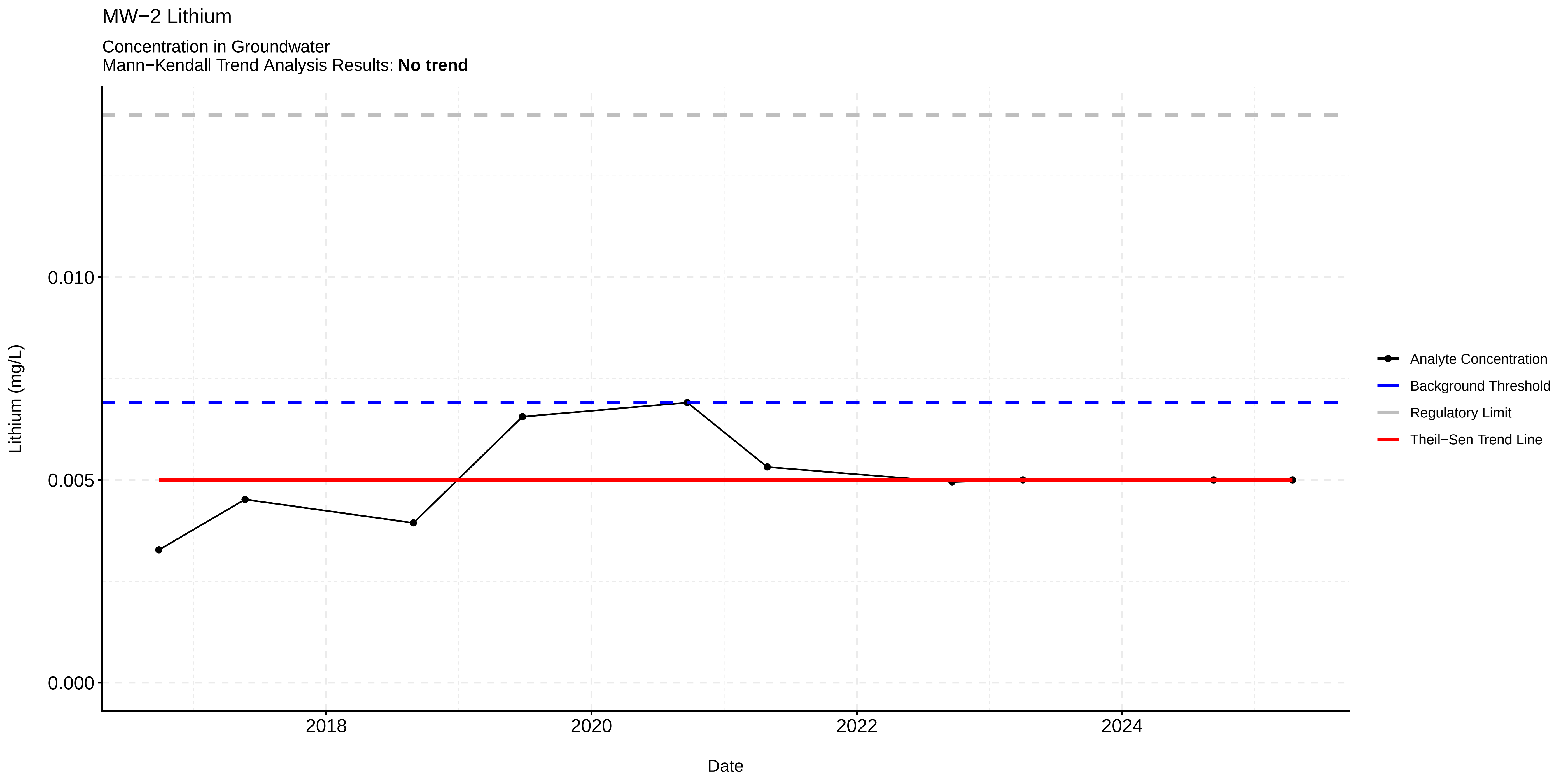
MW−2 Calcium

Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**




MW−2 Cobalt
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Cobalt (mg/L)
0.0020
0.0015
0.0010
0.0005
0.0000
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

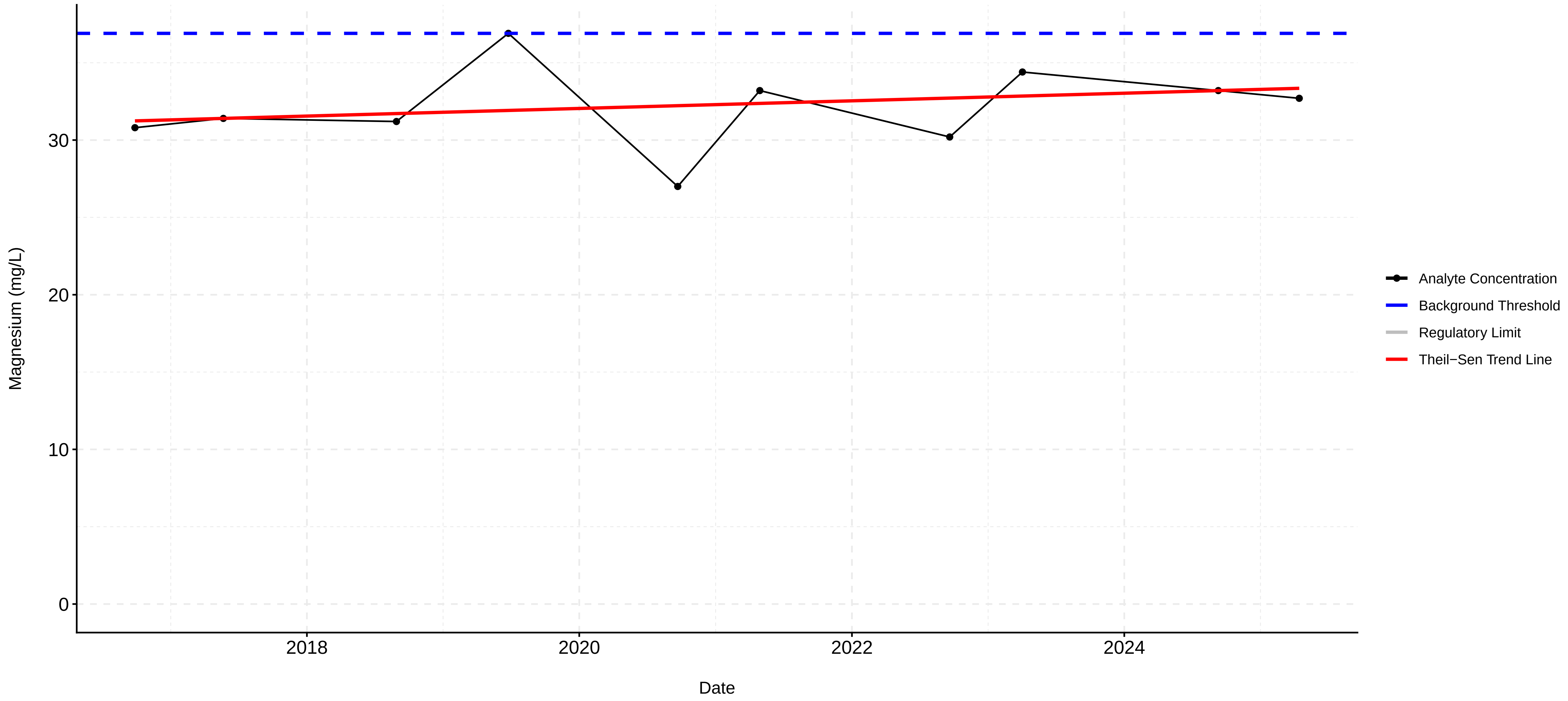

MW−2 Iron
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Iron (mg/L)
0.6
0.4
0.2
0.0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

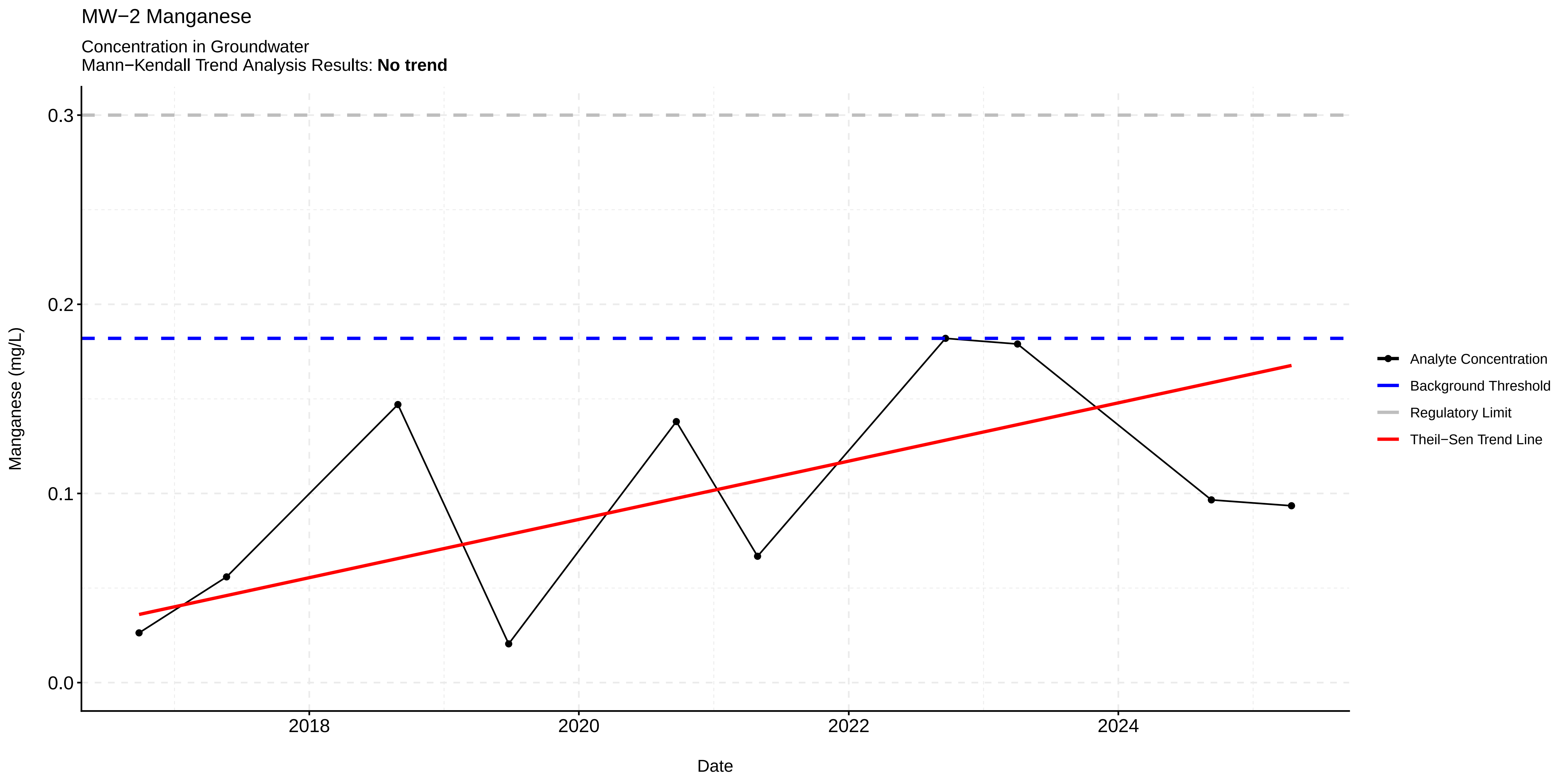


MW−2 Lithium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Lithium (mg/L)
0.010
0.005
0.000
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

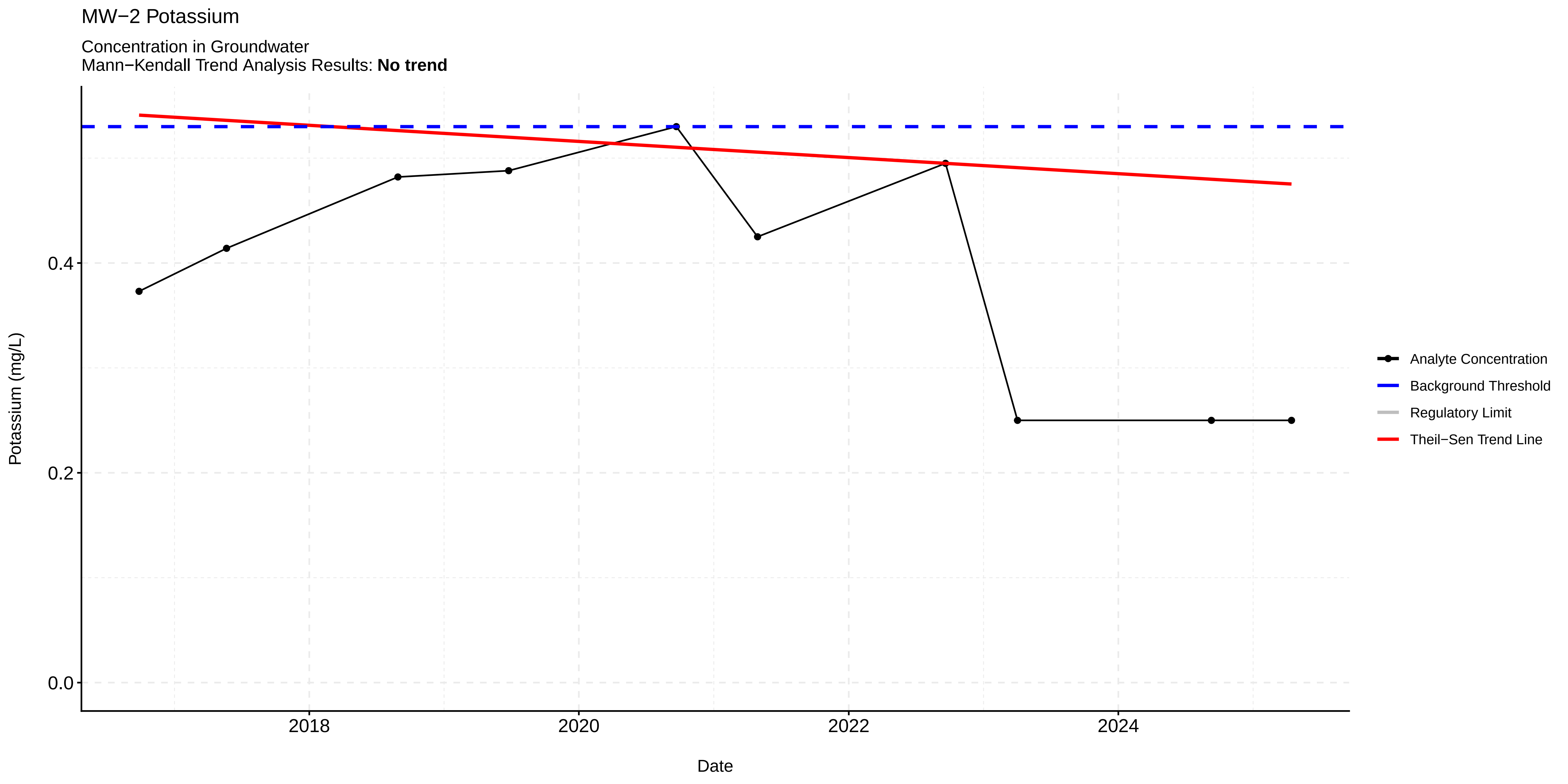
MW−2 Magnesium

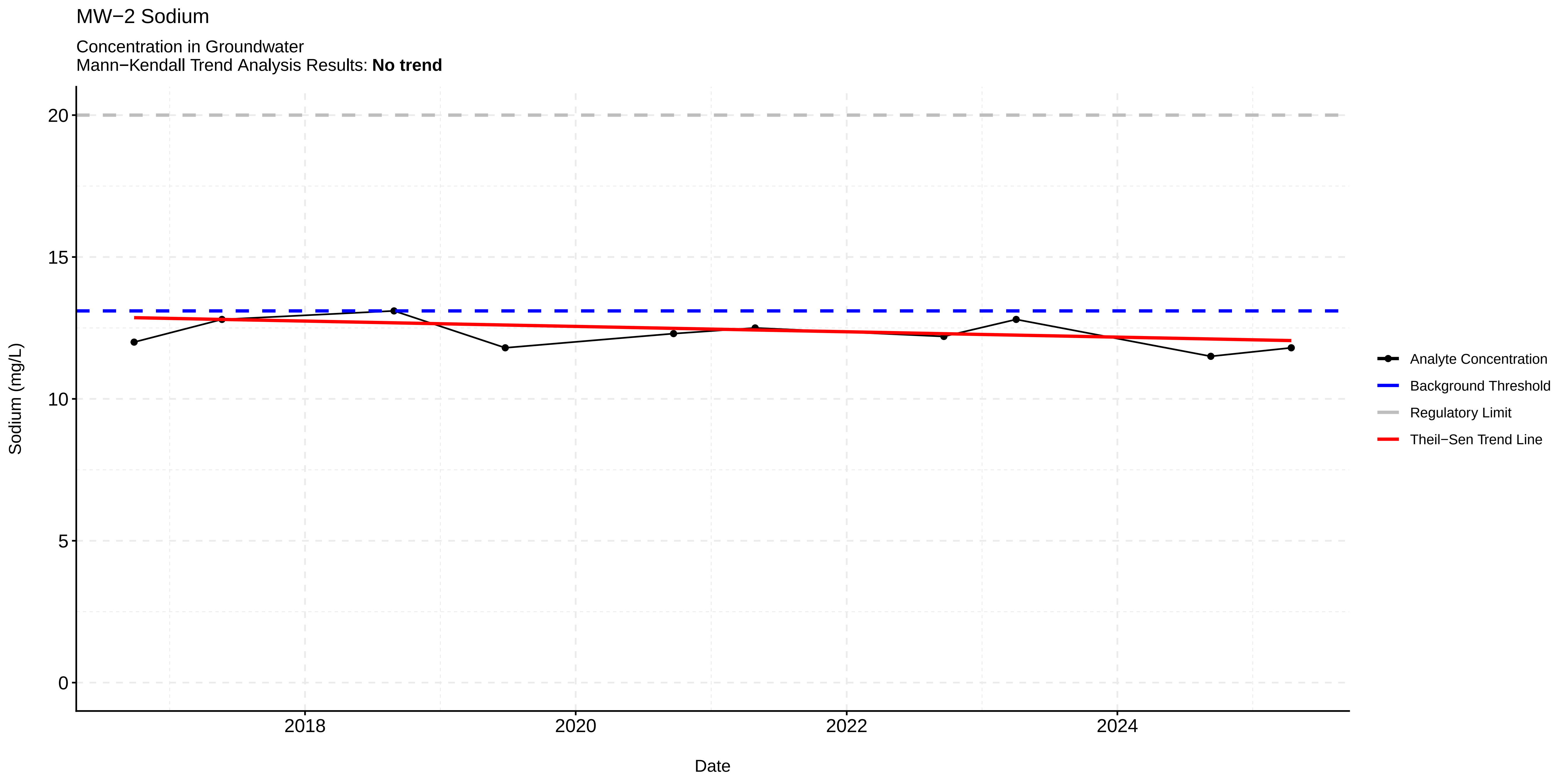
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**





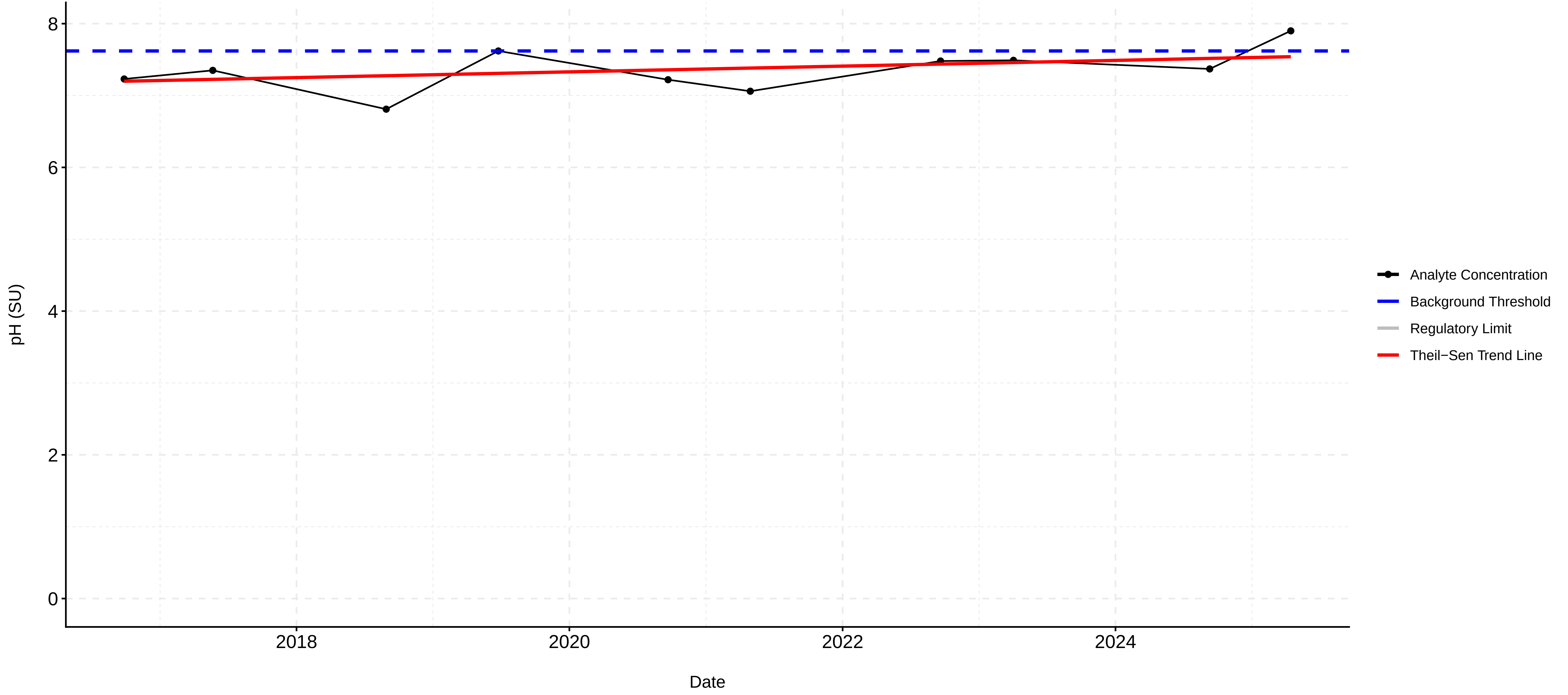
MW−2 Manganese
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
0.3
0.2
0.1
0.0
Manganese (mg/L)
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

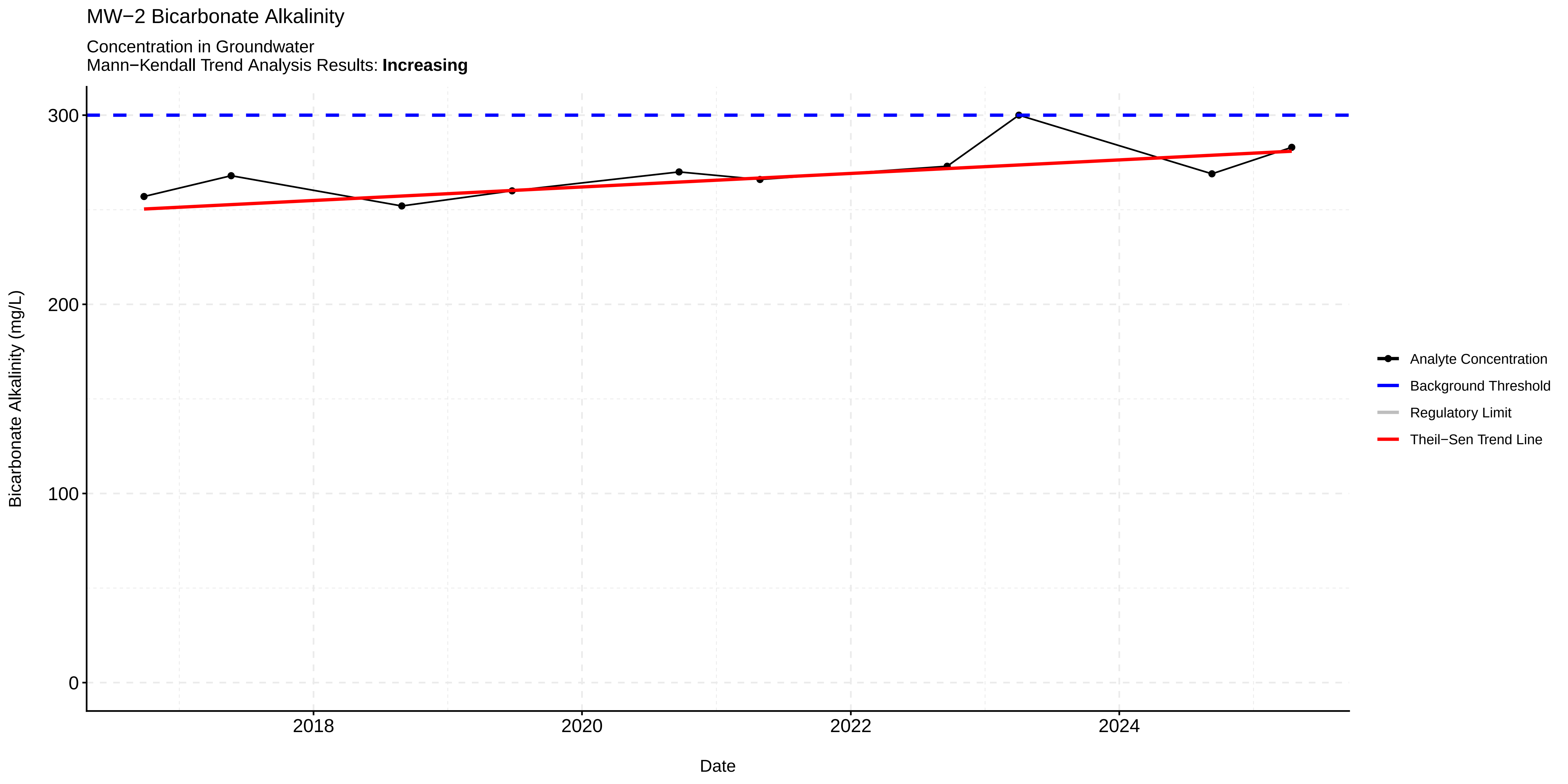

MW−2 Potassium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Potassium (mg/L)
0.0
0.2
0.4
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

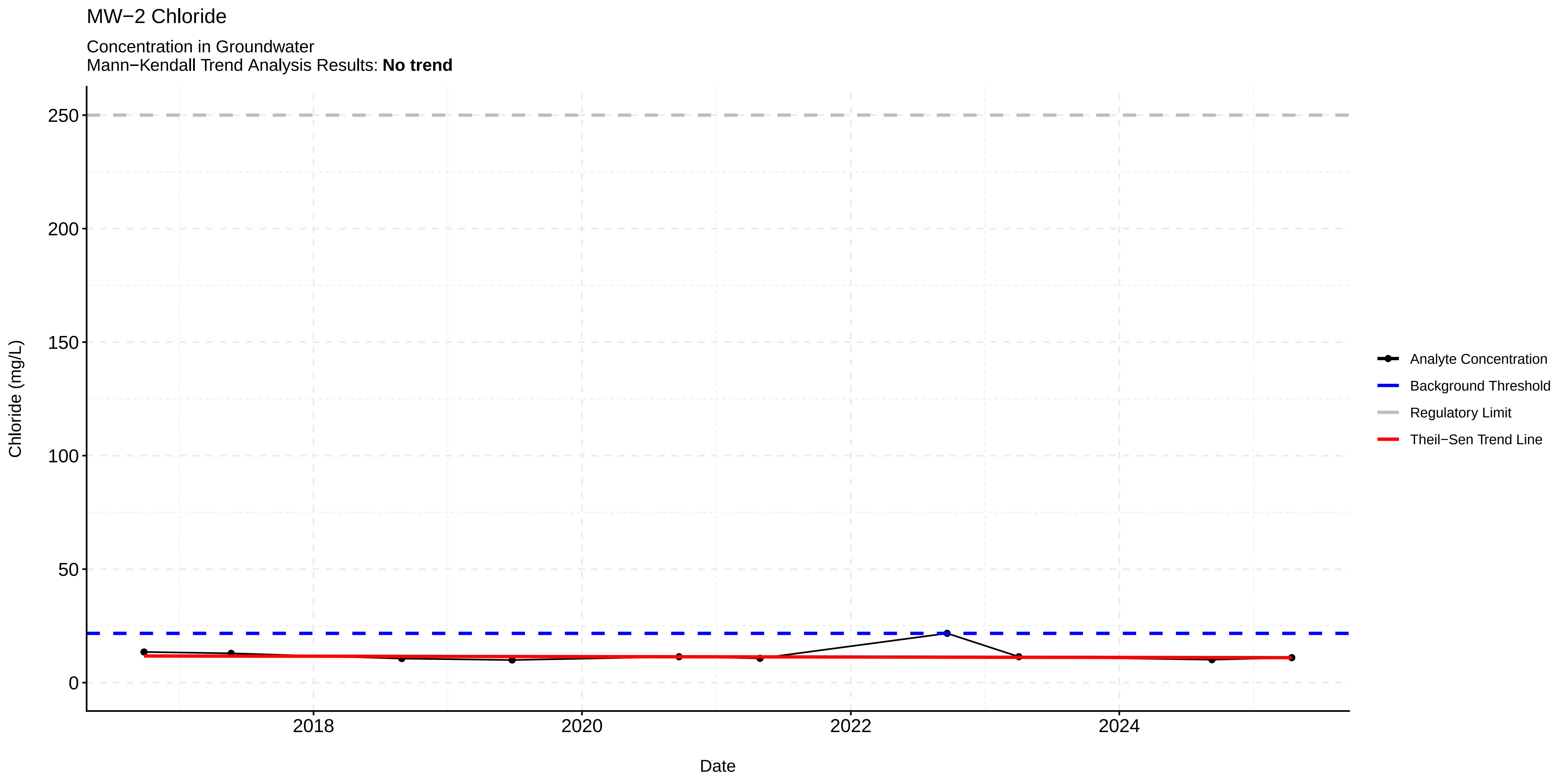

MW−2 Sodium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Sodium (mg/L)
0
5
10
15
20
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

MW−2 pH

Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**

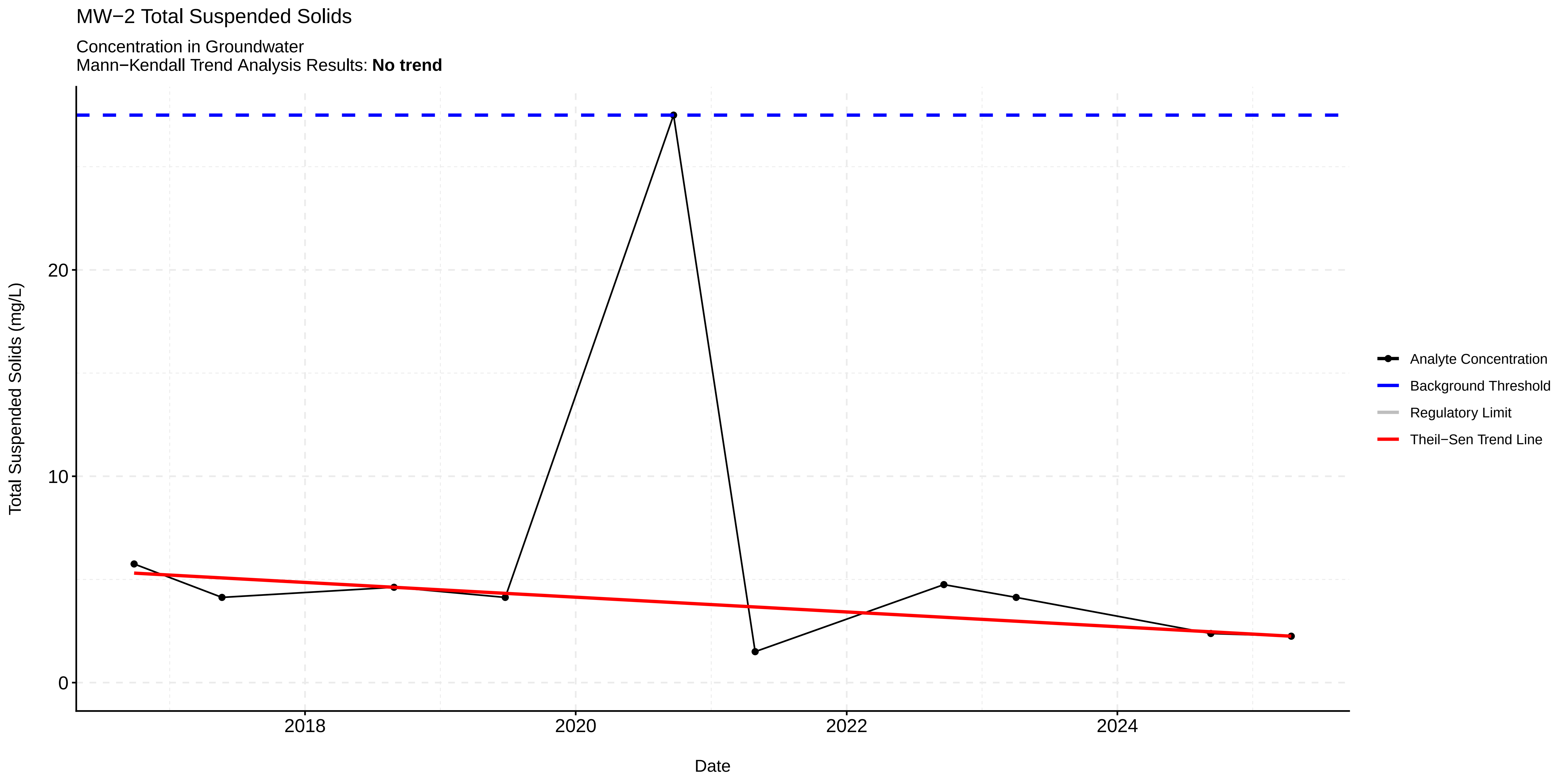



MW−2 Bicarbonate Alkalinity
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **Increasing**
Bicarbonate Alkalinity (mg/L)
300
200
100
0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

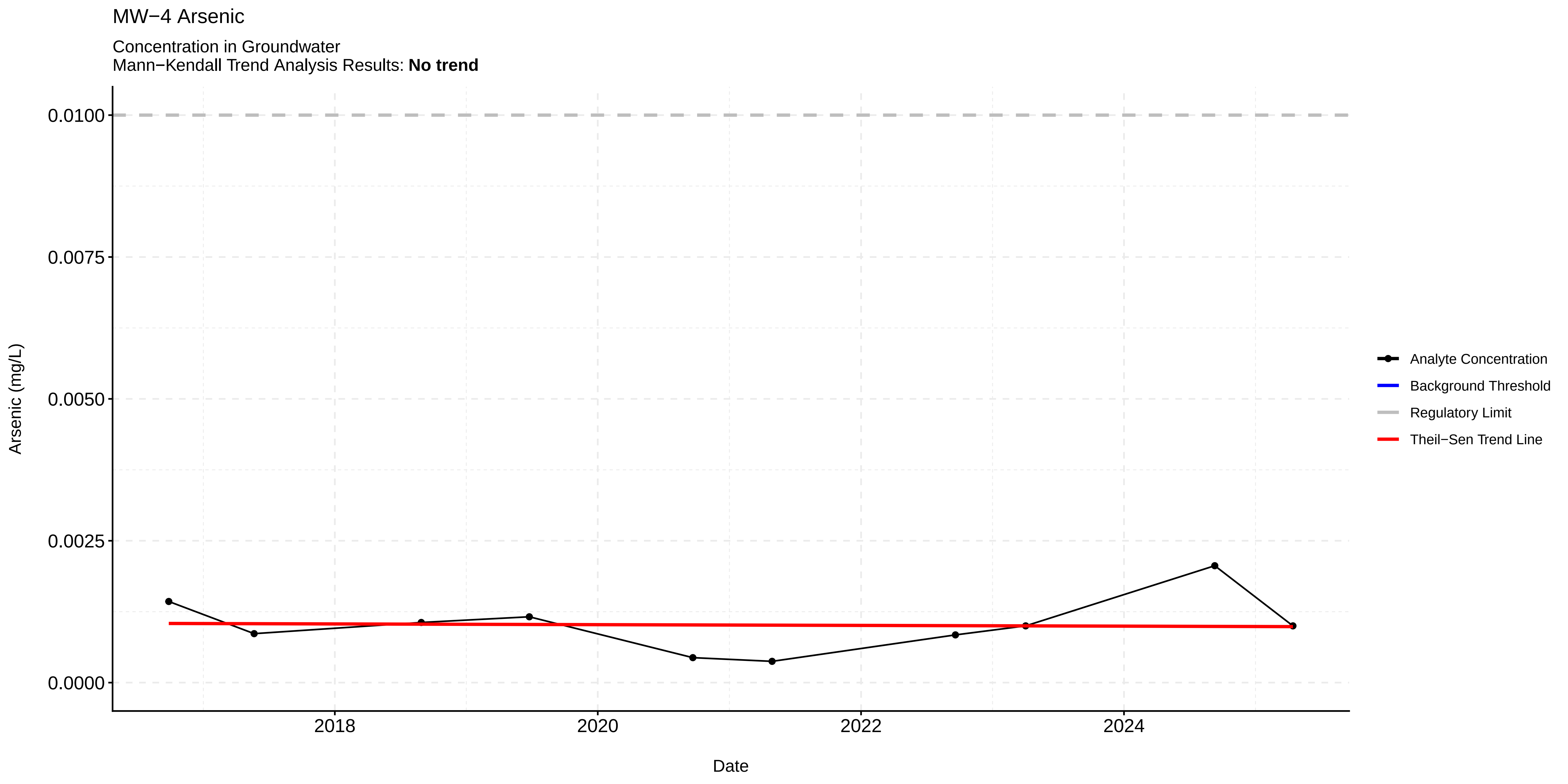

MW−2 Chloride
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Chloride (mg/L)
250
200
150
100
50
0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

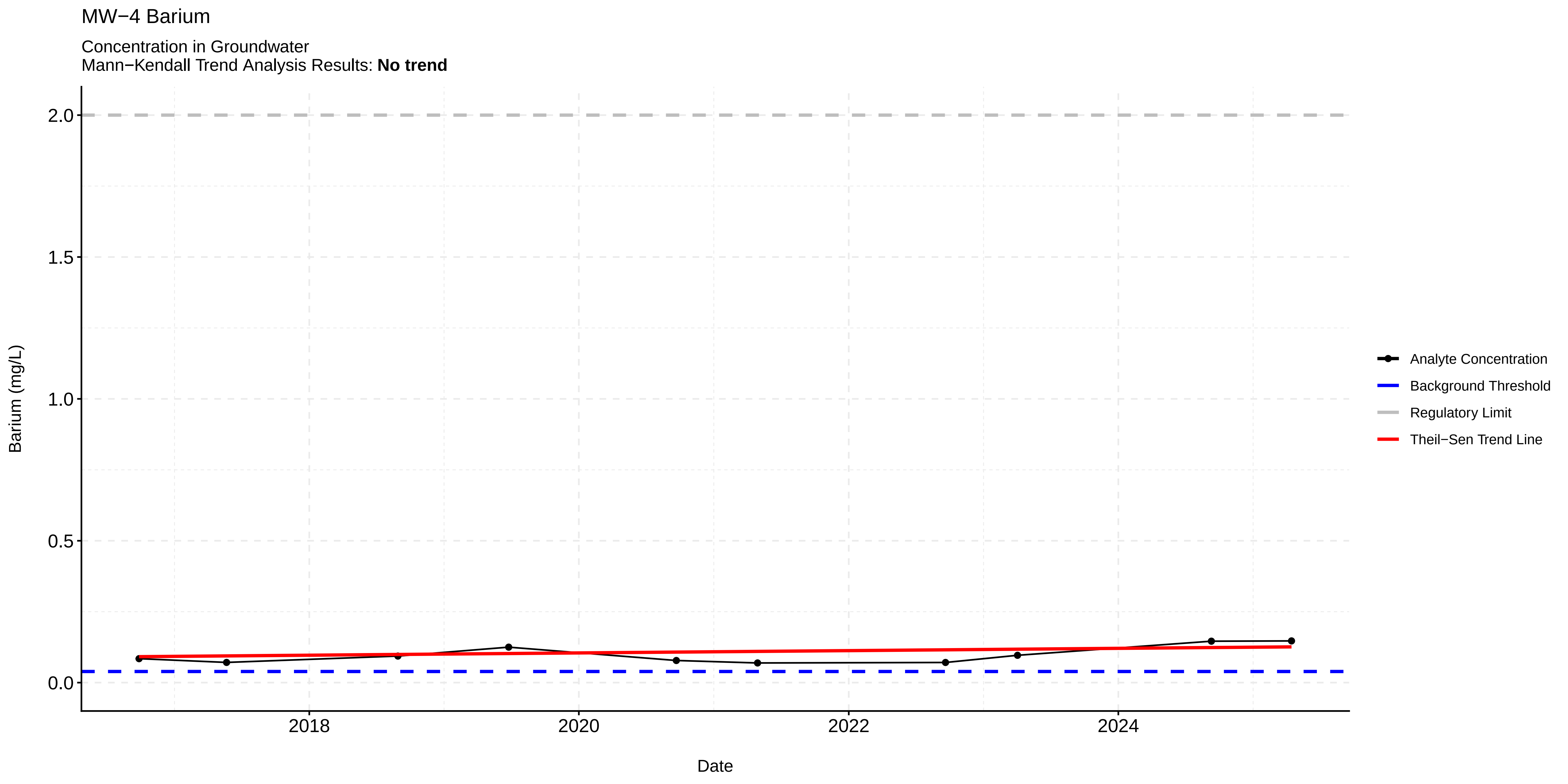
MW−2 Sulfate

Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**

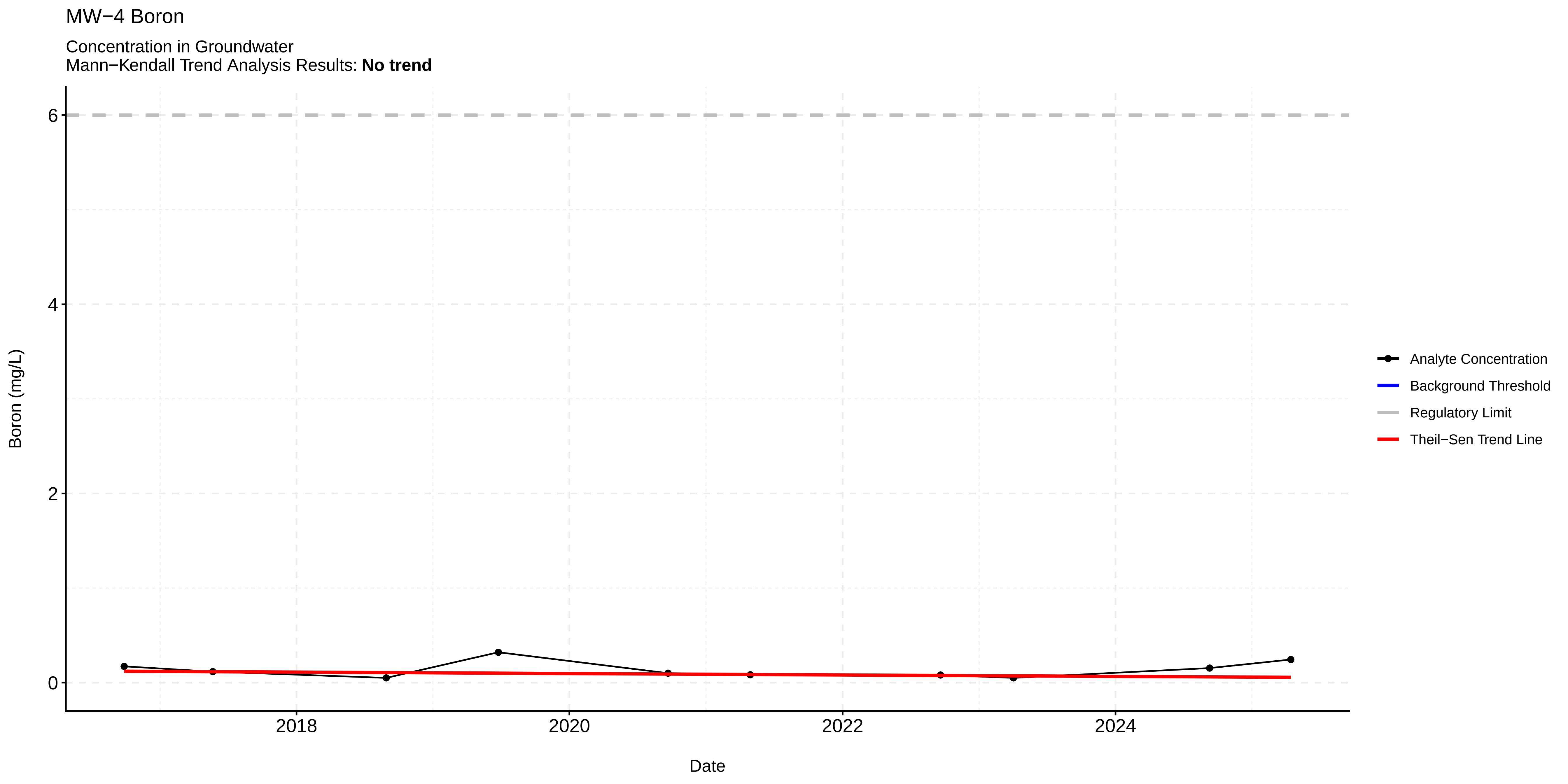


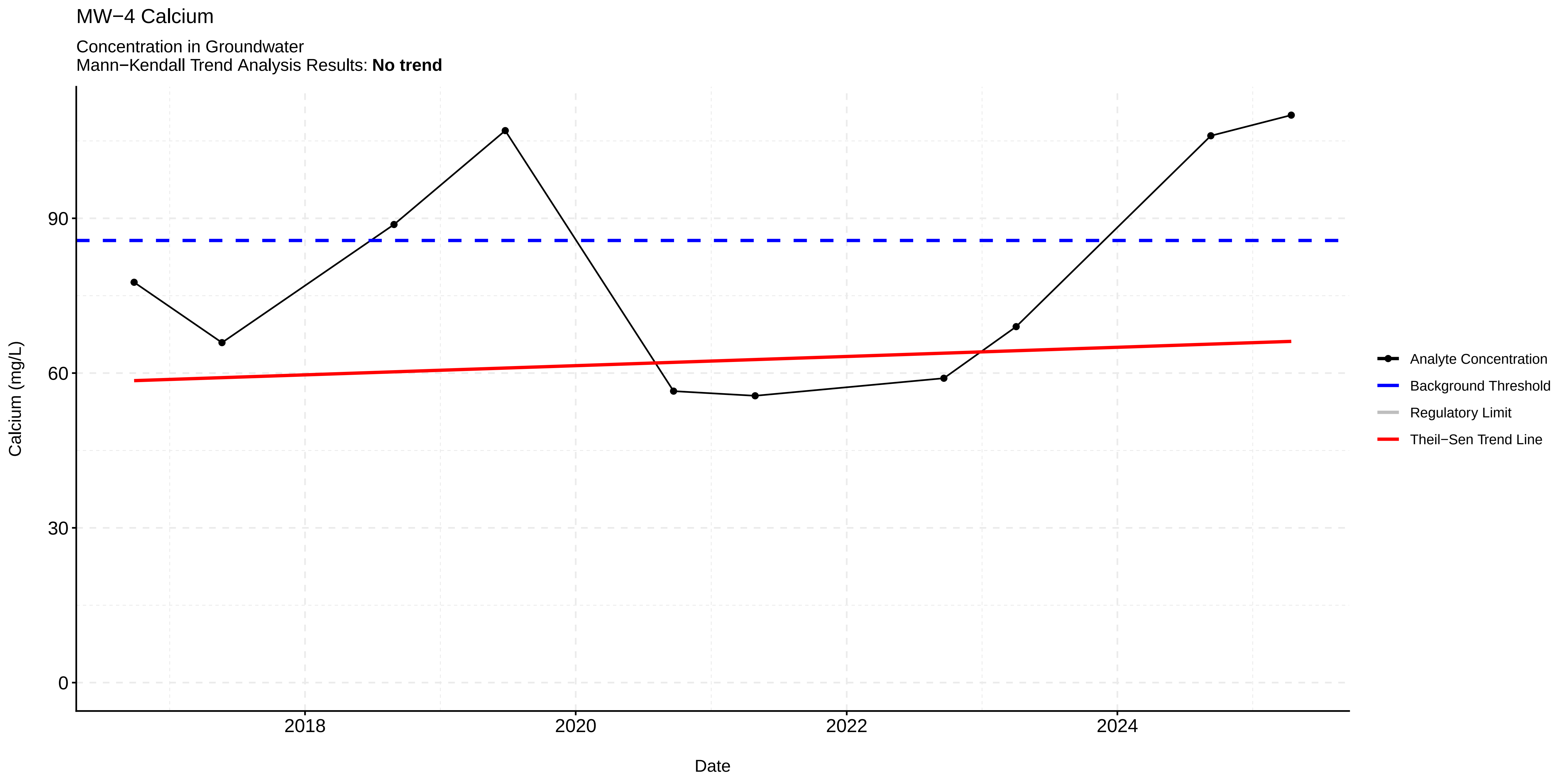
MW−2 Total Suspended Solids
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Total Suspended Solids (mg/L)
0
10
20
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−4 Arsenic
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Arsenic (mg/L)
0.0100
0.0075
0.0050
0.0025
0.0000
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line



MW−4 Barium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Barium (mg/L)
2.0
1.5
1.0
0.5
0.0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

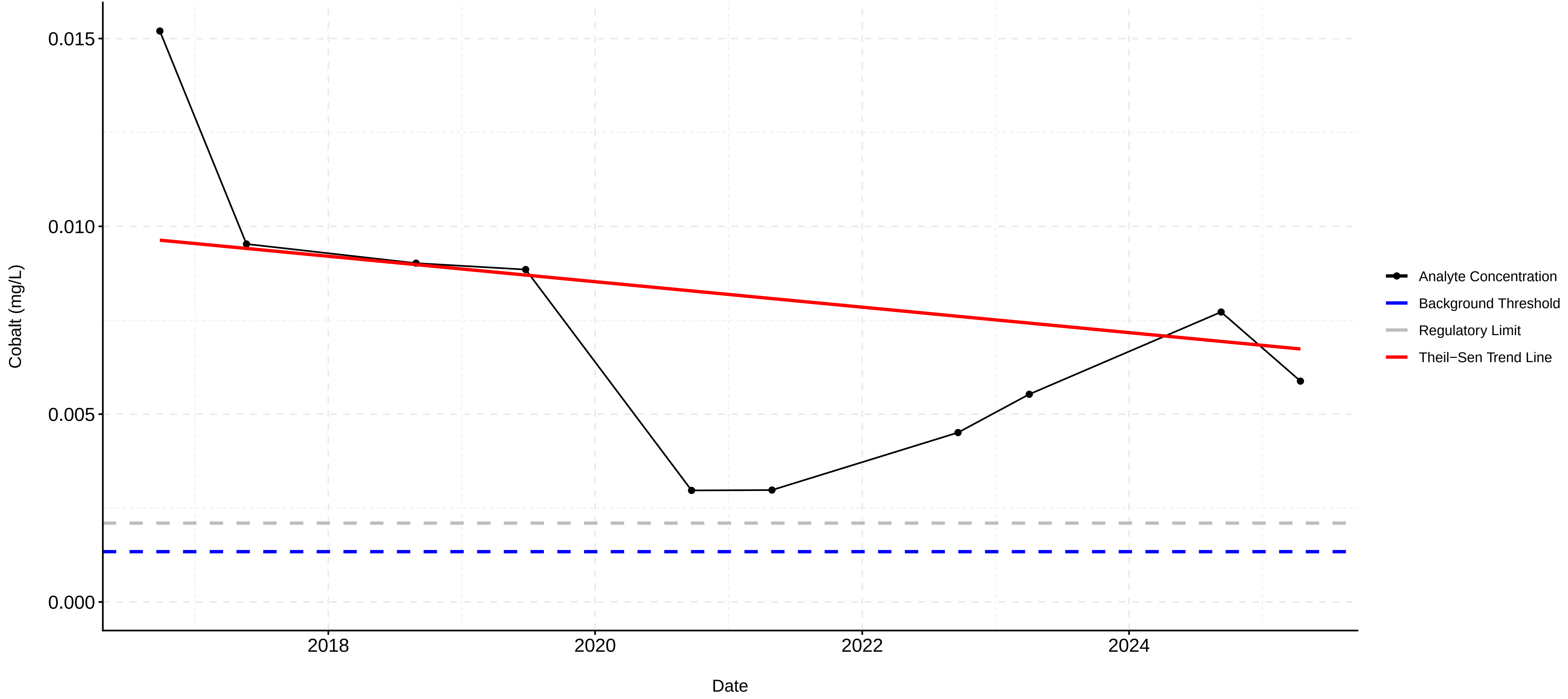

MW−4 Boron
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Boron (mg/L)
0
2
4
6
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

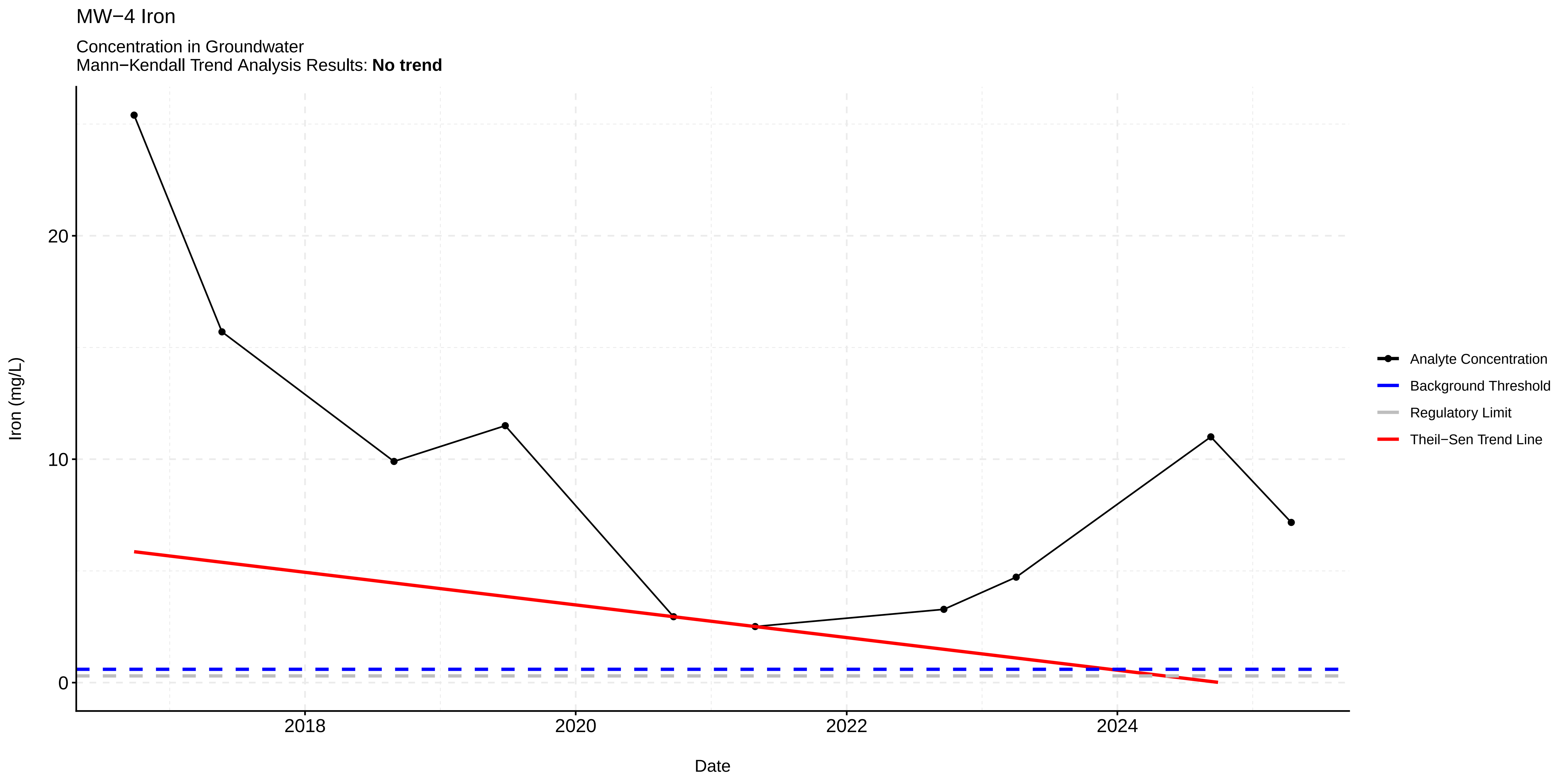


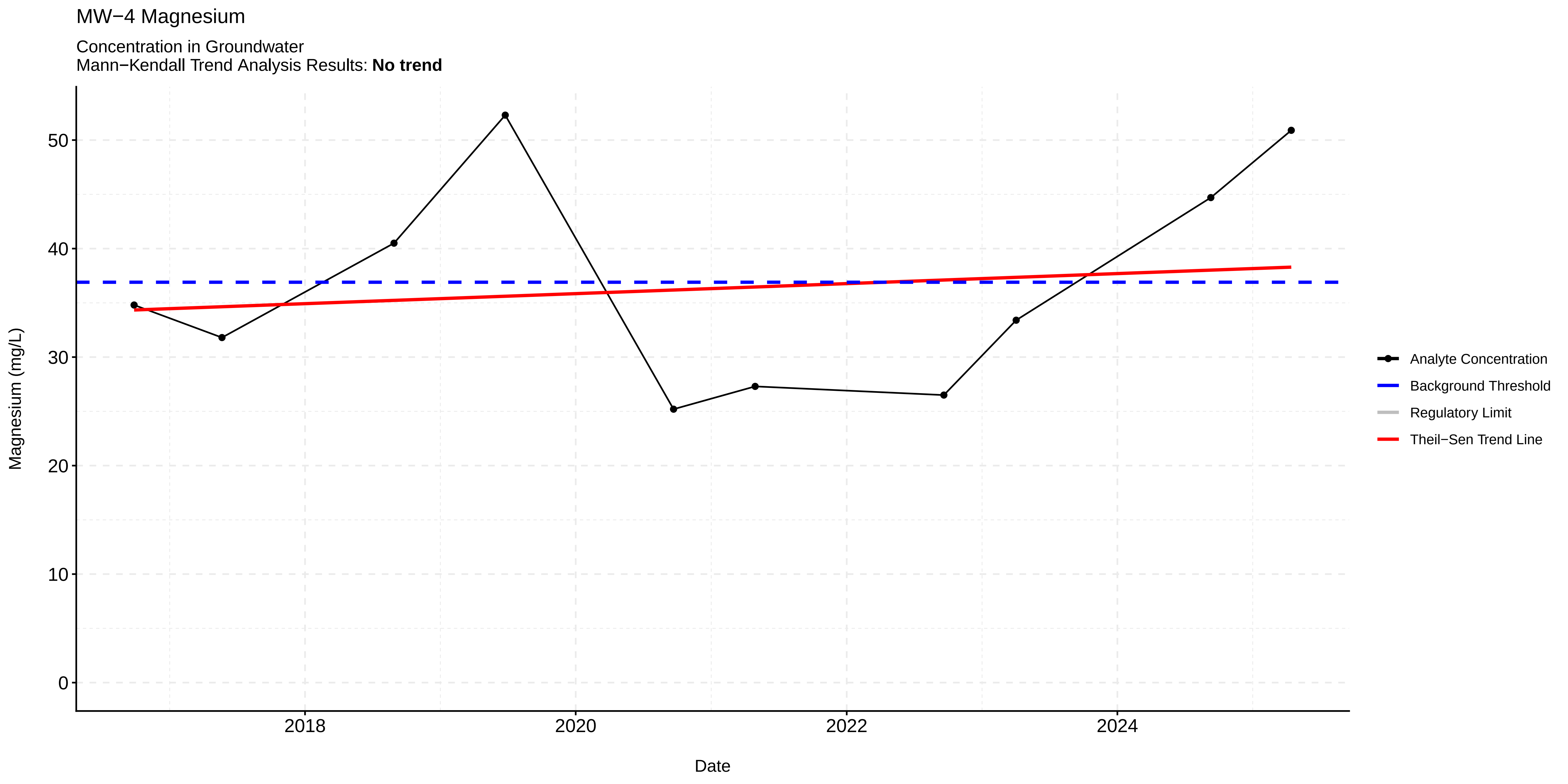
MW−4 Calcium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Calcium (mg/L)
0
30
60
90
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

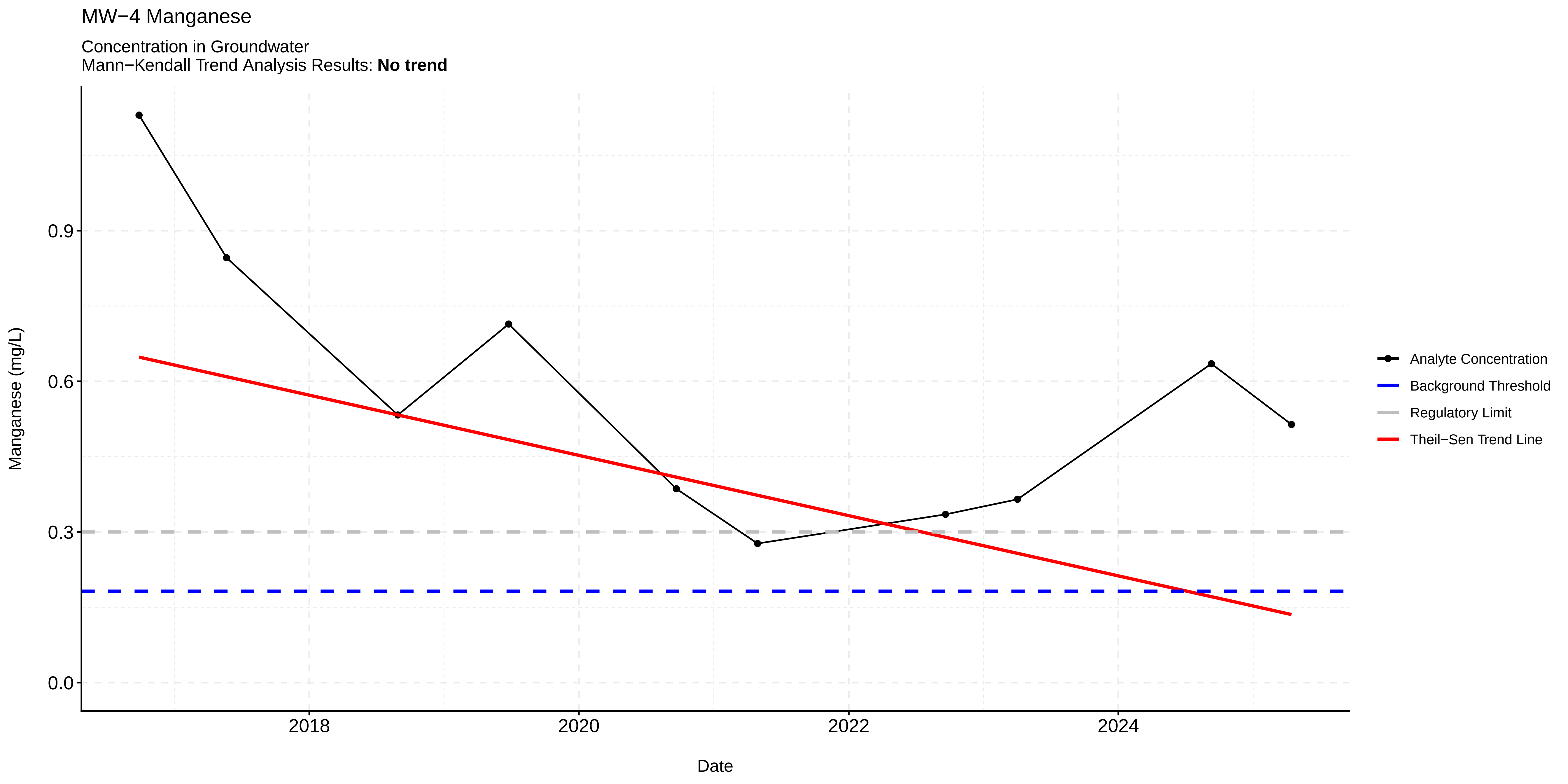
MW−4 Cobalt

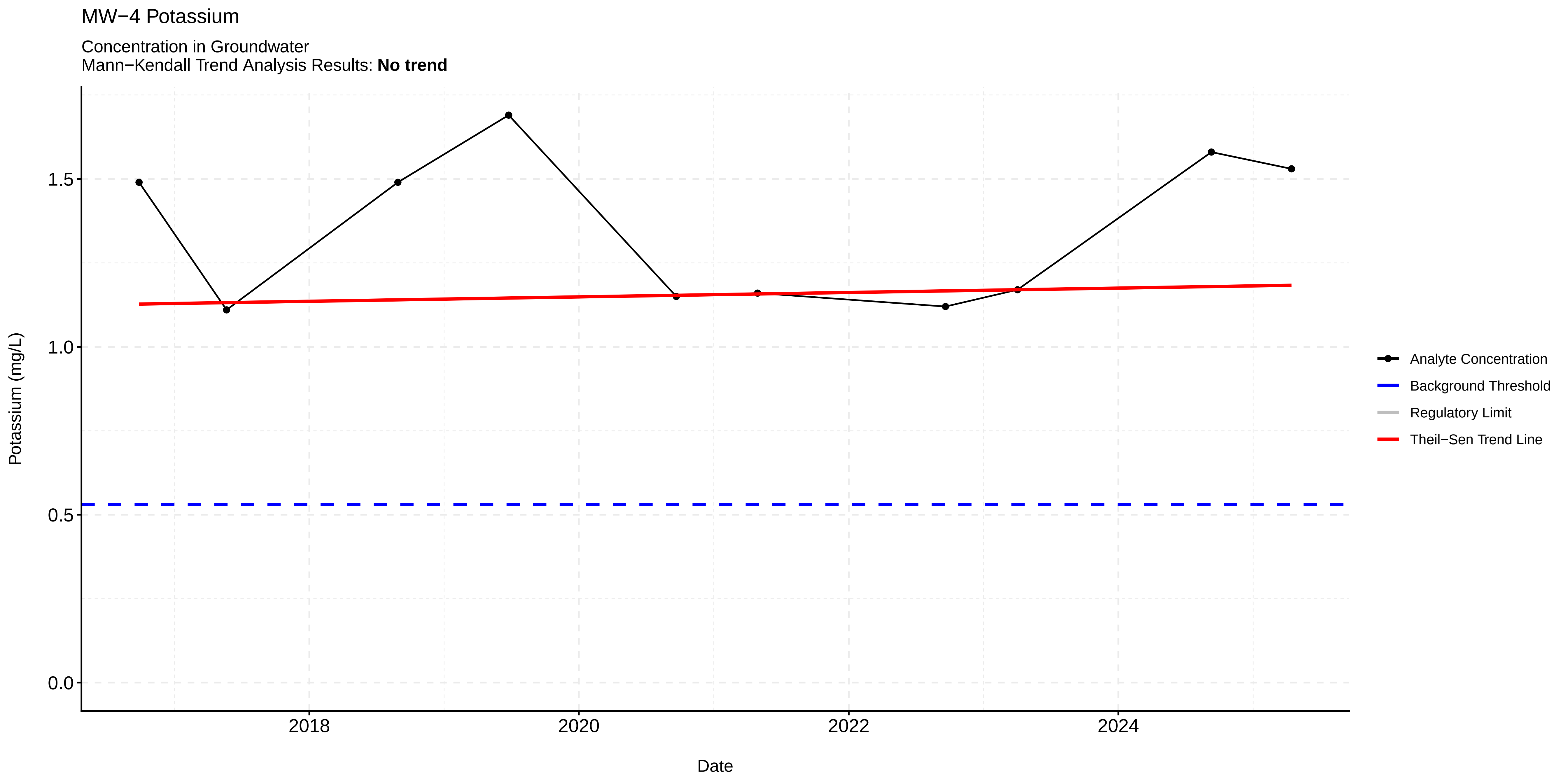
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**




