



January 14, 2025

Mr. Mark Bertram
Big Rivers Electric Corporation
Administrative Services
Director Environmental Services
710 West 2nd Street
Owensboro, KY 42301

Re: Statistical Evaluation of September and October 2024 Assessment Monitoring
Groundwater Data
D.B. Wilson Station Phase II CCR Landfill in Centertown, Kentucky
Agency Interest ID #: 3319

Dear Mr. Bertram:

This letter presents the results of the statistical evaluation of analytical data from the September and October 2024 assessment monitoring event performed at the D.B. Wilson Station Phase II CCR Landfill in Centertown, Kentucky in accordance with the requirements of the U.S. Environmental Protection Agency's *Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments* (40 Code of Federal Regulations [CFR] Part 257, Subpart D). This letter also presents a comparison of the September and October 2024 sampling results to groundwater protection standards (GWPSs). The GWPSs for the groundwater monitoring network were reviewed and updated as part of the statistical evaluation completed for the September and October 2024 sampling event and are presented on **Table 1**. These GWPSs will continue to be reviewed and updated as additional data are collected. A comparison of the September and October 2024 data to the updated GWPSs is presented on **Table 2**. The statistical evaluation presented herein was performed in accordance with the *Update to Certification of Statistical Method for Evaluating Groundwater in accordance with 40 CFR § 257.93 at D.B Wilson Station Phase II CC Landfill in Centertown, Kentucky* dated May 25, 2022.

In September and October 2024, the Phase II CCR Landfill Groundwater Monitoring Well Network was sampled for Appendix III and Appendix IV parameters per the requirements of 40 CFR §257.95(d)(1). Interwell prediction limit statistical analyses were performed for these well/constituent pairs and are discussed subsequently. GWPSs were also developed in accordance with 40 CFR §257.95(h), which describes a GWPS as one of the following: the higher value between a statistically calculated background concentration for an analyte; the established maximum concentration limit (MCL); or the GWPS criteria for select Appendix IV parameters without an MCL presented in 40 CFR §257.95(h)(2). This letter presents the results of the statistical evaluation of the September and October 2024 assessment monitoring event for inclusion in the Phase II CCR Landfill Operating Record.

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Statistical Evaluation of Phase II CCR Landfill Compliance Monitoring Well Network Evaluation

A review of the interwell prediction limit evaluation was performed to compare the September and October 2024 concentrations of Appendix III and Appendix IV parameters observed at CCR downgradient compliance monitoring wells MW-5, MW-6, MW-7, and MW-10 to calculated prediction limits (i.e., background limits) that were established using data collected from April of 2016 through October of 2024 from upgradient monitoring well MW-8. Note, any data qualified as rejected or considered an outlier (statistically or flagged using professional judgment) during the data review were excluded from the statistical analysis. Certain parameters were detected in September and October 2024 at concentrations above the calculated background limits (equivalent to the MW-8 prediction limits), and a summary is included in **Attachment 1**. This included the following well/constituent pairs for downgradient compliance monitoring wells with statistically significant increases (SSIs) above calculated background limits:

Appendix III Parameters:

- Boron (MW-5, MW-6, MW-7, and MW-10)
- Calcium (MW-5, MW-6, MW-7, and MW-10)
- Chloride (MW-5, MW-6, MW-7, and MW-10)
- Total Dissolved Solids (TDS) (MW-5, MW-6, MW-7 and MW-10)

Appendix IV Parameters:

- Cobalt (MW-10)
- Lithium (MW-5, MW-6 and MW-7)
- Mercury (MW-10)

Results of exceedances of background were generally consistent with the April 2024 statistical results. Sulfate (MW-5, MW-6, and MW-7) SSIs were present in April 2024, but were not present in this event. Additionally, the TDS (MW-7) SSI that was exhibited in this event was not present in the April 2024 event. Mercury (MW-10) was not historically been an SSI and has historically been non-detect until 2024. All other above-noted Appendix III and Appendix IV SSIs continue to occur at downgradient compliance monitoring wells in the September and October 2024 statistical analysis. Regarding the initial SSI for mercury, the field blank and several wells for this sampling event exhibited mercury detections that were not consistent with historical data. The ambient air sample (Field Blank) was collected at MW-5 and yielded a concentration significantly over its reporting limit. The laboratory was contacted to confirm these mercury results and indicated no presence of carryover was evident in the laboratory preparation and

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analysis procedures. However, corresponding mercury field blanks were also collected at each well, and these were all non-detect, further indicating suspicion of these mercury detections. Because of this, these detections were not rejected during the data validation based on the suspicion of carryover. All mercury detections were qualified as estimated (J) based on professional judgment. Verification sampling for these mercury detections will be performed in Spring 2025 at the next semiannual sampling event. At that time, if these mercury detections are no longer present, these 2nd Half 2024 data may be revisited and rejected as anomalous results and excluded from subsequent statistical analyses following the verification sampling event next Spring 2025.

The Appendix IV constituents with SSIs (cobalt and lithium) were further evaluated to determine whether they are present at statistically significant levels (SSLs) over the GWPS by calculating the lower confidence limit (LCL) at 95% confidence for each well and constituent using the Baseline, Detection, and Assessment monitoring results collected to date from each monitoring well. For a constituent to be present at an SSL over the GWPS, its LCL must be greater than the GWPS. The comparison of the calculated LCLs with the GWPSs for cobalt and lithium at downgradient compliance monitoring wells MW-5, MW-6, MW-7, and MW-10 resulted in the following well/constituent pair(s) with a SSL above the GWPS:

- Cobalt (MW-10)

The LCLs for the remaining well/constituent pairs for cobalt and lithium were either equal to or less than the GWPS; thus, are not considered SSLs. **Attachment 1** provides a summary of the calculated LCLs in comparison with the GWPSs. The cobalt SSL above the GWPS was consistent with the April/October 2023 and April 2024 results as cobalt at MW-10 was reported as SSLs in the past three events. Lithium at MW-6 was reported as an SSL in the April/October 2023 events; however, it was not present as an SSL in this event nor the April 2024 event (LCL was equal to the GWPS).

Given that certain Appendix III and IV constituents were observed within the Phase II CCR Landfill groundwater monitoring network at concentrations above their respective calculated background limit and/or the LCL for certain Appendix IV constituents was greater than the corresponding GWPSs, these results do not warrant a transition to detection monitoring per the requirements of 40 CFR §257.95(f) and assessment monitoring will continue for the next first half semiannual monitoring event in 2025.



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Sincerely,

Burns & McDonnell Engineering Company, Inc.

A handwritten signature in blue ink that reads "Chris Hoglund". The signature is fluid and cursive, with the first name "Chris" and last name "Hoglund" clearly distinguishable.

Chris Hoglund, PG
Project Manager

Attachments:

Table 1 – Calculated Background and Groundwater Protection Standards for Groundwater

Table 2 – Summary of September and October 2024 Analytical Results

Attachment 1 – Sanitas™ Statistical Outputs for Phase II CCR Landfill Compliance Monitoring Network

cc: Diana Merritt, BREC Wilson Station

TABLES

Table 1
Calculated Background and Groundwater Protection Standards for Groundwater
D.B. Wilson Station Phase II CCR Landfill in Centertown, Kentucky

Detection Monitoring Constituents (Appendix III)	Units	Background*	MCL	40 CFR §257.95(h)(2) Criteria	Groundwater Protection Standard
Boron	mg/L	0.0518	--	--	--
Calcium	mg/L	349	--	--	--
pH	SU	4.67 - 6.84	--	--	--
Total Dissolved Solids	mg/L	1849	--	--	--
Chloride	mg/L	5.584	--	--	--
Fluoride	mg/L	1.21	4	--	4
Sulfate	mg/L	2180	--	--	--
Assessment Monitoring Constituents (Appendix IV)	Units	Background*	MCL	40 CFR §257.95(h)(2) Criteria	Groundwater Protection Standard
Antimony	mg/L	0.0025	0.006	--	0.006
Arsenic	mg/L	0.0144	0.01	--	0.0144
Barium	mg/L	0.07	2	--	2
Beryllium	mg/L	0.002	0.004	--	0.004
Cadmium	mg/L	0.0005	0.005	--	0.005
Chromium	mg/L	0.0224	0.1	--	0.1
Cobalt	mg/L	0.009	--	0.006	0.009
Fluoride	mg/L	1.21	4	--	4
Lead	mg/L	0.012	--	0.015	0.015
Lithium	mg/L	0.02	--	0.04	0.04
Mercury	mg/L	0.000005	0.002	--	0.002
Molybdenum	mg/L	0.0187	--	0.1	0.1
Combined Radium 226 and 228**	pCi/L	2.94	5	--	5
Selenium	mg/L	0.0015	0.05	--	0.05
Thallium	mg/L	0.001	0.002	--	0.002

Notes:

*Background concentrations were determined utilizing interwell prediction limits (Attachment 1). Upgradient Monitoring Well MW-8 was used to calculate background concentrations. This included background data ranging from April 2016 through April 2024. For pH, background is between those values presented.

