Intended for
Ameren Missouri

Date
December 15, 2025

Project No.
1940108083

2025 ANNUAL REPORT

VENICE POWER PLANT, ASH PONDS 2 & 3

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2025 ANNUAL REPORT
VENICE POWER PLANT, ASH PONDS 2 & 3

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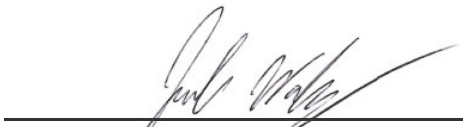

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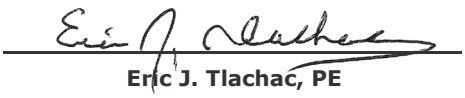

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CONTENTS

FIGURES (IN-TEXT)

TABLES

FIGURES (ATTACHED)

APPENDICES

ACRONYMS AND ABBREVIATIONS

Ameren	Ameren Missouri
GMZ	Groundwater Management Zone
IAC	Illinois Administrative Code
ILCS	Illinois Compiled Statutes
IEPA	Illinois Environmental Protection Agency
MDL	method detection limit
mg/L	milligrams per liter
NAVD88	North American Vertical Datum of 1988
NRT	Natural Resource Technology, Inc
PQL	practical quantitation limit
PVC	polyvinyl chloride
RL	reporting limit
Site	Former Venice Power Plant Ash Ponds 2 & 3
TDS	total dissolved solids
USACE	US Army Corps of Engineers

1. INTRODUCTION

1.1 Background

In May 2011, the Illinois Environmental Protection Agency (IEPA) approved Ameren Missouri's (Ameren) Closure Plan (Natural Resource Technology, Inc. [NRT], 2011) for the Venice Power Plant Ash Ponds 2 & 3 (Site) and established a Groundwater Management Zone (GMZ) for the Site. The Closure Plan included specifications for construction of a cover system over Ash Ponds 2 & 3 that conformed to the standards for final cover set forth in Illinois Landfill Regulations and a site-specific rulemaking governing closure of an ash pond at The Former Hutsonville Power Station, owned by an Ameren-affiliated company. See, generally, 35 Illinois Administrative Code (IAC) 840.126 and 35 IAC 811.314. Cover construction was completed in October 2012.

Groundwater quality has been monitored at the Site since 1996. The Closure Plan included a summary of the groundwater quality at the Site as of 2009 and a revised Groundwater Monitoring Plan that outlined a schedule for monitoring five field and 24 laboratory parameters at 12 groundwater monitoring wells (**Tables 1-1, 1-2, and 1-3, Figure 1-1**). The new Groundwater Monitoring Plan was implemented in March 2011 with existing groundwater monitoring wells (MW-2, MW-3, MW-5, MW-6, MW-8, and MW-9). In accordance with the approved Closure Plan, additional groundwater monitoring wells were installed in July 2011 (MW-2D, MW-3D, MW-6D, MW-10, MW-11, and MW-11D) and included in the Groundwater Monitoring Plan. In 2019, IEPA approved a request to change the groundwater monitoring schedule from quarterly to semi-annual and to cease monitoring for beryllium, mercury, and thallium in accordance with the Groundwater Monitoring Plan. Recommendations presented in the 2020, 2021, 2022, 2023, and 2024 Annual Reports included plans to cease monitoring for lead and selenium in accordance with the Groundwater Monitoring Plan. We request written concurrence to cease monitoring for lead and selenium.

This 2025 Annual Report is submitted per Section 5.4 of the Closure Plan and includes a review of the post-closure groundwater quality at the Site to provide an overview of the effectiveness of the cover system in improving groundwater quality downgradient from Ash Ponds 2 & 3. This report also includes the following Groundwater Monitoring Plan compliance elements:

- A summary of groundwater monitoring data collected in 2025 (**Appendix A)**.
- A summary of groundwater monitoring data collected March 2022 through August 2024 (**Appendix A**) because they are used in the statistical trend analysis of groundwater quality data.
- Short term trend analysis results per Section 3.4 of the Closure Plan.
- Groundwater monitoring field data worksheets which note descriptions of any maintenance or replacement activities performed (**Appendix B**).
- Final cover site inspection reports and a description of any maintenance activities performed on the cover (**Appendix C**).

1.2 Post-Closure Overview – 2012 to 2025

Groundwater quality data since completion of pond closure in 2012 were reviewed to assess the overall condition of the groundwater and the performance of the cover system. This review was performed independently from the compliance evaluations required by the Closure Plan presented

in this report, which are focused on specific compliance criteria (short-term trends). This review is intended as a broad view of groundwater quality over time since closure.

1.2.1 Summary of Cover System Construction and Maintenance

As part of closure activities, Ameren removed all standing surface waters from Ash Ponds 2 & 3 and a geosynthetic cover was constructed to provide a barrier to infiltration and subsequent generation and release of leachate from the ponds (NRT, 2011). The cover system was placed over re-graded ash in the ponds and consists of (from bottom up) a 40-mil geomembrane; a geocomposite drainage layer constructed of a geonet encapsulated in geotextile; and a 3-foot thick protective soil layer. The geocomposite was provided to drain surface water that infiltrates the protective soil layer. Storm water from precipitation is routed toward two low areas at the north and south ends of the cover, then pumped over the levee that comprises the western boundary of the ash ponds to the Mississippi River. The cover is graded such that there is no off-site contribution, or run-on, of storm water from areas outside of the ash ponds.

Inspections of the cover system are generally performed on a quarterly schedule. Routine maintenance activities are performed at the Site, as needed and as soon as practicable after issues are identified, and include recontouring the ground surface, repairing drainage channels, repairing and replacing lining material, revegetating areas, and removing woody vegetation. Maintenance activities can be found in more detail in the Closure Plan.

1.2.2 Summary of 2012 to 2025 Groundwater Quality Data Review

Appendix C of the Closure Plan identified boron as the primary indicator constituent for coal ash impacts to groundwater at the Site. As such, boron was selected for this groundwater quality data review. Time series plots of dissolved boron concentrations from closure completion (2012) through 2025 are presented in **Figures 1-2 to 1-7**. Best fit linear regression lines are included in the figures to provide a convenient means of evaluating general concentration patterns since closure. It should be noted that the regression lines are not equivalent to the statistical trends discussed in the groundwater compliance section of this report.

Generally, dissolved boron concentrations in most compliance monitoring wells have exhibited stable or decreasing concentration patterns since 2012. In addition, decreasing concentration patterns for other analytical parameters were identified and are discussed in **Section 3.3** and summarized on **Tables 3-1 and 3-2**.

1.2.3 Conclusion

The generally stable or decreasing dissolved boron concentrations in the majority of compliance monitoring wells across the Site is a strong indication that the cover system is functioning to improve overall groundwater quality beneath the ponds. This observation is consistent with the results of groundwater modeling performed in 2010 to simulate changes in groundwater quality resulting from pond closure. Prediction modeling results suggested that dissolved boron concentrations in model calibrated monitoring wells (calibrated to observed conditions from 2000 through 2009) MW-2, MW-3, MW-5, MW-6, MW-8, and MW-9 would stabilize at levels below the Class I Groundwater Standard within 14 to 20 years, with the exception of on-site well MW-6, where dissolved boron concentrations were predicted to persist for a longer time period.

2. GROUNDWATER MONITORING PLAN COMPLIANCE

2.1 Applicable Groundwater Quality Standards

As described in Section 3.3 of the Closure Plan:

- On-site, prior to the completion of the post-closure care period, the applicable groundwater quality standards at Ash Ponds 2 & 3 are the concentrations as determined by groundwater monitoring if such concentrations exceed the Class I Groundwater Standards.
- After completion of the post-closure care period, the on-site concentrations of contaminants from Ash Ponds 2 & 3 as determined by groundwater monitoring, are the applicable groundwater standards, if such concentrations exceed the Class I Groundwater Standards, and if:
  - To the extent practicable, the exceedance has been minimized and beneficial use, as appropriate for the class of groundwater, has been returned on site.
  - Any threat to public health or the environment on-site has been minimized.
  - An institutional control prohibiting potable uses of groundwater is placed on the Former Venice Power Plant site in accordance with the Uniform Environmental Covenants Act [765 Illinois Compiled Statutes (ILCS) 122] or an alternative instrument authorized for environmental uses under Illinois law and approved by IEPA is in effect. Existing potable uses of groundwater may be preserved as long as such uses are consistent with human consumption in accordance with accepted water supply principles.

Off-site standards were not proposed because: 1) Ameren did not receive permission from the adjacent property owner to monitor groundwater on that property; 2) the ponds have been covered, which minimizes exceedances of groundwater quality standards to the extent practical; 3) there are no groundwater receptors in this area; and 4) there is a groundwater restriction ordinance in effect for this area.

2.2 Demonstration of Compliance

As described in Section 3.4 of the Closure Plan:

- Compliance with on-site groundwater quality standards will be achieved when no statistically significant increasing trend that can be attributed to Ash Ponds 2 & 3 is detected in the concentrations of all constituents monitored at the downgradient boundaries of the Site for four consecutive years after changing to an annual monitoring frequency (**Table 1-1**).
- If the Sen's non-parametric estimate of slope shows a positive slope at any compliance monitoring well located at the downgradient boundaries of the Site GMZ, as specified in **Table 1-2**, for any parameter (**Table 1-3**), a Mann-Kendall test will be performed at 95 percent confidence to determine whether the positive slope represents a statistically significant increasing trend. If a statistically significant increasing trend is identified, Ameren will take action as described below, and initiate more frequent inspection of the surface of the cover system and evaluation of background concentrations.
  - If the statistically significant increasing trend can be attributed to a superseding cause, Ameren will notify IEPA in writing, stating the cause of the increasing trend and providing the rationale used in such a determination.

  - If there is no superseding cause for the statistically significant increasing trend and sampling frequency is semi-annual or annual sampling, a quarterly sampling schedule will be reestablished. After four consecutive quarterly samples show no statistically significant increasing trend, the frequency of groundwater monitoring will return to either semi-annual or annual, whichever frequency was utilized prior to the return to quarterly sampling.
  - Notifications concerning statistically significant increasing trends and revisions of the sampling frequency will be reported to IEPA in writing within 30 days after making the determinations.

- If a statistically significant increasing trend is observed to continue over a period of two or more consecutive years and there are no superseding causes for the trend, then Ameren will perform the following:
  - A hydrogeologic investigation; and
  - Additional site investigation, if necessary.

Based on the outcome of the investigation above, Ameren may take action to mitigate statistically significant increasing trends. Such actions will be proposed as a modification to the Post-Closure Care Plan within 180 days after completion of the investigation activities described above.

3. DATA ANALYSIS

3.1 Groundwater Flow

Groundwater elevation contours and flow directions for the semi-annual monitoring events in February/April 2025 and July 2025 are illustrated in **Figures 3-1** and **3-2**, respectively. Groundwater elevations from April 2025 were used to develop the contours and flow directions for the February/April event. On April 9, 2025, groundwater elevation was measured in shallow monitoring wells at elevations ranging from approximately 391 to 394 feet North American Vertical Datum of 1988 (NAVD88). On July 8, 2025, groundwater elevation was measured in shallow monitoring wells at elevations ranging from approximately 394 to 399 feet NAVD88. In the vicinity of the Site, groundwater elevations and flow directions are influenced by the Mississippi River, with groundwater levels in the uppermost aquifer rising and falling in response to the river stage. In April 2025, groundwater flow directions varied across the Site. Flow converged toward the lowest groundwater elevation (391 feet NAVD88) at MW-11, discharging into the Mississippi River on the north side of the Site. Conversely, flow diverged from the highest groundwater elevation (394 feet NAVD88) at MW-2 on the south side of the Site. This variability suggests the Site was in a transitional period between normal flow conditions (flow towards the river, as shown in **Figure 3-1** for the north area of the Site) and a flow reversal (away from the river, as shown in **Figure 3-1** for the south area of the Site). The average horizontal hydraulic gradients were approximately 0.003 feet per foot in the north area and 0.0007 feet per foot in the south area in April 2025. In July 2025, groundwater flow directions were generally west to southwest (toward the river), indicating normal flow conditions consistent with the predominant flow pattern during most of the year. The average horizontal hydraulic gradient was approximately 0.002 feet per foot during this period.

3.2 Review of Analytical Data

This report includes specific discussion of the analytical data for the most recent eight monitoring events to provide a basis for statistical analyses required for the evaluation with related closure plan requirements. All laboratory analytical results are tabulated in **Appendix A** for groundwater samples collected on March 15, 2022/March 28, 2022; August 15, 2022/November 2, 2022; January 24, 2023/March 6, 2023; August 31, 2023; February 13, 2024/March 13, 2024/April 4, 2024; February 25, 2025/April 9, 2025; and July 8, 2025. The field data for 2025 monitoring events are found in **Appendix B** (field data for previous groundwater monitoring events were presented in previous Annual Reports). Sampling anomalies in 2025, such as wells that were dry, had water levels too low for sampling, or were not sampled during a sampling event for other reasons, are noted below (sampling anomalies for previous groundwater monitoring events were presented in previous Annual Reports):

- MW-2, MW-3, MW-5, MW-6, MW-6D, and MW-11 were not sampled in February 2025 due to the wells being dry or water levels too low for sampling. All site wells, including these, were sampled on April 9, 2025.
- MW-3D was not sampled in February 2025 because the well was damaged. Sampling at MW-3D was performed on April 9, 2025 after Ameren repaired the damage.

Analytical results were evaluated for field and method blank detections, and the following were identified:

- During the first mobilization of the February/April 2025 sampling event, iron, total dissolved solids (TDS), and zinc were detected in field blank and zinc was detected in the method blank. Since all sample concentrations of iron and TDS were greater than ten times the field blank concentrations, they were not qualified. Samples with zinc concentrations greater than the reporting limit (RL) but less than ten times the method blank concentration (MW-2D, MW-8, MW-9, MW-10, MW-11D) were qualified as biased high.
- During the second mobilization of the February/April 2025 sampling event, barium, boron, copper, and zinc were detected in the field blank, and copper, manganese, selenium, and zinc were detected in the method blank. Since all sample concentrations of barium and boron were greater than ten times the field blank concentrations, they were not qualified. Since all sample concentrations of manganese were greater than ten times the method blank concentrations, they were not qualified. Copper, selenium, and zinc sample concentrations were all qualified as biased high since they were less than ten times the method blank concentrations.
- During the July 2025 sampling event barium, lead, and zinc were detected in field blank and zinc was detected in the method blank. Since all sample concentrations of barium were greater than ten times the field blank concentrations, they were not qualified. Lead results were not evaluated since the sample concentrations were all less than the RL. Zinc sample concentrations were qualified as biased high since they were less than ten times the method blank concentration. Ameren is investigating the cause and will work to lower detections in the field blanks for the subsequent sampling events.

Select monitored parameters are discussed below.

- Boron was identified as the primary indicator constituent for coal ash impacts to groundwater at the Site (see Appendix C of the Closure Plan). In the 2022 - 2025 monitoring period, dissolved boron concentrations ranged from 0.09 to 4.90 milligrams per liter (mg/L) in shallow compliance monitoring wells, except in MW-10 where dissolved boron concentrations ranged from 12.96 to 14.73 mg/L (**Figure 3-3**). As discussed in Section 3.2 of the 2012 annual report, the boron concentrations observed at MW-10 are likely not from the ash ponds. MW-10 is at the northern edge of the GMZ and upgradient from the ash ponds. In deep monitoring wells, dissolved boron concentrations ranged from 2.00 to 15.42 mg/L (**Figure 3-3**).
- Chloride can be an indicator constituent for coal ash; however, there are several other anthropogenic sources for elevated chloride concentrations in groundwater, so it is a less reliable indicator for coal ash impacts than boron. Dissolved chloride concentrations in shallow compliance wells ranged from 1.6 to 26.0 mg/L, except in MW-10 where dissolved chloride concentrations ranged from 16.5 to 33.2 mg/L. In deep compliance monitoring wells, dissolved chloride concentrations ranged from 14.4 to 50.0 mg/L. Background monitoring wells MW-8 and MW-9 have historically had, and continue to have, relatively higher dissolved chloride concentrations than the compliance monitoring wells, ranging from 18.3 to 78.6 mg/L, although still below the Class I Groundwater Standard of 200 mg/L (**Figure 3-4**).
- Sulfate can be an indicator constituent for coal ash; however, there are other anthropogenic sources for elevated sulfate concentrations in groundwater, and sulfate concentrations can decrease in groundwater under strongly reducing conditions. For these reasons, sulfate is a less reliable indicator for coal ash impacts than boron. As in past monitoring periods, dissolved

sulfate concentrations at the Ash Ponds 2 & 3 were highest at MW-10 and MW-11D (**Figure 3-5**) during the 2022 - 2025 monitoring period, ranging from 161.7 to 1,169.4 mg/L, where dissolved boron concentrations were also highest. However, there are also differences between the spatial distribution of dissolved sulfate concentrations and dissolved boron concentrations at the Site. For example, MW-6 had a median dissolved boron concentration of 4.06 mg/L (above the Class I Groundwater Standard for boron of 2.0 mg/L), suggesting coal ash impacts, even though the median dissolved sulfate concentration was at 13.0 mg/L (well below the Class I Groundwater Standard for sulfate of 400 mg/L). Conversely, background monitoring wells MW-8 and MW-9 had low dissolved boron concentrations (median concentrations of 0.66 mg/L and 0.59 mg/L, respectively, well below the Class I Groundwater Standard for boron), yet dissolved sulfate concentrations were similar to or higher than some of the wells which had elevated dissolved boron concentrations (*i.e.,* wells MW-2, MW-2D, MW-3D, and MW-6). Due to these differences, which are consistent with previous monitoring periods, boron appears to be a more reliable indicator of coal ash constituents in groundwater and will, therefore, continue to be used as the primary indicator constituent for Ash Ponds 2 & 3.

3.3 Statistical Analysis

Analytical data were evaluated to identify short-term (compliance) data trends in the 2022 - 2025 dataset. Trends were evaluated following a three-step procedure:

- Test for outliers using the Grubbs outlier test as described in **Section 3.3.1**.
- Determine Sen's estimate of slope (in accordance with Section 3.4 of the Closure Plan).
- Perform a Mann-Kendall trend analysis for any cases (monitoring well/constituent) with a positive Sen's estimate of slope (in accordance with Section 3.4 of the Closure Plan).

3.3.1 Outlier Analysis

The Grubbs outlier test determines whether there is a high or low observation that differs statistically from the other data based upon the parameters of the test with the presumption that the data are normally distributed. The test methodology and results are listed in **Appendix D**.

The Grubbs test provides statistical evidence of potential outliers but cannot be used alone to determine whether or not an observation is a true outlier that should be excluded from future statistical analysis. Corroborating evidence needed to exclude observations includes a discrete data reporting or analytical error, or potential laboratory bias. Absent corroborating evidence, the flagged observations are considered true but extreme values in the data set.

Outliers identified by the Grubbs outlier test based on the date range of 1996 - 2025 were considered for elimination from further statistical analysis. Ultimately, no new outliers were eliminated from statistical analysis.

3.3.2 Sen's Estimate of Slope

Sen's estimate of slope is a non-parametric estimator of trend. It is the median of all slopes between all possible unique pairs of individual observations in the time period being analyzed. The slopes represent the rate of change of the observations, with the y-axis being the observation value and the x-axis being calendar time. The method is robust, and fairly insensitive to the presence of a small fraction of outliers and non-detect values. The test methodology is listed in **Appendix D**.

Observations from the 2022 - 2025 monitoring period (most recent eight monitoring events) exhibited 21 cases with positive slopes, 33 cases with negative slopes, and 198 cases with no slope (**Table 3-1**). The 21 cases with positive slopes were tested using the Mann-Kendall test (described in **Section 3.3.3**) to determine if the positive slopes represented statistically significant short-term (2022 - 2025) increasing trends.

3.3.3 Mann-Kendall Trend Analysis

The Mann-Kendall test is a non-parametric, one-tailed test to determine whether a dataset has a statistically significant increasing or decreasing trend. The test methodology is in **Appendix D**. Increasing short-term (compliance) trends are identified in **Tables 3-1 and 3-2**.

The Mann-Kendall test detected six cases of short-term increasing trends in the 2022 - 2025 dataset; these included dissolved iron (MW-6D), dissolved manganese (MW-6D), dissolved sulfate (MW-2, MW-2D, and MW-3) and TDS (MW-3). Of these identified short-term trends, dissolved iron at MW-6D and TDS at MW-3 have persisted over a period of two or more consecutive years.

3.4 Groundwater Monitoring System Maintenance and Inspection

The monitoring wells were inspected during each sampling event of 2025 and maintained as necessary as described in the Groundwater Monitoring Plan. Groundwater monitoring field data worksheets which contain inspection records for 2025 are included in **Appendix B**. The February field data worksheet noted a bulge in the internal piping at well MW-3D. The bulge in the piping was repaired in March 2025. A heat gun was used to reform the PVC well casing to allow for sampling equipment to fit into the well. The April and July field data worksheets noted that the well vault lid at well MW-5 was cracked. As of July, concrete blocks and a construction barricade have been placed to protect the well from additional damage from truck traffic along the access road where MW-5 is located. A new vault lid will be installed once truck traffic subsides.

3.5 Cover Inspection and Maintenance

Fly Ash Pond Final Cover Inspection Reports (**Appendix C**) are shared with the Venice Power Plant management staff by Ameren upon completion. The plant staff responds promptly to correct issues within their control (if any) as they are reported.

The second, third, and fourth quarter final cover inspection reports noted that the post holding the chain barrier restricting access to the levee road at the southeast corner of Ash Ponds 2 & 3 was knocked over. This barrier is managed by the US Army Corps of Engineers (USACE) and not within Ameren's control, but it does not significantly affect access to Ash Ponds 2 & 3. The USACE have been made aware that repairs to this barrier are needed.

The first and third quarter final cover inspection reports noted that there were grass clippings partially blocking the pump station inlet grates. The plant staff subsequently cleared these grass clippings after the inspection.

4. EVALUATION OF COMPLIANCE

Most short-term increasing trends identified in **Section 3.3.3** and in **Table 3-1** for the most recent eight monitoring events (2022 - 2025) were either first-time or non-consecutive occurrences and likely do not indicate a potential release from Ash Ponds 2 & 3. The exceptions are the short-term increasing trends for dissolved iron at MW-6D and TDS at MW-3. These consecutive occurrences of short-term increasing trends are further evaluated in **Section 4.1**.

4.1 Non-Indicator Parameter: Dissolved Iron at MW-6D

The short-term increasing trend for dissolved iron concentrations observed at MW-6D is unlikely due to influence from Ash Ponds 2 & 3 and likely due to more reducing conditions in the groundwater at MW-6D causing dissolution of naturally-occurring iron oxide minerals in the aquifer solids. Recent samples from MW-6D with elevated concentrations of dissolved iron have lower concentrations of dissolved boron (**Figure A**), the primary indicator of coal ash constituents in groundwater for Ash Ponds 2 & 3. This inverse relationship indicates that elevated concentrations of dissolved iron are not influenced from CCR.

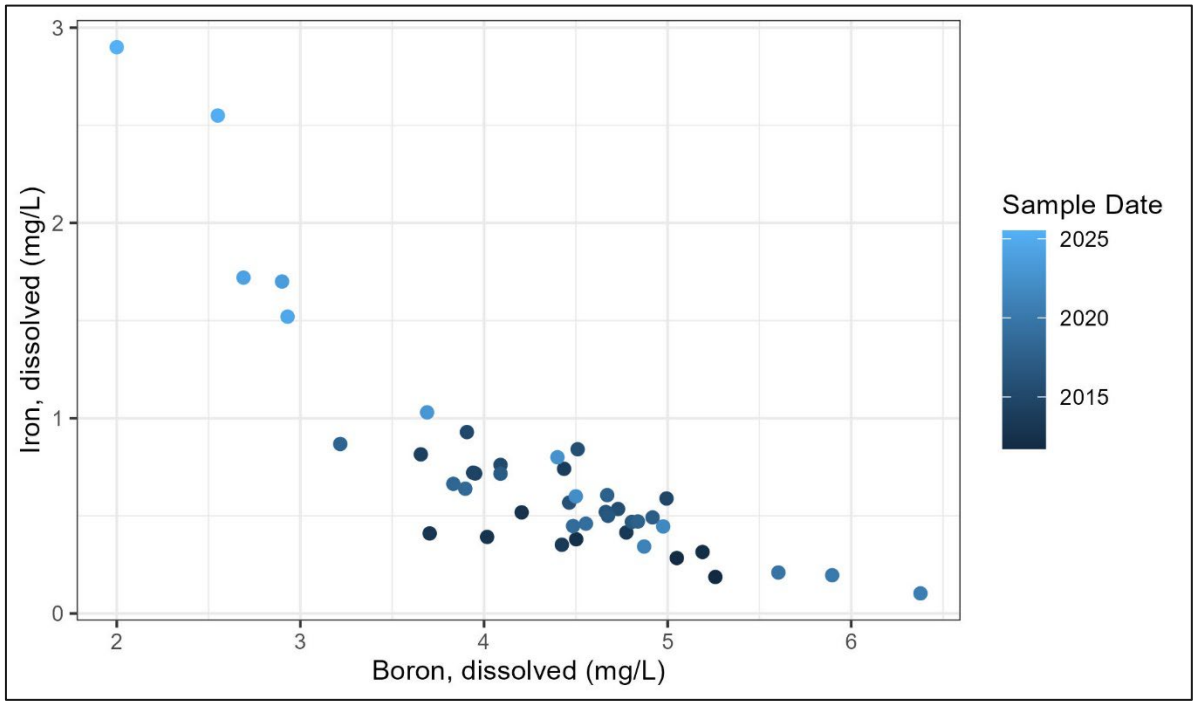


Figure A. Concentrations of dissolved iron at MW-6D plotted against concentrations of dissolved boron.

Iron and manganese oxides and oxyhydroxides are typically major contributors to groundwater chemistry (Appelo and Postma, 2005) and exhibit similar geochemical behavior in the environment. Under sufficiently oxidizing conditions, iron and manganese form solid-phase oxide minerals. Iron and manganese oxides are widespread in subsurface environments. Under reducing conditions, both elements become reduced and soluble in water. The strong correlation between dissolved iron and dissolved manganese concentrations at MW-6D (**Figure B**) is consistent with the source of iron being reductive dissolution of oxide minerals.