MW−4 Iron
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Iron (mg/L)
0
10
20
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

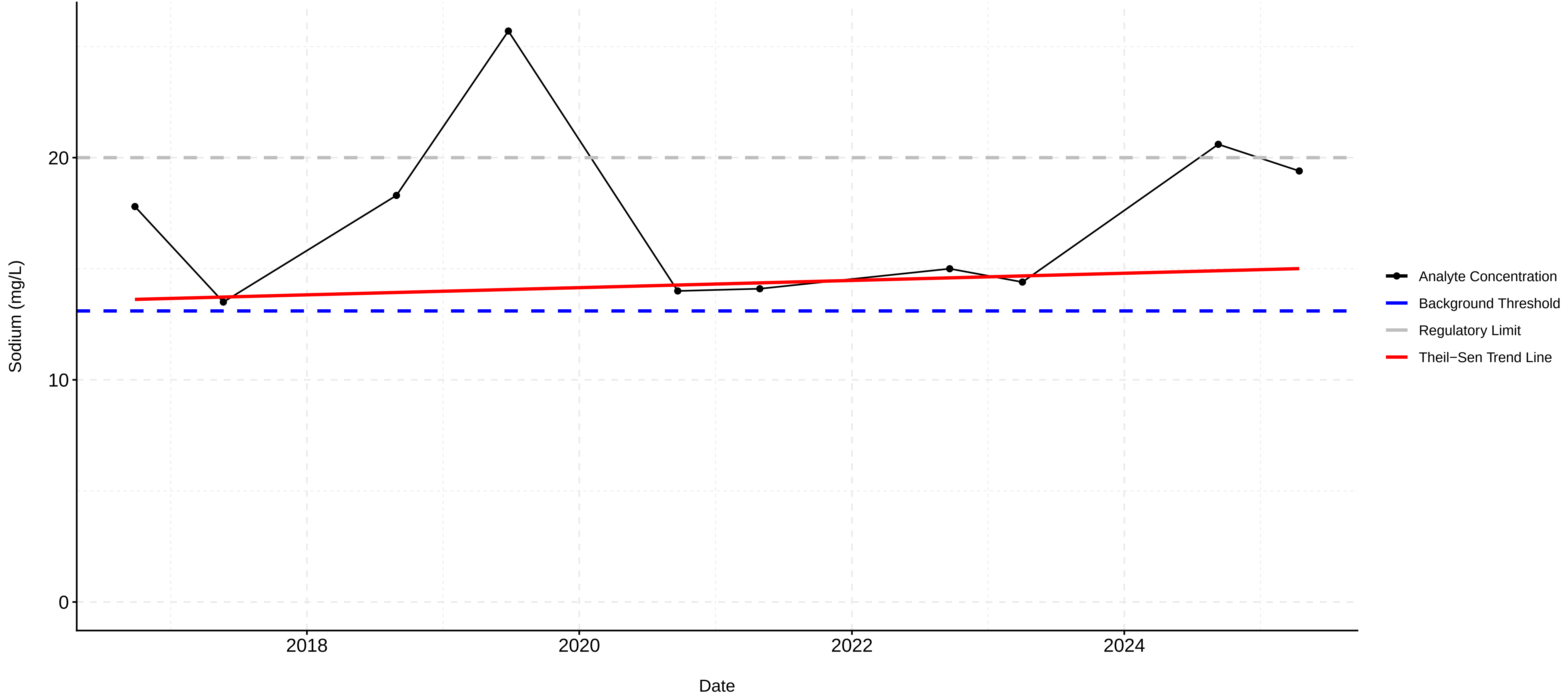

MW−4 Magnesium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Magnesium (mg/L)
0
10
20
30
40
50
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−4 Manganese
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Manganese (mg/L)
0.0
0.3
0.6
0.9
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−4 Potassium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Potassium (mg/L)
0.0
0.5
1.0
1.5
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

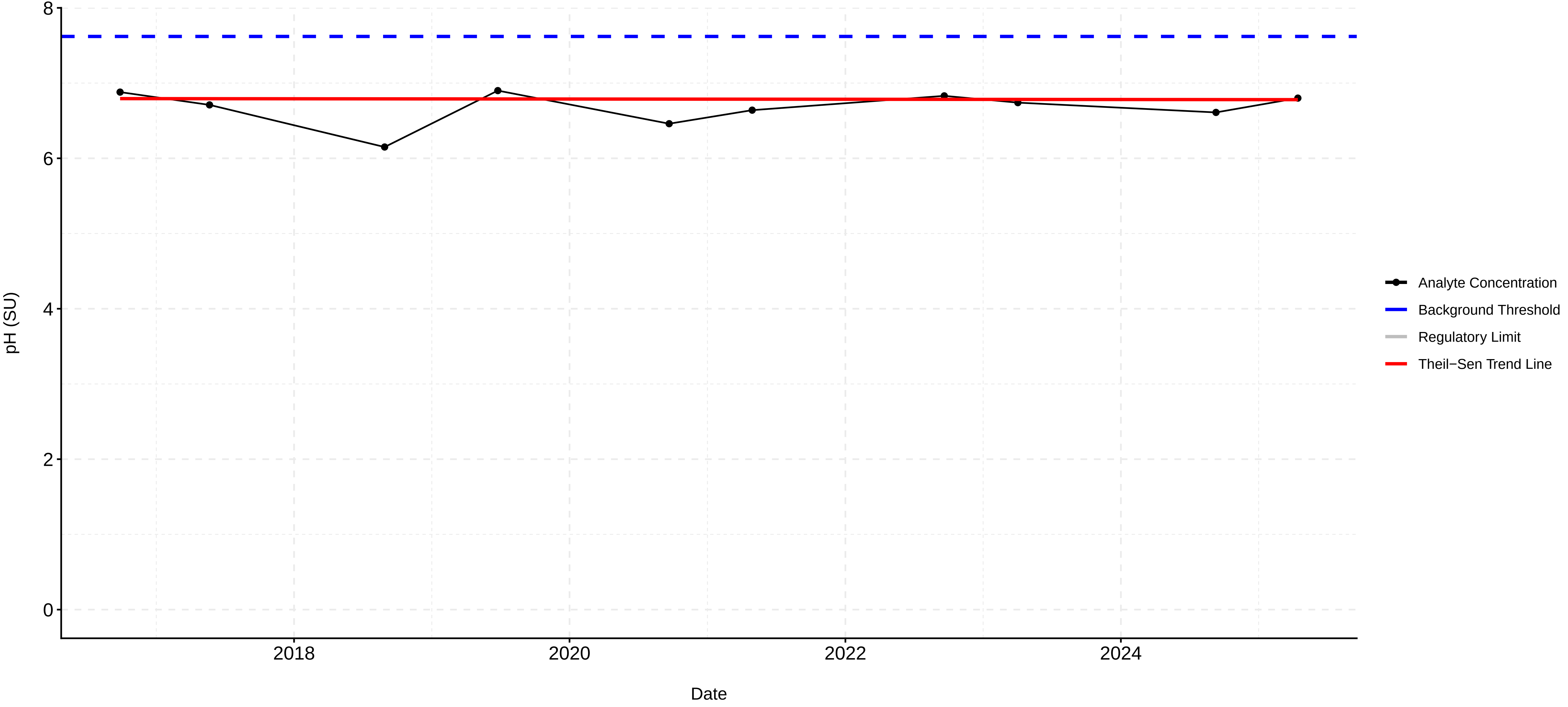
MW−4 Sodium

Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**



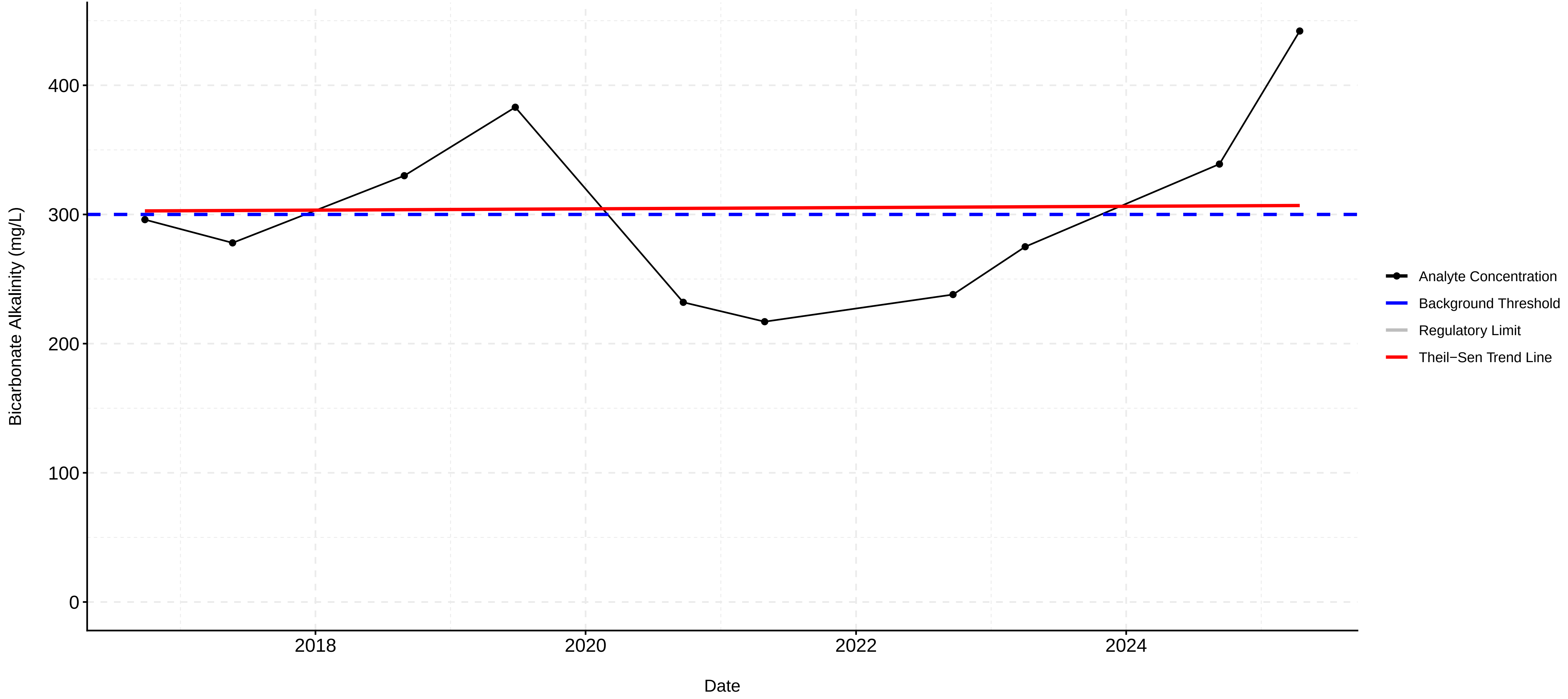
MW−4 pH

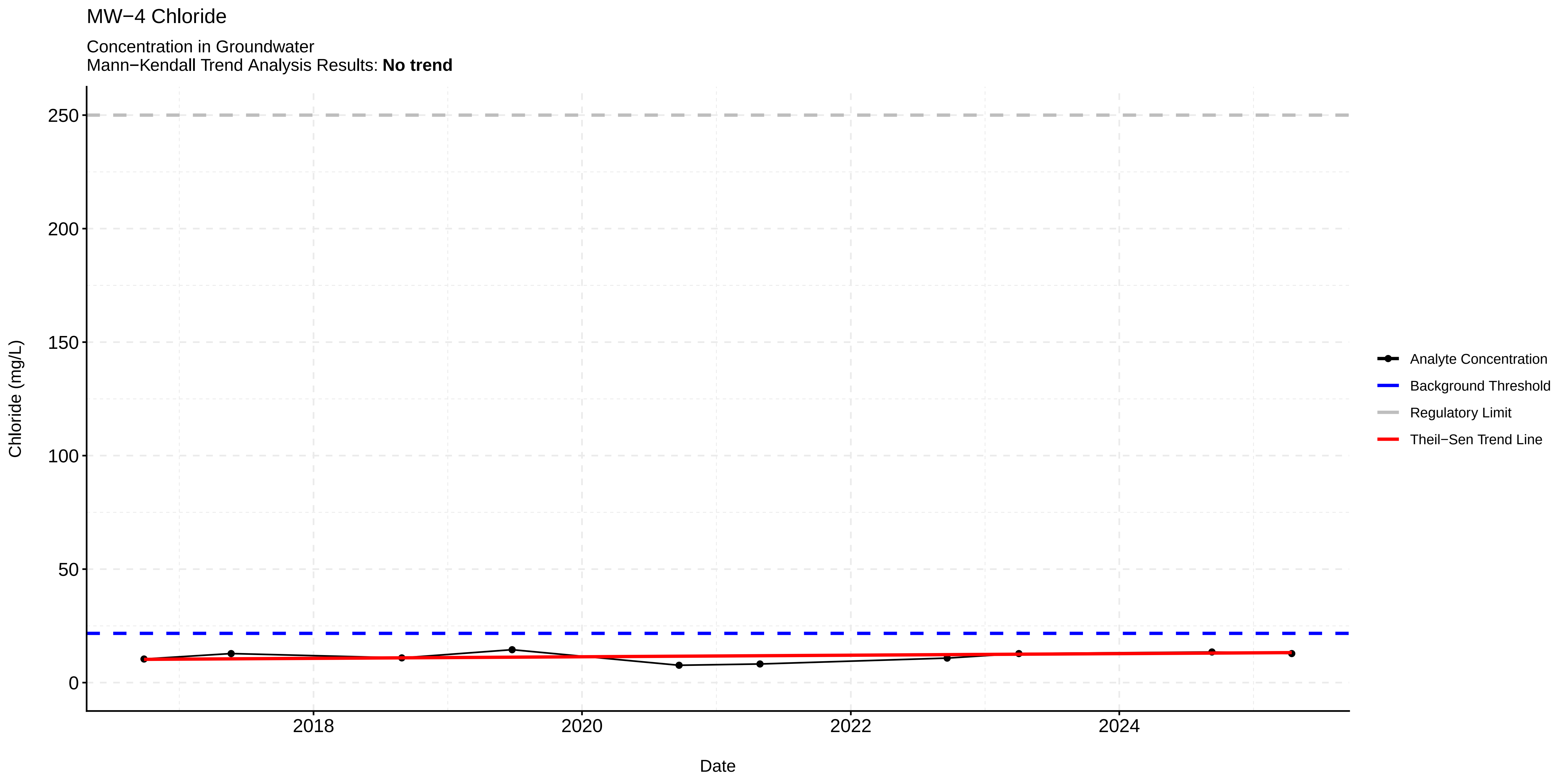
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**

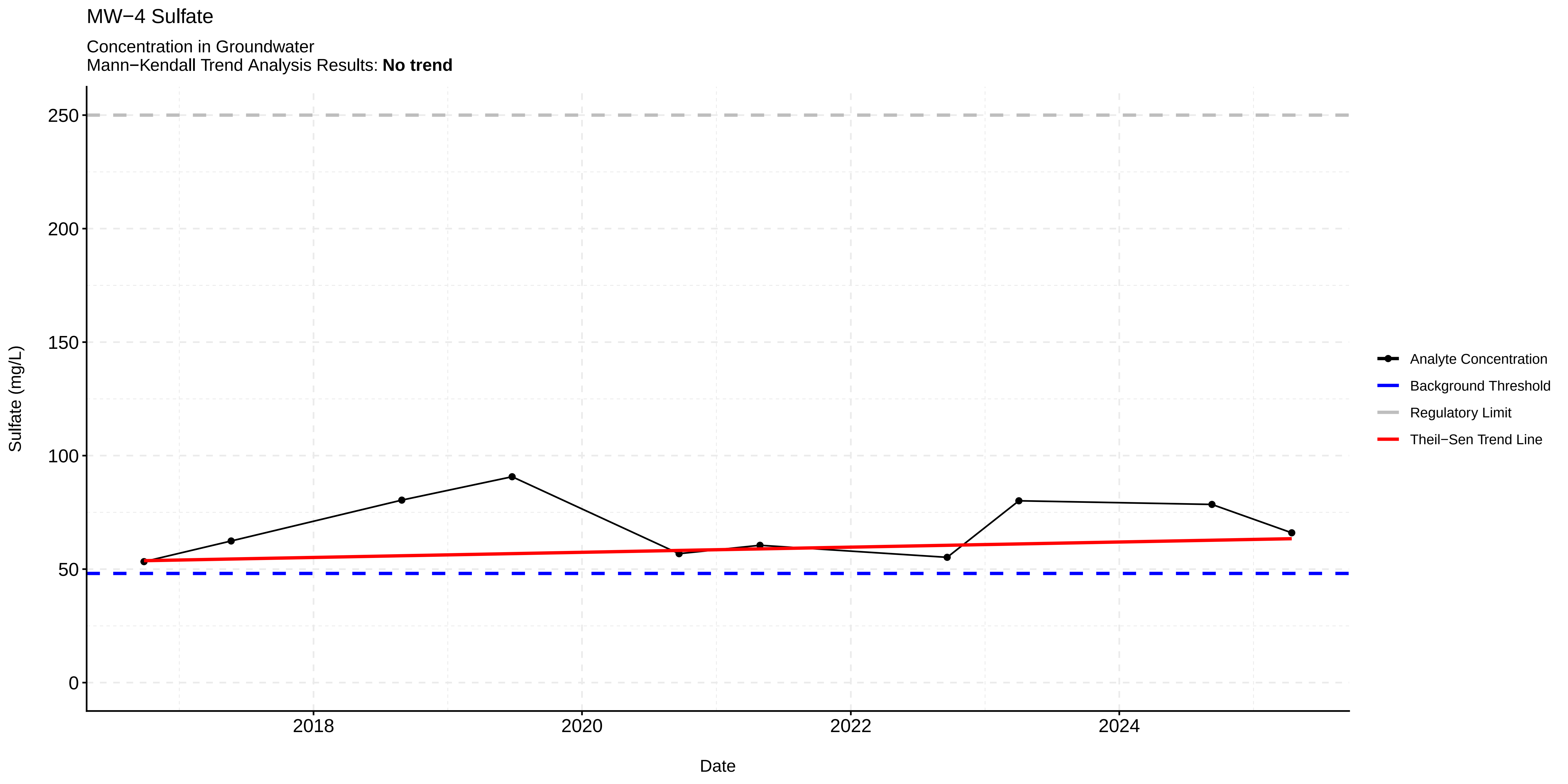


MW−4 Bicarbonate Alkalinity

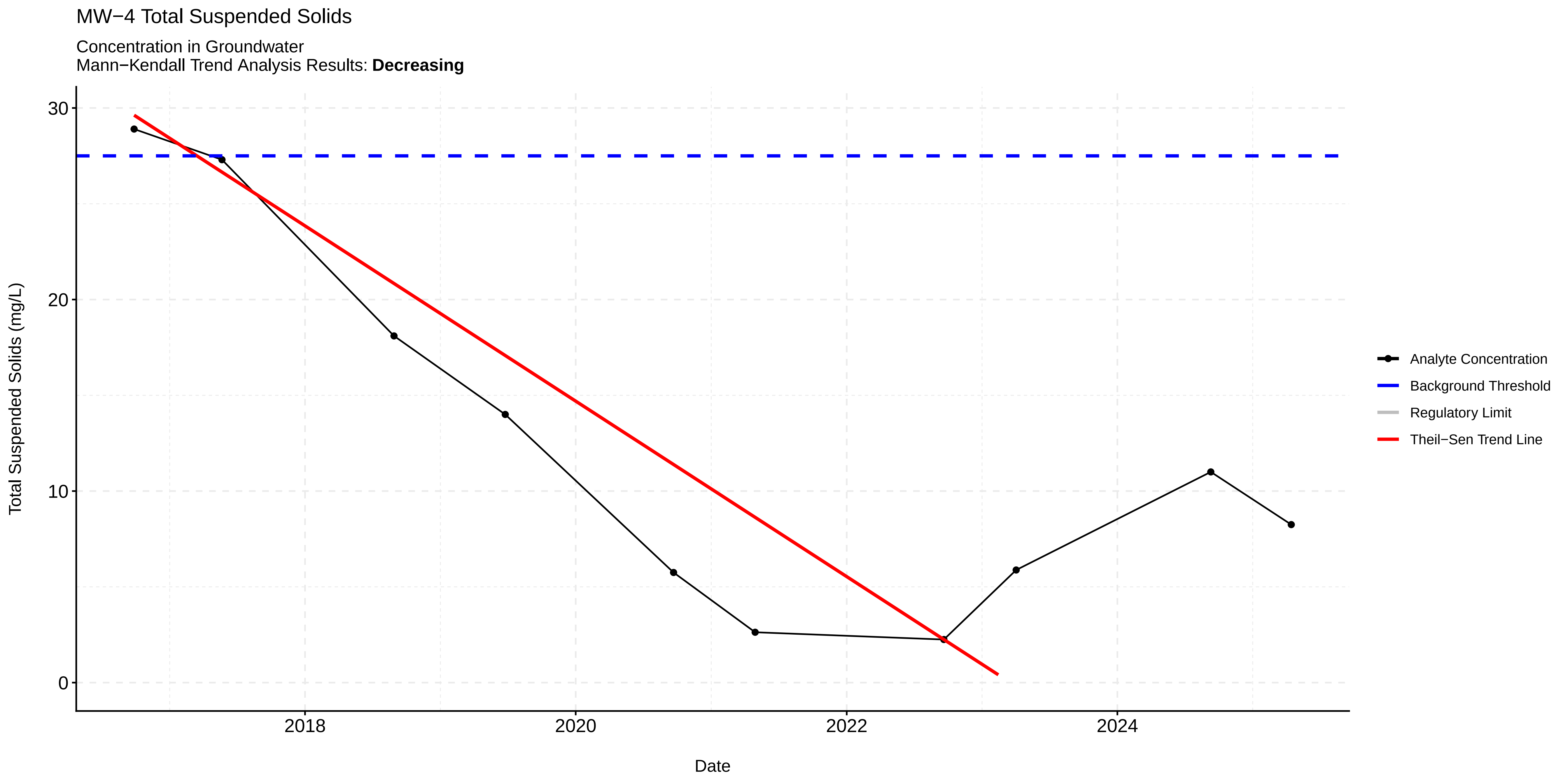
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**



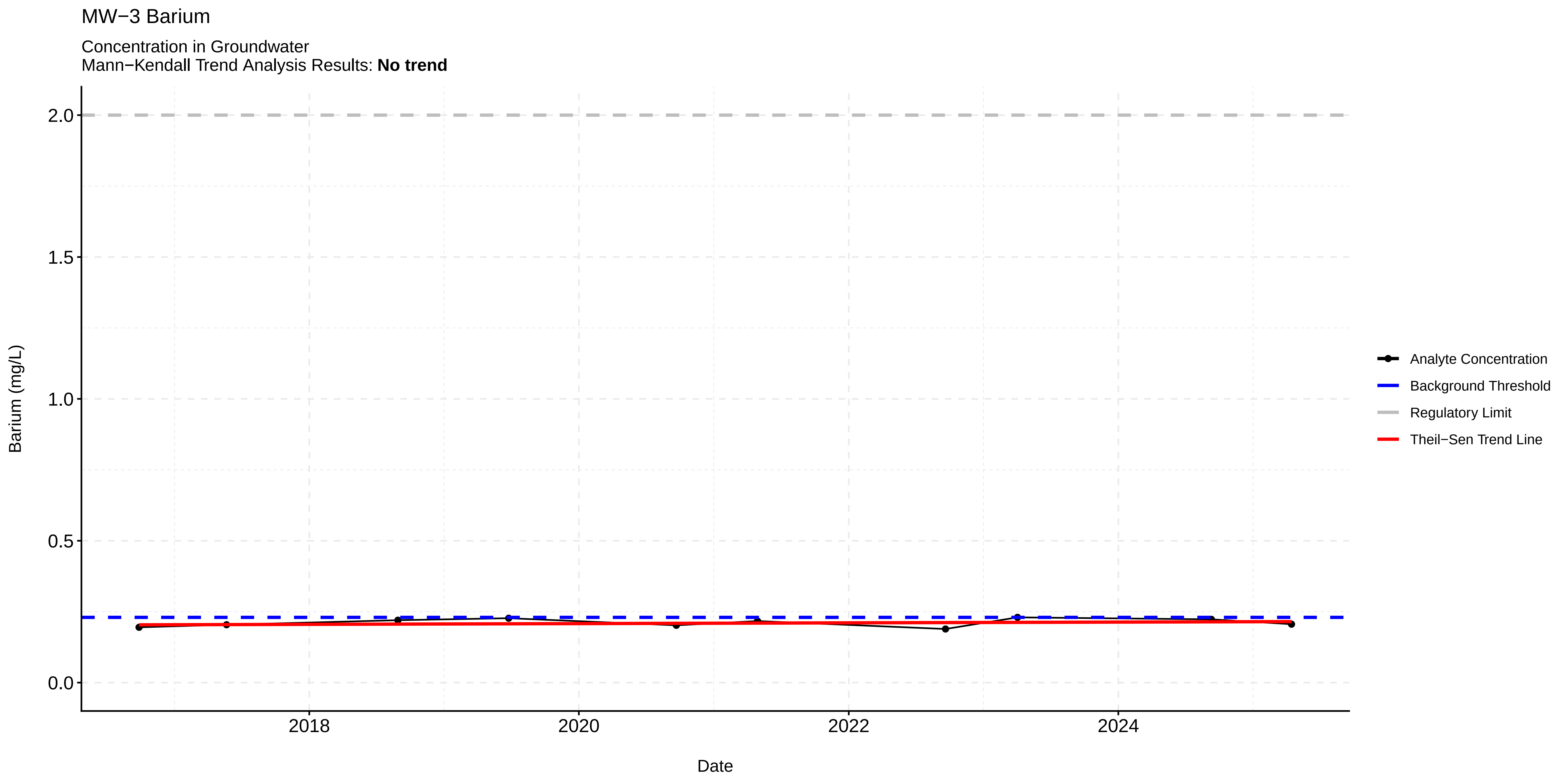

MW−4 Chloride
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Chloride (mg/L)
250
200
150
100
50
0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

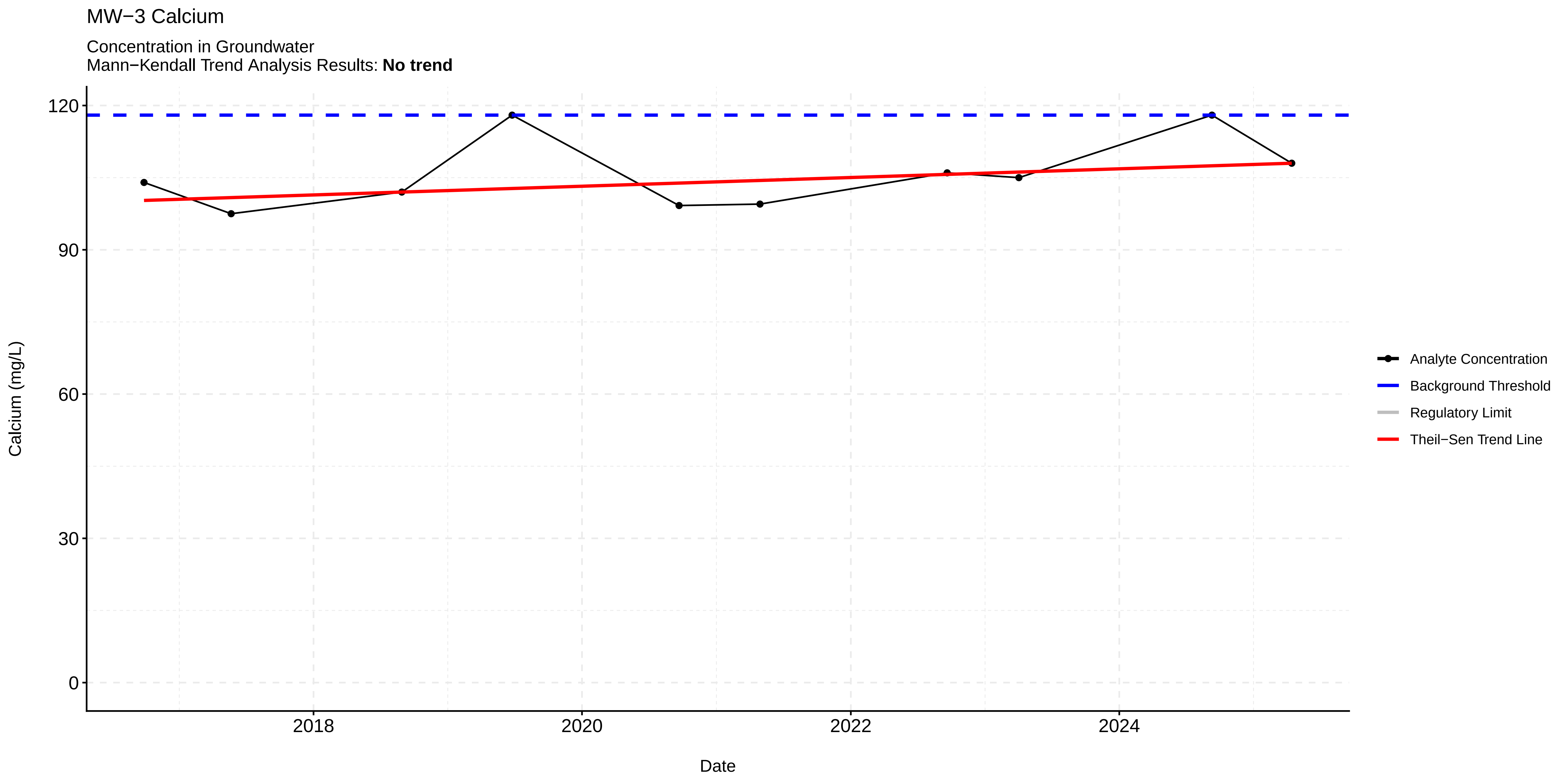


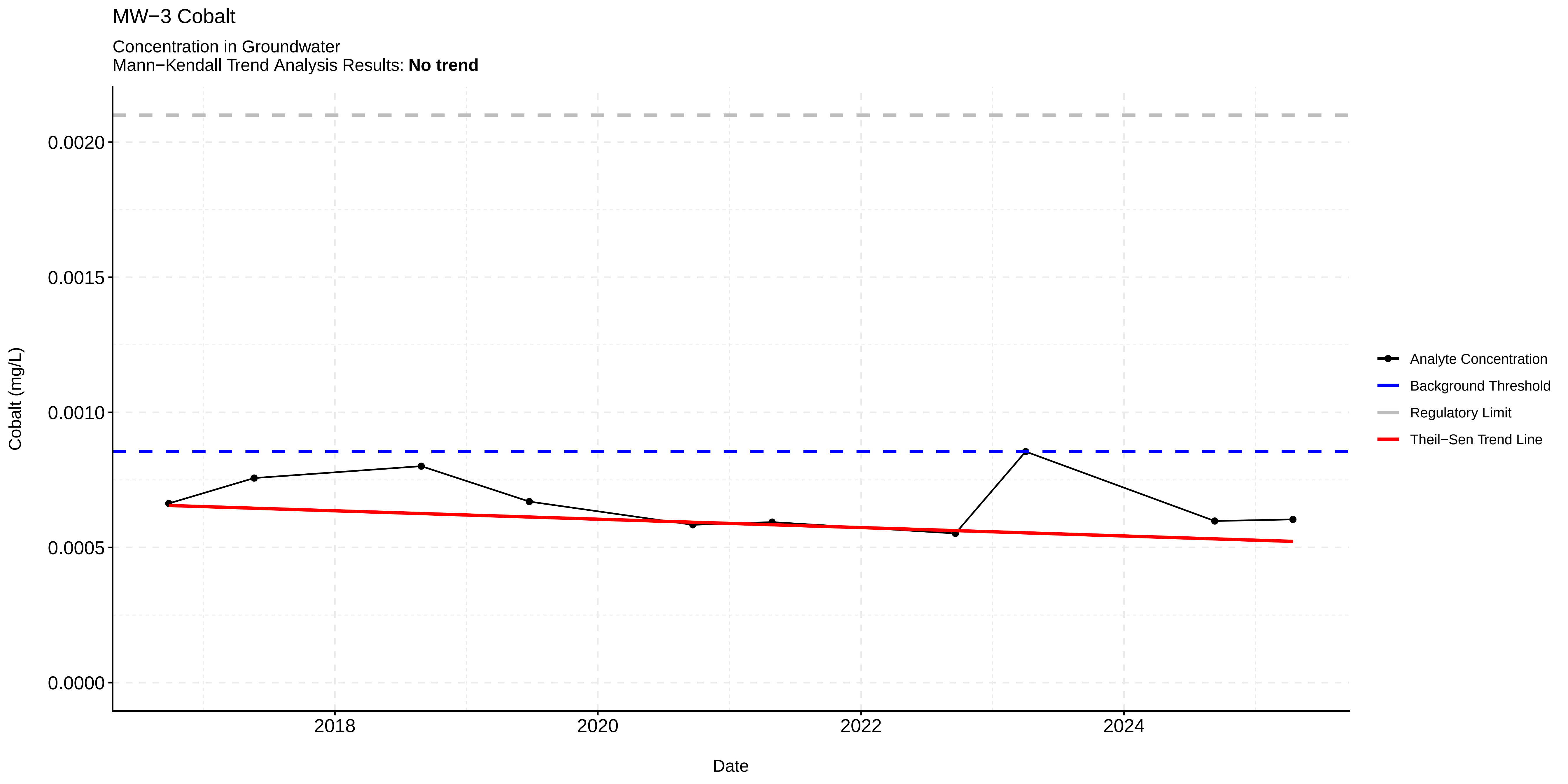
MW−4 Sulfate
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Sulfate (mg/L)
250
200
150
100
50
0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−4 Total Suspended Solids
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **Decreasing**
Total Suspended Solids (mg/L)
30
20
10
0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

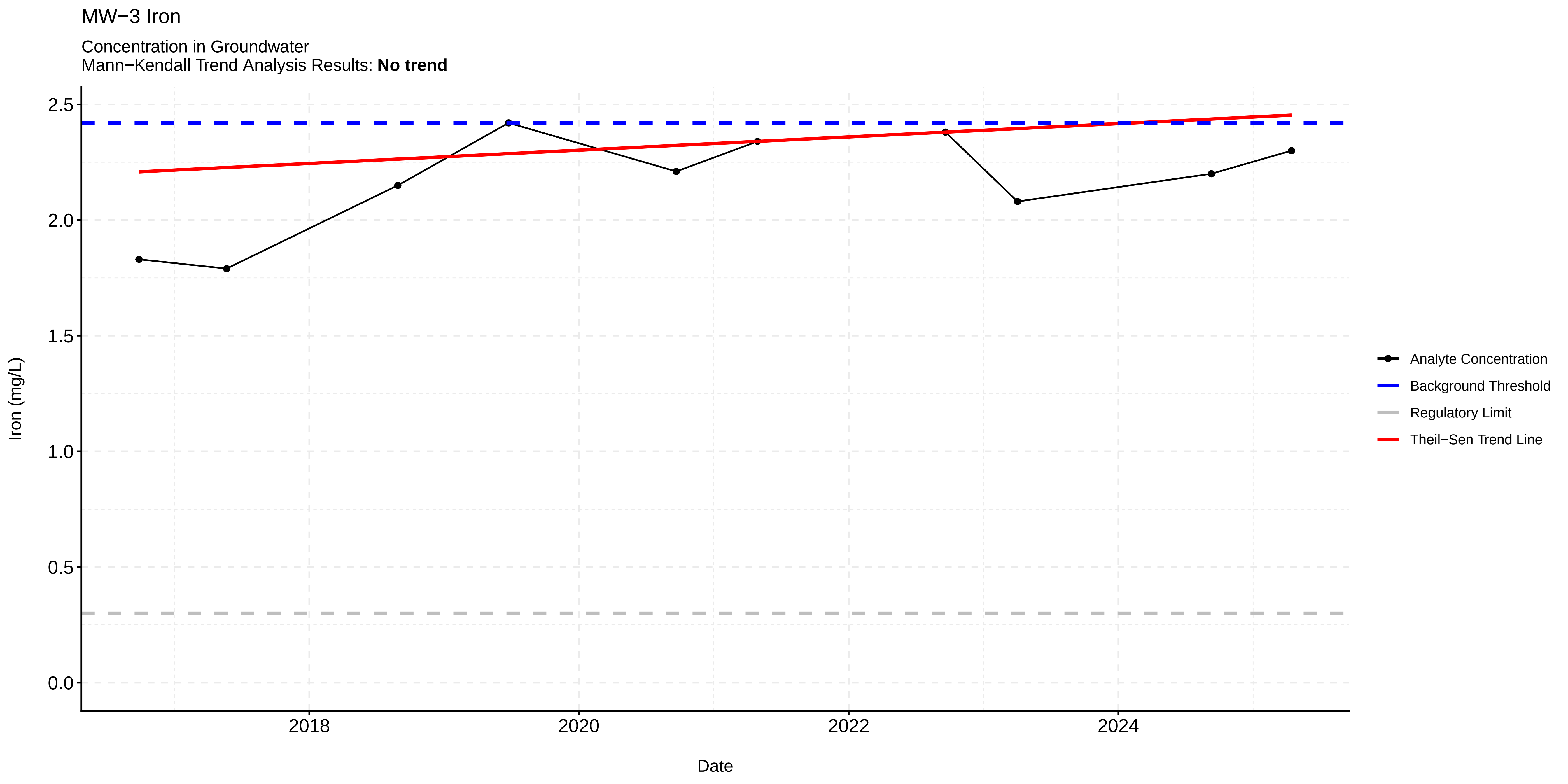
Continuous Aquifer

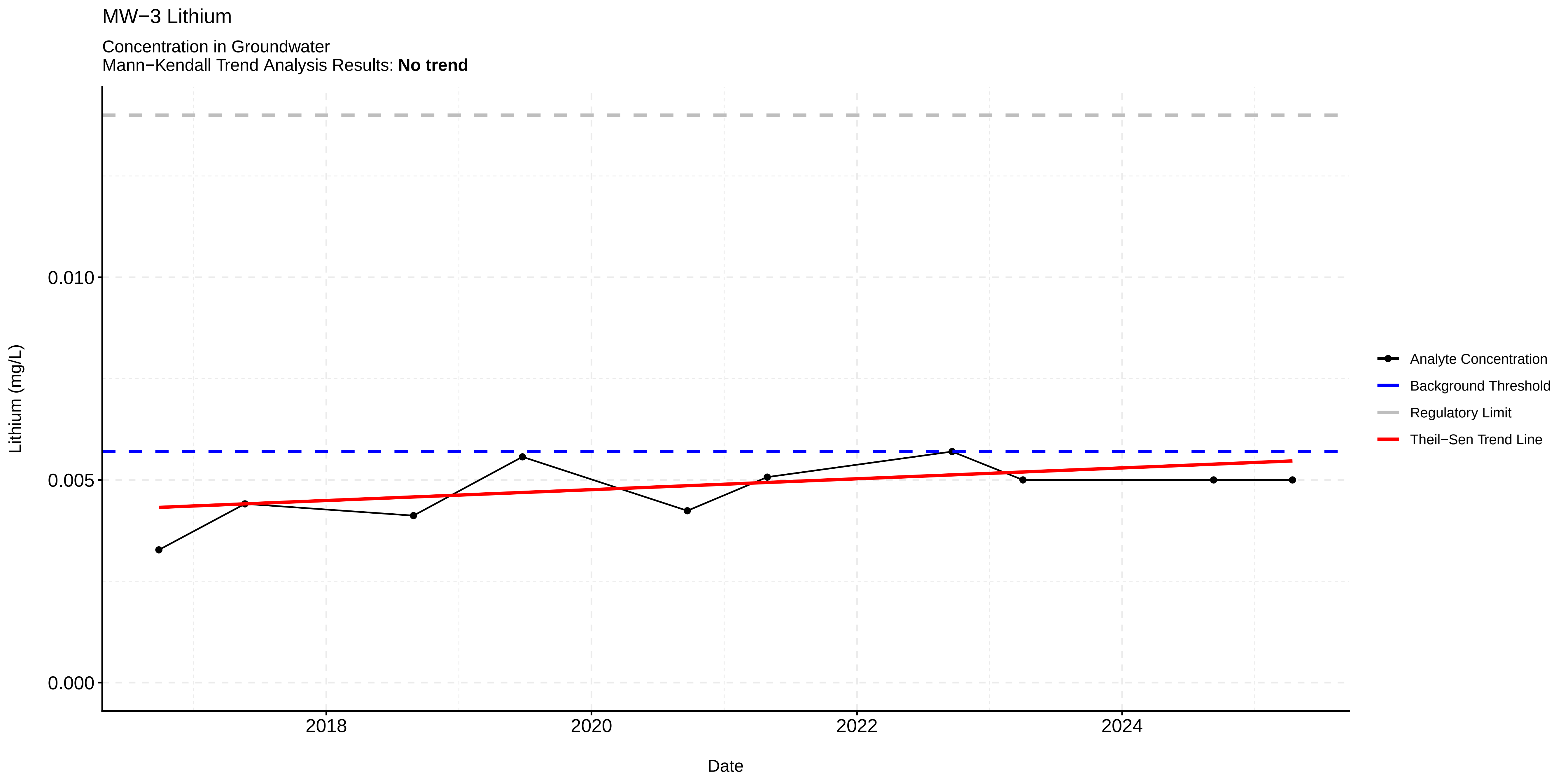

MW−3 Barium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Barium (mg/L)
2.0
1.5
1.0
0.5
0.0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

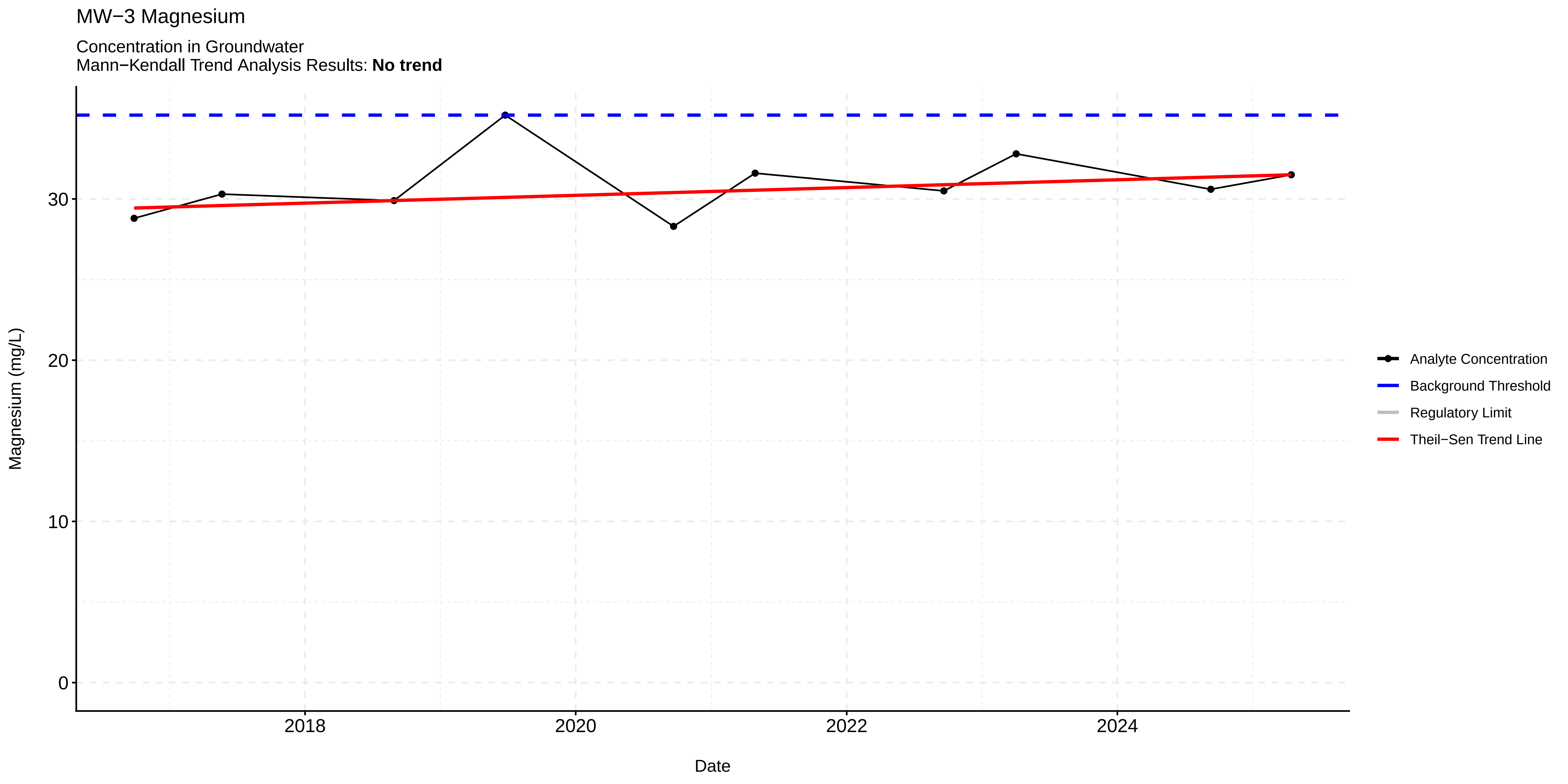

MW−3 Calcium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
120
90
60
30
0
Calcium (mg/L)
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line



MW−3 Cobalt
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Cobalt (mg/L)
0.0020
0.0015
0.0010
0.0005
0.0000
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−3 Iron
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Iron (mg/L)
2.5
2.0
1.5
1.0
0.5
0.0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

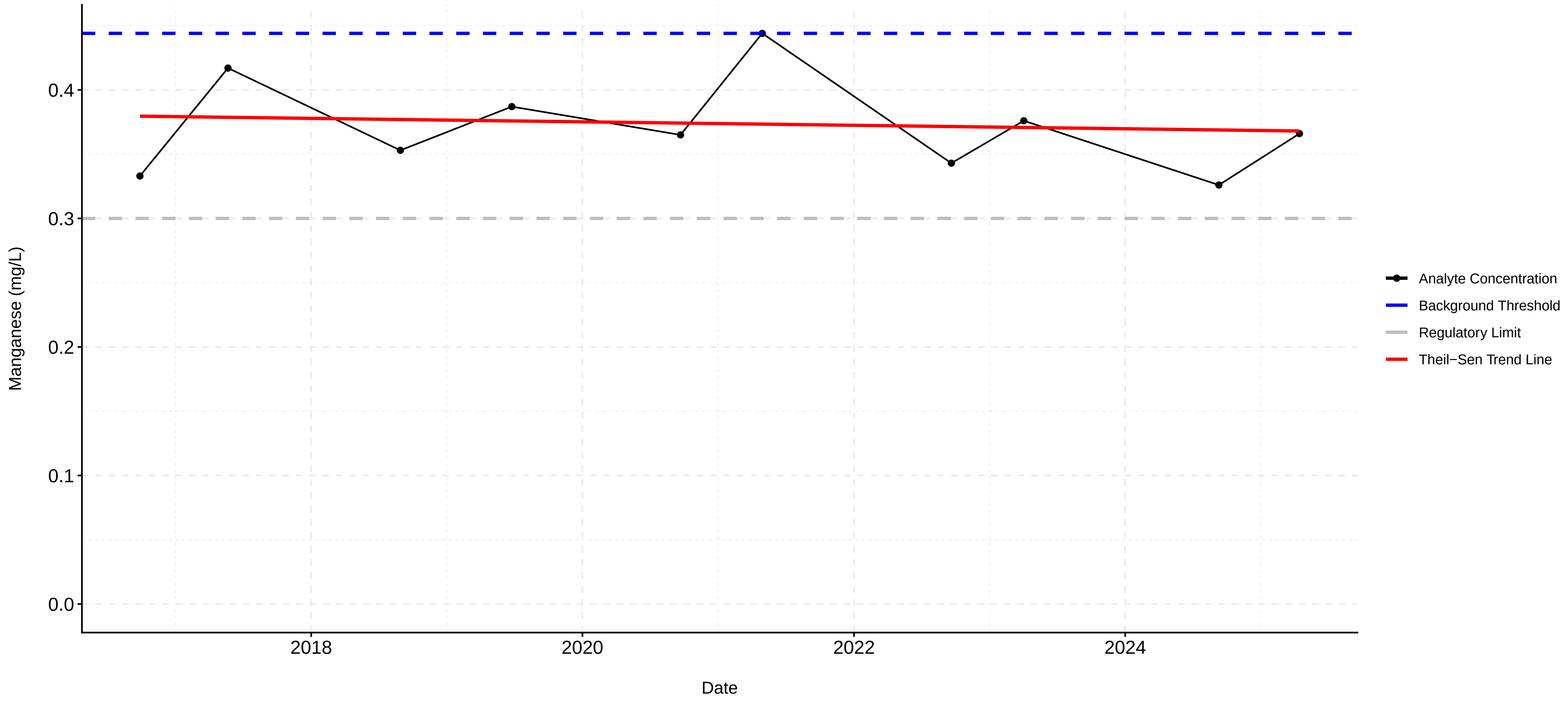

MW−3 Lithium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Lithium (mg/L)
0.010
0.005
0.000
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

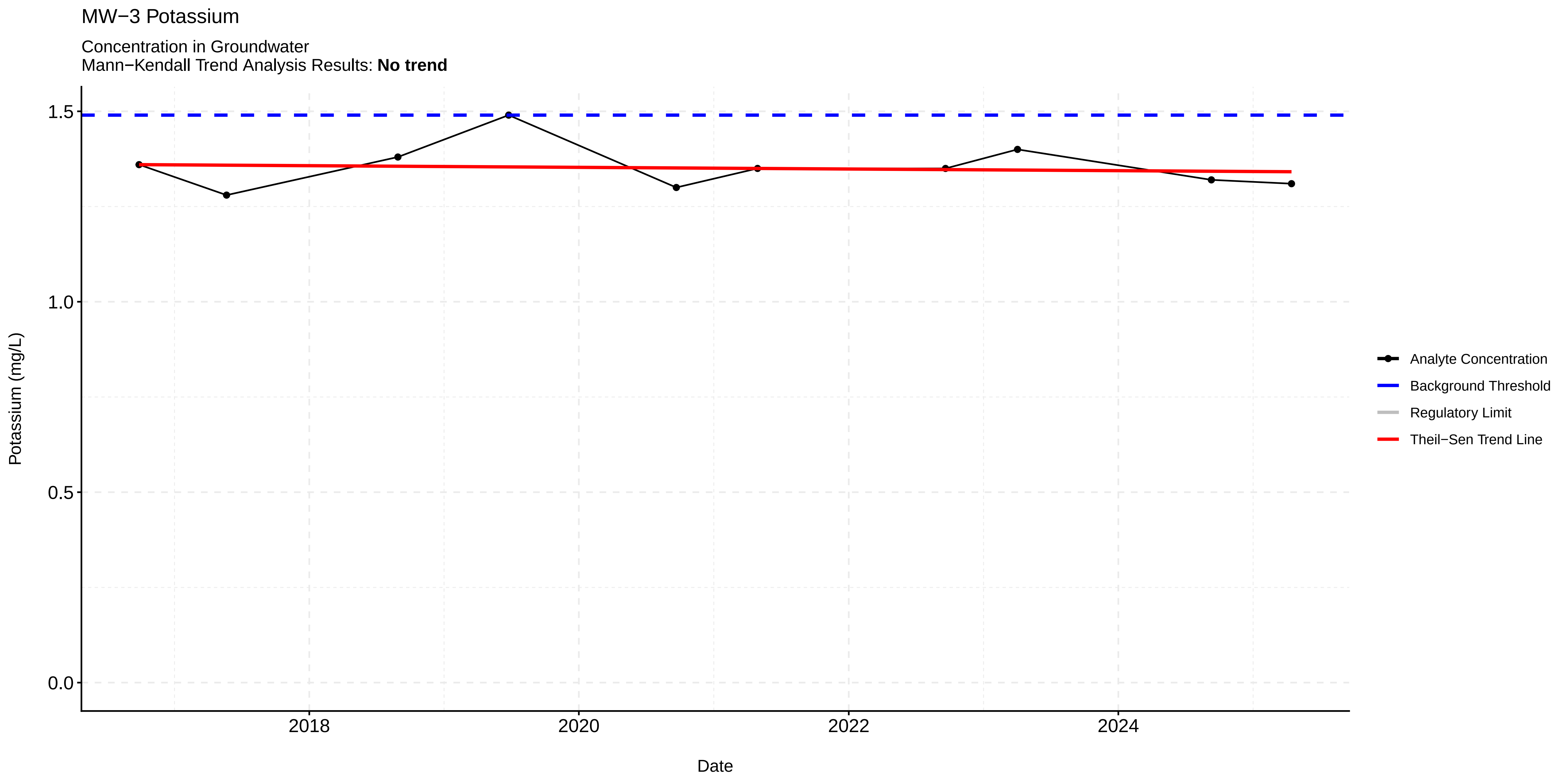


MW−3 Magnesium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Magnesium (mg/L)
0
10
20
30
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

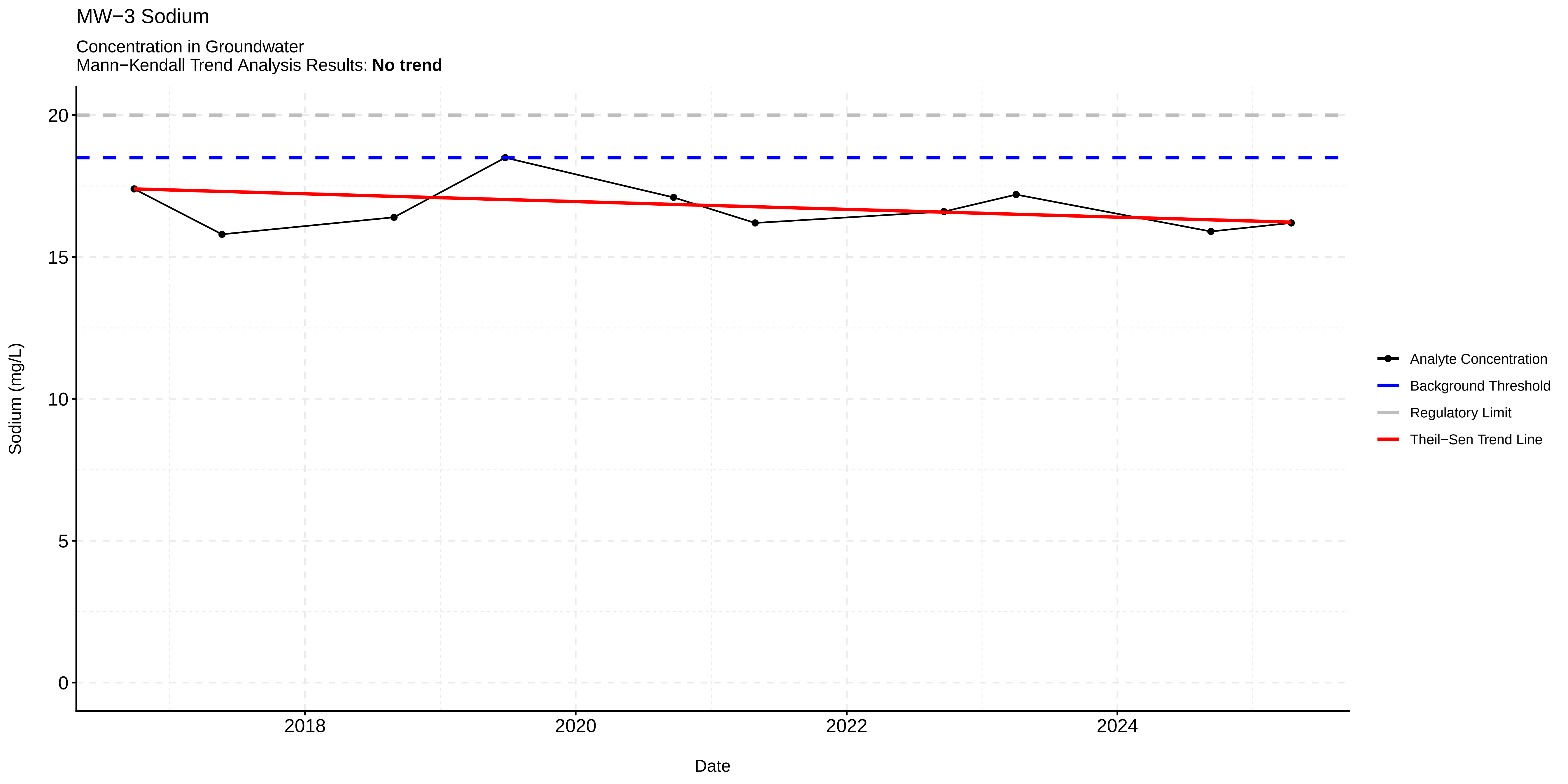
MW−3 Manganese

Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**



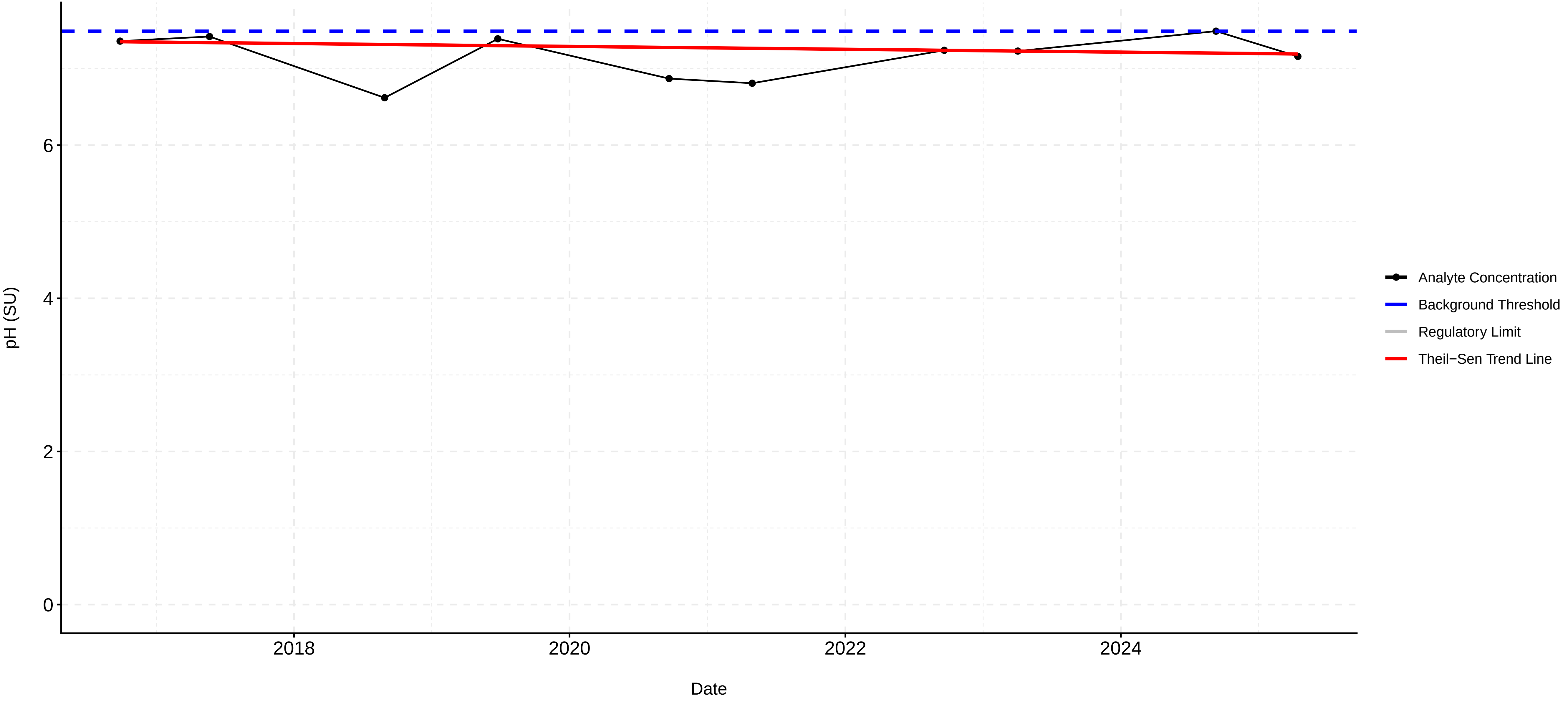


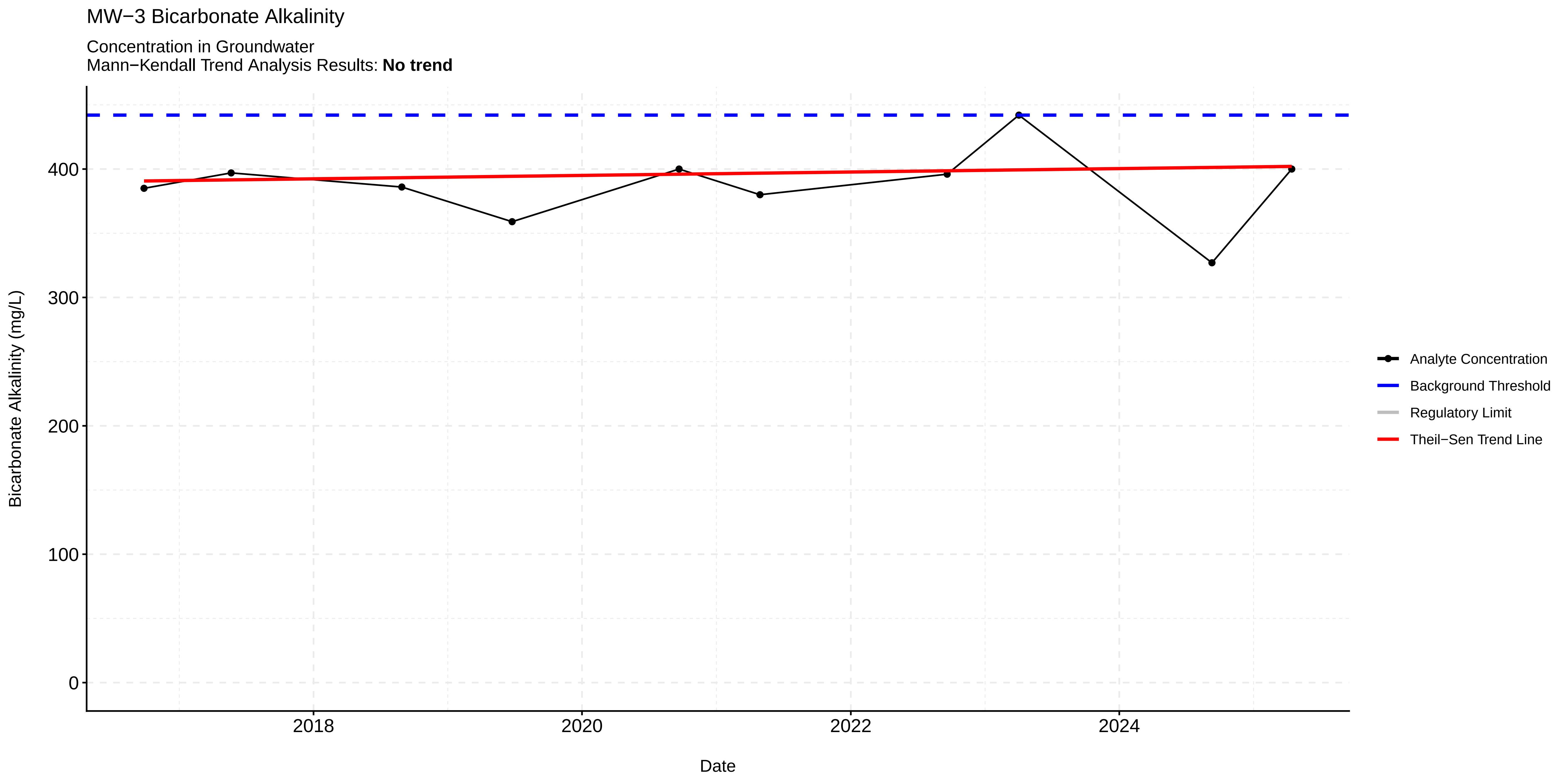
MW−3 Potassium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Potassium (mg/L)
1.5
1.0
0.5
0.0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