**Combined radium is reported with an uncertainty range. However, this range cannot be incorporated into statistical calculations as it varies per result and is not a standard value. Therefore, to maintain consistency in reporting these results, the reported laboratory concentration was used for the statistical analyses.

CFR - Code of Federal Regulations

mg/L - milligrams per Liter

pCi/L - picocuries per Liter

MCL - Maximum Contaminant Level

SU - standard units

Table 2
Summary of September and September-October 2024 Analytical Results
D.B. Wilson Station Phase II CCR Landfill in Centertown, Kentucky

Sample Location: Sample Date: Laboratory ID(s): All analytes excl. Radium/Radium only Note(s):			2nd Half 2024 Calculated Background ¹	GWPS ²	MW-5 10/1/2024 4101343-11 Downgradient	MW-6 9/30/2024 4101343-13 Downgradient	MW-7 10/1/2024 4101343-15 Downgradient	MW-8 9/30/2024 4101343-17 Upgradient Well	MW-10 9/30/2024 4101343-19 Downgradient
Analytical Method	Analyte	Unit			CCR Compliance Monitoring Well Network				
Appendix III - Detection Monitoring									
6010B	Boron	mg/L	0.0518	--	0.88	1.00 D1, M2	3.33 D1	0.10 U	0.46
6010B	Calcium	mg/L	349	--	620 D1	475 D1, M3	405 D1	220 D1	437 D1
In Situ	pH	SU	4.67 - 6.84	--	6.32	6.56	6.48	6.66	5.92
2540 C-2015	Total Dissolved Solids	mg/L	1842	--	3000	2640	2260	1440	3210
300.0 REV 2.1	Chloride	mg/L	5.546	--	275 D	46.3	104	4.0	62.3
300.0 REV 2.1	Fluoride	mg/L	0.4533	4	0.20 U	0.21	0.25	0.27	0.20 U
300.0 REV 2.1	Sulfate	mg/L	2180	--	1790 D	1500 D	1070 D	711 D	1960 D
Appendix IV - Assessment Monitoring									
6020A	Antimony	mg/L	0.0025	0.006	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
6020A	Arsenic	mg/L	0.0144	0.0144	0.0026	0.0049	0.0040	0.0060	0.0025
6020A	Barium	mg/L	0.07	2	0.010	0.011	0.012	0.022	0.009
6020A	Beryllium	mg/L	0.002	0.004	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U
6020A	Cadmium	mg/L	0.0005	0.005	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0001 J
6020A	Chromium	mg/L	0.0224	0.1	0.0020 U	0.0020 U	0.0020 U	0.0031	0.0006 J
6020A	Cobalt	mg/L	0.009	0.009	0.005	0.007	0.004 U	0.004 U	0.082
300.0 REV 2.1	Fluoride	mg/L	0.4533	4	0.20 U	0.21	0.25	0.27	0.20 U
6020A	Lead	mg/L	0.012	0.015	0.002 U	0.002 U	0.002 U	0.001 J	0.002 U
6020A	Lithium	mg/L	0.02	0.04	0.04	0.04	0.03	0.009 J	0.007 J
245.7 REV 2	Mercury	mg/L	0.0000038	0.002	5.0 U	5.0 M2, UJ	5.0 U	0.0000038 J	0.0000041 J
6020A	Molybdenum	mg/L	0.0187	0.1	0.005 J	0.007 J	0.005 J	0.01	0.01 U
903.1/904.0	Combined Radium 226 and 228 ³	pCi/l	2.94	5	1.79 J	0.853 J	0.570 J	0.300 J	0.705 J
6020A	Selenium	mg/L	0.0015	0.05	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
6020A	Thallium	mg/L	0.001	0.002	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U

Notes

- 1 - Background concentrations were determined utilizing interwell prediction limits. Upgradient well MW-8 was used to determine these background concentrations. This included data ranging from April 2016 through OOctober 2024. For pH, background is between those values presented.
- 2 - GWPSs were developed in accordance with §257.95(h).
- 3 - Combined radium is reported with an associate range. However, this range cannot be incorporated into statistical calculations as it varies per result and is not a standard value. Therefore, to maintain consistency in reporting these results, the reported laboratory concentration was used for the statistical analyses.

Bold - Analyte detected above calculated background concentration.

Parameter was detected in compliance monitoring well located downgradient of the CCR Landfill at a statistically significant level above its GWPS (see Confidence Interval statistical output in Attachment 1).

CCR - coal combustion residuals

D - Results reported from dilution.

D1 - Sample required dilution due to high concentration of target analyte.

GWPS - Groundwater Protection Standard

J - estimated concentration

M2 - Matrix spike recovery was low; the method control sample recovery was acceptable.

M3 - The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.