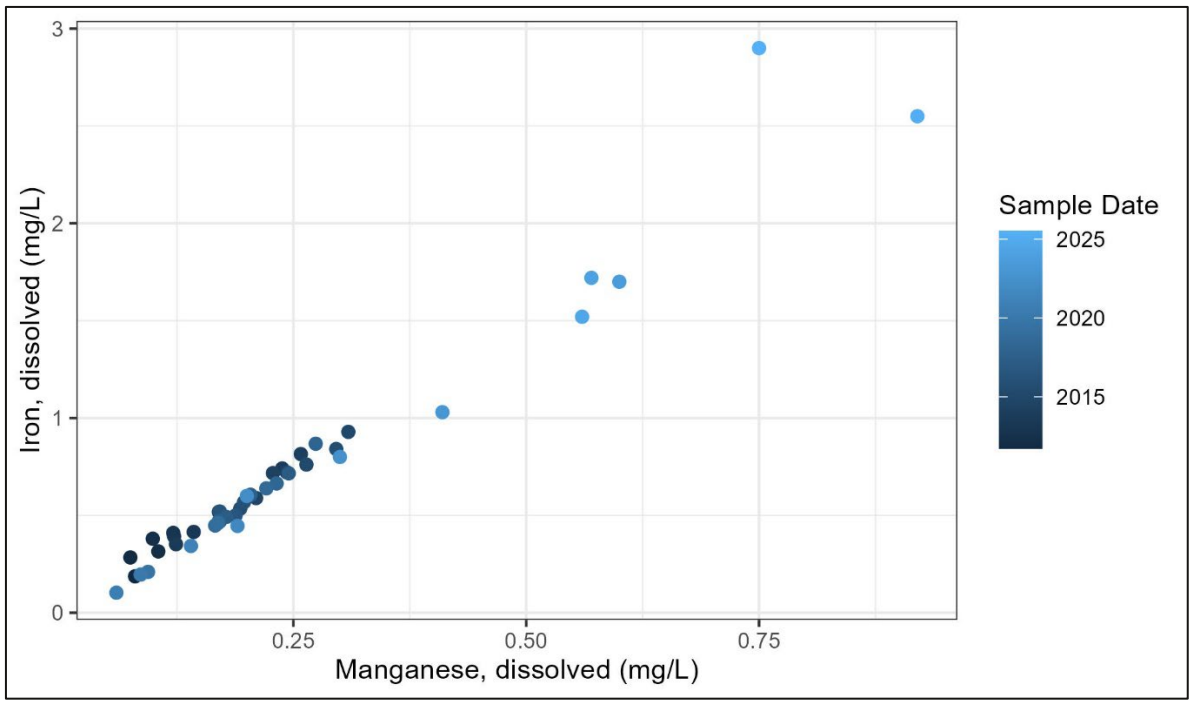


Figure B. Concentrations of dissolved iron at MW-6D plotted against concentrations of dissolved manganese.

4.2 Non-Indicator Parameter: TDS at MW-3

It is important to note that although TDS at MW-3 has a consecutive occurrence of short-term increasing trends, the concentrations observed during the analysis period (2022 – 2025) are all below the Class I Groundwater Standard of 1,200 mg/L. Also, the consecutive occurrence of short-term increasing trend for TDS does not co-occur with a short-term increasing trend for indicator constituent boron. Since TDS concentrations at MW-3 are below the Class I Groundwater Standard and the observed consecutive short-term increasing trends cannot be definitively attributed to Ash Ponds 2 & 3, they will continue to be monitored.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Statistical analyses of analytical results for the eight rounds of groundwater samples collected between 2022 to 2025 identified two cases of increasing trends that recurred over a period of two or more consecutive years, including:

- Iron in MW-6D; and
- TDS in MW-3.

As discussed in **Section 4**, the case of reoccurring increasing trends for iron at well MW-6D is related to geochemical changes in the groundwater. TDS concentrations at well MW-3 are below the Class I groundwater standard and consecutive increasing trends cannot be definitively attributed to Ash Ponds 2 & 3.

5.2 Recommendations

In accordance with Section 3.4 of the Closure Plan, the semi-annual sampling schedule should be continued.

Per Section 3.2.1 of the Closure Plan (Monitoring Parameters), any constituent that is not detectable at the RL or practical quantitation limit (PQL) in the downgradient wells for four consecutive quarters may be removed from the monitoring program in both the upgradient and downgradient wells. As stated in Section 5.2 of the 2020 Annual Report, dissolved lead and dissolved selenium were detected at or below the method detection limit (MDL) and, therefore, were detected below the RL/PQL for four consecutive sampling events. As of the 2024 Annual Report, detected concentrations of dissolved lead and dissolved selenium were less than the MDL in 2018-2019 at upgradient and downgradient wells with limited exceptions (MDL concentrations have reduced since 2019-2020, and, while there have been subsequent detections of dissolved lead and dissolved selenium, most have been below the previous MDL with some isolated occurrences above the previous MDL that did not persist for more than one sampling event). Recommendations presented in the 2020, 2021, 2022, and 2023 Annual Reports included plans to cease monitoring for lead and selenium in accordance with the Groundwater Monitoring Plan. We request written concurrence for ceasing monitoring for lead and selenium.

6. REFERENCES

Appelo, C.A.J, and Postma, D. (2005). *Geochemistry, Groundwater and Pollution*. 2nd Edition. CRC Press, Taylor & Francis Group.

Natural Resource Technology, Inc. (2011). *Closure Plan, Venice Power Plant Ash Ponds 2 & 3,* dated February 4, 2011 and revised on March 25, 2011.

TABLES

Table 1-1. Groundwater Monitoring Program Schedule
2025 Annual Report
Former Venice Power Plant - Ash Ponds 2 & 3

Frequency	Duration
Quarterly	Began: March 2011
	Ends: 5 years after completion of cap and upon demonstration that monitoring effectiveness is not compromised and that there are no increasing trends attributable to the Venice ash ponds.
Semiannual	Began: June 2019
	Ends: 5 years after initiation of semiannual monitoring and upon demonstration that monitoring effectiveness is not compromised and that there are no increasing trends attributable to the Venice ash ponds.
Annual	Begins: after IEPA approves that semiannual monitoring requirements have been satisfied.
	Ends: 4 consecutive years after initiation of annual monitoring if no increasing trends can be attributed to Venice Ash Ponds is detected in the concentrations of all constituents monitored at the downgradient boundaries of the Site and upon IEPA approval of a certified post-closure care report.

[O: SJC, C: YAD 3/9/18, U: RAB 11/20/20, U: RAB 11/3/25]

Table 1-2. Groundwater Monitoring System Wells
2025 Annual Report
Former Venice Power Plant - Ash Ponds 2 & 3

Monitoring Well	Latitude	Longitude	Date Drilled	Surface Elevation (ft.)	Top of Well Casing Elevation (ft.)	Top of Screen Elevation (ft.)	Bottom of Screen Elevation (ft.)	Objective	Monitoring Zone
MW-2	38-39-12.84	90-10-28.39	4/15/1996	412.75	412.31	394	384	Compliance	Water Table/Shallow Well
MW-2D	38-39-12.83	90-10-29.09	7/21/2011	412.61	412.36	370	365	Compliance	Deep Piezometer
MW-3	38-39-03.34	90-10-30.00	4/15/1996	411.41	410.91	397	387	Compliance	Water Table/Shallow Well
MW-3D	38-39-03.40	90-10-30.00	7/20/2011	411.70	411.48	370	365	Compliance	Deep Piezometer
MW-5	38-39-08.97	90-10-11.93	10/14/1997	433.16	432.93	394	384	Compliance	Water Table/Shallow Well
MW-6	38-39-02.24	90-10-18.17	10/15/1997	433.56	433.09	392	382	Compliance	Water Table/Shallow Well
MW-6D	38-39-02.24	90-10-18.09	7/19/2011	433.85	433.55	370	365	Compliance	Deep Piezometer
MW-8	38-39-14.68	90-10-08.46	7/2/1999	416.50	416.27	383	373	Background	Water Table/Shallow Well
MW-9	39-39-27.23	90-10-15.93	7/2/1999	413.65	413.40	382	372	Background	Water Table/Shallow Well
MW-10	38-39-34.84	90-10-33.78	7/21/2011	422.11	424.99	391	381	Compliance	Water Table/Shallow Well
MW-11	38-39-22.64	90-10-32.25	7/22/2011	413.04	412.74	394	384	Compliance	Water Table/Shallow Well
MW-11D	38-39-22.58	90-10-32.24	7/22/2011	412.84	412.50	369	364	Compliance	Deep Piezometer

[O: SJC, C: YAD 3/9/18]

Note:
Surface and well casing elevations based on survey of July 2012, vertical datum is NAVD 1988.

Table 1-3. Groundwater Monitoring Program Parameters
2025 Annual Report
Former Venice Power Plant - Ash Ponds 2 & 3

Field Parameters	Method
pH	SM, 22nd Edition, Method 4500-H+ B
Specific conductance	SM, 22nd Edition, Method 2510
Temperature	SM, 22nd Edition, Method 4500-H+ B
Water level	--
Well depth	--
Laboratory Parameters	**Method**
Antimony	EPA 200.8
Arsenic	EPA 200.8
Barium	EPA 200.8
Beryllium[1]	--
Boron	SM, 22nd Edition, Method 3120 B
Cadmium	EPA 200.8
Chloride	SM, 22nd Edition, Method 4110 B
Chromium	EPA 200.8
Cobalt	EPA 200.8
Copper	EPA 200.8
Cyanide	Lachat 10-204-00-1-X
Fluoride	SM, 22nd Edition, Method 4110 B
Iron	SM, 22nd Edition, Method 3120 B
Lead	EPA 200.8
Manganese	SM, 22nd Edition, Method 3120 B
Mercury[1]	--
Nickel	EPA 200.8
Nitrate as N	SM, 22nd Edition, Method 4110 B
Selenium	EPA 200.8
Silver	EPA 200.8
Sulfate	SM, 22nd Edition, Method 4110 B
Thallium[1]	--
Total Dissolved Solids	SM, 22nd Edition, Method 2540 C
Zinc	EPA 200.8

[O: SJC, C: YAD 3/9/18, U: RAB 12/20/22, C: KLT 12/20/22]

Notes:

[1] Eliminated from the monitoring program June 5, 2019 by IEPA approval.

Table 3-1. Trend Analysis Results
2025 Annual Report
Former Venice Power Plant - Ash Ponds 2 & 3

	MW-2	MW-2D	MW-3	MW-3D	MW-5	MW-6	MW-6D	MW-8	MW-9	MW-10	MW-11	MW-11D
Number of Samples	7	9	7	8	8	8	8	9	9	9	8	10
Antimony, dissolved	none	none	none	none	none	none	none	none	none	none	none	none
Arsenic, dissolved	none	none	none	none	none	none	none	none	none	none	none	none
Barium, dissolved	none	none	none	none	none	none	none	none	none	none	none	none
Boron, dissolved	none	+	none	decrease	none	decrease	decrease	none	none	-	-	none
Cadmium, dissolved	none	none	none	none	none	none	none	none	none	none	none	none
Chloride, dissolved	+	+	-	-	-	decrease	+	+	decrease	-	+	-
Chromium, dissolved	none	none	none	none	none	none	none	none	none	none	none	none
Cobalt, dissolved	none	none	none	none	none	none	none	none	none	none	none	none
Copper, dissolved	none	none	none	none	none	none	none	none	none	none	none	none
Cyanide, total	none	none	none	none	none	none	none	none	none	none	none	none
Fluoride, dissolved	none	none	none	none	none	none	none	none	none	none	none	none
Iron, dissolved	-	decrease	none	-	-	-	increase	none	-	+	none	-
Lead, dissolved	none	none	none	none	none	none	none	none	none	none	none	none
Manganese, dissolved	-	none	decrease	none	decrease	none	increase	none	none	none	none	none
Nickel, dissolved	none	none	none	none	none	none	none	none	none	none	none	none
Nitrate nitrogen, dissolved	none	none	none	none	none	none	none	none	none	none	none	none
Selenium, dissolved	none	none	none	none	none	none	none	none	none	none	none	none
Silver, dissolved	none	none	none	none	none	none	none	none	none	none	none	none
Sulfate, dissolved	increase	increase	increase	-	+	none	decrease	+	-	+	-	-
Total Dissolved Solids	+	+	increase	+	-	-	decrease	+	-	+	-	-
Zinc, dissolved	none	none	none	none	none	none	none	none	none	none	none	none

TO: RAB 8/28/25, C: EGP 9/3/25

Notes:
- "+" indicates that the Sen's non-parametric estimate of the median slope is positive.
- "-" indicates that the Sen's non-parametric estimate of the median slope is negative.
- "decrease" indicates a statistically significant decreasing trend
- "increase" indicates a statistically significant increasing trend
- Mann Kendall Trend analysis done with non-detects at one half the detection limit.
- Well MW-2 was dry on August 31, 2023.
- Well MW-3 was dry on August 15, 2022 and August 31, 2023.
- Sampling events from 3/1/2022-7/8/2025 were used for analysis.

Table 3-2. Summary of Trend Analyses
2025 Annual Report
Former Venice Power Plant - Ash Ponds 2 & 3

Reporting Date	Short-Term Increasing Trends	Long-Term Decreasing Trend
2012	15	
2013	14	
2014	6	
2015	1	
2016	20	
2017	10	
2018	2	
2019	3	
2020	11	
2021	3	
2022	10	
2023	16	
2024	3	
2025	6	21

[O: RAB 8/28/25, C: EGP 9/3/25]

Notes:
Short-term trends were generally calculated on the basis of eight consecutive sampling events.
Long-term trend is calculated with data since completion of closure in 2012.
Long -term trend is presented for the current reporting year only.

FIGURES

MONITORING WELL LOCATION
GROUNDWATER MANAGEMENT ZONE

0 150 300 Feet

SITE MAP

2025 ANNUAL REPORT
FORMER VENICE POWER PLANT
ASH PONDS 2 & 3
AMEREN MISSOURI
VENICE, ILLINOIS

FIGURE 1-1

RAMBOLL US CORPORATION
A RAMBOLL COMPANY

RAMBOLL

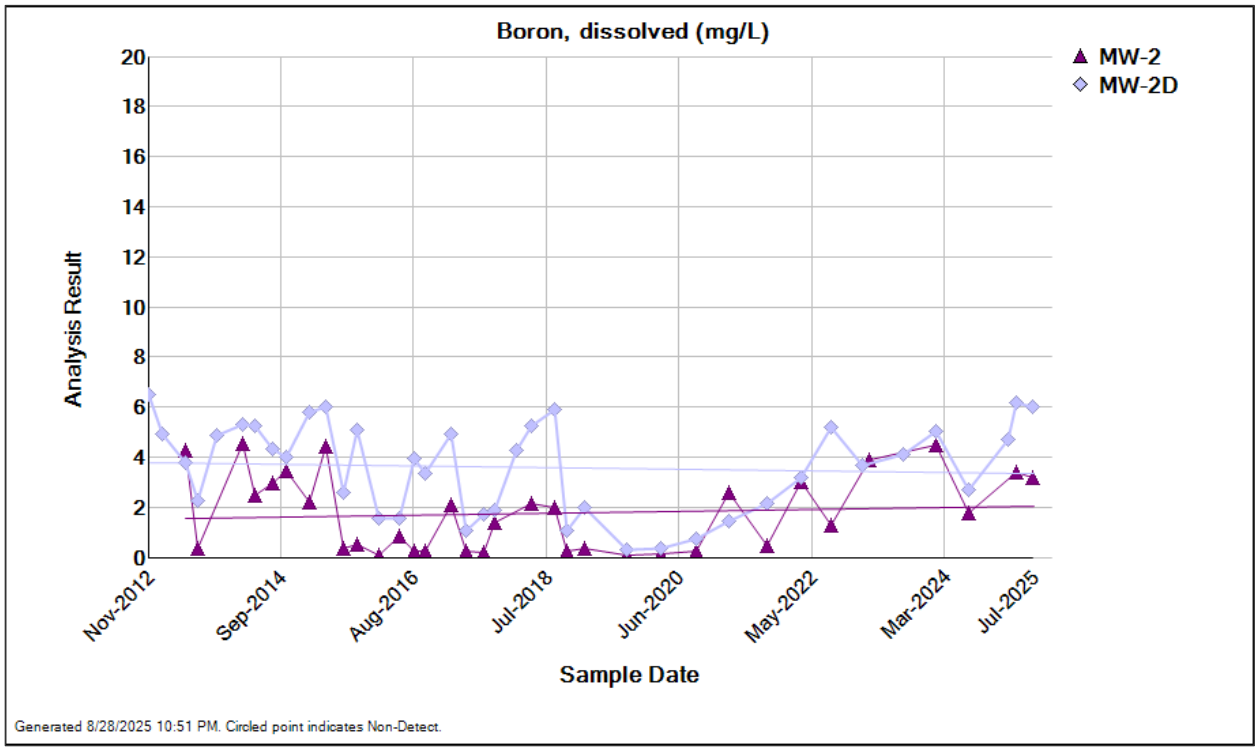


Figure 1-2. Dissolved boron concentrations over time since closure completion (2012) at compliance wells MW-2 and MW-2D.

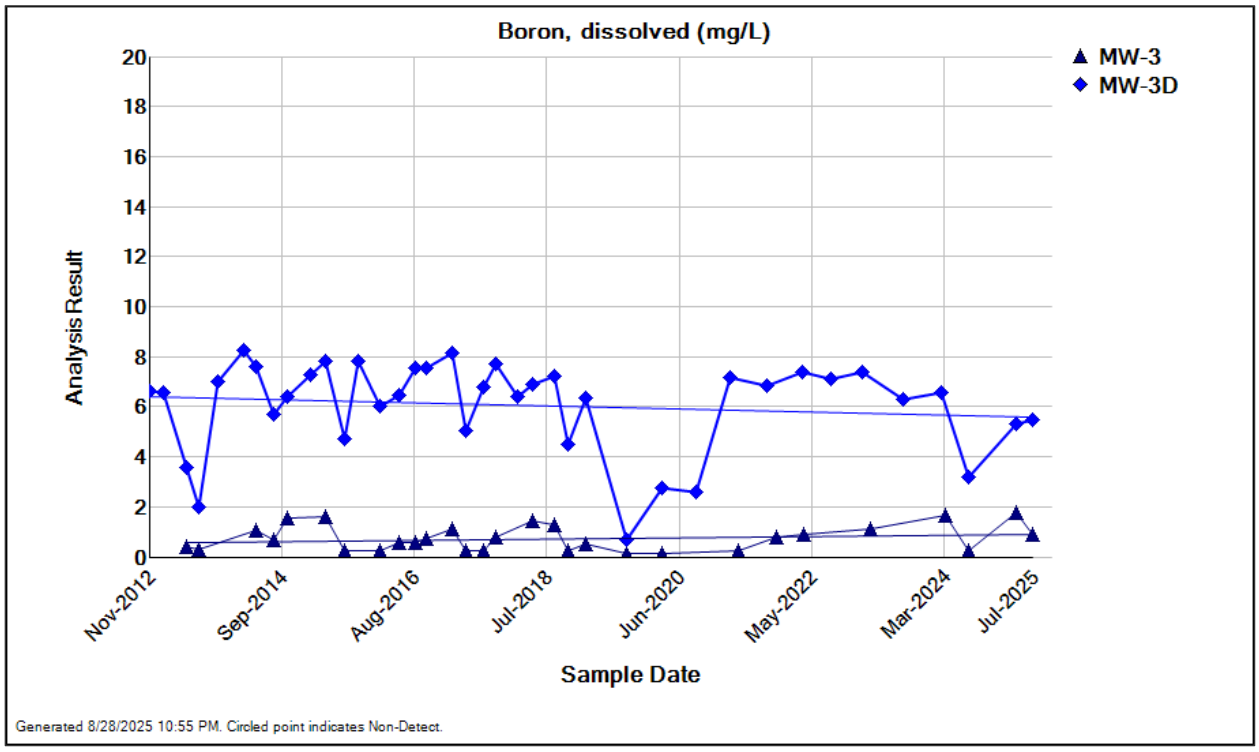


Figure 1-3. Dissolved boron concentrations over time since closure completion (2012) at compliance wells MW-3 and MW-3D.

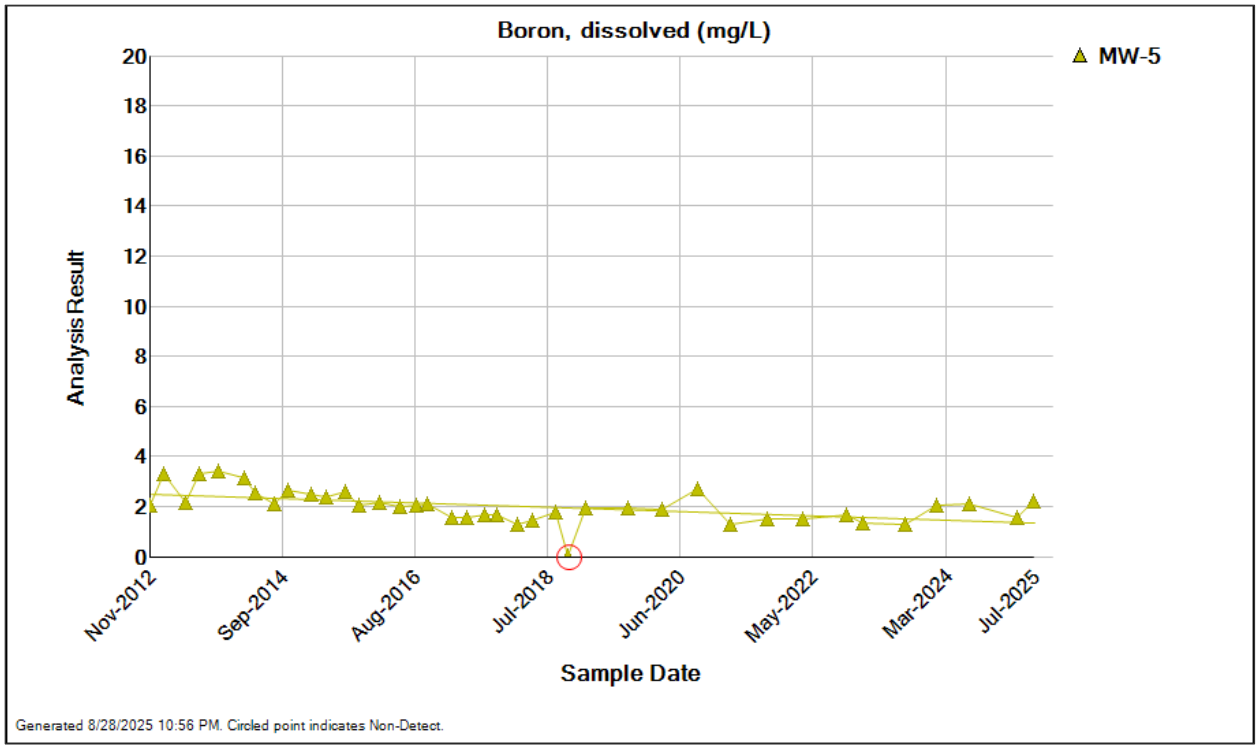


Figure 1-4. Dissolved boron concentrations over time since closure completion (2012) at compliance well MW-5.

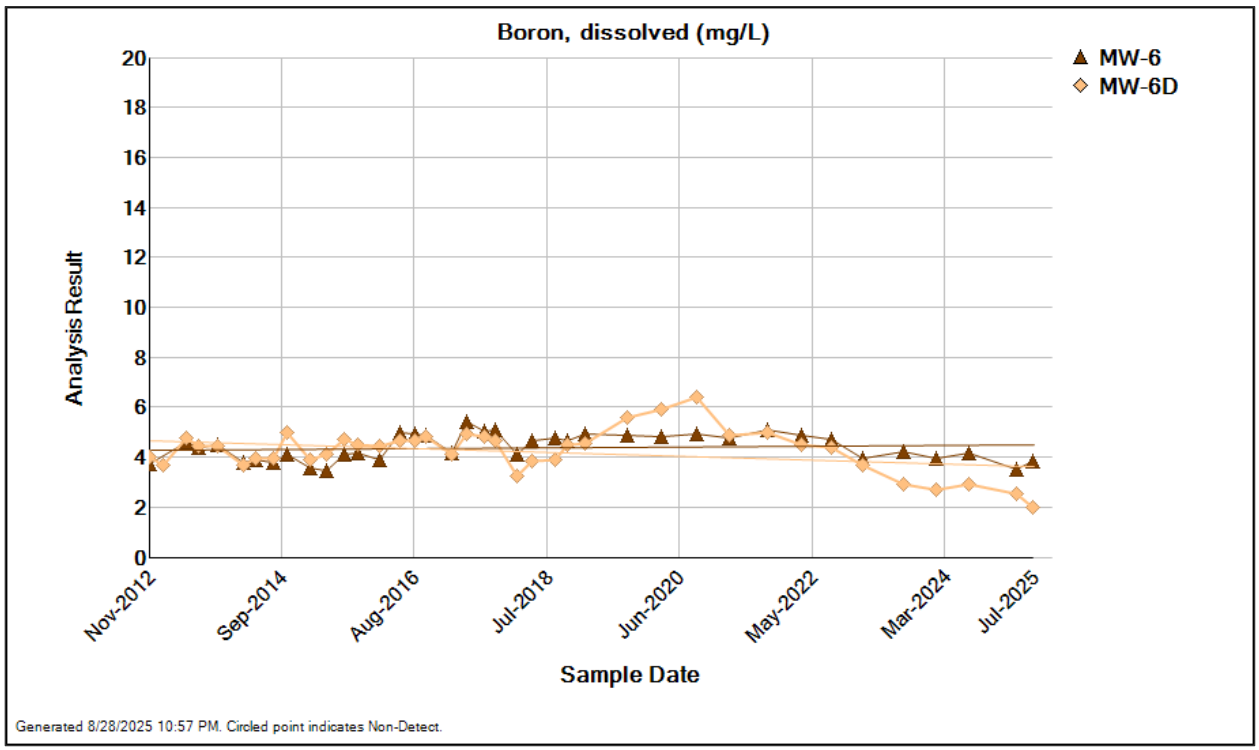


Figure 1-5. Dissolved boron concentrations over time since closure completion (2012) at compliance well MW-6 and MW-6D.