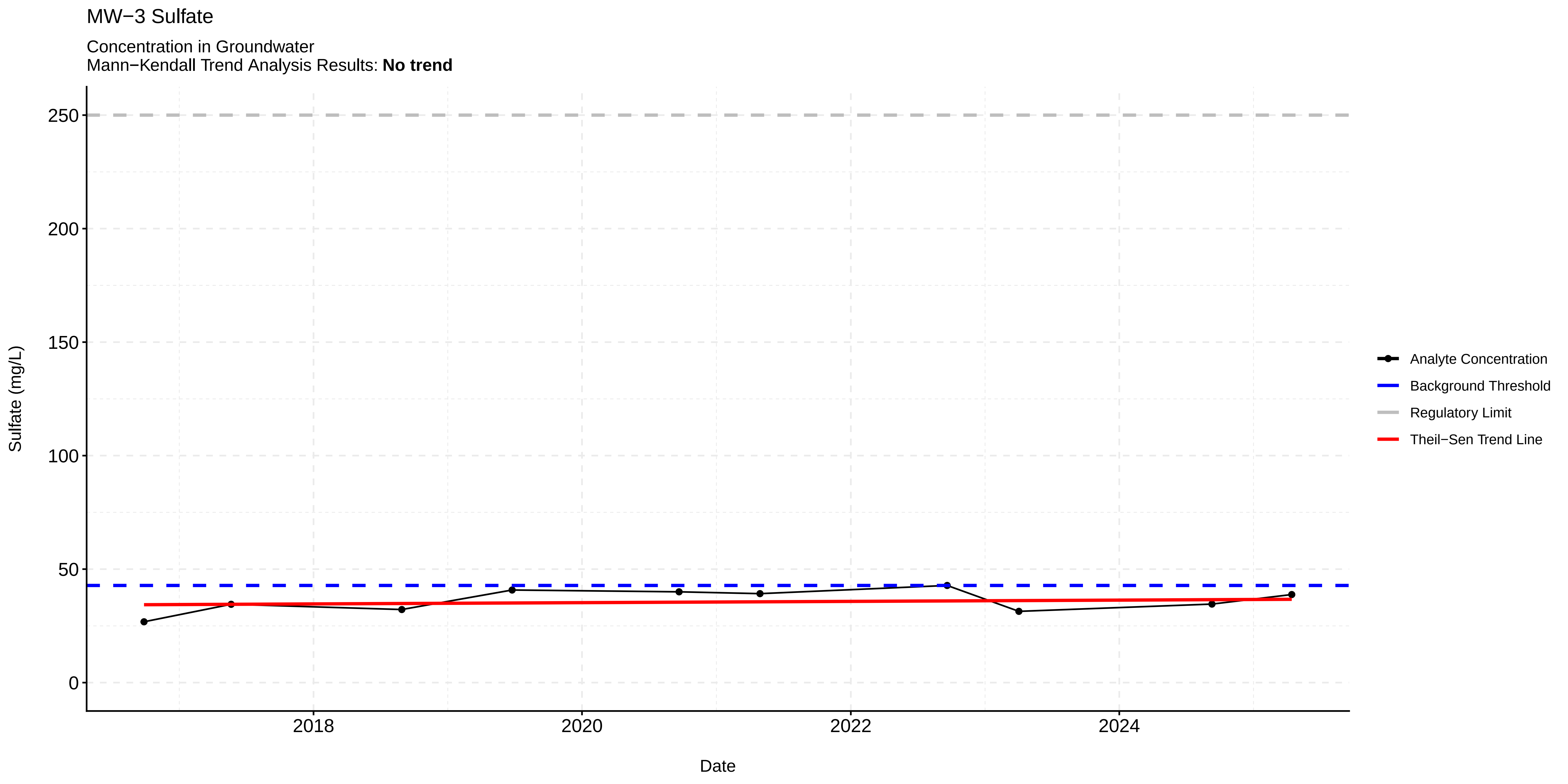

MW−3 Sodium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Sodium (mg/L)
0
5
10
15
20
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

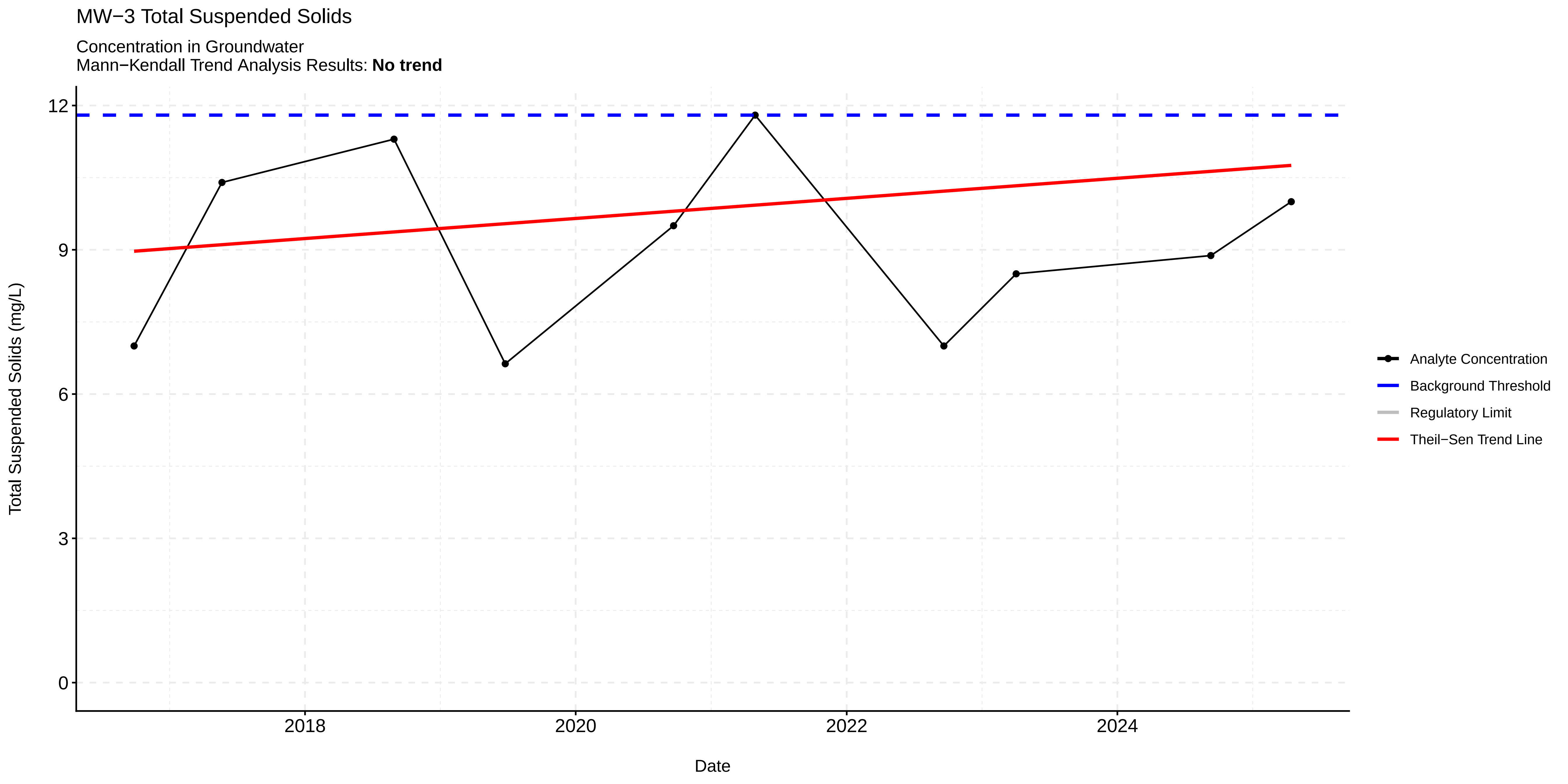
MW−3 pH

Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**

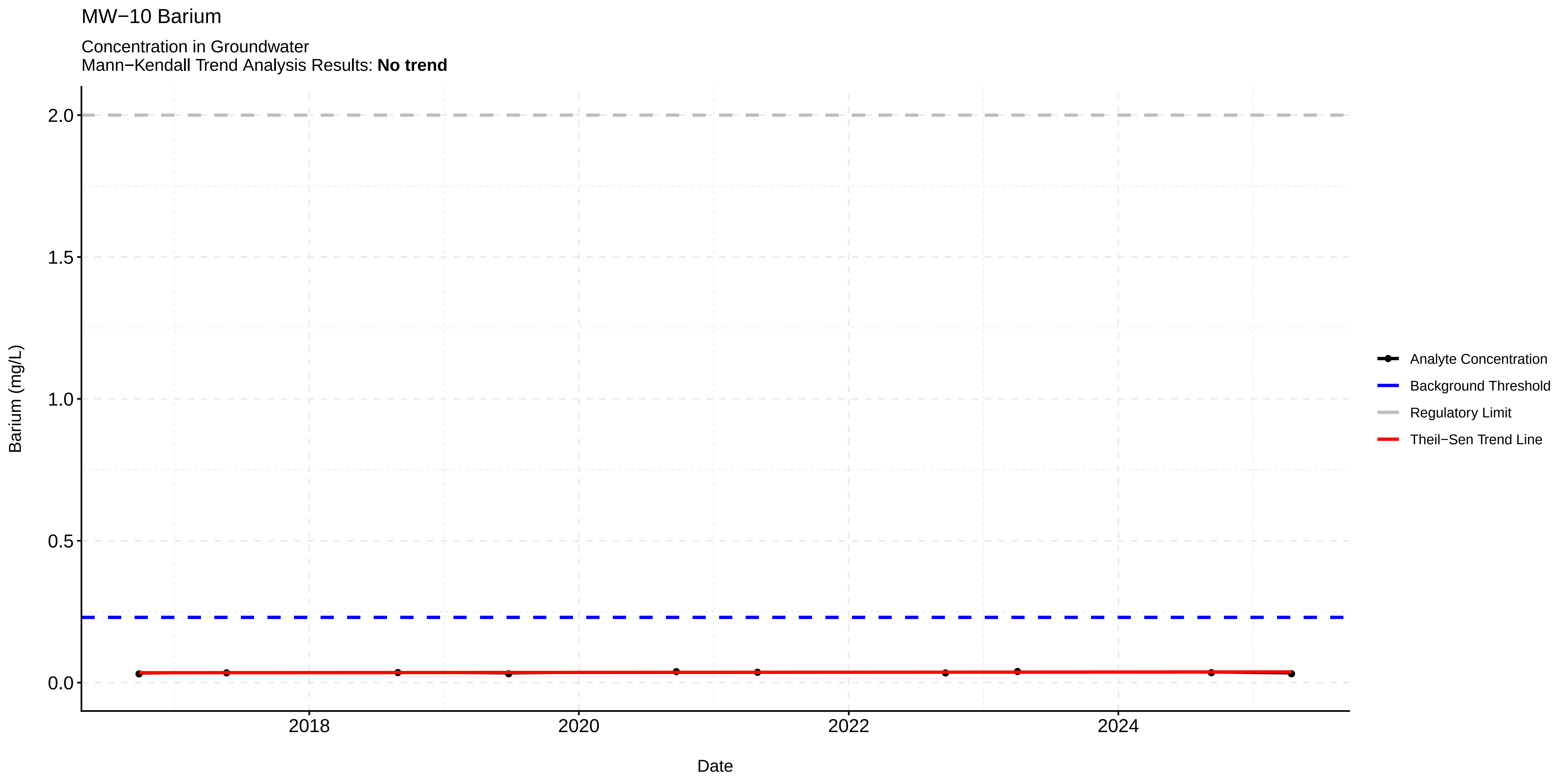



MW−3 Bicarbonate Alkalinity
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Bicarbonate Alkalinity (mg/L)
0
100
200
300
400
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−3 Sulfate
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Sulfate (mg/L)
250
200
150
100
50
0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

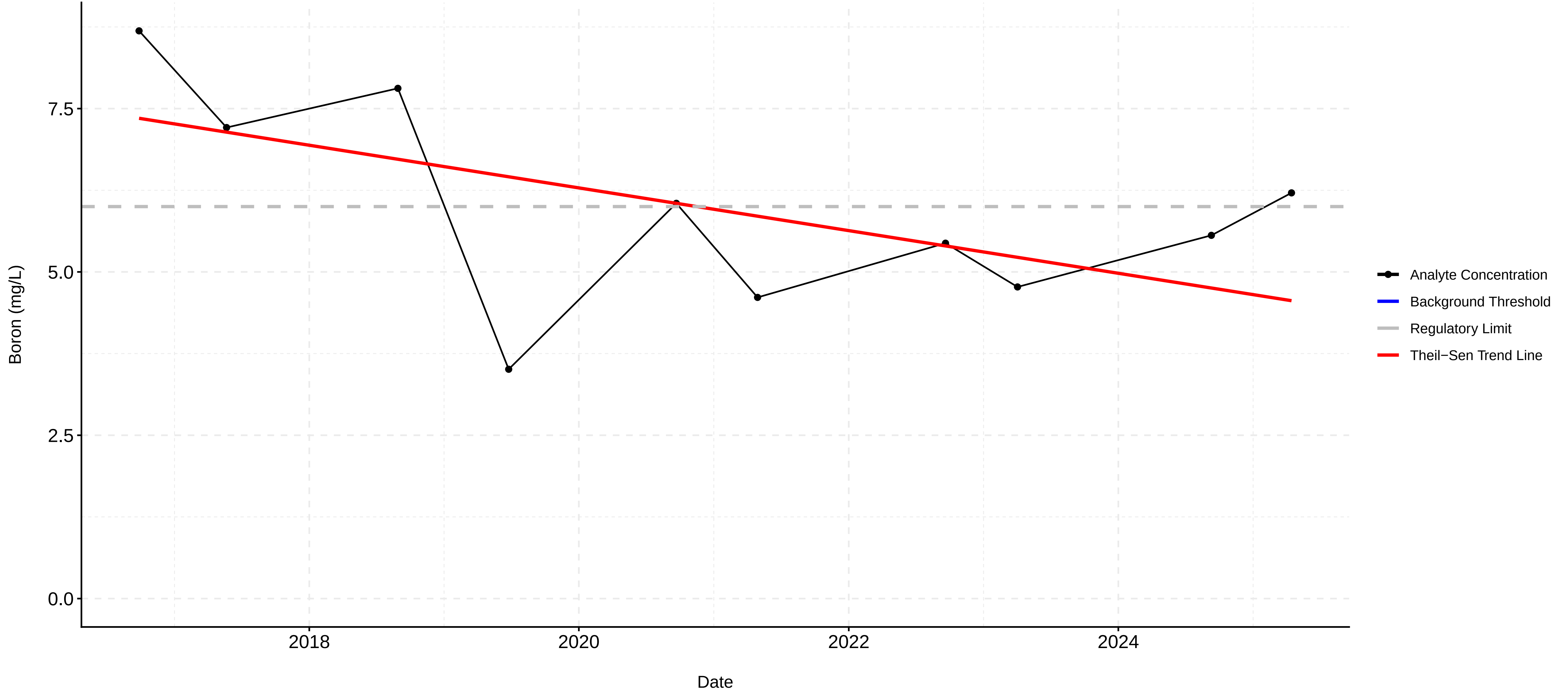


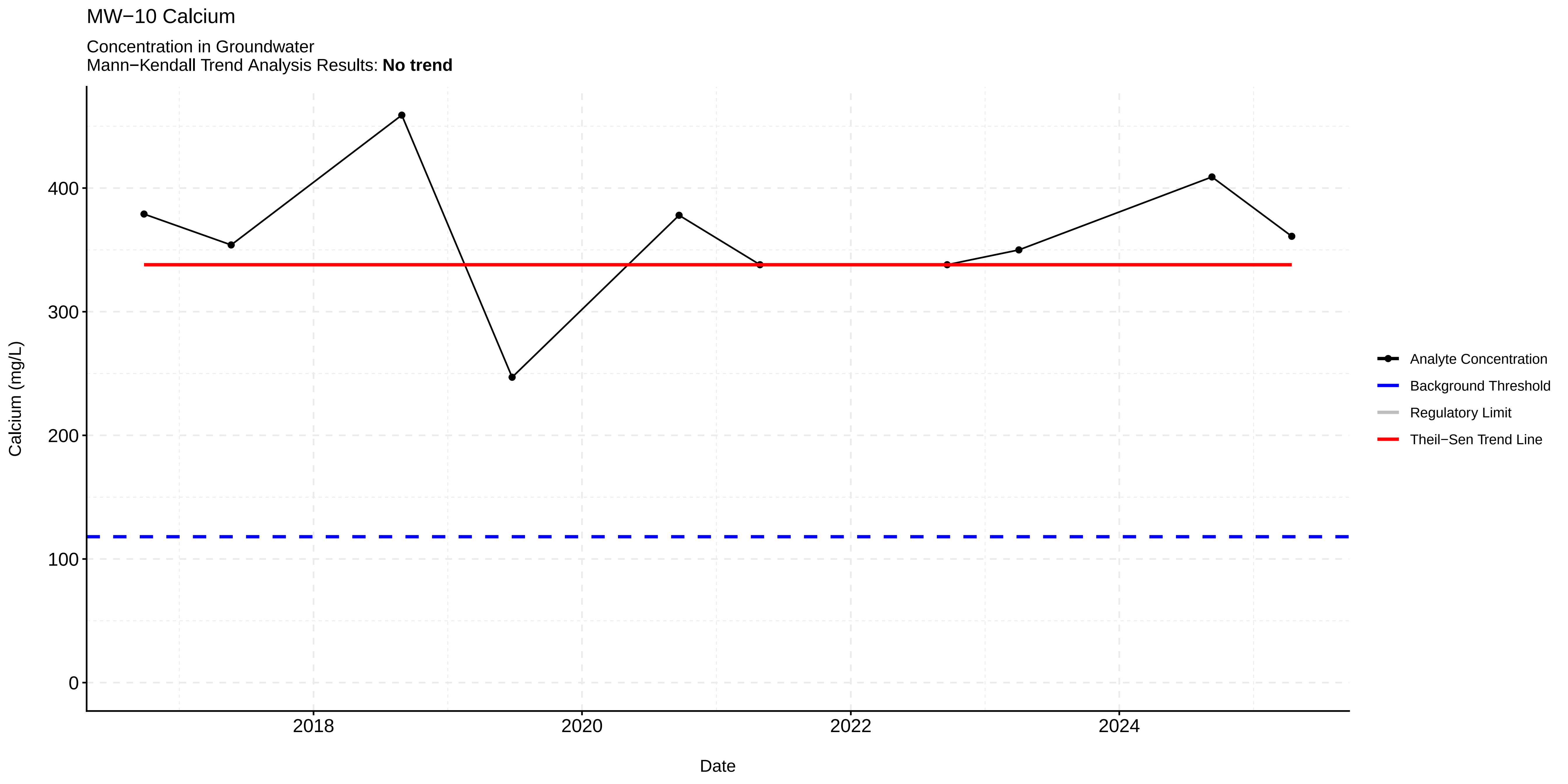
MW−3 Total Suspended Solids
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Total Suspended Solids (mg/L)
12
9
6
3
0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

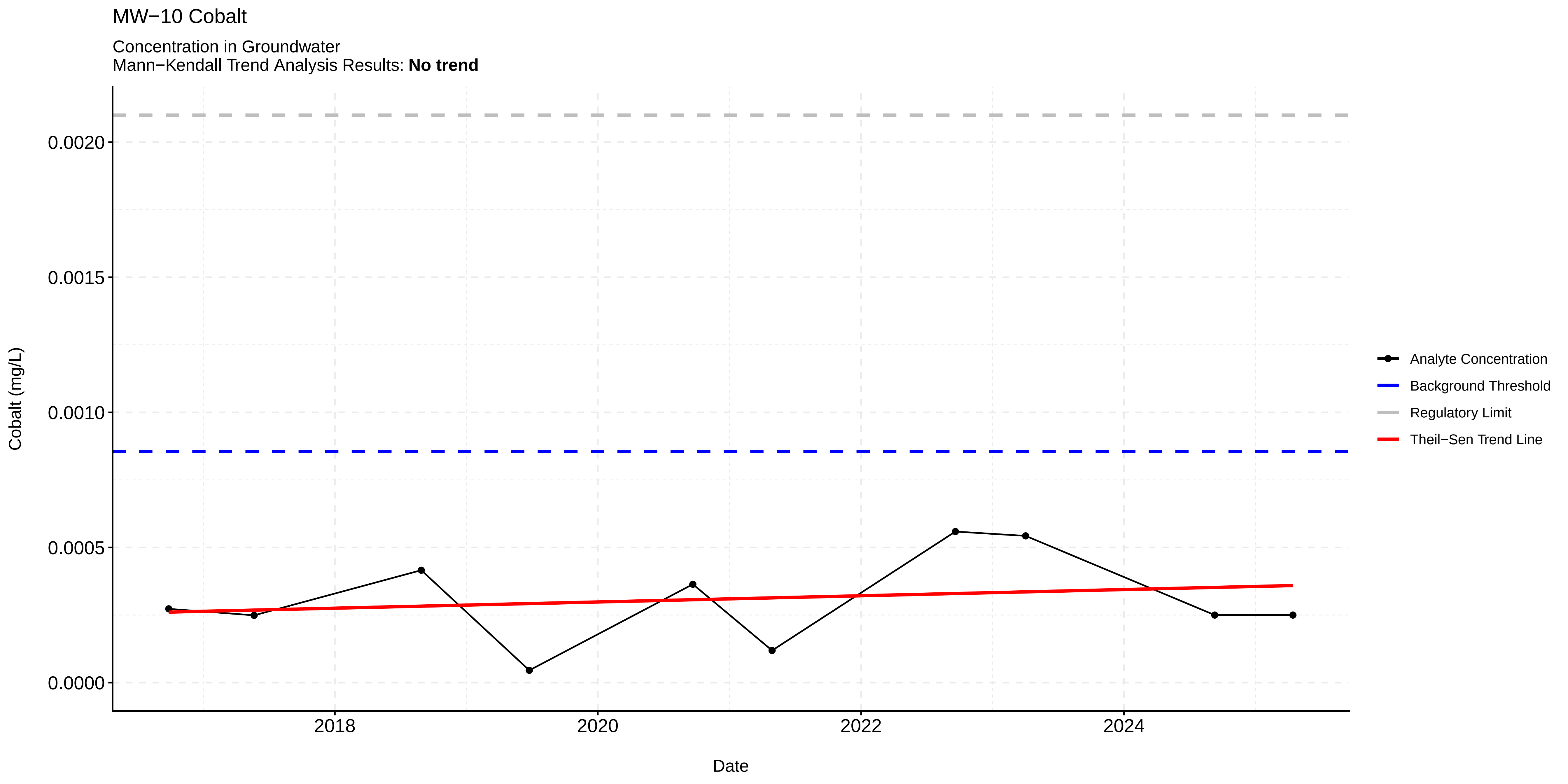

MW−10 Barium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Barium (mg/L)
2.0
1.5
1.0
0.5
0.0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

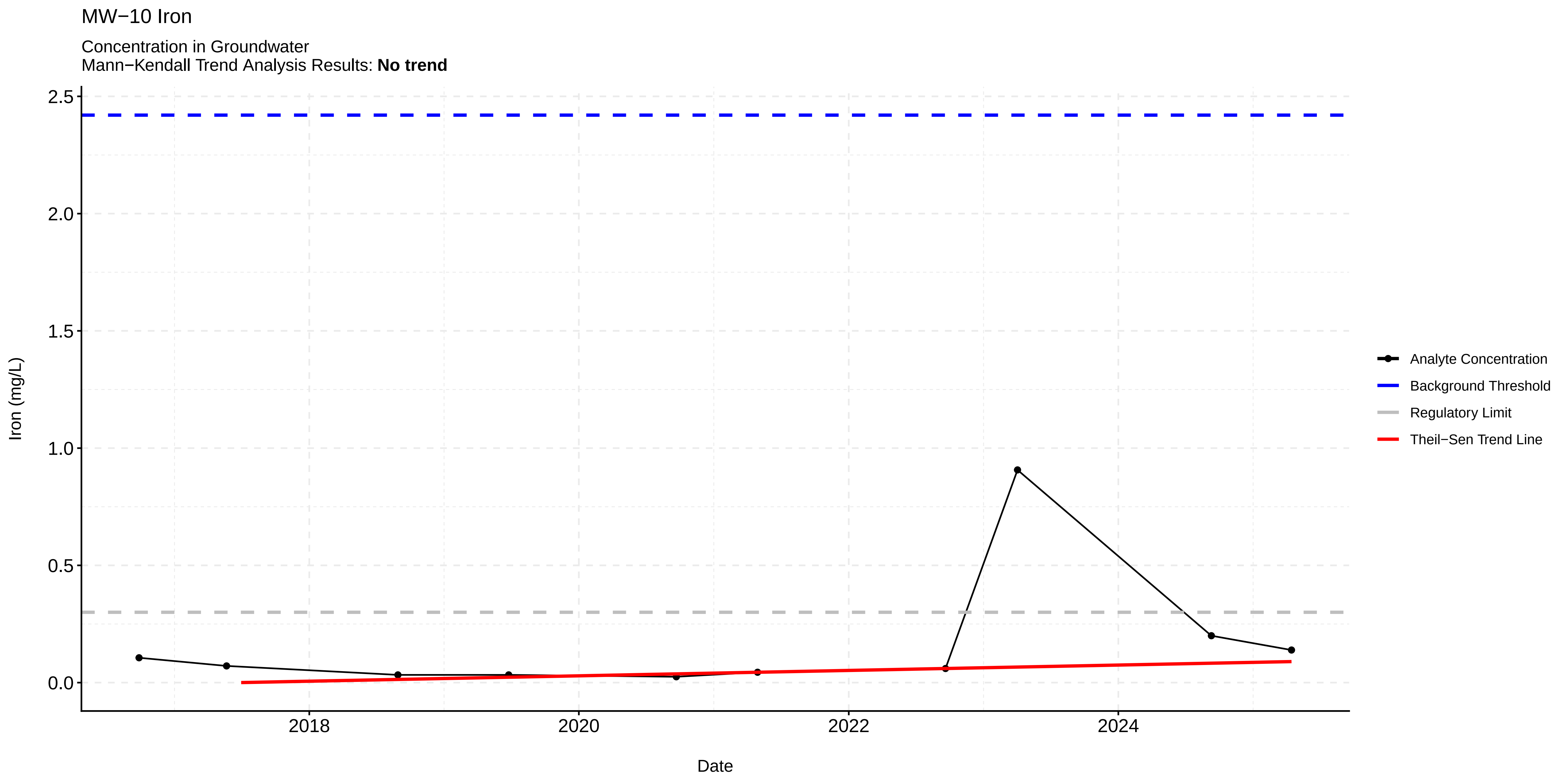
MW−10 Boron

Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**

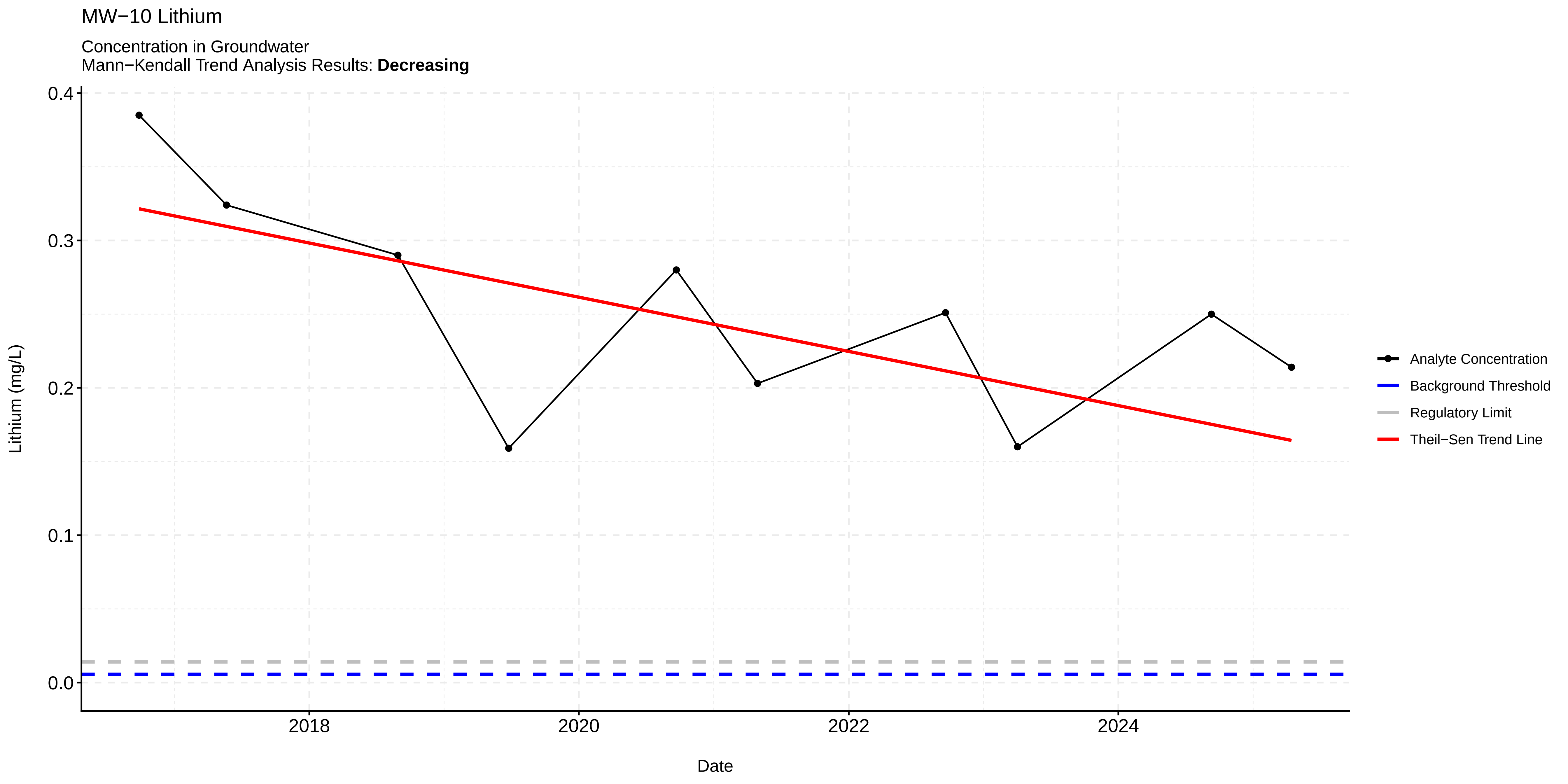



MW−10 Calcium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Calcium (mg/L)
0
100
200
300
400
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

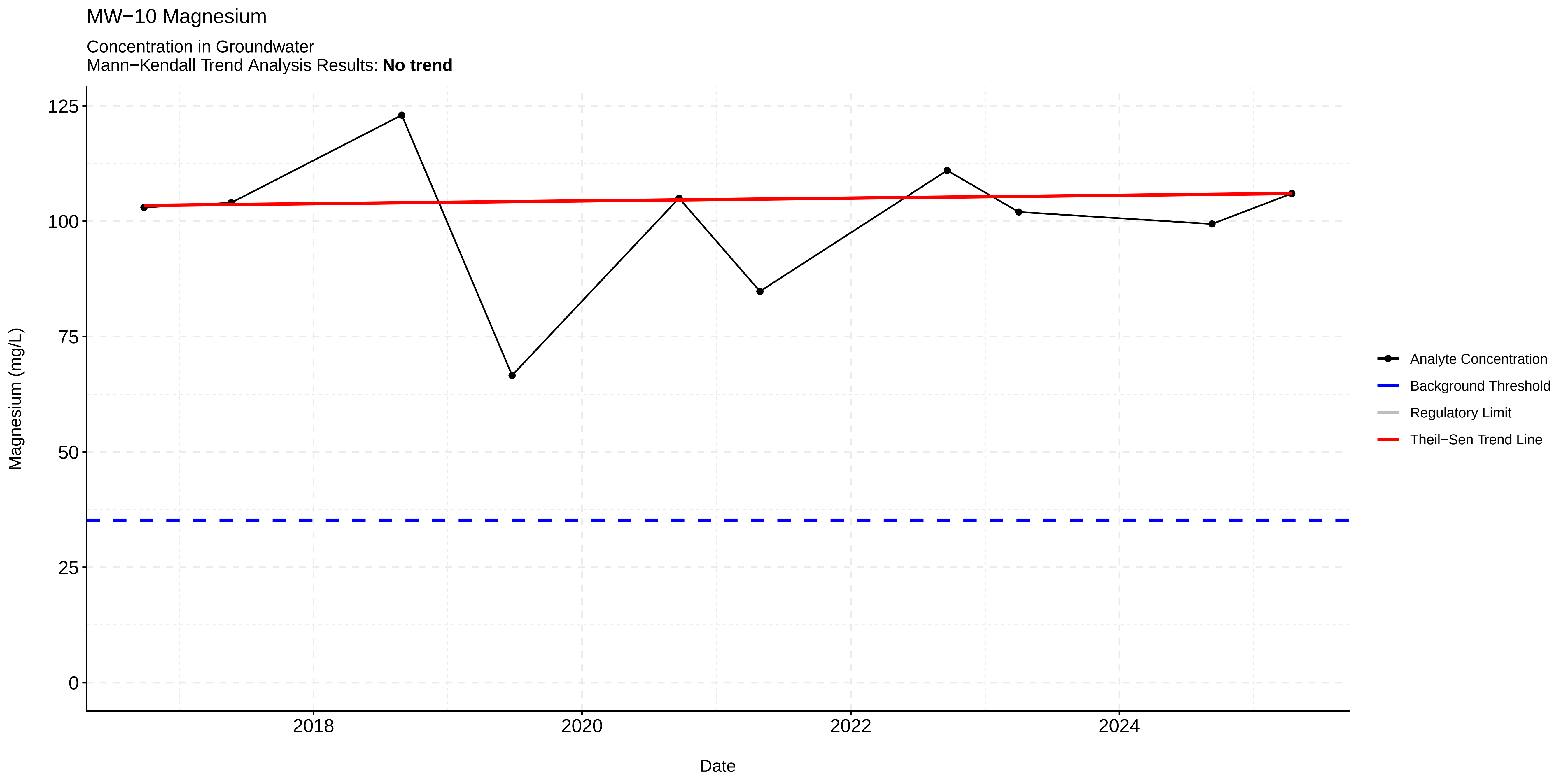

MW−10 Cobalt
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Cobalt (mg/L)
0.0020
0.0015
0.0010
0.0005
0.0000
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line



MW−10 Iron
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Iron (mg/L)
2.5
2.0
1.5
1.0
0.5
0.0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line



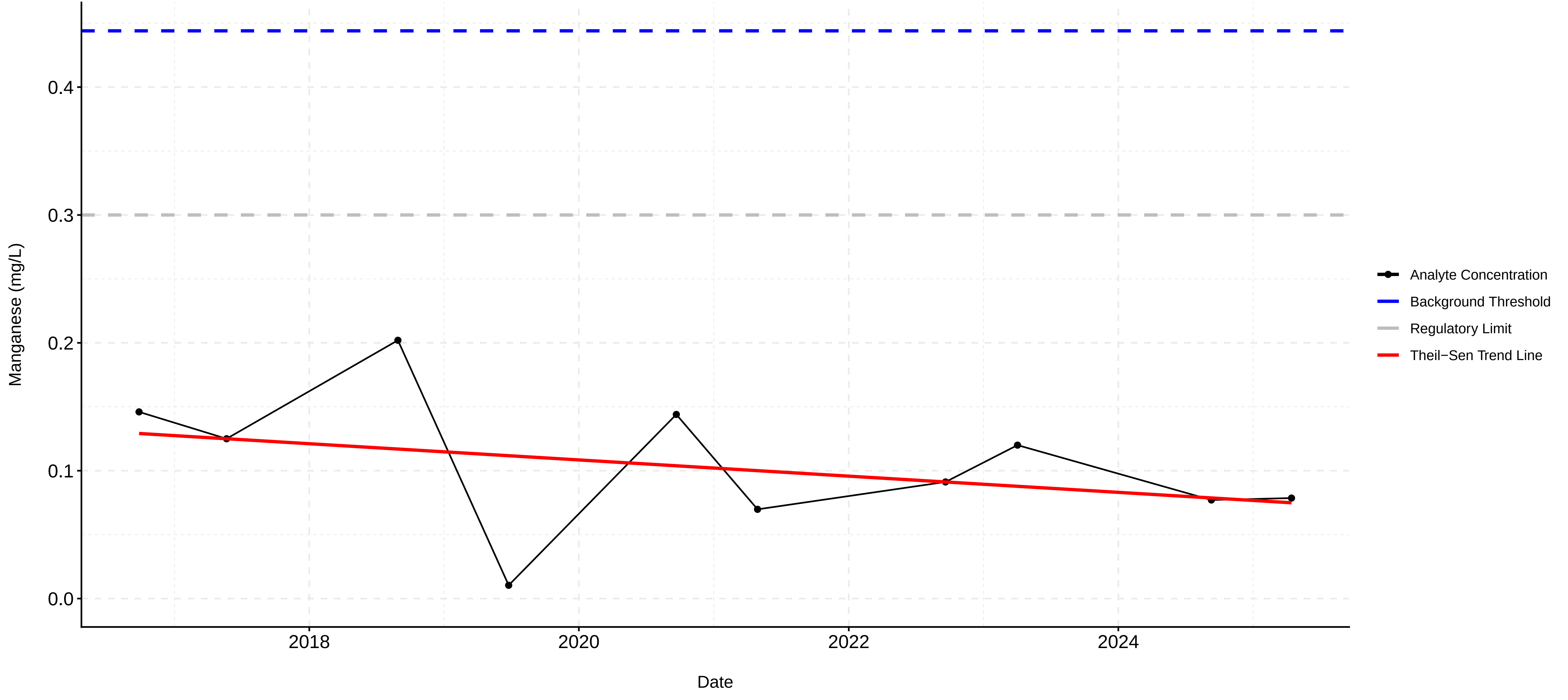
MW−10 Lithium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **Decreasing**
0.4
0.3
0.2
0.1
0.0
Lithium (mg/L)
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

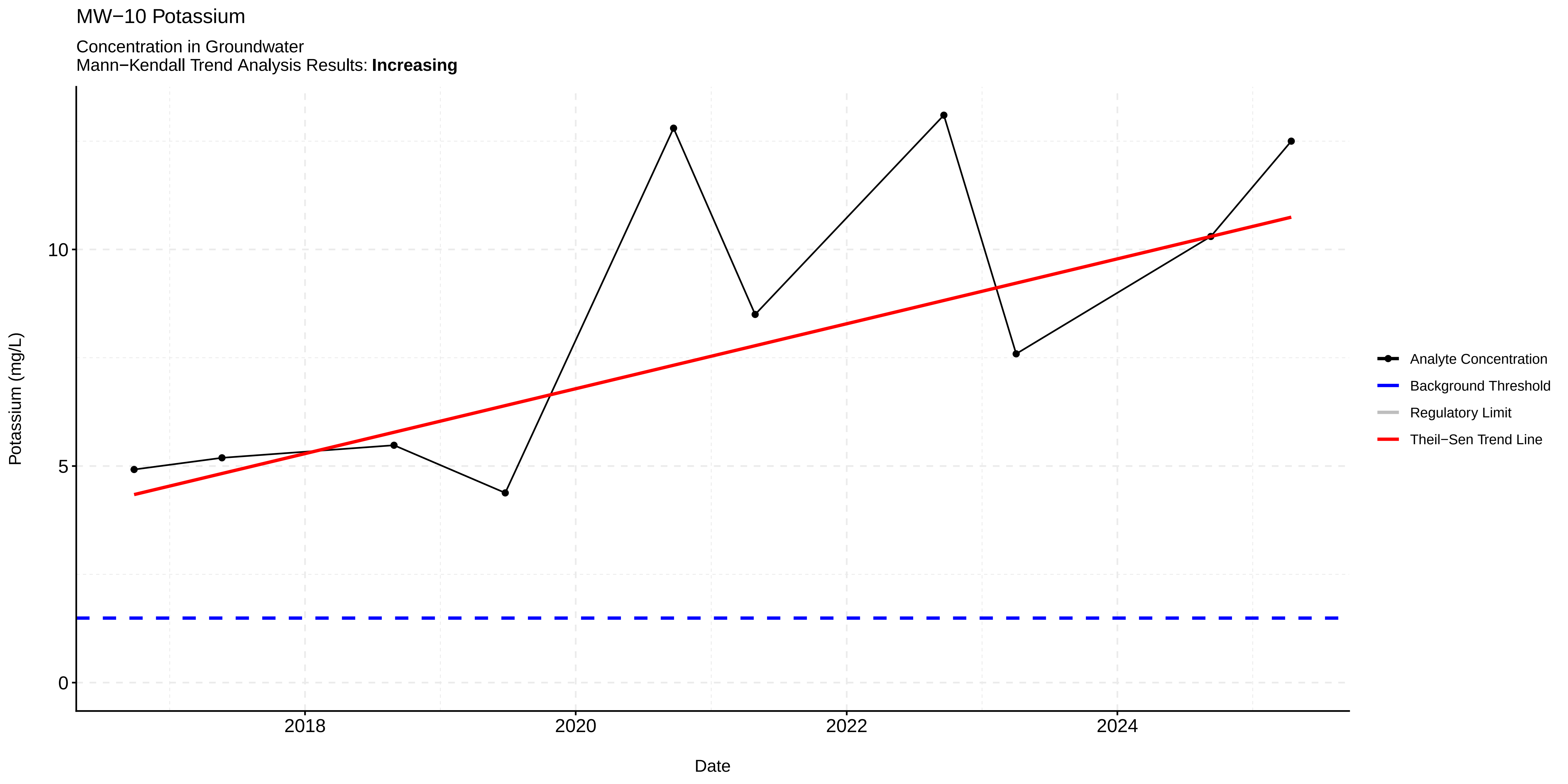


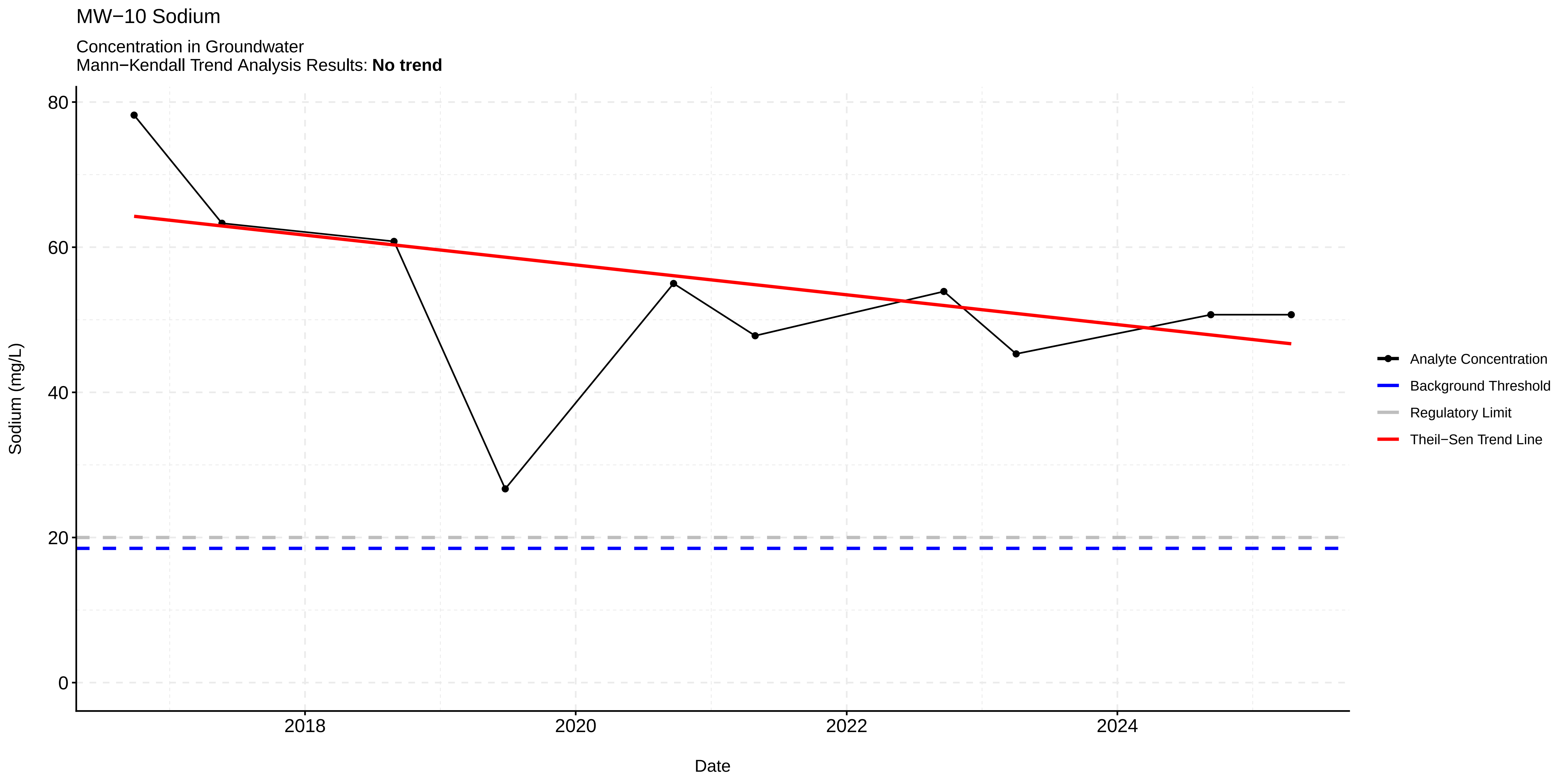
MW−10 Magnesium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Magnesium (mg/L)
125
100
75
50
25
0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

MW−10 Manganese

Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**

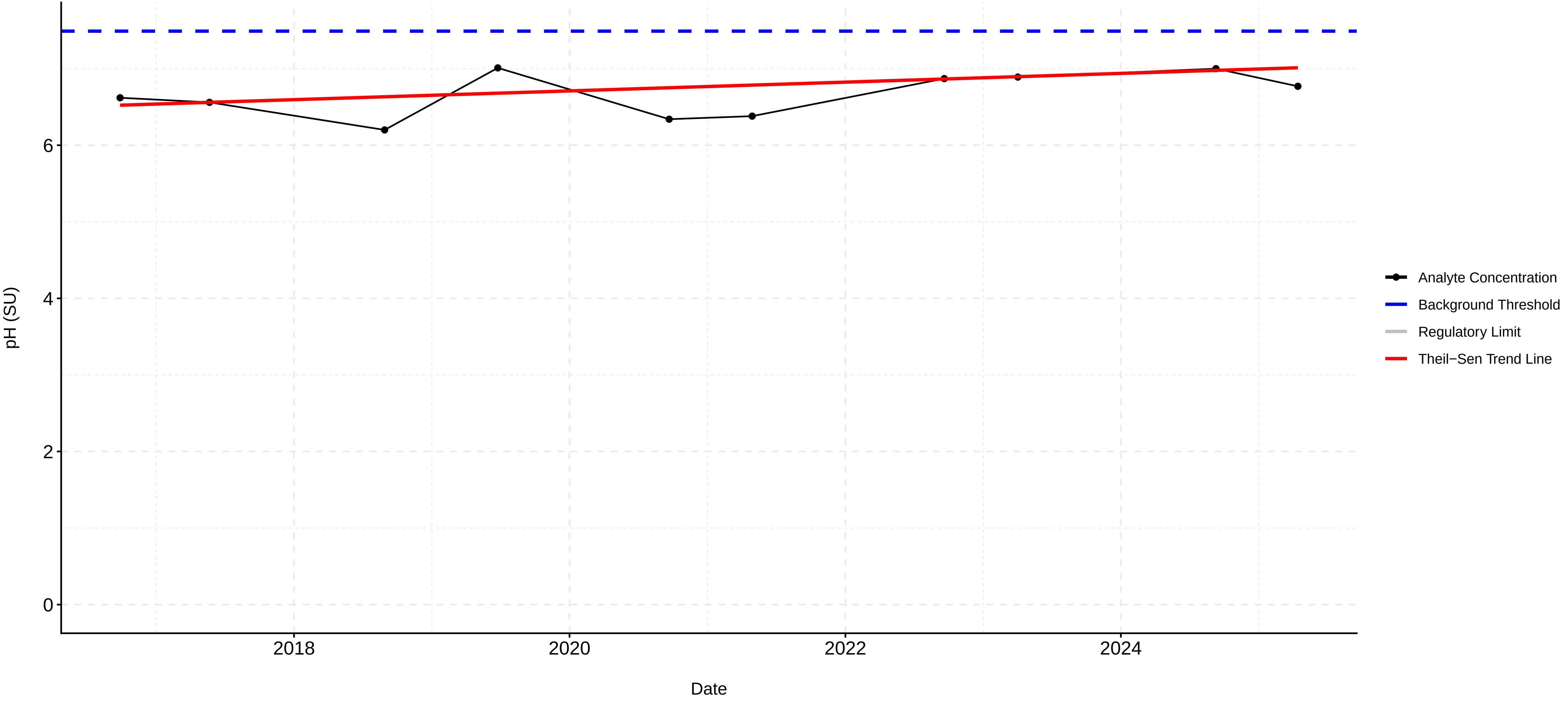


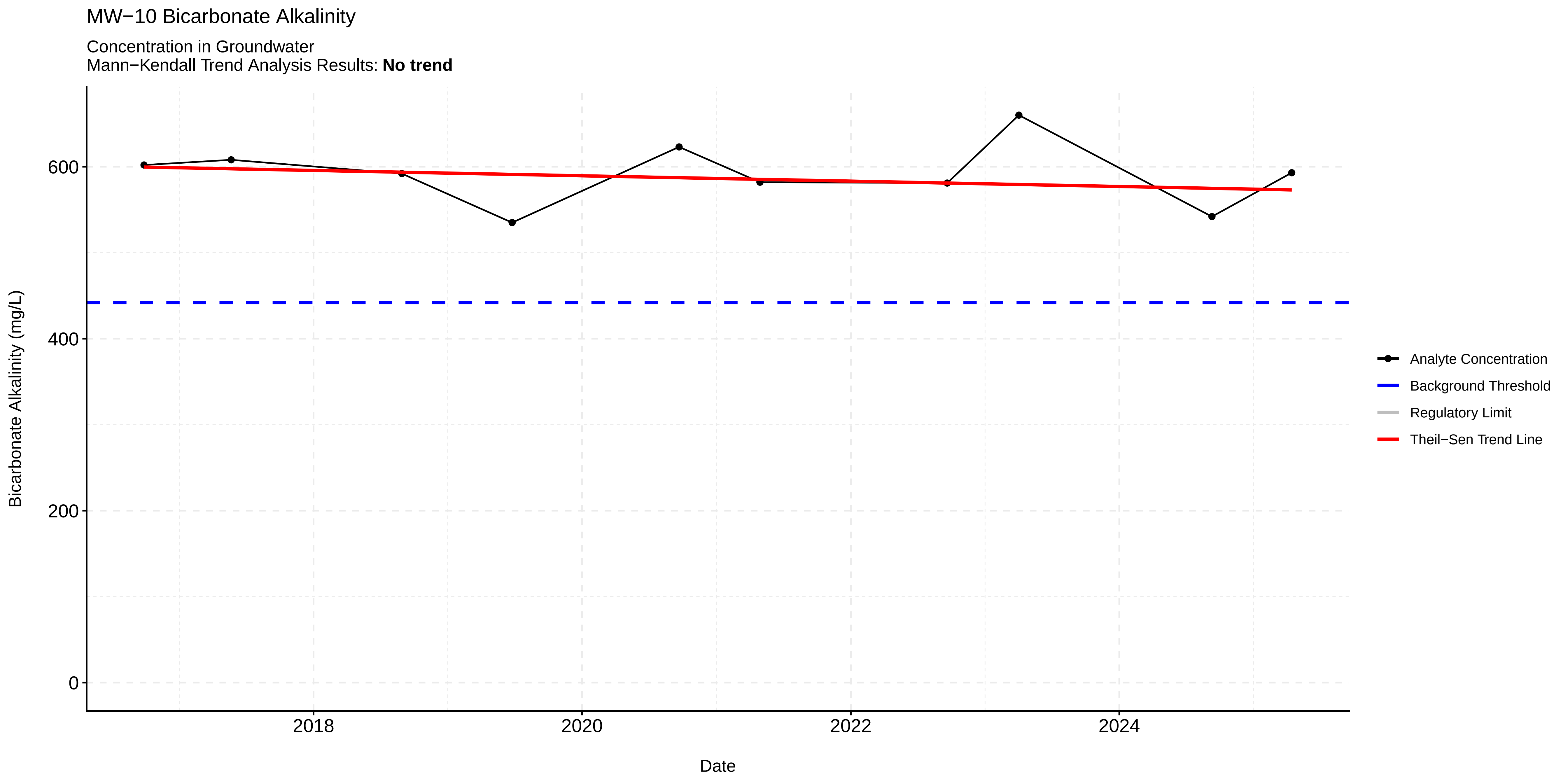

MW−10 Potassium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **Increasing**
Potassium (mg/L)
0
5
10
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−10 Sodium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Sodium (mg/L)
80
60
40
20
0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

MW−10 pH

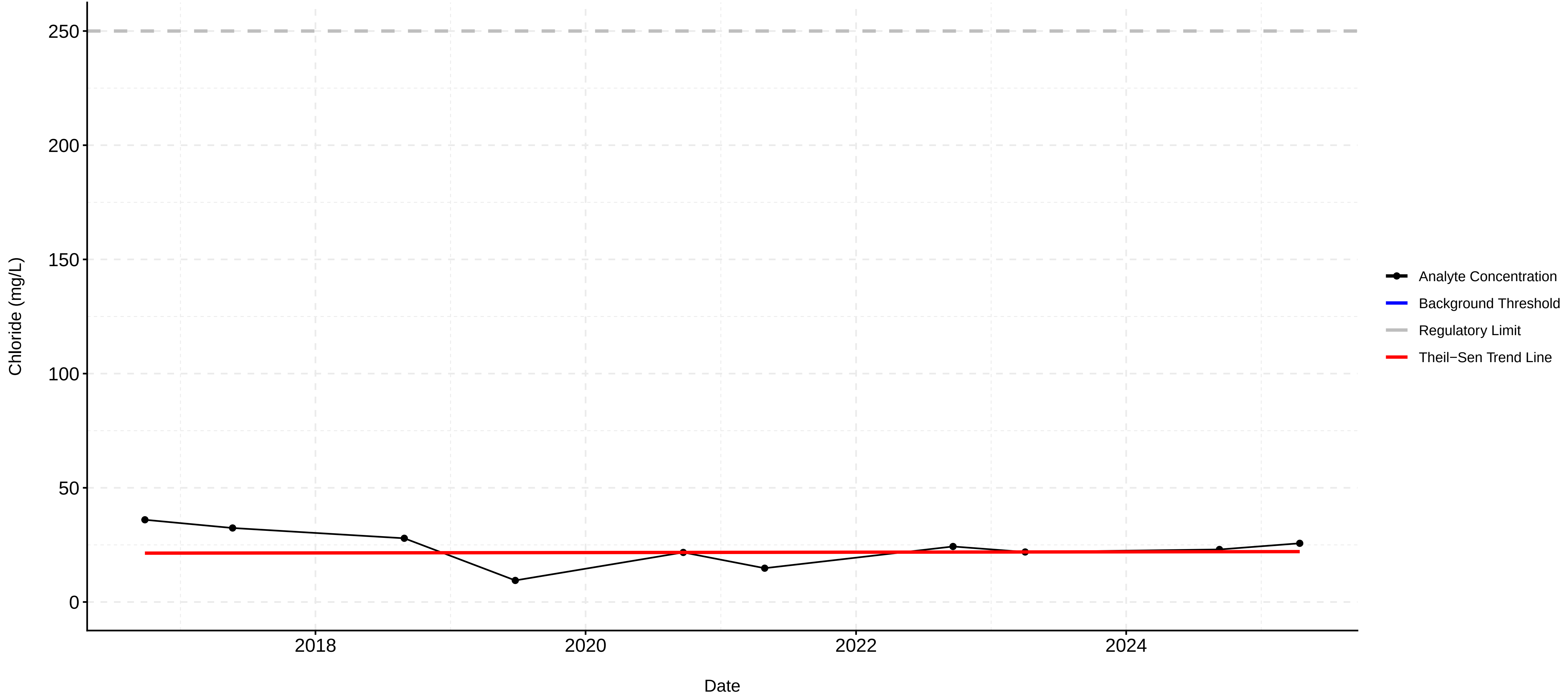
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**

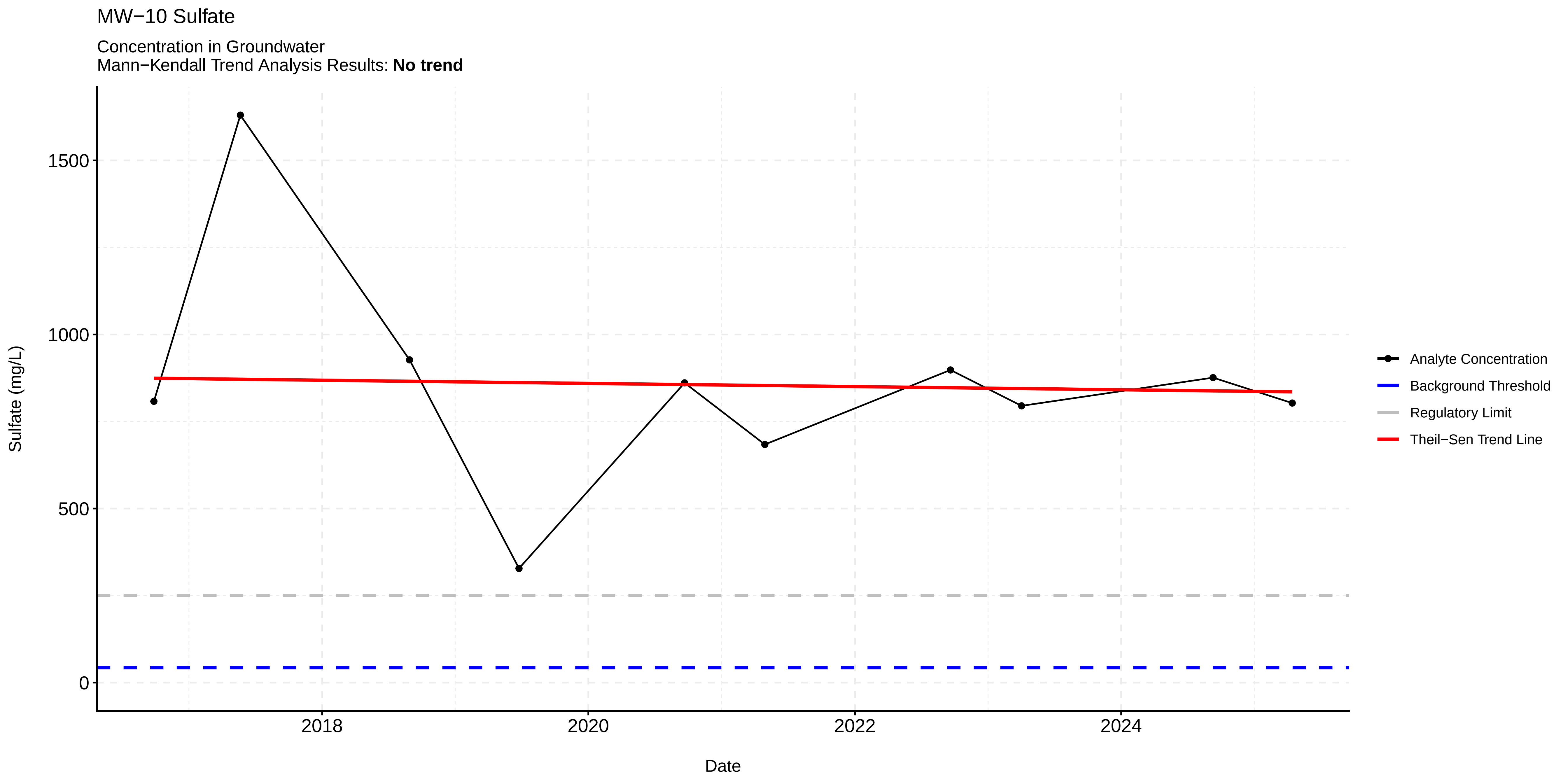


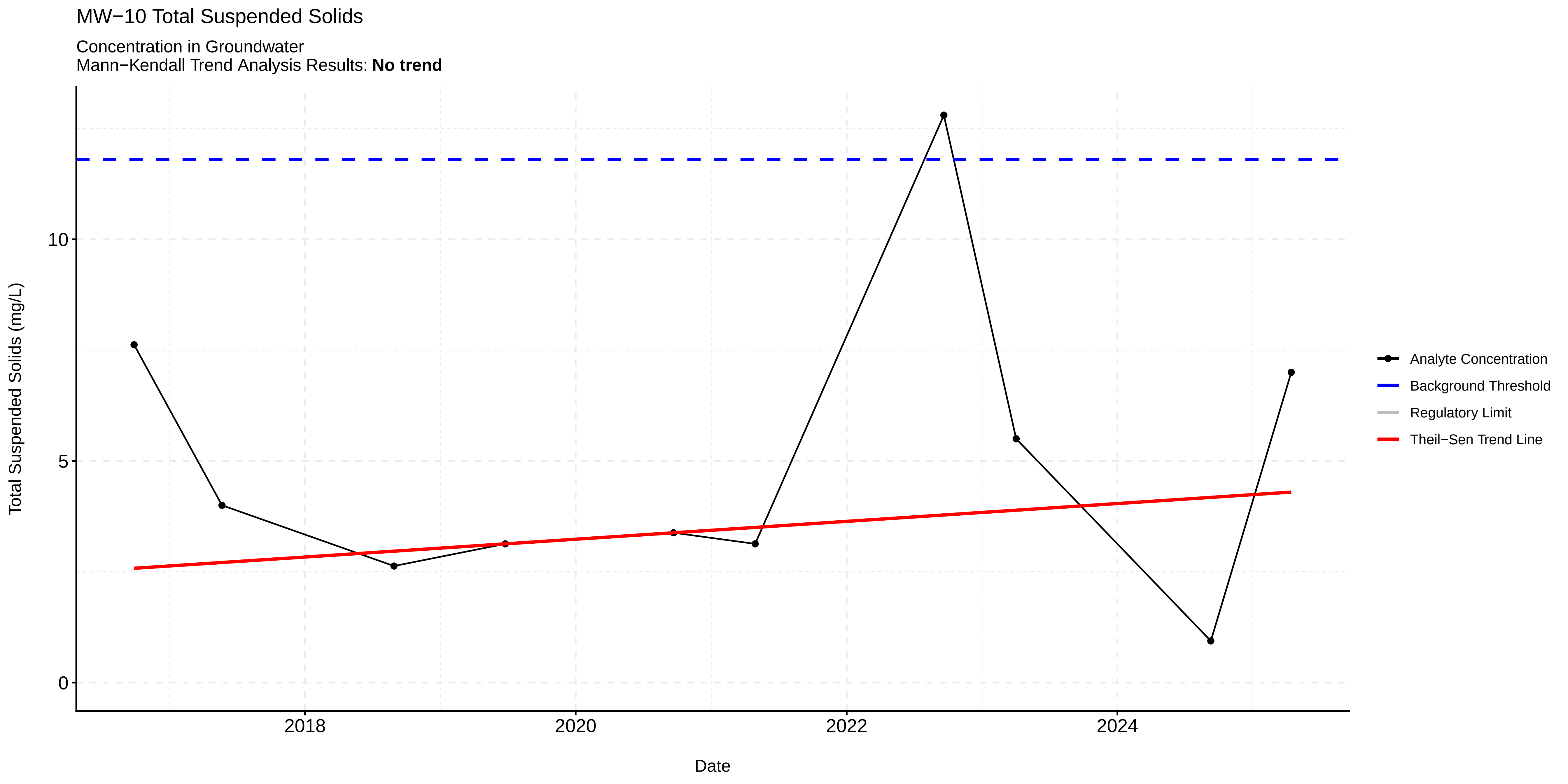

MW−10 Bicarbonate Alkalinity
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Bicarbonate Alkalinity (mg/L)
600
400
200
0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