mg/L - milligram per liter

pCi/L - picocurie per liter

SU - standard unit

U - Nondetect

UJ - Estimated at the reporting limit

**ATTACHMENT 1 - SANITAS™ STATISTICAL OUTPUTS
FOR PHASE II CCR LANDFILL COMPLIANCE
MONITORING NETWORK**

Prediction Limit

Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile Printed 12/16/2024, 12:29 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Antimony (mg/L)	MW-5	0.0025	n/a	10/1/2024	0.0025ND	No	23	65.22	n/a	0.03929	NP Inter (NDs)
Antimony (mg/L)	MW-6	0.0025	n/a	9/30/2024	0.0025ND	No	23	65.22	n/a	0.03929	NP Inter (NDs)
Antimony (mg/L)	MW-7	0.0025	n/a	10/1/2024	0.0025ND	No	23	65.22	n/a	0.03929	NP Inter (NDs)
Antimony (mg/L)	MW-10	0.0025	n/a	9/30/2024	0.0025ND	No	23	65.22	n/a	0.03929	NP Inter (NDs)
Arsenic (ug/L)	MW-5	14.4	n/a	10/1/2024	2.6	No	23	0	n/a	0.03929	NP Inter (normality)
Arsenic (ug/L)	MW-6	14.4	n/a	9/30/2024	4.9	No	23	0	n/a	0.03929	NP Inter (normality)
Arsenic (ug/L)	MW-7	14.4	n/a	10/1/2024	4	No	23	0	n/a	0.03929	NP Inter (normality)
Arsenic (ug/L)	MW-10	14.4	n/a	9/30/2024	2.5	No	23	0	n/a	0.03929	NP Inter (normality)
Barium (ug/L)	MW-5	70	n/a	10/1/2024	10	No	22	0	n/a	0.0409	NP Inter (normality)
Barium (ug/L)	MW-6	70	n/a	9/30/2024	11	No	22	0	n/a	0.0409	NP Inter (normality)
Barium (ug/L)	MW-7	70	n/a	10/1/2024	12	No	22	0	n/a	0.0409	NP Inter (normality)
Barium (ug/L)	MW-10	70	n/a	9/30/2024	9	No	22	0	n/a	0.0409	NP Inter (normality)
Beryllium (ug/L)	MW-5	2	n/a	10/1/2024	1ND	No	22	100	n/a	0.0409	NP Inter (NDs)
Beryllium (ug/L)	MW-6	2	n/a	9/30/2024	1ND	No	22	100	n/a	0.0409	NP Inter (NDs)
Beryllium (ug/L)	MW-7	2	n/a	10/1/2024	1ND	No	22	100	n/a	0.0409	NP Inter (NDs)
Beryllium (ug/L)	MW-10	2	n/a	9/30/2024	1ND	No	22	100	n/a	0.0409	NP Inter (NDs)
Boron (ug/L)	MW-5	51.8	n/a	10/1/2024	880	Yes	24	54.17	n/a	0.0378	NP Inter (NDs)
Boron (ug/L)	MW-6	51.8	n/a	9/30/2024	1000	Yes	24	54.17	n/a	0.0378	NP Inter (NDs)
Boron (ug/L)	MW-7	51.8	n/a	10/1/2024	3330	Yes	24	54.17	n/a	0.0378	NP Inter (NDs)
Boron (ug/L)	MW-10	51.8	n/a	9/30/2024	460	Yes	24	54.17	n/a	0.0378	NP Inter (NDs)
Cadmium (ug/L)	MW-5	0.5	n/a	10/1/2024	0.5ND	No	22	90.91	n/a	0.0409	NP Inter (NDs)
Cadmium (ug/L)	MW-6	0.5	n/a	9/30/2024	0.5ND	No	22	90.91	n/a	0.0409	NP Inter (NDs)
Cadmium (ug/L)	MW-7	0.5	n/a	10/1/2024	0.5ND	No	22	90.91	n/a	0.0409	NP Inter (NDs)
Cadmium (ug/L)	MW-10	0.5	n/a	9/30/2024	0.1J	No	22	90.91	n/a	0.0409	NP Inter (NDs)
Calcium (ug/L)	MW-5	349000	n/a	10/1/2024	620000	Yes	24	0	n/a	0.0378	NP Inter (normality)
Calcium (ug/L)	MW-6	349000	n/a	9/30/2024	475000	Yes	24	0	n/a	0.0378	NP Inter (normality)
Calcium (ug/L)	MW-7	349000	n/a	10/1/2024	405000	Yes	24	0	n/a	0.0378	NP Inter (normality)
Calcium (ug/L)	MW-10	349000	n/a	9/30/2024	437000	Yes	24	0	n/a	0.0378	NP Inter (normality)
Chloride (mg/L)	MW-5	5.546	n/a	10/1/2024	275	Yes	24	0	No	0.01	Param Inter
Chloride (mg/L)	MW-6	5.546	n/a	9/30/2024	46.3	Yes	24	0	No	0.01	Param Inter
Chloride (mg/L)	MW-7	5.546	n/a	10/1/2024	104	Yes	24	0	No	0.01	Param Inter
Chloride (mg/L)	MW-10	5.546	n/a	9/30/2024	62.3	Yes	24	0	No	0.01	Param Inter
Chromium (ug/L)	MW-5	22.4	n/a	10/1/2024	0.3ND	No	23	30.43	n/a	0.03929	NP Inter (normality)
Chromium (ug/L)	MW-6	22.4	n/a	9/30/2024	0.3ND	No	23	30.43	n/a	0.03929	NP Inter (normality)
Chromium (ug/L)	MW-7	22.4	n/a	10/1/2024	0.3ND	No	23	30.43	n/a	0.03929	NP Inter (normality)
Chromium (ug/L)	MW-10	22.4	n/a	9/30/2024	0.6J	No	23	30.43	n/a	0.03929	NP Inter (normality)
Cobalt (ug/L)	MW-5	9	n/a	10/1/2024	5	No	22	50	n/a	0.0409	NP Inter (normality)
Cobalt (ug/L)	MW-6	9	n/a	9/30/2024	7	No	22	50	n/a	0.0409	NP Inter (normality)
Cobalt (ug/L)	MW-7	9	n/a	10/1/2024	2ND	No	22	50	n/a	0.0409	NP Inter (normality)
Cobalt (ug/L)	MW-10	9	n/a	9/30/2024	82	Yes	22	50	n/a	0.0409	NP Inter (normality)
Fluoride (mg/L)	MW-5	0.4533	n/a	10/1/2024	1ND	No	21	0	ln(x)	0.01	Param Inter
Fluoride (mg/L)	MW-6	0.4533	n/a	9/30/2024	0.21	No	21	0	ln(x)	0.01	Param Inter
Fluoride (mg/L)	MW-7	0.4533	n/a	10/1/2024	0.25	No	21	0	ln(x)	0.01	Param Inter
Fluoride (mg/L)	MW-10	0.4533	n/a	9/30/2024	1ND	No	21	0	ln(x)	0.01	Param Inter
Lead (ug/L)	MW-5	12	n/a	10/1/2024	1ND	No	23	65.22	n/a	0.03929	NP Inter (NDs)
Lead (ug/L)	MW-6	12	n/a	9/30/2024	1ND	No	23	65.22	n/a	0.03929	NP Inter (NDs)
Lead (ug/L)	MW-7	12	n/a	10/1/2024	1ND	No	23	65.22	n/a	0.03929	NP Inter (NDs)
Lead (ug/L)	MW-10	12	n/a	9/30/2024	1ND	No	23	65.22	n/a	0.03929	NP Inter (NDs)
Lithium (ug/L)	MW-5	20	n/a	10/1/2024	40	Yes	23	17.39	n/a	0.03929	NP Inter (Cohens/xform)
Lithium (ug/L)	MW-6	20	n/a	9/30/2024	40	Yes	23	17.39	n/a	0.03929	NP Inter (Cohens/xform)