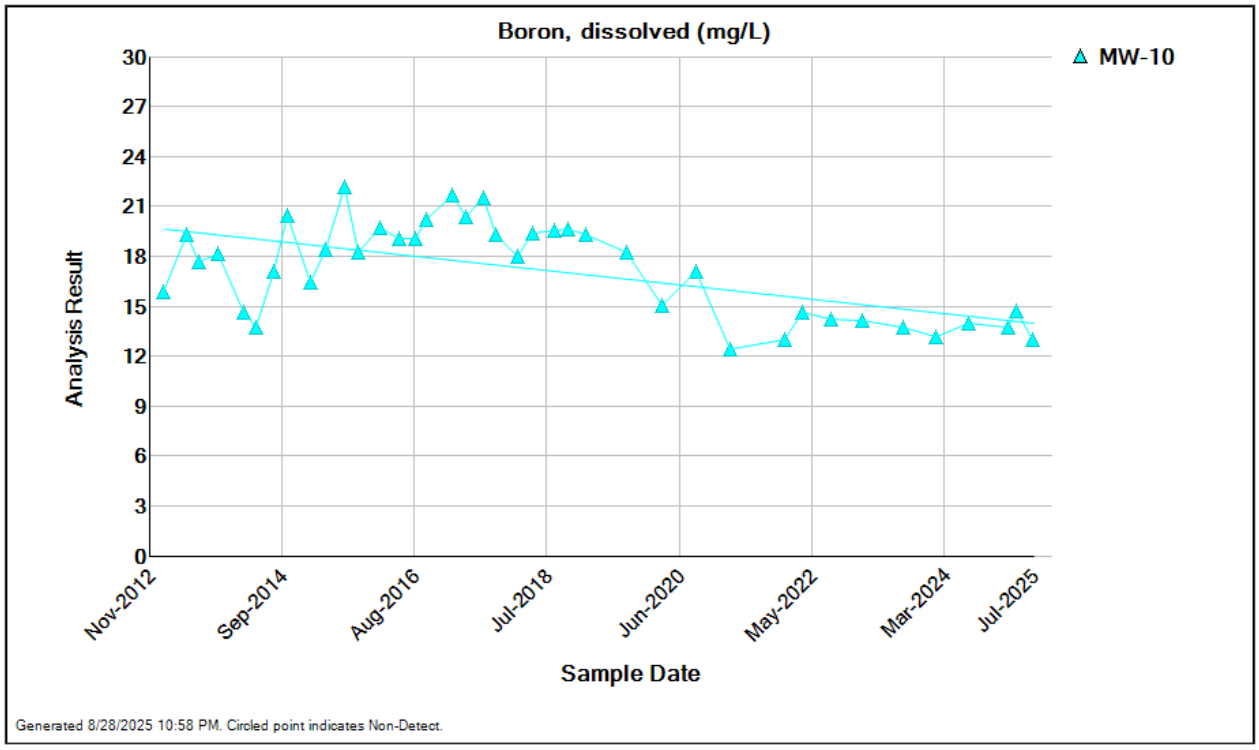


Figure 1-6. Dissolved boron concentrations over time since closure completion (2012) at compliance well MW-10.

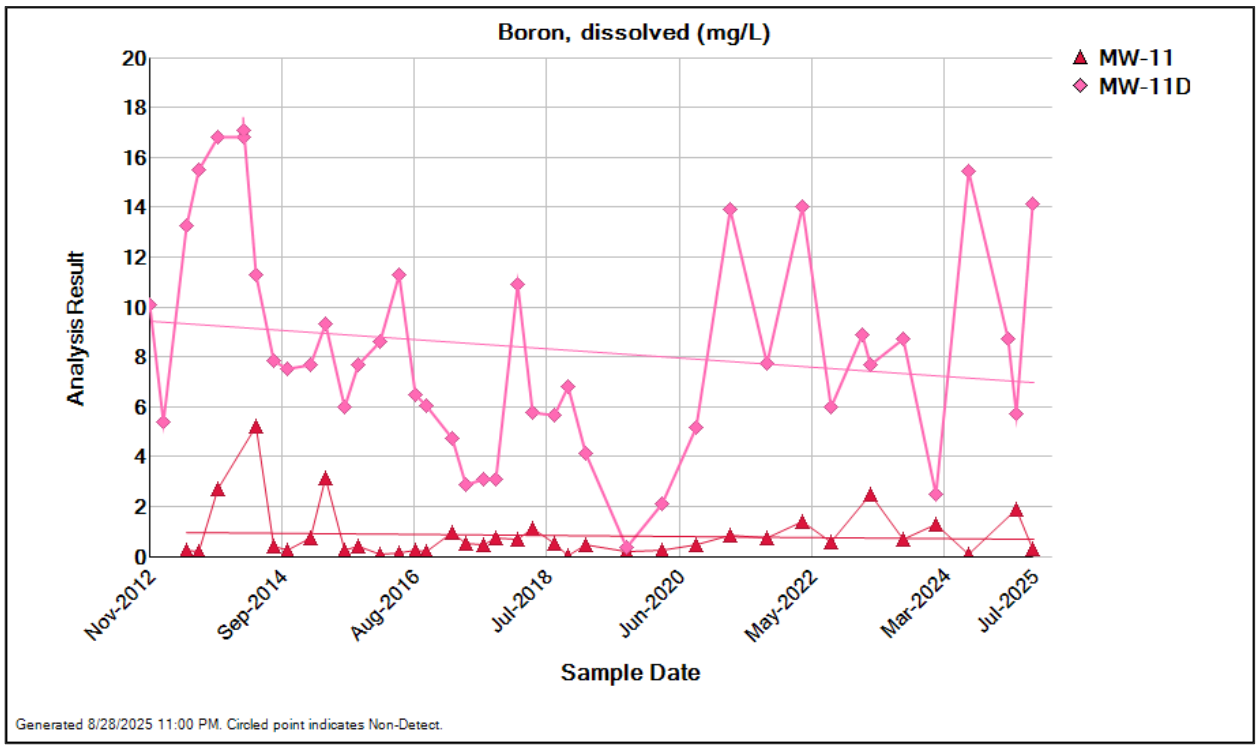


Figure 1-7. Dissolved boron concentrations over time since closure completion (2012) at compliance wells MW-11 and MW-11D.

MONITORING WELL LOCATION

GROUNDWATER ELEVATION CONTOUR (1-FOOT INTERVAL, NAVD88)

INFERRED GROUNDWATER ELEVATION CONTOUR

GROUNDWATER FLOW DIRECTION

GROUNDWATER MANAGEMENT ZONE

0 150 300 Feet

GROUNDWATER ELEVATION CONTOURS
APRIL 9, 2025

2025 ANNUAL REPORT
FORMER VENICE POWER PLANT
ASH PONDS 2 & 3
AMEREN MISSOURI
VENICE, ILLINOIS

FIGURE 3-1

RAMBOLL US CORPORATION
A RAMBOLL COMPANY

RAMBOLL

MONITORING WELL LOCATION
GROUNDWATER ELEVATION CONTOUR (1-FOOT INTERVAL, NAVD88)
INFERRED GROUNDWATER ELEVATION CONTOUR
GROUNDWATER FLOW DIRECTION
GROUNDWATER MANAGEMENT ZONE

0 150 300 Feet

GROUNDWATER ELEVATION CONTOURS
JULY 8, 2025

2025 ANNUAL REPORT
FORMER VENICE POWER PLANT
ASH PONDS 2 & 3
AMEREN MISSOURI
VENICE, ILLINOIS

FIGURE 3-2

RAMBOLL US CORPORATION
A RAMBOLL COMPANY

RAMBOLL

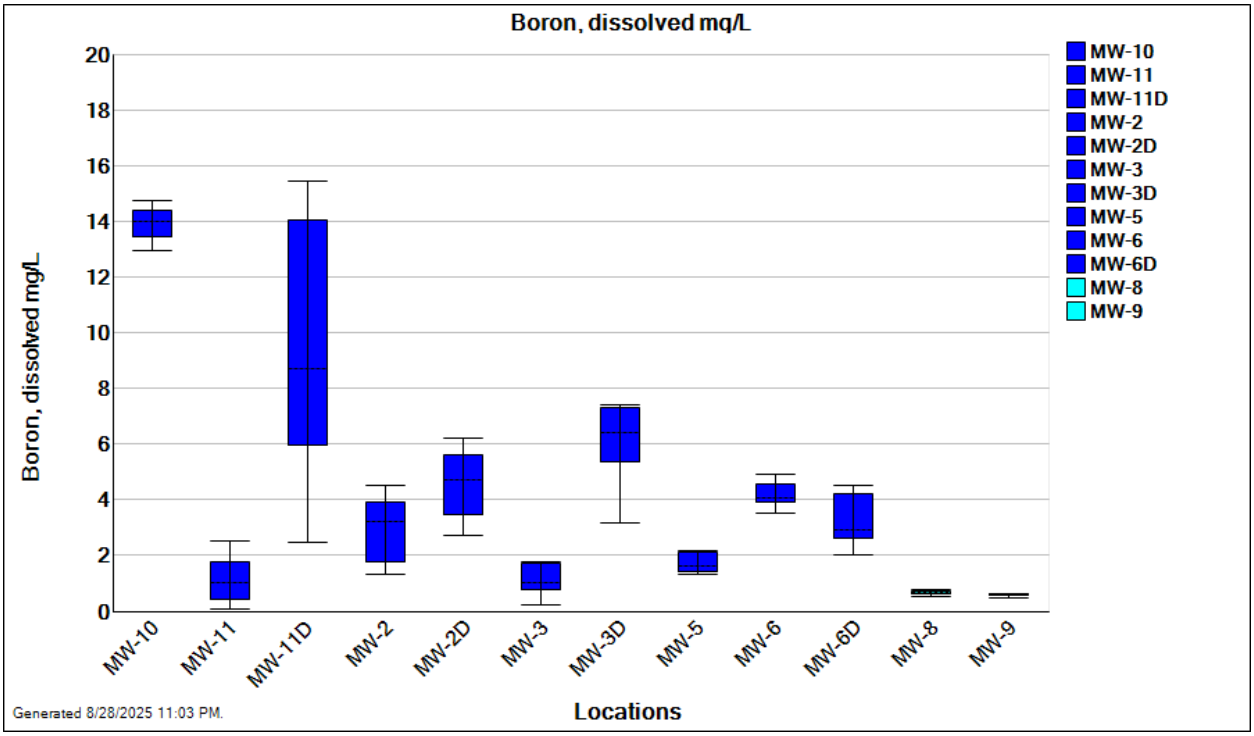


Figure 3-3. Box-whisker plot showing the distribution of dissolved boron concentrations by monitoring well for groundwater samples collected during March 2022 through July 2025.

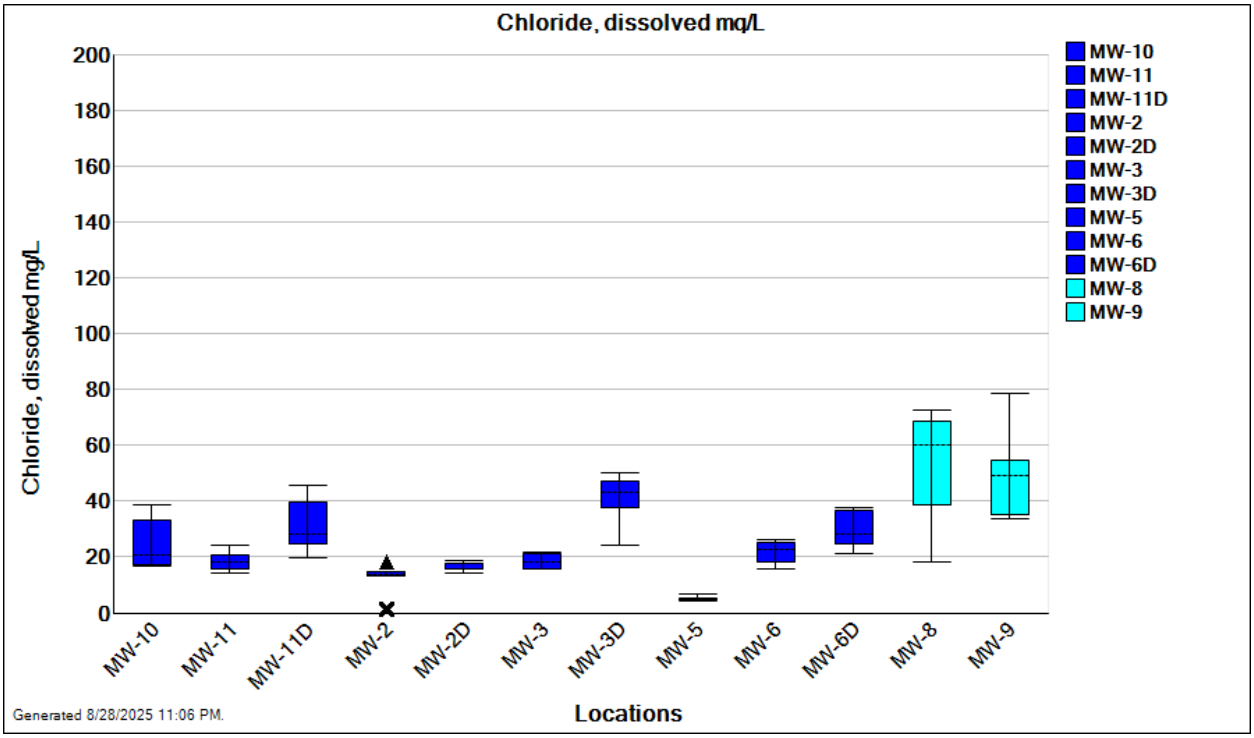


Figure 3-4. Box-whisker plot showing the distribution of dissolved chloride concentrations by monitoring well for groundwater samples collected during March 2022 through July 2025.

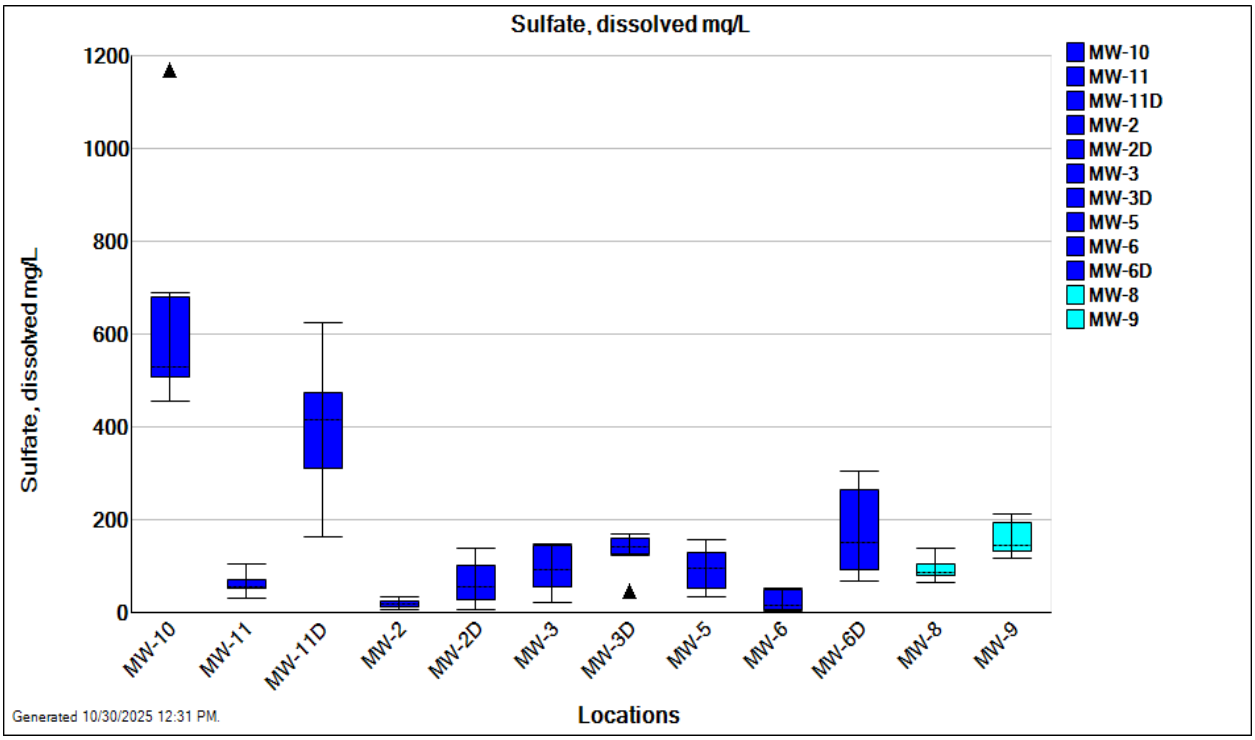


Figure 3-5. Box-whisker plot showing the distribution of dissolved sulfate concentrations by monitoring well for groundwater samples collected during March 2022 through July 2025.

APPENDIX A

GROUNDWATER MONITORING RESULTS 2022 - 2025 MONITORING PERIOD

Venice
Groundwater Monitoring Results 2022-2025 Monitoring Period

Date Range: 01/01/2022 to 07/08/2025
Well: MW-2

	3/15/2022	8/15/2022	3/6/2023	8/31/2023	2/13/2024	8/5/2024	4/9/2025	7/8/2025
Ag, diss, mg/L	<0.0002	<0.0002	<0.0002		<0.0002	0.0002	0.0000	<0.0002
As, diss, mg/L	0.09420	0.07850	0.07370		0.00850	0.00730	0.01587	0.03960
B, diss, mg/L	3.000	1.300	3.900		4.490	1.750	3.380	3.200
Ba, diss, mg/L	0.461	0.510	0.507		0.598	0.365	0.520	0.486
Cd, diss, mg/L	<0.0002	<0.0002	<0.0002		0.0009	0.0004	0.0004	<0.0002
Cl, diss, mg/L	1.6	14.9	14.4		13.0	18.7	13.1	13.9
CN, tot, mg/L	<0.0010	<0.0010	<0.0010		0.0054	<0.0010	<0.0010	<0.0010
Co, diss, mg/L	0.0906	0.0349	0.0215		0.0168	0.0043	0.0089	0.0086
Cr, diss, mg/L	<0.0002	<0.0002	<0.0002		<0.0002	<0.0002	0.0002	<0.0002
Cu, diss, mg/L	<0.0002	<0.0002	<0.0002		0.0264	<0.0002	0.0022	<0.0002
F, diss, mg/L	0.30	0.16	0.30		0.21	0.31	0.06	0.05
Fe, diss, mg/L	15.100	10.600	16.200		<0.200	0.320	1.020	6.850
GW Depth (TOC), ft	23.80	23.30	18.25	27.89	24.00	14.01	18.25	16.14
GW Elv, ft	388.51	389.01	394.06	384.42	388.31	398.30	394.06	396.17
Mn, diss, mg/L	5.100	2.900	2.500		1.060	0.610	1.160	1.710
Ni, diss, mg/L	0.027	0.019	0.013		0.014	0.005	0.007	0.006
NO3, diss, mg/L	<0.10	<0.10	<0.10		<0.10	3.40	<0.10	<0.10
Pb, diss, mg/L	<0.0002	<0.0002	<0.0002		<0.0002	<0.0002	0.0012	<0.0002
pH (field), STD	6.90	7.00	7.20		7.08	7.30	7.10	7.08
Sb, diss, mg/L	<0.0002	<0.0002	<0.0002		0.0004	0.0009	0.0003	<0.0002
Se, diss, mg/L	0.0007	0.0002	0.0003		0.0007	0.0009	0.0002	0.0002
SO4, diss, mg/L	5.9	16.2	8.8		11.3	32.8	21.6	22.8
Spec. Cond. (field), micromho	1205	1117	1166		1168	922	1175	1181
TDS, mg/L	763	701	662		710	566	724	764
Temp (Celcius), degrees C	18.00	16.70	17.10		15.50	17.20	16.10	16.70
Zn, diss, mg/L	0.00130	0.00180	0.00117		0.01060	<0.00500	0.15132	0.01318

Venice
Groundwater Monitoring Results 2022-2025 Monitoring Period

Date Range: 01/01/2022 to 07/08/2025
Well: MW-2D

	3/15/2022	8/15/2022	1/24/2023	8/31/2023	2/13/2024	8/5/2024	2/25/2025	4/9/2025	7/8/2025
Ag, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
As, diss, mg/L	<0.00020	0.02120	0.03100	0.03680	0.03220	0.02700	0.03455	0.02852	0.02861
B, diss, mg/L	3.200	5.200	3.650	4.100	5.040	2.700	4.690	6.190	6.010
Ba, diss, mg/L	0.420	0.423	0.487	0.491	0.442	0.417	0.451	0.444	0.427
Cd, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002
Cl, diss, mg/L	15.7	17.4	15.4	16.0	15.9	14.4	15.4	18.8	18.1
CN, tot, mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0057	<0.0010	0.0007	<0.0010	0.0018
Co, diss, mg/L	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cr, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cu, diss, mg/L	<0.0002	<0.0002	<0.0002	0.0004	0.0006	0.0005	<0.0002	0.0004	<0.0002
F, diss, mg/L	0.20	0.17	0.27	0.23	0.14	0.23	<0.05	<0.05	<0.05
Fe, diss, mg/L	24.800	21.300	21.780	20.500	16.530	18.340	18.250	16.460	16.780
GW Depth (TOC), ft	24.00	23.80	27.48	28.45	24.09	14.65	29.70	17.40	16.12
GW Elv, ft	388.36	388.56	384.88	383.91	388.27	397.71	382.66	394.96	396.24
Mn, diss, mg/L	1.400	1.200	1.440	1.400	1.270	1.260	1.390	1.360	1.370
Ni, diss, mg/L	<0.000	0.000	0.000	<0.000	<0.000	0.001	0.001	0.000	0.000
NO3, diss, mg/L	<0.10	1.30	<0.10	0.90	<0.10	<0.10	<0.10	<0.10	1.00
Pb, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
pH (field), STD	7.20	7.10	7.40	7.30	7.46	7.06	7.40	7.40	7.38
Sb, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Se, diss, mg/L	<0.0002	0.0003	<0.0002	<0.0002	0.0004	0.0002	<0.0002	0.0002	<0.0002
SO4, diss, mg/L	12.9	36.7	54.8	37.1	76.1	4.3	61.1	126.0	138.3
Spec. Cond. (field), micromho	1393	1252	1390	1400	1279	1246	1331	1316	1302
TDS, mg/L	903	790	900	916	792	754	866	900	916
Temp (Celcius), degrees C	16.20	15.90	15.00	16.20	15.10	16.50	16.10	16.10	17.20
Zn, diss, mg/L	0.01920	<0.00020	0.00260	0.00710	0.02440	<0.00500	0.01014	0.00411	0.01079

Venice
Groundwater Monitoring Results 2022-2025 Monitoring Period

Date Range: 01/01/2022 to 07/08/2025
Well: MW-3

	3/28/2022	1/24/2023	3/6/2023	4/4/2024	8/5/2024	4/9/2025	7/8/2025
Ag, diss, mg/L	<0.0002		<0.0002	0.0012	<0.0002	<0.0002	<0.0002
As, diss, mg/L	<0.00020		<0.00020	0.00020	0.00020	0.00026	0.00024
B, diss, mg/L	0.900		1.100	1.680	0.230	1.780	0.900
Ba, diss, mg/L	0.299		0.371	0.319	0.262	0.291	0.268
Cd, diss, mg/L	0.0004		0.0005	0.0006	0.0006	0.0004	0.0003
Cl, diss, mg/L	19.1		21.8	21.3	15.6	17.8	15.5
CN, tot, mg/L	<0.0010		<0.0010	<0.0010	0.0084	<0.0010	<0.0010
Co, diss, mg/L	0.0012		0.0011	0.0007	<0.0002	0.0004	0.0003
Cr, diss, mg/L	<0.0002		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cu, diss, mg/L	0.0006		0.0004	0.0124	0.0019	0.0010	0.0008
F, diss, mg/L	0.22		0.21	0.27	0.23	<0.05	<0.05
Fe, diss, mg/L	<0.200		<0.200	<0.200	0.020	0.460	<0.200
GW Depth (TOC), ft	18.50	24.40		22.10	15.69	17.19	16.87
GW Elv, ft	392.41	386.51		388.81	395.22	393.72	394.04
Mn, diss, mg/L	0.900		0.700	0.680	0.160	0.380	0.220
Ni, diss, mg/L	0.010		0.013	0.014	0.009	0.010	0.011
NO3, diss, mg/L	1.20		0.70	<0.10	13.20	<0.10	1.00
Pb, diss, mg/L	<0.0002		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
pH (field), STD	6.80		6.60	6.60	6.51	6.60	6.81
Sb, diss, mg/L	<0.0002		<0.0002	0.0002	<0.0002	<0.0002	<0.0002
Se, diss, mg/L	<0.0002		0.0003	<0.0002	0.0027	0.0004	<0.0002
SO4, diss, mg/L	20.7		74.0	107.6	63.0	141.2	145.0
Spec. Cond. (field), micromho	1201		1322	1310	1230	1320	1350
TDS, mg/L	718		832	836	836	898	936
Temp (Celcius), degrees C	15.90		17.80	14.60	18.30	16.80	17.50
Zn, diss, mg/L	0.00500		0.00230	0.02140	0.01130	0.00270	0.01413

Venice
Groundwater Monitoring Results 2022-2025 Monitoring Period

Date Range: 01/01/2022 to 07/08/2025
Well: MW-3D

	3/15/2022	8/15/2022	1/24/2023	8/31/2023	3/13/2024	8/5/2024	4/9/2025	7/8/2025
Ag, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
As, diss, mg/L	0.00070	0.00110	0.00040	0.00040	0.00030	0.00030	0.00034	0.00043
B, diss, mg/L	7.400	7.100	7.400	6.300	6.550	3.190	5.320	5.490
Ba, diss, mg/L	0.100	0.149	0.112	0.129	0.114	0.283	0.192	0.162
Cd, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cl, diss, mg/L	47.4	44.0	46.6	42.5	36.4	24.0	50.0	40.7
CN, tot, mg/L	<0.0010	<0.0010	<0.0010	0.0017	0.0110	<0.0010	<0.0010	0.0022
Co, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cr, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cu, diss, mg/L	<0.0002	0.0003	<0.0002	0.0002	0.0002	0.0003	0.0003	<0.0002
F, diss, mg/L	0.10	0.05	0.08	0.10	0.07	0.17	<0.05	<0.05
Fe, diss, mg/L	3.100	3.600	1.730	1.800	1.050	5.720	1.540	1.370
GW Depth (TOC), ft	25.10	26.00	29.05	30.59	28.97	16.13	17.39	17.23
GW Elv, ft	386.38	385.48	382.43	380.89	382.51	395.35	394.09	394.25
Mn, diss, mg/L	0.300	0.300	0.190	0.200	<0.200	0.570	0.210	<0.200
Ni, diss, mg/L	0.001	0.001	0.001	0.000	<0.000	0.001	0.001	0.001
NO3, diss, mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.90
Pb, diss, mg/L	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
pH (field), STD	7.40	7.40	7.30	7.70	7.64	7.31	7.90	7.88
Sb, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Se, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002
SO4, diss, mg/L	162.9	166.8	132.4	125.6	146.4	47.2	121.9	147.9
Spec. Cond. (field), micromho	720	770	668	753	733	1219	1044	891
TDS, mg/L	509	552	449	512	476	772	762	608
Temp (Celcius), degrees C	16.20	16.30	15.40	16.70	16.30	17.00	15.90	17.60
Zn, diss, mg/L	<0.00020	0.00020	0.00080	0.00180	0.00470	<0.00500	0.00416	0.01084