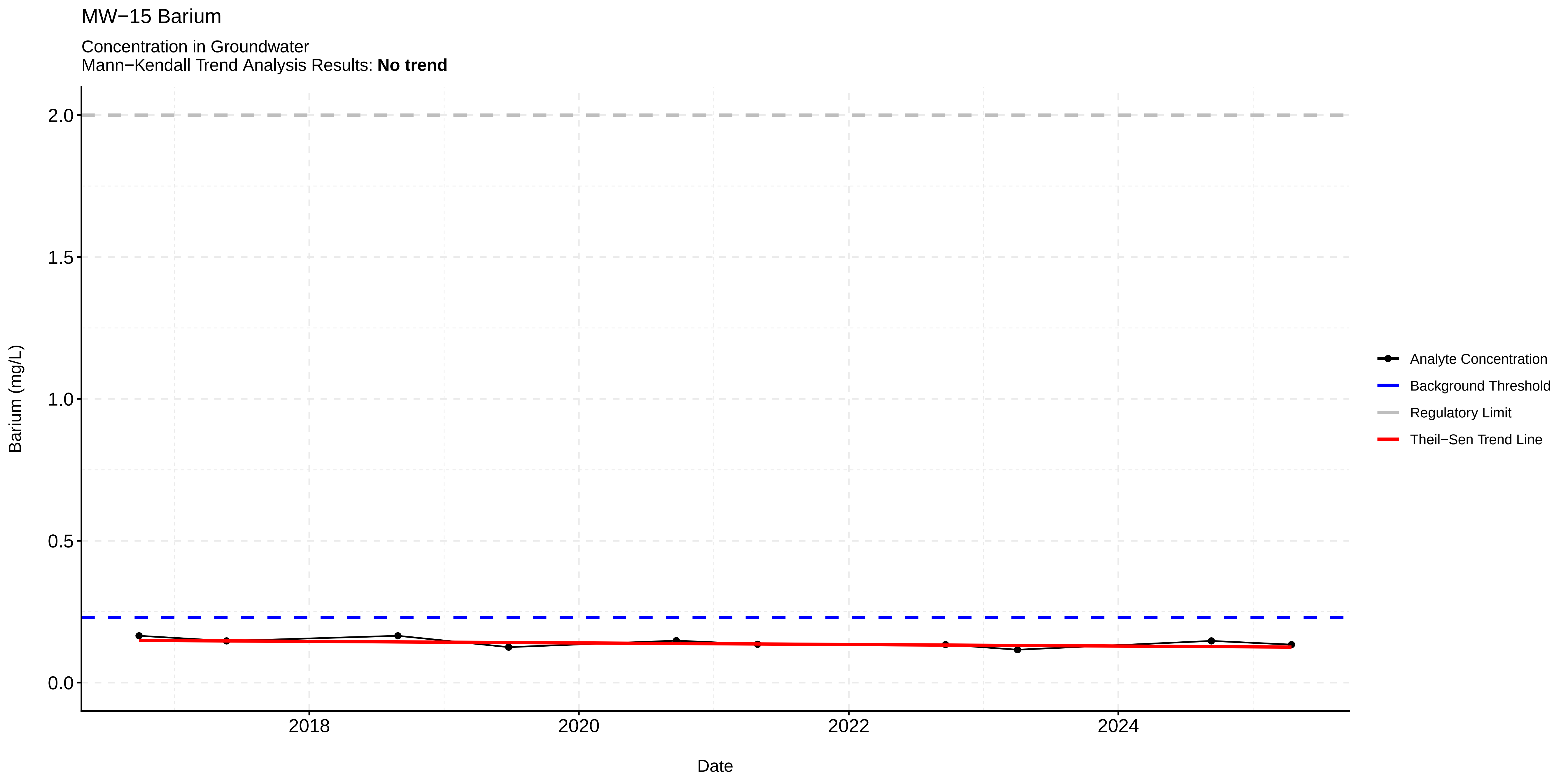
MW−10 Chloride

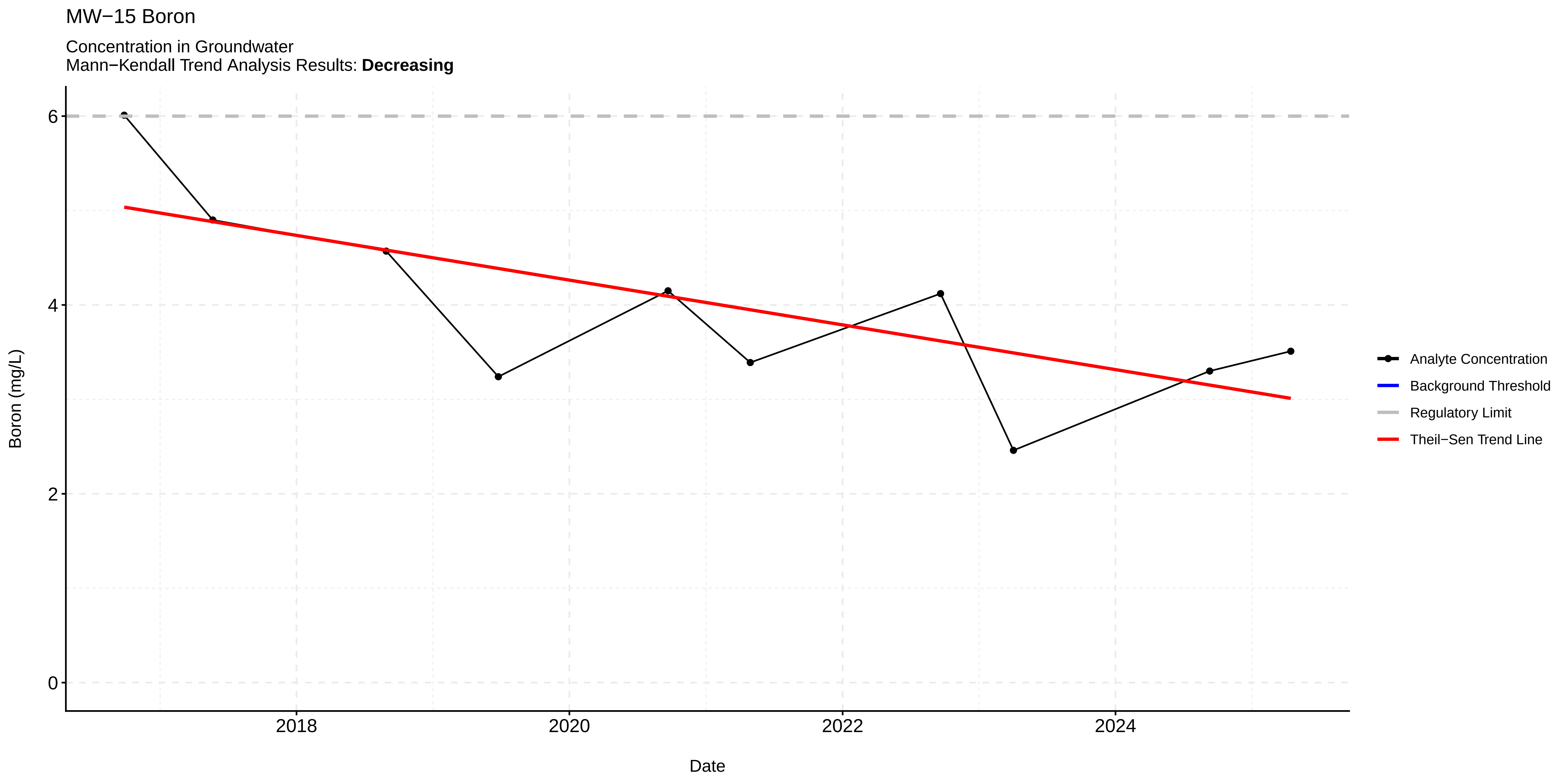
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**

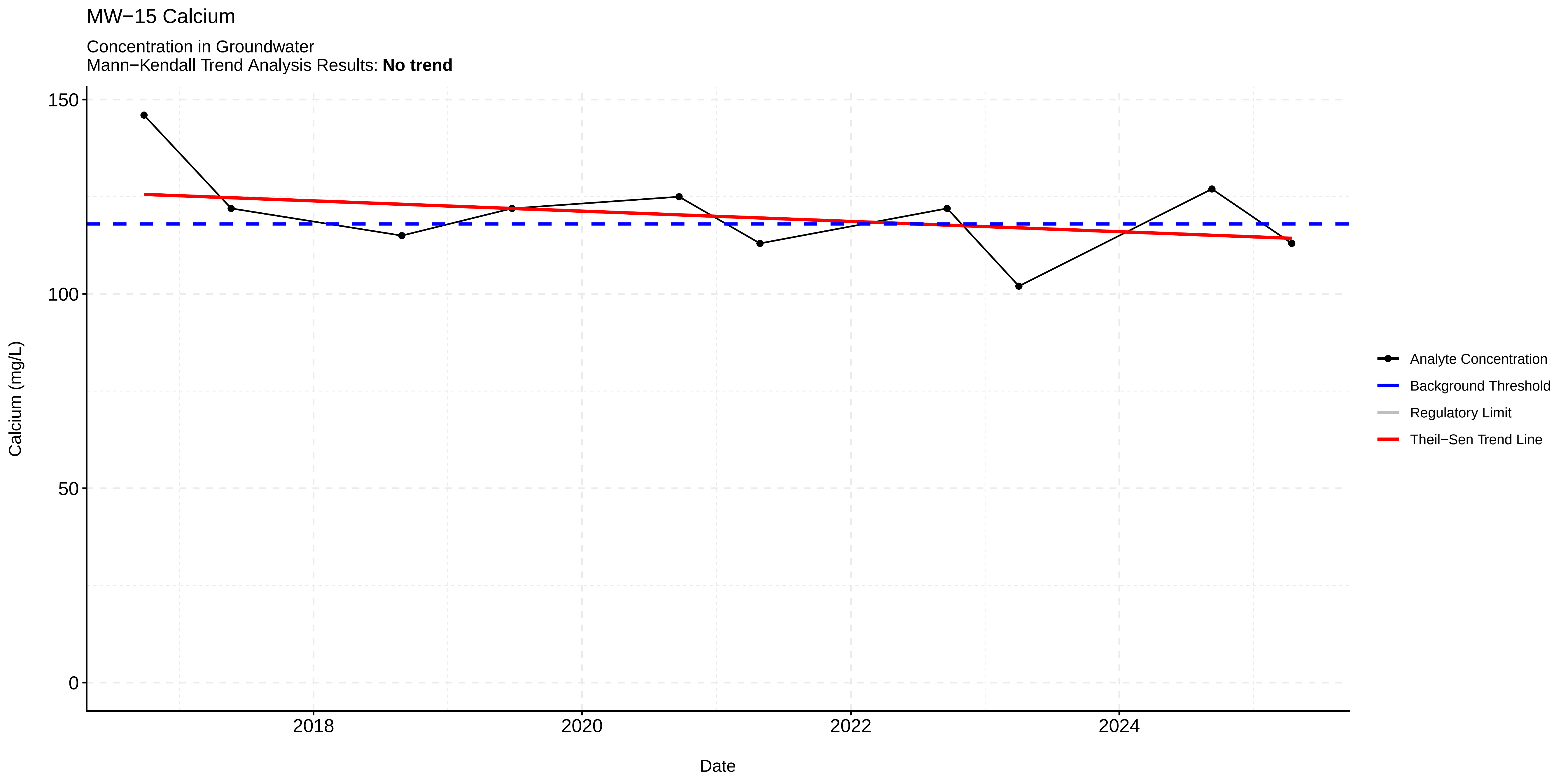


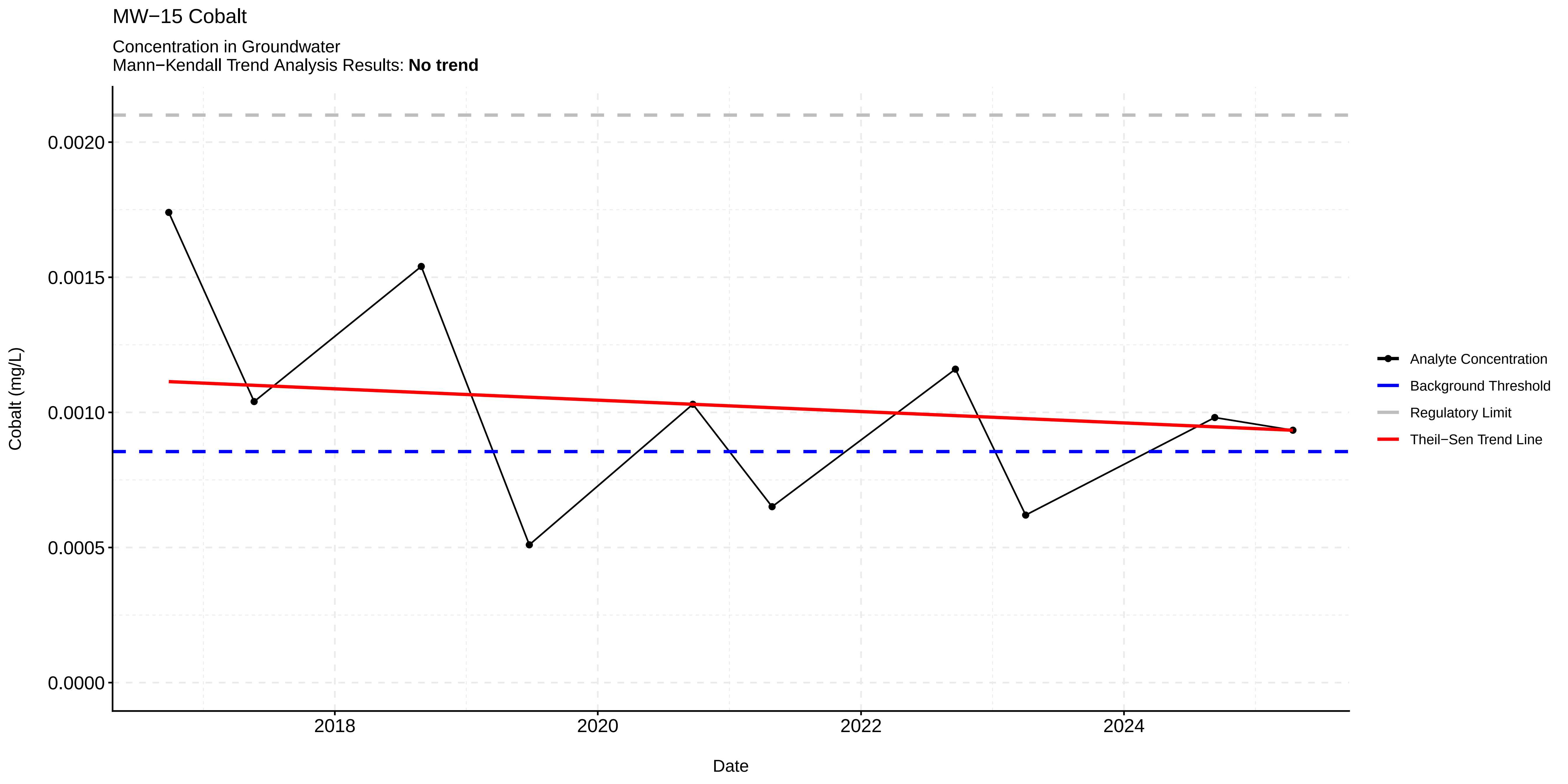

MW−10 Sulfate
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Sulfate (mg/L)
1500
1000
500
0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−10 Total Suspended Solids
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Total Suspended Solids (mg/L)
0
5
10
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−15 Barium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Barium (mg/L)
2.0
1.5
1.0
0.5
0.0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−15 Boron
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **Decreasing**
Boron (mg/L)
0
2
4
6
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

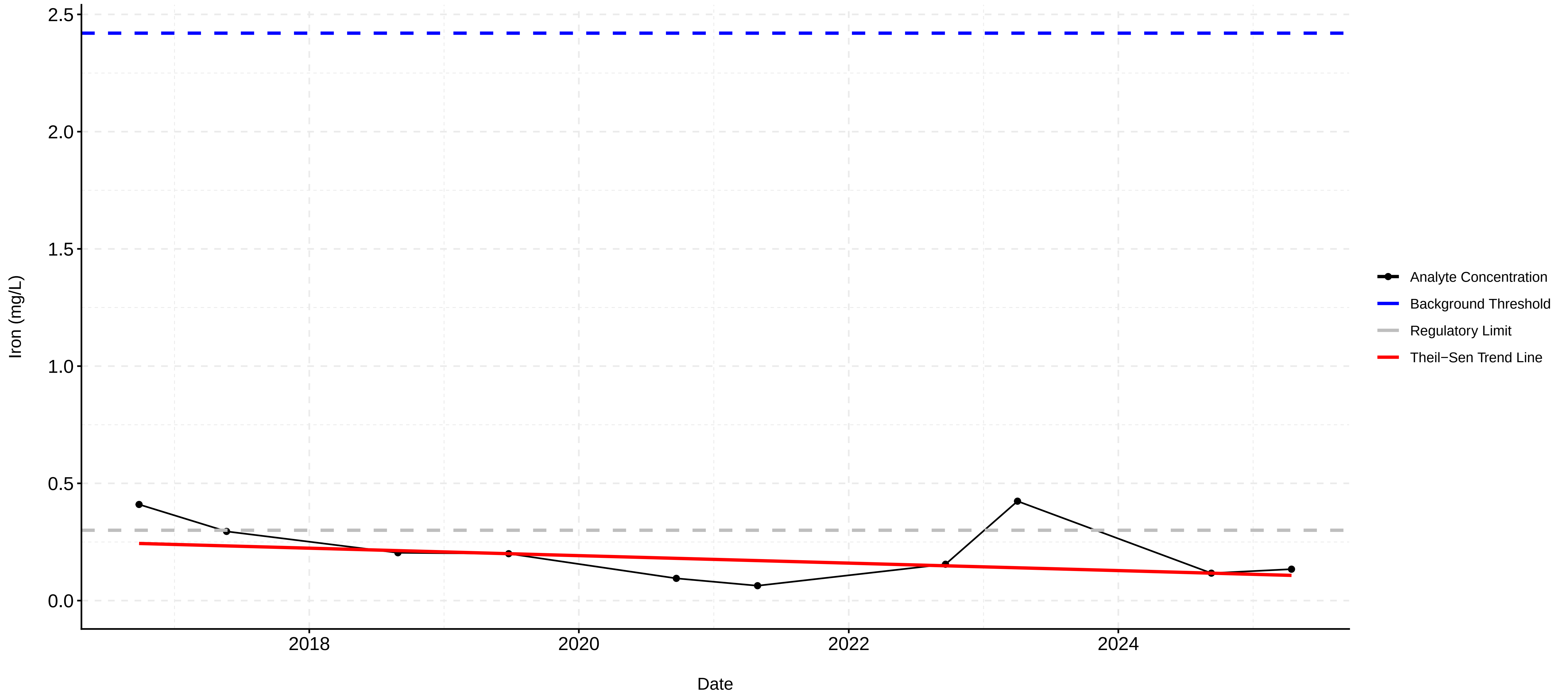

MW−15 Calcium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: No trend
150
100
50
0
Calcium (mg/L)
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

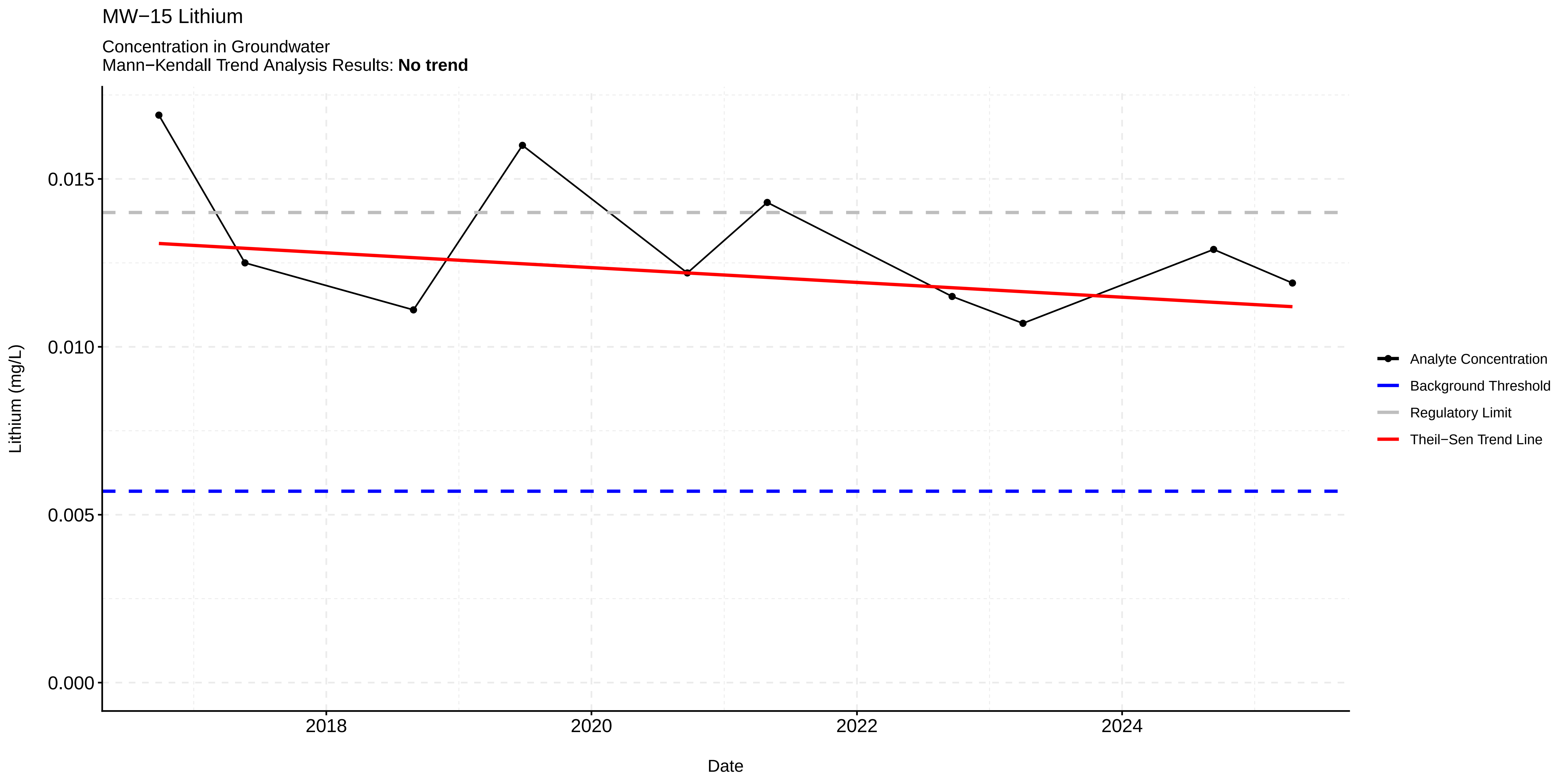


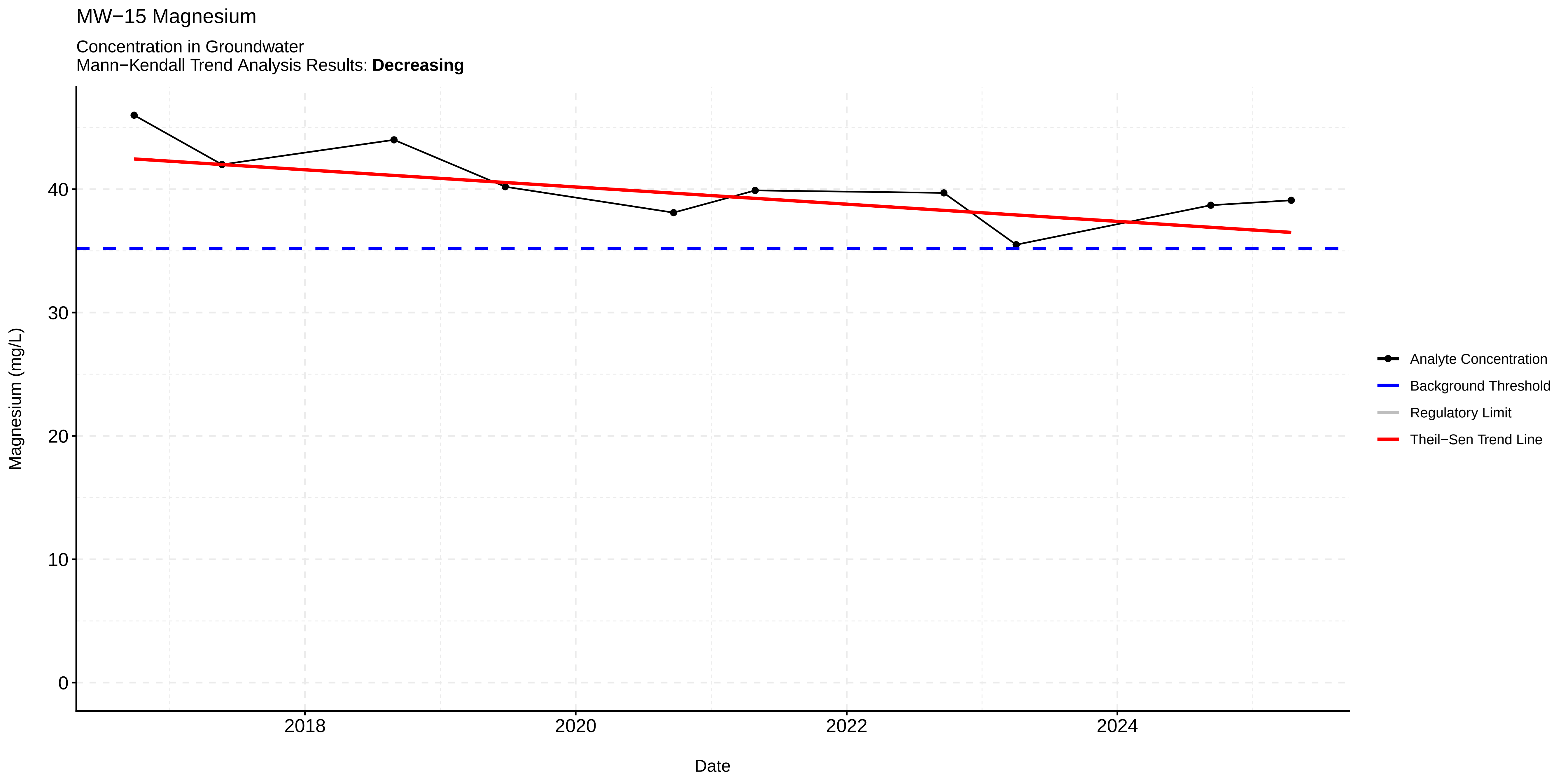
MW−15 Cobalt
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
0.0020
0.0015
0.0010
0.0005
0.0000
Cobalt (mg/L)
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

MW−15 Iron

Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**

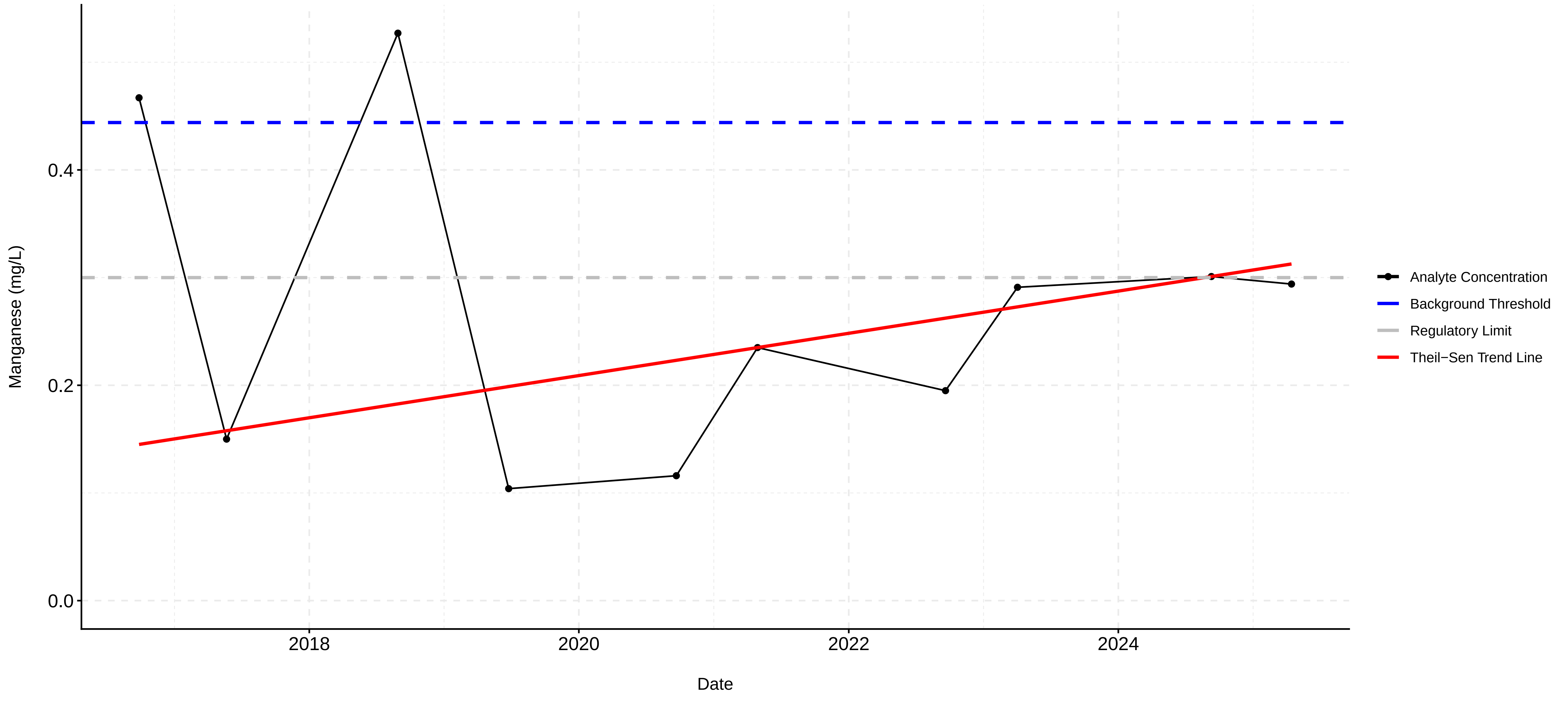


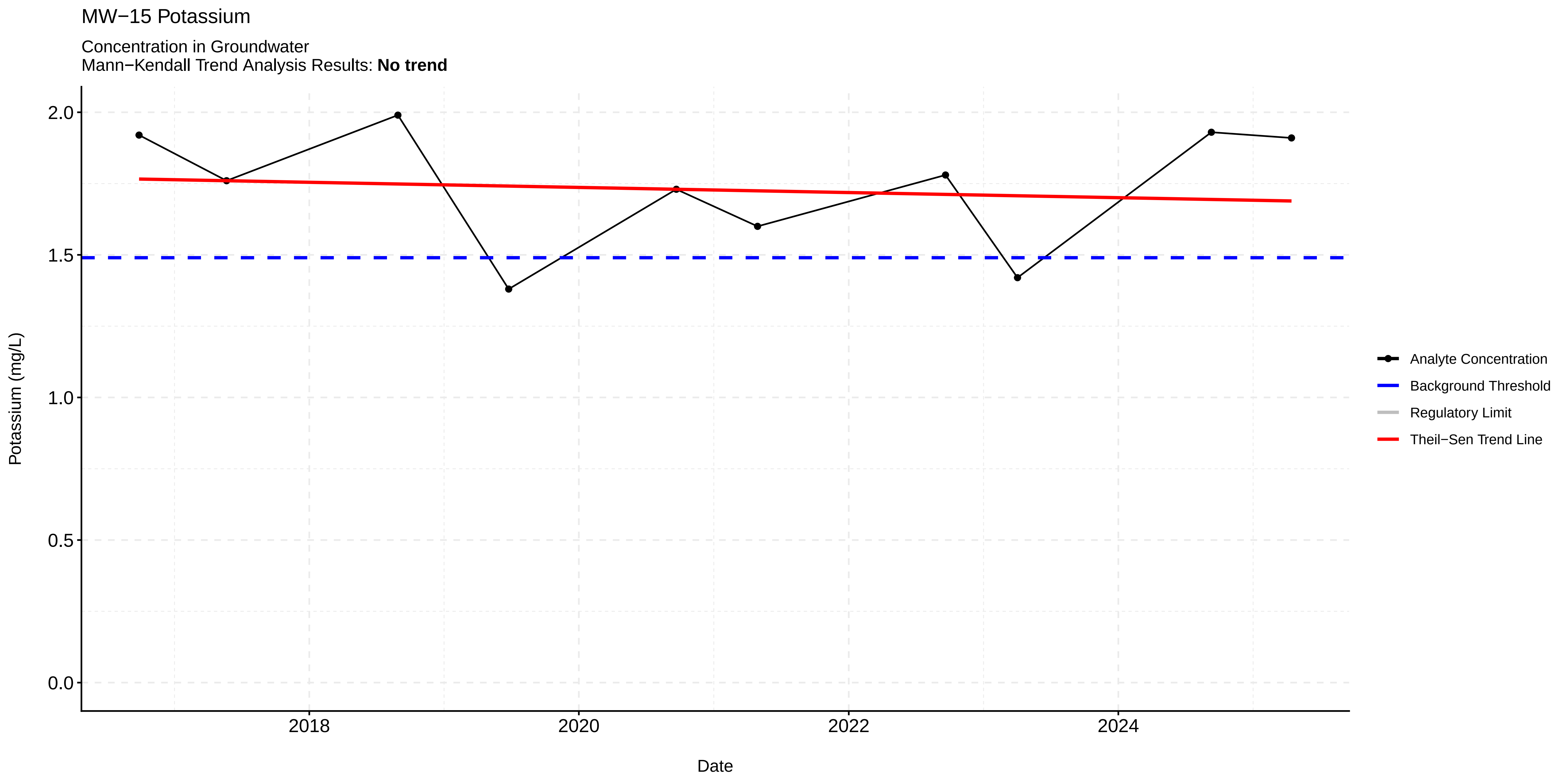

MW−15 Lithium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Lithium (mg/L)
0.015
0.010
0.005
0.000
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

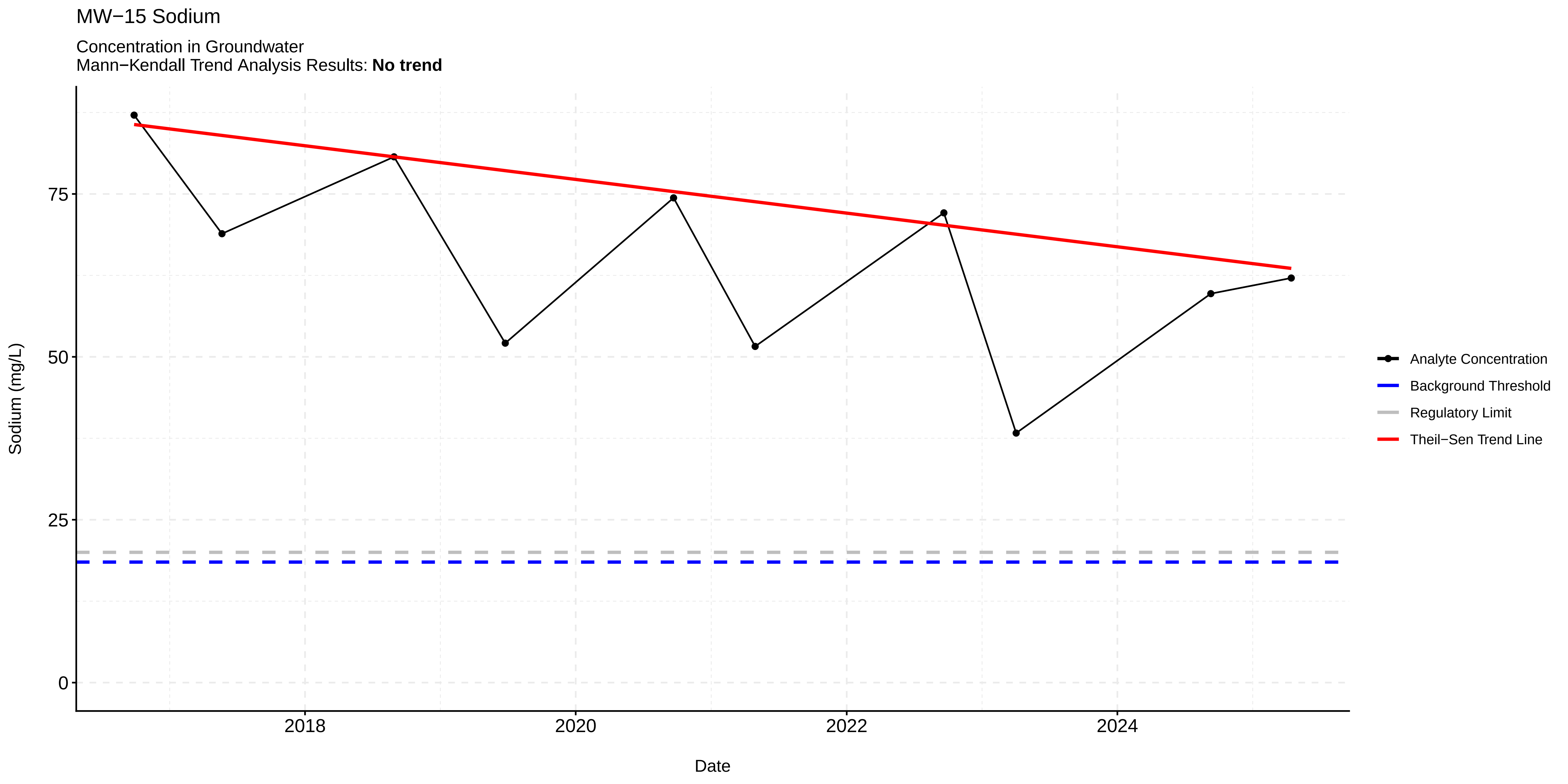

MW−15 Magnesium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **Decreasing**
Magnesium (mg/L)
0
10
20
30
40
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

MW−15 Manganese

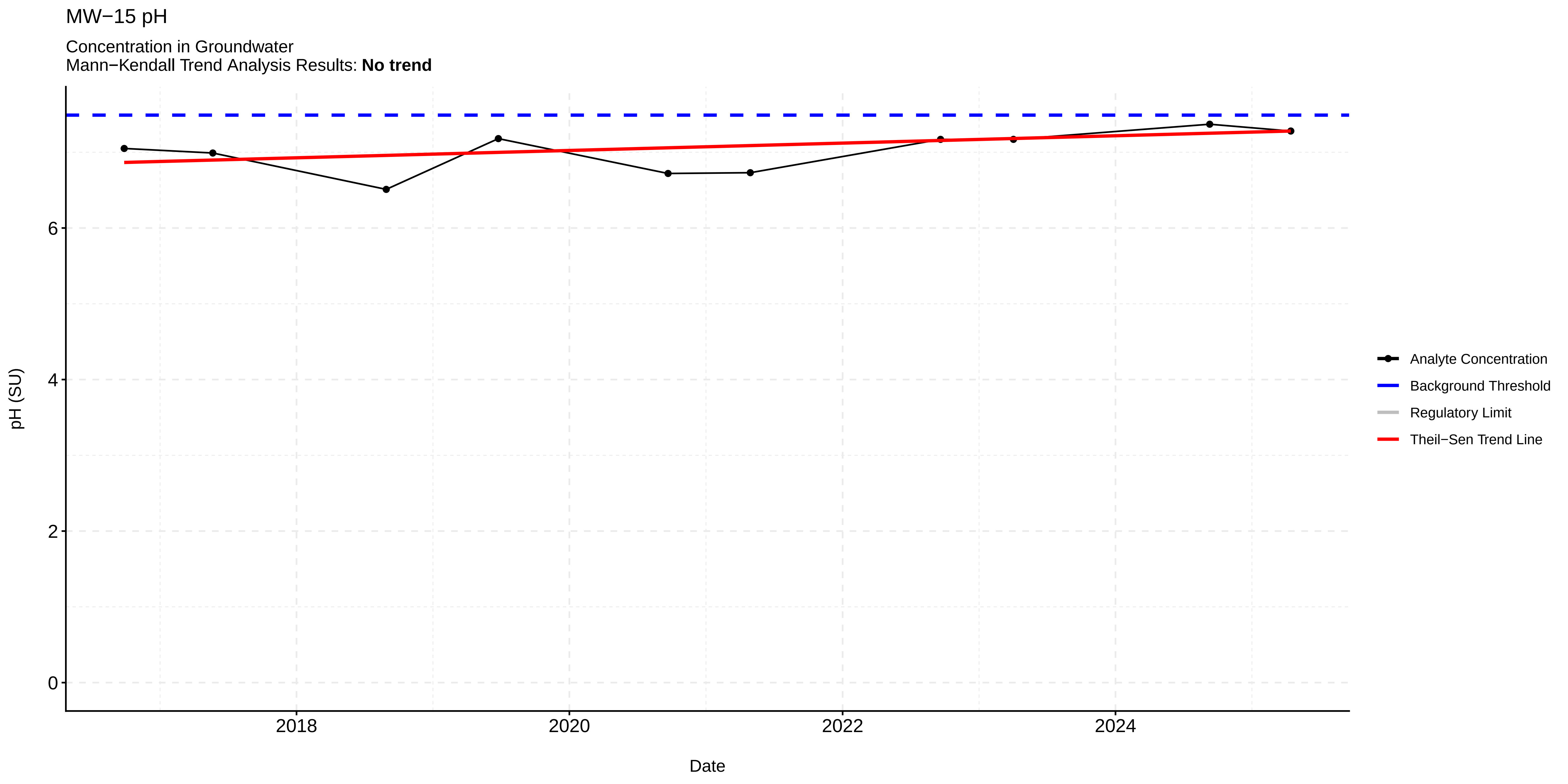
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**



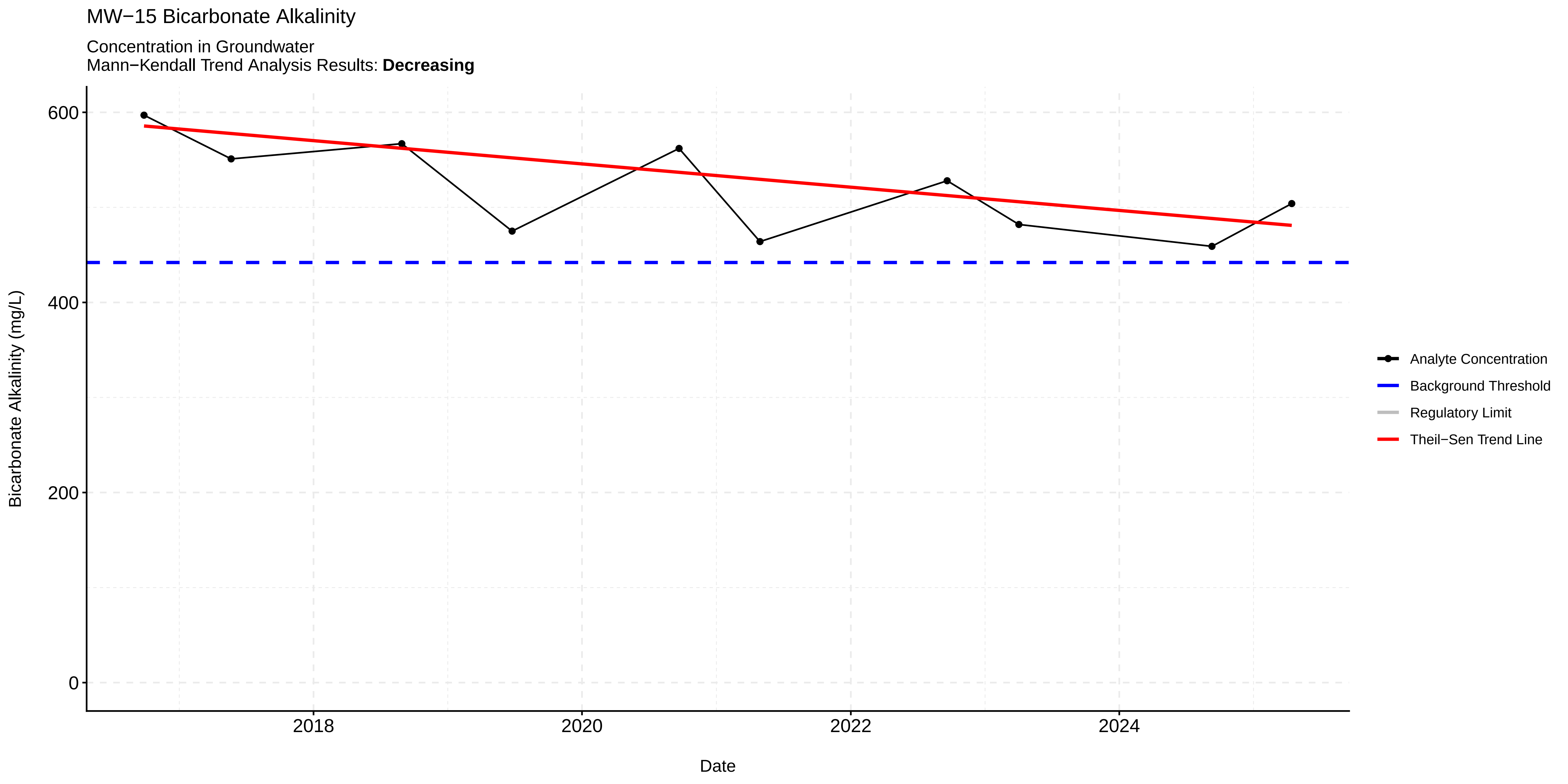

MW−15 Potassium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Potassium (mg/L)
2.0
1.5
1.0
0.5
0.0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line



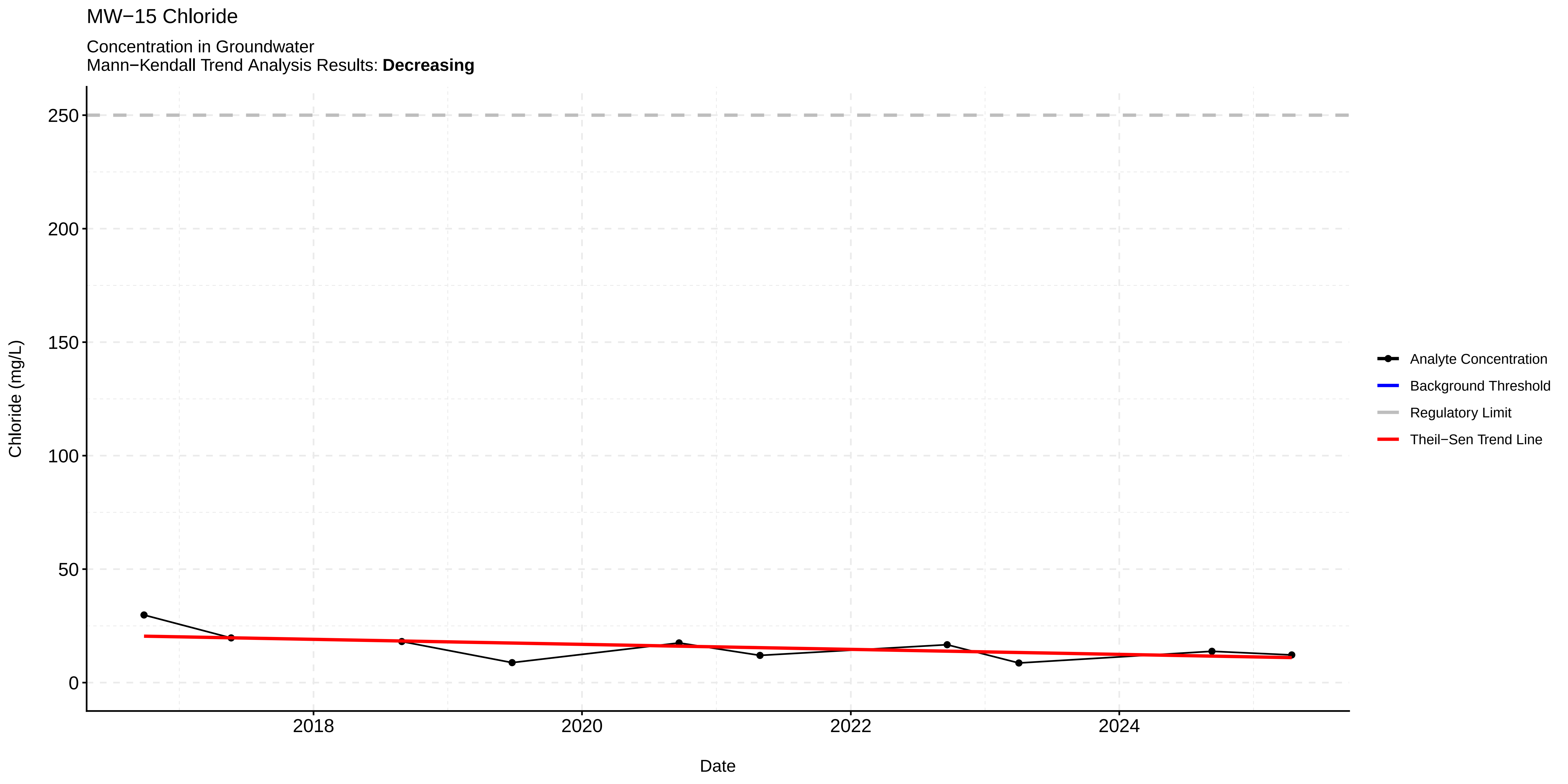
MW−15 Sodium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Sodium (mg/L)
0
25
50
75
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

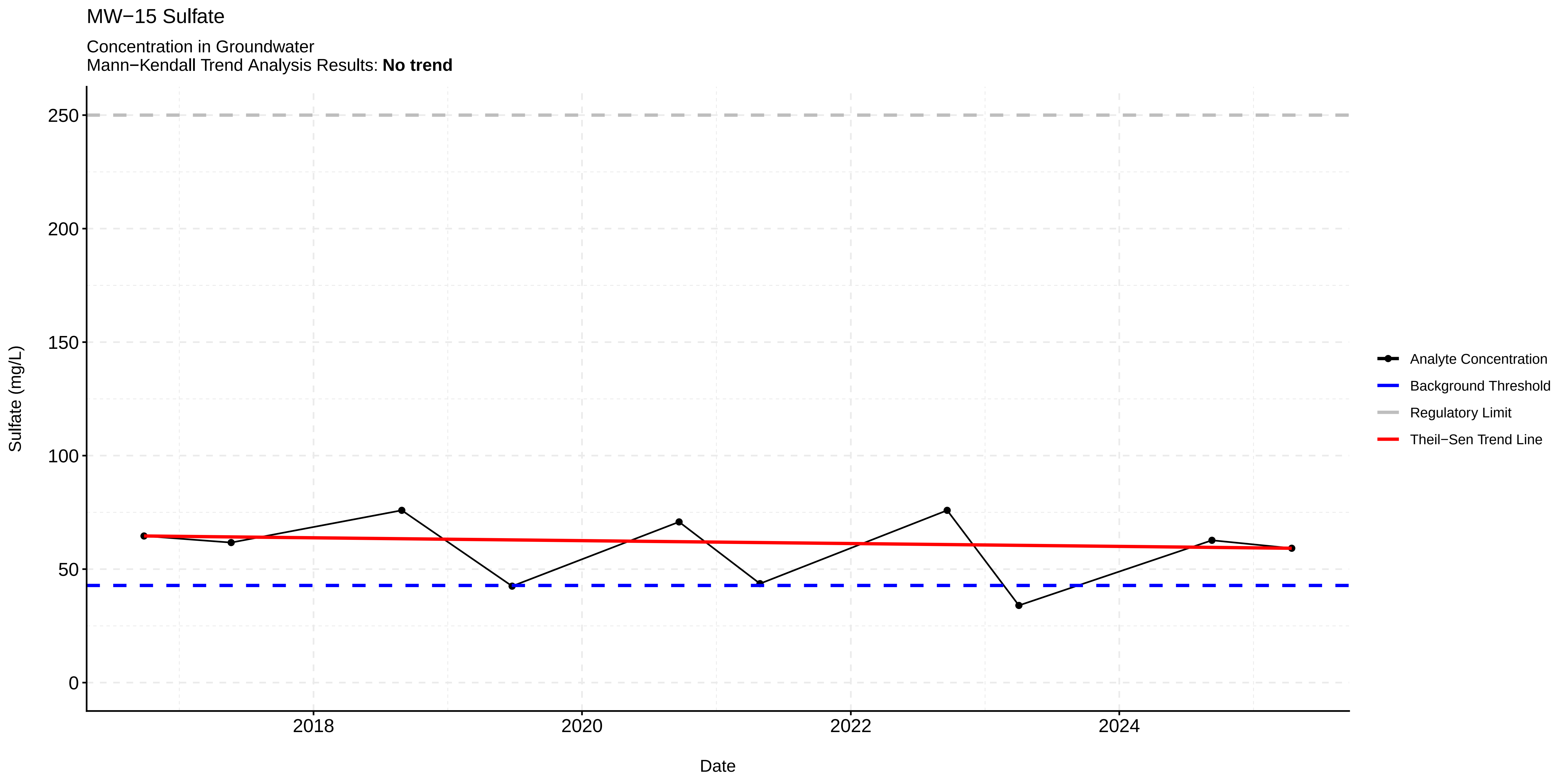


MW−15 pH
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
pH (SU)
0
2
4
6
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

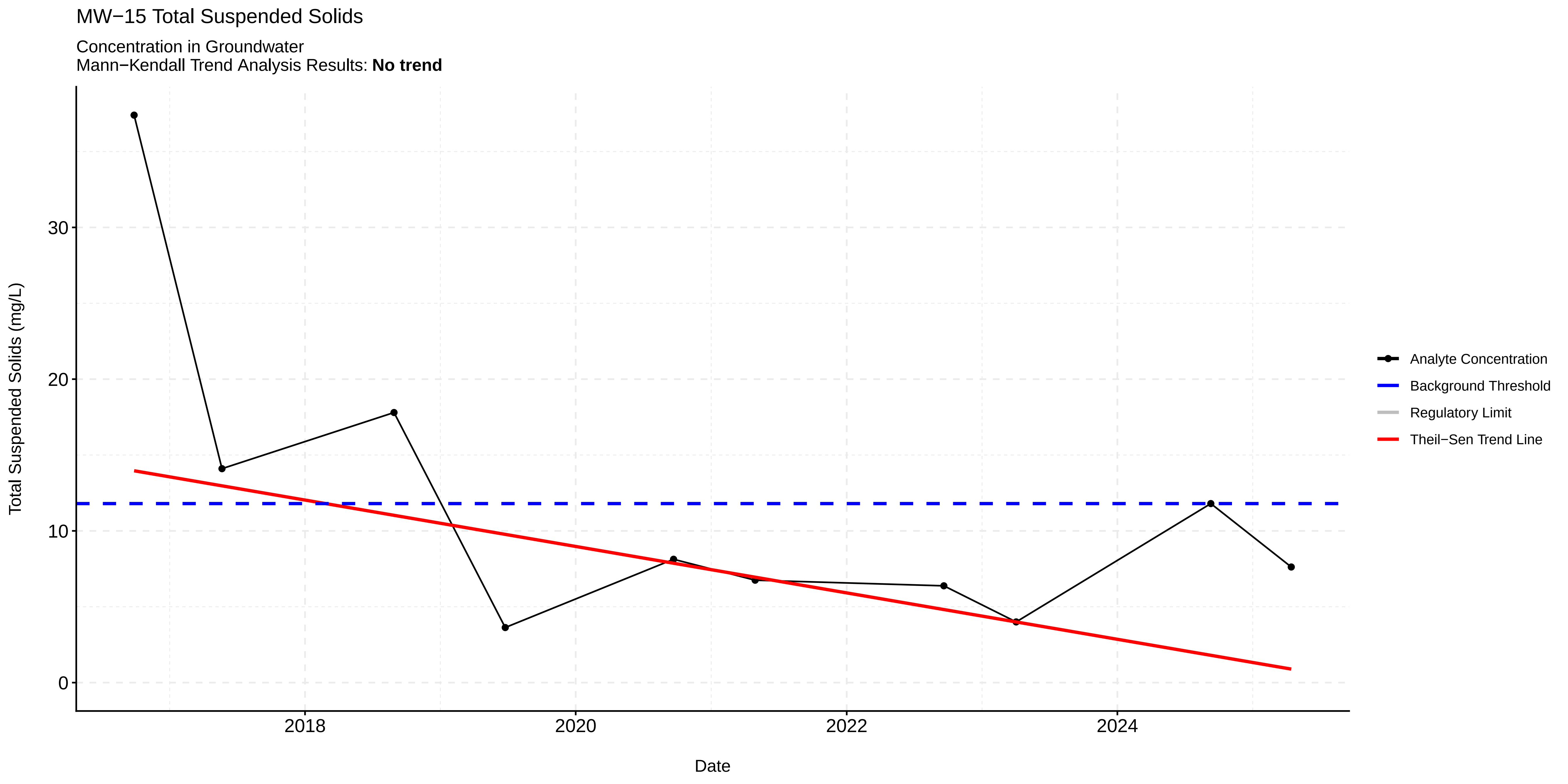


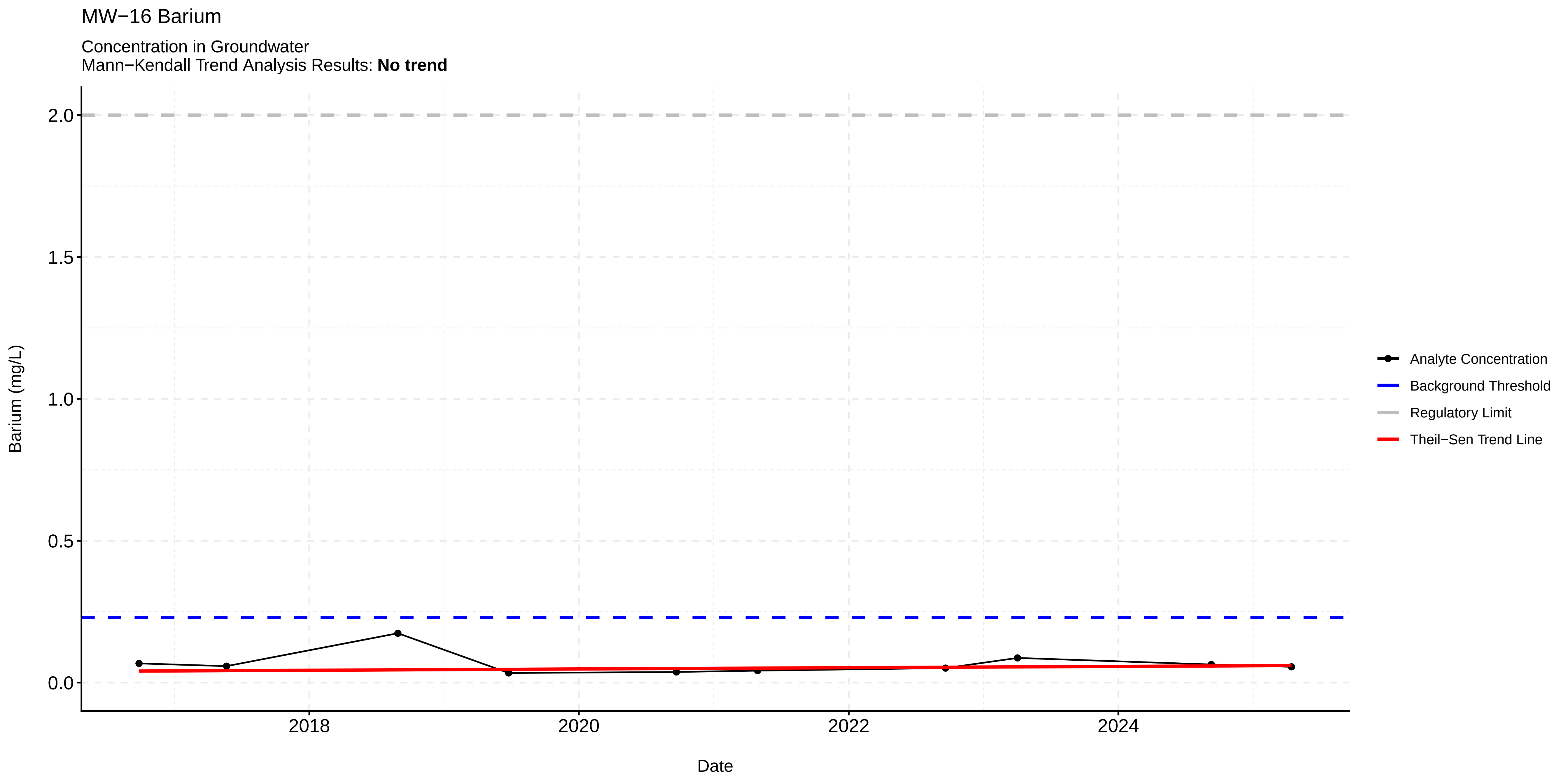
MW−15 Bicarbonate Alkalinity
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **Decreasing**
Bicarbonate Alkalinity (mg/L)
600
400
200
0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

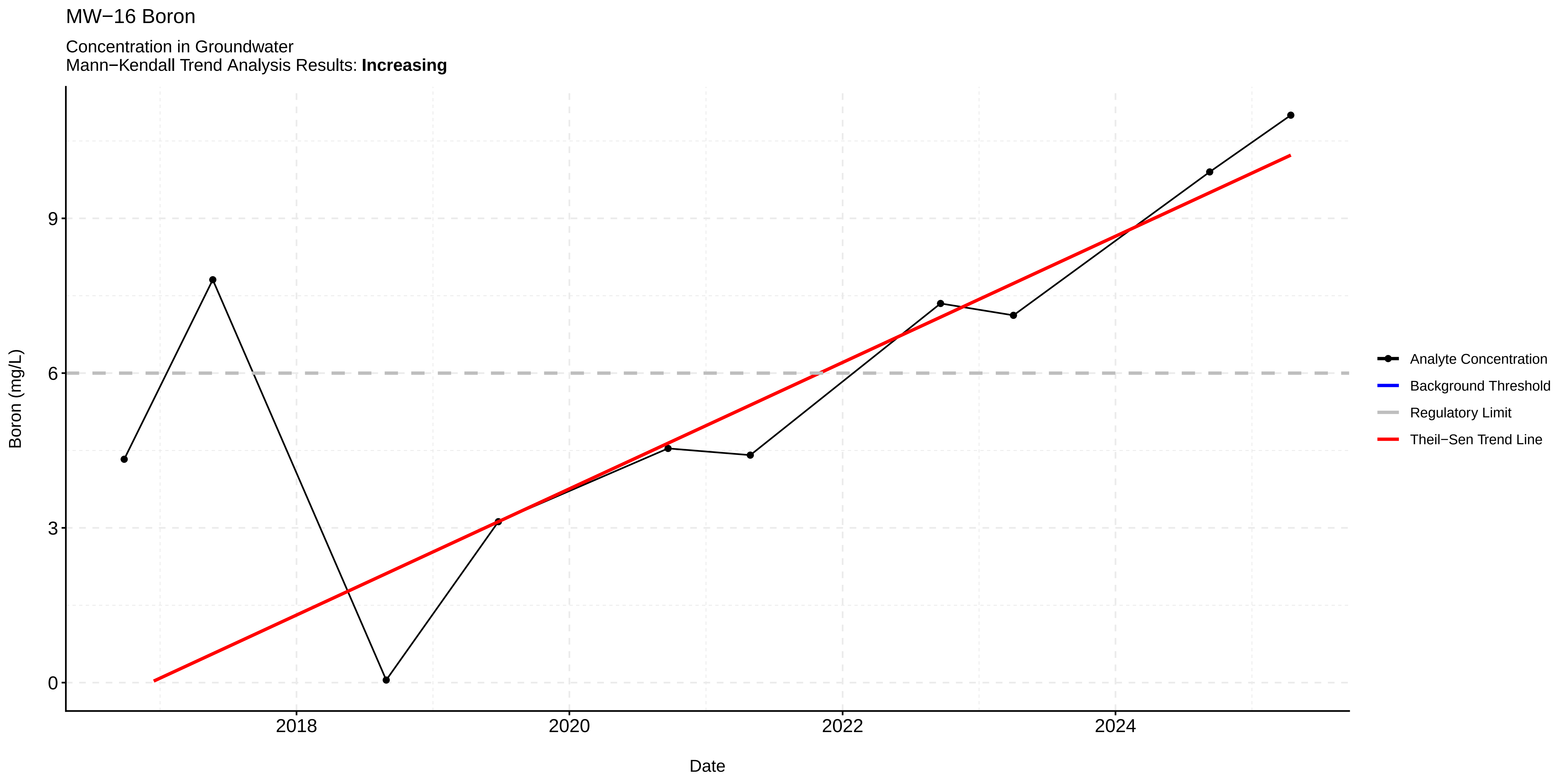

MW−15 Chloride
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **Decreasing**
Chloride (mg/L)
250
200
150
100
50
0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