Prediction Limit

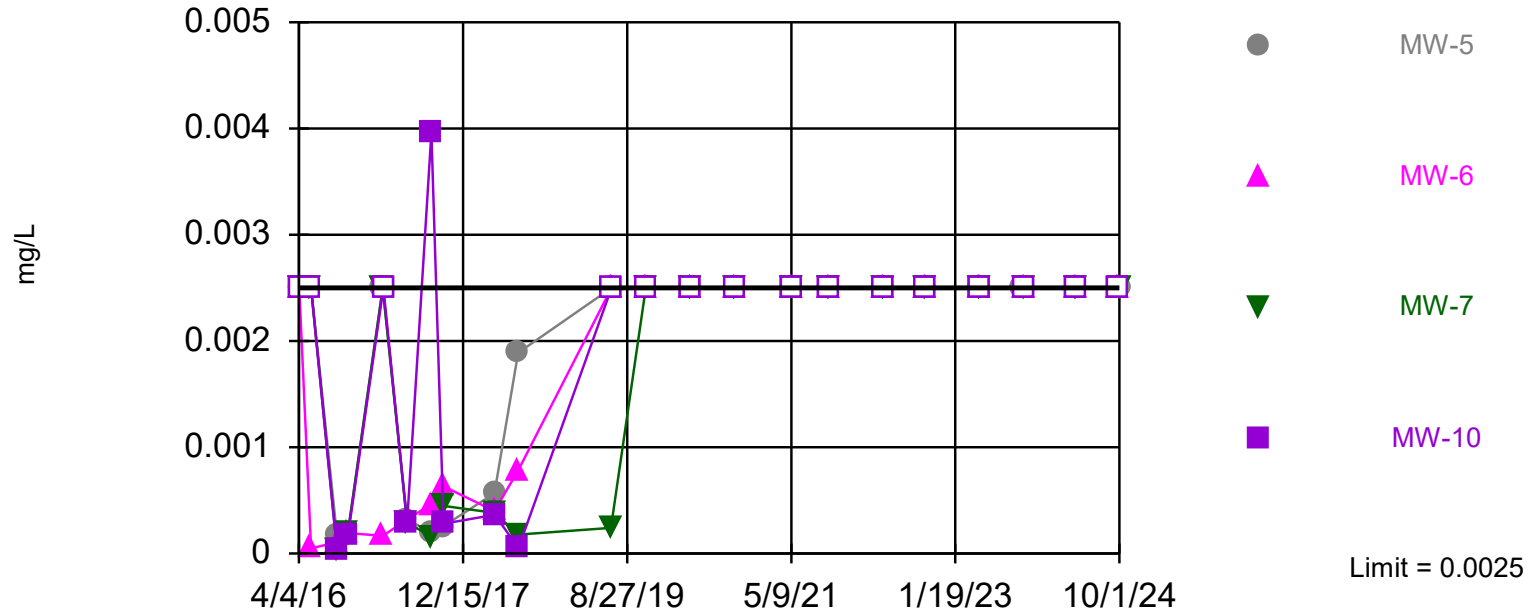
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile Printed 12/16/2024, 12:29 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Lithium (ug/L)	MW-7	20	n/a	10/1/2024	30	Yes	23	17.39	n/a	0.03929	NP Inter (Cohens/xform)
Lithium (ug/L)	MW-10	20	n/a	9/30/2024	7J	No	23	17.39	n/a	0.03929	NP Inter (Cohens/xform)
Mercury (ug/L)	MW-5	0.0038	n/a	10/1/2024	0.0025ND	No	22	95.45	n/a	0.0409	NP Inter (NDs)
Mercury (ug/L)	MW-6	0.0038	n/a	9/30/2024	0.0025ND	No	22	95.45	n/a	0.0409	NP Inter (NDs)
Mercury (ug/L)	MW-7	0.0038	n/a	10/1/2024	0.0025ND	No	22	95.45	n/a	0.0409	NP Inter (NDs)
Mercury (ug/L)	MW-10	0.0038	n/a	9/30/2024	0.0041	Yes	22	95.45	n/a	0.0409	NP Inter (NDs)
Molybdenum (ug/L)	MW-5	18.7	n/a	10/1/2024	5J	No	23	0	n/a	0.03929	NP Inter (normality)
Molybdenum (ug/L)	MW-6	18.7	n/a	9/30/2024	7J	No	23	0	n/a	0.03929	NP Inter (normality)
Molybdenum (ug/L)	MW-7	18.7	n/a	10/1/2024	5J	No	23	0	n/a	0.03929	NP Inter (normality)
Molybdenum (ug/L)	MW-10	18.7	n/a	9/30/2024	5ND	No	23	0	n/a	0.03929	NP Inter (normality)
pH (SU)	MW-5	6.84	4.67	10/1/2024	6.32	No	23	0	n/a	0.07859	NP Inter (normality)
pH (SU)	MW-6	6.84	4.67	9/30/2024	6.56	No	23	0	n/a	0.07859	NP Inter (normality)
pH (SU)	MW-7	6.84	4.67	10/1/2024	6.48	No	23	0	n/a	0.07859	NP Inter (normality)
pH (SU)	MW-10	6.84	4.67	9/30/2024	5.92	No	23	0	n/a	0.07859	NP Inter (normality)
Radium 226 + 228 (pCi/L)	MW-5	2.94	n/a	10/1/2024	1.79	No	22	0	n/a	0.0409	NP Inter (normality)
Radium 226 + 228 (pCi/L)	MW-6	2.94	n/a	9/30/2024	0.853	No	22	0	n/a	0.0409	NP Inter (normality)
Radium 226 + 228 (pCi/L)	MW-7	2.94	n/a	10/1/2024	0.57	No	22	0	n/a	0.0409	NP Inter (normality)
Radium 226 + 228 (pCi/L)	MW-10	2.94	n/a	9/30/2024	0.705	No	22	0	n/a	0.0409	NP Inter (normality)
Selenium (ug/L)	MW-5	1.5	n/a	10/1/2024	1.5ND	No	22	90.91	n/a	0.0409	NP Inter (NDs)
Selenium (ug/L)	MW-6	1.5	n/a	9/30/2024	1.5ND	No	22	90.91	n/a	0.0409	NP Inter (NDs)
Selenium (ug/L)	MW-7	1.5	n/a	10/1/2024	1.5ND	No	22	90.91	n/a	0.0409	NP Inter (NDs)
Selenium (ug/L)	MW-10	1.5	n/a	9/30/2024	1.5ND	No	22	90.91	n/a	0.0409	NP Inter (NDs)
Sulfate (mg/L)	MW-5	2180	n/a	10/1/2024	1790	No	24	0	n/a	0.0378	NP Inter (normality)
Sulfate (mg/L)	MW-6	2180	n/a	9/30/2024	1500	No	24	0	n/a	0.0378	NP Inter (normality)
Sulfate (mg/L)	MW-7	2180	n/a	10/1/2024	1070	No	24	0	n/a	0.0378	NP Inter (normality)
Sulfate (mg/L)	MW-10	2180	n/a	9/30/2024	1960	No	24	0	n/a	0.0378	NP Inter (normality)
Thallium (ug/L)	MW-5	1	n/a	10/1/2024	1ND	No	23	86.96	n/a	0.03929	NP Inter (NDs)
Thallium (ug/L)	MW-6	1	n/a	9/30/2024	1ND	No	23	86.96	n/a	0.03929	NP Inter (NDs)
Thallium (ug/L)	MW-7	1	n/a	10/1/2024	1ND	No	23	86.96	n/a	0.03929	NP Inter (NDs)
Thallium (ug/L)	MW-10	1	n/a	9/30/2024	1ND	No	23	86.96	n/a	0.03929	NP Inter (NDs)
Total Dissolved Solids (mg/L)	MW-5	1842	n/a	10/1/2024	3000	Yes	24	0	x^2	0.01	Param Inter
Total Dissolved Solids (mg/L)	MW-6	1842	n/a	9/30/2024	2640	Yes	24	0	x^2	0.01	Param Inter
Total Dissolved Solids (mg/L)	MW-7	1842	n/a	10/1/2024	2260	Yes	24	0	x^2	0.01	Param Inter
Total Dissolved Solids (mg/L)	MW-10	1842	n/a	9/30/2024	3210	Yes	24	0	x^2	0.01	Param Inter

Within Limit

Prediction Limit

Interwell Non-parametric



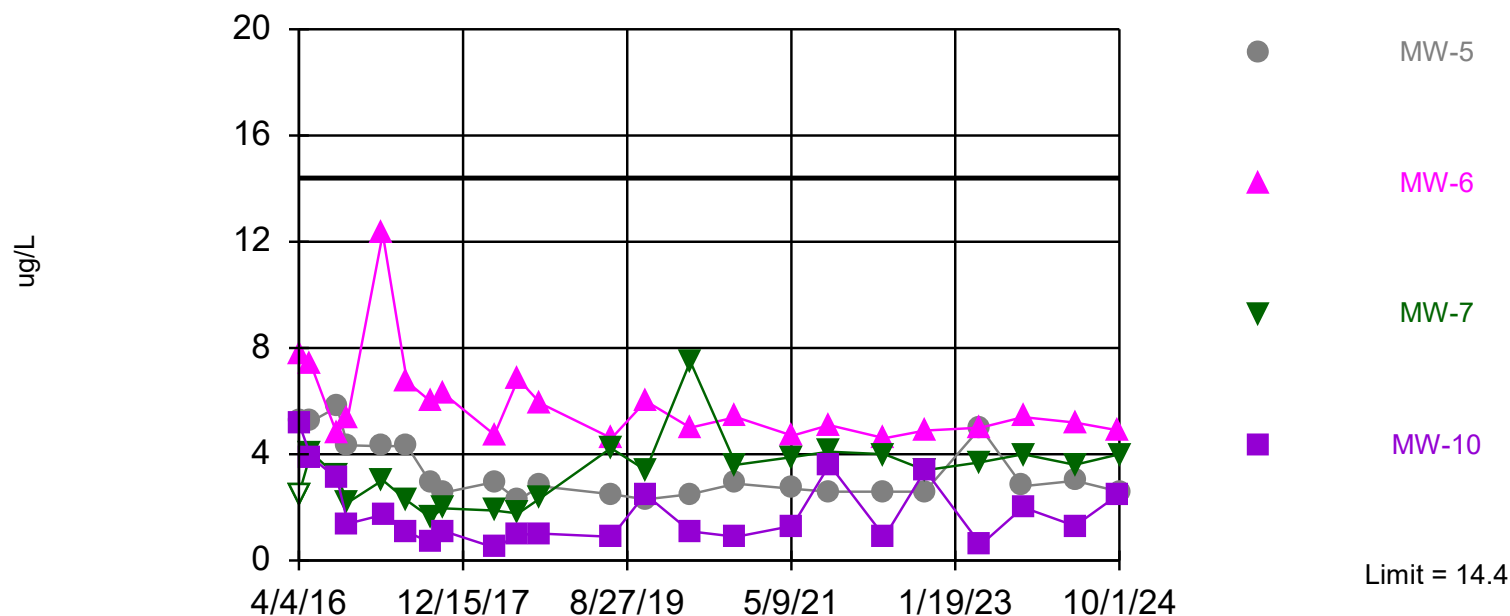
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 23 background values. 65.22% NDs. Report alpha = 0.1481. Individual comparison alpha = 0.03929. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Antimony Analysis Run 12/16/2024 12:27 PM View: BREC Wilson GW
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Within Limit