Venice
Groundwater Monitoring Results 2022-2025 Monitoring Period

Date Range: 01/01/2022 to 07/08/2025
Well: MW-5

	3/15/2022	11/2/2022	1/24/2023	8/31/2023	2/13/2024	8/5/2024	4/9/2025	7/8/2025
Ag, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
As, diss, mg/L	0.08230	0.08500	0.14600	0.07450	0.08240	0.07670	0.05054	0.07542
B, diss, mg/L	1.500	1.650	1.330	1.300	2.060	2.130	1.560	2.190
Ba, diss, mg/L	0.087	0.086	0.071	0.080	0.109	0.105	0.140	0.111
Cd, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cl, diss, mg/L	6.5	5.1	4.4	4.2	4.9	5.4	5.0	4.5
CN, tot, mg/L	0.0073	0.0100	0.0063	0.0097	0.0110	<0.0010	0.0047	0.0070
Co, diss, mg/L	0.0004	0.0004	0.0011	0.0004	0.0003	0.0003	0.0013	0.0012
Cr, diss, mg/L	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cu, diss, mg/L	0.0002	0.0002	<0.0002	0.0002	0.0017	0.0003	0.0004	<0.0002
F, diss, mg/L	0.30	0.29	0.36	0.27	0.23	0.28	0.08	0.10
Fe, diss, mg/L	2.000	2.060	2.340	1.800	2.440	2.650	0.910	0.710
GW Depth (TOC), ft	42.70	42.70	47.00	42.50	44.56	30.97	40.10	34.35
GW Elv, ft	390.23	390.23	385.93	390.43	388.37	401.96	392.83	398.58
Mn, diss, mg/L	2.500	2.860	2.360	1.800	2.350	2.120	1.370	2.140
Ni, diss, mg/L	0.001	0.001	0.002	0.000	<0.000	0.001	0.006	0.004
NO3, diss, mg/L	<0.10	<0.10	0.90	<0.10	<0.10	<0.10	<0.10	<0.10
Pb, diss, mg/L	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
pH (field), STD	7.60	7.50	7.60	7.60	7.41	7.63	7.40	7.56
Sb, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002
Se, diss, mg/L	<0.0002	0.0002	0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002
SO4, diss, mg/L	123.9	91.4	33.7	66.7	127.7	96.8	43.9	155.2
Spec. Cond. (field), micromho	1287	1131	1100	1055	1351	1241	968	1204
TDS, mg/L	874	762	591	710	910	830	630	808
Temp (Celcius), degrees C	16.80	16.70	14.20	17.50	17.10	19.20	16.80	20.50
Zn, diss, mg/L	0.00560	0.00020	0.00110	0.00420	0.00920	<0.00500	0.00151	0.01179

Venice
Groundwater Monitoring Results 2022-2025 Monitoring Period

Date Range: 01/01/2022 to 07/08/2025
Well: MW-6

	3/15/2022	8/15/2022	1/24/2023	8/31/2023	2/13/2024	8/5/2024	4/9/2025	7/8/2025
Ag, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
As, diss, mg/L	0.07930	0.07760	0.10020	0.09980	0.09840	0.07300	0.09150	0.09771
B, diss, mg/L	4.900	4.700	3.930	4.200	3.950	4.160	3.540	3.860
Ba, diss, mg/L	0.336	0.364	0.347	0.320	0.374	0.327	0.407	0.333
Cd, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cl, diss, mg/L	25.7	26.0	24.0	22.6	22.9	16.8	22.6	15.7
CN, tot, mg/L	<0.0010	0.0010	<0.0010	<0.0010	0.0046	<0.0010	<0.0010	<0.0010
Co, diss, mg/L	0.0003	0.0003	0.0004	0.0003	0.0002	0.0002	0.0007	0.0003
Cr, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cu, diss, mg/L	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	0.0006	<0.0002
F, diss, mg/L	0.40	0.73	0.54	0.54	0.48	0.54	0.24	0.30
Fe, diss, mg/L	24.000	21.700	24.360	21.700	23.350	17.720	28.540	20.900
GW Depth (TOC), ft	44.30	42.30	47.21	47.27	45.10	34.76	39.71	36.98
GW Elv, ft	388.79	390.79	385.88	385.82	387.99	398.33	393.38	396.11
Mn, diss, mg/L	2.900	3.000	3.010	2.800	3.140	2.870	3.970	2.930
Ni, diss, mg/L	0.005	0.006	0.007	0.007	0.006	0.006	0.003	0.006
NO3, diss, mg/L	<0.10	10.30	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Pb, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
pH (field), STD	7.30	7.10	7.50	7.40	7.09	7.42	7.30	7.33
Sb, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Se, diss, mg/L	<0.0002	0.0003	0.0004	0.0003	0.0003	0.0003	<0.0002	<0.0002
SO4, diss, mg/L	12.6	48.7	3.3	13.4	1.1	51.4	2.6	43.8
Spec. Cond. (field), micromho	927	937	950	893	974	861	1152	866
TDS, mg/L	589	560	562	560	518	536	706	556
Temp (Celcius), degrees C	16.40	16.30	15.00	17.20	15.30	18.00	17.40	20.20
Zn, diss, mg/L	<0.00020	0.00040	0.00140	0.00290	0.00810	<0.00500	0.00696	0.01036

Venice
Groundwater Monitoring Results 2022-2025 Monitoring Period

Date Range: 01/01/2022 to 07/08/2025
Well: MW-6D

	3/15/2022	8/15/2022	1/24/2023	8/31/2023	2/13/2024	8/5/2024	4/9/2025	7/8/2025
Ag, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
As, diss, mg/L	0.00050	0.00070	0.00080	0.00080	0.00080	0.00070	0.00397	0.00080
B, diss, mg/L	4.500	4.400	3.690	2.900	2.690	2.930	2.550	2.000
Ba, diss, mg/L	0.291	0.339	0.305	0.372	0.384	0.398	0.293	0.350
Cd, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0007	<0.0002
Cl, diss, mg/L	24.8	25.2	21.1	37.8	33.9	37.8	24.8	30.7
CN, tot, mg/L	0.0005	<0.0010	<0.0010	0.0015	0.0049	<0.0010	0.0024	0.0018
Co, diss, mg/L	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	0.0003	<0.0002
Cr, diss, mg/L	0.0003	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cu, diss, mg/L	<0.0002	0.0002	<0.0002	<0.0002	0.0005	0.0002	0.0009	<0.0002
F, diss, mg/L	<0.05	<0.05	0.07	0.06	0.08	0.14	<0.05	<0.05
Fe, diss, mg/L	0.600	0.800	1.030	1.700	1.720	1.520	2.550	2.900
GW Depth (TOC), ft	44.60	42.70	47.60	47.60	45.40	35.15	40.10	37.36
GW Elv, ft	388.95	390.85	385.95	385.95	388.15	398.40	393.45	396.19
Mn, diss, mg/L	0.200	0.300	0.410	0.600	0.570	0.560	0.920	0.750
Ni, diss, mg/L	<0.000	0.001	0.001	<0.000	<0.000	0.001	0.001	0.000
NO3, diss, mg/L	<0.10	1.20	<0.10	<0.10	<0.10	<0.10	1.40	<0.10
Pb, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
pH (field), STD	8.00	8.00	7.80	7.90	7.91	7.97	7.70	7.82
Sb, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Se, diss, mg/L	0.0002	0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002
SO4, diss, mg/L	304.3	264.5	254.0	156.5	106.9	141.6	83.5	65.0
Spec. Cond. (field), micromho	1143	1239	1148	13	1257	1249	1004	1076
TDS, mg/L	865	925	838	890	828	852	724	730
Temp (Celcius), degrees C	16.30	16.20	14.90	17.20	15.60	18.00	17.00	18.10
Zn, diss, mg/L	<0.00020	0.00410	0.00110	0.00410	0.00600	0.00680	0.00616	0.01074

Venice
Groundwater Monitoring Results 2022-2025 Monitoring Period

Date Range: 01/01/2022 to 07/08/2025
Well: MW-8

	3/15/2022	8/15/2022	1/24/2023	8/31/2023	2/13/2024	8/5/2024	2/25/2025	4/9/2025	7/8/2025
Ag, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
As, diss, mg/L	0.00020	0.00030	0.00030	0.00030	0.00030	0.00020	0.00028	0.00051	0.00038
B, diss, mg/L	0.700	0.700	0.750	0.700	0.590	0.620	0.510	0.660	0.610
Ba, diss, mg/L	0.095	0.110	0.096	0.094	0.115	0.107	0.105	0.120	0.115
Cd, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cl, diss, mg/L	55.2	49.2	27.9	18.3	66.4	63.0	60.2	72.6	71.2
CN, tot, mg/L	<0.0010	<0.0010	<0.0010	0.0010	0.0093	<0.0010	<0.0005	<0.0010	0.0025
Co, diss, mg/L	0.0020	0.0020	0.0032	0.0024	0.0023	0.0017	0.0029	0.0018	0.0021
Cr, diss, mg/L	0.0003	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002
Cu, diss, mg/L	<0.0002	0.0011	<0.0002	0.0003	0.2038	0.0009	0.0006	0.0003	<0.0002
F, diss, mg/L	0.30	0.27	0.31	0.30	0.39	0.37	0.12	0.14	0.13
Fe, diss, mg/L	<0.200	<0.200	0.030	<0.200	0.270	0.090	0.070	0.290	0.360
GW Depth (TOC), ft	26.40	22.20	28.55	27.34	27.67	16.22	28.81	24.19	19.10
GW Elv, ft	389.87	394.07	387.72	388.93	388.60	400.05	387.46	392.08	397.17
Mn, diss, mg/L	0.700	0.700	0.850	0.600	0.540	0.530	0.620	0.540	0.540
Ni, diss, mg/L	0.006	0.007	0.009	0.006	0.007	0.008	0.008	0.008	0.007
NO3, diss, mg/L	1.00	<0.10	<0.10	<0.10	0.50	<0.10	<0.10	<0.10	<0.10
Pb, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
pH (field), STD	6.90	6.70	7.10	7.00	6.82	7.23	6.80	7.00	6.82
Sb, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Se, diss, mg/L	0.0005	<0.0002	0.0003	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
SO4, diss, mg/L	84.7	95.0	74.9	77.9	94.9	85.2	64.4	111.7	135.7
Spec. Cond. (field), micromho	1154	1178	1038	1024	1208	1167	1120	1219	1223
TDS, mg/L	734	840	645	664	562	742	720	772	858
Temp (Celcius), degrees C	16.00	15.80	15.10	15.90	16.00	16.60	16.20	16.60	16.60
Zn, diss, mg/L	<0.00020	0.00110	0.00430	0.00790	0.02310	0.00810	0.01177	0.00050	0.01114

Venice
Groundwater Monitoring Results 2022-2025 Monitoring Period

Date Range: 01/01/2022 to 07/08/2025
Well: MW-9

	3/15/2022	8/15/2022	1/24/2023	8/31/2023	2/13/2024	8/5/2024	2/25/2025	4/9/2025	7/8/2025
Ag, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
As, diss, mg/L	0.00270	0.00430	0.00340	0.00460	0.00250	0.00440	0.00446	0.00284	0.00361
B, diss, mg/L	0.600	0.600	0.590	0.600	0.490	0.570	0.600	0.510	0.510
Ba, diss, mg/L	0.133	0.150	0.158	0.161	0.132	0.137	0.168	0.129	0.126
Cd, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cl, diss, mg/L	78.6	55.8	53.7	48.9	36.2	46.4	49.7	34.3	33.7
CN, tot, mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0122	<0.0010	0.0003	<0.0010	<0.0010
Co, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cr, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cu, diss, mg/L	<0.0002	0.0020	<0.0002	<0.0002	0.1036	<0.0002	<0.0002	0.0002	<0.0002
F, diss, mg/L	0.20	0.20	0.21	0.26	0.26	0.31	0.09	0.09	0.09
Fe, diss, mg/L	16.600	17.400	19.070	19.500	11.420	17.480	20.400	11.470	14.250
GW Depth (TOC), ft	23.60	19.90	26.05	25.00	24.54	13.67	26.48	20.64	16.16
GW Elv, ft	389.80	393.50	387.35	388.40	388.86	399.73	386.92	392.76	397.24
Mn, diss, mg/L	0.800	0.800	0.870	0.900	0.750	0.770	0.950	0.690	0.670
Ni, diss, mg/L	<0.000	0.001	0.001	<0.000	0.000	0.001	0.001	0.001	0.001
NO3, diss, mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Pb, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
pH (field), STD	7.00	6.80	6.80	7.10	6.85	6.86	7.00	7.20	6.95
Sb, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Se, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002
SO4, diss, mg/L	127.9	142.0	182.2	209.8	125.8	187.3	194.8	114.0	130.1
Spec. Cond. (field), micromho	1288	1274	1272	1379	1099	1213	1398	1073	1063
TDS, mg/L	854	943	860	980	686	818	966	700	714
Temp (Celcius), degrees C	16.10	16.10	15.30	16.50	15.80	17.60	15.80	16.30	17.20
Zn, diss, mg/L	<0.00020	0.00050	0.00090	0.00580	0.02400	0.00720	0.01308	0.00051	0.01088

Venice
Groundwater Monitoring Results 2022-2025 Monitoring Period

Date Range: 01/01/2022 to 07/08/2025
Well: MW-10

	3/15/2022	8/15/2022	1/24/2023	8/31/2023	2/13/2024	8/5/2024	2/25/2025	4/9/2025	7/8/2025
Ag, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
As, diss, mg/L	0.00650	0.04230	0.00560	0.00920	0.00760	0.04210	0.01340	0.01606	0.04337
B, diss, mg/L	14.600	14.200	14.110	13.700	13.130	13.990	13.740	14.730	12.960
Ba, diss, mg/L	0.054	0.068	0.068	0.049	0.053	0.075	0.078	0.055	0.081
Cd, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cl, diss, mg/L	33.2	16.5	38.7	20.9	32.8	16.5	18.2	26.2	16.8
CN, tot, mg/L	<0.0010	<0.0010	<0.0010	0.0024	0.0089	<0.0010	<0.0001	<0.0010	0.0012
Co, diss, mg/L	0.0007	0.0014	0.0011	0.0003	0.0002	0.0009	0.0008	0.0009	0.0004
Cr, diss, mg/L	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002
Cu, diss, mg/L	0.0011	0.0007	<0.0002	0.0017	0.0044	0.0003	0.0003	0.0020	<0.0002
F, diss, mg/L	0.20	0.15	0.38	0.25	0.19	0.25	0.09	<0.05	<0.05
Fe, diss, mg/L	<0.200	1.400	0.070	<0.200	<0.200	1.780	0.510	0.680	0.980
GW Depth (TOC), ft	35.70	33.60	39.11	39.45	36.14	24.72	40.72	31.65	27.02
GW Elv, ft	389.29	391.39	385.88	385.54	388.85	400.27	384.27	393.34	397.97
Mn, diss, mg/L	0.700	1.000	0.890	0.200	0.610	1.030	0.450	0.660	0.760
Ni, diss, mg/L	0.001	0.002	0.002	0.002	0.001	0.002	0.002	0.002	0.001
NO3, diss, mg/L	0.90	<0.10	1.70	3.60	<0.10	<0.10	1.00	<0.10	<0.10
Pb, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002
pH (field), STD	7.30	7.40	7.50	7.50	7.34	7.58	7.40	7.50	7.72
Sb, diss, mg/L	0.0002	<0.0002	0.0002	<0.0002	0.0002	0.0003	0.0002	<0.0002	<0.0002
Se, diss, mg/L	0.0005	0.0002	<0.0002	0.0002	0.0005	0.0002	<0.0002	0.0003	<0.0002
SO4, diss, mg/L	505.4	673.3	527.0	509.1	454.8	686.4	524.1	563.2	1169.4
Spec. Cond. (field), micromho	1548	1602	1589	1550	1566	1578	1509	1652	1972
TDS, mg/L	1236	1411	1266	1218	1198	1322	1195	1328	1868
Temp (Celcius), degrees C	16.50	16.50	15.30	17.90	15.30	19.20	19.40	16.50	18.10
Zn, diss, mg/L	0.01320	0.00060	0.00120	0.00190	0.01240	<0.00500	0.01369	0.00047	0.01030

Venice
Groundwater Monitoring Results 2022-2025 Monitoring Period

Date Range: 01/01/2022 to 07/08/2025
Well: MW-11

	3/15/2022	8/15/2022	3/6/2023	8/31/2023	2/13/2024	8/5/2024	4/9/2025	7/8/2025
Ag, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
As, diss, mg/L	0.00040	0.00050	0.00050	0.00040	0.00050	0.00040	0.00059	0.00051
B, diss, mg/L	1.400	0.600	2.500	0.700	1.300	0.090	1.880	0.290
Ba, diss, mg/L	0.216	0.195	0.251	0.240	0.235	0.151	0.278	0.214
Cd, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002
Cl, diss, mg/L	15.3	16.9	14.1	24.0	18.9	21.3	19.1	17.5
CN, tot, mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0049	0.0091	<0.0010	<0.0010
Co, diss, mg/L	<0.0002	0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.0002	<0.0002
Cr, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002
Cu, diss, mg/L	0.0007	0.0031	<0.0002	0.0009	0.0288	0.0007	0.0007	0.0003
F, diss, mg/L	0.20	0.15	0.25	0.21	0.18	0.51	0.07	0.11
Fe, diss, mg/L	<0.200	<0.200	<0.200	<0.200	<0.200	<0.020	0.010	<0.200
GW Depth (TOC), ft	24.80	21.60	23.40	26.32	25.50	13.21	22.18	16.70
GW Elv, ft	387.94	391.14	389.34	386.42	387.24	399.53	390.56	396.04
Mn, diss, mg/L	0.300	<0.200	0.700	1.000	0.570	<0.020	0.310	<0.200
Ni, diss, mg/L	0.005	0.002	0.007	0.005	0.004	0.002	0.004	0.001
NO3, diss, mg/L	<0.10	2.90	0.80	1.80	0.50	3.00	<0.10	3.00
Pb, diss, mg/L	0.0007	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
pH (field), STD	6.80	6.90	7.00	6.90	6.80	7.02	7.10	7.04
Sb, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Se, diss, mg/L	<0.0002	0.0040	<0.0002	0.0009	0.0003	0.0012	<0.0002	0.0038
SO4, diss, mg/L	53.5	69.4	101.8	48.0	55.0	28.5	69.8	49.0
Spec. Cond. (field), micromho	1133	1006	1310	1048	1227	718	1216	977
TDS, mg/L	720	722	864	662	754	424	816	596
Temp (Celcius), degrees C	16.70	15.30	16.50	17.60	15.00	19.20	16.20	16.40
Zn, diss, mg/L	0.00170	0.00410	<0.00020	0.00910	0.01660	0.00840	0.00082	0.01109

Venice
Groundwater Monitoring Results 2022-2025 Monitoring Period

Date Range: 01/01/2022 to 07/08/2025
Well: MW-11D

	3/15/2022	8/15/2022	1/24/2023	3/6/2023	8/31/2023	2/13/2024	8/5/2024	2/25/2025	4/9/2025	7/8/2025
Ag, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
As, diss, mg/L	0.01070	0.01170	0.01180	0.01090	0.00990	0.00970	0.01040	0.01108	0.01068	0.01087
B, diss, mg/L	14.000	6.000	8.870	7.700	8.700	2.490	15.420	8.710	5.720	14.120
Ba, diss, mg/L	0.250	0.234	<0.000	0.237	0.217	0.152	0.208	0.209	0.191	0.233
Cd, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cl, diss, mg/L	26.2	45.7	25.5	25.8	30.3	43.2	21.4	34.3	38.7	19.5
CN, tot, mg/L	0.0600	0.0668	0.0842	0.0751	0.0510	0.0121	0.0157	0.0157	0.0128	0.0215
Co, diss, mg/L	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cr, diss, mg/L	0.0010	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cu, diss, mg/L	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
F, diss, mg/L	0.20	0.19	0.25	0.20	0.22	0.20	0.28	0.07	<0.05	<0.05
Fe, diss, mg/L	22.800	20.100	23.480	22.300	22.800	15.580	21.960	19.240	18.020	22.520
GW Depth (TOC), ft	24.30	25.40	28.65	16.85	29.94	23.96	15.68	30.81	16.00	16.20
GW Elv, ft	388.20	387.10	383.85	395.65	382.56	388.54	396.82	381.69	396.50	396.30
Mn, diss, mg/L	3.700	3.100	3.690	3.600	3.400	2.250	3.320	3.280	3.110	3.820
Ni, diss, mg/L	0.002	0.000	0.000	0.000	<0.000	<0.000	0.002	0.000	0.000	0.000
NO3, diss, mg/L	<0.10	<0.10	<0.10	2.60	2.40	<0.10	<0.10	<0.10	<0.10	<0.10
Pb, diss, mg/L	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
pH (field), STD	7.00	7.20	7.40	7.20	7.20	7.28	7.57	7.30	7.30	7.38
Sb, diss, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Se, diss, mg/L	0.0012	<0.0002	0.0003	0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.0002	<0.0002
SO4, diss, mg/L	462.3	313.0	446.2	401.6	426.9	161.7	502.9	348.8	292.2	622.5
Spec. Cond. (field), micromho	1807	1633	1769	1724	1673	1258	1611	1563	1492	1763
TDS, mg/L	1469	1310	1387	1262	1356	810	1362	1219	1148	1412
Temp (Celcius), degrees C	15.90	16.00	14.90	16.10	16.80	15.20	16.50	16.00	15.80	16.50
Zn, diss, mg/L	0.00720	<0.00020	<0.00020	<0.00020	0.00040	0.01410	<0.00500	0.01362	<0.00020	0.01058

APPENDIX B

2025 GROUNDWATER MONITORING FIELD DATA WORKSHEETS

Venice Groundwater Monitoring Field Data Worksheet

(Page 1 of 3)

Sample Date: 2 / 25 / 25

River Level: -2.7 feet

	Well #2	Well #2D	Well #3	Well #3D	Well #5	Well #6
Well name sign, lock, and inner cap present (note any deficiency)						
Casing and concrete pad in good condition (note any deficiency)						
Internal piping unobstructed and in good condition (note any deficiency)				Bulge in side		
Water Level (±0.01 feet, from top of casing mark)	28.64	29.70	24.56	31.82	43.46	48.65
Total Well Depth (±0.01 feet)	29.00	47.72	29.56	49.00	49.25	51.21
Time purging began (24-hour clock)	___:___	15:35	___:___	___:___	___:___	___:___
Conductivity after 10 minutes µS/cm		1315				
Temperature °C		16.4				
Conductivity after 15 minutes (µS/cm)						
Temperature °C						
If conductivity changed more than 10% between 10 and 15 minute samples, continue purging and measure conductivity every 5 minutes, until the conductivity changes less than 10% between samples.						
Final Conductivity, µS/cm	Could not collect	1331		could not collect due to damage		
Time to reach final conductivity (min)			could not collect			
Temperature °C		16.1				
ORP		-58				
pH (on site) (±0.01)		7.36				

Note any items requiring maintenance at any well, and report to supervisor after return to Lab Services.

Venice Groundwater Monitoring Field Data Worksheet

(Page 2 of 3)

	Well #6D	Well #8	Well #9	Well #10	Well #11	Well #11D
Well name sign, lock, and inner cap present (note any deficiency)						
Casing and concrete pad in good condition (note any deficiency)						
Internal piping unobstructed and in good condition (note any deficiency)						
Water Level (±0.01 feet, from top of casing mark)	49.00	28.81	26.98	40.72	28.70	30.81
Total Well Depth (±0.01 feet)	68.61	43.00	41.60	44.04	28.84	48.93
Time purging began (24-hour clock)	___:___	10 :55	10 :30	13 :50	___:___	15 :00
Conductivity after 10 minutes µS/cm	_____	1119	1448	1550	_____	1579
Temperature °C	_____	16.1	15.7	19.2	_____	16.2
Conductivity after 15 minutes (µS/cm)	_____	_____	_____	_____	_____	_____
Temperature °C	_____	_____	_____	_____	_____	_____
If conductivity changed more than 10% between 10 and 15 minute samples, continue purging and measure conductivity every 5 minutes, until the conductivity changes less than 10% between samples.						
Final Conductivity, µS/cm	_____	1120	1398	1509 ~~1560~~	_____	1563
Time to reach final conductivity (min)	Couldn't collect sample	15	~~10~~ 15	—	Could not collect	15
Temperature °C		16.2	15.8	19.4		16.0
ORP		54	-73	51		-30
pH (on site) (±0.01)	_____	6.80	6.95	7.35 ~~7.23~~	_____	7.29

FB

0.61

23.8

0.58

23.7

-5

Sample collectors: _____

Note any items requiring maintenance at any well, and report to supervisor after return to Lab Services.

30.81

48.93

Venice Groundwater Monitoring Field Data Worksheet
(Page 3 of 3)

NOTES: _____

Attach completed form to the Request for Chemical Analysis for inclusion in the final report.

Venice Groundwater Monitoring Field Data Worksheet

Sample Date: 4 / 9 / 25

River Level: 19.0 feet

	Well #2	Well #2D	Well #3	Well #3D	Well #5	Well #6
Well name sign, lock, and inner cap present (note any deficiency)	good	good	good	good	Cap cracked	Good
Casing and concrete pad in good condition (note any deficiency)	good	good	good	good	Good	Good
Internal piping unobstructed and in good condition (note any deficiency)	good	good	good	good	Good	Good
Water Level (±0.01 feet, from top of casing mark)	18.25	17.40	17.19	17.39	40.10	39.71
Total Well Depth (±0.01 feet)	29.02	47.77	24.59	49.02	49.28	51.21
Time purging began (24-hour clock)	~~15:45~~ 16:15	~~15:45~~ 15:45	16:45	17:15	10:30	11:00
Conductivity after 10 minutes µS/cm	1174 ~~1774~~	1315	1319	1075	964	1153
Temperature °C	16.2	16.3	17.0	16.1	16.9	17.6
Conductivity after 15 minutes (µS/cm)	1175	1316	1320	1044	968	1152
Temperature °C	16.1	16.1	16.8	15.9	16.8	17.4
If conductivity changed more than 10% between 10 and 15 minute samples, continue purging and measure conductivity every 5 minutes, until the conductivity changes less than 10% between samples.						
Final Conductivity, µS/cm	1175	1316	1320	1044	968	1152
Time to reach final conductivity (min)	15	15	15	15	15	15
Temperature °C	16.1	16.1	16.8	15.9	16.8	17.4
ORP	11	-31	58	56	12	-100
pH (on site) (±0.01)	7.11 ~~7.44~~	7.41	6.58	7.91	7.39	~~4.25~~

Note any items requiring maintenance at any well, and report to supervisor after return to Lab Services.