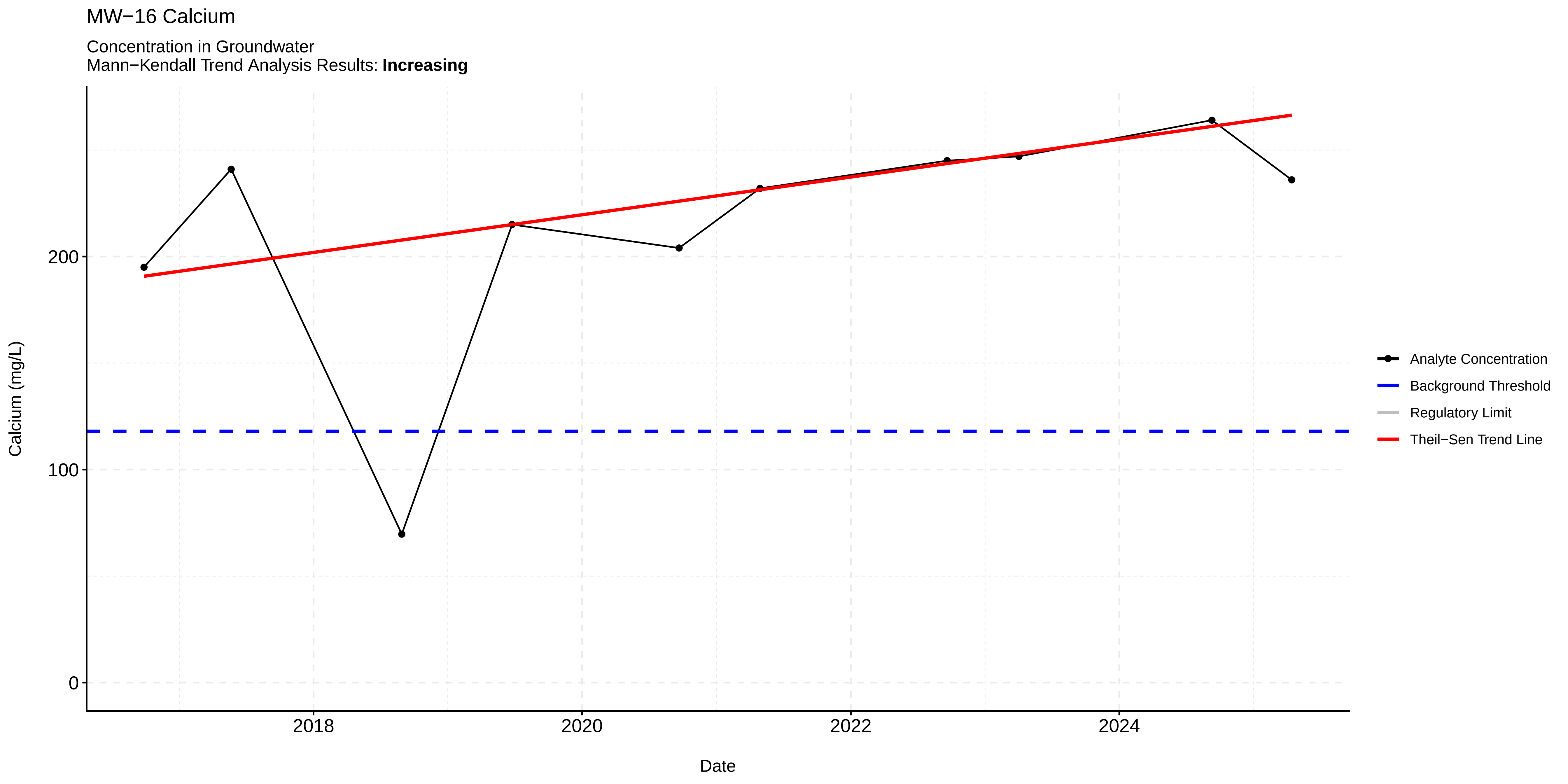


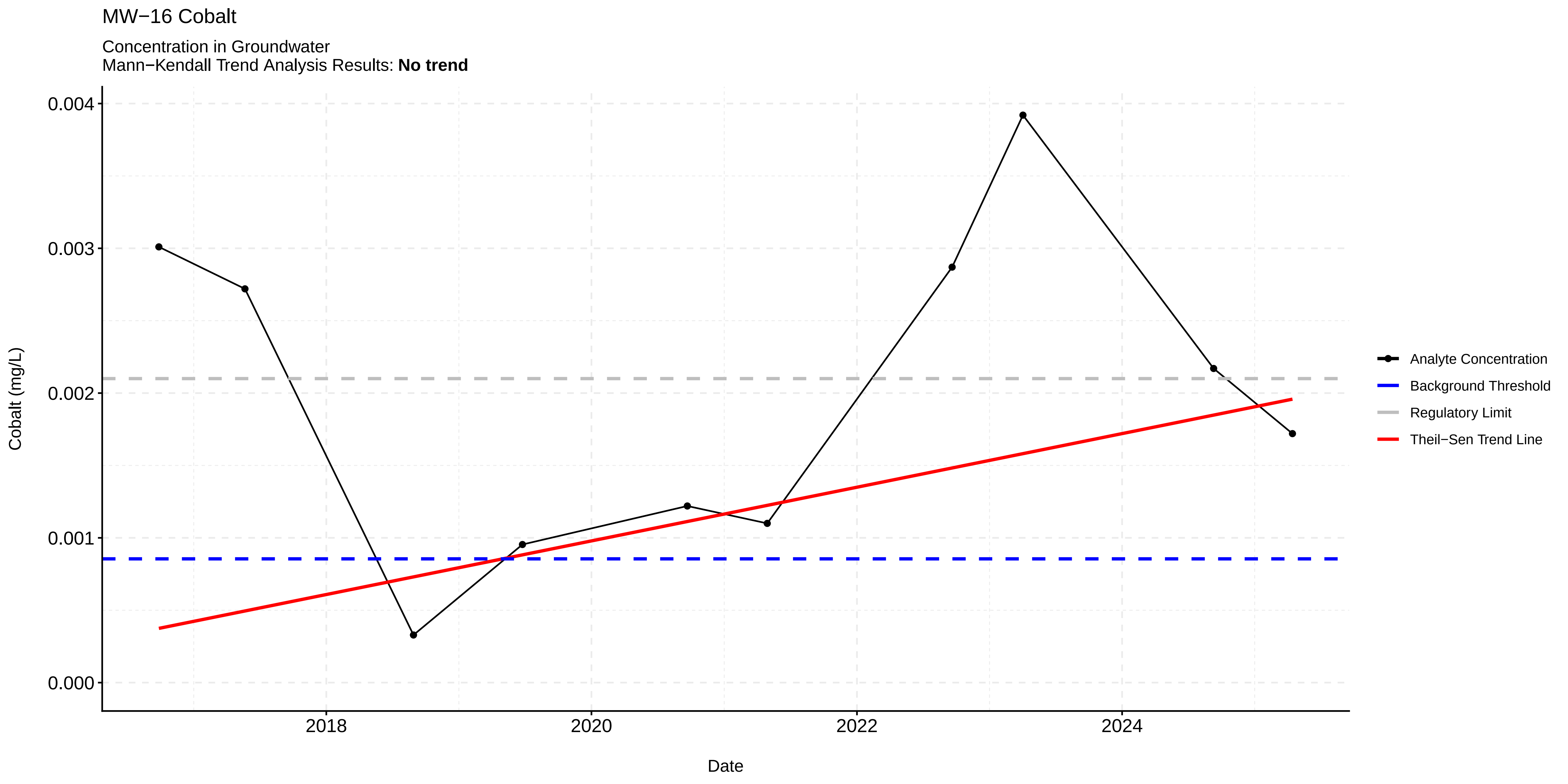
MW−15 Sulfate
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Sulfate (mg/L)
250
200
150
100
50
0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−15 Total Suspended Solids
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Total Suspended Solids (mg/L)
0
10
20
30
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−16 Barium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Barium (mg/L)
2.0
1.5
1.0
0.5
0.0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

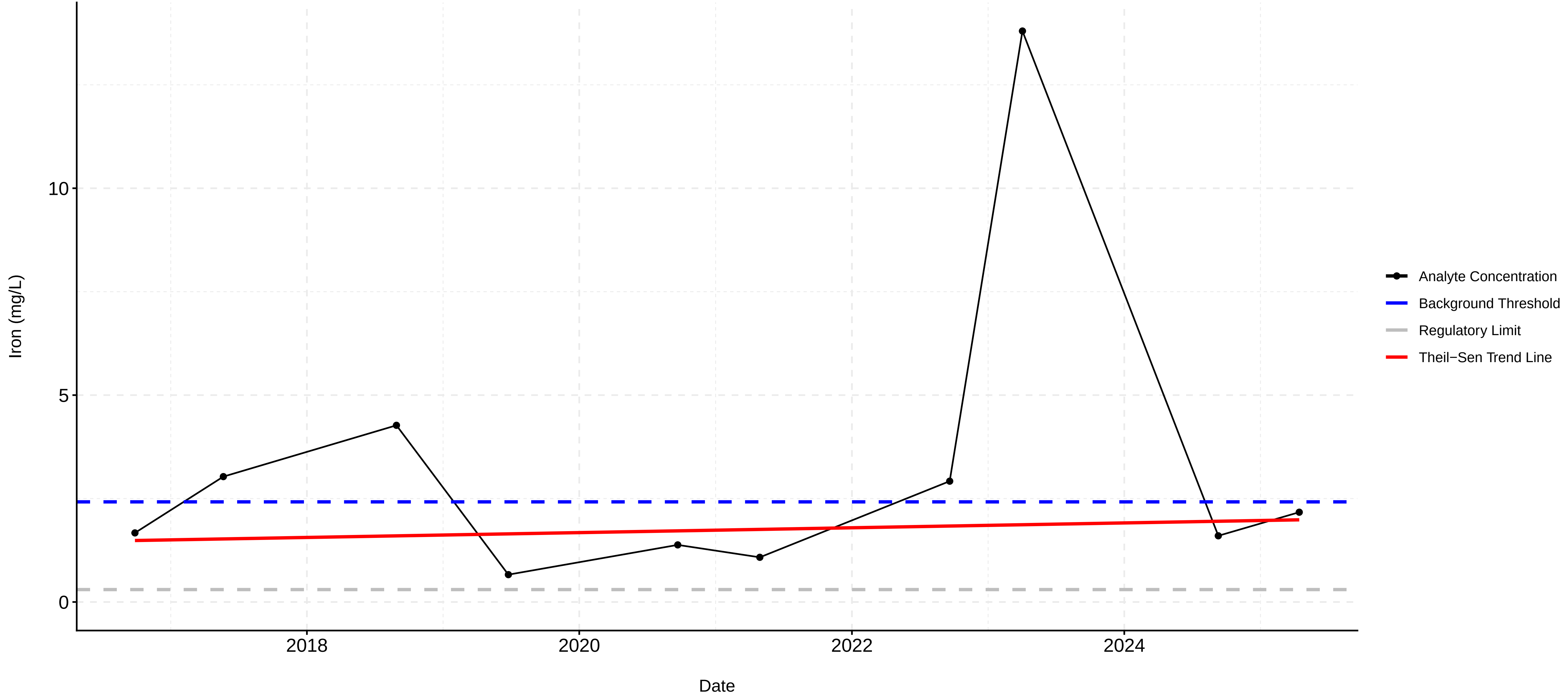

MW−16 Boron
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **Increasing**
Boron (mg/L)
0
3
6
9
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

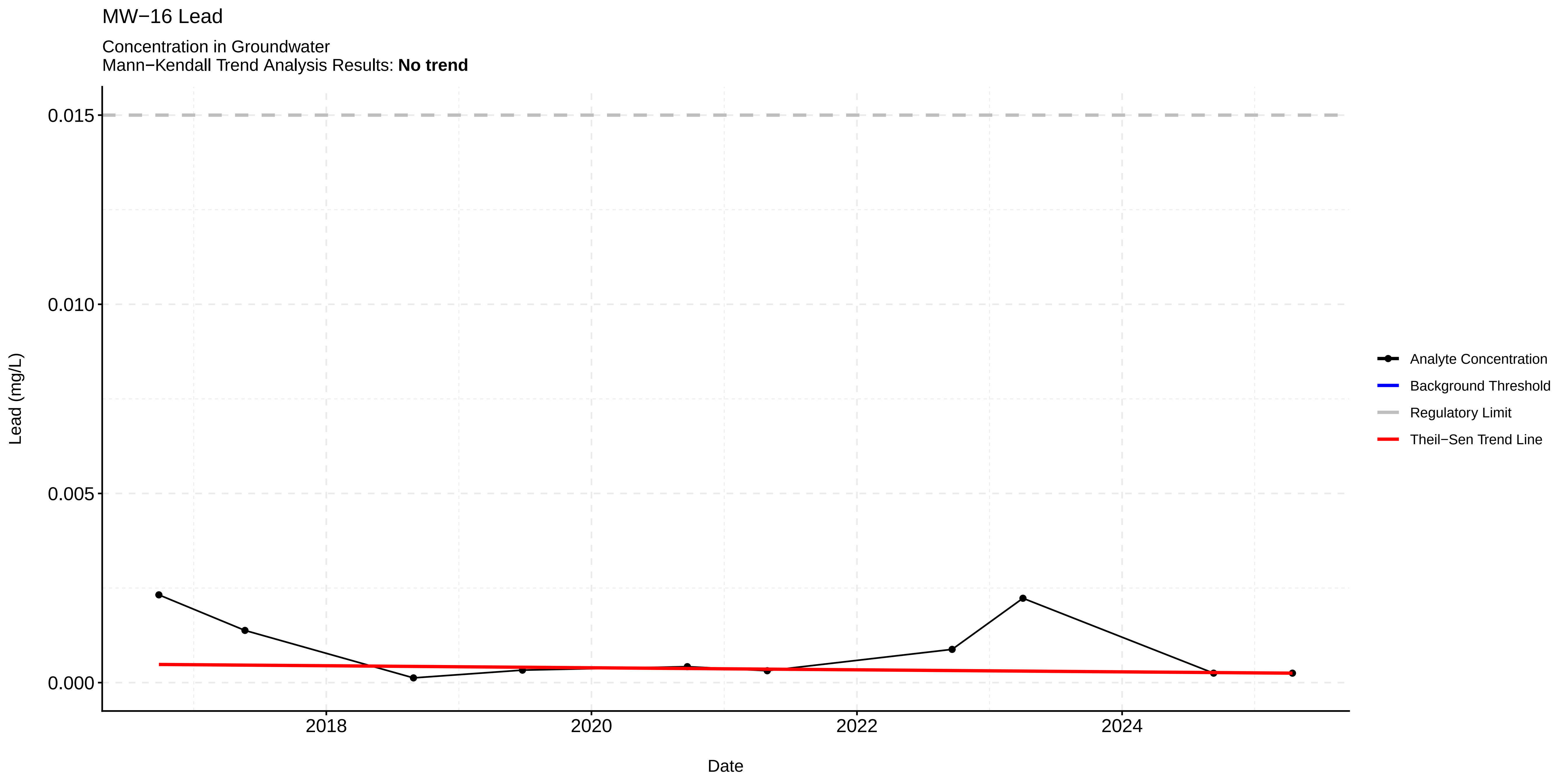

MW−16 Calcium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **Increasing**
Calcium (mg/L)
0
100
200
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−16 Cobalt
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Cobalt (mg/L)
0.004
0.003
0.002
0.001
0.000
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

MW−16 Iron

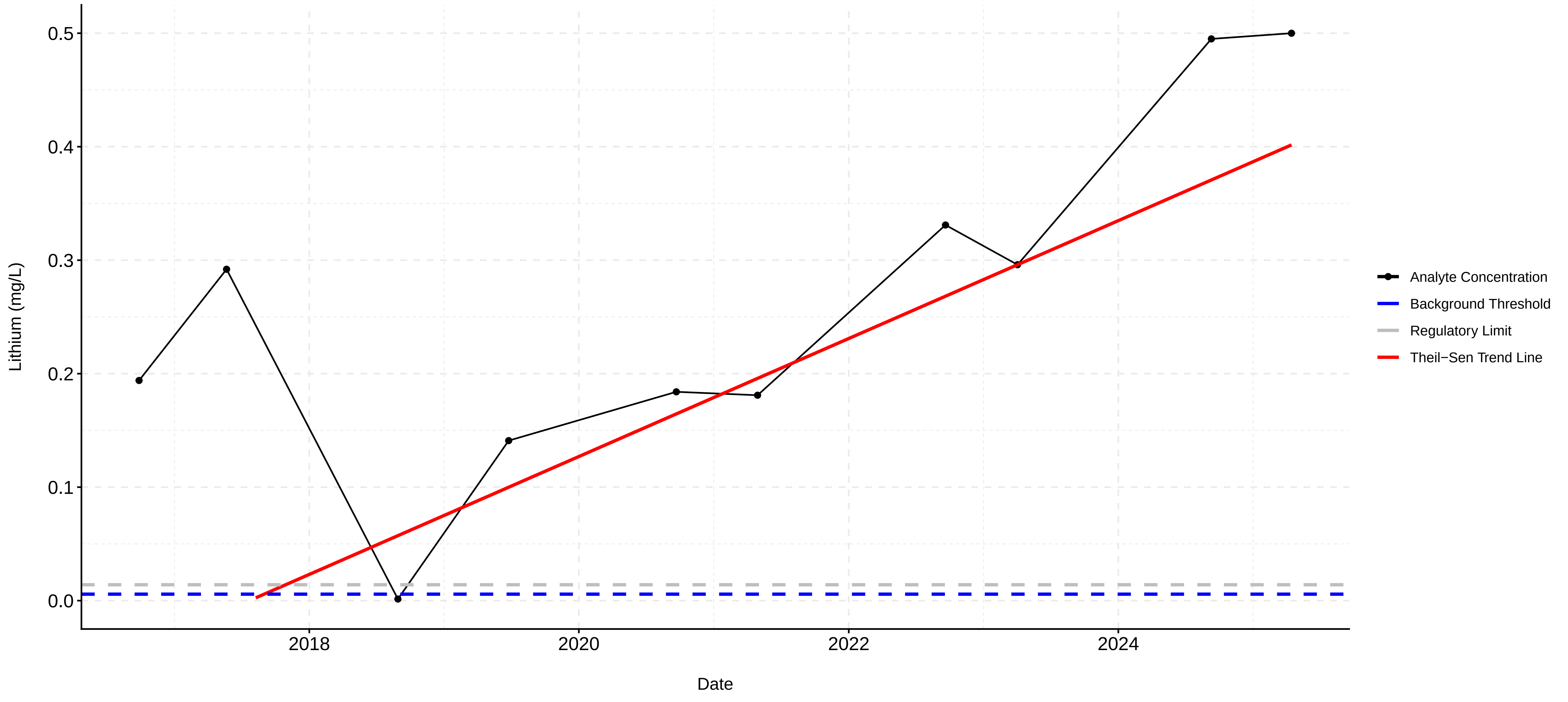
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**

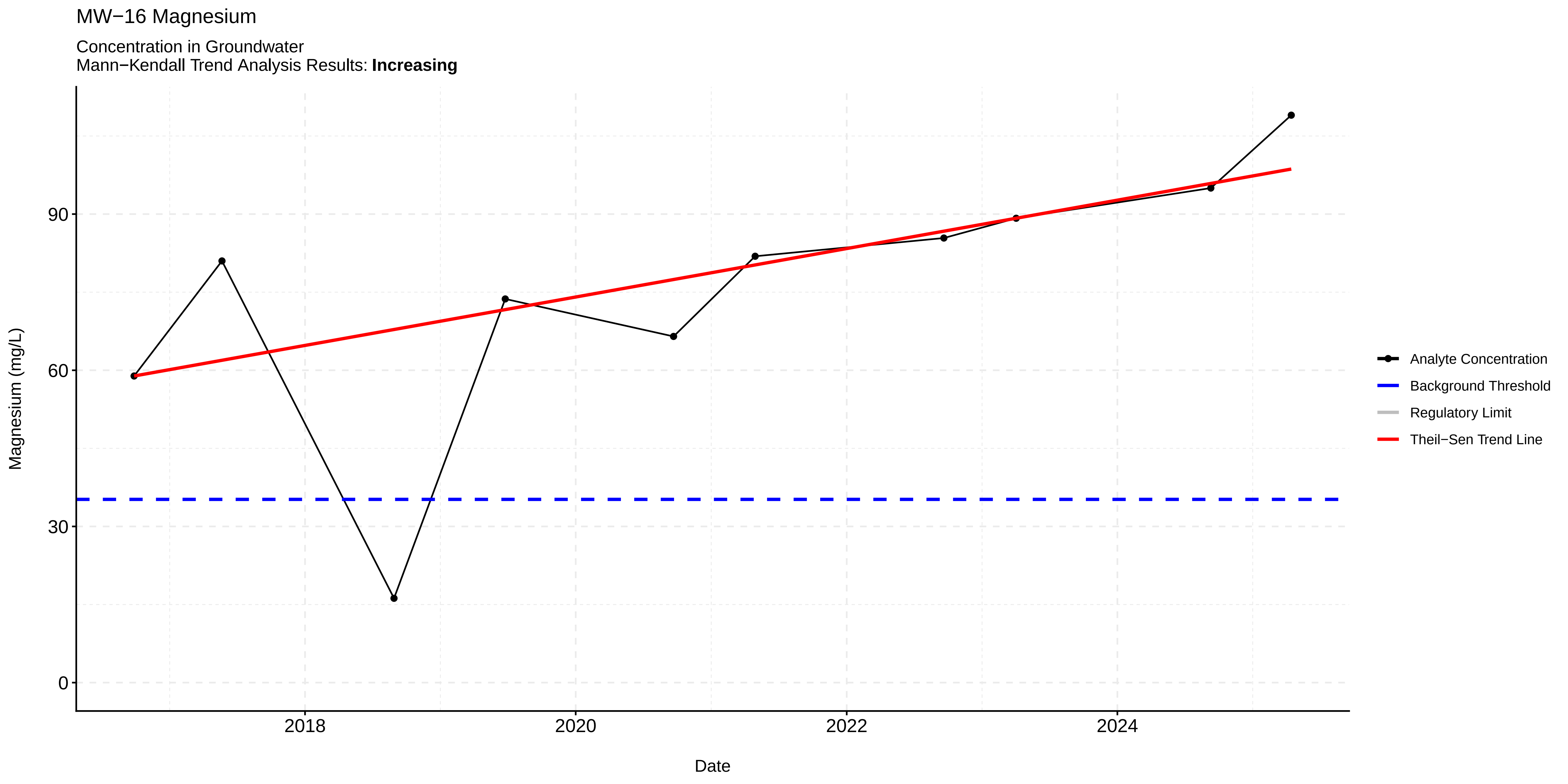


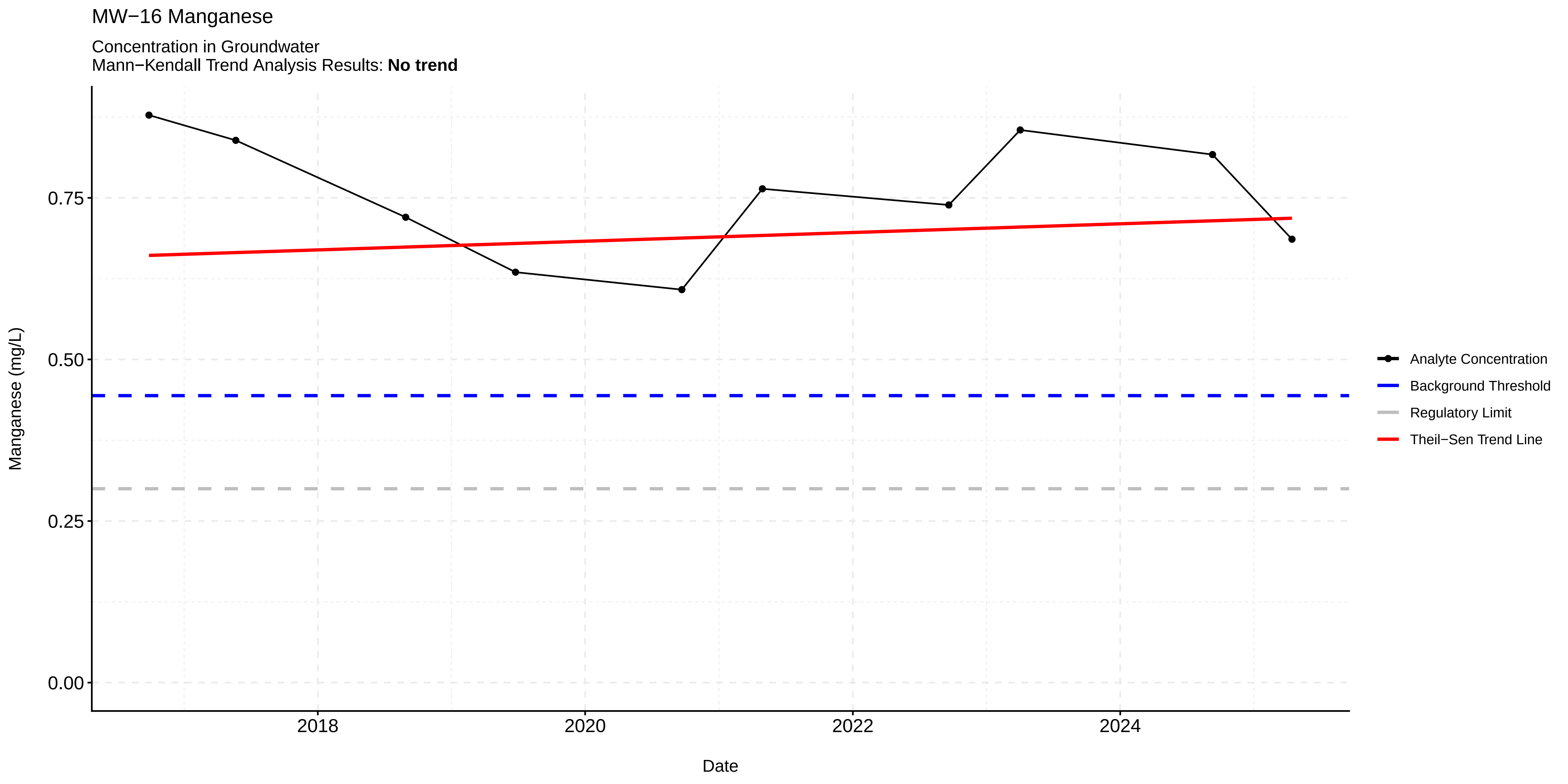

MW−16 Lead
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Lead (mg/L)
0.015
0.010
0.005
0.000
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

MW−16 Lithium

Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **Increasing**



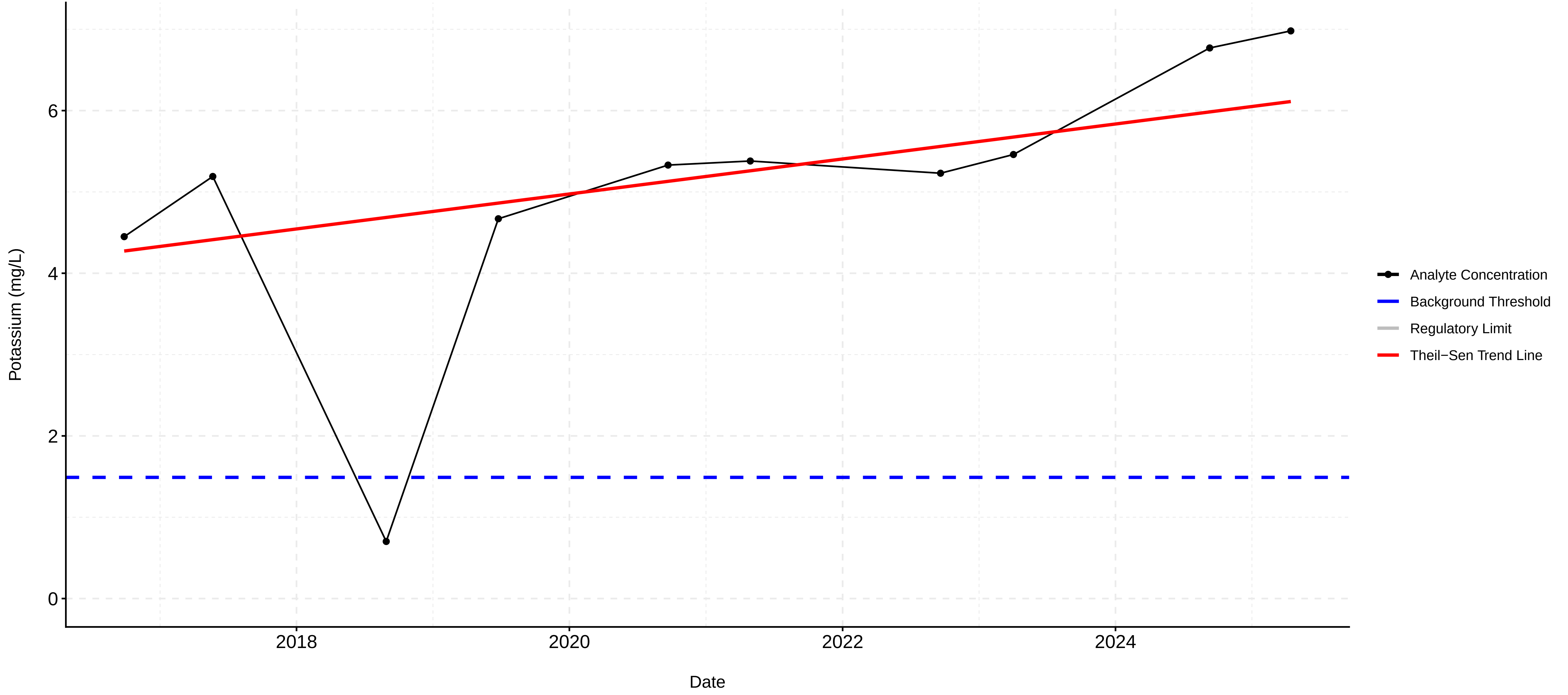

MW−16 Magnesium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **Increasing**
Magnesium (mg/L)
0
30
60
90
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line



MW−16 Manganese
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Manganese (mg/L)
0.00
0.25
0.50
0.75
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

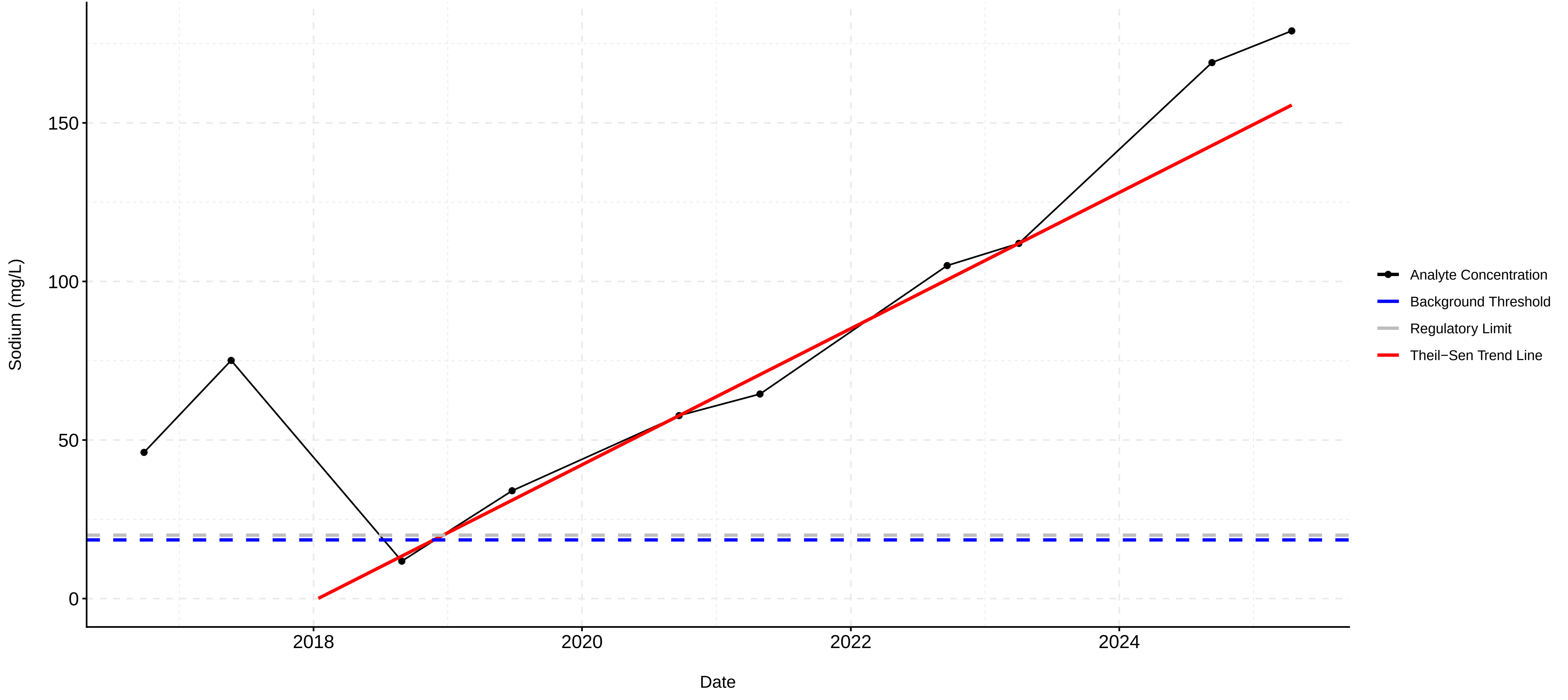
MW−16 Potassium

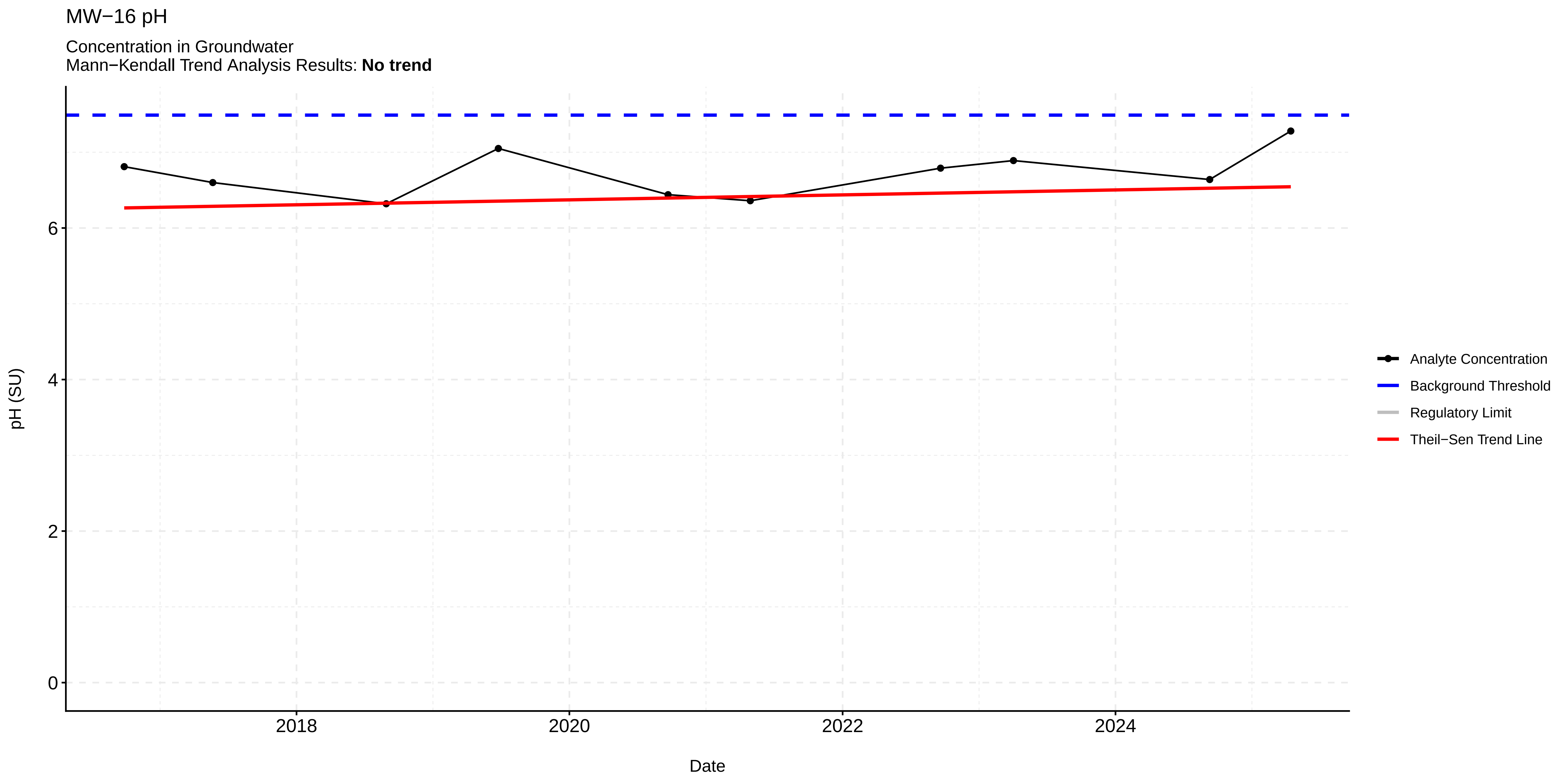
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **Increasing**

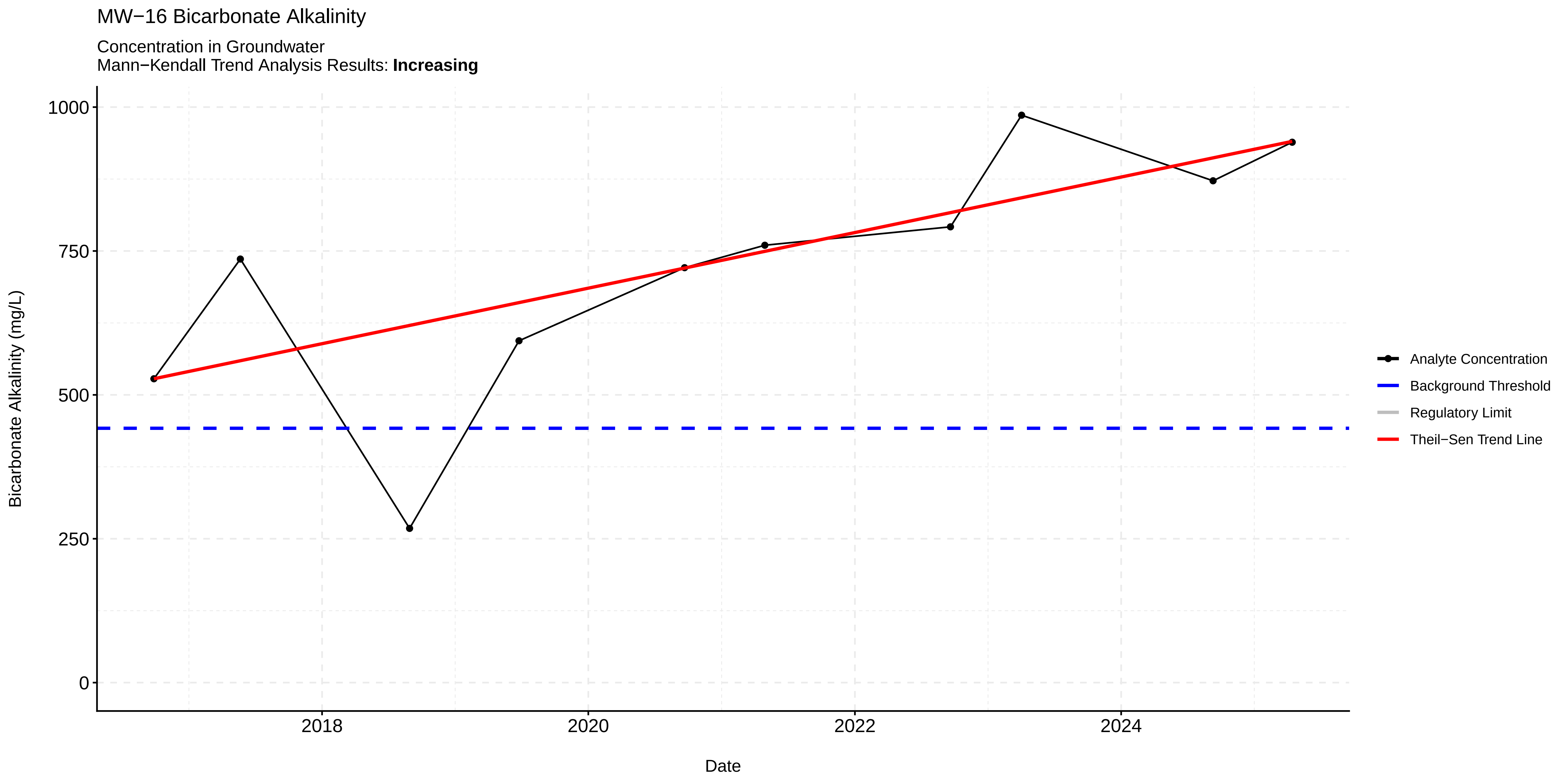


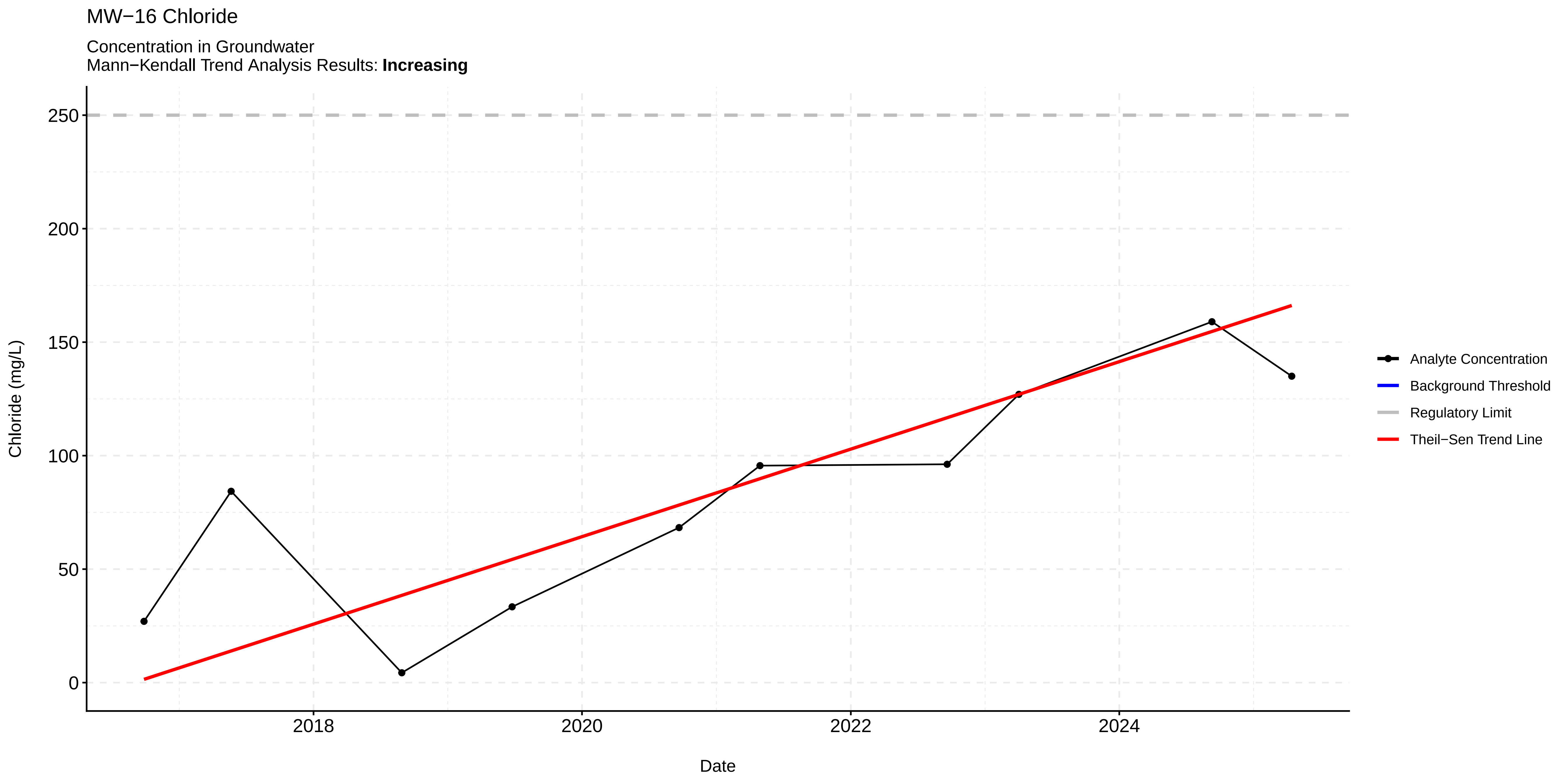
MW−16 Sodium

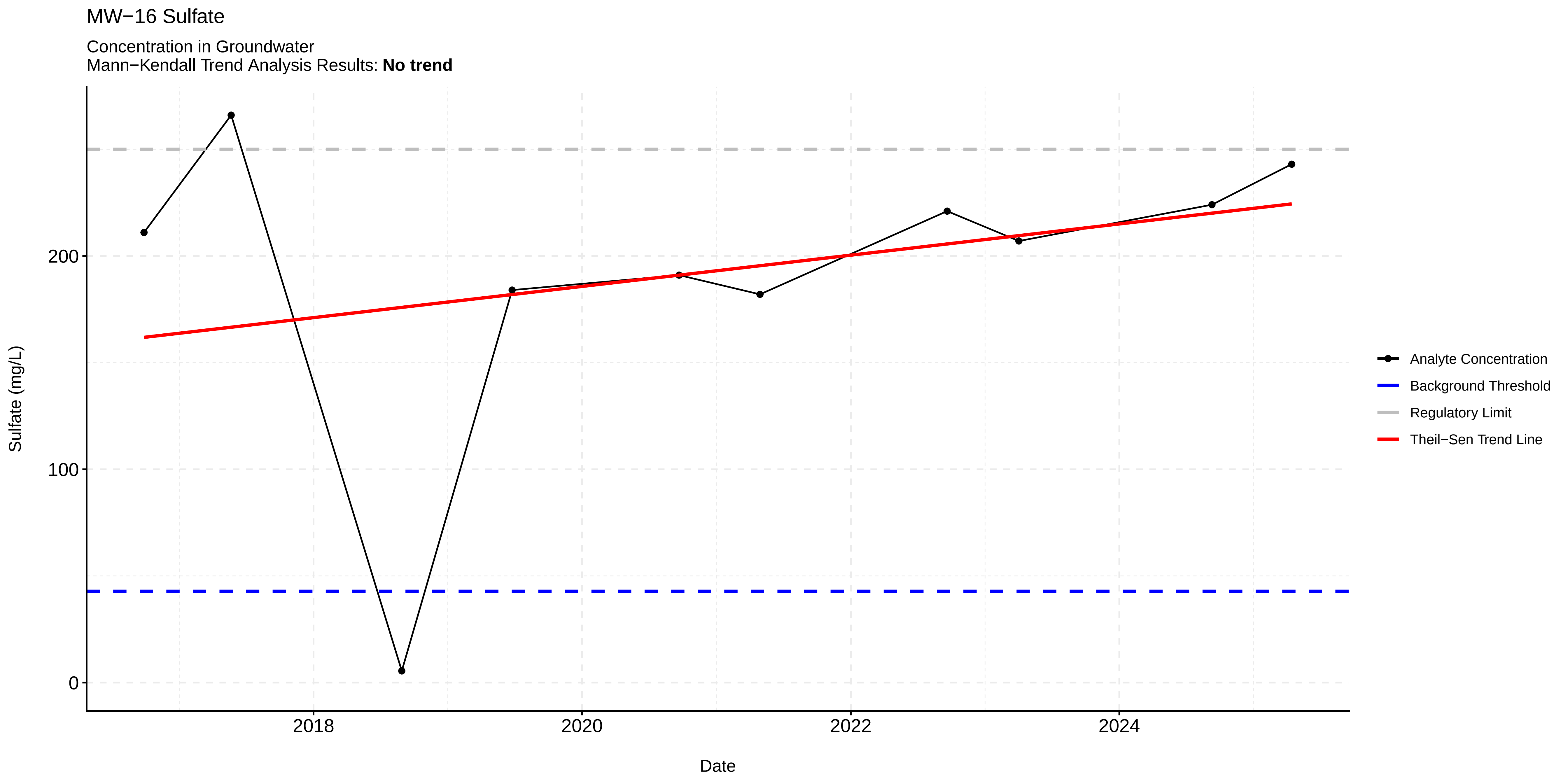
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **Increasing**

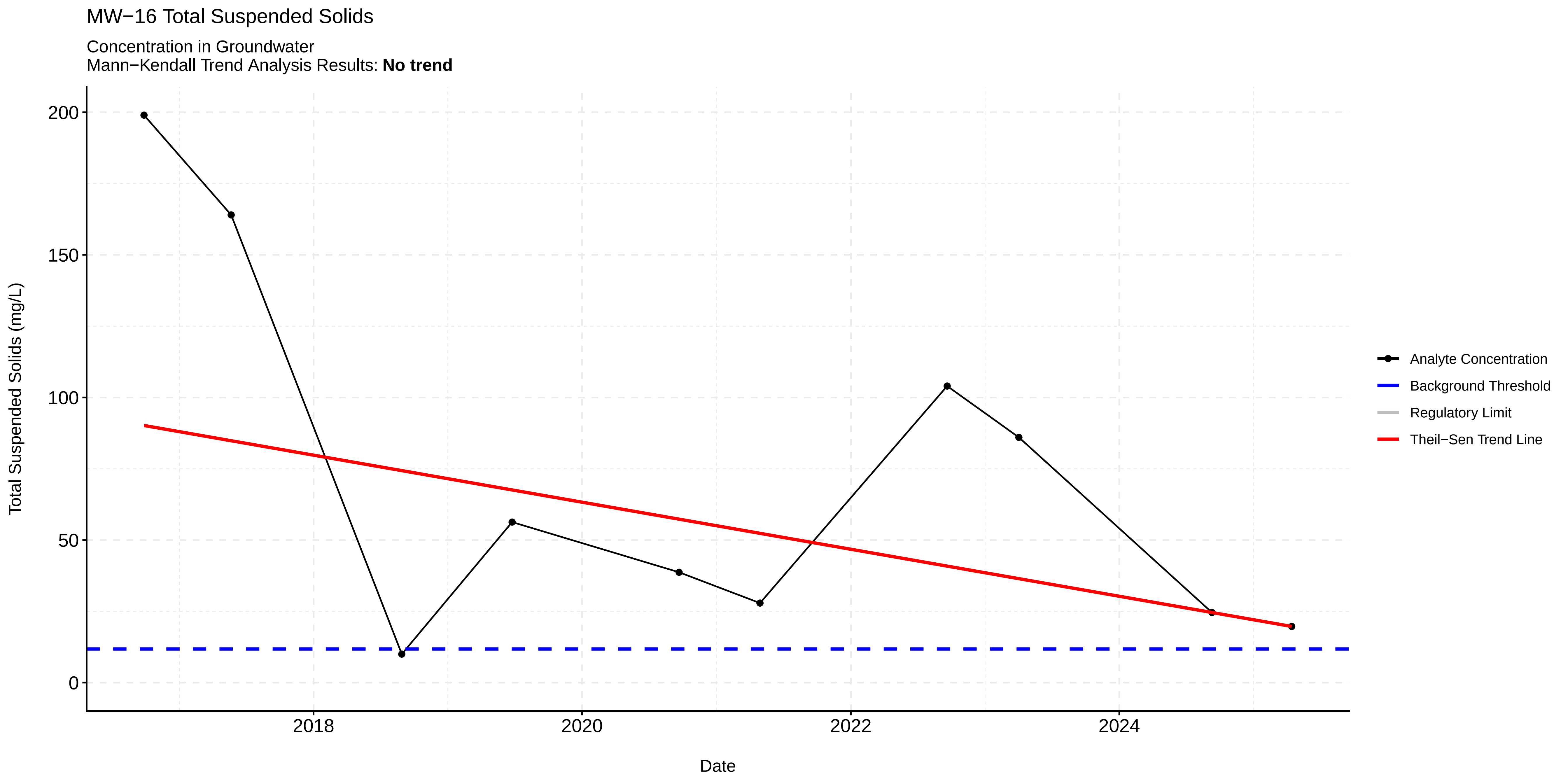


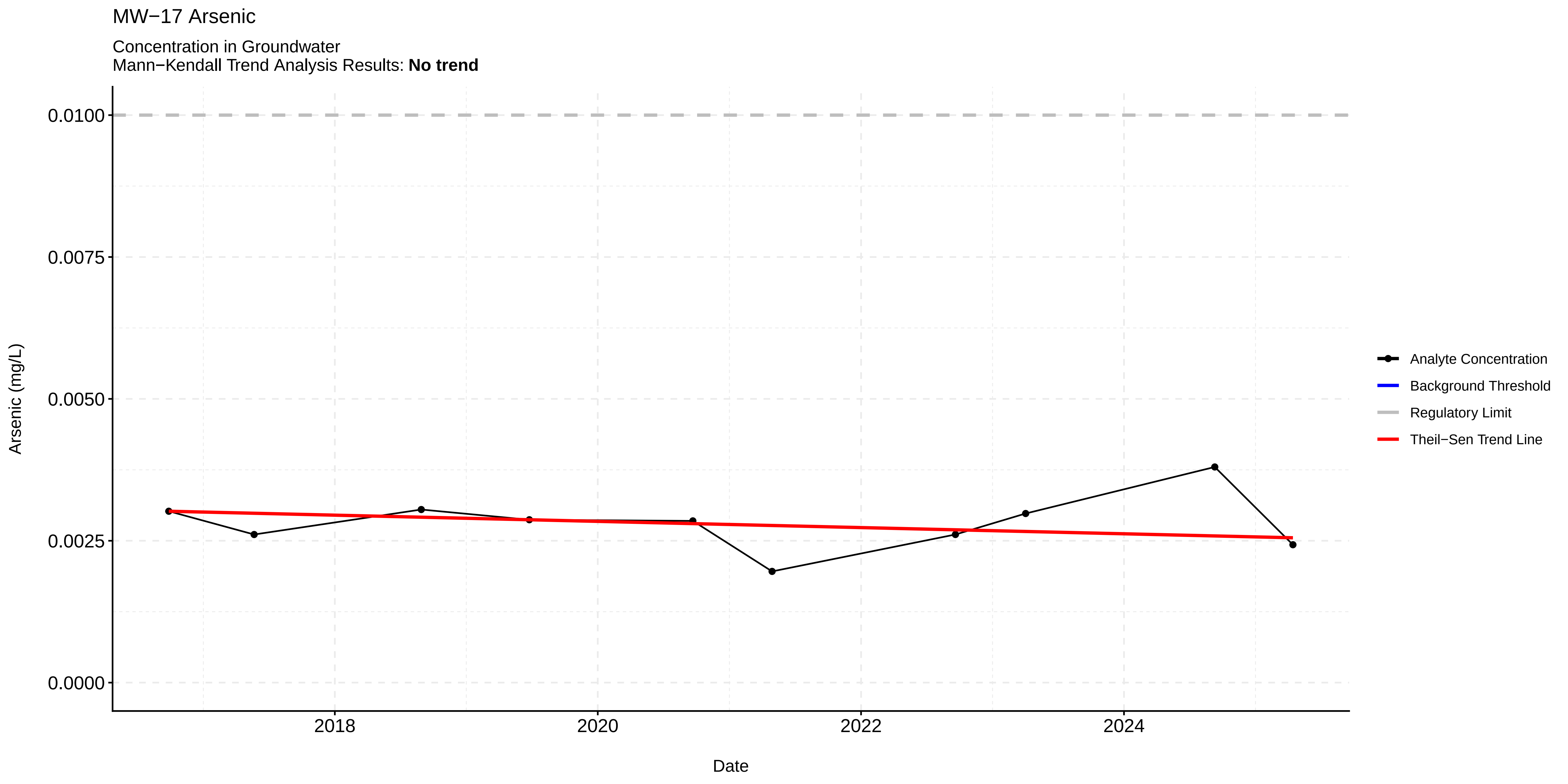

MW−16 pH
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
pH (SU)
0
2
4
6
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−16 Bicarbonate Alkalinity
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **Increasing**
Bicarbonate Alkalinity (mg/L)
1000
750
500
250
0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−16 Chloride
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **Increasing**
Chloride (mg/L)
250
200
150
100
50
0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

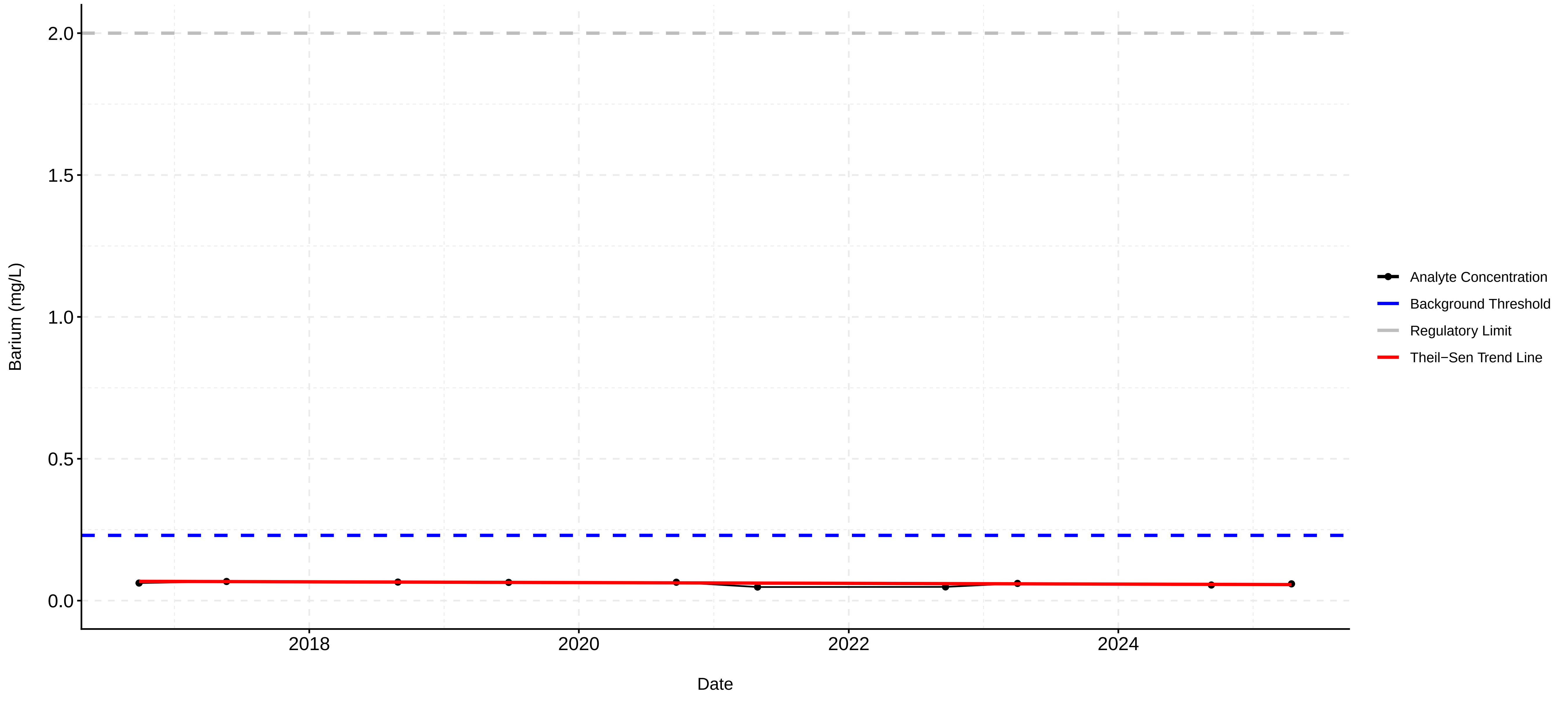

MW−16 Sulfate
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Sulfate (mg/L)
0
100
200
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

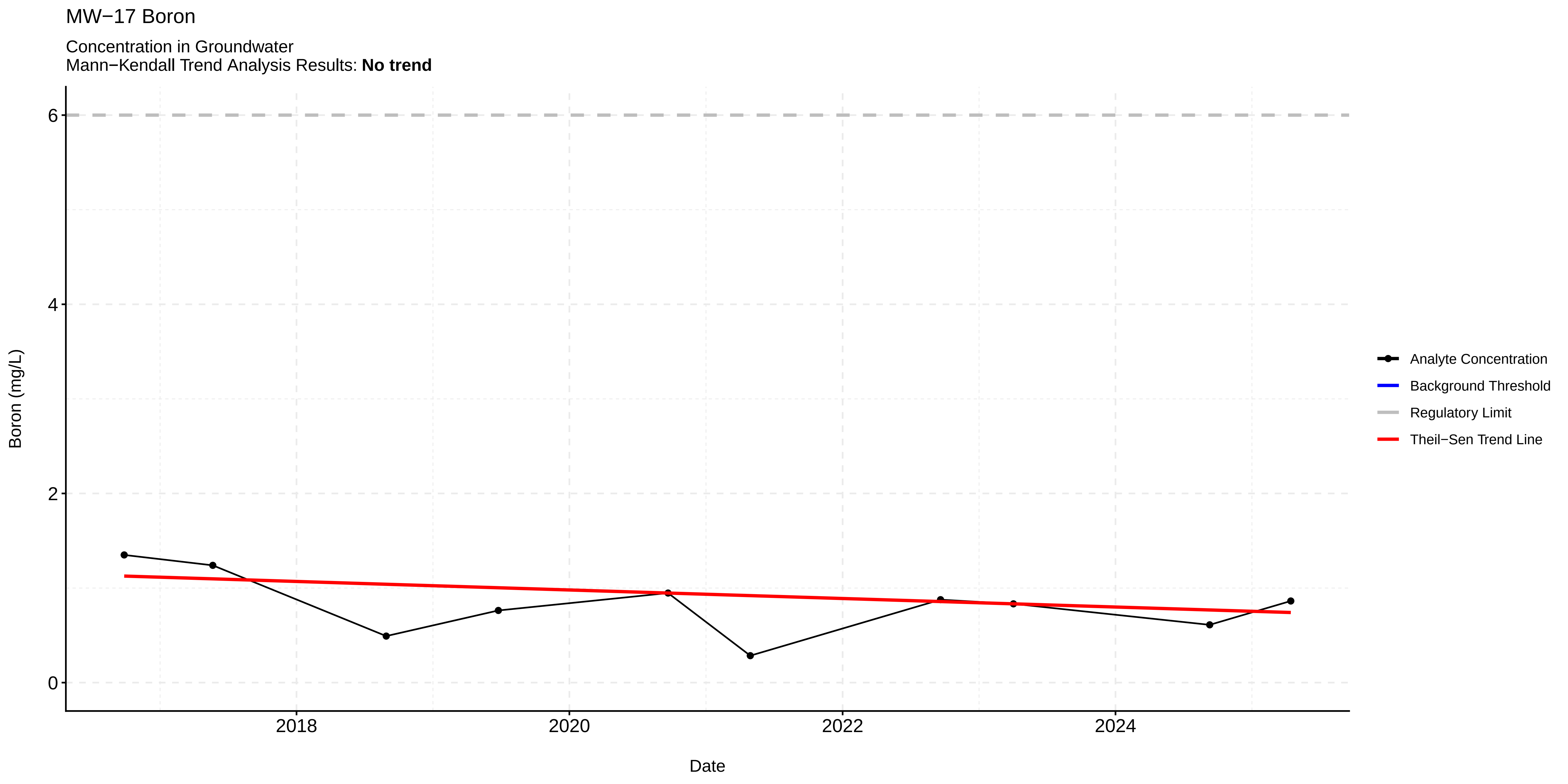

MW−16 Total Suspended Solids
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Total Suspended Solids (mg/L)
200
150
100
50
0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