Prediction Limit

Interwell Non-parametric



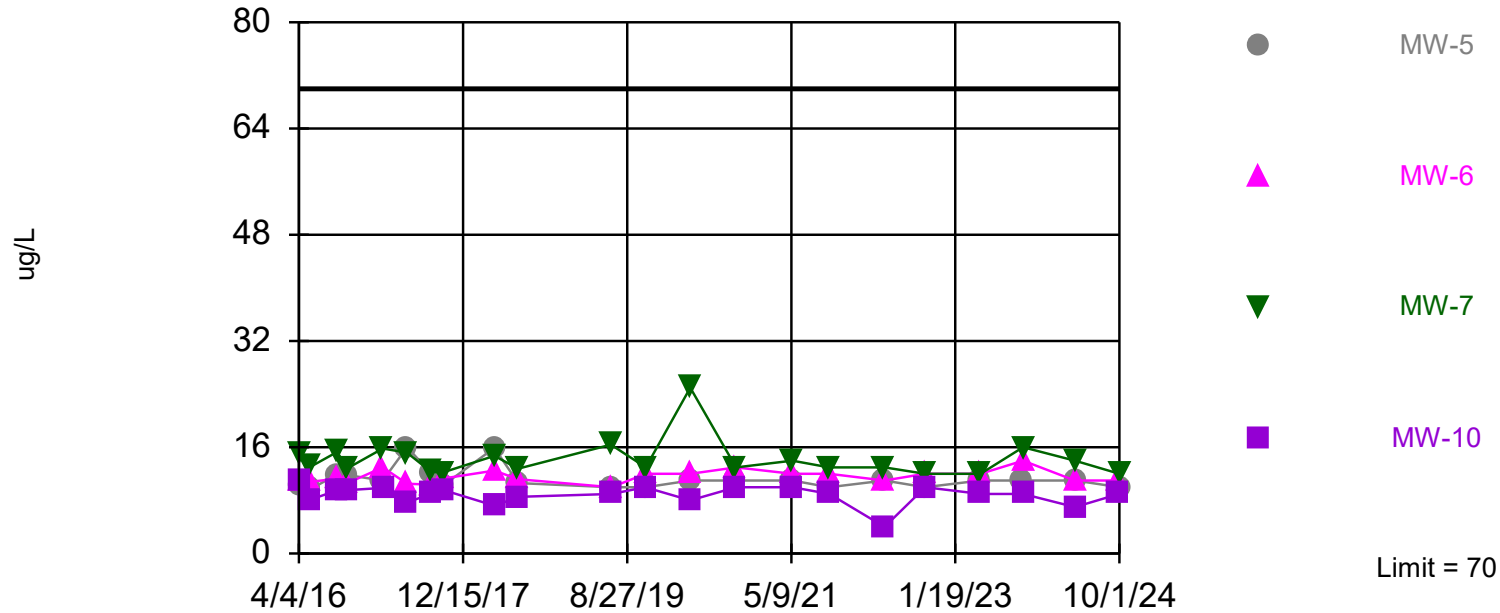
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 23 background values. Report alpha = 0.1481. Individual comparison alpha = 0.03929. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Arsenic Analysis Run 12/16/2024 12:27 PM View: BREC Wilson GW
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Within Limit

Prediction Limit

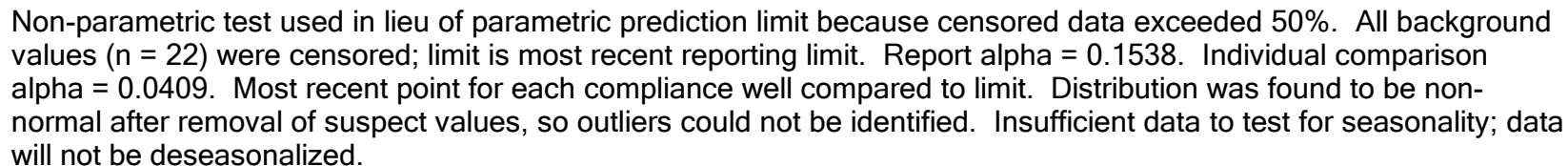
Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 22 background values. Report alpha = 0.1538. Individual comparison alpha = 0.0409. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Barium Analysis Run 12/16/2024 12:28 PM View: BREC Wilson GW
 Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

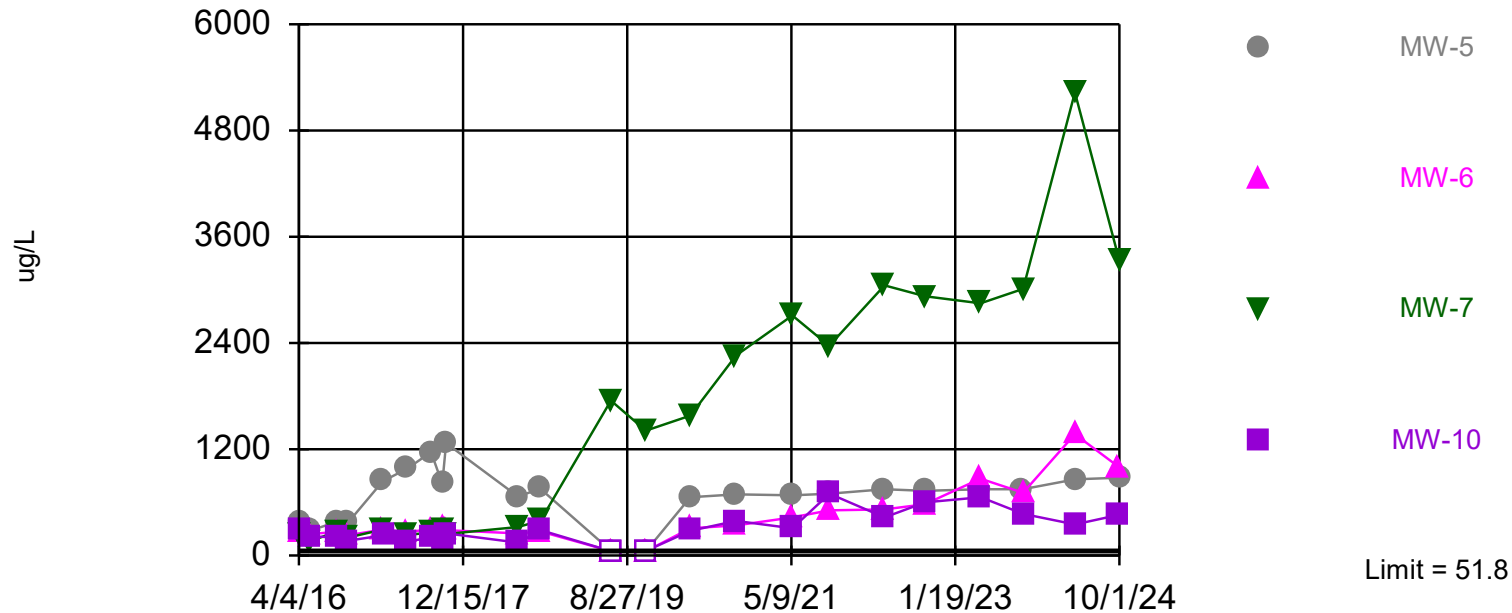
Interwell Non-parametric



Constituent: Beryllium Analysis Run 12/16/2024 12:28 PM View: BREC Wilson GW
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Exceeds Limit: MW-5, MW-6, MW-7, MW-10