Venice Groundwater Monitoring Field Data Worksheet

(Page 2 of 3)

	Well #6D	Well #8	Well #9	Well #10	Well #11	Well #11D
Well name sign, lock, and inner cap present (note any deficiency)	good	good	good	good	good	good
Casing and concrete pad in good condition (note any deficiency)	good	good	good	good	good	good
Internal piping unobstructed and in good condition (note any deficiency)	good	good	good	good	good	good
Water Level (±0.01 feet, from top of casing mark)	40.10	24.19	20.64	31.65	22.18	16.00
Total Well Depth (±0.01 feet)	68.58	43.00	41.68	44.06	28.91	48.95
Time purging began (24-hour clock)	11 : 30	12 : 45	12 : 15	14 : 00	14 : 45	15 : 15
Conductivity after 10 minutes µS/cm	986	1204	1072	1780	1216	1478
Temperature °C	16.8	17.1	16.8	17.1	16.3	16.6
Conductivity after 15 minutes (µS/cm)	1004	1219	1073	1652	1216	1492
Temperature °C	17.0	16.6	16.3	16.5	16.2	15.8
If conductivity changed more than 10% between 10 and 15 minute samples, continue purging and measure conductivity every 5 minutes, until the conductivity changes less than 10% between samples.						
Final Conductivity, µS/cm	1004	1219	1073	1652	1216	1492
Time to reach final conductivity (min)	15	~~15~~ 15	15	15	15	15
Temperature °C	17.0	16.6	16.3	16.5	16.2	15.8
ORP	-2	50	-49	45	60	~~6~~ 58
pH (on site) (±0.01)	7.68	7.02	7.19	7.46	7.12	7.28

Sample collectors: EPH / TKH

Note any items requiring maintenance at any well, and report to supervisor after return to Lab Services.

Venice Groundwater Monitoring Field Data Worksheet
(Page 3 of 3)

NOTES: _____

Attach completed form to the Request for Chemical Analysis for inclusion in the final report.

Venice Groundwater Monitoring Field Data Worksheet

Sample Date: 7 / 8 / 25

River Level: 17.2 feet

	Well #2	Well #2D	Well #3	Well #3D	Well #5	Well #6
Well name sign, lock, and inner cap present (note any deficiency)	Good	Good	Good	Good	Cap Cracked	Good
Casing and concrete pad in good condition (note any deficiency)	Good	Good	Good	Good	Cap Cracked lots in lots of dust	Good
Internal piping unobstructed and in good condition (note any deficiency)	Good	Good	Good	Good	Good	Good
Water Level (±0.01 feet, from top of casing mark)	16.14	16.12	16.87	17.23	34.35	36.98
Total Well Depth (±0.01 feet)	29.06	47.75	24.58	48.80	49.35	51.26
Time purging began (24-hour clock)	13 : 45	13 : 20	12 : 20	12 : 45	10 : 30	11 : 00
Conductivity after 10 minutes µS/cm	1162	1290	1304	865	1232	858
Temperature °C	17.4	17.5	18.2	17.8	20.9	21.1
Conductivity after 15 minutes (µS/cm)	1181	1302	1350	891	1204	866
Temperature °C	16.7	17.2	17.5	17.6	20.5	20.2
If conductivity changed more than 10% between 10 and 15 minute samples, continue purging and measure conductivity every 5 minutes, until the conductivity changes less than 10% between samples.						
Final Conductivity, µS/cm	1181	1302	1350	891	1204	866
Time to reach final conductivity (min)	15	15	15	15	15	15
Temperature °C	16.7	17.2	17.5	17.6	20.5	20.2
ORP	646	465			47	-94
pH (on site) (±0.01)	7.08	7.38	6.81	7.88	7.56	7.33

Note any items requiring maintenance at any well, and report to supervisor after return to Lab Services.

~~17.23~~ ~~16.87~~ ~~16.12~~
~~48.80~~ 24.58

Venice Groundwater Monitoring Field Data Worksheet

(Page 2 of 3)

	Well #6D	Well #8	Well #9	Well #10	Well #11	Well #11D
Well name sign, lock, and inner cap present (note any deficiency)	Good	Good	Good	Good	Good	Good
Casing and concrete pad in good condition (note any deficiency)	Good	Good	Good	Good	Good	Good
Internal piping unobstructed and in good condition (note any deficiency)	Good	Piping good, water inside metal cap, but not impeding/affecting well	Good	Good	Good	Good
Water Level (±0.01 feet, from top of casing mark)	37.36	19.10	16.16	27.02	16.70	16.20
Total Well Depth (±0.01 feet)	68.62	43.01	41.64	44.00	28.85	48.92
Time purging began (24-hour clock)	11 : 25	09 : 40	09 : 10	16 : 00	14 : 50	15 : 10
Conductivity after 10 minutes µS/cm	1056	1193	1064	1973	953	1762
Temperature °C	18.8	17.9	17.6	18.5	16.6	16.5
Conductivity after 15 minutes (µS/cm)	1076	1223	1063	1972	977	1763
Temperature °C	18.1	16.6	17.2	18.1	16.4	16.5
If conductivity changed more than 10% between 10 and 15 minute samples, continue purging and measure conductivity every 5 minutes, until the conductivity changes less than 10% between samples.						
Final Conductivity, µS/cm	1076	1223	1063	1972	977	1763
Time to reach final conductivity (min)	15	15	15	15	15	15
Temperature °C	18.1	16.6	17.2	18.1	16.4	16.5
ORP	-36	74	-84	-70	406	18.0
pH (on site) (±0.01)	7.82	6.82	6.95	7.72	7.04	7.38

Sample collectors: EPH TKH

Note any items requiring maintenance at any well, and report to supervisor after return to Lab Services.

16.20 16.70
48.92 28.78

APPENDIX C
2025 FINAL COVER SITE INSPECTION REPORTS

Ameren Missouri
Fly Ash Pond Final Cover Site Inspection

Facility Name: Venice Energy Center Inspection Date: 03/21/2025

Facility Address: 701 Main Street, Venice, IL 62090

Inspection Conditions: 60°F, sunny, windy

SECURITY & ACCESS	YES	NO	N/A	Comments
1. Is access controlled?	X			
2. Are "No Trespassing" signs posted?			X	
3. Is there evidence of trespassing?		X		
COVER & VEGETATION				
4. Is cover in acceptable condition?	X			
5. Is vegetation in acceptable condition?	X			
6. Is there any woody species of plant growing (i.e., trees and shrubs greater than 18")?		X		
7. Is there any area with more than 100 square feet of failed or eroded vegetation?		X		
8. Is there any erosion or sloughing of embankment slopes?		X		
DRAINAGE				
9. Are appropriate temporary runoff controls in place?			X	
10. Are there any rills, gullies, or crevices that are 6" or deeper?		X		
11. Are drainage channels in acceptable condition?	X			
12. Are there any low areas or depressions that could facilitate the ponding of water for extended periods of time?		X		
GEO-MEMBRANE				
13. Is there any exposed flexible membrane?		X		
14. If so, is the flexible membrane damaged?			X	
PUMP STATION				
15. Are the pump station inlets free of debris?		X		A buildup of grass clippings was observed on the grates of the north and south pump stations. The site was notified of the buildup, and the grates were cleared by May 2, 2025.
16. Are there any structural deficiencies at the pump station?		X		

N/A = Not Applicable

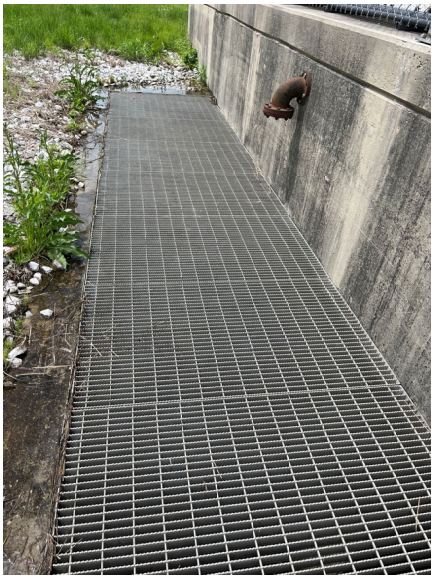
Item # Additional Comment(s)

Item # Corrective Actions Taken Since Last Report

Inspector Signature: Date: 05/05/2025

Buildup of grass clippings on grate at south pump station

Grates following cleaning



North embankment, facing west

North Pump Station, facing north

North Pump Station, facing south

South Pump Station, facing north

South Pump Station, facing south

South Embankment, facing east

West Embankment, south section

West Embankment, center section

West Embankment, north section

South Pump station, facing east

North Pump station, facing east

Ameren Missouri
Fly Ash Pond Final Cover Site Inspection

Facility Name: Venice Energy Center Inspection Date: 06/20/2025

Facility Address: 701 Main Street, Venice, IL 62090

Inspection Conditions: 90°F, sunny

SECURITY & ACCESS	YES	NO	N/A	Comments
1. Is access controlled?		X		The post holding the chain restricting access to the levee road has been knocked over. The chain/levee road is managed by the Army Corp of Engineers, who are aware that the post is in need of repairs.
2. Are "No Trespassing" signs posted?			X	
3. Is there evidence of trespassing?		X		
COVER & VEGETATION				
4. Is cover in acceptable condition?	X			
5. Is vegetation in acceptable condition?	X			
6. Is there any woody species of plant growing (i.e., trees and shrubs greater than 18")?		X		
7. Is there any area with more than 100 square feet of failed or eroded vegetation?		X		
8. Is there any erosion or sloughing of embankment slopes?		X		
DRAINAGE				
9. Are appropriate temporary runoff controls in place?			X	
10. Are there any rills, gullies, or crevices that are 6" or deeper?		X		
11. Are drainage channels in acceptable condition?	X			
12. Are there any low areas or depressions that could facilitate the ponding of water for extended periods of time?		X		
GEO-MEMBRANE				
13. Is there any exposed flexible membrane?		X		
14. If so, is the flexible membrane damaged?			X	
PUMP STATION				
15. Are the pump station inlets free of debris?	X			
16. Are there any structural deficiencies at the pump station?		X		

N/A = Not Applicable

Item # Additional Comment(s)

Item # Corrective Actions Taken Since Last Report

Inspector Signature: Amie Muehlfeit Date: 06/23/2025

North embankment, facing west

North Pump Station, facing north

North Pump Station, facing south

South Pump Station, facing north

South Pump Station, facing south

South Embankment, facing east

West Embankment, south section

West Embankment, center section

West Embankment, north section

South Pump station, facing east

North Pump station, facing east

Damaged chain/gate post location

Damaged chain/post, looking north

Damged chain/post

Ameren Missouri
Fly Ash Pond Final Cover Site Inspection

Facility Name: Venice Energy Center Inspection Date: 09/16/2025

Facility Address: 701 Main Street, Venice, IL 62090

Inspection Conditions: 90°F, sunny

SECURITY & ACCESS	YES	NO	N/A	Comments
1. Is access controlled?		X		The post holding the chain restricting access to the levee road has been knocked over. The chain/levee road is managed by the Army Corp of Engineers, who are aware that the post is in need of repairs.
2. Are "No Trespassing" signs posted?			X	
3. Is there evidence of trespassing?		X		
COVER & VEGETATION				
4. Is cover in acceptable condition?	X			
5. Is vegetation in acceptable condition?	X			
6. Is there any woody species of plant growing (i.e., trees and shrubs greater than 18")?		X		
7. Is there any area with more than 100 square feet of failed or eroded vegetation?		X		
8. Is there any erosion or sloughing of embankment slopes?		X		
DRAINAGE				
9. Are appropriate temporary runoff controls in place?			X	
10. Are there any rills, gullies, or crevices that are 6" or deeper?		X		
11. Are drainage channels in acceptable condition?	X			
12. Are there any low areas or depressions that could facilitate the ponding of water for extended periods of time?		X		
GEO-MEMBRANE				
13. Is there any exposed flexible membrane?		X		
14. If so, is the flexible membrane damaged?			X	
PUMP STATION				
15. Are the pump station inlets free of debris?	X			Inlet grates at the pump station were observed to have dead grass piled up on them. The plant was alerted, and the grates were cleared as of 10/14/2025.
16. Are there any structural deficiencies at the pump station?		X		

N/A = Not Applicable

Item # Additional Comment(s)

None

Item # Corrective Actions Taken Since Last Report

_____None_____

Inspector Signature:___ _____ Date: _____10/14/2025_____

North embankment, facing west

North Pump Station, facing north

North Pump Station, facing south

South Pump Station, facing north

South Pump Station, facing south

South Embankment, facing east

West Embankment, south section

West Embankment, center section

West Embankment, north section

South Pump station, facing east

North Pump station, facing east

Grate, North Pump station

Grate, South Pump station, facing east

Cleared Grate, North Pump station

Cleared Grate, South Pump station, facing east

Damaged chain/gate post location

Damaged chain/post location, looking south

Ameren Missouri
Fly Ash Pond Final Cover Site Inspection

Facility Name: Venice Energy Center Inspection Date: 11/10/2025

Facility Address: 701 Main Street, Venice, IL 62090

Inspection Conditions: 40°F, sunny

SECURITY & ACCESS	YES	NO	N/A	Comments
1. Is access controlled?		X		The post holding the chain restricting access to the levee road has been knocked over. The chain/levee road is managed by the Army Corp of Engineers, who are aware that the post is in need of repairs.
2. Are "No Trespassing" signs posted?			X	
3. Is there evidence of trespassing?		X		
COVER & VEGETATION				
4. Is cover in acceptable condition?	X			
5. Is vegetation in acceptable condition?	X			
6. Is there any woody species of plant growing (i.e., trees and shrubs greater than 18")?		X		
7. Is there any area with more than 100 square feet of failed or eroded vegetation?		X		
8. Is there any erosion or sloughing of embankment slopes?		X		
DRAINAGE				
9. Are appropriate temporary runoff controls in place?			X	
10. Are there any rills, gullies, or crevices that are 6" or deeper?		X		
11. Are drainage channels in acceptable condition?	X			
12. Are there any low areas or depressions that could facilitate the ponding of water for extended periods of time?		X		
GEO-MEMBRANE				
13. Is there any exposed flexible membrane?		X		
14. If so, is the flexible membrane damaged?			X	
PUMP STATION				
15. Are the pump station inlets free of debris?	X			
16. Are there any structural deficiencies at the pump station?		X		

N/A = Not Applicable

Item # Additional Comment(s)

None

Item # Corrective Actions Taken Since Last Report

None

Inspector Signature: Amie Muehlfeit Date: 11/10/2025

North embankment, facing west

North Pump Station, facing north

North Pump Station, facing south

South Pump Station, facing north

South Pump Station, facing south

South Embankment, facing east

West Embankment, south section

West Embankment, center section

West Embankment, north section

South Pump station, facing east

North Pump station, facing east

Damaged chain/gate post location

Damaged chain/post location, looking south

APPENDIX D
STATISTICAL OUTPUT (ON CD)

APPENDIX D1
OUTLIER ANALYSIS RESULTS

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Antimony, dissolved, mg/L

Location: MW-10

Mean of all data: 0.00196
Standard Deviation of all data: 0.00478
Largest Observation Concentration of all data: Xn = 0.0320
Test Statistic, high extreme of all data: Tn = 6.28
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/14/2021	0.0320	False		1

Antimony, dissolved, mg/L

Location: MW-11

Mean of all data: 0.00123
Standard Deviation of all data: 0.00369
Largest Observation Concentration of all data: Xn = 0.0240
Test Statistic, high extreme of all data: Tn = 6.17
T Critical of all data: Tcr = 2.88

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/14/2021	0.0240	False		1

Antimony, dissolved, mg/L

Location: MW-11D

Mean of all data: 0.00195
Standard Deviation of all data: 0.00522
Largest Observation Concentration of all data: Xn = 0.0360
Test Statistic, high extreme of all data: Tn = 6.53
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/14/2021	0.0360	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Antimony, dissolved, mg/L

Location: MW-2

Mean of all data: 0.00148
Standard Deviation of all data: 0.00410
Largest Observation Concentration of all data: Xn = 0.0270
Test Statistic, high extreme of all data: Tn = 6.23
T Critical of all data: Tcr = 2.89

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/14/2021	0.0270	False		1

Antimony, dissolved, mg/L

Location: MW-2D

Mean of all data: 0.00142
Standard Deviation of all data: 0.00397
Largest Observation Concentration of all data: Xn = 0.0270
Test Statistic, high extreme of all data: Tn = 6.45
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/14/2021	0.0270	False		1

Antimony, dissolved, mg/L

Location: MW-3

Mean of all data: 0.00147
Standard Deviation of all data: 0.00454
Largest Observation Concentration of all data: Xn = 0.0270
Test Statistic, high extreme of all data: Tn = 5.62
T Critical of all data: Tcr = 2.80

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
11/02/2021	0.0270	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Antimony, dissolved, mg/L

Location: MW-3D

Mean of all data: 0.00123
Standard Deviation of all data: 0.00387
Largest Observation Concentration of all data: Xn = 0.0260
Test Statistic, high extreme of all data: Tn = 6.40
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/14/2021	0.0260	False		1

Antimony, dissolved, mg/L

Location: MW-5

Mean of all data: 0.00180
Standard Deviation of all data: 0.00467
Largest Observation Concentration of all data: Xn = 0.0330
Test Statistic, high extreme of all data: Tn = 6.68
T Critical of all data: Tcr = 2.95

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/14/2021	0.0330	False		1

Antimony, dissolved, mg/L

Location: MW-6

Mean of all data: 0.000757
Standard Deviation of all data: 0.00116
Largest Observation Concentration of all data: Xn = 0.00650
Test Statistic, high extreme of all data: Tn = 4.94
T Critical of all data: Tcr = 2.94

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/14/2021	<0.00650	True		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Antimony, dissolved, mg/L

Location: MW-6D

Mean of all data: 0.00140
Standard Deviation of all data: 0.00401
Largest Observation Concentration of all data: Xn = 0.0270
Test Statistic, high extreme of all data: Tn = 6.39
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/14/2021	0.0270	False		1

Antimony, dissolved, mg/L

Location: MW-8

Mean of all data: 0.00172
Standard Deviation of all data: 0.00479
Largest Observation Concentration of all data: Xn = 0.0340
Test Statistic, high extreme of all data: Tn = 6.75
T Critical of all data: Tcr = 2.96

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/14/2021	0.0340	False		1

Antimony, dissolved, mg/L

Location: MW-9

Mean of all data: 0.00130
Standard Deviation of all data: 0.00259
Largest Observation Concentration of all data: Xn = 0.0180
Test Statistic, high extreme of all data: Tn = 6.45
T Critical of all data: Tcr = 2.96

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/14/2021	0.0180	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Arsenic, dissolved, mg/L

Location: MW-10

Mean of all data: 0.0194
Standard Deviation of all data: 0.0145
Largest Observation Concentration of all data: Xn = 0.0670
Test Statistic, high extreme of all data: Tn = 3.27
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/14/2021	0.0670	False		1

Arsenic, dissolved, mg/L

Location: MW-11

Mean of all data: 0.00496
Standard Deviation of all data: 0.00640
Largest Observation Concentration of all data: Xn = 0.0300
Test Statistic, high extreme of all data: Tn = 3.92
T Critical of all data: Tcr = 2.88

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/14/2021	0.0300	False		1

Arsenic, dissolved, mg/L

Location: MW-11D

Mean of all data: 0.0118
Standard Deviation of all data: 0.00743
Largest Observation Concentration of all data: Xn = 0.0340
Test Statistic, high extreme of all data: Tn = 2.98
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/23/2011	0.0340	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Arsenic, dissolved, mg/L

Location: MW-2

Mean of all data: 0.0114
Standard Deviation of all data: 0.0178
Largest Observation Concentration of all data: Xn = 0.0942
Test Statistic, high extreme of all data: Tn = 4.65
T Critical of all data: Tcr = 3.10

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/15/2022	0.0942	False		1

Arsenic, dissolved, mg/L

Location: MW-2D

Mean of all data: 0.0214
Standard Deviation of all data: 0.00863
Largest Observation Concentration of all data: Xn = 0.0430
Test Statistic, high extreme of all data: Tn = 2.50
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Arsenic, dissolved, mg/L

Location: MW-3

Mean of all data: 0.00538
Standard Deviation of all data: 0.00782
Largest Observation Concentration of all data: Xn = 0.0430
Test Statistic, high extreme of all data: Tn = 4.81
T Critical of all data: Tcr = 3.03

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/17/2010	0.0430	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Arsenic, dissolved, mg/L

Location: MW-3D

Mean of all data: 0.00483
Standard Deviation of all data: 0.00653
Largest Observation Concentration of all data: Xn = 0.0420
Test Statistic, high extreme of all data: Tn = 5.69
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/23/2011	0.0420	False		1

Arsenic, dissolved, mg/L

Location: MW-5

Mean of all data: 0.0755
Standard Deviation of all data: 0.0711
Largest Observation Concentration of all data: Xn = 0.690
Test Statistic, high extreme of all data: Tn = 8.64
T Critical of all data: Tcr = 3.15

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/08/2010	0.690	False		1

Arsenic, dissolved, mg/L

Location: MW-6

Mean of all data: 0.0760
Standard Deviation of all data: 0.0182
Largest Observation Concentration of all data: Xn = 0.123
Test Statistic, high extreme of all data: Tn = 2.59
T Critical of all data: Tcr = 3.11

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
06/20/2002	0.0150	False	-1	

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Arsenic, dissolved, mg/L

Location: MW-6D

Mean of all data: 0.00440
Standard Deviation of all data: 0.00409
Largest Observation Concentration of all data: Xn = 0.0230
Test Statistic, high extreme of all data: Tn = 4.55
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/14/2021	0.0230	False		1

Arsenic, dissolved, mg/L

Location: MW-8

Mean of all data: 0.00475
Standard Deviation of all data: 0.00650
Largest Observation Concentration of all data: Xn = 0.0350
Test Statistic, high extreme of all data: Tn = 4.65
T Critical of all data: Tcr = 3.17

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/17/2010	0.0350	False		1

Arsenic, dissolved, mg/L

Location: MW-9

Mean of all data: 0.00762
Standard Deviation of all data: 0.00824
Largest Observation Concentration of all data: Xn = 0.0380
Test Statistic, high extreme of all data: Tn = 3.69
T Critical of all data: Tcr = 3.18

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/28/2009	0.0380	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Barium, dissolved, mg/L

Location: MW-10

Mean of all data: 0.0731
Standard Deviation of all data: 0.0425
Largest Observation Concentration of all data: Xn = 0.278
Test Statistic, high extreme of all data: Tn = 4.82
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/23/2011	0.278	False		1

Barium, dissolved, mg/L

Location: MW-11

Mean of all data: 0.197
Standard Deviation of all data: 0.0365
Largest Observation Concentration of all data: Xn = 0.286
Test Statistic, high extreme of all data: Tn = 2.45
T Critical of all data: Tcr = 2.88

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Barium, dissolved, mg/L

Location: MW-11D

Mean of all data: 0.212
Standard Deviation of all data: 0.0556
Largest Observation Concentration of all data: Xn = 0.292
Test Statistic, high extreme of all data: Tn = 1.44
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
01/24/2023	<0.000100	True	-1	

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Barium, dissolved, mg/L
Location: MW-2

Mean of all data: 0.260
Standard Deviation of all data: 0.117
Largest Observation Concentration of all data: Xn = 0.598
Test Statistic, high extreme of all data: Tn = 2.89
T Critical of all data: Tcr = 2.92

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Barium, dissolved, mg/L
Location: MW-2D

Mean of all data: 0.371
Standard Deviation of all data: 0.0650
Largest Observation Concentration of all data: Xn = 0.491
Test Statistic, high extreme of all data: Tn = 1.84
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Barium, dissolved, mg/L
Location: MW-3

Mean of all data: 0.208
Standard Deviation of all data: 0.0702
Largest Observation Concentration of all data: Xn = 0.371
Test Statistic, high extreme of all data: Tn = 2.33
T Critical of all data: Tcr = 2.82

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Barium, dissolved, mg/L
Location: MW-3D

Mean of all data: 0.175
Standard Deviation of all data: 0.0573
Largest Observation Concentration of all data: Xn = 0.286
Test Statistic, high extreme of all data: Tn = 1.94
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Barium, dissolved, mg/L
Location: MW-5

Mean of all data: 0.0817
Standard Deviation of all data: 0.0214
Largest Observation Concentration of all data: Xn = 0.153
Test Statistic, high extreme of all data: Tn = 3.33
T Critical of all data: Tcr = 2.98

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/08/2020	0.153	False		1

Barium, dissolved, mg/L
Location: MW-6

Mean of all data: 0.313
Standard Deviation of all data: 0.0417
Largest Observation Concentration of all data: Xn = 0.407
Test Statistic, high extreme of all data: Tn = 2.26
T Critical of all data: Tcr = 2.97

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Barium, dissolved, mg/L

Location: MW-6D

Mean of all data: 0.264
Standard Deviation of all data: 0.0773
Largest Observation Concentration of all data: Xn = 0.398
Test Statistic, high extreme of all data: Tn = 1.72
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Barium, dissolved, mg/L

Location: MW-8

Mean of all data: 0.110
Standard Deviation of all data: 0.0156
Largest Observation Concentration of all data: Xn = 0.196
Test Statistic, high extreme of all data: Tn = 5.49
T Critical of all data: Tcr = 2.99

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/01/2018	0.196	False		1

Barium, dissolved, mg/L

Location: MW-9

Mean of all data: 0.152
Standard Deviation of all data: 0.0237
Largest Observation Concentration of all data: Xn = 0.203
Test Statistic, high extreme of all data: Tn = 2.13
T Critical of all data: Tcr = 2.99

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Boron, dissolved, mg/L

Location: MW-10

Mean of all data: 17.3
Standard Deviation of all data: 2.85
Largest Observation Concentration of all data: Xn = 22.2
Test Statistic, high extreme of all data: Tn = 1.74
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Boron, dissolved, mg/L

Location: MW-11

Mean of all data: 1.26
Standard Deviation of all data: 1.69
Largest Observation Concentration of all data: Xn = 7.83
Test Statistic, high extreme of all data: Tn = 3.88
T Critical of all data: Tcr = 2.88

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/13/2012	7.83	False		1

Boron, dissolved, mg/L

Location: MW-11D

Mean of all data: 9.34
Standard Deviation of all data: 5.28
Largest Observation Concentration of all data: Xn = 23.5
Test Statistic, high extreme of all data: Tn = 2.68
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Boron, dissolved, mg/L

Location: MW-2

Mean of all data: 3.20
Standard Deviation of all data: 2.97
Largest Observation Concentration of all data: Xn = 14.0
Test Statistic, high extreme of all data: Tn = 3.65
T Critical of all data: Tcr = 3.10