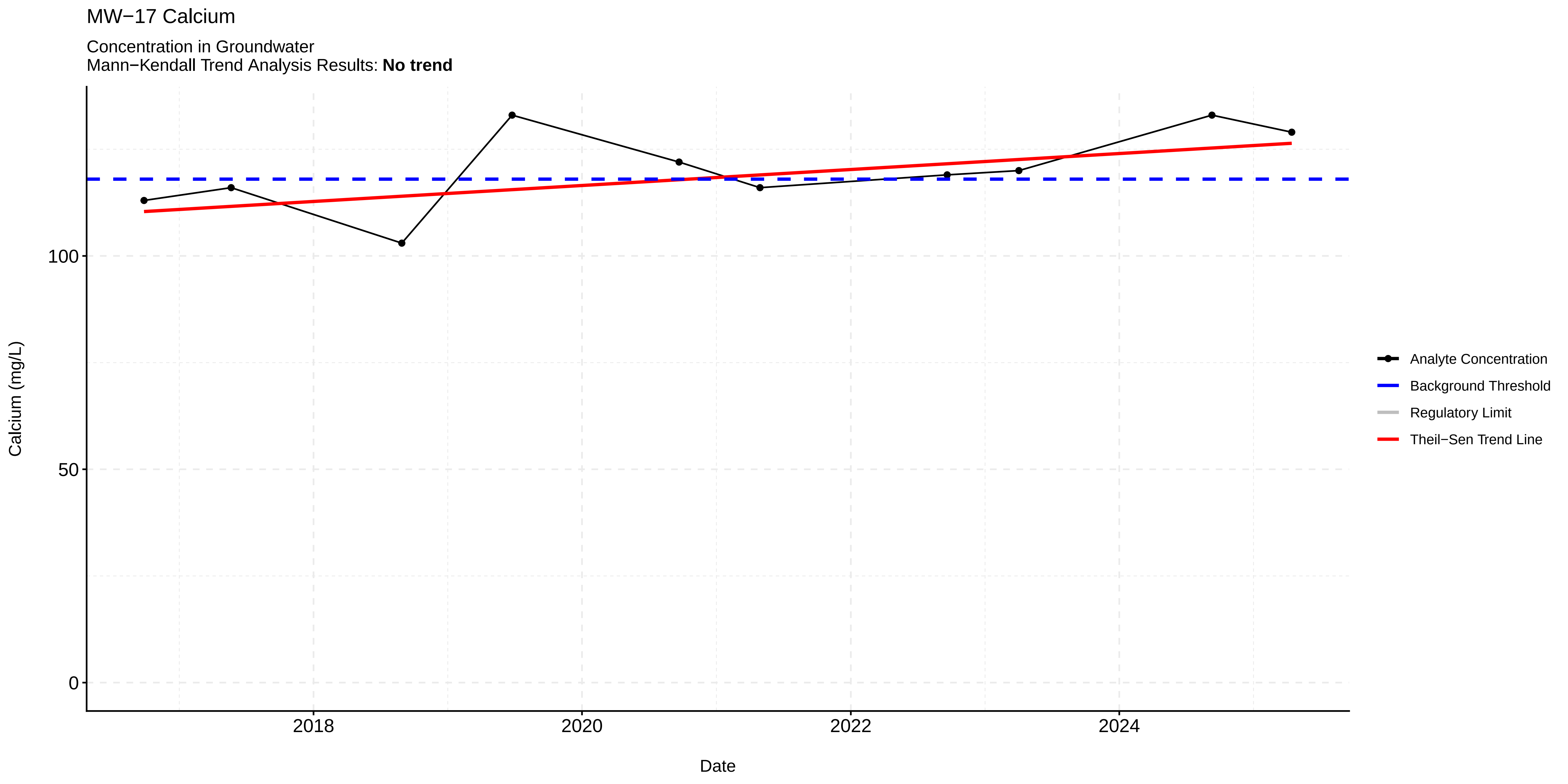

MW−17 Arsenic
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Arsenic (mg/L)
0.0100
0.0075
0.0050
0.0025
0.0000
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

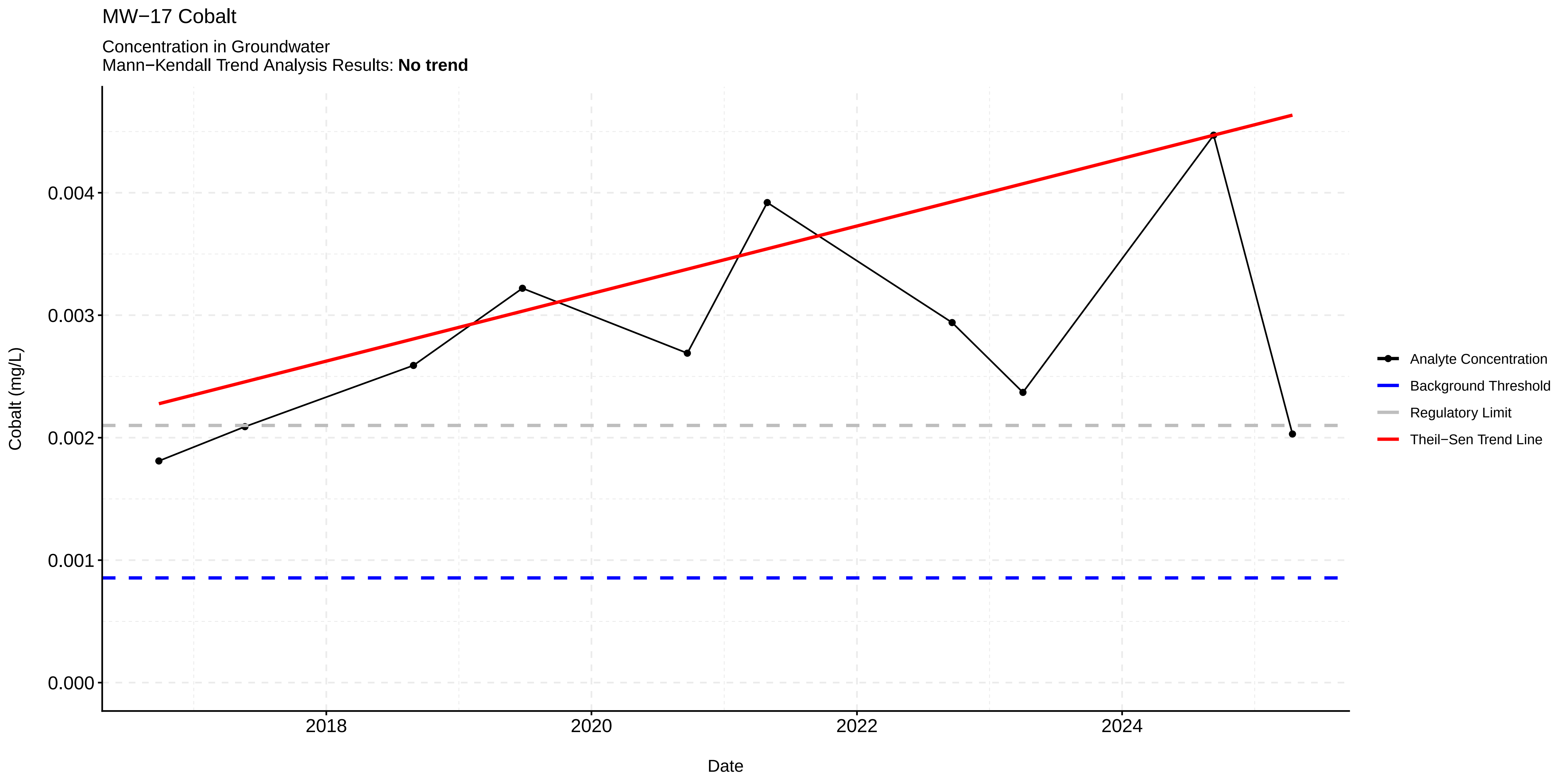
MW−17 Barium

Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**

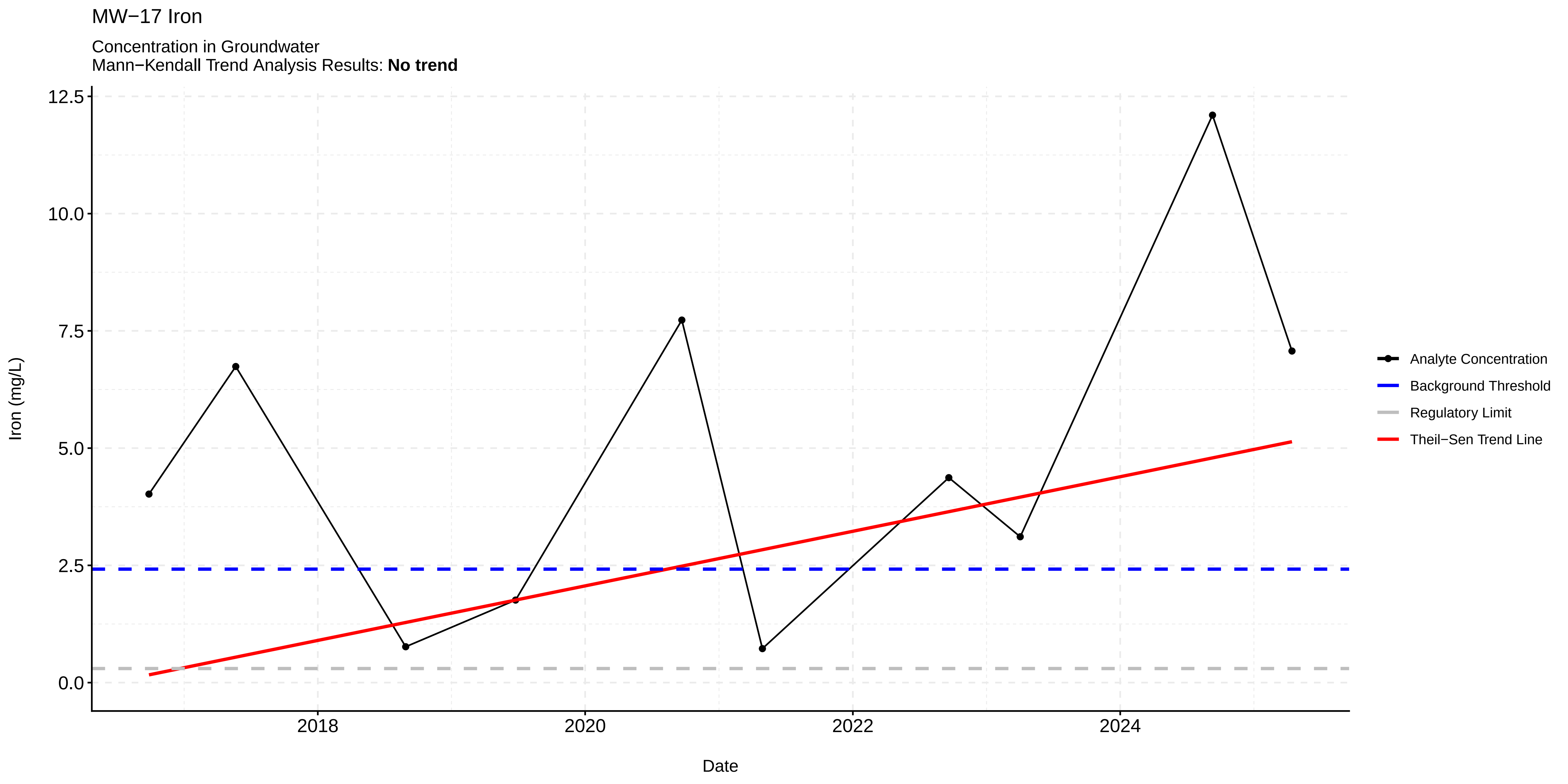



MW−17 Boron
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
6
4
2
0
Boron (mg/L)
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

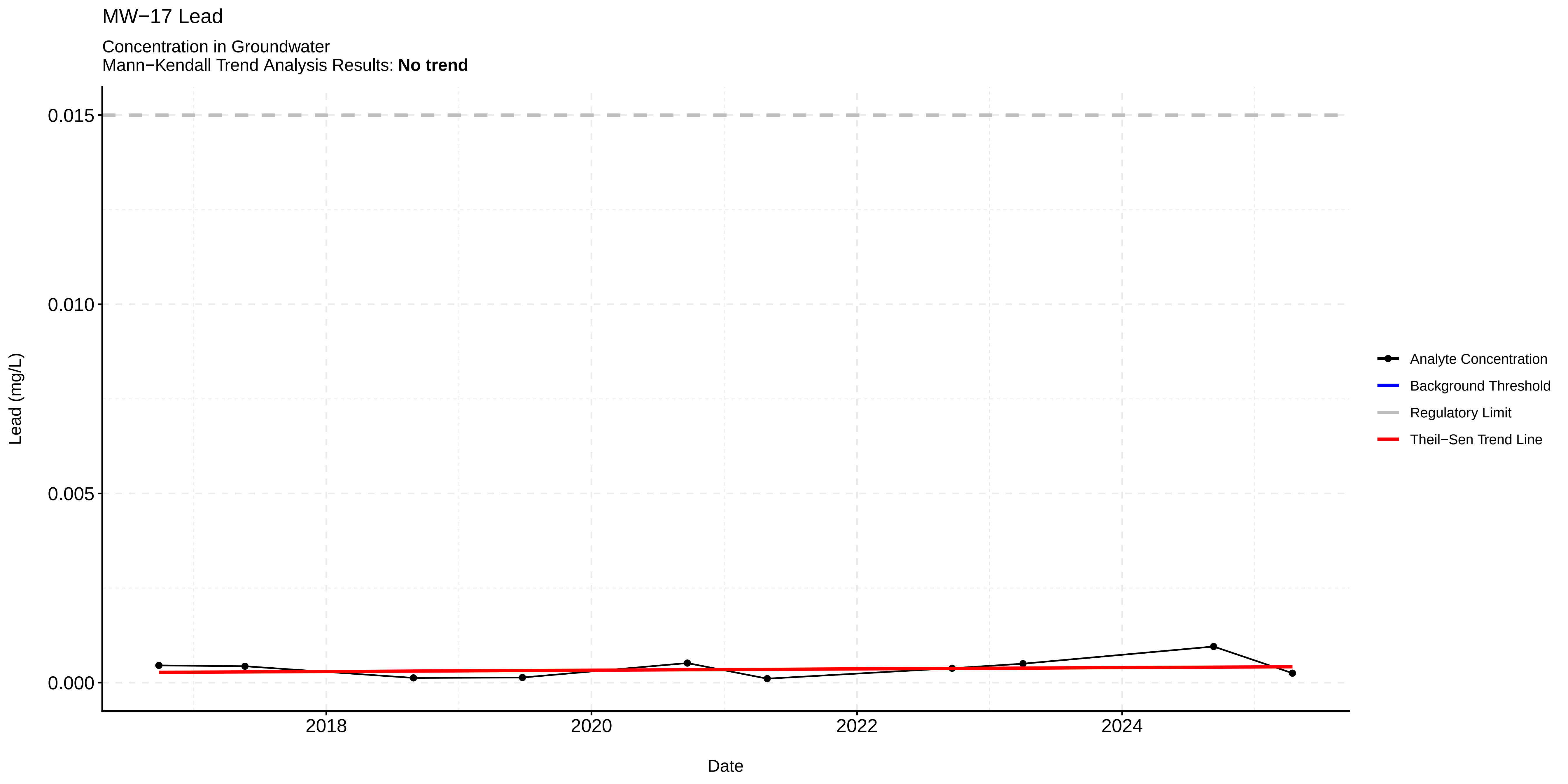

MW−17 Calcium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Calcium (mg/L)
0
50
100
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line



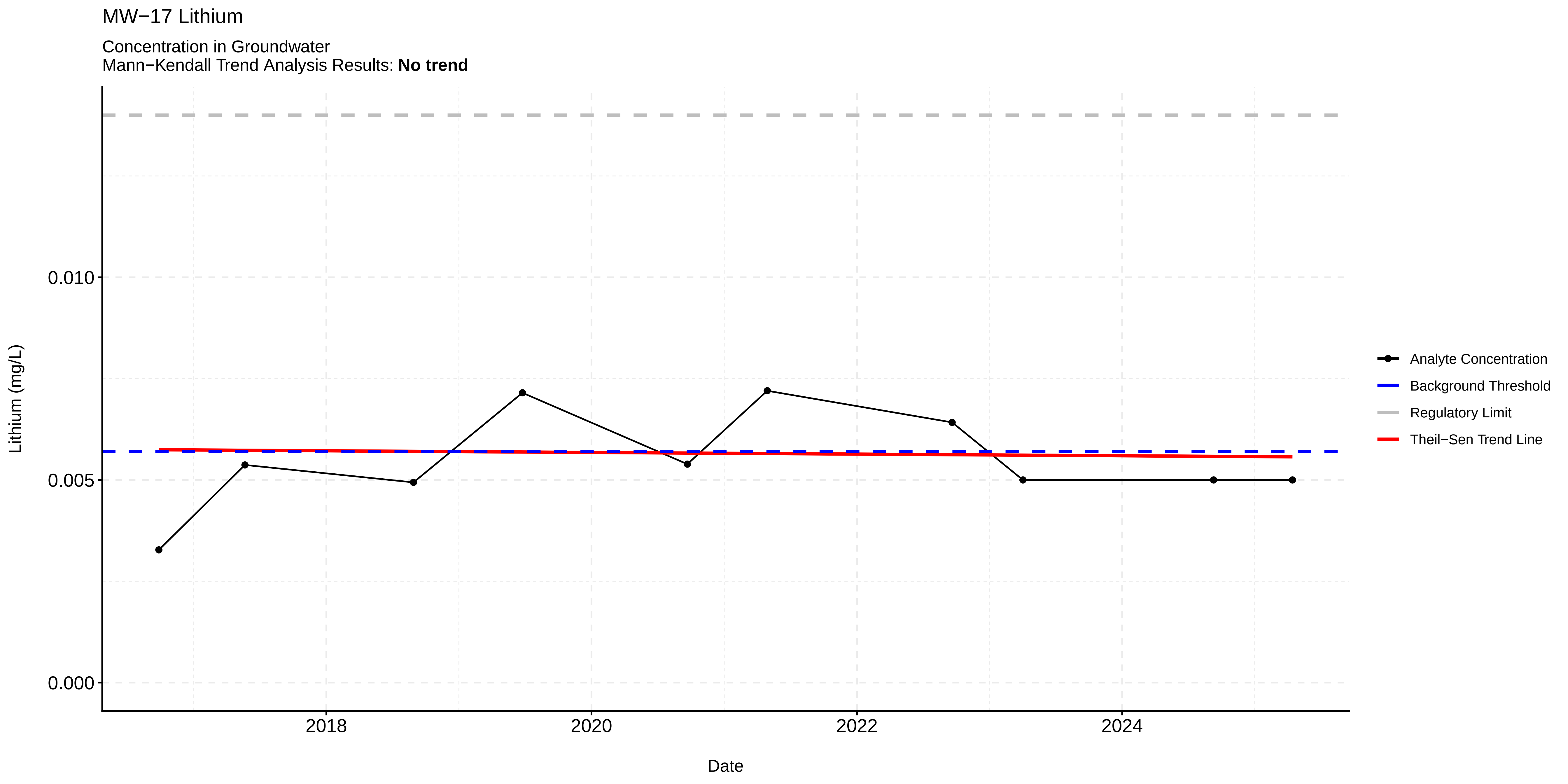
MW−17 Cobalt
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Cobalt (mg/L)
0.000
0.001
0.002
0.003
0.004
Date
2018
2020
2022
2024
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

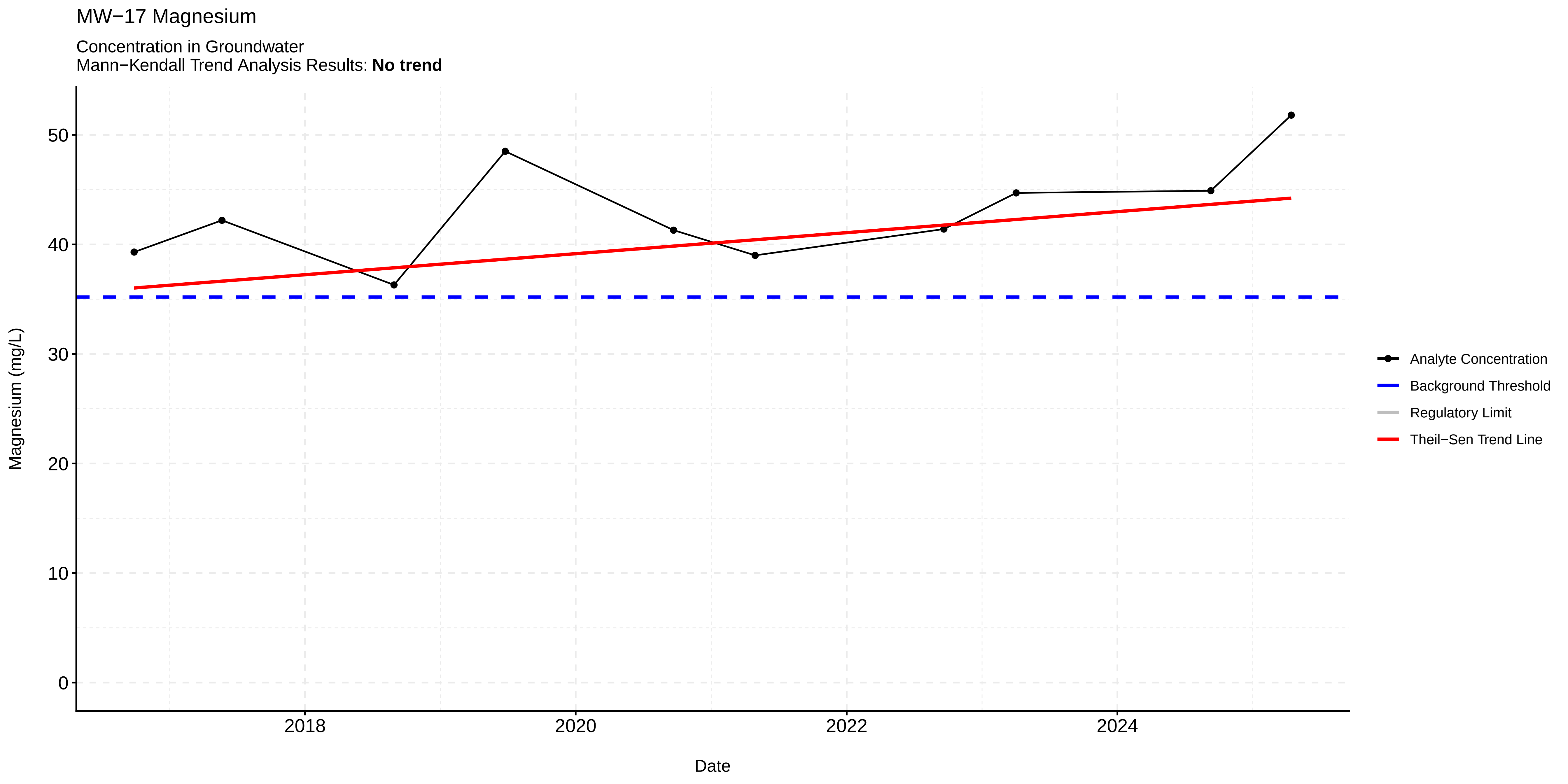


MW−17 Iron
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Iron (mg/L)
12.5
10.0
7.5
5.0
2.5
0.0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

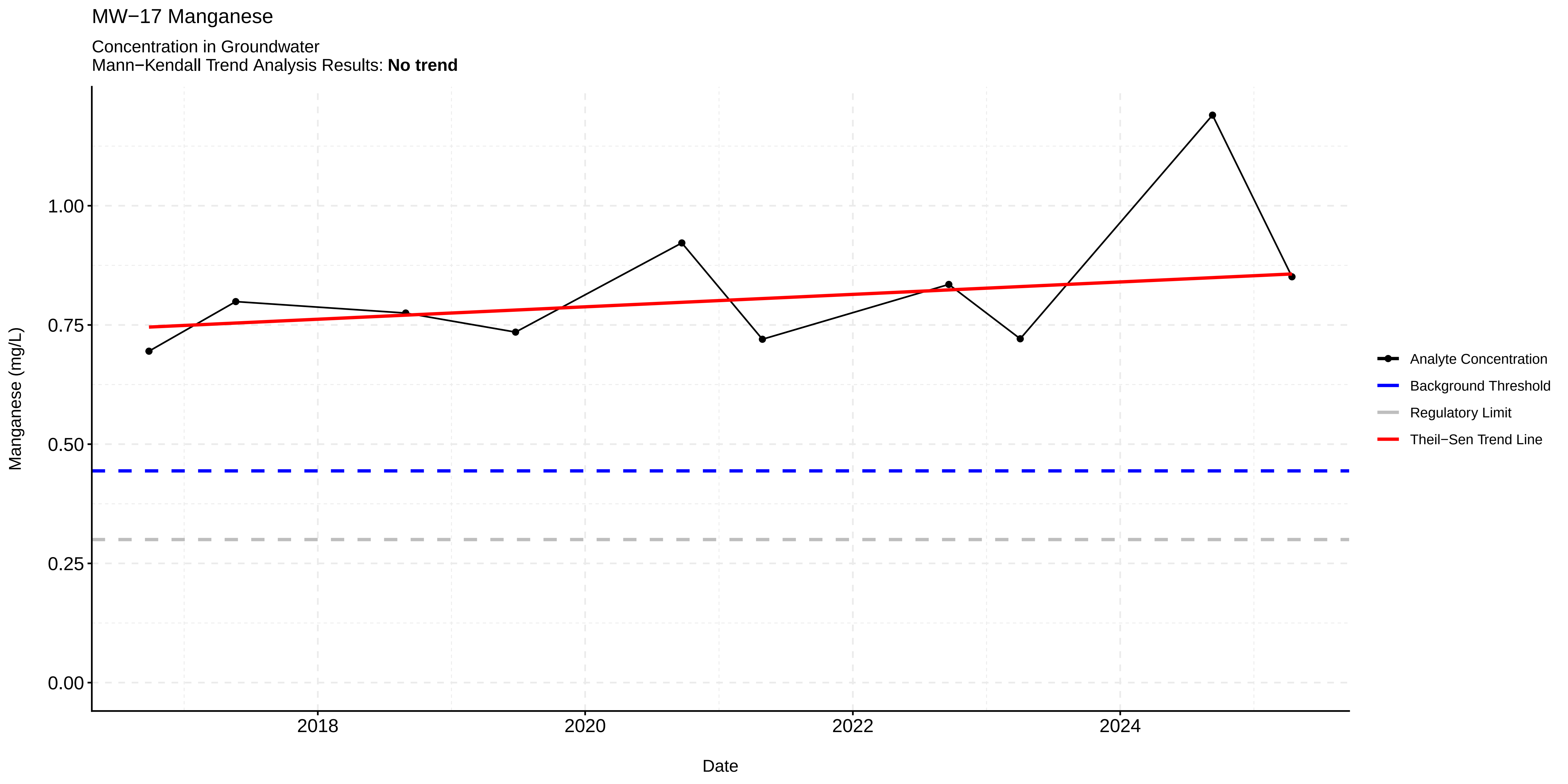


MW−17 Lead
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
0.015
0.010
0.005
0.000
Lead (mg/L)
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−17 Lithium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
0.010
0.005
0.000
Lithium (mg/L)
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

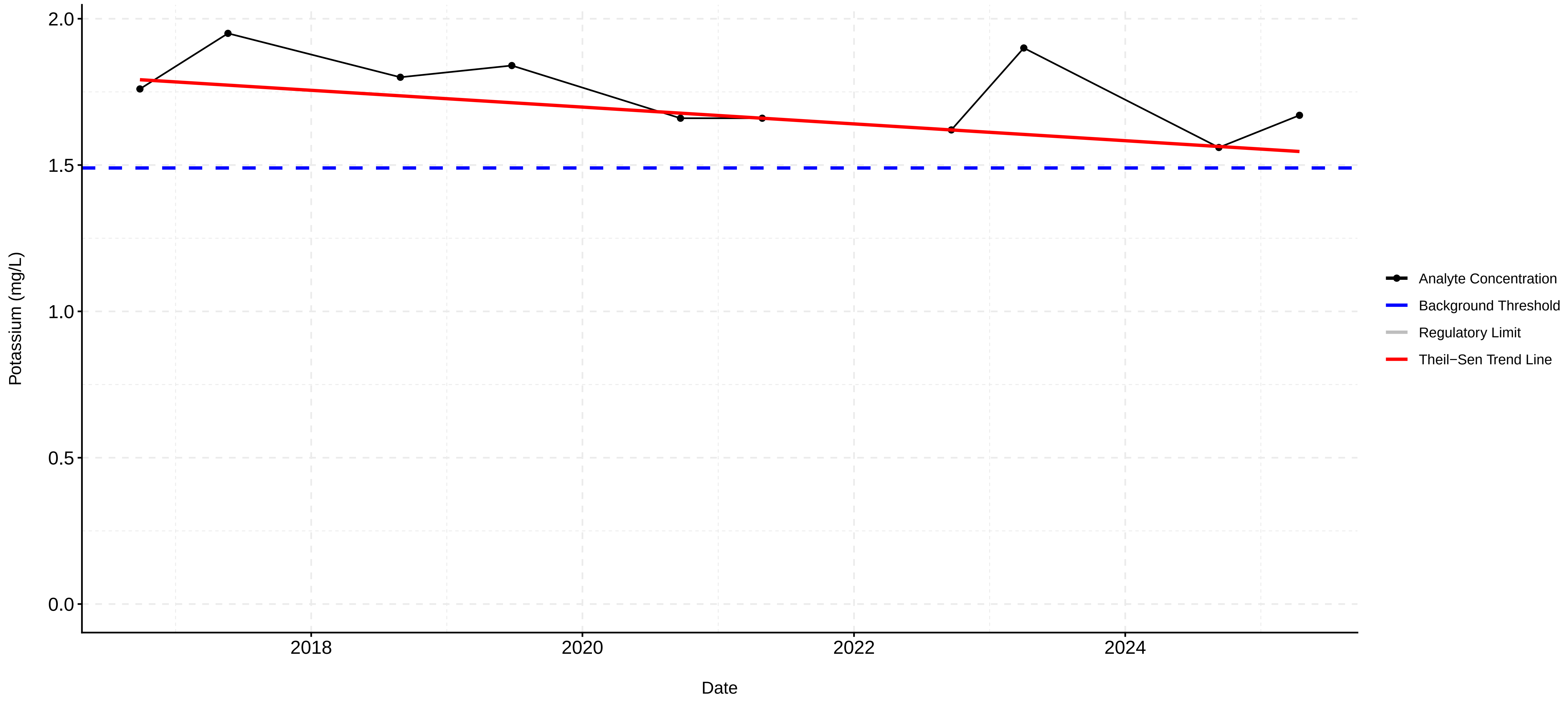


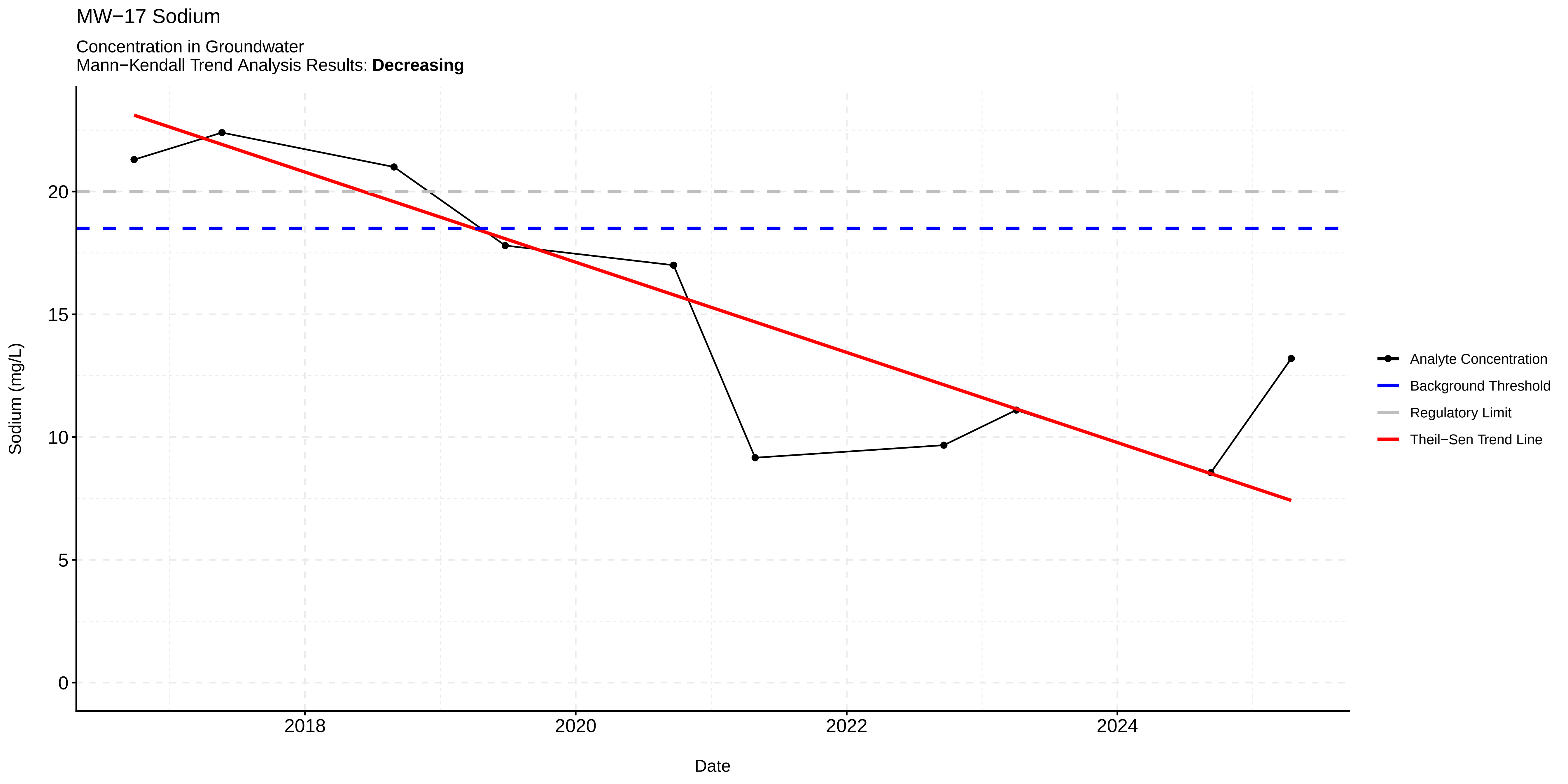
MW−17 Magnesium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Magnesium (mg/L)
0
10
20
30
40
50
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−17 Manganese
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Manganese (mg/L)
1.00
0.75
0.50
0.25
0.00
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

MW−17 Potassium

Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**

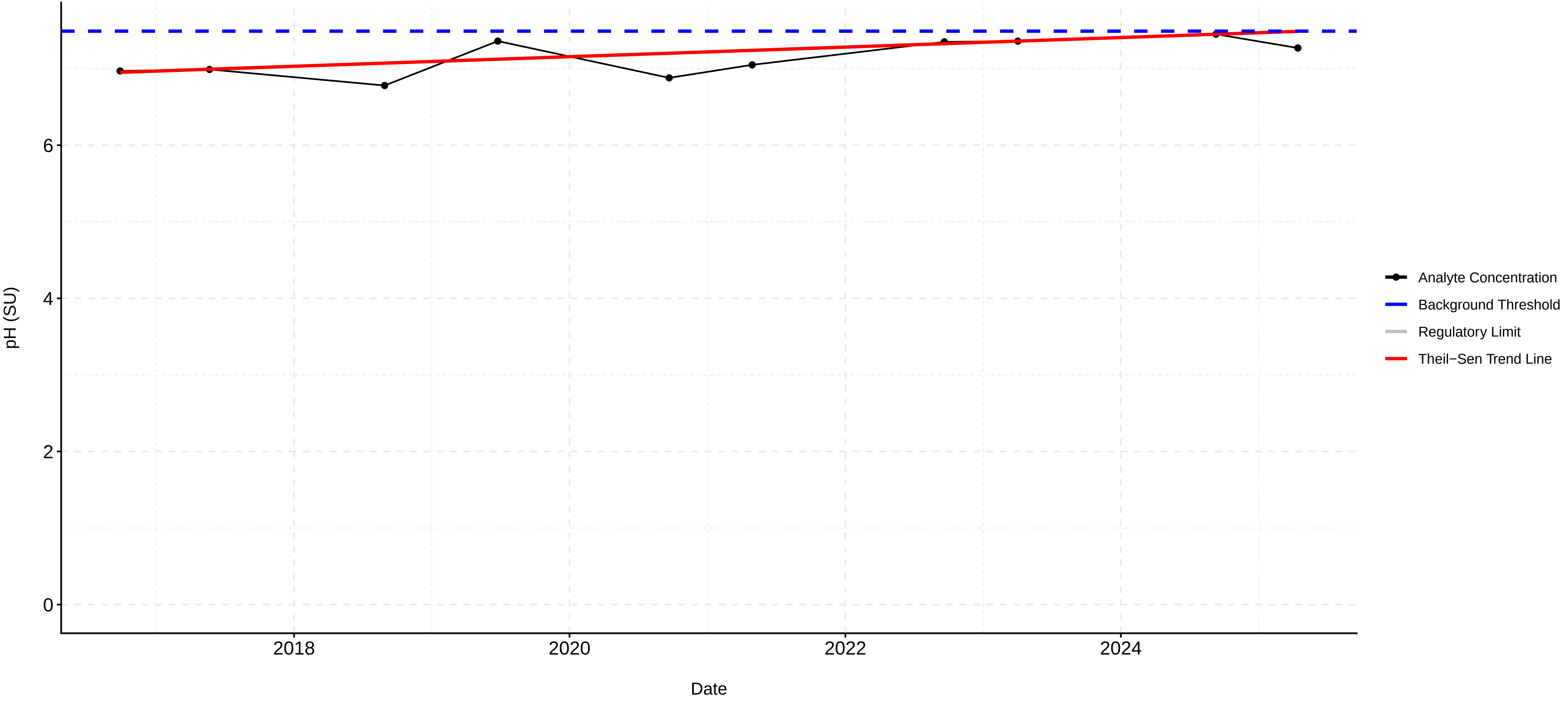


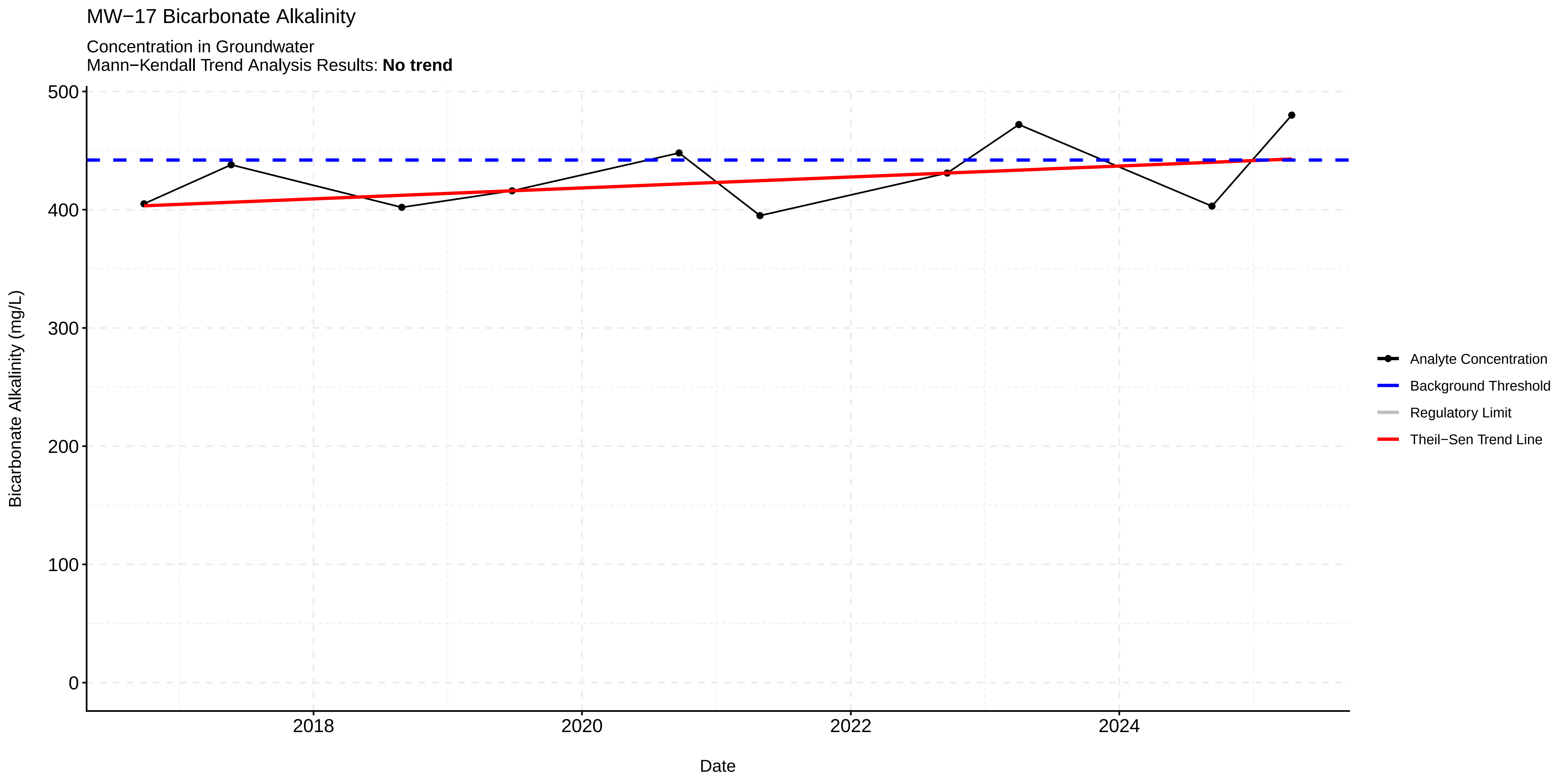


MW−17 Sodium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **Decreasing**
Sodium (mg/L)
0
5
10
15
20
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

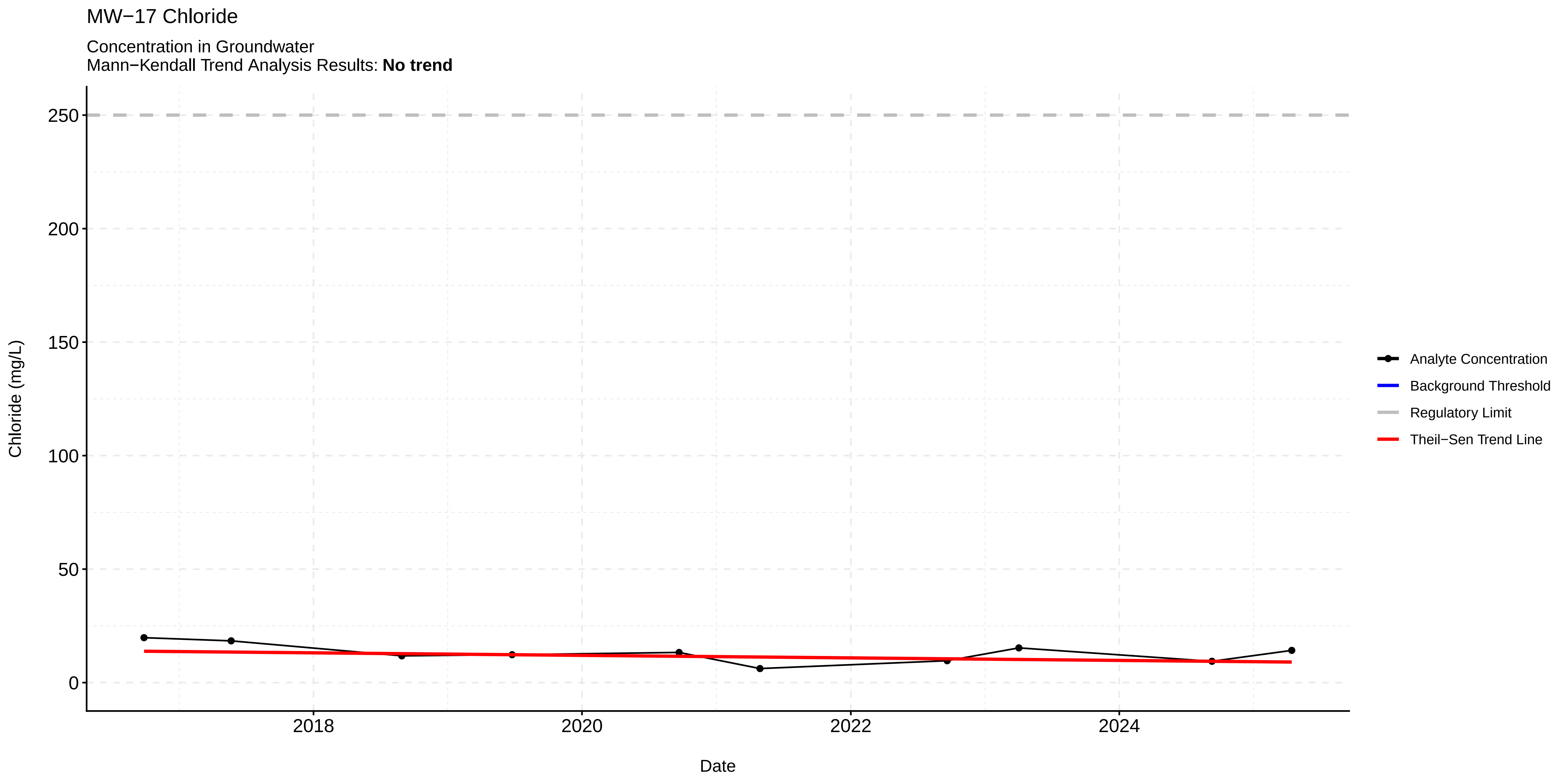
MW−17 pH

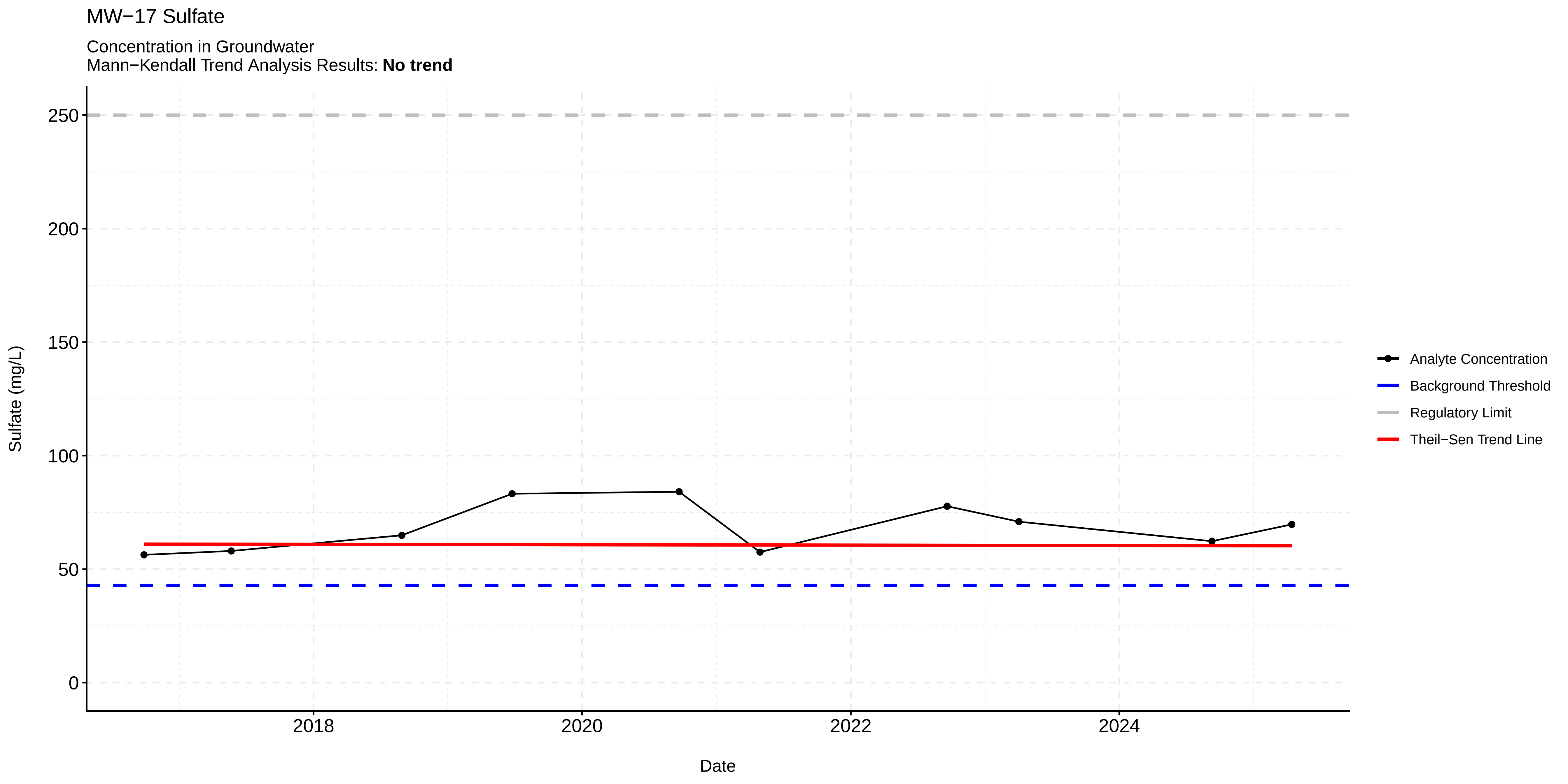
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**

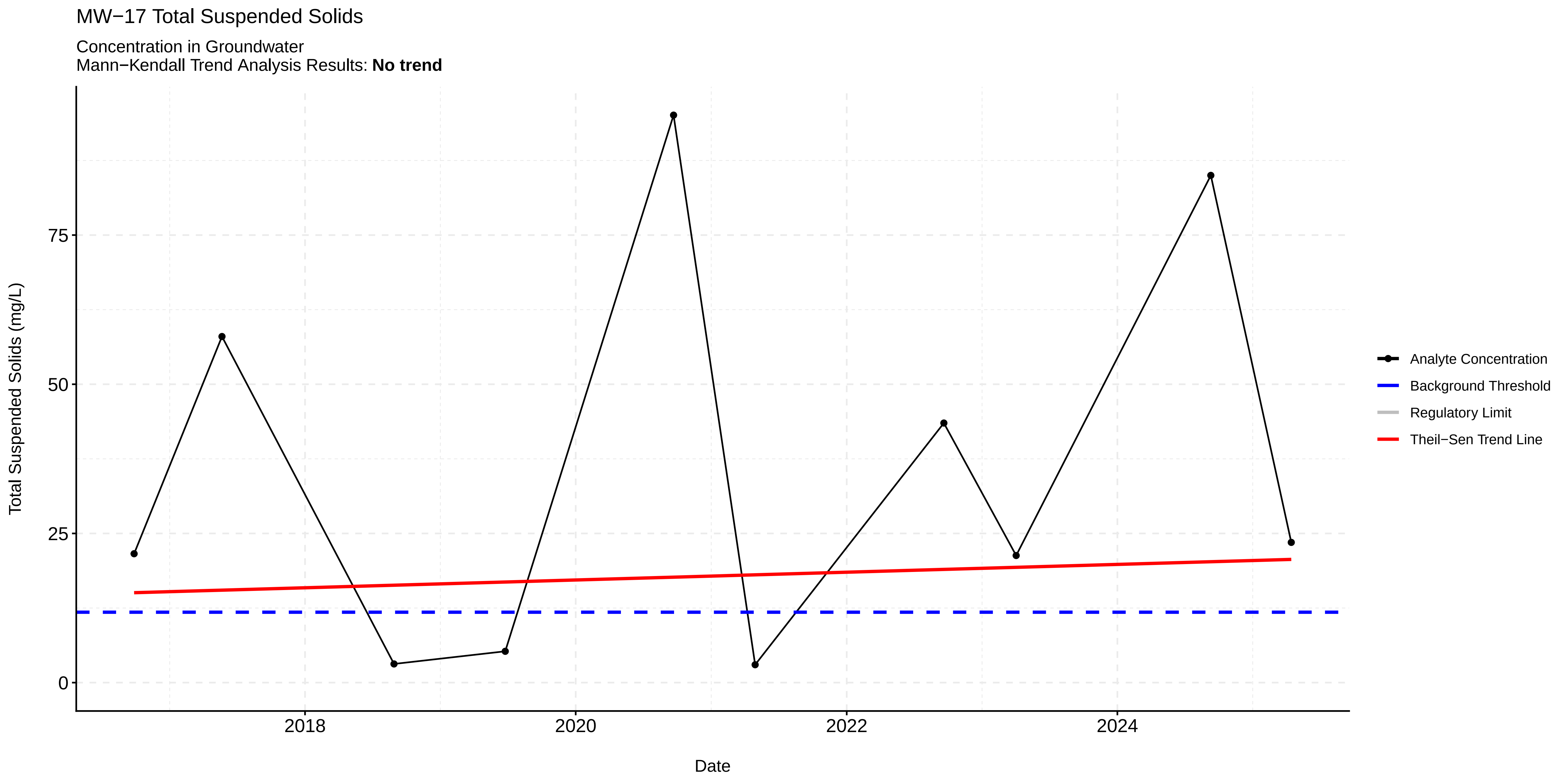


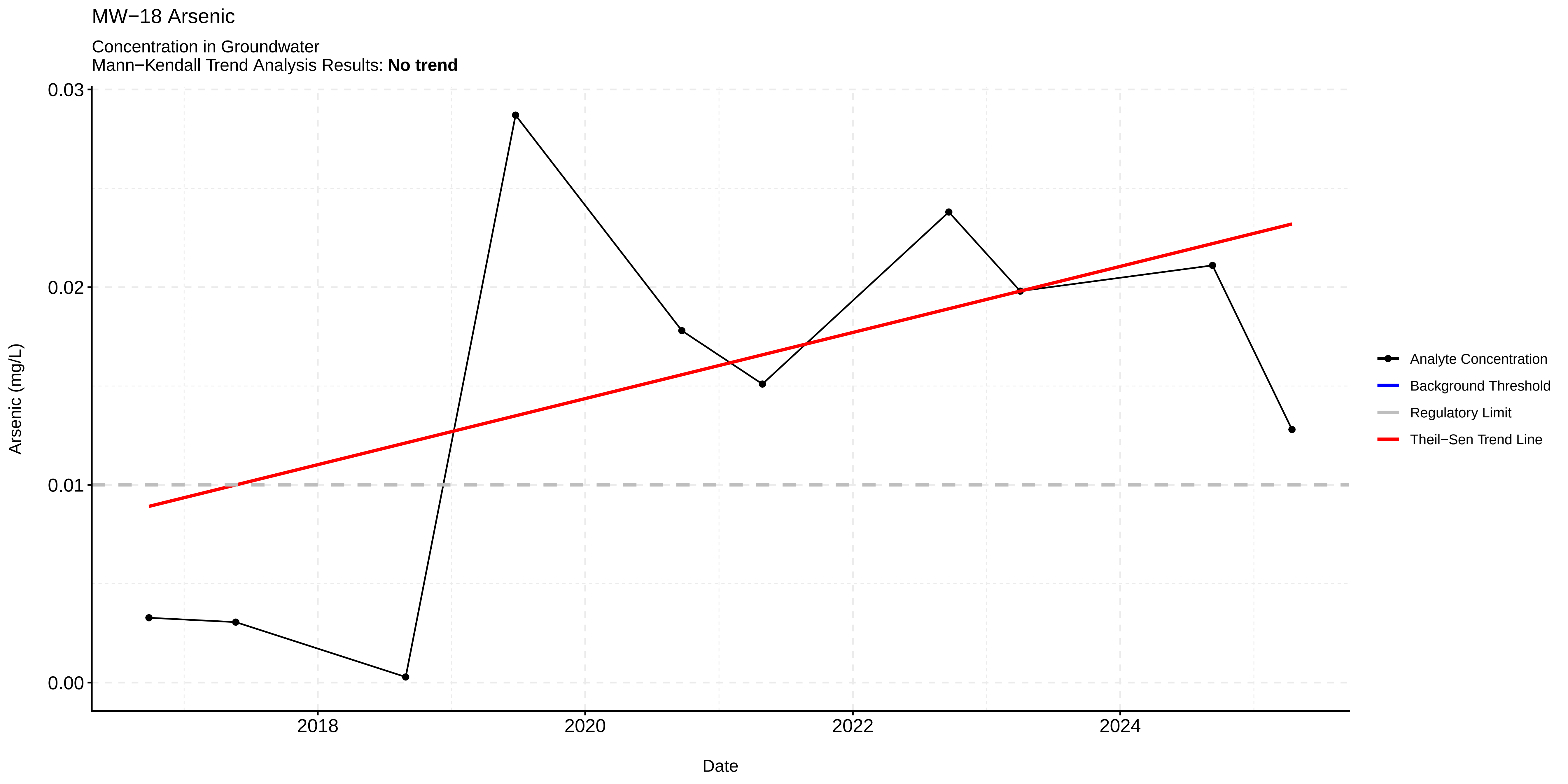


MW−17 Bicarbonate Alkalinity
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Bicarbonate Alkalinity (mg/L)
0
100
200
300
400
500
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

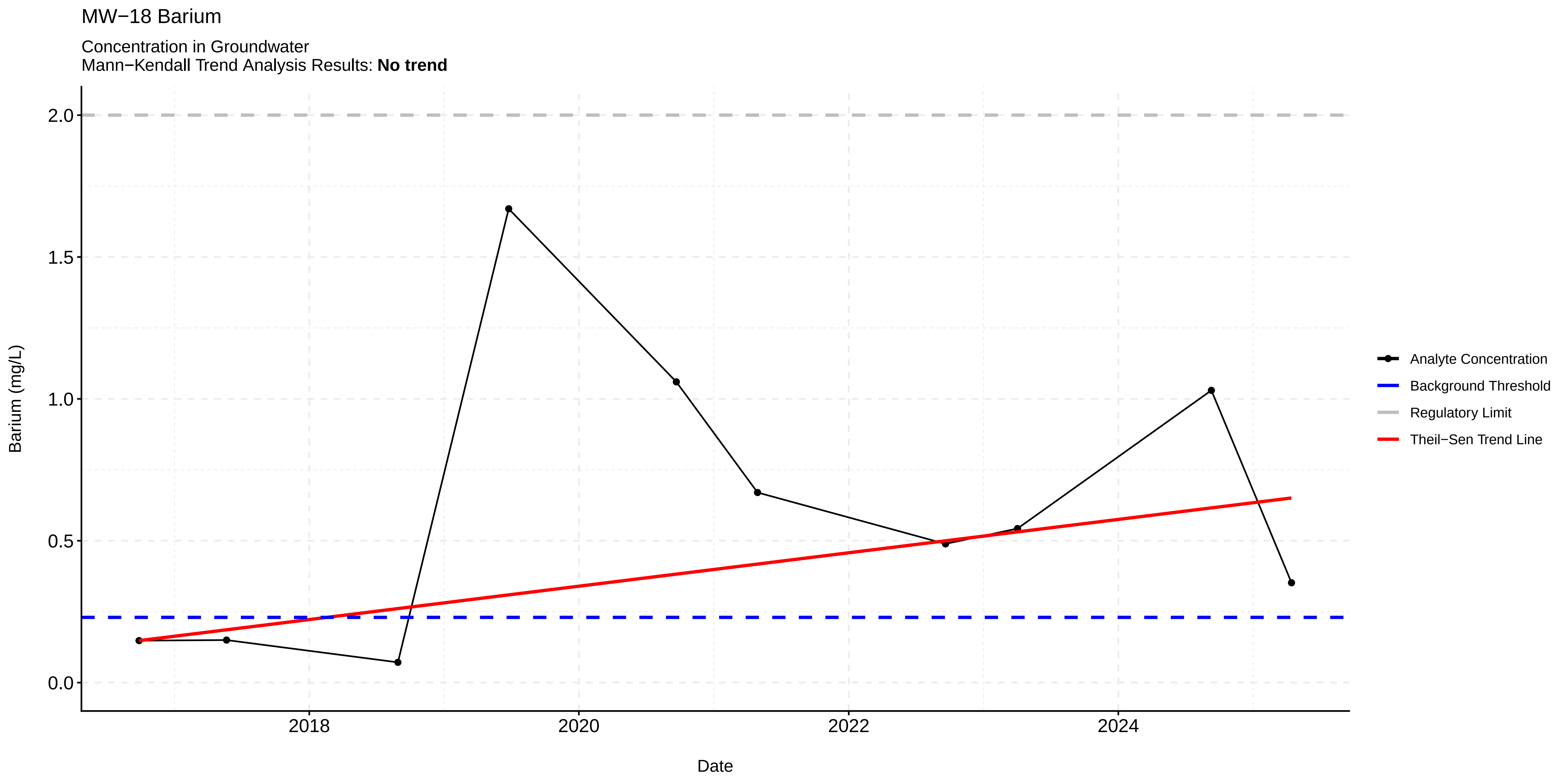

MW−17 Chloride
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Chloride (mg/L)
250
200
150
100
50
0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

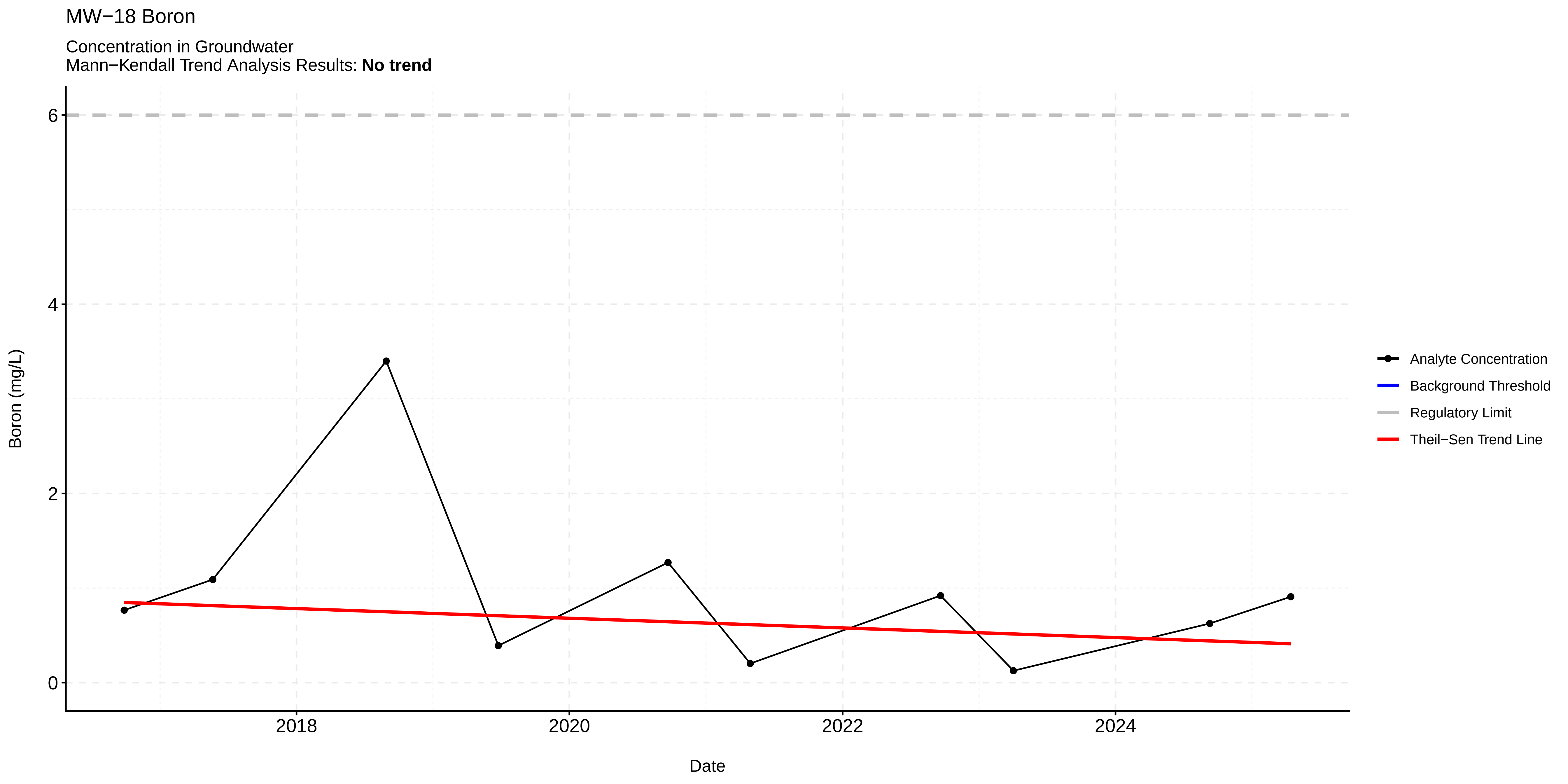

MW−17 Sulfate
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Sulfate (mg/L)
0
50
100
150
200
250
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