Prediction Limit Interwell Non-parametric



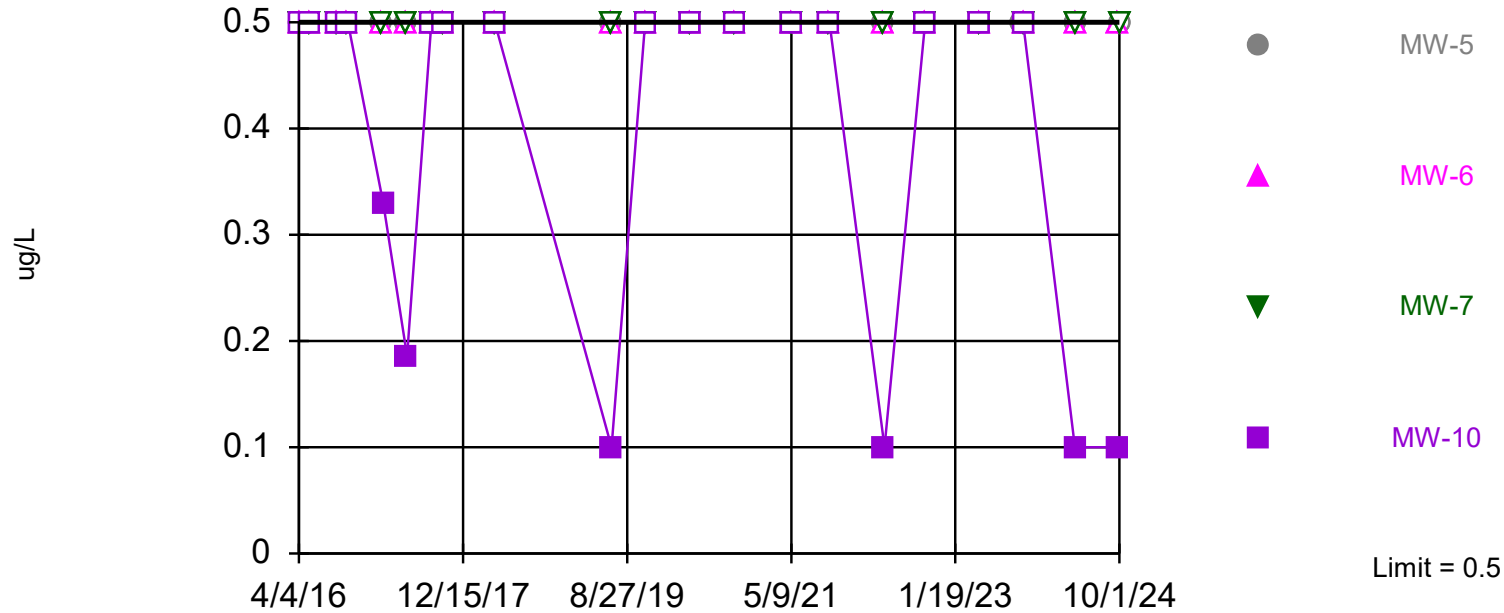
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 24 background values. 54.17% NDs. Report alpha = 0.1429. Individual comparison alpha = 0.0378. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Boron Analysis Run 12/16/2024 12:28 PM View: BREC Wilson GW
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Within Limit

Prediction Limit

Interwell Non-parametric

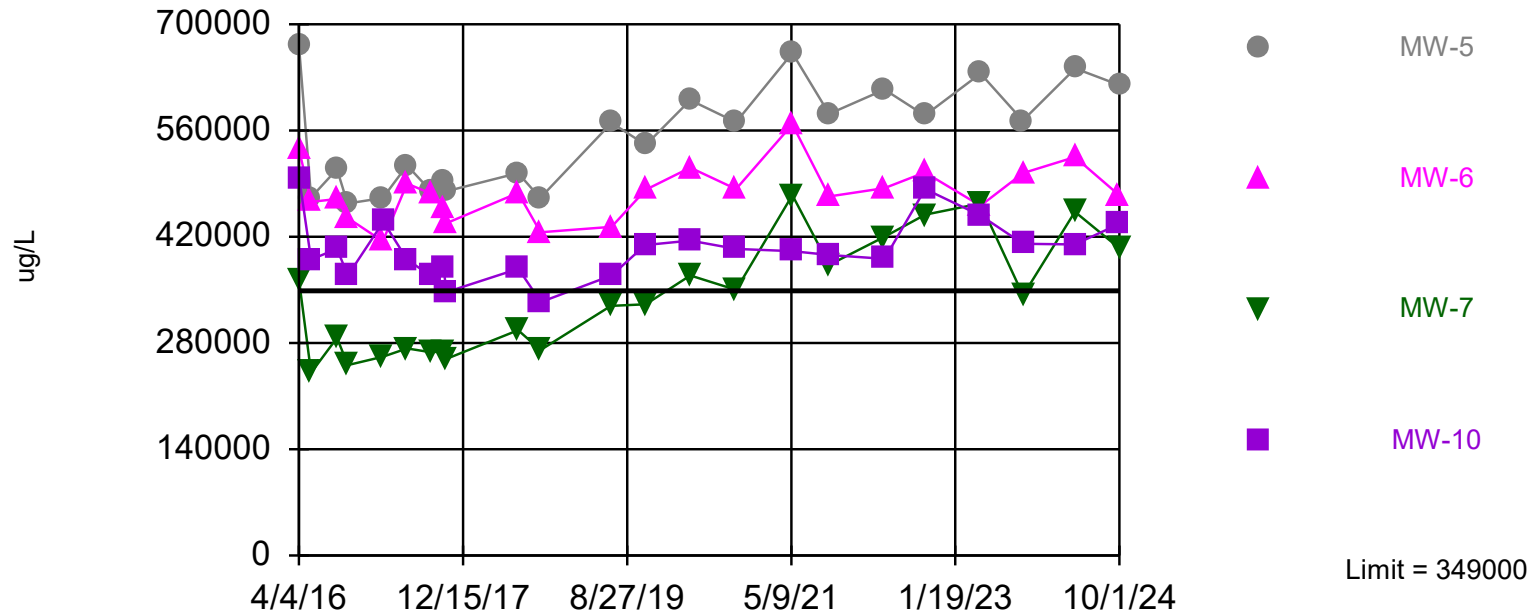


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 90.91% NDs. Report alpha = 0.1538. Individual comparison alpha = 0.0409. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Cadmium Analysis Run 12/16/2024 12:28 PM View: BREC Wilson GW
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Exceeds Limit: MW-5, MW-6, MW-7, MW-10