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/11/2007	14.0	False		1

Boron, dissolved, mg/L

Location: MW-2D

Mean of all data: 3.58
Standard Deviation of all data: 1.94
Largest Observation Concentration of all data: Xn = 8.01
Test Statistic, high extreme of all data: Tn = 2.29
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Boron, dissolved, mg/L

Location: MW-3

Mean of all data: 0.673
Standard Deviation of all data: 0.586
Largest Observation Concentration of all data: Xn = 3.94
Test Statistic, high extreme of all data: Tn = 5.57
T Critical of all data: Tcr = 3.03

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/19/2004	3.94	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Boron, dissolved, mg/L
Location: MW-3D

Mean of all data: 5.87
Standard Deviation of all data: 1.93
Largest Observation Concentration of all data: Xn = 8.24
Test Statistic, high extreme of all data: Tn = 1.23
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Boron, dissolved, mg/L
Location: MW-5

Mean of all data: 3.40
Standard Deviation of all data: 1.86
Largest Observation Concentration of all data: Xn = 7.46
Test Statistic, high extreme of all data: Tn = 2.19
T Critical of all data: Tcr = 3.15

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Boron, dissolved, mg/L
Location: MW-6

Mean of all data: 4.25
Standard Deviation of all data: 0.700
Largest Observation Concentration of all data: Xn = 6.17
Test Statistic, high extreme of all data: Tn = 2.75
T Critical of all data: Tcr = 3.11

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
06/30/2004	2.00	False	-1	

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Boron, dissolved, mg/L

Location: MW-6D

Mean of all data: 4.31
Standard Deviation of all data: 0.865
Largest Observation Concentration of all data: Xn = 6.38
Test Statistic, high extreme of all data: Tn = 2.38
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Boron, dissolved, mg/L

Location: MW-8

Mean of all data: 0.716
Standard Deviation of all data: 0.296
Largest Observation Concentration of all data: Xn = 2.03
Test Statistic, high extreme of all data: Tn = 4.44
T Critical of all data: Tcr = 3.17

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/16/1999	2.03	False		1

Boron, dissolved, mg/L

Location: MW-9

Mean of all data: 0.663
Standard Deviation of all data: 0.170
Largest Observation Concentration of all data: Xn = 1.07
Test Statistic, high extreme of all data: Tn = 2.42
T Critical of all data: Tcr = 3.18

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/13/2001	0.100	False	-1	

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Cadmium, dissolved, mg/L

Location: MW-10

Mean of all data: 0.000428
Standard Deviation of all data: 0.000187
Largest Observation Concentration of all data: Xn = 0.00100
Test Statistic, high extreme of all data: Tn = 3.06
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/01/2018	0.00100	False		1

Cadmium, dissolved, mg/L

Location: MW-11

Mean of all data: 0.000463
Standard Deviation of all data: 0.000215
Largest Observation Concentration of all data: Xn = 0.00100
Test Statistic, high extreme of all data: Tn = 2.49
T Critical of all data: Tcr = 2.88

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Cadmium, dissolved, mg/L

Location: MW-11D

Mean of all data: 0.000947
Standard Deviation of all data: 0.000687
Largest Observation Concentration of all data: Xn = 0.00300
Test Statistic, high extreme of all data: Tn = 2.99
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/08/2020	0.00300	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Cadmium, dissolved, mg/L

Location: MW-2

Mean of all data: 0.00100
Standard Deviation of all data: 0.000997
Largest Observation Concentration of all data: Xn = 0.00400
Test Statistic, high extreme of all data: Tn = 3.01
T Critical of all data: Tcr = 3.10

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Cadmium, dissolved, mg/L

Location: MW-2D

Mean of all data: 0.000767
Standard Deviation of all data: 0.000487
Largest Observation Concentration of all data: Xn = 0.00200
Test Statistic, high extreme of all data: Tn = 2.53
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Cadmium, dissolved, mg/L

Location: MW-3

Mean of all data: 0.00101
Standard Deviation of all data: 0.000941
Largest Observation Concentration of all data: Xn = 0.00400
Test Statistic, high extreme of all data: Tn = 3.17
T Critical of all data: Tcr = 3.03

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
08/29/2016	0.00400	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Cadmium, dissolved, mg/L

Location: MW-3D

Mean of all data: 0.000518
Standard Deviation of all data: 0.000276
Largest Observation Concentration of all data: Xn = 0.00100
Test Statistic, high extreme of all data: Tn = 1.75
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Cadmium, dissolved, mg/L

Location: MW-5

Mean of all data: 0.0280
Standard Deviation of all data: 0.251
Largest Observation Concentration of all data: Xn = 2.31
Test Statistic, high extreme of all data: Tn = 9.11
T Critical of all data: Tcr = 3.15

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/18/2015	2.31	False		1

Cadmium, dissolved, mg/L

Location: MW-6

Mean of all data: 0.00142
Standard Deviation of all data: 0.00234
Largest Observation Concentration of all data: Xn = 0.0203
Test Statistic, high extreme of all data: Tn = 8.06
T Critical of all data: Tcr = 3.11

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/24/1998	0.0203	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Cadmium, dissolved, mg/L

Location: MW-6D

Mean of all data: 0.000474
Standard Deviation of all data: 0.000209
Largest Observation Concentration of all data: Xn = 0.00100
Test Statistic, high extreme of all data: Tn = 2.52
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Cadmium, dissolved, mg/L

Location: MW-8

Mean of all data: 0.000638
Standard Deviation of all data: 0.000548
Largest Observation Concentration of all data: Xn = 0.00310
Test Statistic, high extreme of all data: Tn = 4.50
T Critical of all data: Tcr = 3.17

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/16/1999	0.00310	False		1

Cadmium, dissolved, mg/L

Location: MW-9

Mean of all data: 0.000778
Standard Deviation of all data: 0.000489
Largest Observation Concentration of all data: Xn = 0.00220
Test Statistic, high extreme of all data: Tn = 2.91
T Critical of all data: Tcr = 3.18

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Chloride, dissolved, mg/L

Location: MW-10

Mean of all data: 43.7
Standard Deviation of all data: 23.9
Largest Observation Concentration of all data: Xn = 94.0
Test Statistic, high extreme of all data: Tn = 2.10
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Chloride, dissolved, mg/L

Location: MW-11

Mean of all data: 17.4
Standard Deviation of all data: 6.24
Largest Observation Concentration of all data: Xn = 41.5
Test Statistic, high extreme of all data: Tn = 3.87
T Critical of all data: Tcr = 2.88

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
07/22/2013	41.5	False		1

Chloride, dissolved, mg/L

Location: MW-11D

Mean of all data: 36.4
Standard Deviation of all data: 10.8
Largest Observation Concentration of all data: Xn = 57.3
Test Statistic, high extreme of all data: Tn = 1.93
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Chloride, dissolved, mg/L

Location: MW-2

Mean of all data: 15.1
Standard Deviation of all data: 3.55
Largest Observation Concentration of all data: Xn = 23.0
Test Statistic, high extreme of all data: Tn = 2.24
T Critical of all data: Tcr = 2.87

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/15/2022	1.60	False	-1	

Chloride, dissolved, mg/L

Location: MW-2D

Mean of all data: 16.4
Standard Deviation of all data: 3.79
Largest Observation Concentration of all data: Xn = 27.0
Test Statistic, high extreme of all data: Tn = 2.79
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Chloride, dissolved, mg/L

Location: MW-3

Mean of all data: 20.1
Standard Deviation of all data: 4.38
Largest Observation Concentration of all data: Xn = 33.0
Test Statistic, high extreme of all data: Tn = 2.95
T Critical of all data: Tcr = 2.79

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
10/27/2014	33.0	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Chloride, dissolved, mg/L

Location: MW-3D

Mean of all data: 36.9
Standard Deviation of all data: 7.93
Largest Observation Concentration of all data: Xn = 50.0
Test Statistic, high extreme of all data: Tn = 1.65
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Chloride, dissolved, mg/L

Location: MW-5

Mean of all data: 14.0
Standard Deviation of all data: 9.47
Largest Observation Concentration of all data: Xn = 39.2
Test Statistic, high extreme of all data: Tn = 2.66
T Critical of all data: Tcr = 2.92

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Chloride, dissolved, mg/L

Location: MW-6

Mean of all data: 26.1
Standard Deviation of all data: 3.92
Largest Observation Concentration of all data: Xn = 33.3
Test Statistic, high extreme of all data: Tn = 1.83
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Chloride, dissolved, mg/L

Location: MW-6D

Mean of all data: 32.8
Standard Deviation of all data: 6.79
Largest Observation Concentration of all data: Xn = 49.5
Test Statistic, high extreme of all data: Tn = 2.46
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Chloride, dissolved, mg/L

Location: MW-8

Mean of all data: 58.2
Standard Deviation of all data: 25.4
Largest Observation Concentration of all data: Xn = 147.
Test Statistic, high extreme of all data: Tn = 3.48
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/22/2017	147.	False		1

Chloride, dissolved, mg/L

Location: MW-9

Mean of all data: 72.5
Standard Deviation of all data: 34.9
Largest Observation Concentration of all data: Xn = 171.
Test Statistic, high extreme of all data: Tn = 2.82
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Chromium, dissolved, mg/L

Location: MW-10

Mean of all data: 0.000803
Standard Deviation of all data: 0.000793
Largest Observation Concentration of all data: Xn = 0.00400
Test Statistic, high extreme of all data: Tn = 4.03
T Critical of all data: Tcr = 2.88

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/18/2015	0.00400	False		1

Chromium, dissolved, mg/L

Location: MW-11

Mean of all data: 0.000664
Standard Deviation of all data: 0.000583
Largest Observation Concentration of all data: Xn = 0.00300
Test Statistic, high extreme of all data: Tn = 4.01
T Critical of all data: Tcr = 2.86

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/18/2015	0.00300	False		1

Chromium, dissolved, mg/L

Location: MW-11D

Mean of all data: 0.00101
Standard Deviation of all data: 0.00157
Largest Observation Concentration of all data: Xn = 0.0100
Test Statistic, high extreme of all data: Tn = 5.73
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/13/2012	0.0100	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Chromium, dissolved, mg/L

Location: MW-2

Mean of all data: 0.00139
Standard Deviation of all data: 0.00486
Largest Observation Concentration of all data: Xn = 0.0410
Test Statistic, high extreme of all data: Tn = 8.16
T Critical of all data: Tcr = 3.09

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/18/2015	0.0410	False		1

Chromium, dissolved, mg/L

Location: MW-2D

Mean of all data: 0.000628
Standard Deviation of all data: 0.000560
Largest Observation Concentration of all data: Xn = 0.00300
Test Statistic, high extreme of all data: Tn = 4.24
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/18/2015	0.00300	False		1

Chromium, dissolved, mg/L

Location: MW-3

Mean of all data: 0.000676
Standard Deviation of all data: 0.000656
Largest Observation Concentration of all data: Xn = 0.00400
Test Statistic, high extreme of all data: Tn = 5.07
T Critical of all data: Tcr = 3.01

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/18/2015	0.00400	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Chromium, dissolved, mg/L

Location: MW-3D

Mean of all data: 0.000698
Standard Deviation of all data: 0.000613
Largest Observation Concentration of all data: Xn = 0.00300
Test Statistic, high extreme of all data: Tn = 3.76
T Critical of all data: Tcr = 2.89

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/18/2015	0.00300	False		1

Chromium, dissolved, mg/L

Location: MW-5

Mean of all data: 0.00223
Standard Deviation of all data: 0.00783
Largest Observation Concentration of all data: Xn = 0.0630
Test Statistic, high extreme of all data: Tn = 7.76
T Critical of all data: Tcr = 3.14

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
06/26/2001	0.0630	False		1

Chromium, dissolved, mg/L

Location: MW-6

Mean of all data: 0.000897
Standard Deviation of all data: 0.000890
Largest Observation Concentration of all data: Xn = 0.00420
Test Statistic, high extreme of all data: Tn = 3.71
T Critical of all data: Tcr = 3.10

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
06/30/2004	0.00420	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Chromium, dissolved, mg/L

Location: MW-6D

Mean of all data: 0.000657
Standard Deviation of all data: 0.000640
Largest Observation Concentration of all data: Xn = 0.00400
Test Statistic, high extreme of all data: Tn = 5.22
T Critical of all data: Tcr = 2.89

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/18/2015	0.00400	False		1

Chromium, dissolved, mg/L

Location: MW-8

Mean of all data: 0.00120
Standard Deviation of all data: 0.00352
Largest Observation Concentration of all data: Xn = 0.0329
Test Statistic, high extreme of all data: Tn = 9.00
T Critical of all data: Tcr = 3.17

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
12/21/2004	0.0329	False		1

Chromium, dissolved, mg/L

Location: MW-9

Mean of all data: 0.000887
Standard Deviation of all data: 0.00197
Largest Observation Concentration of all data: Xn = 0.0184
Test Statistic, high extreme of all data: Tn = 8.88
T Critical of all data: Tcr = 3.17

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/29/2005	0.0184	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Cobalt, dissolved, mg/L

Location: MW-10

Mean of all data: 0.000886
Standard Deviation of all data: 0.000490
Largest Observation Concentration of all data: Xn = 0.00200
Test Statistic, high extreme of all data: Tn = 2.28
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Cobalt, dissolved, mg/L

Location: MW-11

Mean of all data: 0.000505
Standard Deviation of all data: 0.000253
Largest Observation Concentration of all data: Xn = 0.00100
Test Statistic, high extreme of all data: Tn = 1.96
T Critical of all data: Tcr = 2.88

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Cobalt, dissolved, mg/L

Location: MW-11D

Mean of all data: 0.000502
Standard Deviation of all data: 0.000377
Largest Observation Concentration of all data: Xn = 0.00200
Test Statistic, high extreme of all data: Tn = 3.98
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
11/05/2012	0.00200	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Cobalt, dissolved, mg/L

Location: MW-2

Mean of all data: 0.00757
Standard Deviation of all data: 0.0176
Largest Observation Concentration of all data: Xn = 0.0906
Test Statistic, high extreme of all data: Tn = 4.71
T Critical of all data: Tcr = 2.89

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/15/2022	0.0906	False		1

Cobalt, dissolved, mg/L

Location: MW-2D

Mean of all data: 0.000500
Standard Deviation of all data: 0.000266
Largest Observation Concentration of all data: Xn = 0.00100
Test Statistic, high extreme of all data: Tn = 1.88
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Cobalt, dissolved, mg/L

Location: MW-3

Mean of all data: 0.00254
Standard Deviation of all data: 0.00176
Largest Observation Concentration of all data: Xn = 0.00700
Test Statistic, high extreme of all data: Tn = 2.53
T Critical of all data: Tcr = 2.80

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Cobalt, dissolved, mg/L

Location: MW-3D

Mean of all data: 0.000541
Standard Deviation of all data: 0.000450
Largest Observation Concentration of all data: Xn = 0.00300
Test Statistic, high extreme of all data: Tn = 5.47
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/14/2021	0.00300	False		1

Cobalt, dissolved, mg/L

Location: MW-5

Mean of all data: 0.000712
Standard Deviation of all data: 0.000698
Largest Observation Concentration of all data: Xn = 0.00500
Test Statistic, high extreme of all data: Tn = 6.14
T Critical of all data: Tcr = 2.95

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
06/28/2010	<0.00500	True		1

Cobalt, dissolved, mg/L

Location: MW-6

Mean of all data: 0.000660
Standard Deviation of all data: 0.000679
Largest Observation Concentration of all data: Xn = 0.00500
Test Statistic, high extreme of all data: Tn = 6.39
T Critical of all data: Tcr = 2.94

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
06/28/2010	<0.00500	True		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Cobalt, dissolved, mg/L

Location: MW-6D

Mean of all data: 0.000504
Standard Deviation of all data: 0.000243
Largest Observation Concentration of all data: Xn = 0.00100
Test Statistic, high extreme of all data: Tn = 2.04
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Cobalt, dissolved, mg/L

Location: MW-8

Mean of all data: 0.00235
Standard Deviation of all data: 0.000828
Largest Observation Concentration of all data: Xn = 0.00500
Test Statistic, high extreme of all data: Tn = 3.21
T Critical of all data: Tcr = 2.96

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
06/28/2010	<0.00500	True		1

Cobalt, dissolved, mg/L

Location: MW-9

Mean of all data: 0.000788
Standard Deviation of all data: 0.00114
Largest Observation Concentration of all data: Xn = 0.00600
Test Statistic, high extreme of all data: Tn = 4.59
T Critical of all data: Tcr = 2.96

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
12/07/2011	0.00600	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Copper, dissolved, mg/L

Location: MW-10

Mean of all data: 0.00137
Standard Deviation of all data: 0.00150
Largest Observation Concentration of all data: Xn = 0.00800
Test Statistic, high extreme of all data: Tn = 4.42
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/13/2012	0.00800	False		1

Copper, dissolved, mg/L

Location: MW-11

Mean of all data: 0.00169
Standard Deviation of all data: 0.00443
Largest Observation Concentration of all data: Xn = 0.0288
Test Statistic, high extreme of all data: Tn = 6.12
T Critical of all data: Tcr = 2.88

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/13/2024	0.0288	False		1

Copper, dissolved, mg/L

Location: MW-11D

Mean of all data: 0.000515
Standard Deviation of all data: 0.000337
Largest Observation Concentration of all data: Xn = 0.00200
Test Statistic, high extreme of all data: Tn = 4.41
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/24/2015	0.00200	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Copper, dissolved, mg/L

Location: MW-2

Mean of all data: 0.00237
Standard Deviation of all data: 0.00378
Largest Observation Concentration of all data: Xn = 0.0264
Test Statistic, high extreme of all data: Tn = 6.36
T Critical of all data: Tcr = 3.10

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/13/2024	0.0264	False		1

Copper, dissolved, mg/L

Location: MW-2D

Mean of all data: 0.000508
Standard Deviation of all data: 0.000218
Largest Observation Concentration of all data: Xn = 0.00100
Test Statistic, high extreme of all data: Tn = 2.26
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Copper, dissolved, mg/L

Location: MW-3

Mean of all data: 0.00167
Standard Deviation of all data: 0.00321
Largest Observation Concentration of all data: Xn = 0.0180
Test Statistic, high extreme of all data: Tn = 5.09
T Critical of all data: Tcr = 3.03

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
08/23/2017	0.0180	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Copper, dissolved, mg/L

Location: MW-3D

Mean of all data: 0.000673
Standard Deviation of all data: 0.000570
Largest Observation Concentration of all data: Xn = 0.00300
Test Statistic, high extreme of all data: Tn = 4.08
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/08/2020	0.00300	False		1

Copper, dissolved, mg/L

Location: MW-5

Mean of all data: 0.00259
Standard Deviation of all data: 0.0151
Largest Observation Concentration of all data: Xn = 0.140
Test Statistic, high extreme of all data: Tn = 9.09
T Critical of all data: Tcr = 3.15

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
06/26/2001	0.140	False		1

Copper, dissolved, mg/L

Location: MW-6

Mean of all data: 0.00229
Standard Deviation of all data: 0.00998
Largest Observation Concentration of all data: Xn = 0.0850
Test Statistic, high extreme of all data: Tn = 8.29
T Critical of all data: Tcr = 3.11

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/31/2007	0.0850	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Copper, dissolved, mg/L

Location: MW-6D

Mean of all data: 0.000686
Standard Deviation of all data: 0.000538
Largest Observation Concentration of all data: Xn = 0.00300
Test Statistic, high extreme of all data: Tn = 4.30
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/01/2021	0.00300	False		1

Copper, dissolved, mg/L

Location: MW-8

Mean of all data: 0.00378
Standard Deviation of all data: 0.0219
Largest Observation Concentration of all data: Xn = 0.204
Test Statistic, high extreme of all data: Tn = 9.14
T Critical of all data: Tcr = 3.17

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/13/2024	0.204	False		1

Copper, dissolved, mg/L

Location: MW-9

Mean of all data: 0.00287
Standard Deviation of all data: 0.0143
Largest Observation Concentration of all data: Xn = 0.104
Test Statistic, high extreme of all data: Tn = 7.02
T Critical of all data: Tcr = 3.18

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/13/2024	0.104	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
Confidence Level: 95%
Transform: None
LT Multiplier: x 0.50
Number of Outliers: One Outlier

Cyanide, total, mg/L

Location: MW-10

Mean of all data: 0.00169
Standard Deviation of all data: 0.00166
Largest Observation Concentration of all data: Xn = 0.00890
Test Statistic, high extreme of all data: Tn = 4.33
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/13/2024	0.00890	False		1

Cyanide, total, mg/L

Location: MW-11

Mean of all data: 0.00185
Standard Deviation of all data: 0.00247
Largest Observation Concentration of all data: Xn = 0.0136
Test Statistic, high extreme of all data: Tn = 4.76
T Critical of all data: Tcr = 2.88

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
08/23/2017	0.0136	False		1

Cyanide, total, mg/L

Location: MW-11D

Mean of all data: 0.0212
Standard Deviation of all data: 0.0222
Largest Observation Concentration of all data: Xn = 0.0842
Test Statistic, high extreme of all data: Tn = 2.83
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Cyanide, total, mg/L

Location: MW-2

Mean of all data: 0.00148
Standard Deviation of all data: 0.00136
Largest Observation Concentration of all data: Xn = 0.00540
Test Statistic, high extreme of all data: Tn = 2.89
T Critical of all data: Tcr = 2.89

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/13/2024	0.00540	False		1

Cyanide, total, mg/L

Location: MW-2D

Mean of all data: 0.00173
Standard Deviation of all data: 0.00179
Largest Observation Concentration of all data: Xn = 0.00830
Test Statistic, high extreme of all data: Tn = 3.67
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
08/18/2014	0.00830	False		1

Cyanide, total, mg/L

Location: MW-3

Mean of all data: 0.00157
Standard Deviation of all data: 0.00175
Largest Observation Concentration of all data: Xn = 0.00840
Test Statistic, high extreme of all data: Tn = 3.90
T Critical of all data: Tcr = 2.80

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
08/05/2024	0.00840	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Cyanide, total, mg/L

Location: MW-3D

Mean of all data: 0.00186
Standard Deviation of all data: 0.00223
Largest Observation Concentration of all data: Xn = 0.0110
Test Statistic, high extreme of all data: Tn = 4.10
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/13/2024	0.0110	False		1

Cyanide, total, mg/L

Location: MW-5

Mean of all data: 0.00564
Standard Deviation of all data: 0.00275
Largest Observation Concentration of all data: Xn = 0.0130
Test Statistic, high extreme of all data: Tn = 2.67
T Critical of all data: Tcr = 2.94

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Cyanide, total, mg/L

Location: MW-6

Mean of all data: 0.00160
Standard Deviation of all data: 0.00135
Largest Observation Concentration of all data: Xn = 0.00500
Test Statistic, high extreme of all data: Tn = 2.52
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Cyanide, total, mg/L

Location: MW-6D

Mean of all data: 0.00150
Standard Deviation of all data: 0.00105
Largest Observation Concentration of all data: Xn = 0.00490
Test Statistic, high extreme of all data: Tn = 3.25
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/13/2024	0.00490	False		1

Cyanide, total, mg/L

Location: MW-8

Mean of all data: 0.00167
Standard Deviation of all data: 0.00161
Largest Observation Concentration of all data: Xn = 0.00930
Test Statistic, high extreme of all data: Tn = 4.74
T Critical of all data: Tcr = 2.95

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/13/2024	0.00930	False		1

Cyanide, total, mg/L

Location: MW-9

Mean of all data: 0.00174
Standard Deviation of all data: 0.00195
Largest Observation Concentration of all data: Xn = 0.0122
Test Statistic, high extreme of all data: Tn = 5.37
T Critical of all data: Tcr = 2.95

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/13/2024	0.0122	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Fluoride, dissolved, mg/L

Location: MW-10

Mean of all data: 0.483
Standard Deviation of all data: 0.263
Largest Observation Concentration of all data: Xn = 0.850
Test Statistic, high extreme of all data: Tn = 1.39
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Fluoride, dissolved, mg/L

Location: MW-11

Mean of all data: 0.293
Standard Deviation of all data: 0.123
Largest Observation Concentration of all data: Xn = 0.710
Test Statistic, high extreme of all data: Tn = 3.39
T Critical of all data: Tcr = 2.88

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/13/2013	0.710	False		1

Fluoride, dissolved, mg/L

Location: MW-11D

Mean of all data: 0.403
Standard Deviation of all data: 0.199
Largest Observation Concentration of all data: Xn = 0.760
Test Statistic, high extreme of all data: Tn = 1.79
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Fluoride, dissolved, mg/L

Location: MW-2

Mean of all data: 0.253
Standard Deviation of all data: 0.0854
Largest Observation Concentration of all data: Xn = 0.550
Test Statistic, high extreme of all data: Tn = 3.48
T Critical of all data: Tcr = 2.89

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
12/07/2011	0.550	False		1

Fluoride, dissolved, mg/L

Location: MW-2D

Mean of all data: 0.231
Standard Deviation of all data: 0.106
Largest Observation Concentration of all data: Xn = 0.500
Test Statistic, high extreme of all data: Tn = 2.54
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Fluoride, dissolved, mg/L

Location: MW-3

Mean of all data: 0.204
Standard Deviation of all data: 0.0701
Largest Observation Concentration of all data: Xn = 0.330
Test Statistic, high extreme of all data: Tn = 1.80
T Critical of all data: Tcr = 2.80

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Fluoride, dissolved, mg/L

Location: MW-3D

Mean of all data: 0.258
Standard Deviation of all data: 0.154
Largest Observation Concentration of all data: Xn = 0.640
Test Statistic, high extreme of all data: Tn = 2.47
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Fluoride, dissolved, mg/L

Location: MW-5

Mean of all data: 0.341
Standard Deviation of all data: 0.120
Largest Observation Concentration of all data: Xn = 0.660
Test Statistic, high extreme of all data: Tn = 2.65
T Critical of all data: Tcr = 2.94

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Fluoride, dissolved, mg/L

Location: MW-6

Mean of all data: 0.571
Standard Deviation of all data: 0.122
Largest Observation Concentration of all data: Xn = 0.830
Test Statistic, high extreme of all data: Tn = 2.13
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Fluoride, dissolved, mg/L
Location: MW-6D

Mean of all data: 0.232
Standard Deviation of all data: 0.160
Largest Observation Concentration of all data: Xn = 0.570
Test Statistic, high extreme of all data: Tn = 2.11
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Fluoride, dissolved, mg/L
Location: MW-8

Mean of all data: 0.408
Standard Deviation of all data: 0.158
Largest Observation Concentration of all data: Xn = 0.840
Test Statistic, high extreme of all data: Tn = 2.74
T Critical of all data: Tcr = 2.95

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Fluoride, dissolved, mg/L
Location: MW-9