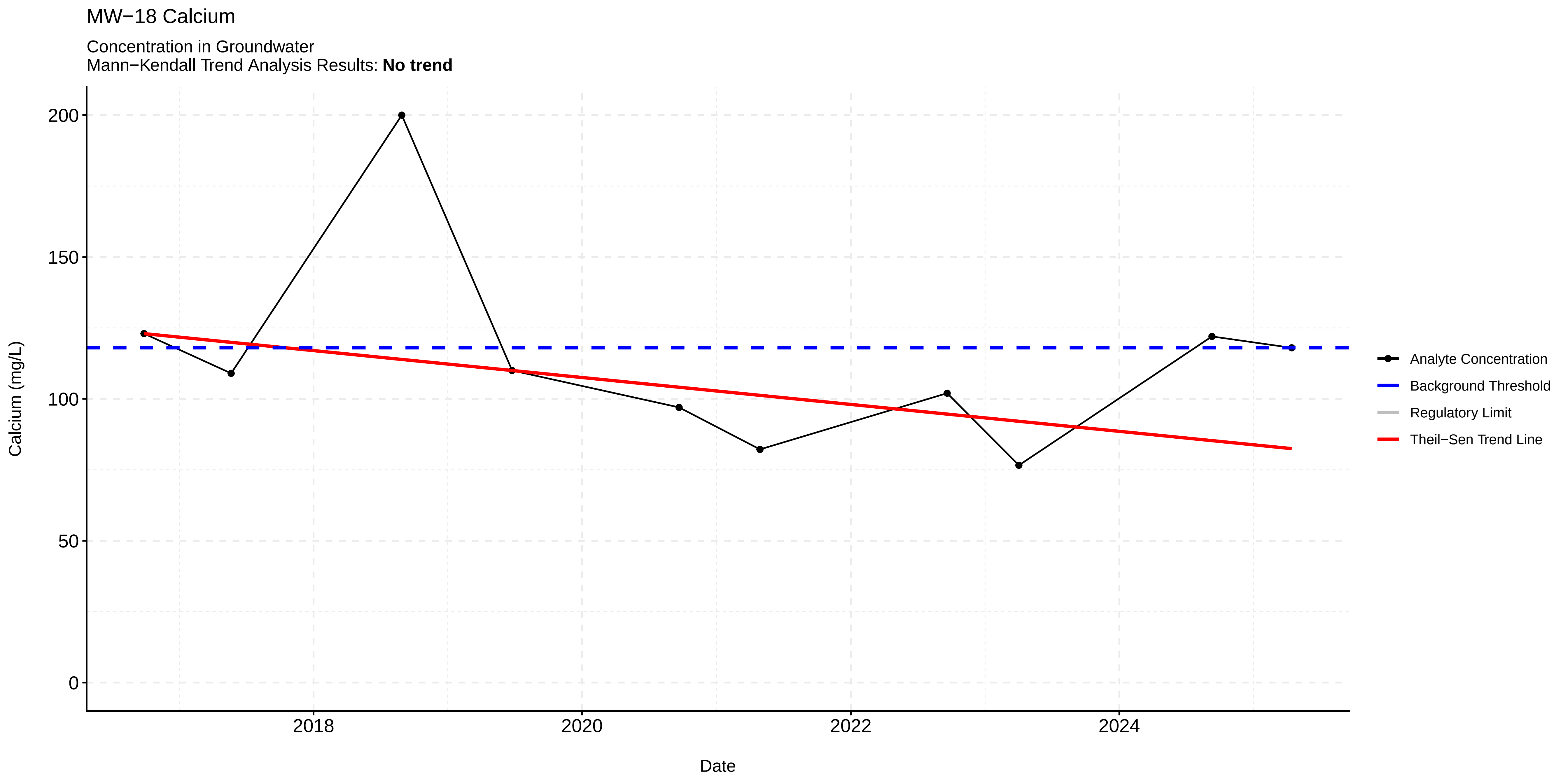

MW−17 Total Suspended Solids
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Total Suspended Solids (mg/L)
0
25
50
75
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line



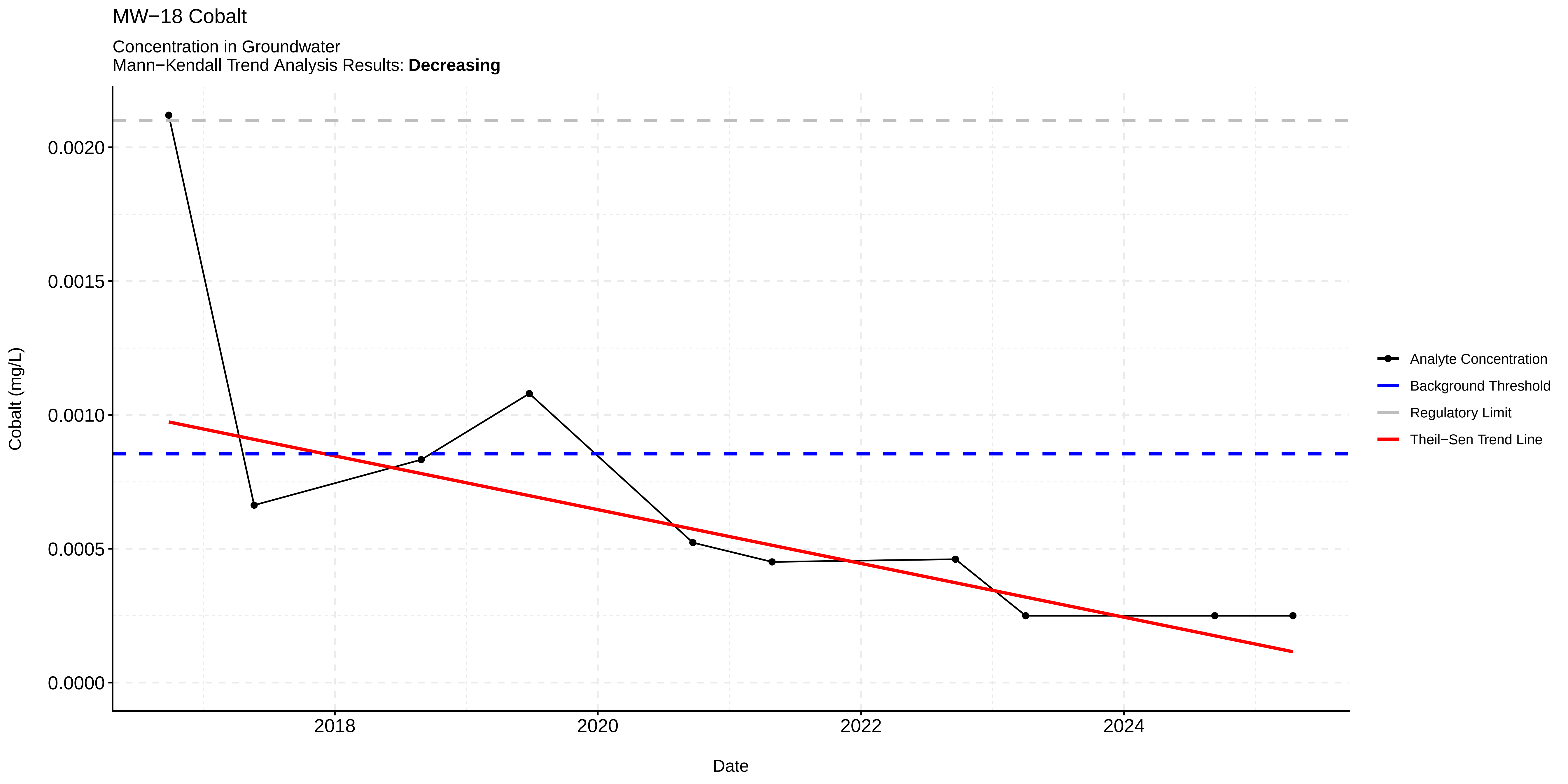
MW−18 Arsenic
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
0.03
0.02
0.01
0.00
Arsenic (mg/L)
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−18 Barium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Barium (mg/L)
0.0
0.5
1.0
1.5
2.0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−18 Boron
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Boron (mg/L)
0
2
4
6
Date
2018
2020
2022
2024
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line



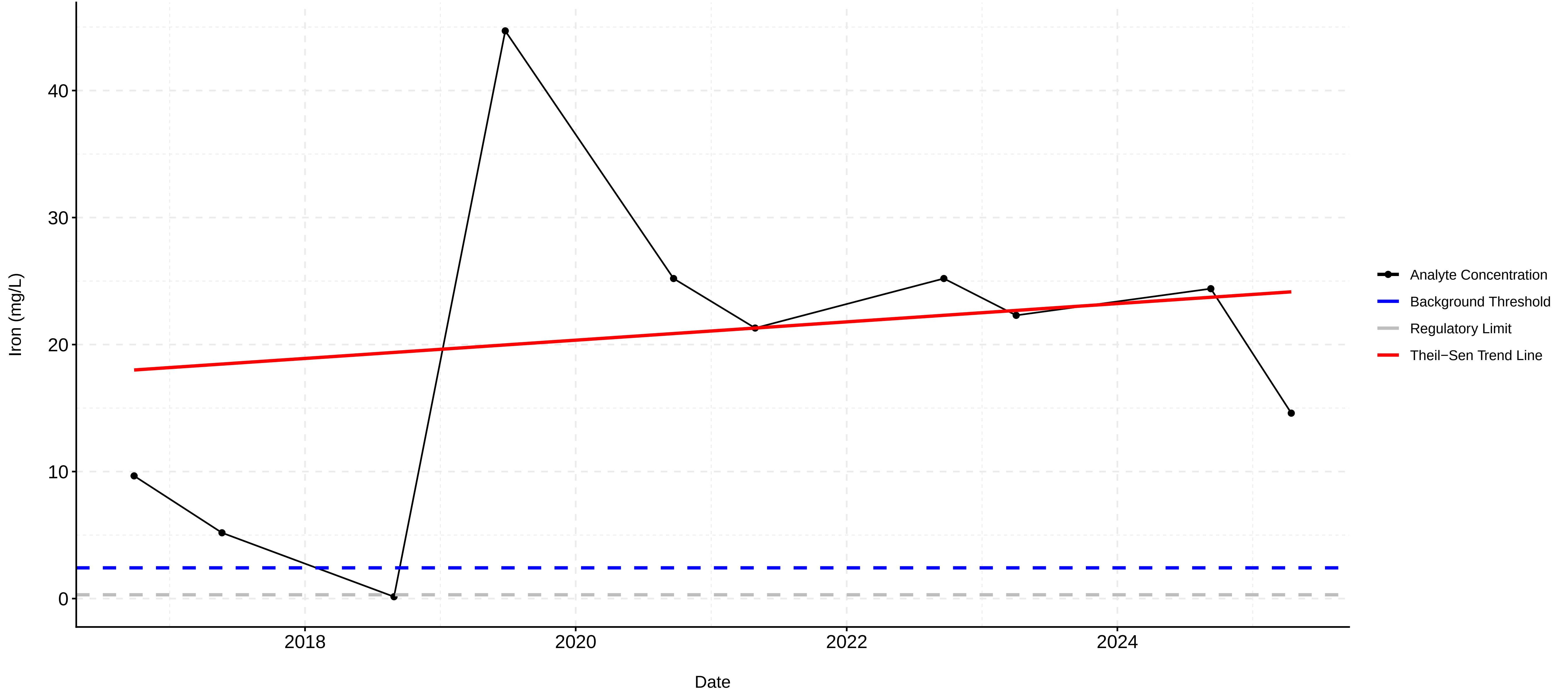
MW−18 Calcium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
200
150
100
50
0
Calcium (mg/L)
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

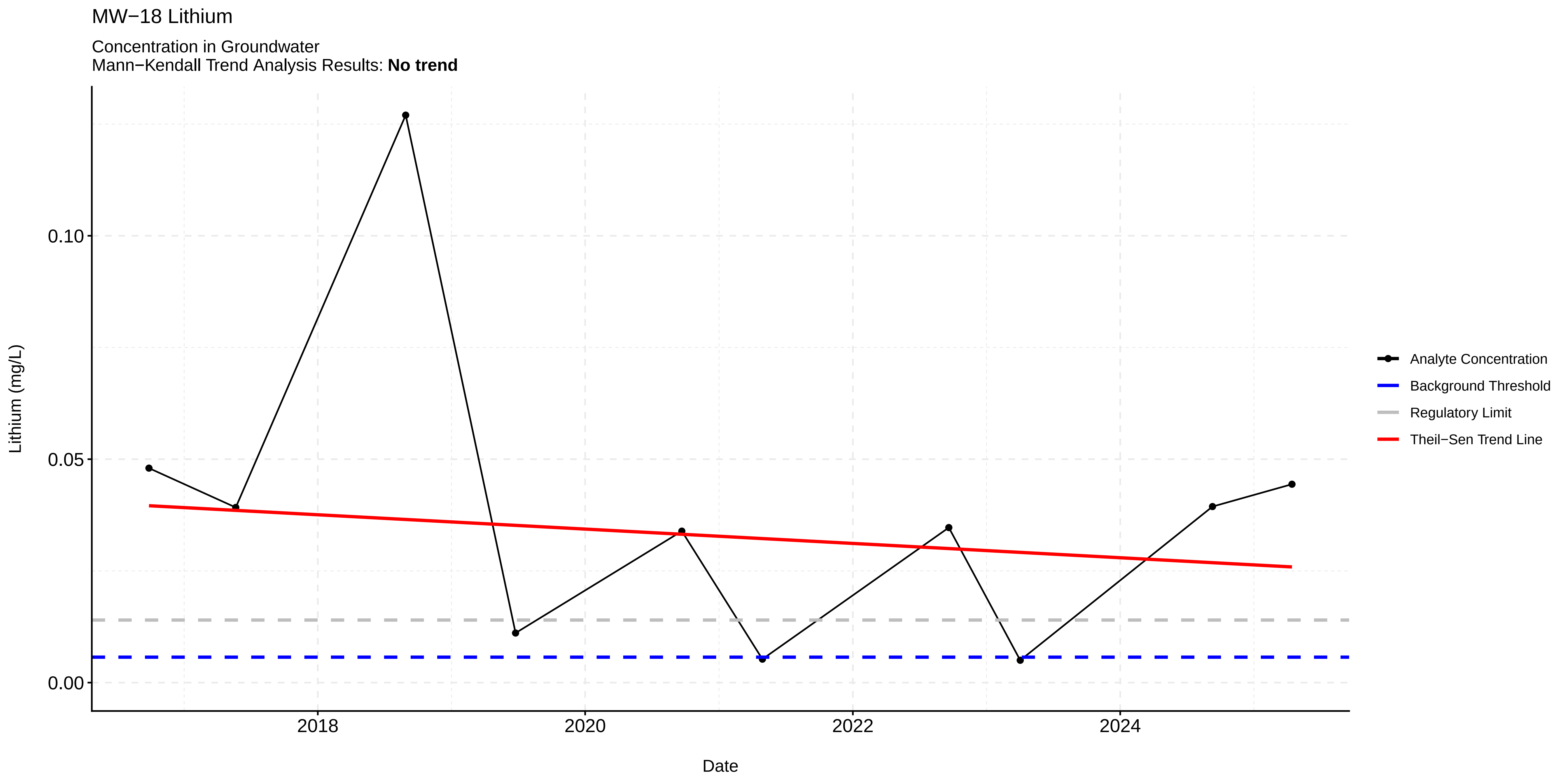


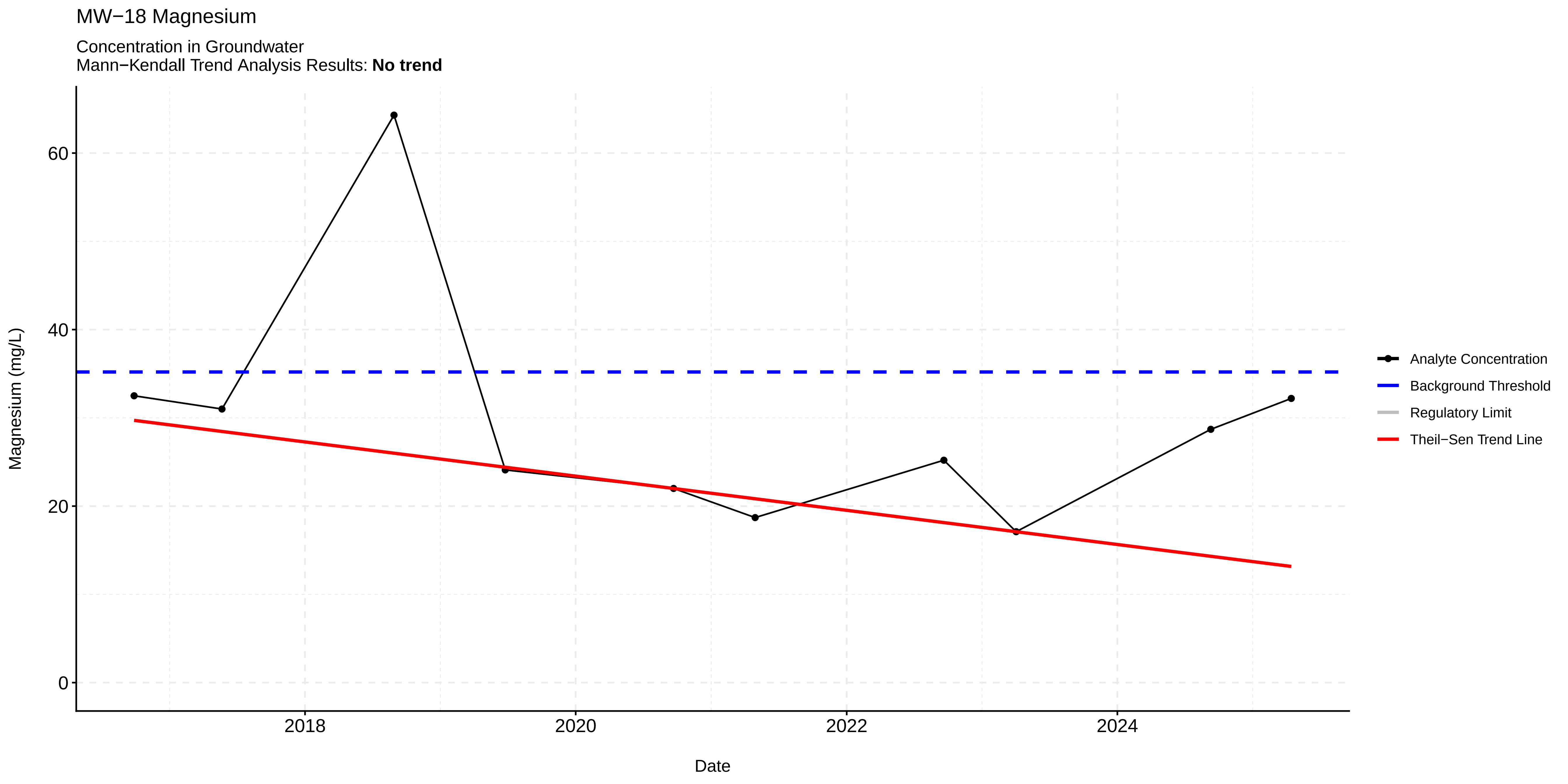
MW−18 Cobalt
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **Decreasing**
Cobalt (mg/L)
0.0020
0.0015
0.0010
0.0005
0.0000
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

MW−18 Iron

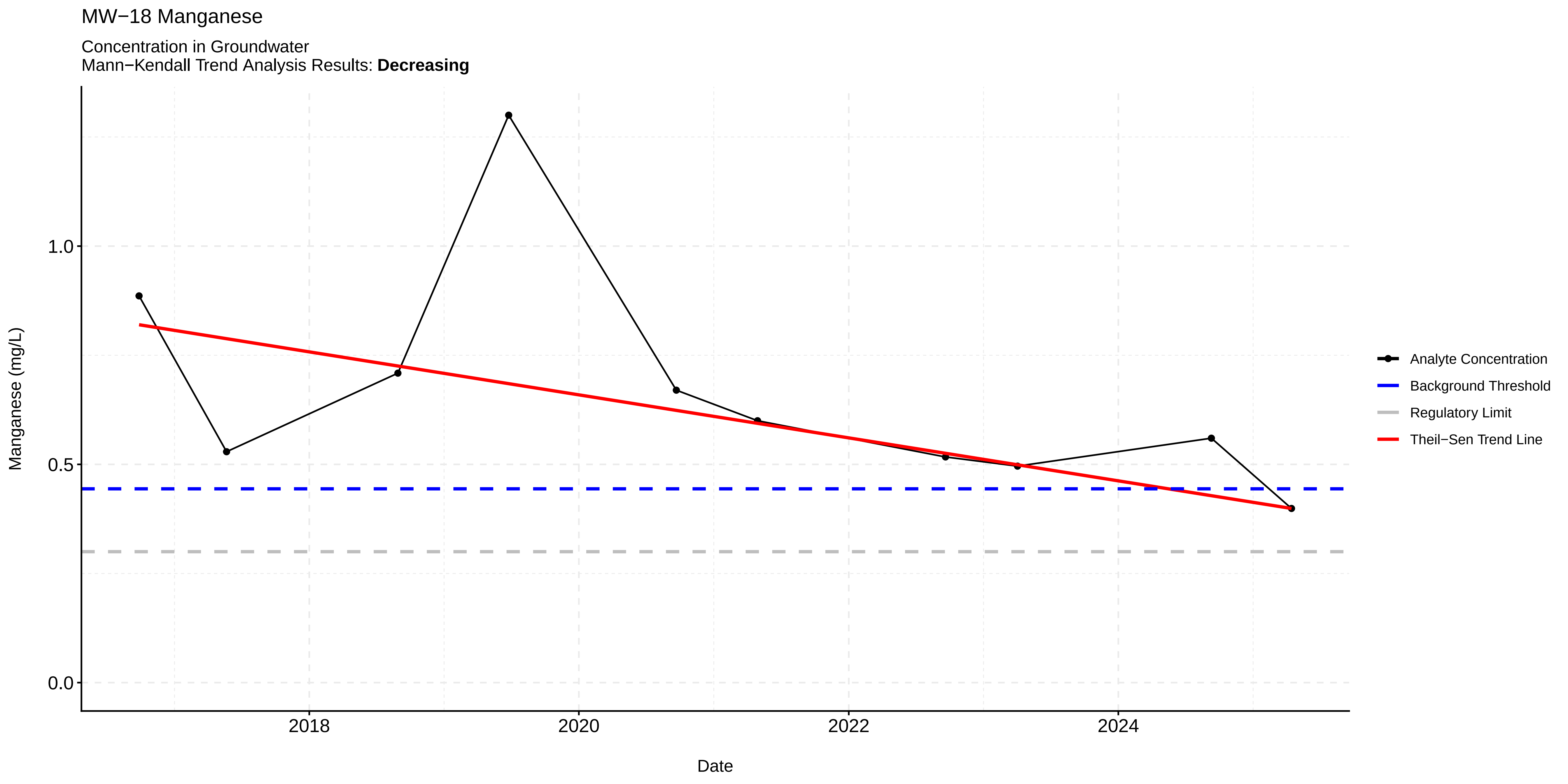
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**

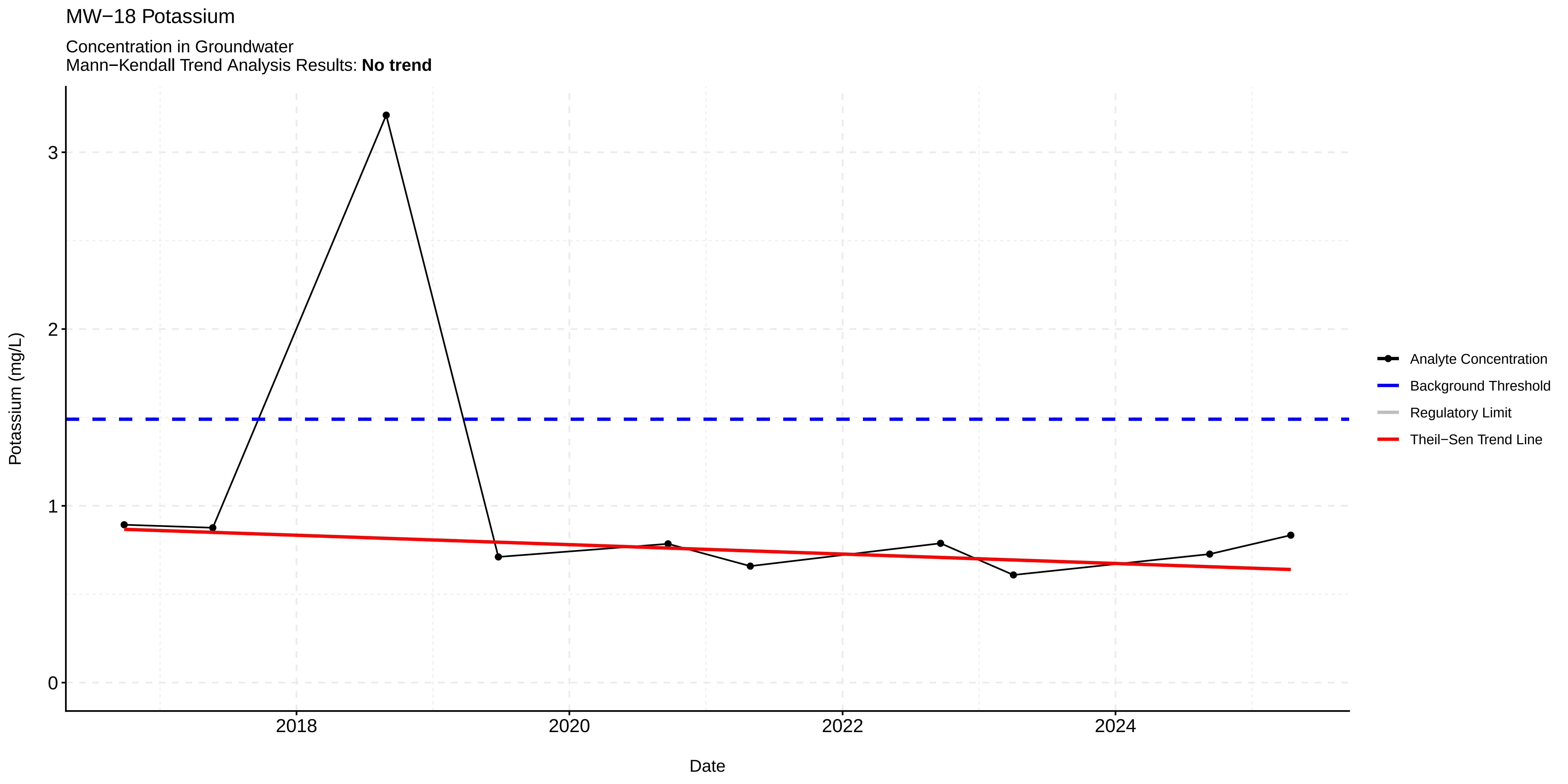



MW−18 Lithium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Lithium (mg/L)
0.10
0.05
0.00
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

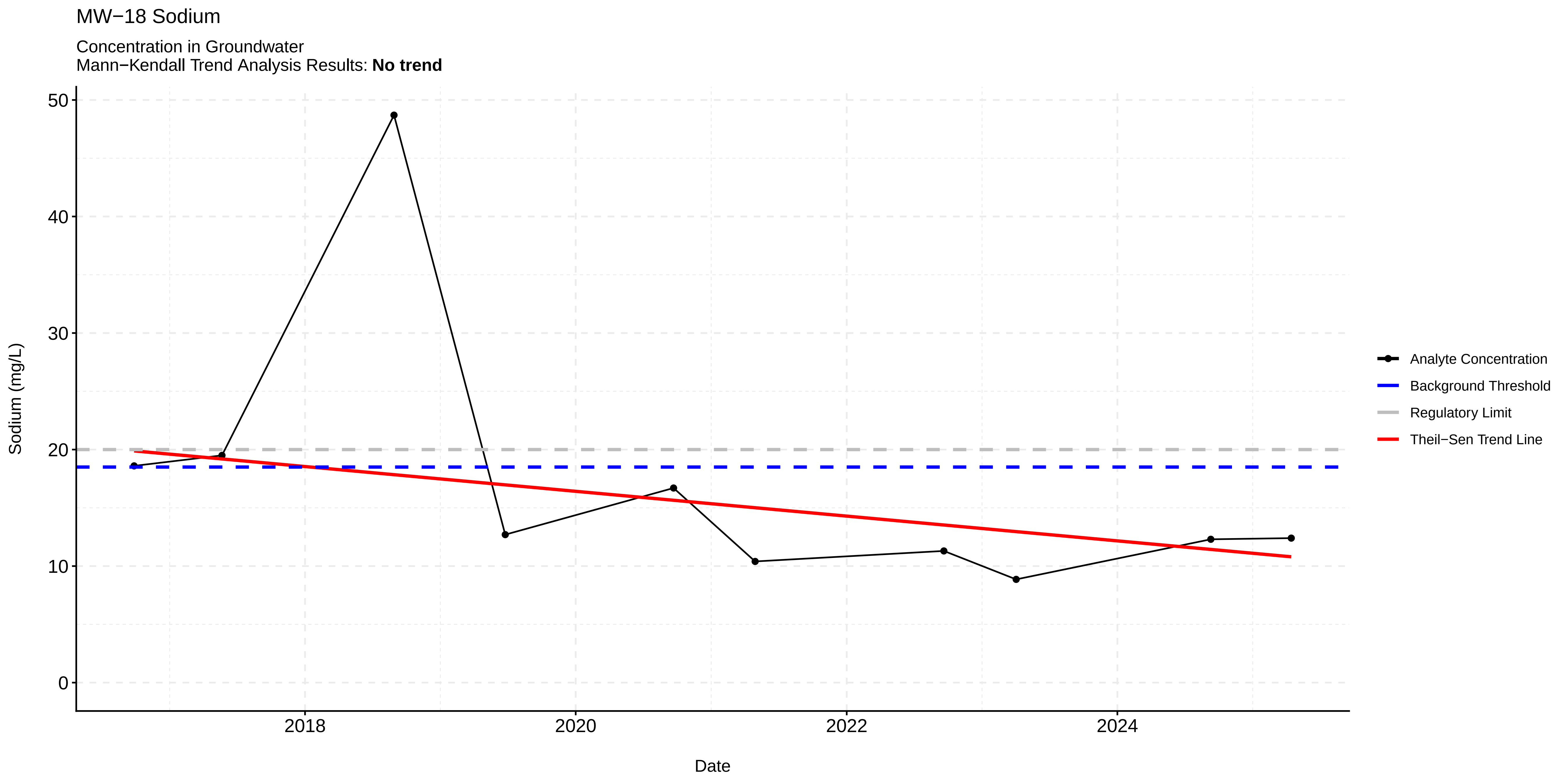


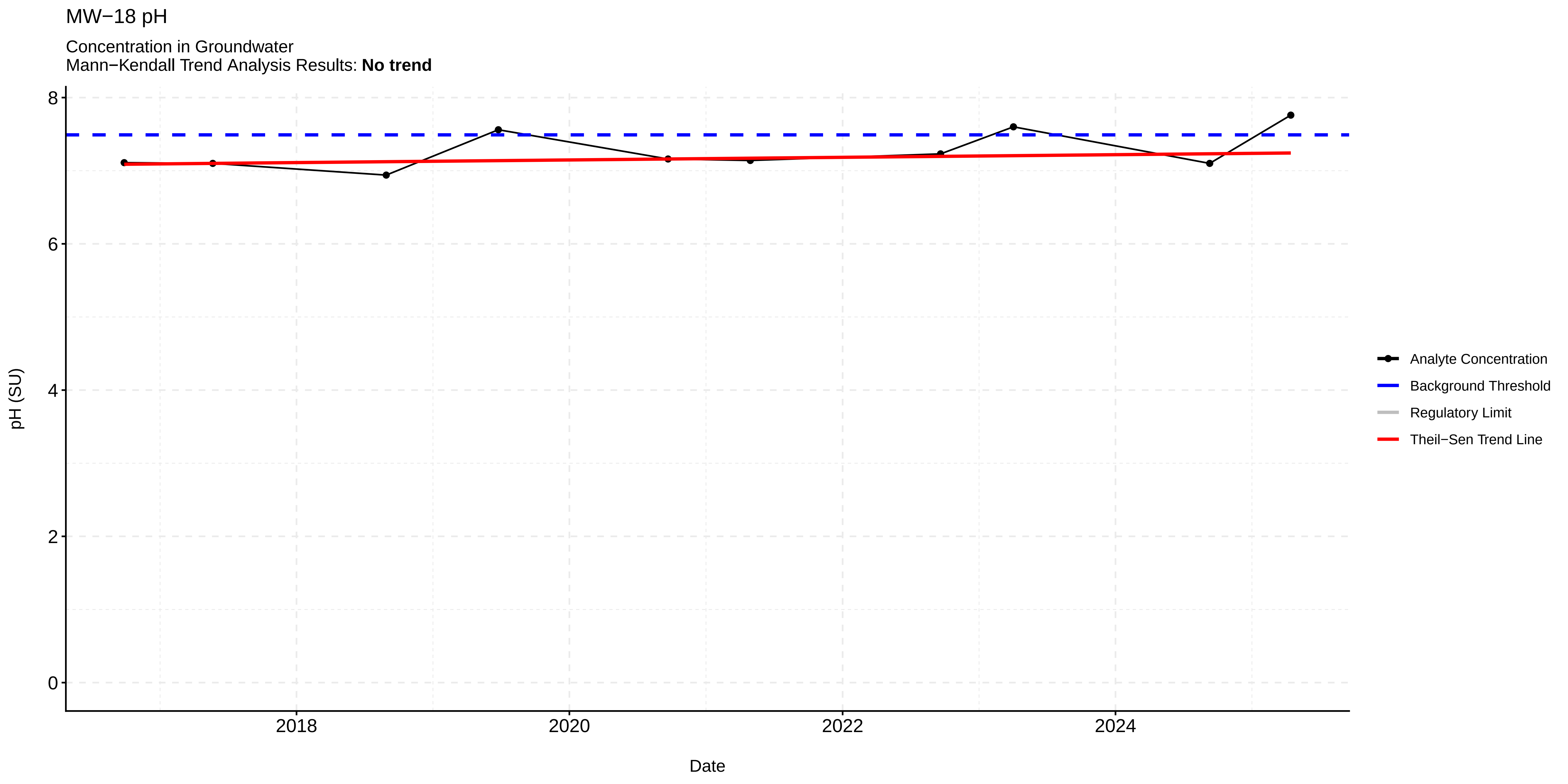
MW−18 Magnesium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Magnesium (mg/L)
60
40
20
0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−18 Manganese
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **Decreasing**
Manganese (mg/L)
1.0
0.5
0.0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line



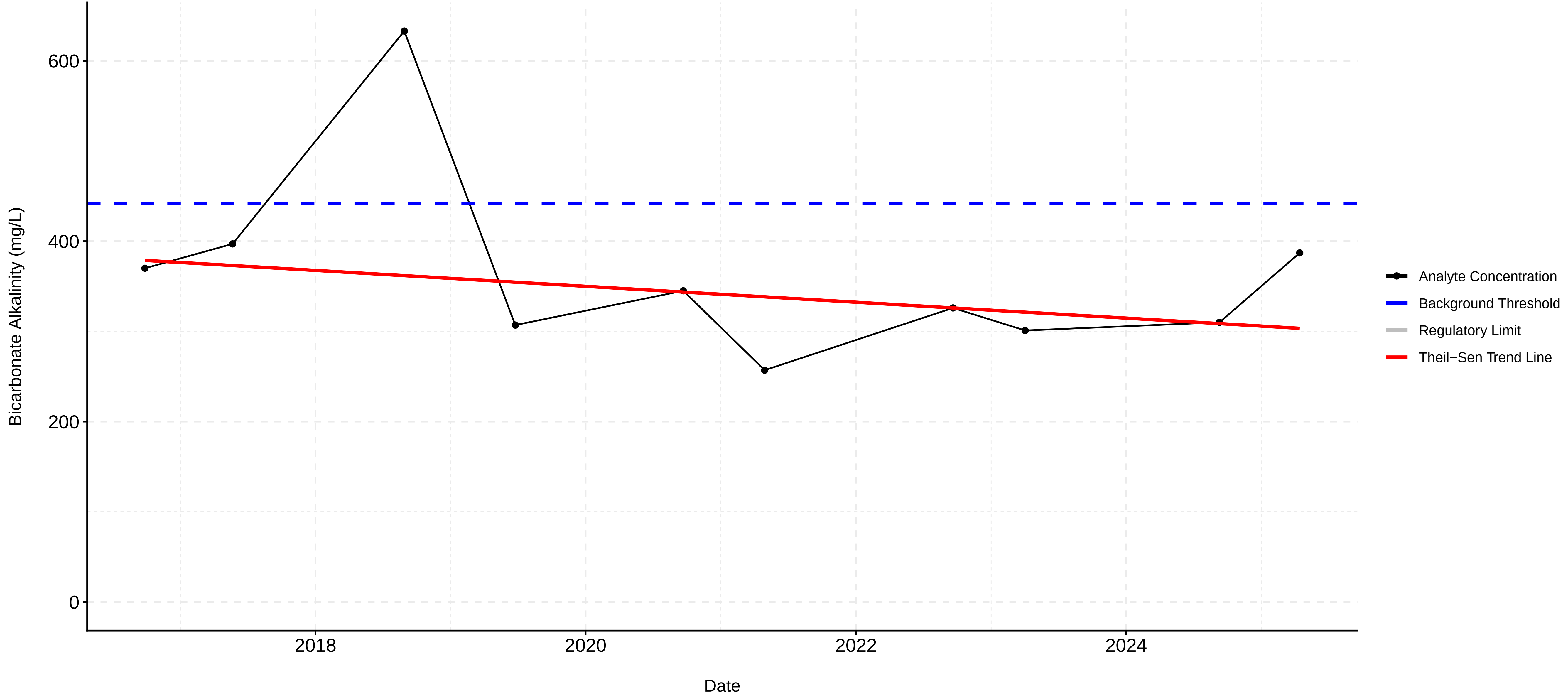
MW−18 Potassium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Potassium (mg/L)
0
1
2
3
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−18 Sodium
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
Sodium (mg/L)
0
10
20
30
40
50
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line


MW−18 pH
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
pH (SU)
8
6
4
2
0
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

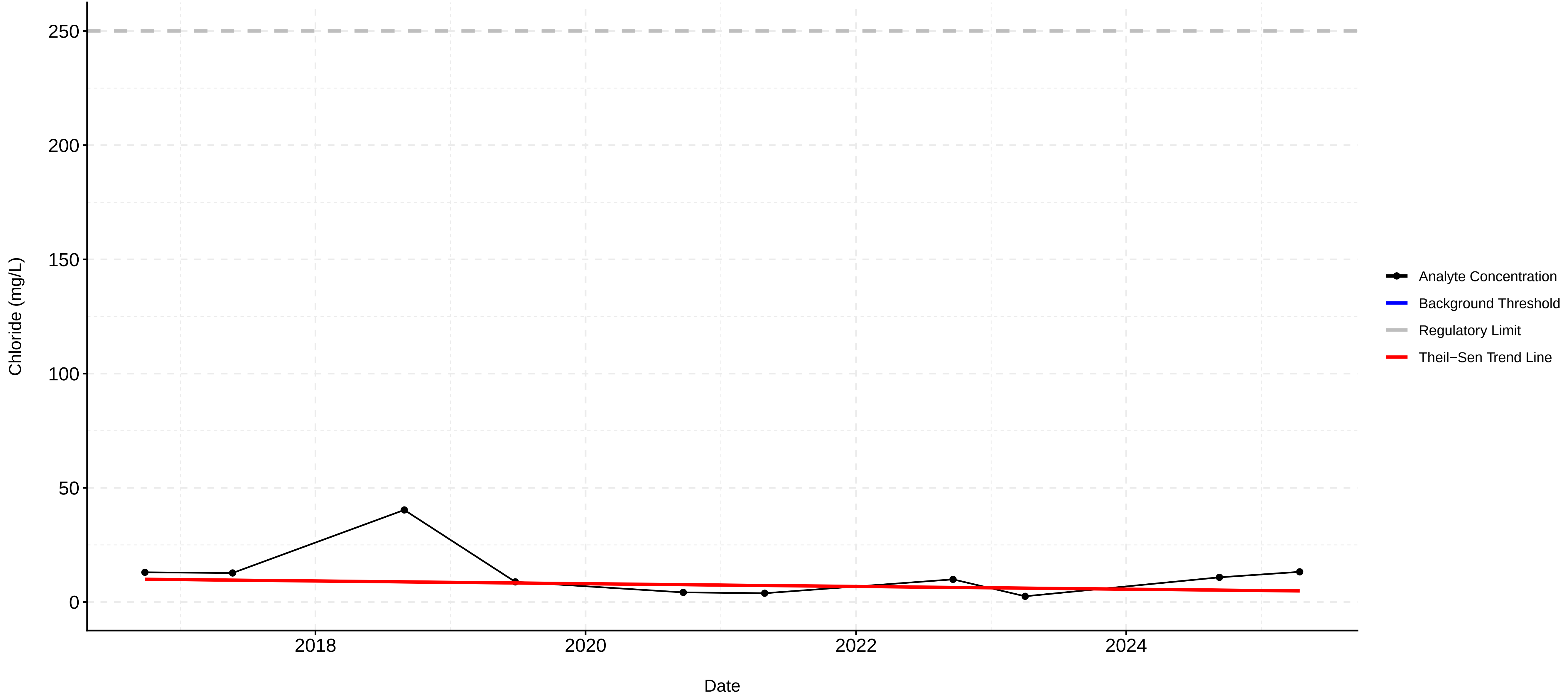
MW−18 Bicarbonate Alkalinity

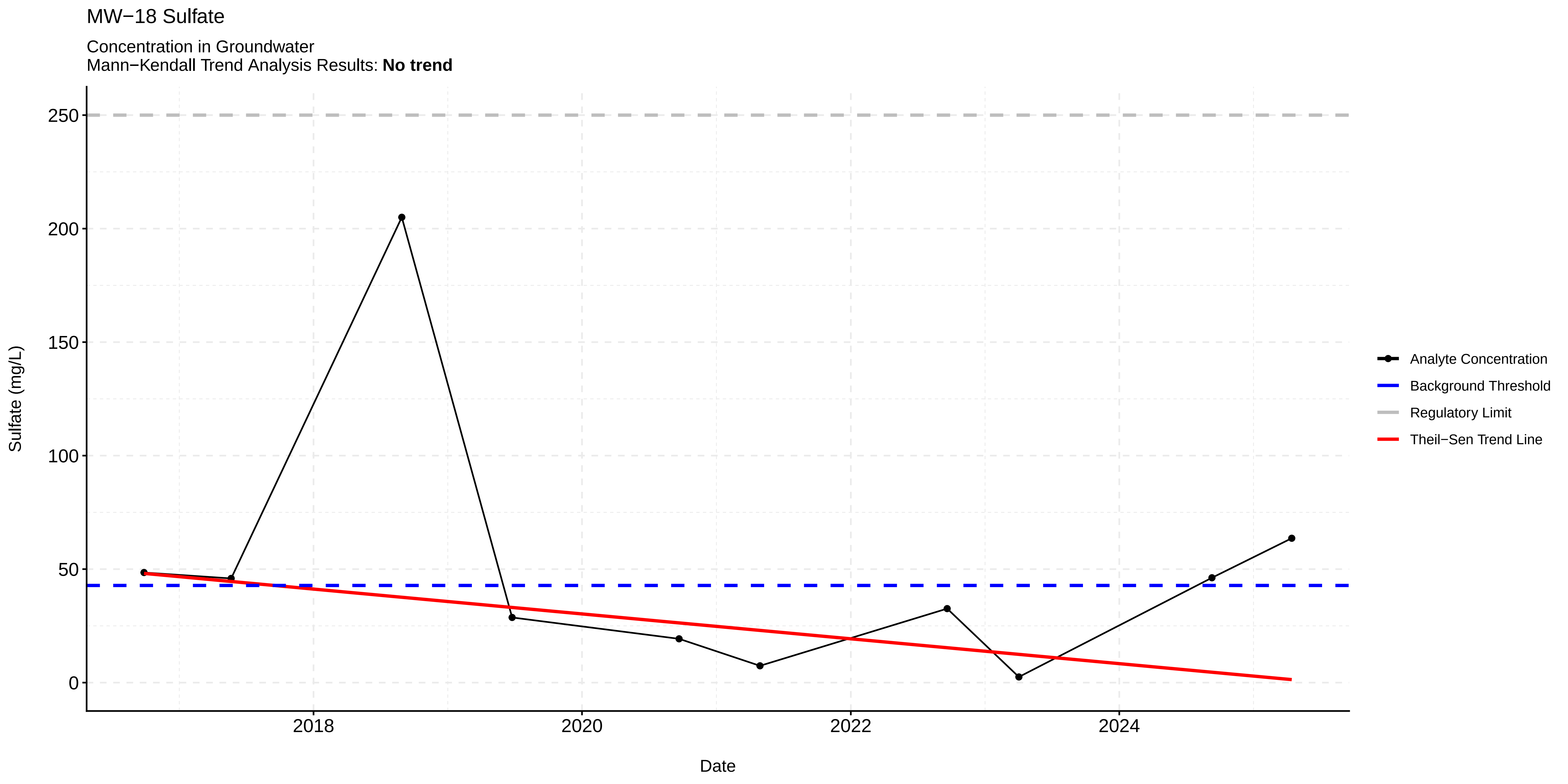
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**



MW−18 Chloride

Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**

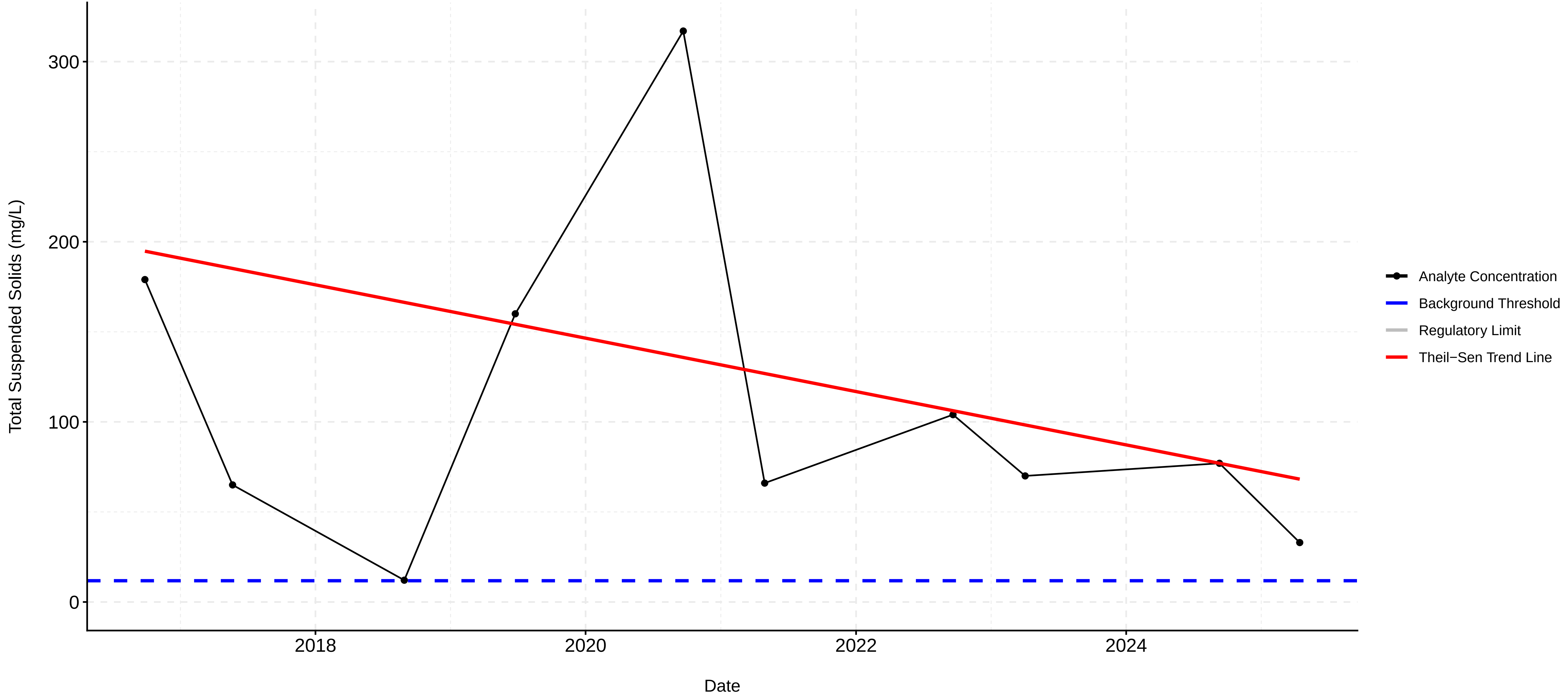




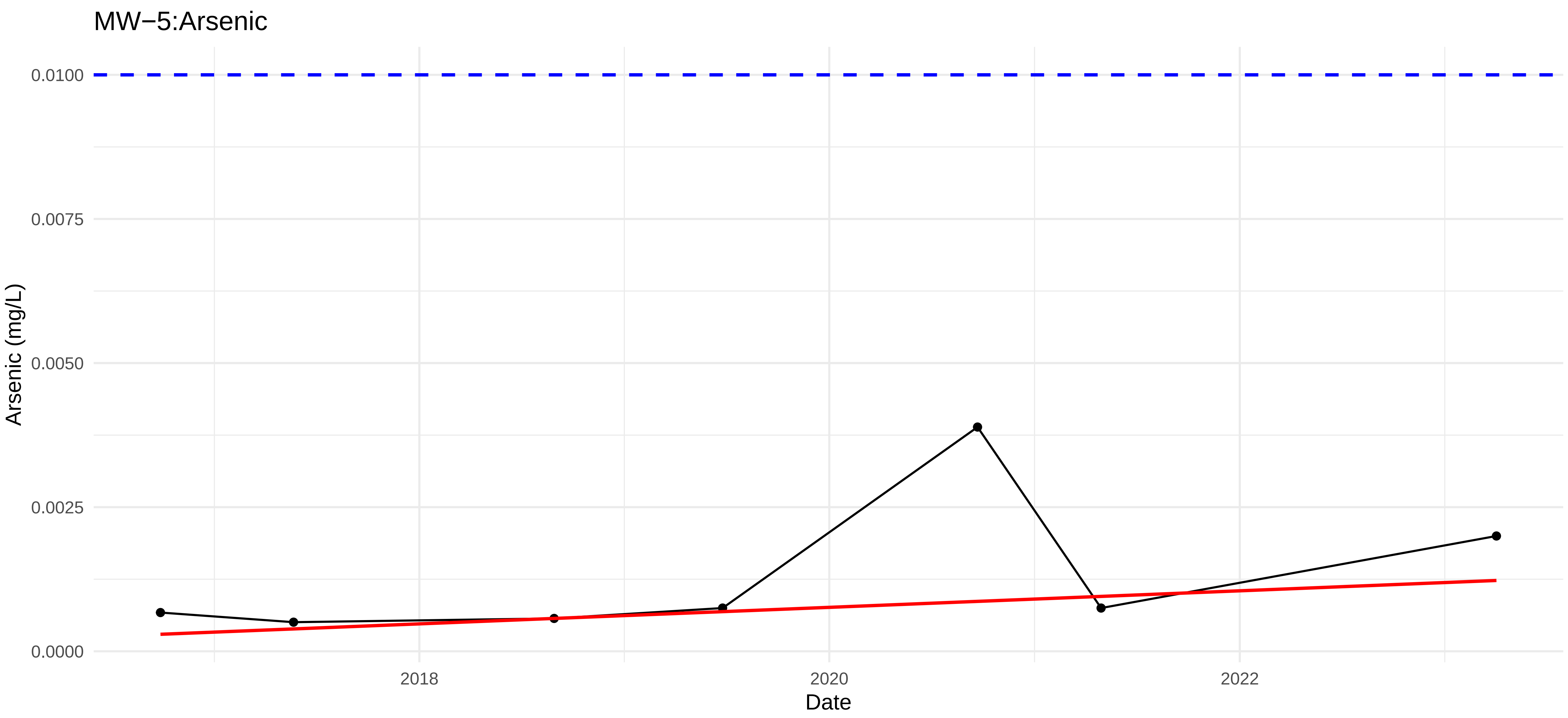
MW−18 Sulfate
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**
250
200
150
100
50
0
Sulfate (mg/L)
2018
2020
2022
2024
Date
Analyte Concentration
Background Threshold
Regulatory Limit
Theil−Sen Trend Line

MW−18 Total Suspended Solids

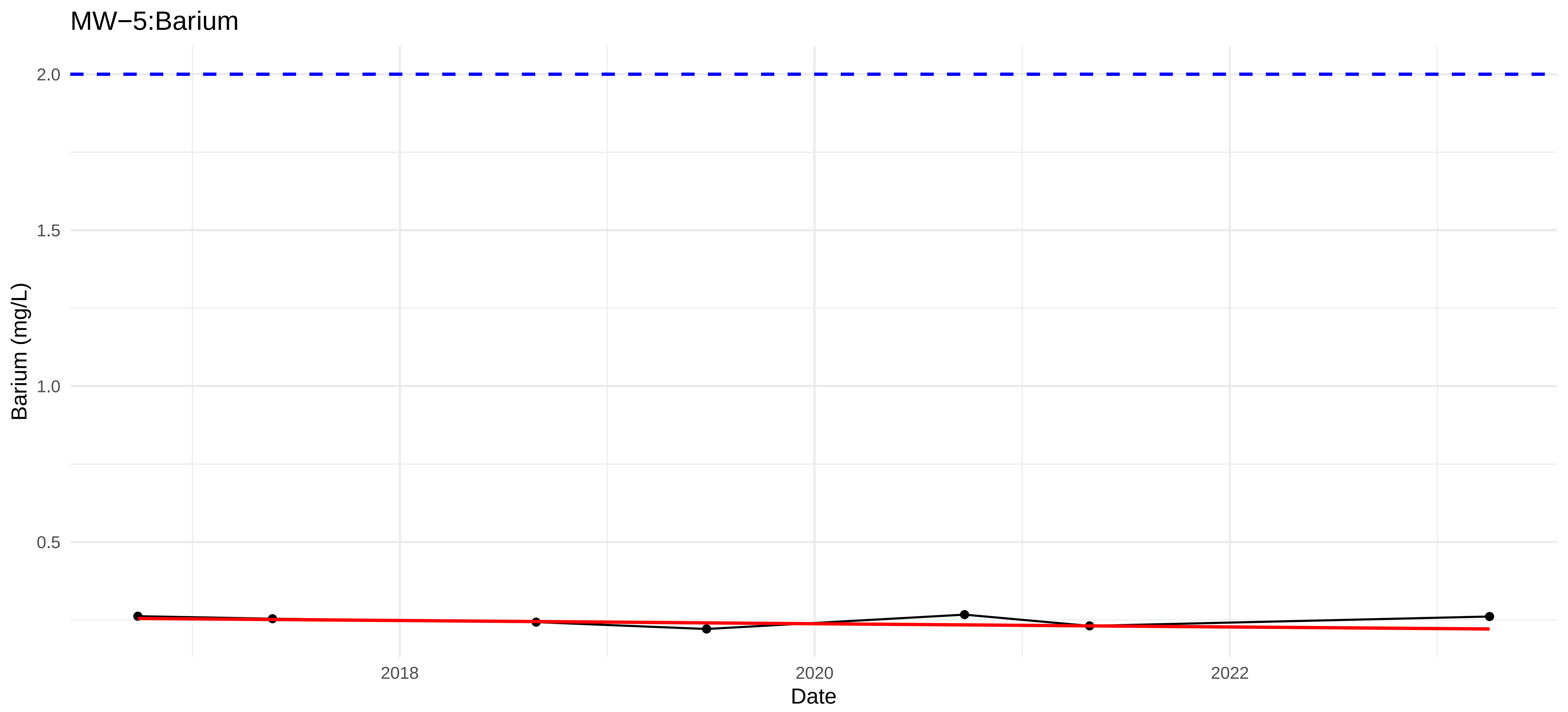
Concentration in Groundwater
Mann−Kendall Trend Analysis Results: **No trend**



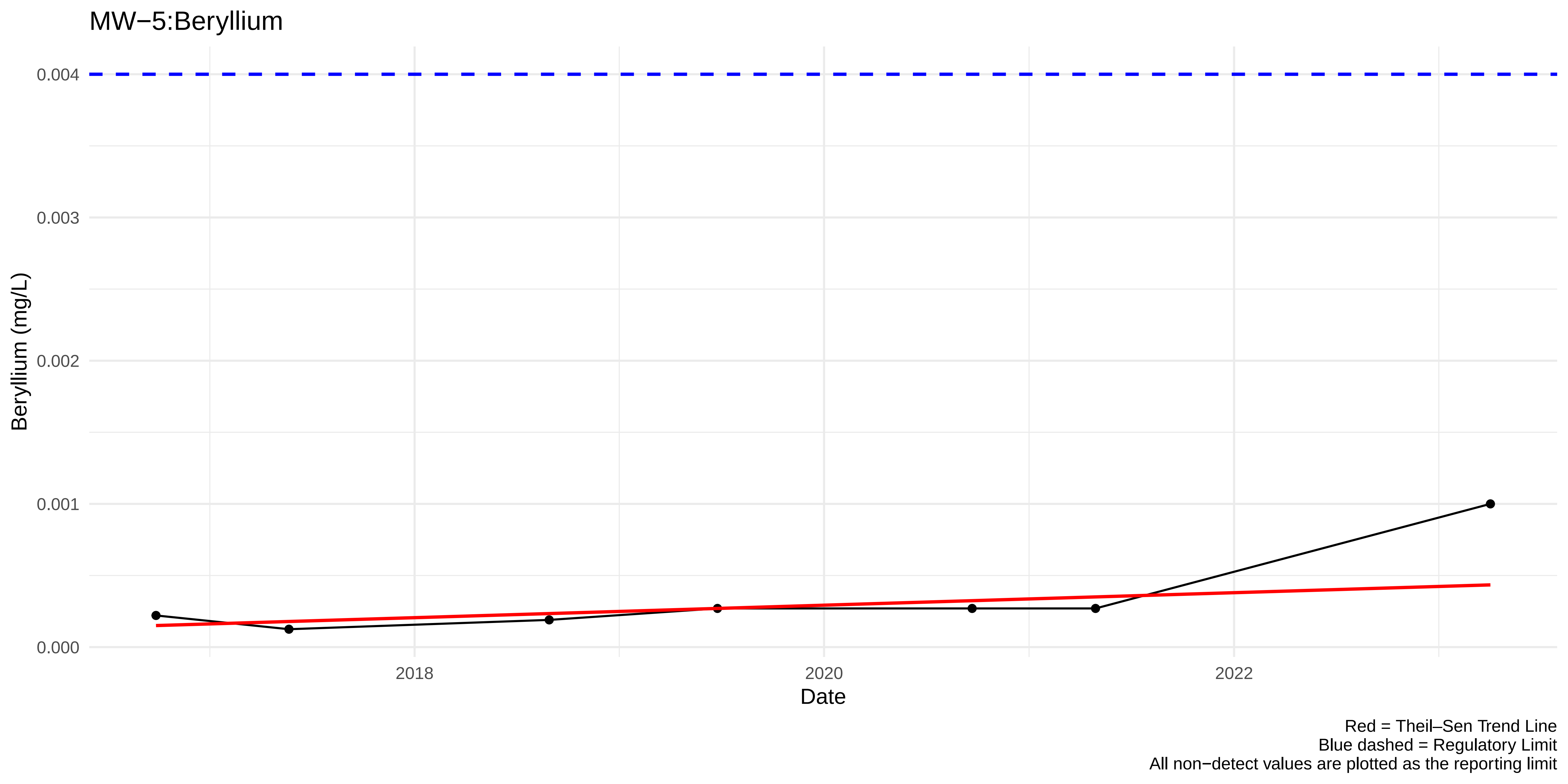
APPENDIX G -
MW-5 TIMESERIES PLOTS



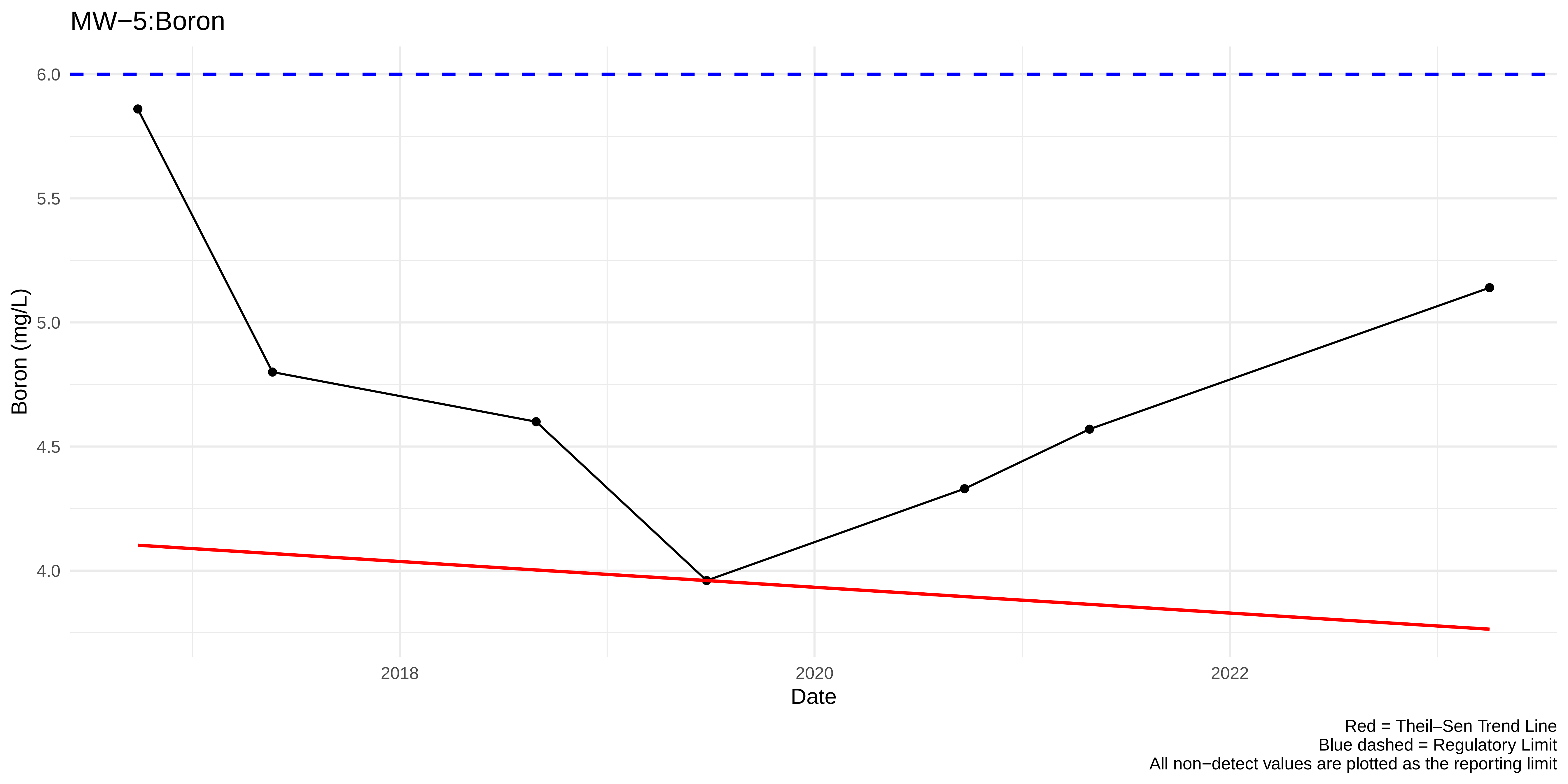
Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit

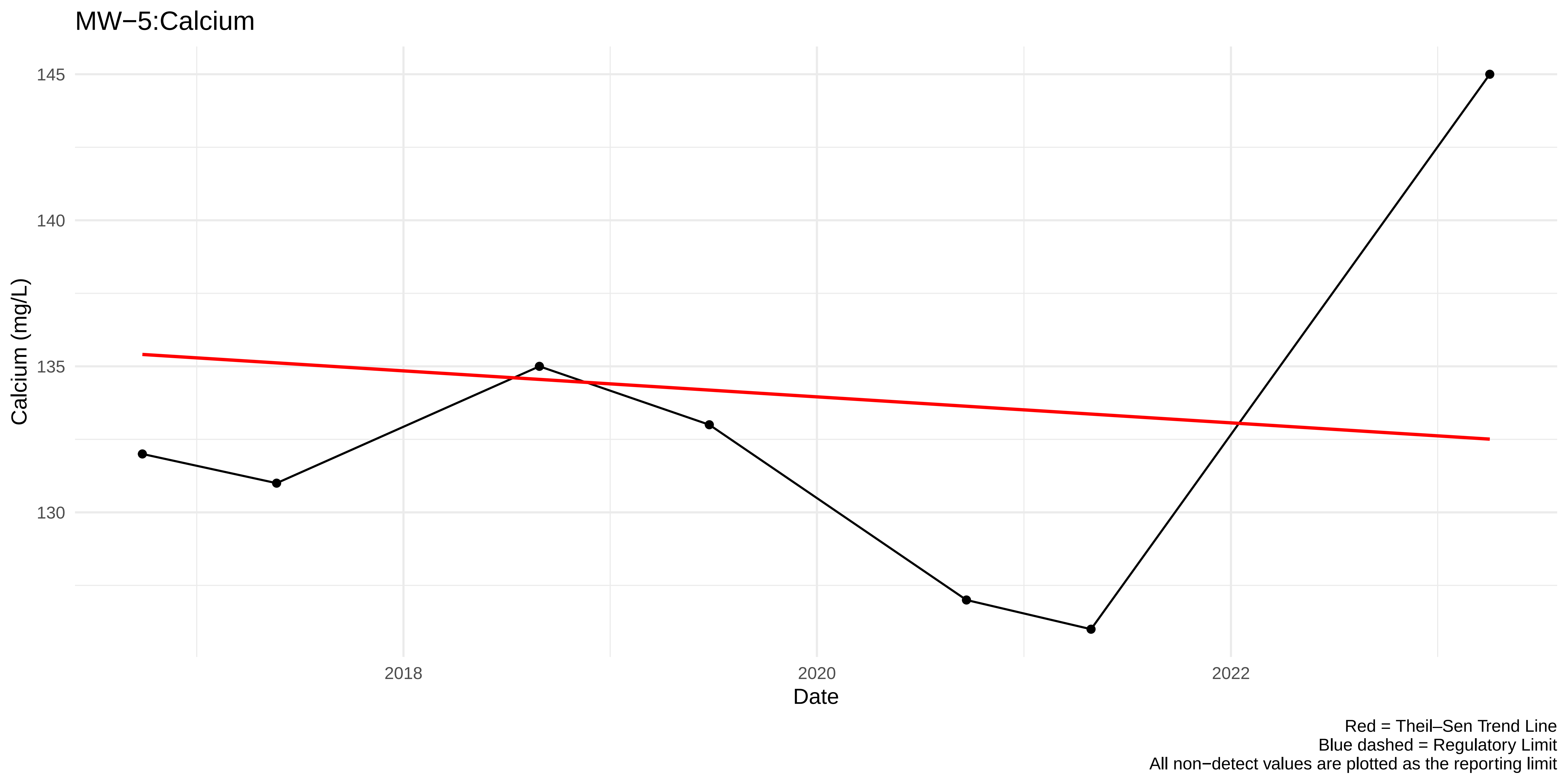


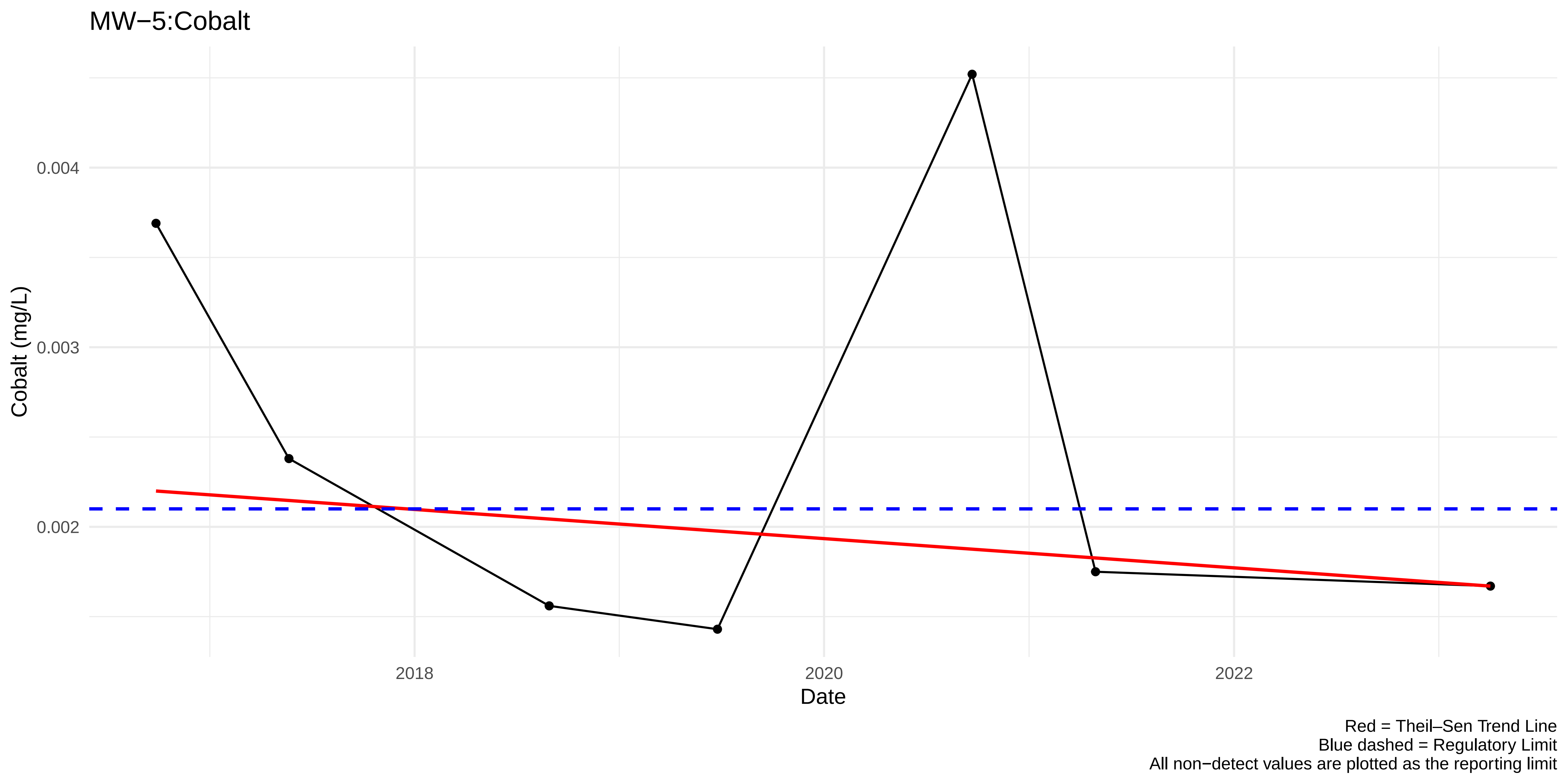
Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit

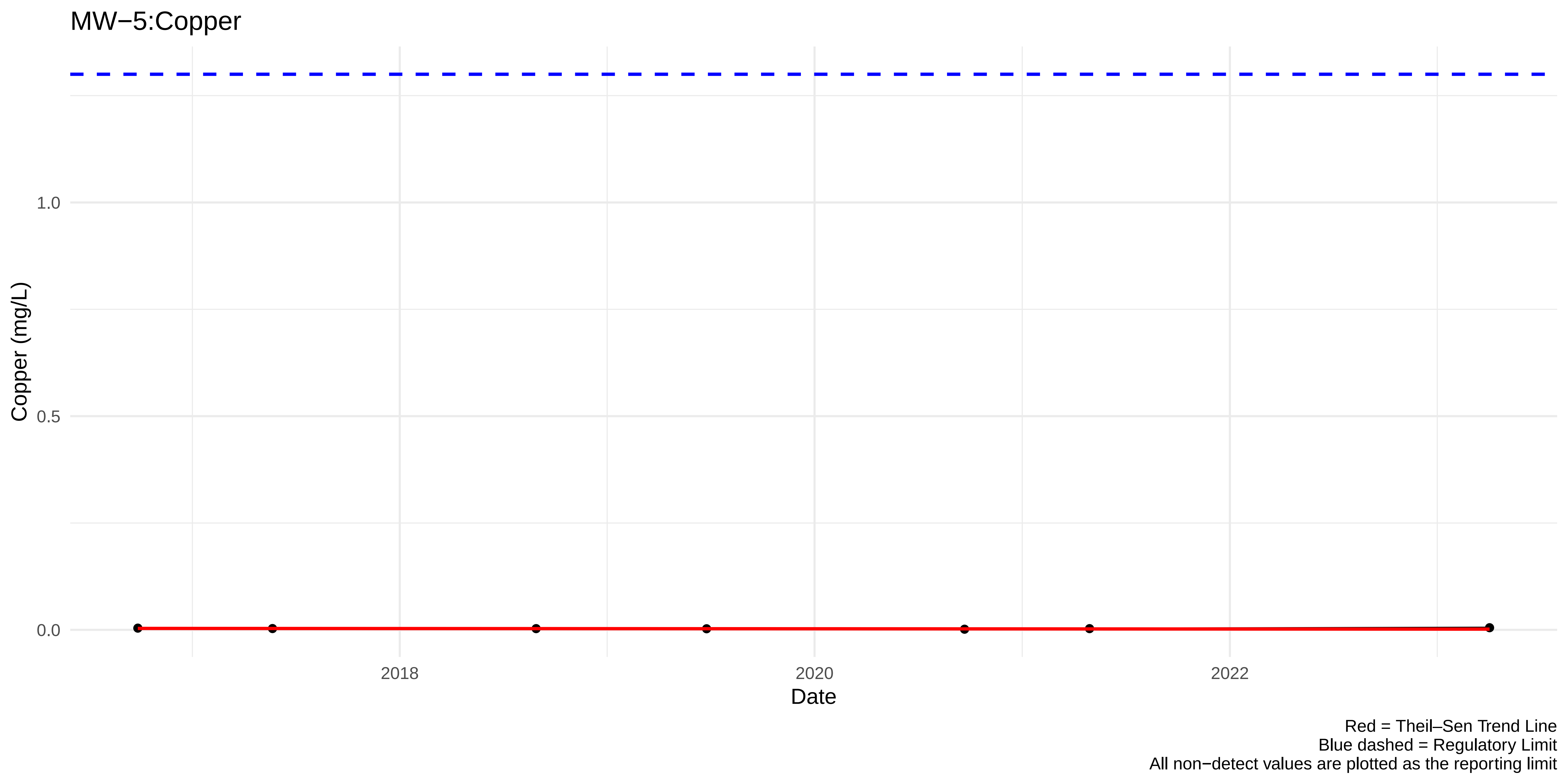


MW−5:Beryllium
0.004
0.003
0.002
0.001
0.000
Beryllium (mg/L)
2018
2020
2022
Date
Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit

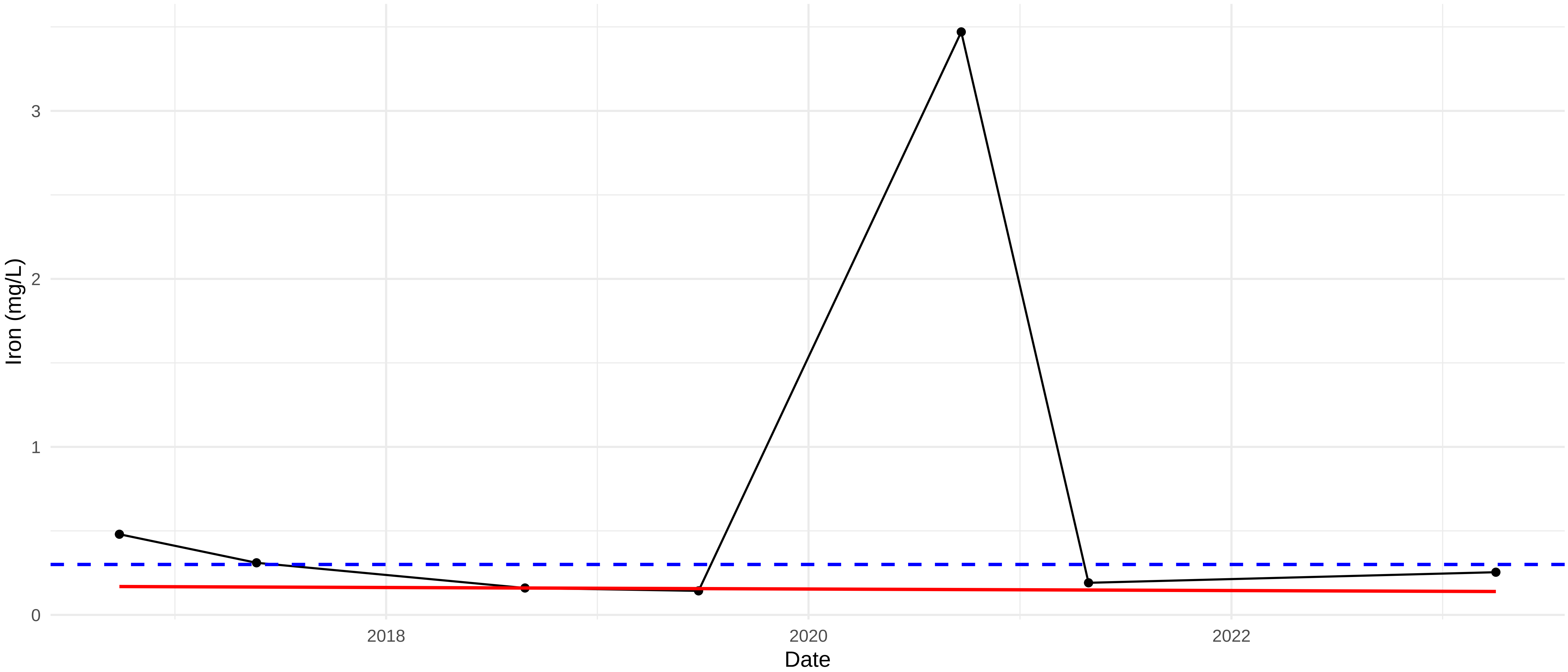

MW−5:Boron
6.0
5.5
5.0
4.5
4.0
Boron (mg/L)
2018
2020
2022
Date
Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit


MW−5:Calcium
145
140
135
130
Calcium (mg/L)
2018
2020
2022
Date
Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit

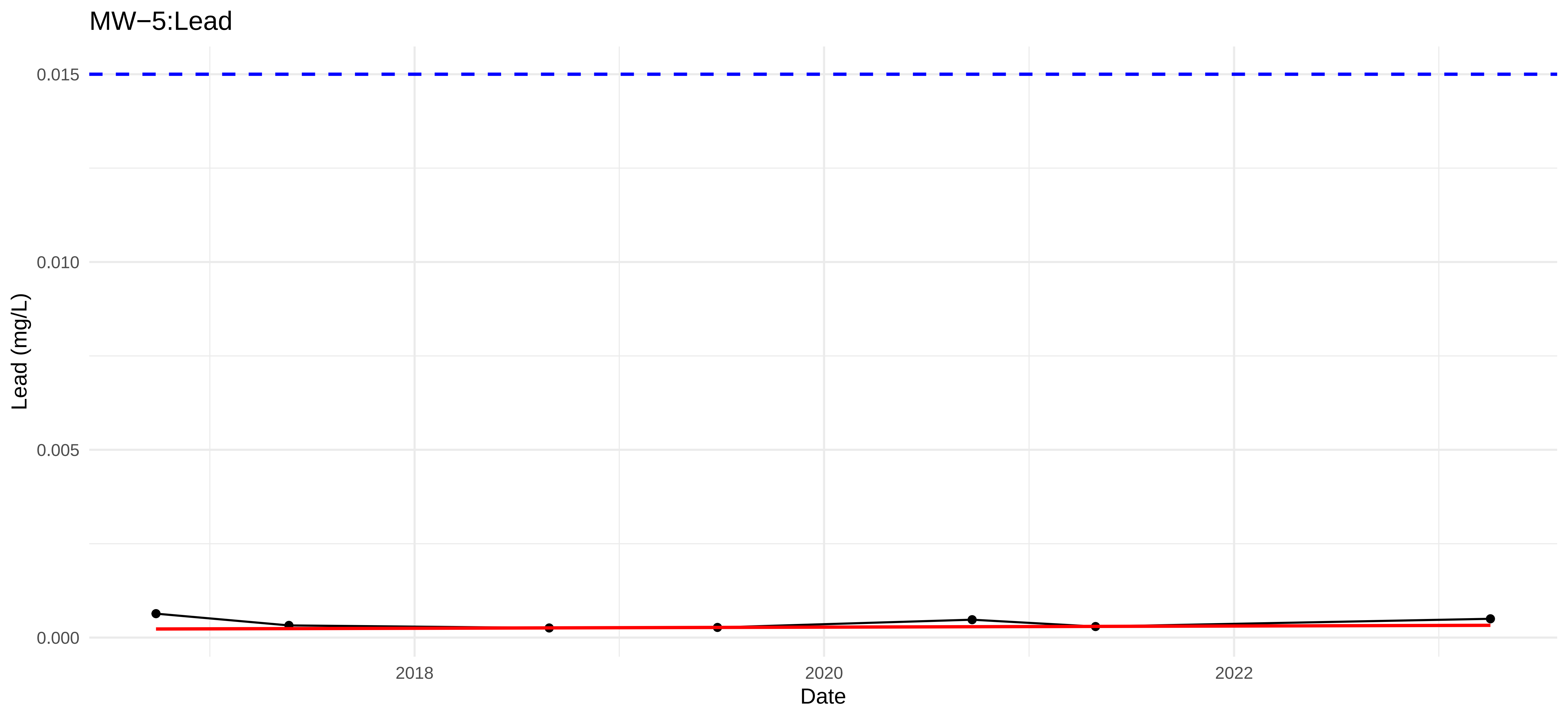

MW−5:Cobalt
0.004
0.003
0.002
Cobalt (mg/L)
2018
2020
2022
Date
Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit


MW−5:Copper
Copper (mg/L)
1.0
0.5
0.0
2018
2020
2022
Date
Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit

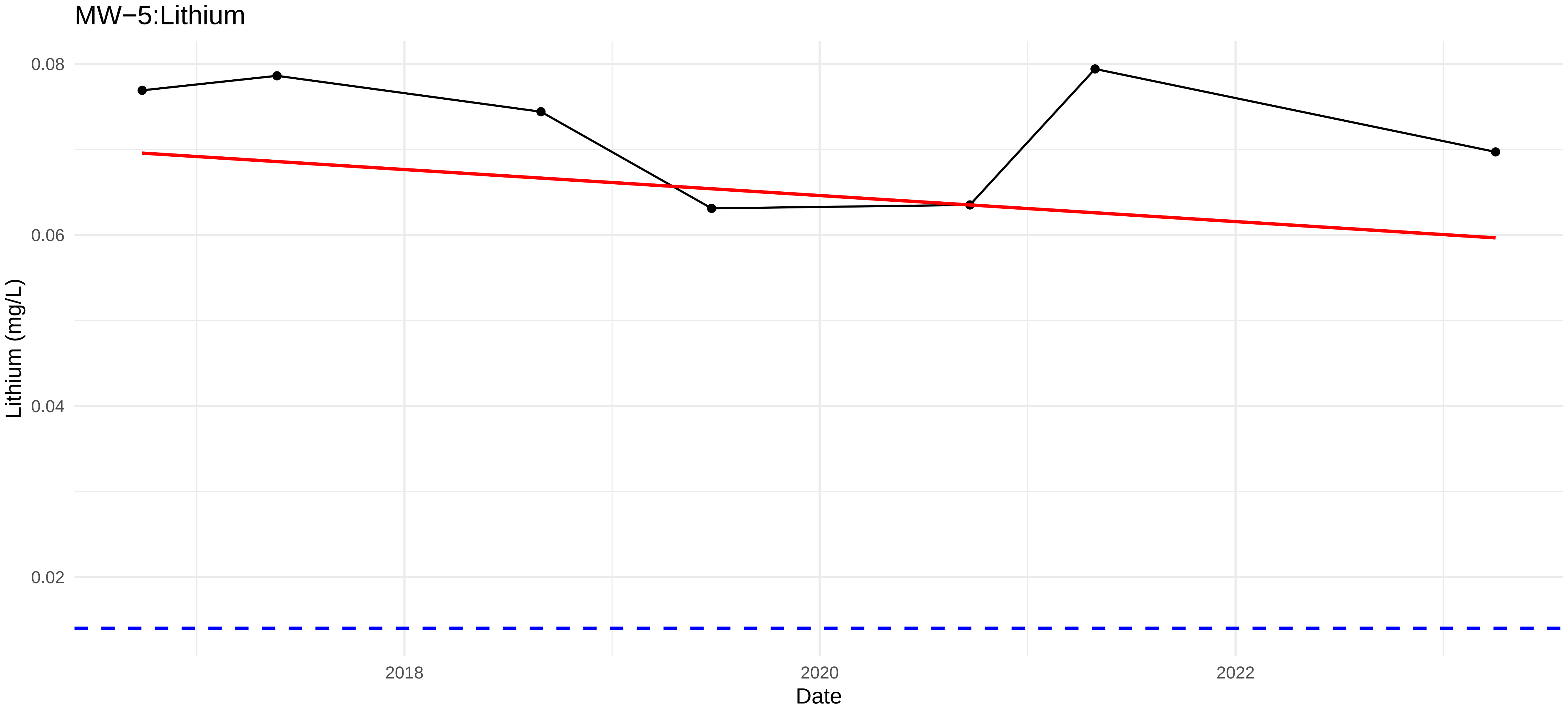
MW−5:Iron



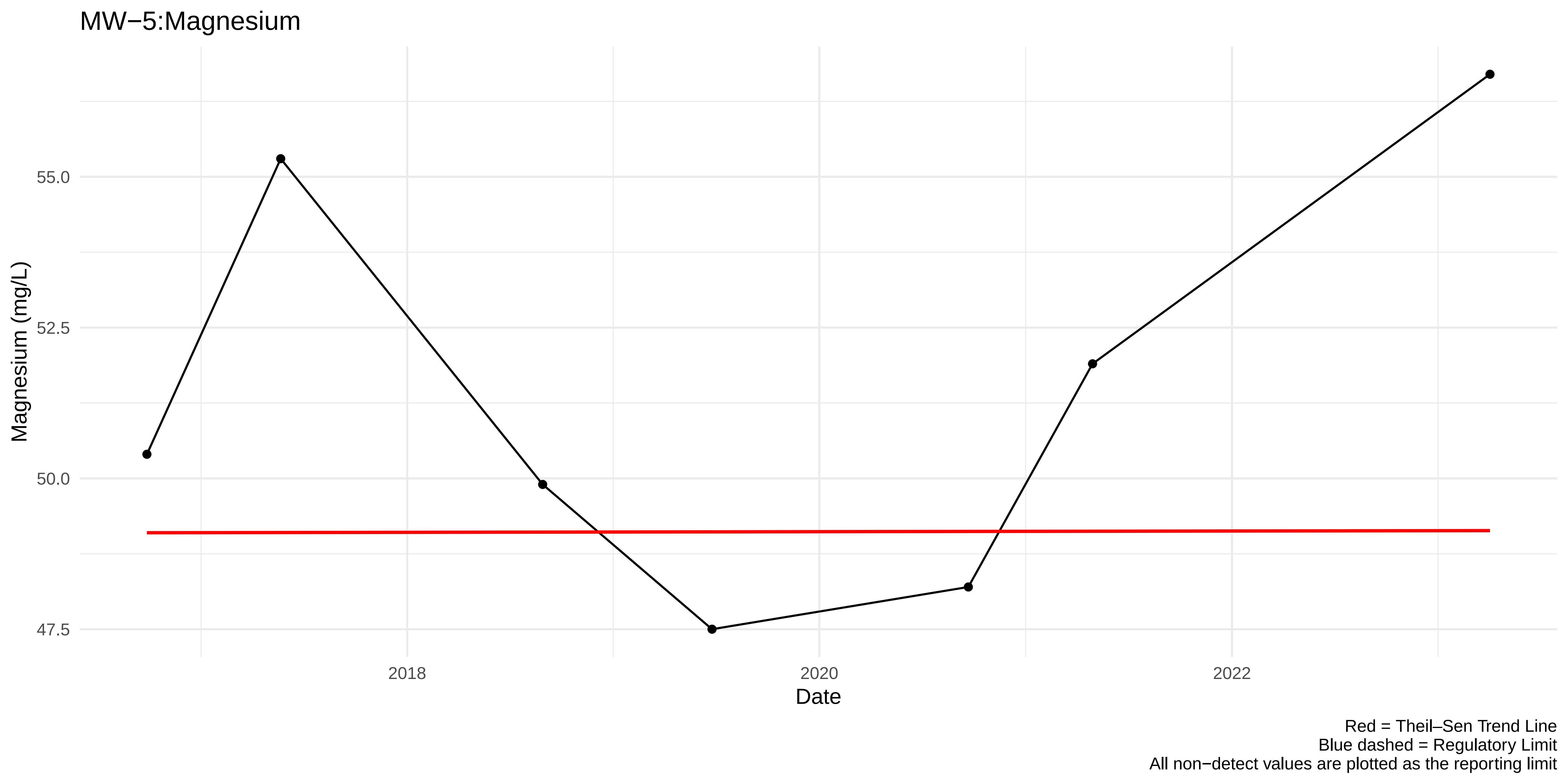
Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit



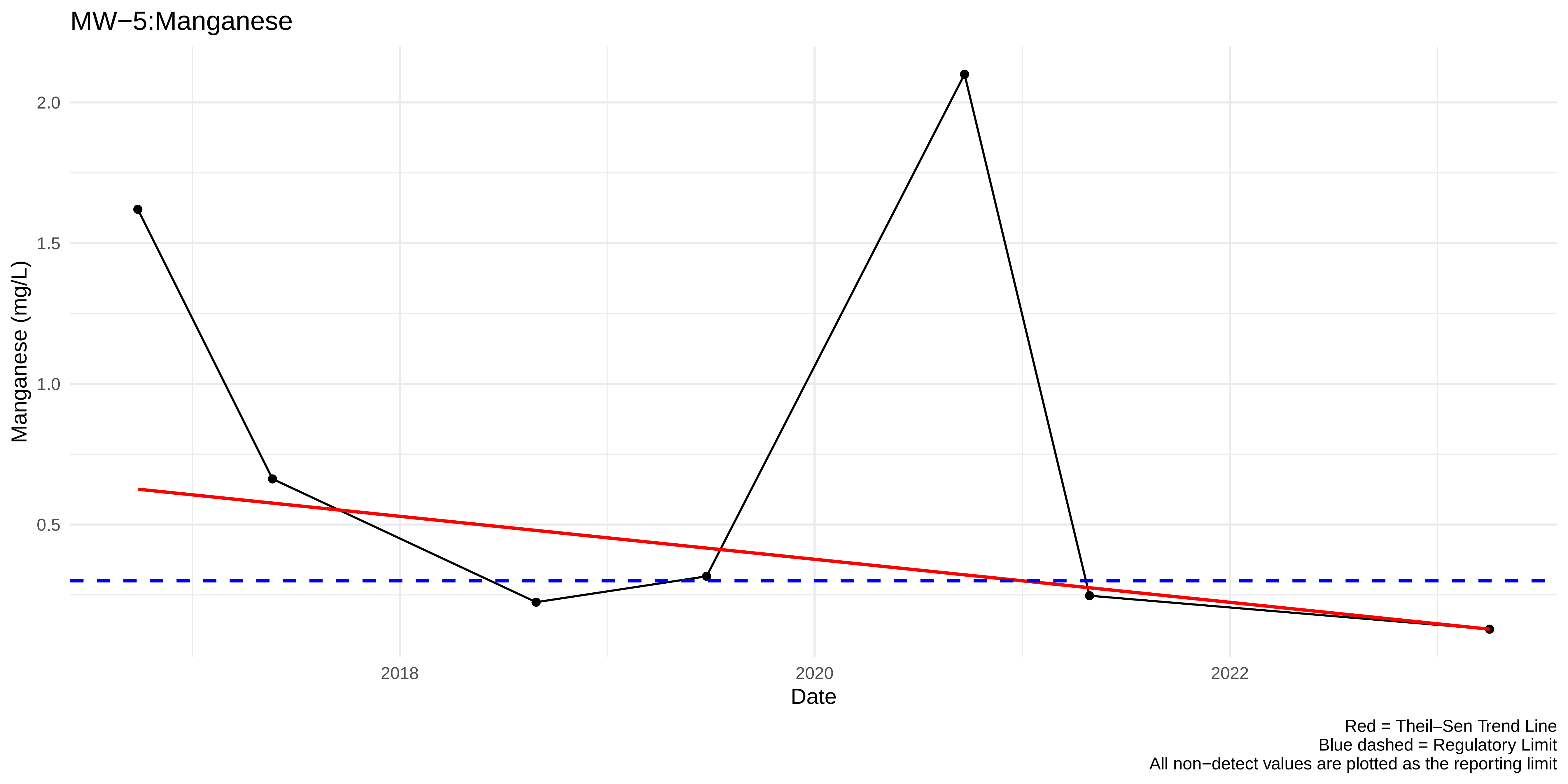
Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit

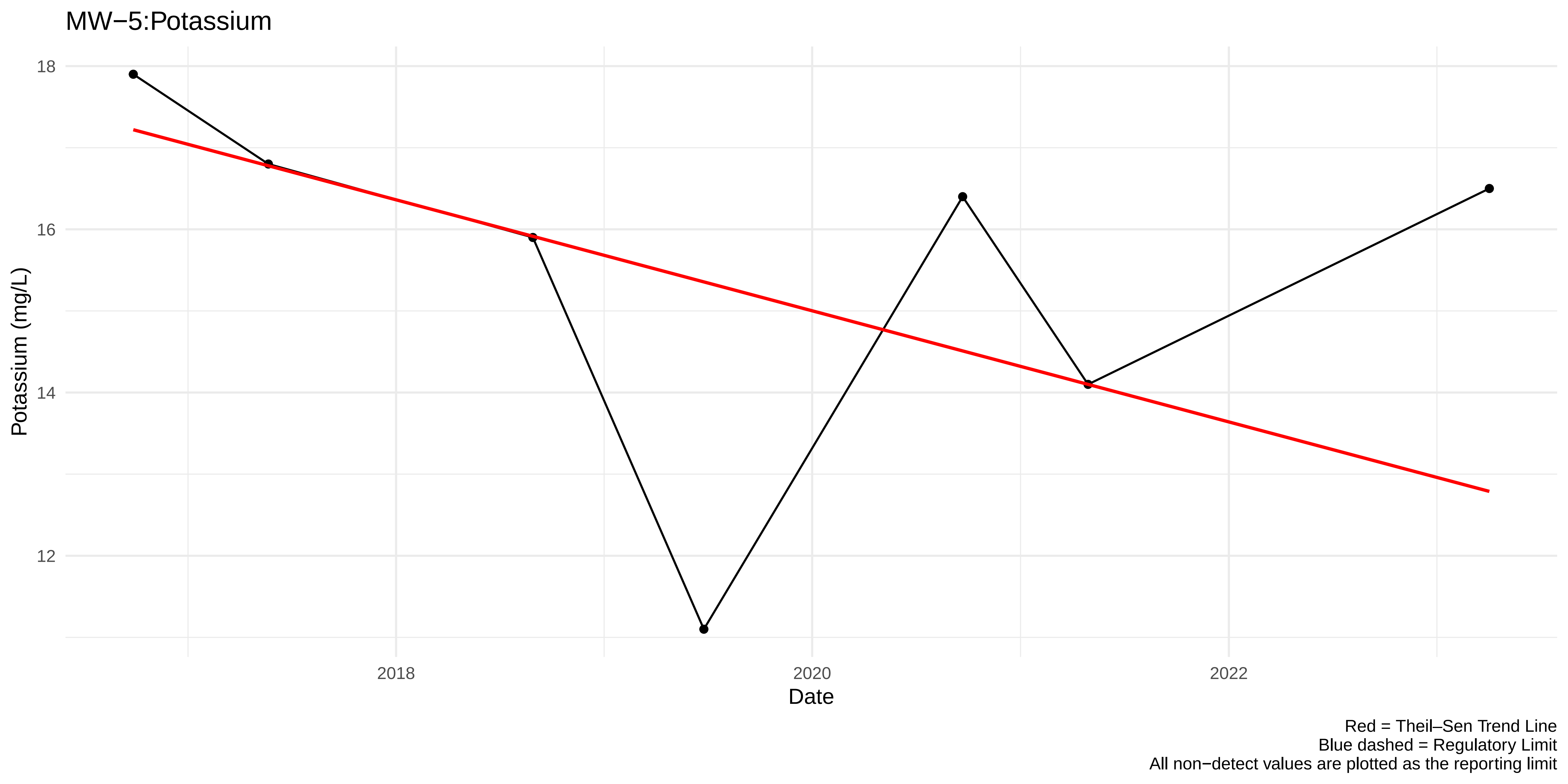


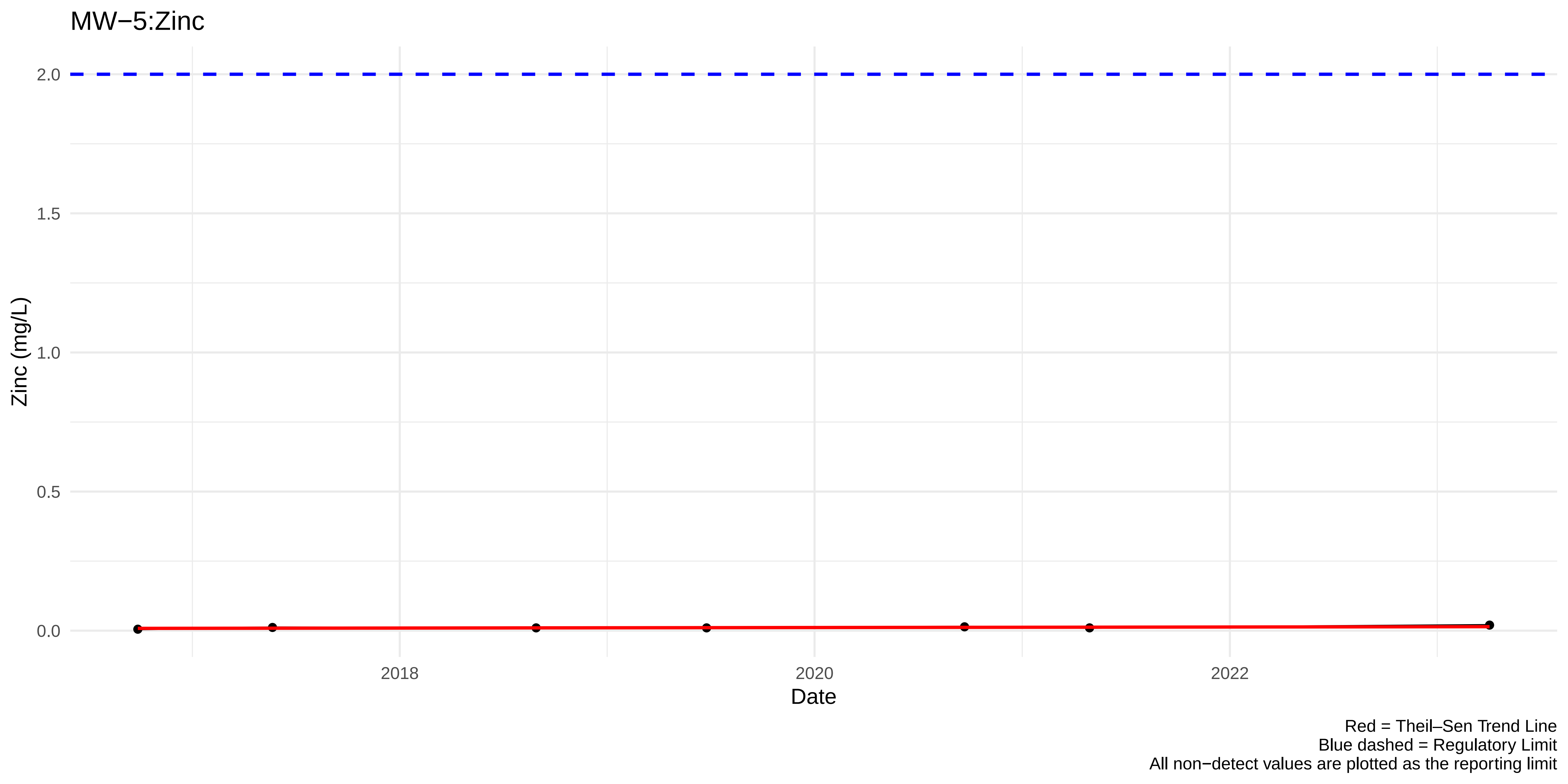
Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit

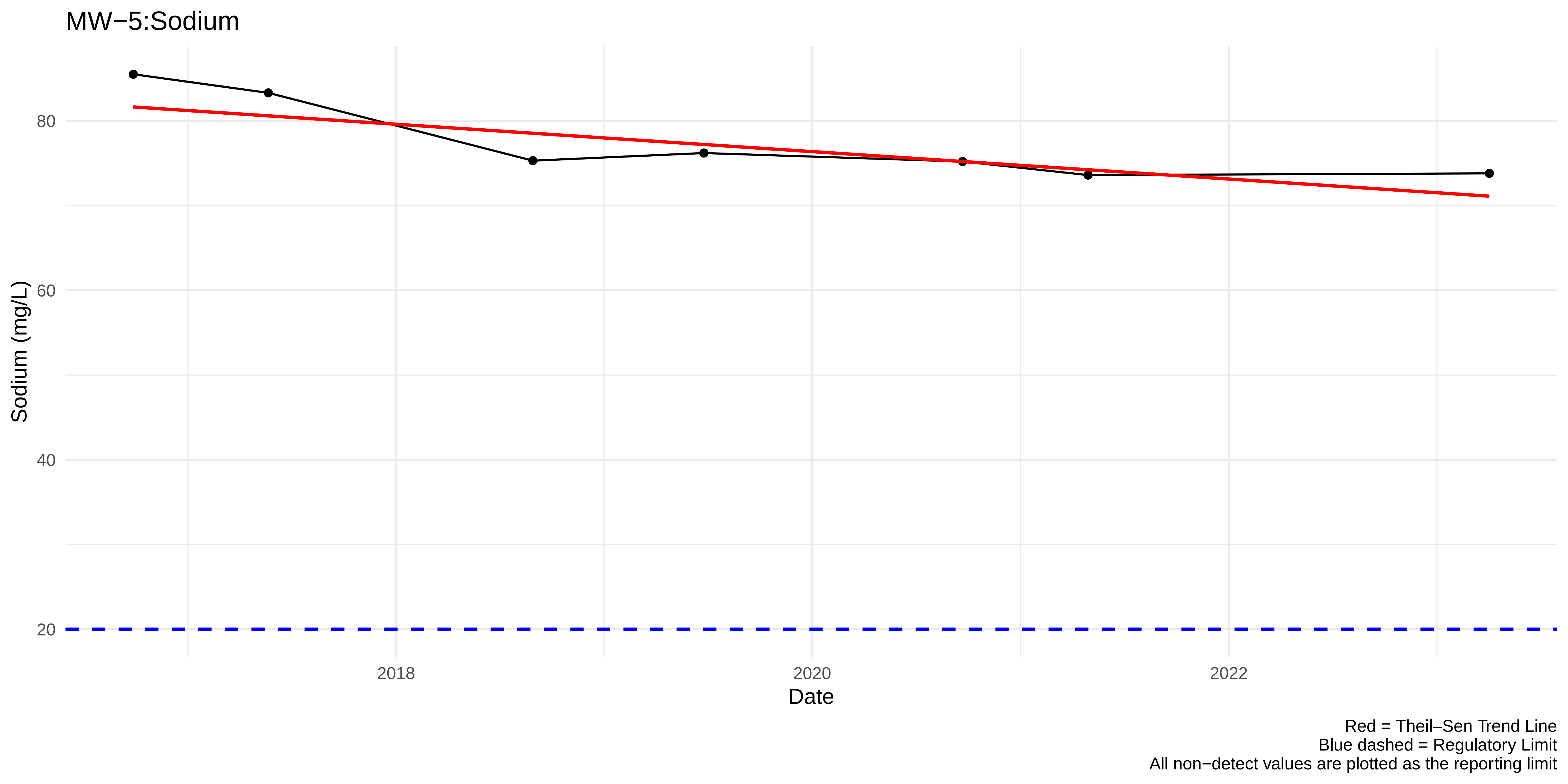


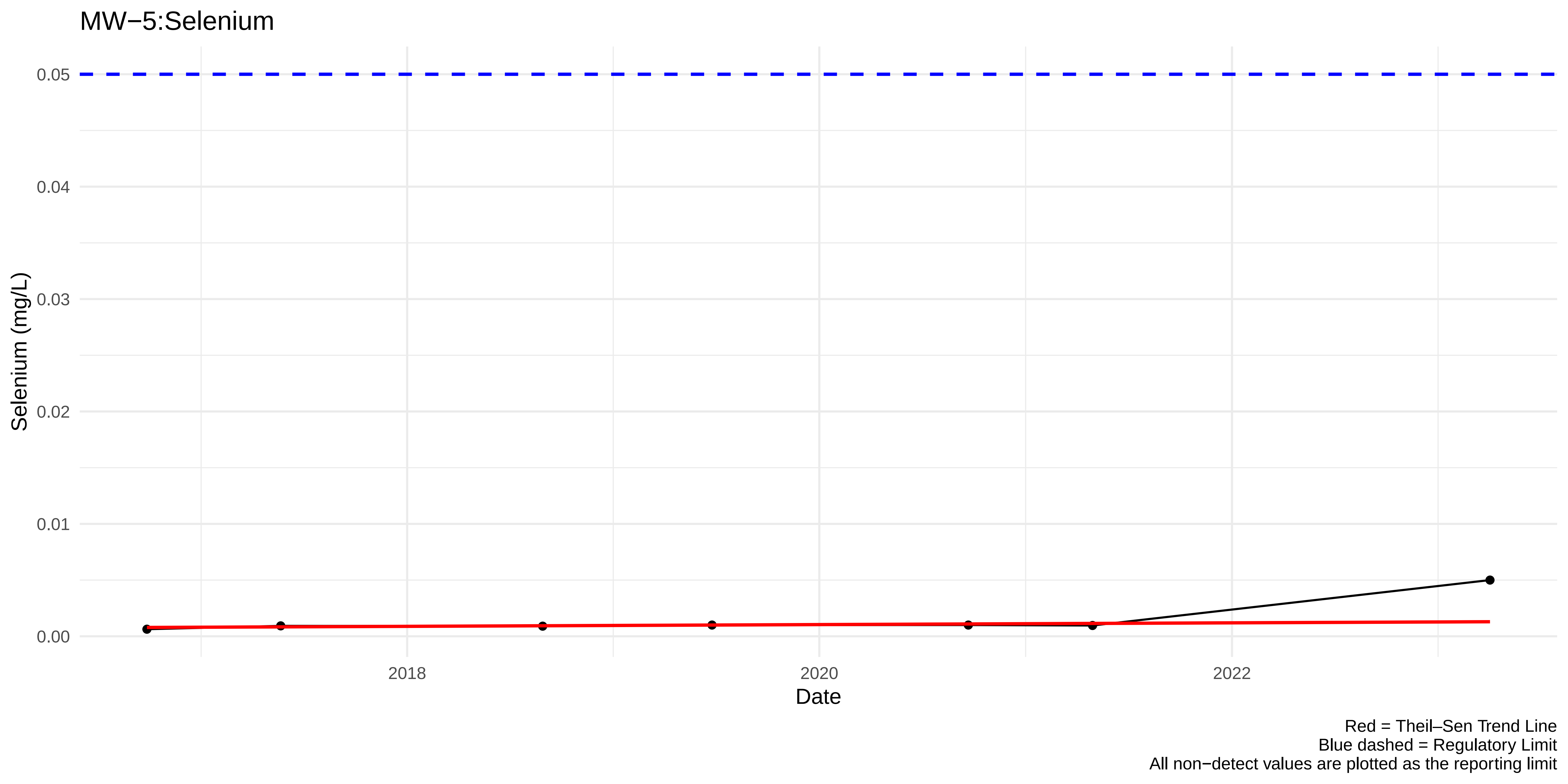
MW−5:Magnesium
Magnesium (mg/L)
55.0
52.5
50.0
47.5
2018
2020
2022
Date
Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit

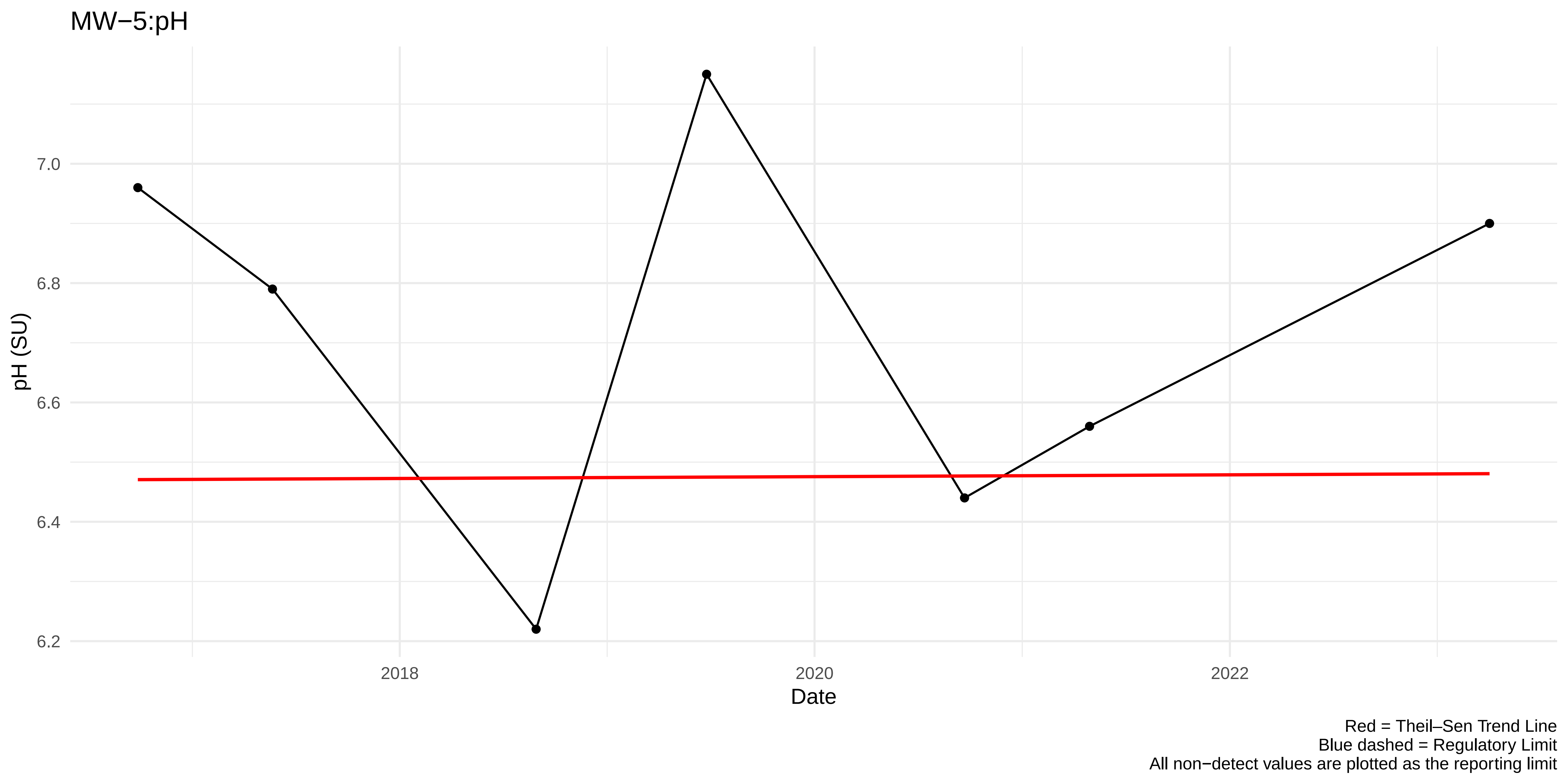

MW−5:Manganese
2.0
1.5
1.0
0.5
Manganese (mg/L)
2018
2020
2022
Date
Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit

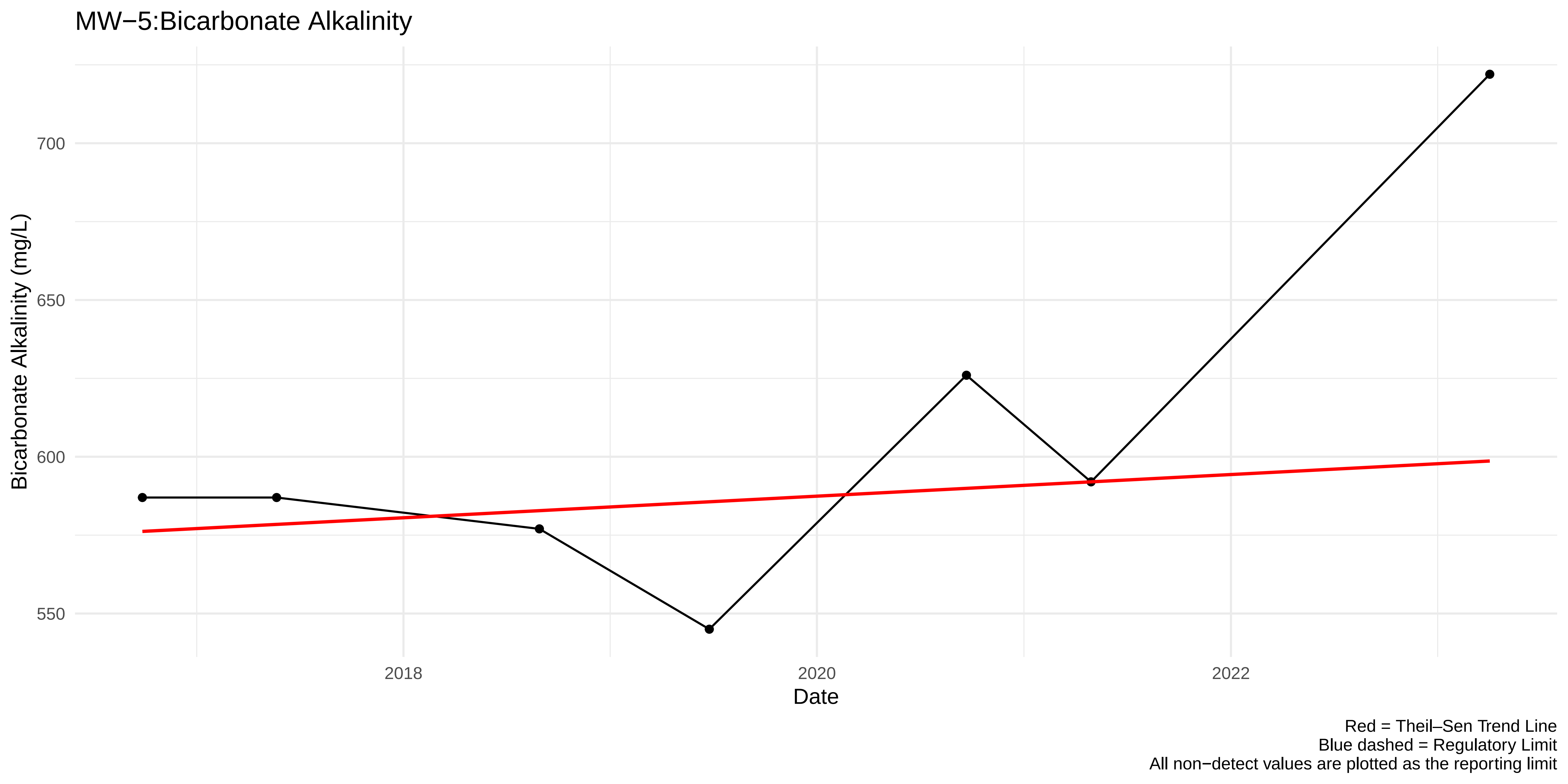

MW−5:Potassium
Potassium (mg/L)
18
16
14
12
2018
2020
2022
Date
Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit

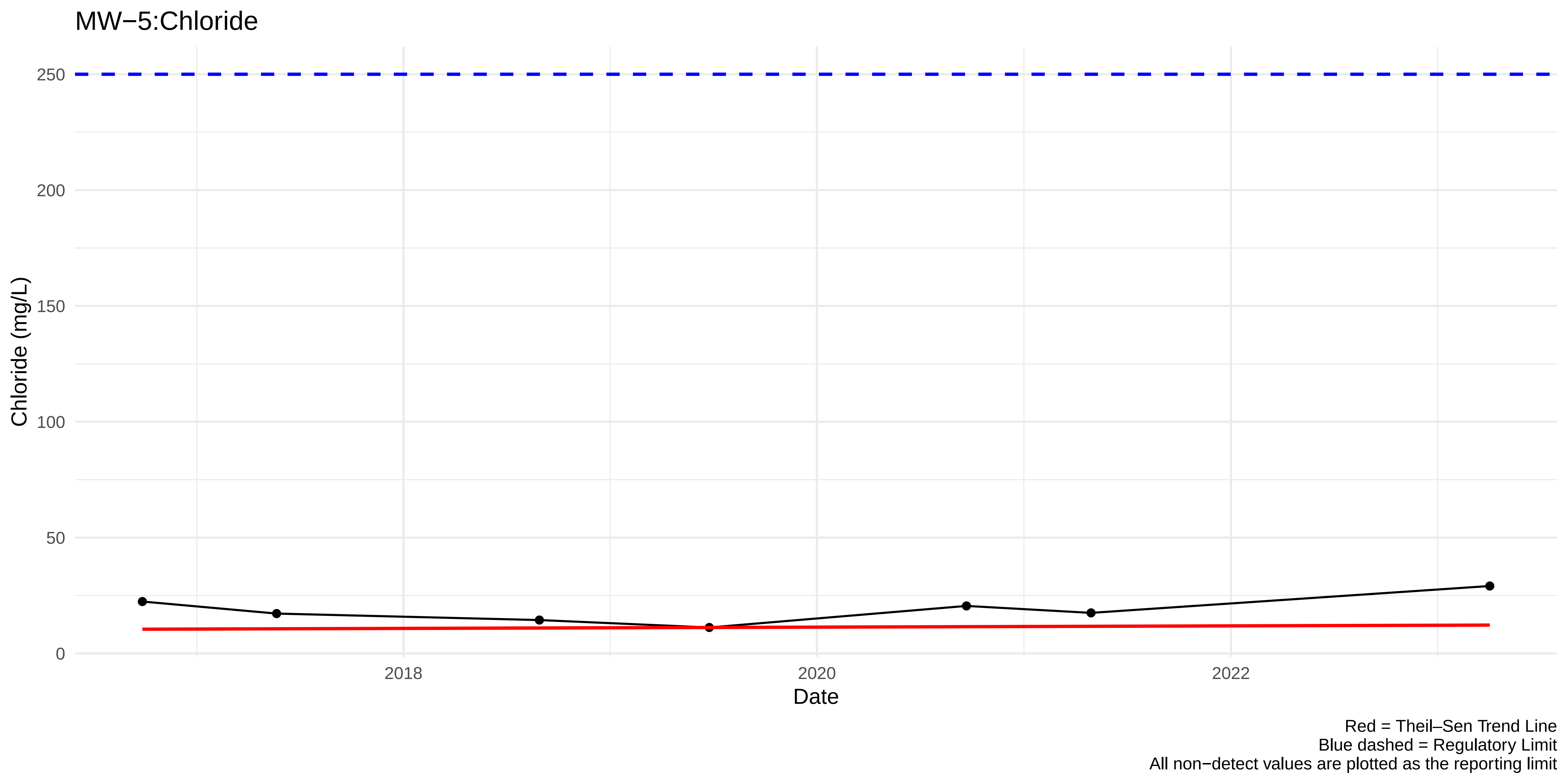

MW−5:Zinc
2.0
1.5
1.0
0.5
0.0
Zinc (mg/L)
2018
2020
2022
Date
Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit


MW−5:Sodium
Sodium (mg/L)
80
60
40
20
2018
2020
2022
Date
Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit

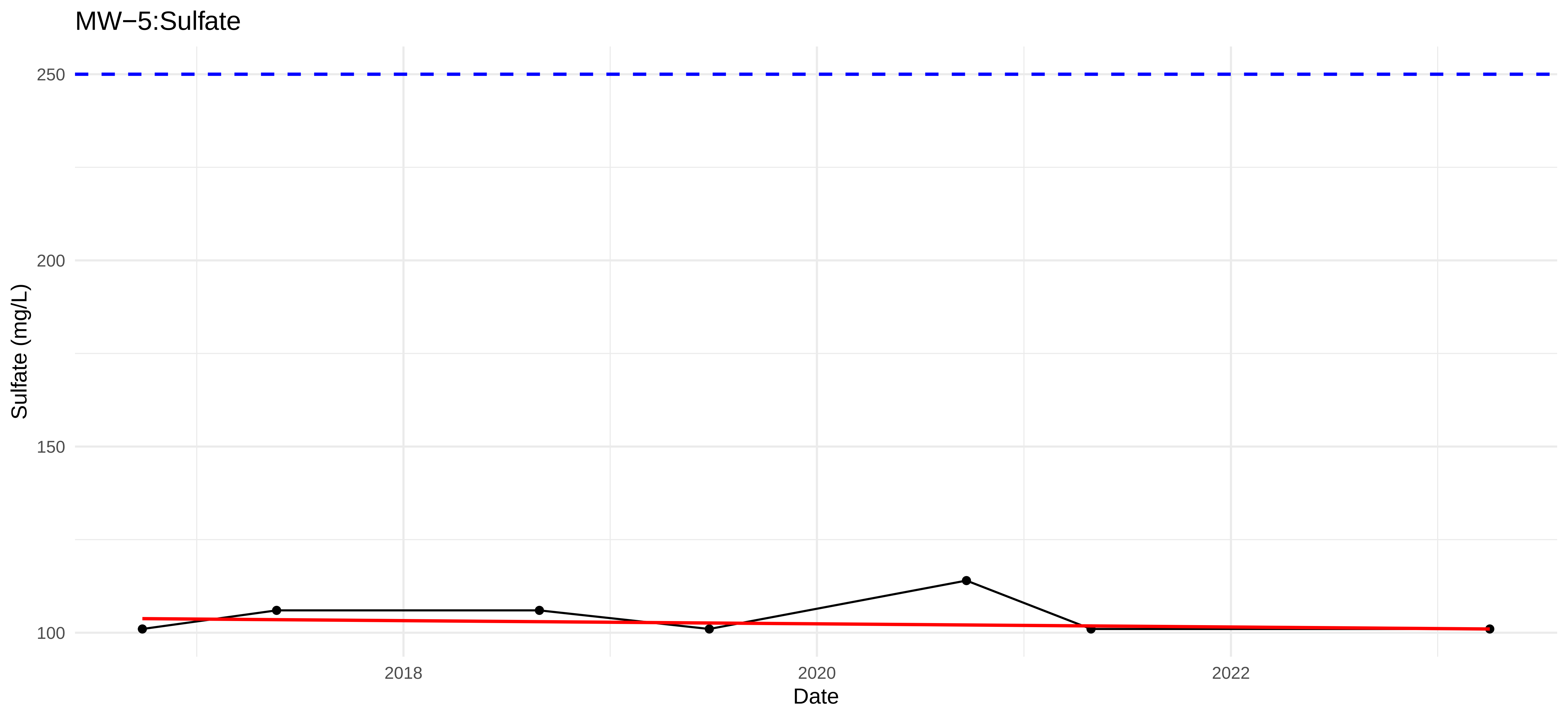

MW−5:Selenium
0.05
0.04
0.03
0.02
0.01
0.00
Selenium (mg/L)
2018
2020
2022
Date
Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit


MW−5:pH
7.0
6.8
6.6
6.4
6.2
pH (SU)
2018
2020
2022
Date
Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit

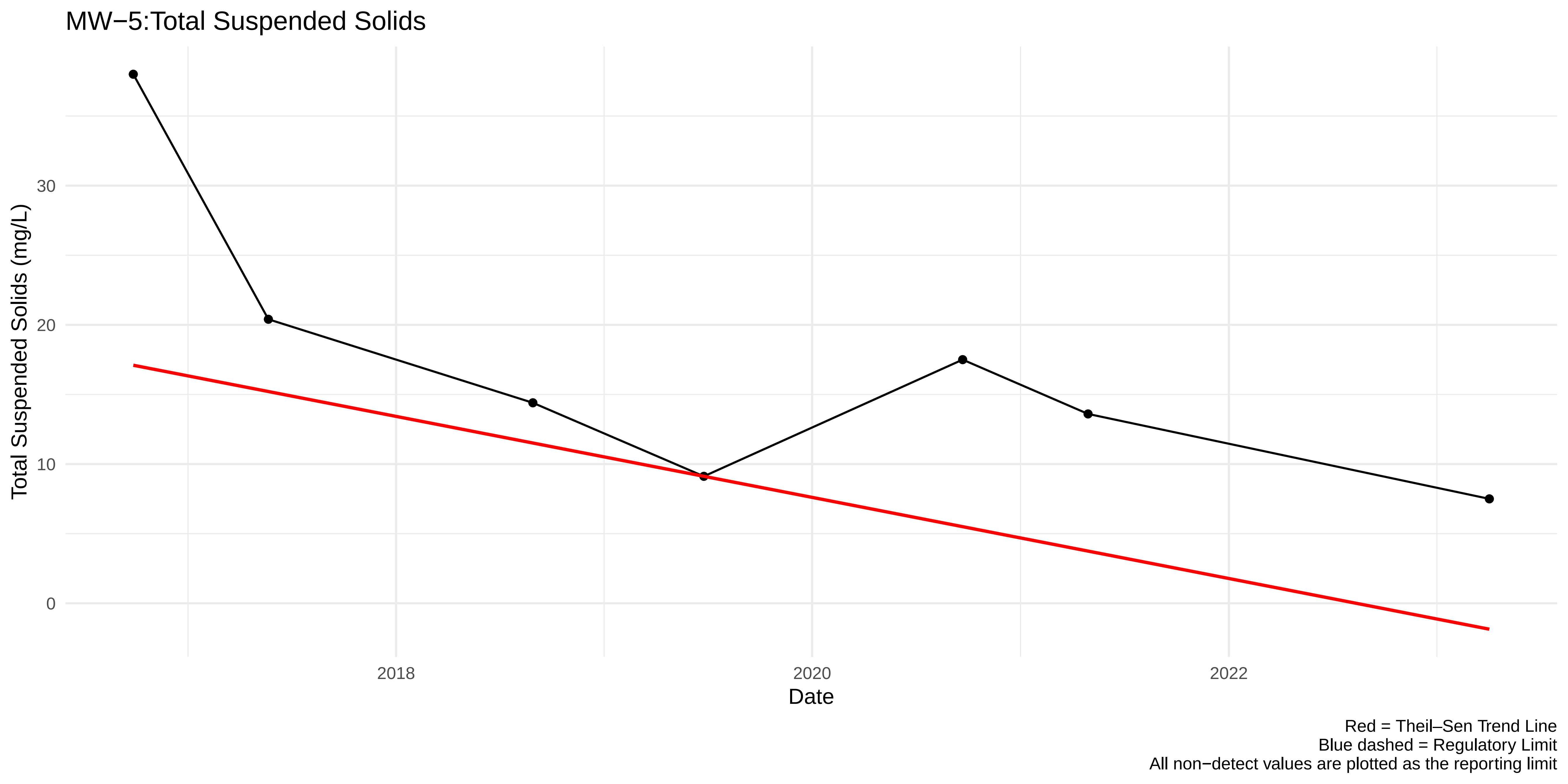

MW−5:Bicarbonate Alkalinity
Bicarbonate Alkalinity (mg/L)
700
650
600
550
2018
2020
2022
Date
Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit



MW−5:Chloride
250
200
150
100
50
0
Chloride (mg/L)
2018
2020
2022
Date
Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit



Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit


MW−5:Total Suspended Solids
Total Suspended Solids (mg/L)
30
20
10
0
2018
2020
2022
Date
Red = Theil–Sen Trend Line
Blue dashed = Regulatory Limit
All non−detect values are plotted as the reporting limit