Prediction Limit Interwell Non-parametric



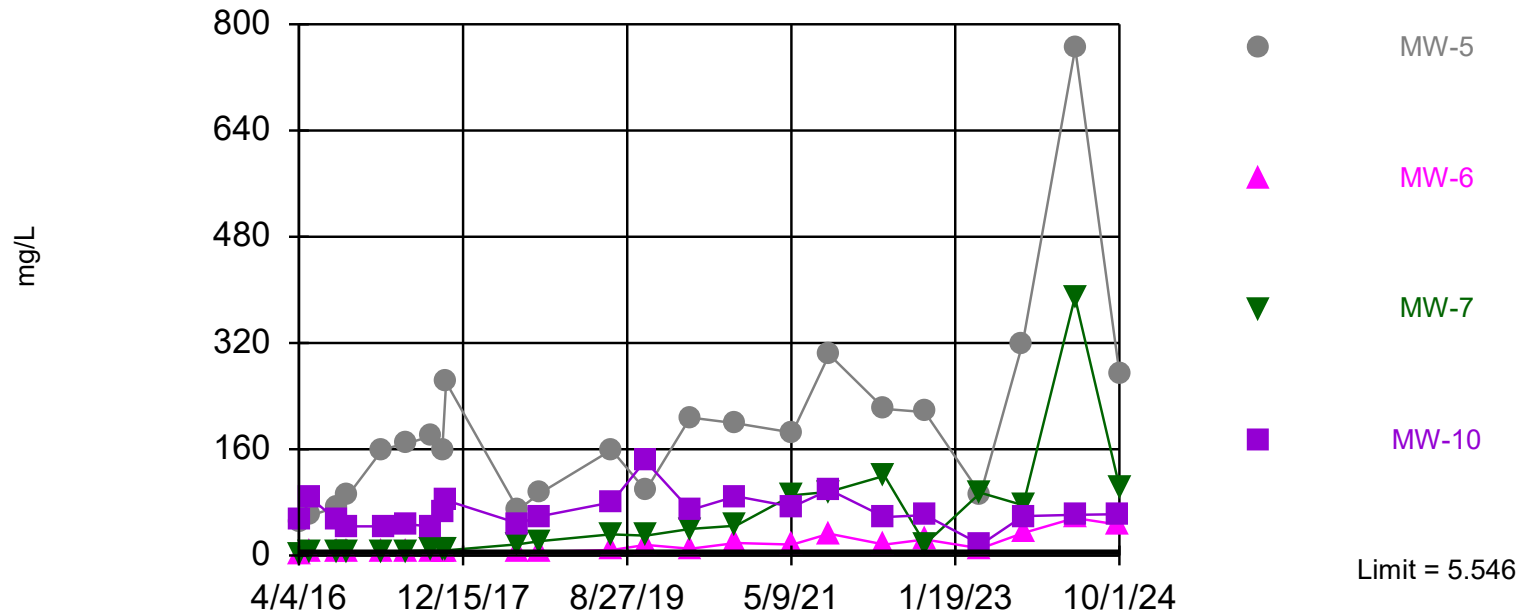
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 24 background values. Report alpha = 0.1429. Individual comparison alpha = 0.0378. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Calcium Analysis Run 12/16/2024 12:28 PM View: BREC Wilson GW
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Exceeds Limit: MW-5, MW-6, MW-7, MW-10

Prediction Limit

Interwell Parametric



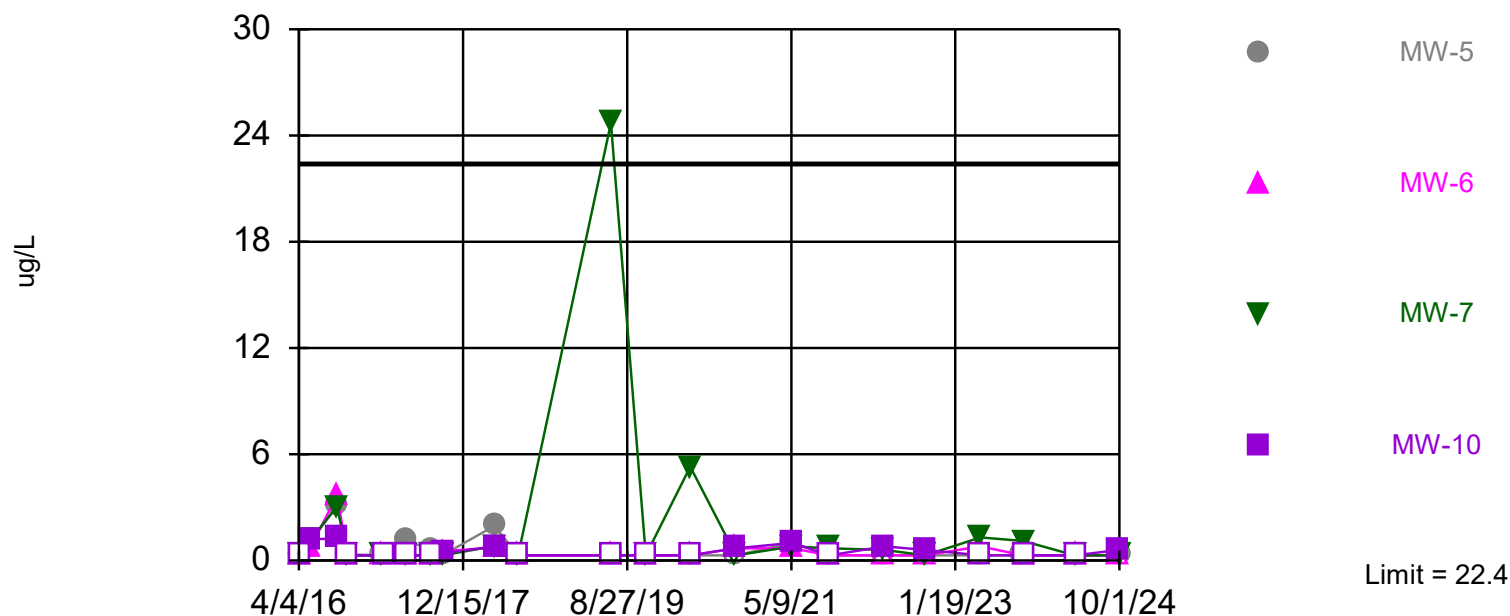
Background Data Summary: Mean=4.258, Std. Dev.=0.5052, n=24. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9272, critical = 0.916. Report alpha = 0.0394. Individual comparison alpha = 0.01. Most recent point for each compliance well compared to limit. EPA 1989 outlier screening was performed on the background data. No background outliers were found.

Constituent: Chloride Analysis Run 12/16/2024 12:28 PM View: BREC Wilson GW
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Within Limit

Prediction Limit

Interwell Non-parametric



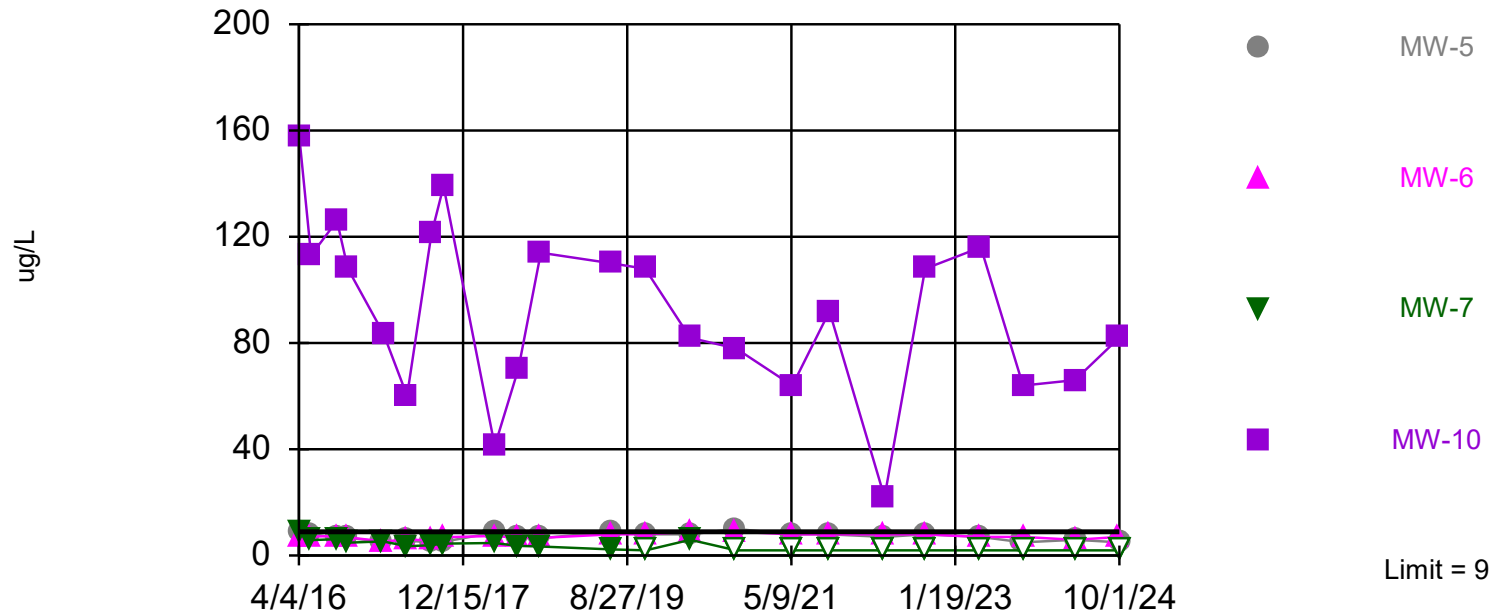
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 23 background values. 30.43% NDs. Report alpha = 0.1481. Individual comparison alpha = 0.03929. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Chromium Analysis Run 12/16/2024 12:28 PM View: BREC Wilson GW
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Exceeds Limit: MW-10