Mean of all data: 0.337
Standard Deviation of all data: 0.131
Largest Observation Concentration of all data: Xn = 0.710
Test Statistic, high extreme of all data: Tn = 2.85
T Critical of all data: Tcr = 2.95

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Iron, dissolved, mg/L

Location: MW-10

Mean of all data: 1.37
Standard Deviation of all data: 1.59
Largest Observation Concentration of all data: Xn = 6.59
Test Statistic, high extreme of all data: Tn = 3.28
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/13/2013	6.59	False		1

Iron, dissolved, mg/L

Location: MW-11

Mean of all data: 0.168
Standard Deviation of all data: 0.405
Largest Observation Concentration of all data: Xn = 1.73
Test Statistic, high extreme of all data: Tn = 3.86
T Critical of all data: Tcr = 2.88

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/12/2018	1.73	False		1

Iron, dissolved, mg/L

Location: MW-11D

Mean of all data: 18.9
Standard Deviation of all data: 3.46
Largest Observation Concentration of all data: Xn = 23.5
Test Statistic, high extreme of all data: Tn = 1.33
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/10/2019	5.67	False	-1	

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
Confidence Level: 95%
Transform: None

LT Multiplier: x 0.50
Number of Outliers: One Outlier

Iron, dissolved, mg/L

Location: MW-2

Mean of all data: 0.847
Standard Deviation of all data: 2.93
Largest Observation Concentration of all data: Xn = 16.2
Test Statistic, high extreme of all data: Tn = 5.24
T Critical of all data: Tcr = 3.10

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/06/2023	16.2	False		1

Iron, dissolved, mg/L

Location: MW-2D

Mean of all data: 17.2
Standard Deviation of all data: 2.79
Largest Observation Concentration of all data: Xn = 24.8
Test Statistic, high extreme of all data: Tn = 2.72
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Iron, dissolved, mg/L

Location: MW-3

Mean of all data: 1.44
Standard Deviation of all data: 1.43
Largest Observation Concentration of all data: Xn = 4.93
Test Statistic, high extreme of all data: Tn = 2.44
T Critical of all data: Tcr = 3.03

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Iron, dissolved, mg/L

Location: MW-3D

Mean of all data: 5.14
Standard Deviation of all data: 3.36
Largest Observation Concentration of all data: Xn = 13.9
Test Statistic, high extreme of all data: Tn = 2.60
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Iron, dissolved, mg/L

Location: MW-5

Mean of all data: 0.906
Standard Deviation of all data: 0.816
Largest Observation Concentration of all data: Xn = 4.67
Test Statistic, high extreme of all data: Tn = 4.62
T Critical of all data: Tcr = 3.15

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/08/2020	4.67	False		1

Iron, dissolved, mg/L

Location: MW-6

Mean of all data: 19.3
Standard Deviation of all data: 5.63
Largest Observation Concentration of all data: Xn = 30.5
Test Statistic, high extreme of all data: Tn = 1.97
T Critical of all data: Tcr = 3.11

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Iron, dissolved, mg/L

Location: MW-6D

Mean of all data: 0.715
Standard Deviation of all data: 0.566
Largest Observation Concentration of all data: Xn = 2.90
Test Statistic, high extreme of all data: Tn = 3.86
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
07/08/2025	2.90	False		1

Iron, dissolved, mg/L

Location: MW-8

Mean of all data: 0.0741
Standard Deviation of all data: 0.0813
Largest Observation Concentration of all data: Xn = 0.360
Test Statistic, high extreme of all data: Tn = 3.52
T Critical of all data: Tcr = 3.17

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
07/08/2025	0.360	False		1

Iron, dissolved, mg/L

Location: MW-9

Mean of all data: 17.3
Standard Deviation of all data: 3.61
Largest Observation Concentration of all data: Xn = 24.5
Test Statistic, high extreme of all data: Tn = 1.99
T Critical of all data: Tcr = 3.17

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/16/1999	4.21	False	-1	

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Lead, dissolved, mg/L

Location: MW-10

Mean of all data: 0.00199
Standard Deviation of all data: 0.00156
Largest Observation Concentration of all data: Xn = 0.00350
Test Statistic, high extreme of all data: Tn = 0.966
T Critical of all data: Tcr = 2.89

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Lead, dissolved, mg/L

Location: MW-11

Mean of all data: 0.00214
Standard Deviation of all data: 0.00174
Largest Observation Concentration of all data: Xn = 0.00700
Test Statistic, high extreme of all data: Tn = 2.79
T Critical of all data: Tcr = 2.87

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Lead, dissolved, mg/L

Location: MW-11D

Mean of all data: 0.00248
Standard Deviation of all data: 0.00172
Largest Observation Concentration of all data: Xn = 0.00600
Test Statistic, high extreme of all data: Tn = 2.05
T Critical of all data: Tcr = 2.92

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Lead, dissolved, mg/L

Location: MW-2

Mean of all data: 0.00159
Standard Deviation of all data: 0.00179
Largest Observation Concentration of all data: Xn = 0.0110
Test Statistic, high extreme of all data: Tn = 5.27
T Critical of all data: Tcr = 3.10

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/13/2001	0.0110	False		1

Lead, dissolved, mg/L

Location: MW-2D

Mean of all data: 0.00233
Standard Deviation of all data: 0.00151
Largest Observation Concentration of all data: Xn = 0.00500
Test Statistic, high extreme of all data: Tn = 1.77
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Lead, dissolved, mg/L

Location: MW-3

Mean of all data: 0.00170
Standard Deviation of all data: 0.00188
Largest Observation Concentration of all data: Xn = 0.00800
Test Statistic, high extreme of all data: Tn = 3.35
T Critical of all data: Tcr = 3.02

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
08/27/2018	0.00800	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Lead, dissolved, mg/L

Location: MW-3D

Mean of all data: 0.00207
Standard Deviation of all data: 0.00160
Largest Observation Concentration of all data: Xn = 0.00500
Test Statistic, high extreme of all data: Tn = 1.83
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Lead, dissolved, mg/L

Location: MW-5

Mean of all data: 0.00140
Standard Deviation of all data: 0.00151
Largest Observation Concentration of all data: Xn = 0.00700
Test Statistic, high extreme of all data: Tn = 3.71
T Critical of all data: Tcr = 3.15

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/08/2020	0.00700	False		1

Lead, dissolved, mg/L

Location: MW-6

Mean of all data: 0.00263
Standard Deviation of all data: 0.00236
Largest Observation Concentration of all data: Xn = 0.0120
Test Statistic, high extreme of all data: Tn = 3.96
T Critical of all data: Tcr = 3.11

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/28/2009	0.0120	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Lead, dissolved, mg/L

Location: MW-6D

Mean of all data: 0.00217
Standard Deviation of all data: 0.00190
Largest Observation Concentration of all data: Xn = 0.00800
Test Statistic, high extreme of all data: Tn = 3.07
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
08/27/2018	0.00800	False		1

Lead, dissolved, mg/L

Location: MW-8

Mean of all data: 0.00163
Standard Deviation of all data: 0.00196
Largest Observation Concentration of all data: Xn = 0.0110
Test Statistic, high extreme of all data: Tn = 4.79
T Critical of all data: Tcr = 3.17

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/28/2006	<0.0110	True		1

Lead, dissolved, mg/L

Location: MW-9

Mean of all data: 0.00210
Standard Deviation of all data: 0.00190
Largest Observation Concentration of all data: Xn = 0.0110
Test Statistic, high extreme of all data: Tn = 4.68
T Critical of all data: Tcr = 3.17

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/28/2006	<0.0110	True		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Manganese, dissolved, mg/L

Location: MW-10

Mean of all data: 1.17
Standard Deviation of all data: 0.644
Largest Observation Concentration of all data: Xn = 2.50
Test Statistic, high extreme of all data: Tn = 2.06
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Manganese, dissolved, mg/L

Location: MW-11

Mean of all data: 0.183
Standard Deviation of all data: 0.306
Largest Observation Concentration of all data: Xn = 1.24
Test Statistic, high extreme of all data: Tn = 3.47
T Critical of all data: Tcr = 2.88

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/12/2018	1.24	False		1

Manganese, dissolved, mg/L

Location: MW-11D

Mean of all data: 2.99
Standard Deviation of all data: 0.579
Largest Observation Concentration of all data: Xn = 4.01
Test Statistic, high extreme of all data: Tn = 1.75
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/10/2019	0.908	False	-1	

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Manganese, dissolved, mg/L

Location: MW-2

Mean of all data: 0.411
Standard Deviation of all data: 0.836
Largest Observation Concentration of all data: Xn = 5.10
Test Statistic, high extreme of all data: Tn = 5.61
T Critical of all data: Tcr = 3.10

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/15/2022	5.10	False		1

Manganese, dissolved, mg/L

Location: MW-2D

Mean of all data: 1.10
Standard Deviation of all data: 0.221
Largest Observation Concentration of all data: Xn = 1.44
Test Statistic, high extreme of all data: Tn = 1.54
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Manganese, dissolved, mg/L

Location: MW-3

Mean of all data: 0.814
Standard Deviation of all data: 0.337
Largest Observation Concentration of all data: Xn = 1.41
Test Statistic, high extreme of all data: Tn = 1.76
T Critical of all data: Tcr = 3.03

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Manganese, dissolved, mg/L

Location: MW-3D

Mean of all data: 0.335
Standard Deviation of all data: 0.154
Largest Observation Concentration of all data: Xn = 0.745
Test Statistic, high extreme of all data: Tn = 2.67
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Manganese, dissolved, mg/L

Location: MW-5

Mean of all data: 1.34
Standard Deviation of all data: 0.700
Largest Observation Concentration of all data: Xn = 3.38
Test Statistic, high extreme of all data: Tn = 2.92
T Critical of all data: Tcr = 3.15

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Manganese, dissolved, mg/L

Location: MW-6

Mean of all data: 2.58
Standard Deviation of all data: 0.549
Largest Observation Concentration of all data: Xn = 3.97
Test Statistic, high extreme of all data: Tn = 2.53
T Critical of all data: Tcr = 3.11

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Manganese, dissolved, mg/L

Location: MW-6D

Mean of all data: 0.244
Standard Deviation of all data: 0.179
Largest Observation Concentration of all data: Xn = 0.920
Test Statistic, high extreme of all data: Tn = 3.77
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
04/09/2025	0.920	False		1

Manganese, dissolved, mg/L

Location: MW-8

Mean of all data: 0.627
Standard Deviation of all data: 0.126
Largest Observation Concentration of all data: Xn = 0.880
Test Statistic, high extreme of all data: Tn = 2.00
T Critical of all data: Tcr = 3.17

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Manganese, dissolved, mg/L

Location: MW-9

Mean of all data: 0.766
Standard Deviation of all data: 0.116
Largest Observation Concentration of all data: Xn = 1.07
Test Statistic, high extreme of all data: Tn = 2.61
T Critical of all data: Tcr = 3.18

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Nickel, dissolved, mg/L

Location: MW-10

Mean of all data: 0.00234
Standard Deviation of all data: 0.00155
Largest Observation Concentration of all data: Xn = 0.00800
Test Statistic, high extreme of all data: Tn = 3.66
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/13/2012	0.00800	False		1

Nickel, dissolved, mg/L

Location: MW-11

Mean of all data: 0.00439
Standard Deviation of all data: 0.00287
Largest Observation Concentration of all data: Xn = 0.0100
Test Statistic, high extreme of all data: Tn = 1.95
T Critical of all data: Tcr = 2.88

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Nickel, dissolved, mg/L

Location: MW-11D

Mean of all data: 0.00214
Standard Deviation of all data: 0.00245
Largest Observation Concentration of all data: Xn = 0.0110
Test Statistic, high extreme of all data: Tn = 3.62
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
07/22/2013	0.0110	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Nickel, dissolved, mg/L

Location: MW-2

Mean of all data: 0.0116
Standard Deviation of all data: 0.0120
Largest Observation Concentration of all data: Xn = 0.0500
Test Statistic, high extreme of all data: Tn = 3.20
T Critical of all data: Tcr = 3.10

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
06/27/2007	0.0500	False		1

Nickel, dissolved, mg/L

Location: MW-2D

Mean of all data: 0.00113
Standard Deviation of all data: 0.000843
Largest Observation Concentration of all data: Xn = 0.00400
Test Statistic, high extreme of all data: Tn = 3.40
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/01/2018	0.00400	False		1

Nickel, dissolved, mg/L

Location: MW-3

Mean of all data: 0.0176
Standard Deviation of all data: 0.0165
Largest Observation Concentration of all data: Xn = 0.0800
Test Statistic, high extreme of all data: Tn = 3.78
T Critical of all data: Tcr = 3.03

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/12/1997	0.0800	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Nickel, dissolved, mg/L

Location: MW-3D

Mean of all data: 0.00152
Standard Deviation of all data: 0.00126
Largest Observation Concentration of all data: Xn = 0.00700
Test Statistic, high extreme of all data: Tn = 4.34
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/06/2017	0.00700	False		1

Nickel, dissolved, mg/L

Location: MW-5

Mean of all data: 0.00538
Standard Deviation of all data: 0.00784
Largest Observation Concentration of all data: Xn = 0.0329
Test Statistic, high extreme of all data: Tn = 3.51
T Critical of all data: Tcr = 3.15

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
06/26/2001	0.0329	False		1

Nickel, dissolved, mg/L

Location: MW-6

Mean of all data: 0.00998
Standard Deviation of all data: 0.0121
Largest Observation Concentration of all data: Xn = 0.0470
Test Statistic, high extreme of all data: Tn = 3.05
T Critical of all data: Tcr = 3.11

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Nickel, dissolved, mg/L

Location: MW-6D

Mean of all data: 0.00132
Standard Deviation of all data: 0.000991
Largest Observation Concentration of all data: Xn = 0.00500
Test Statistic, high extreme of all data: Tn = 3.71
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/01/2018	0.00500	False		1

Nickel, dissolved, mg/L

Location: MW-8

Mean of all data: 0.0128
Standard Deviation of all data: 0.0138
Largest Observation Concentration of all data: Xn = 0.117
Test Statistic, high extreme of all data: Tn = 7.55
T Critical of all data: Tcr = 3.17

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/16/1999	0.117	False		1

Nickel, dissolved, mg/L

Location: MW-9

Mean of all data: 0.00711
Standard Deviation of all data: 0.0100
Largest Observation Concentration of all data: Xn = 0.0410
Test Statistic, high extreme of all data: Tn = 3.39
T Critical of all data: Tcr = 3.17

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
06/27/2007	0.0410	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Nitrate nitrogen, dissolved, mg/L

Location: MW-10

Mean of all data: 1.88
Standard Deviation of all data: 3.32
Largest Observation Concentration of all data: Xn = 16.9
Test Statistic, high extreme of all data: Tn = 4.53
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
11/02/2015	16.9	False		1

Nitrate nitrogen, dissolved, mg/L

Location: MW-11

Mean of all data: 6.47
Standard Deviation of all data: 10.3
Largest Observation Concentration of all data: Xn = 55.6
Test Statistic, high extreme of all data: Tn = 4.78
T Critical of all data: Tcr = 2.88

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
08/18/2014	55.6	False		1

Nitrate nitrogen, dissolved, mg/L

Location: MW-11D

Mean of all data: 1.90
Standard Deviation of all data: 6.42
Largest Observation Concentration of all data: Xn = 44.0
Test Statistic, high extreme of all data: Tn = 6.56
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
12/07/2011	44.0	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Nitrate nitrogen, dissolved, mg/L

Location: MW-2

Mean of all data: 3.67
Standard Deviation of all data: 4.18
Largest Observation Concentration of all data: Xn = 15.0
Test Statistic, high extreme of all data: Tn = 2.71
T Critical of all data: Tcr = 2.87

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Nitrate nitrogen, dissolved, mg/L

Location: MW-2D

Mean of all data: 1.29
Standard Deviation of all data: 2.08
Largest Observation Concentration of all data: Xn = 10.0
Test Statistic, high extreme of all data: Tn = 4.19
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/24/2015	10.0	False		1

Nitrate nitrogen, dissolved, mg/L

Location: MW-3

Mean of all data: 2.94
Standard Deviation of all data: 4.37
Largest Observation Concentration of all data: Xn = 14.2
Test Statistic, high extreme of all data: Tn = 2.58
T Critical of all data: Tcr = 2.79

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Nitrate nitrogen, dissolved, mg/L

Location: MW-3D

Mean of all data: 1.16
Standard Deviation of all data: 2.03
Largest Observation Concentration of all data: Xn = 11.2
Test Statistic, high extreme of all data: Tn = 4.94
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
08/18/2014	11.2	False		1

Nitrate nitrogen, dissolved, mg/L

Location: MW-5

Mean of all data: 1.29
Standard Deviation of all data: 2.12
Largest Observation Concentration of all data: Xn = 11.4
Test Statistic, high extreme of all data: Tn = 4.77
T Critical of all data: Tcr = 2.92

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/10/2019	11.4	False		1

Nitrate nitrogen, dissolved, mg/L

Location: MW-6

Mean of all data: 1.14
Standard Deviation of all data: 1.95
Largest Observation Concentration of all data: Xn = 10.3
Test Statistic, high extreme of all data: Tn = 4.71
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
08/15/2022	10.3	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Nitrate nitrogen, dissolved, mg/L

Location: MW-6D

Mean of all data: 1.10
Standard Deviation of all data: 2.32
Largest Observation Concentration of all data: Xn = 14.6
Test Statistic, high extreme of all data: Tn = 5.82
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
08/18/2014	14.6	False		1

Nitrate nitrogen, dissolved, mg/L

Location: MW-8

Mean of all data: 1.90
Standard Deviation of all data: 2.58
Largest Observation Concentration of all data: Xn = 10.0
Test Statistic, high extreme of all data: Tn = 3.14
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
10/27/2014	10.0	False		1

Nitrate nitrogen, dissolved, mg/L

Location: MW-9

Mean of all data: 0.886
Standard Deviation of all data: 1.76
Largest Observation Concentration of all data: Xn = 9.27
Test Statistic, high extreme of all data: Tn = 4.77
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
08/18/2014	9.27	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Selenium, dissolved, mg/L

Location: MW-10

Mean of all data: 0.00449
Standard Deviation of all data: 0.00373
Largest Observation Concentration of all data: Xn = 0.0130
Test Statistic, high extreme of all data: Tn = 2.28
T Critical of all data: Tcr = 2.89

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Selenium, dissolved, mg/L

Location: MW-11

Mean of all data: 0.00489
Standard Deviation of all data: 0.00348
Largest Observation Concentration of all data: Xn = 0.0100
Test Statistic, high extreme of all data: Tn = 1.47
T Critical of all data: Tcr = 2.87

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Selenium, dissolved, mg/L

Location: MW-11D

Mean of all data: 0.00377
Standard Deviation of all data: 0.00463
Largest Observation Concentration of all data: Xn = 0.0250
Test Statistic, high extreme of all data: Tn = 4.58
T Critical of all data: Tcr = 2.92

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/24/2015	0.0250	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Selenium, dissolved, mg/L

Location: MW-2

Mean of all data: 0.00462
Standard Deviation of all data: 0.00472
Largest Observation Concentration of all data: Xn = 0.0250
Test Statistic, high extreme of all data: Tn = 4.31
T Critical of all data: Tcr = 2.88

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/14/2021	0.0250	False		1

Selenium, dissolved, mg/L

Location: MW-2D

Mean of all data: 0.00337
Standard Deviation of all data: 0.00342
Largest Observation Concentration of all data: Xn = 0.00900
Test Statistic, high extreme of all data: Tn = 1.65
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Selenium, dissolved, mg/L

Location: MW-3

Mean of all data: 0.00450
Standard Deviation of all data: 0.00392
Largest Observation Concentration of all data: Xn = 0.0160
Test Statistic, high extreme of all data: Tn = 2.93
T Critical of all data: Tcr = 2.79

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
11/02/2021	0.0160	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Selenium, dissolved, mg/L

Location: MW-3D

Mean of all data: 0.00406
Standard Deviation of all data: 0.00403
Largest Observation Concentration of all data: Xn = 0.0160
Test Statistic, high extreme of all data: Tn = 2.97
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/13/2012	0.0160	False		1

Selenium, dissolved, mg/L

Location: MW-5

Mean of all data: 0.00448
Standard Deviation of all data: 0.00500
Largest Observation Concentration of all data: Xn = 0.0220
Test Statistic, high extreme of all data: Tn = 3.51
T Critical of all data: Tcr = 2.94

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/14/2021	0.0220	False		1

Selenium, dissolved, mg/L

Location: MW-6

Mean of all data: 0.00372
Standard Deviation of all data: 0.00363
Largest Observation Concentration of all data: Xn = 0.0130
Test Statistic, high extreme of all data: Tn = 2.56
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Selenium, dissolved, mg/L

Location: MW-6D

Mean of all data: 0.00422
Standard Deviation of all data: 0.00358
Largest Observation Concentration of all data: Xn = 0.0100
Test Statistic, high extreme of all data: Tn = 1.61
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Selenium, dissolved, mg/L

Location: MW-8

Mean of all data: 0.00404
Standard Deviation of all data: 0.00363
Largest Observation Concentration of all data: Xn = 0.0130
Test Statistic, high extreme of all data: Tn = 2.47
T Critical of all data: Tcr = 2.95

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Selenium, dissolved, mg/L

Location: MW-9

Mean of all data: 0.00413
Standard Deviation of all data: 0.00437
Largest Observation Concentration of all data: Xn = 0.0180
Test Statistic, high extreme of all data: Tn = 3.18
T Critical of all data: Tcr = 2.95

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/14/2021	0.0180	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Silver, dissolved, mg/L

Location: MW-10

Mean of all data: 0.000790
Standard Deviation of all data: 0.00127
Largest Observation Concentration of all data: Xn = 0.00800
Test Statistic, high extreme of all data: Tn = 5.69
T Critical of all data: Tcr = 2.88

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
10/25/2016	0.00800	False		1

Silver, dissolved, mg/L

Location: MW-11

Mean of all data: 0.000854
Standard Deviation of all data: 0.00122
Largest Observation Concentration of all data: Xn = 0.00600
Test Statistic, high extreme of all data: Tn = 4.22
T Critical of all data: Tcr = 2.86

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/22/2016	0.00600	False		1

Silver, dissolved, mg/L

Location: MW-11D

Mean of all data: 0.000700
Standard Deviation of all data: 0.00110
Largest Observation Concentration of all data: Xn = 0.00700
Test Statistic, high extreme of all data: Tn = 5.72
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/22/2016	0.00700	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Silver, dissolved, mg/L

Location: MW-2

Mean of all data: 0.000875
Standard Deviation of all data: 0.00160
Largest Observation Concentration of all data: Xn = 0.0100
Test Statistic, high extreme of all data: Tn = 5.70
T Critical of all data: Tcr = 2.87

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/08/2010	0.0100	False		1

Silver, dissolved, mg/L

Location: MW-2D

Mean of all data: 0.00101
Standard Deviation of all data: 0.00123
Largest Observation Concentration of all data: Xn = 0.00600
Test Statistic, high extreme of all data: Tn = 4.06
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
08/29/2016	0.00600	False		1

Silver, dissolved, mg/L

Location: MW-3

Mean of all data: 0.00122
Standard Deviation of all data: 0.00159
Largest Observation Concentration of all data: Xn = 0.00600
Test Statistic, high extreme of all data: Tn = 3.01
T Critical of all data: Tcr = 2.79

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/22/2016	0.00600	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Silver, dissolved, mg/L

Location: MW-3D

Mean of all data: 0.00105
Standard Deviation of all data: 0.00144
Largest Observation Concentration of all data: Xn = 0.00700
Test Statistic, high extreme of all data: Tn = 4.11
T Critical of all data: Tcr = 2.89

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
10/25/2016	0.00700	False		1

Silver, dissolved, mg/L

Location: MW-5

Mean of all data: 0.000903
Standard Deviation of all data: 0.00107
Largest Observation Concentration of all data: Xn = 0.00500
Test Statistic, high extreme of all data: Tn = 3.84
T Critical of all data: Tcr = 2.92

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/22/2016	0.00500	False		1

Silver, dissolved, mg/L

Location: MW-6

Mean of all data: 0.000790
Standard Deviation of all data: 0.00105
Largest Observation Concentration of all data: Xn = 0.00500
Test Statistic, high extreme of all data: Tn = 4.03
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/22/2016	0.00500	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Silver, dissolved, mg/L

Location: MW-6D

Mean of all data: 0.00144
Standard Deviation of all data: 0.00194
Largest Observation Concentration of all data: Xn = 0.00700
Test Statistic, high extreme of all data: Tn = 2.87
T Critical of all data: Tcr = 2.89

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Silver, dissolved, mg/L

Location: MW-8

Mean of all data: 0.00102
Standard Deviation of all data: 0.00140
Largest Observation Concentration of all data: Xn = 0.00600
Test Statistic, high extreme of all data: Tn = 3.56
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/22/2016	0.00600	False		1

Silver, dissolved, mg/L

Location: MW-9

Mean of all data: 0.000854
Standard Deviation of all data: 0.00134
Largest Observation Concentration of all data: Xn = 0.00800
Test Statistic, high extreme of all data: Tn = 5.35
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/22/2016	0.00800	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Sulfate, dissolved, mg/L

Location: MW-10

Mean of all data: 781.
Standard Deviation of all data: 228.
Largest Observation Concentration of all data: Xn = 1170.
Test Statistic, high extreme of all data: Tn = 1.70
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/12/2018	<0.100	True	-1	

Sulfate, dissolved, mg/L

Location: MW-11

Mean of all data: 82.2
Standard Deviation of all data: 66.3
Largest Observation Concentration of all data: Xn = 383.
Test Statistic, high extreme of all data: Tn = 4.54
T Critical of all data: Tcr = 2.88

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/13/2012	383.	False		1

Sulfate, dissolved, mg/L

Location: MW-11D

Mean of all data: 432.
Standard Deviation of all data: 209.
Largest Observation Concentration of all data: Xn = 927.
Test Statistic, high extreme of all data: Tn = 2.37
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Sulfate, dissolved, mg/L

Location: MW-2

Mean of all data: 35.7
Standard Deviation of all data: 43.3
Largest Observation Concentration of all data: Xn = 287.
Test Statistic, high extreme of all data: Tn = 5.81
T Critical of all data: Tcr = 2.87

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/23/2011	287.	False		1

Sulfate, dissolved, mg/L

Location: MW-2D

Mean of all data: 43.4
Standard Deviation of all data: 47.5
Largest Observation Concentration of all data: Xn = 181.
Test Statistic, high extreme of all data: Tn = 2.89
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Sulfate, dissolved, mg/L

Location: MW-3

Mean of all data: 72.8
Standard Deviation of all data: 54.6
Largest Observation Concentration of all data: Xn = 230.
Test Statistic, high extreme of all data: Tn = 2.88
T Critical of all data: Tcr = 2.79

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
08/18/2014	230.	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Sulfate, dissolved, mg/L

Location: MW-3D

Mean of all data: 162.
Standard Deviation of all data: 88.5
Largest Observation Concentration of all data: Xn = 638.
Test Statistic, high extreme of all data: Tn = 5.39
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/23/2011	638.	False		1

Sulfate, dissolved, mg/L

Location: MW-5

Mean of all data: 107.
Standard Deviation of all data: 66.7
Largest Observation Concentration of all data: Xn = 340.
Test Statistic, high extreme of all data: Tn = 3.49
T Critical of all data: Tcr = 2.92

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/10/2014	340.	False		1

Sulfate, dissolved, mg/L

Location: MW-6

Mean of all data: 12.9
Standard Deviation of all data: 12.5
Largest Observation Concentration of all data: Xn = 51.4
Test Statistic, high extreme of all data: Tn = 3.08
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
08/05/2024	51.4	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Sulfate, dissolved, mg/L

Location: MW-6D

Mean of all data: 243.
Standard Deviation of all data: 85.6
Largest Observation Concentration of all data: Xn = 443.
Test Statistic, high extreme of all data: Tn = 2.34
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Sulfate, dissolved, mg/L

Location: MW-8

Mean of all data: 124.
Standard Deviation of all data: 32.8
Largest Observation Concentration of all data: Xn = 250.
Test Statistic, high extreme of all data: Tn = 3.83
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/14/2021	250.	False		1

Sulfate, dissolved, mg/L

Location: MW-9

Mean of all data: 173.
Standard Deviation of all data: 58.1
Largest Observation Concentration of all data: Xn = 365.
Test Statistic, high extreme of all data: Tn = 3.31
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
11/05/2012	365.	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Total Dissolved Solids, mg/L

Location: MW-10

Mean of all data: 1570.
Standard Deviation of all data: 260.
Largest Observation Concentration of all data: Xn = 2130.
Test Statistic, high extreme of all data: Tn = 2.17
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Total Dissolved Solids, mg/L

Location: MW-11

Mean of all data: 756.
Standard Deviation of all data: 374.
Largest Observation Concentration of all data: Xn = 2770.
Test Statistic, high extreme of all data: Tn = 5.38
T Critical of all data: Tcr = 2.88

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
08/23/2017	2770.	False		1

Total Dissolved Solids, mg/L

Location: MW-11D

Mean of all data: 1260.
Standard Deviation of all data: 307.
Largest Observation Concentration of all data: Xn = 1730.
Test Statistic, high extreme of all data: Tn = 1.53
T Critical of all data: Tcr = 2.93

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
09/10/2019	280.	False	-1	

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Total Dissolved Solids, mg/L

Location: MW-2

Mean of all data: 726.
Standard Deviation of all data: 219.
Largest Observation Concentration of all data: Xn = 1560.
Test Statistic, high extreme of all data: Tn = 3.80
T Critical of all data: Tcr = 3.10

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
06/24/2005	1560.	False		1

Total Dissolved Solids, mg/L

Location: MW-2D

Mean of all data: 760.
Standard Deviation of all data: 156.
Largest Observation Concentration of all data: Xn = 950.
Test Statistic, high extreme of all data: Tn = 1.21
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Total Dissolved Solids, mg/L

Location: MW-3

Mean of all data: 735.
Standard Deviation of all data: 138.
Largest Observation Concentration of all data: Xn = 1130.
Test Statistic, high extreme of all data: Tn = 2.83
T Critical of all data: Tcr = 3.03

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
11/05/2018	290.	False	-1	

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Total Dissolved Solids, mg/L

Location: MW-3D

Mean of all data: 580.
Standard Deviation of all data: 93.4
Largest Observation Concentration of all data: Xn = 772.
Test Statistic, high extreme of all data: Tn = 2.05
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Total Dissolved Solids, mg/L

Location: MW-5

Mean of all data: 763.
Standard Deviation of all data: 194.
Largest Observation Concentration of all data: Xn = 1320.
Test Statistic, high extreme of all data: Tn = 2.88
T Critical of all data: Tcr = 3.15

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
11/05/2018	50.0	False	-1	

Total Dissolved Solids, mg/L

Location: MW-6

Mean of all data: 507.
Standard Deviation of all data: 102.
Largest Observation Concentration of all data: Xn = 1040.
Test Statistic, high extreme of all data: Tn = 5.23
T Critical of all data: Tcr = 3.11

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
06/30/2004	1040.	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Total Dissolved Solids, mg/L

Location: MW-6D

Mean of all data: 704.
Standard Deviation of all data: 167.
Largest Observation Concentration of all data: Xn = 960.
Test Statistic, high extreme of all data: Tn = 1.54
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Total Dissolved Solids, mg/L

Location: MW-8

Mean of all data: 736.
Standard Deviation of all data: 129.
Largest Observation Concentration of all data: Xn = 1030.
Test Statistic, high extreme of all data: Tn = 2.28
T Critical of all data: Tcr = 3.17

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Total Dissolved Solids, mg/L

Location: MW-9

Mean of all data: 907.
Standard Deviation of all data: 183.
Largest Observation Concentration of all data: Xn = 1400.
Test Statistic, high extreme of all data: Tn = 2.70
T Critical of all data: Tcr = 3.18

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side

No Outliers

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Zinc, dissolved, mg/L

Location: MW-10

Mean of all data: 0.00628
Standard Deviation of all data: 0.00863
Largest Observation Concentration of all data: Xn = 0.0480
Test Statistic, high extreme of all data: Tn = 4.83
T Critical of all data: Tcr = 2.89

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/18/2015	0.0480	False		1

Zinc, dissolved, mg/L

Location: MW-11

Mean of all data: 0.00684
Standard Deviation of all data: 0.00906
Largest Observation Concentration of all data: Xn = 0.0490
Test Statistic, high extreme of all data: Tn = 4.65
T Critical of all data: Tcr = 2.87

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/18/2015	0.0490	False		1

Zinc, dissolved, mg/L

Location: MW-11D

Mean of all data: 0.00681
Standard Deviation of all data: 0.00943
Largest Observation Concentration of all data: Xn = 0.0500
Test Statistic, high extreme of all data: Tn = 4.58
T Critical of all data: Tcr = 2.92

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/18/2015	0.0500	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Zinc, dissolved, mg/L

Location: MW-2

Mean of all data: 0.0152
Standard Deviation of all data: 0.0557
Largest Observation Concentration of all data: Xn = 0.454
Test Statistic, high extreme of all data: Tn = 7.88
T Critical of all data: Tcr = 3.10

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/18/2015	0.454	False		1

Zinc, dissolved, mg/L

Location: MW-2D

Mean of all data: 0.00669
Standard Deviation of all data: 0.00828
Largest Observation Concentration of all data: Xn = 0.0480
Test Statistic, high extreme of all data: Tn = 4.99
T Critical of all data: Tcr = 2.91

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/18/2015	0.0480	False		1

Zinc, dissolved, mg/L

Location: MW-3

Mean of all data: 0.0106
Standard Deviation of all data: 0.0169
Largest Observation Concentration of all data: Xn = 0.108
Test Statistic, high extreme of all data: Tn = 5.76
T Critical of all data: Tcr = 3.02

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/08/2008	0.108	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Zinc, dissolved, mg/L

Location: MW-3D

Mean of all data: 0.00606
Standard Deviation of all data: 0.0101
Largest Observation Concentration of all data: Xn = 0.0500
Test Statistic, high extreme of all data: Tn = 4.33
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/18/2015	0.0500	False		1

Zinc, dissolved, mg/L

Location: MW-5

Mean of all data: 0.00685
Standard Deviation of all data: 0.00958
Largest Observation Concentration of all data: Xn = 0.0500
Test Statistic, high extreme of all data: Tn = 4.50
T Critical of all data: Tcr = 3.15

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/24/1998	<0.0500	True		1

Zinc, dissolved, mg/L

Location: MW-6

Mean of all data: 0.0146
Standard Deviation of all data: 0.0554
Largest Observation Concentration of all data: Xn = 0.478
Test Statistic, high extreme of all data: Tn = 8.37
T Critical of all data: Tcr = 3.11

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
02/24/1998	0.478	False		1

Based on Grubbs one-sided outlier test

Venice
Outlier Analysis Results

User Supplied Information

Date Range: 06/27/1996 to 07/08/2025
LT Multiplier: x 0.50
Confidence Level: 95%
Number of Outliers: One Outlier
Transform: None

Zinc, dissolved, mg/L

Location: MW-6D

Mean of all data: 0.00554
Standard Deviation of all data: 0.00918
Largest Observation Concentration of all data: Xn = 0.0420
Test Statistic, high extreme of all data: Tn = 3.97
T Critical of all data: Tcr = 2.90

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
05/18/2015	0.0420	False		1

Zinc, dissolved, mg/L

Location: MW-8

Mean of all data: 0.00713
Standard Deviation of all data: 0.0109
Largest Observation Concentration of all data: Xn = 0.0720
Test Statistic, high extreme of all data: Tn = 5.97
T Critical of all data: Tcr = 3.17

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
03/17/2011	0.0720	False		1

Zinc, dissolved, mg/L

Location: MW-9

Mean of all data: 0.00676
Standard Deviation of all data: 0.00824
Largest Observation Concentration of all data: Xn = 0.0500
Test Statistic, high extreme of all data: Tn = 5.25
T Critical of all data: Tcr = 3.17

Sample Date	Value	LT_Value	Outlier Low Side	Outlier High Side
12/21/2004	<0.0500	True		1

Based on Grubbs one-sided outlier test

APPENDIX D2
TEST DESCRIPTIONS

ELECTRIC POWER RESEARCH INSTITUTE

MANAGES

Groundwater Data Management and Evaluation Software

Software Manual Product ID #1012581

Software Manual, February 2010

EPRI Project Manager
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10
STATISTICAL ANALYSIS

Stand-Alone Statistical Tests

Statistical Evaluation Report

The Statistical Evaluation Report is comprised of a series of subreports as described below.

User Selections:

- One location.
- Sample date range for data selection.
- Interval length: the length of the averaging period in months (1,2,3,4, or 6).
- One parameter.
- Non-detect processing: multiplier between 0 and 1.
- One-sided confidence $(1-\alpha)$ level – 0.90, 0.95 or 0.99.
- Limit type: used in the statistical overview to determine exceedances.

Mann-Kendall Trend and Seasonal Analysis Tests

The Mann-Kendall test for trend is insensitive to the presence or absence of seasonality. The test is non-parametric and does not assume any type of data distribution. Nonetheless, two forms of the test are provided in MANAGES, one ignoring data seasonality even if it is present, and one considering data seasonality. In the test, the null hypothesis, H_0, is that the Sen trend is zero, and the alternate hypothesis, H_a, is that the trend is non-zero.

In general, the Mann-Kendall test considering seasonality indicates a larger range for allowable Sen estimate of trend when seasonality is actually present than the range indicated by the test performed ignoring seasonality.

In the Mann-Kendall Trend Analysis, available in under the Statistical Evaluation Report and in the Statistical Procedure for Detection Monitoring, and Mann-Kendall Seasonal Analysis, found under the Statistical Evaluation Report, MANAGES first calculates the Sen slope and the upper and lower confidence limits of the Sen slope, and then determines whether the Sen slope is statistically significant. Slope is statistically significant if it is non-zero.

Mann-Kendall Test for Sen Slope Significance – a two-sided, non-parametric method for data sets as small as 10, unless there are many tied (e.g., equal, NDs are treated as tieds) values (Gilbert, 1987; p. 208)	
Indicator Function $\mathrm{sgn}(x_{ij} - x_{jk})$	= 1 if $(x_{ij} - x_{jk}) > 0$ = 0 if $(x_{ij} - x_{jk}) = 0$ = -1 if $(x_{ij} - x_{jk}) < 0$ where $x_{i1}, x_{i2}, \ldots, x_{in}$ are the time ordered data (n_i is total of data in the i-th season).
Mann-Kendall Statistic, S_i	$= \sum_{k=1}^{n_i-1} \sum_{j=k+1}^{n_i} \mathrm{sgn}(x_{ij} - x_{jk})$
Variance of S_i $VAR(S_i)$	$VAR(S_i) =$ $\frac{1}{18}\left\{ n_i(n_i-1)(2n_i+5) - \sum_{p=1}^{g_i} t_{ip}(t_{ip}-1)(2t_{ip}+5) - \sum_{q=1}^{h_i} u_{iq}(u_{iq}-1)(2u_{iq}+5) \right\}$ $+ \frac{\sum_{p=1}^{g_i} t_{ip}(t_{ip}-1)(t_{ip}-2) \sum_{q=1}^{h_i} u_{iq}(u_{iq}-1)(u_{iq}-2)}{9n_i(n_i-1)(n_i-2)}$ $+ \frac{\sum_{p=1}^{g_i} t_{ip}(t_{ip}-1) \sum_{q=1}^{h_i} u_{iq}(u_{iq}-1)}{2n_i(n_i-1)}.$ The variable g_i is the number of tied groups (equal-valued) data in the i-th season, t_{ip} is the number of tied data in the p-th group for the i-th season, h_i is the number of sampling times (or time periods) in the i-th season that contain multiple data, u_{iq} is the number of multiple data in the q-th time period in the i-th season, and n_i is the number of data values in the i-th season.

Test Statistic, Z	If $S' = \sum_{i=1}^{K} S_i$, where K is the number of seasons, then the test statistic Z is computed as: $$Z = \begin{cases} \dfrac{S'-1}{[VAR(S')]^{1/2}} & \text{iff } S' > 0 \\ 0 & \text{iff } S' = 0 \\ \dfrac{S'+1}{[VAR(S')]^{1/2}} & \text{iff } S' < 0 \end{cases}$$ Where "iff" is an acroym meaning: if-and-only-if. A positive Z value means an upward trend and a negative Z value means a negative trend.
Hypothesis Test: H_0 = no trend H_a = trend present This is a two-sided test at the α significance level.	Accept the null hypothesis H_0 of no trend if $\lvert Z \rvert \leq Z_{1-\alpha/2}$ Reject the null hypothesis H_0 if $\lvert Z \rvert > Z_{1-\alpha/2}$ where $Z_{1-\alpha/2}$ is obtained from Table A1 in Gilbert (1987; p. 254).

Kruskal-Wallis Analysis (Test for Seasonality)

To perform the Kruskal-Wallis test for data seasonality, data points are first segmented according to season (Gilbert, 1987). The null hypothesis, H_0, is that all seasons have the same mean value. The alternative hypothesis, H_a ,is that at least one season has a mean larger or smaller than the mean of at least one other season. Montgomery et al. (1987) provide additional information on groundwater data seasonality. This is a two-sided, non-parametric test.

In MANAGES, the Kruskal-Wallis Test for Seasonality is found under Data Review // Non-Parametric Methods // Kruskal-Wallis Analysis. It determines whether the seasonal means for the specified parameter at the specified location are statistically the same.

	or $Z_i \geq SCL$.

Outlier Tests

Outlier tests are useful in detecting inconsistencies of measurement within a data set. An outlier is defined as an observation that appears to deviate markedly from other values of a sample set. There are many possible reasons for the presence of an outlier, including 1) the presence of a true but extreme value from a single population, resulting from random variability inherent in the data; 2) an improper identification of the underlying distribution describing the population from which the sample set comes from; 3) the occurrence of some unknown event(s) such as a spill, creating a mixture of two or more populations; 4) a gross deviation from prescribed sampling procedures or laboratory analysis; 5) a transcription error in the data value or data unit of measurement.

USEPA (1989; p. 8-11) states that the purpose of a test for outliers is to determine whether or not there is statistical evidence that an observation that appears extreme does not fit the distribution of the rest of the data. If an observation is identified as an outlier, then steps need to be taken to determine whether it is the result of an error or a valid extreme observation. If a true error, such as in transcription, dilution, or analytical procedure, can be identified, then the suspect value should be replaced with its corrected value. If the source of the error can be determined but no correction is possible, then the observation is deleted and the reason for deletion is reported along with any statistical analysis. If no source of error can be documented, then it must be assumed that the observation is a true but extreme value of the data set. If this is the case, the outlier observation(s) must not be altered or excluded from any statistical analysis. Identification of an observation as an outlier but with no error documented could be used to suggest resampling to confirm the value (USEPA, 1989; p. 8-13).

The outlier tests provided in MANAGES are based on either the single outlier test of Grubbs (1969), which is used by USEPA (1989; pp. 8-10 to 8-13) or the single outlier test of Dixon (1951, 1953), which is used by USEPA (2000; pp. 4-24) and by ASTM (1998). The outlier tests assume the data come from a normal distribution. Only one outlier, either an extreme low or an extreme high, can be detected during a single analysis of a data set. Additional outliers can be detected by temporarily removing a previously detected outlier from a data set and then repeating the test on the remaining, reduced, data set. During each pass of the outlier test, the sample mean, standard deviation, and sample size used in the test statistics are computed using only the data remaining in the set. The process can be continued until there is either an insufficient amount of data remaining (a minimum of 3 values) or when no additional outliers are found. When using MANAGES, the user will be asked how many outliers are to be checked and it will then automatically perform all of the recursive calls and data reductions with the Grubbs or Dixon routine. When done, a report can be generated that will show each outlier marked with a flag indicating the sequential order in which the outliers were identified.

Critical values used in the one-sided Grubbs test are taken directly from those in Grubbs and Beck (1972) for sample sizes smaller than 147 observations. Critical values for sample sizes larger than 147 were generated numerically using a Monte Carlo routine, where each sampling event was simulated 100,000 times. Sample sizes ranging from 148 to 5,000 where used and then their resultant test statistic T_n curve fitted at specific significance levels. By this method, it was possible to match Grubbs results to at least four significant digits for corresponding tabulated values.

Critical values used in the one-sided Dixon outlier test are taken directly from tables given in Dixon (1951), Dixon (1953; page 89), and USEPA (2000; p. A-5, Table A-3). The critical values were then curve fitted for every sample size between 3 and 25 as a function of the significance level. By this method, it was possible to match Dixon's results to at least four significant digits for corresponding tabulated values. Note that the Dixon test assumes the data are either normally or lognormally distributed. Hence, sample sizes can only range between 3 and 25, inclusive. Dixon never developed an outlier test for sample sizes larger than 25.

User Selections:

- One or up to 100 locations: a separate test is performed for each location.
- One or up to 100 parameters: a separate test is performed for each parameter.
- Evaluation date range.
- Confidence $(1-\alpha)$ level: 0.90, 0.95 or 0.99.
- Non-detect processing: multiplier between 0 and 1.
- Data transformation option: none and log (base e).
- Number of outliers: one, two, first 5%, first 10%. Selecting any option other than one causes MANAGES to rerun the test, with outliers from prior tests removed, until either no outliers are detected or the specified number of outliers are detected.

Technical Details

Grubbs Outlier Test – The Grubbs outlier test determines whether there is statistical evidence that an observation does not fit the remaining data (USEPA, 1989; p. 8-11). This significance test looks at either the highest or the lowest observation in normal samples.	
The number of observations taken during a specified scoping period; n	*n*

Mean of the observed data during the scoping period; $\overline{X}$	$\overline{X} = \frac{1}{n}\sum_{i=1}^{n} X_i$ where X_i is the i-th observation.
Standard deviation of observed data; S_x.	$S_x = \sqrt{\frac{1}{(n-1)}\sum_{i=1}^{n}(X_i - \overline{X})^2}$
Test statistics: T_l & T_n	Sort the data into ascending order, then compute the statistics $T_l = (\overline{X} - X_l)/S_x$ $T_n = (X_n - \overline{X})/S_x$ where X_l is the smallest value of the n observations and X_n is the largest value of the n observations.
One-sided test with a (1-α) confidence level that there is a single extreme outlier within the n observations.	Grubbs single, one-sided test of either an extreme low outlier : X_l *is an outlier if* $T_l \geq T_{cr(1-\alpha,n)}$ or an extreme high outlier: X_n *is an outlier if* $T_n \geq T_{cr(1-\alpha,n)}$. The function $T_{cr(1-\alpha,n)}$ is the critical value, given in Grubbs and Beck (1972; Table 1) and USEPA (1989; p. B-11, Table 8) . Note that the critical value assumes that the mean and standard deviation are computed from the sample being tested.

Dixon Outlier Test – The Dixon outlier test determines whether there is statistical evidence that an extreme observation does not fit the remaining data (USEPA, 2000; p. 4-24 and ASTM D6312, 1998). This significance test looks at both the highest and the

lowest observations in a sample data set. However, the routine will only perform the outlier tests if several conditions are first satisfied. For example, the Dixon outlier algorithm checks the distribution of the sample data for both normality and lognormality using the Shapiro-Wilk W-test. The outlier routine will not proceed with a data set if the W-test fails. In addition, the Dixon outlier test is limited to a minimum of 3 and a maximum sample size n of 25 data values.	
The number of observations taken during a specified scoping period; n	Number of observations, n, where $3 \le n \le 25$.
Sorting the sample data	Sort the data into ascending order, with the minimum data value $X_{(1)}$ first and the maximum data value $X_{(n)}$ last. Use the natural log of the data values if data are lognormally distributed, i.e., $X_{(j)} = \text{Ln}[X_{(j)}]$.
Goodness-of fit tests	After temporarily excluding either the minimum or maximum value of the data set, the Shapiro-Wilk's W-test is used to determine if the remaining $n-1$ values are normally or lognormally distributed. If not, the Dixon outlier test can't be used.
Test statistic, T_s, for the minimum data value	Compute the T_s test statistic for $X_{(1)}$ as an outlier: $T_s = \frac{X_{(2)} - X_{(1)}}{X_{(n)} - X_{(1)}}$ *for* $3 \le n \le 7$ $T_s = \frac{X_{(2)} - X_{(1)}}{X_{(n-1)} - X_{(1)}}$ *for* $8 \le n \le 10$ $T_s = \frac{X_{(3)} - X_{(1)}}{X_{(n-1)} - X_{(1)}}$ *for* $11 \le n \le 13$ $T_s = \frac{X_{(3)} - X_{(1)}}{X_{(n-2)} - X_{(1)}}$ *for* $14 \le n \le 25.$
Test statistic, T_s, for the maximum data value	Compute the T_s test statistic for $X_{(n)}$ as an outlier:

	$T_s = \frac{X_{(n)} - X_{(n-1)}}{X_{(n)} - X_{(1)}}$ *for* $3 \le n \le 7$ $T_s = \frac{X_{(n)} - X_{(n-1)}}{X_{(n)} - X_{(2)}}$ *for* $8 \le n \le 10$ $T_s = \frac{X_{(n)} - X_{(n-2)}}{X_{(n)} - X_{(2)}}$ *for* $11 \le n \le 13$ $T_s = \frac{X_{(n)} - X_{(n-2)}}{X_{(n)} - X_{(3)}}$ *for* $14 \le n \le 25$.
Critical value T_c	USEPA (2000; p. A-5, Table A-3) lists the critical values of the Dixon test as a function of sample size for a one-sided extreme value test at the significance levels α of 0.1, 0.05, and 0.01.
One-sided test with a (1-α) confidence level that there is a single extreme outlier within the n observations.	Dixon's single, one-sided test for statistical evidence of either an extreme low-valued outlier: $X_{(1)}$ *is an outlier if* $T_s \ge T_c$ or an extreme high-valued outlier: $X_{(n)}$ *is an outlier if* $T_s \ge T_c$. The function T_c is the critical value, given in Dixon (1953; page 89) and USEPA (2000; p. A-5, Table A-3). Note that the critical value assumes that the data are either normally or lognormally distributed.

Other Statistical Calculations Used in MANAGES

Sen Estimate of Slope

The Sen estimate of slope is the median of all slopes between all possible unique pairs of individual data points in the time period being analyzed (Gilbert, 1987). The slopes represent the rate of change of the measured parameter, with the y-axis being the parameter value and the x-axis being calendar days. Sen's estimate of slope is a non-parametric estimator of trend. The method is robust, and fairly insensitive to the presence of a small fraction of outliers and non-detect data values. In contrast, linear regression and other least squares estimators of slope are significantly more sensitive, and more likely to give erroneous slope indications, even when only a few outlier values are present.

When data averaging is not activated, the Sen slope is calculated using individual data points and actual sampling dates. When data averaging is activated, multiple data points within each specified season period are reduced to one data point by arithmetic averaging over each of the season periods. These averaged values are then assigned to the day that corresponds to the middle of that season's period.

The approximate lower and upper confidence limits for the Sen slope can also be calculated using normal theory (Gilbert, 1987). It should be noted that confidence limits for the Sen slope are not necessarily symmetrical about the estimated slope since ranked values of slope are used in the calculation.

MANAGES calculates Sen slope in the Sen Slope Overlay Graph, Statistical Summary reports and in the two Mann-Kendall tests performed under the Statistical Evaluation Report.

Sen's Estimate of Slope – two-sided, non-parametric method that calculates the trend of a single data series. It is less sensitive to outliers and non-detect values than linear regression (Gilbert, 1987; p. 217).	
Slope, Q	$= \frac{x_{i'} - x_i}{i' - i}$ where $X_{i'}$ and x_i are data values at times i' and i, respectively, and where $i'>i$. Typically, i' and i are expressed in units of either days for trend analysis or years for seasonal analysis.
N′	Number of unique data point pairs that can be made for the observations in the data set, for $i'>i$. For n monitoring events, N′ is given as: N′ = n(n-1)/2

Sen's Slope Estimate	Sen's slope estimator = median slope $= Q_{[(N'+1)/2]}$ if N' is odd $= \frac{1}{2}(Q_{[N'/2]} + Q_{[(N'+2)/2]})$ if N' is even where the Q values have first been ranked from smallest to largest.
$Z_{1-\alpha/2}$	Statistic for the cumulative normal distribution (Gilbert, 1987; p. 254) for the two-sided, α significance level.
Variance estimate of the Mann-Kendall S Statistic, VAR(S)	VAR(S) $= \frac{1}{18}\left[n(n-1)(2n+5) - \sum_{p=1}^{g} t_p(t_p-1)(2t_p+5)\right]$ where g is the number of tied groups, t_p is the number of data in the pth group, and n is the number of data values.
C_α	$= Z_{1-\alpha/2}\sqrt{VAR(S)}$
Sen's Slope , a two-sided test at the α significance level	$M_1 = \frac{(N'-C_\alpha)}{2}$ $M_2 = \frac{(N'+C_\alpha)}{2}$ Lower limit of confidence interval is the M_1-th largest slope, and upper limit of confidence interval is the (M_2+1)-th largest of the N′ ordered slope estimates.

Coefficient of Skewness for Normality

The coefficient of skewness is another measure for data normality (Gilbert, 1987). MANAGES provides the value of the coefficient of skewness in the Statistical Evalueation Report, Statistical Overview. Additional information on data normality is given by Montgomery, et al. (1987).