Prediction Limit

Interwell Non-parametric



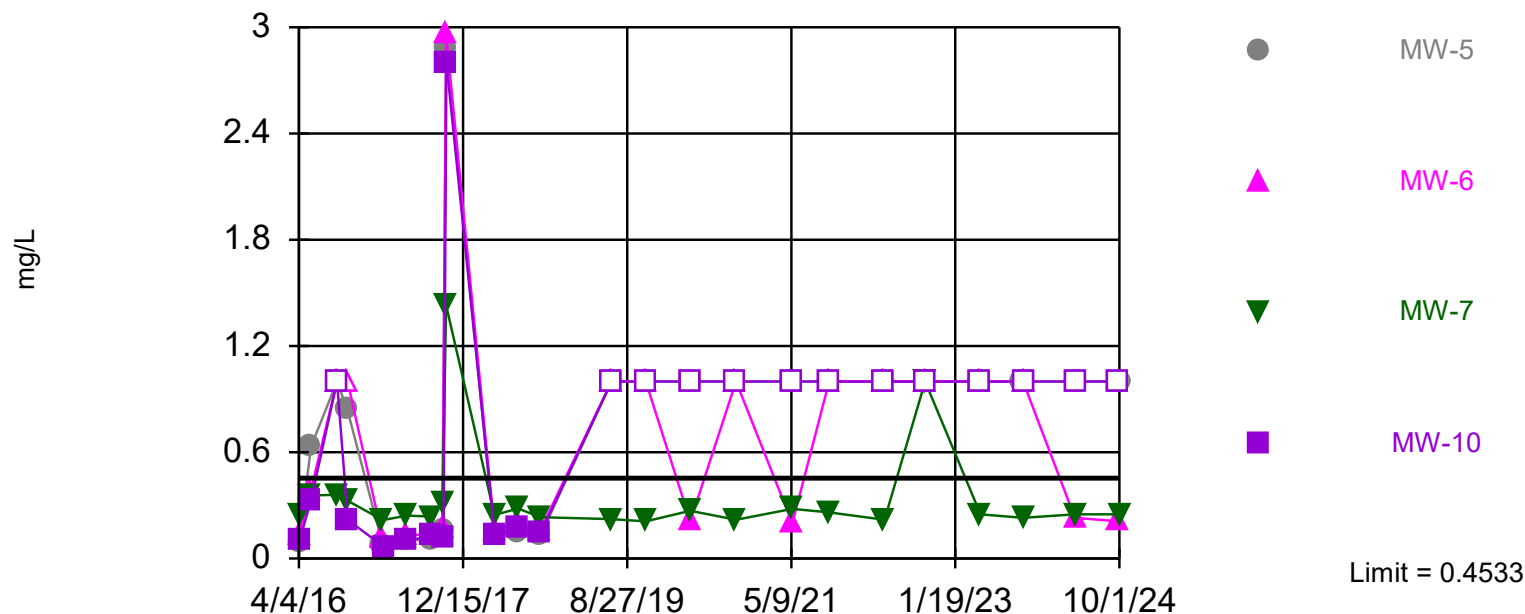
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 22 background values. 50% NDs. Report alpha = 0.1538. Individual comparison alpha = 0.0409. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Cobalt Analysis Run 12/16/2024 12:28 PM View: BREC Wilson GW
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Within Limit

Prediction Limit

Interwell Parametric



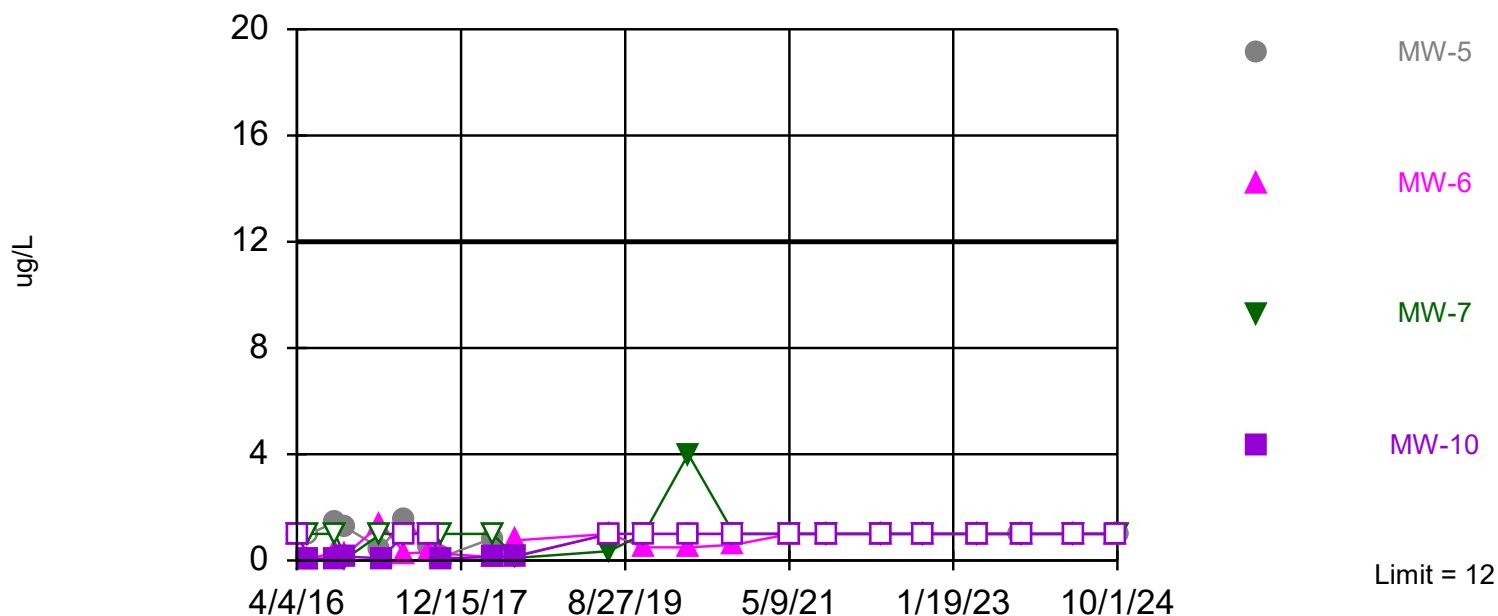
Background Data Summary (based on natural log transformation): Mean=-1.298, Std. Dev.=0.1959, n=21. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9089, critical = 0.908. Report alpha = 0.0394. Individual comparison alpha = 0.01. Most recent point for each compliance well compared to limit. EPA 1989 outlier screening was performed on the background data. Three background outliers were removed: 1.21 (10/12/2017); <2 (9/26/2022); <2 (4/26/2023). At least one background value was a statistical outlier but was below the user-set cutoff of 3 times the median.

Constituent: Fluoride Analysis Run 12/16/2024 12:28 PM View: BREC Wilson GW
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Within Limit

Prediction Limit

Interwell Non-parametric



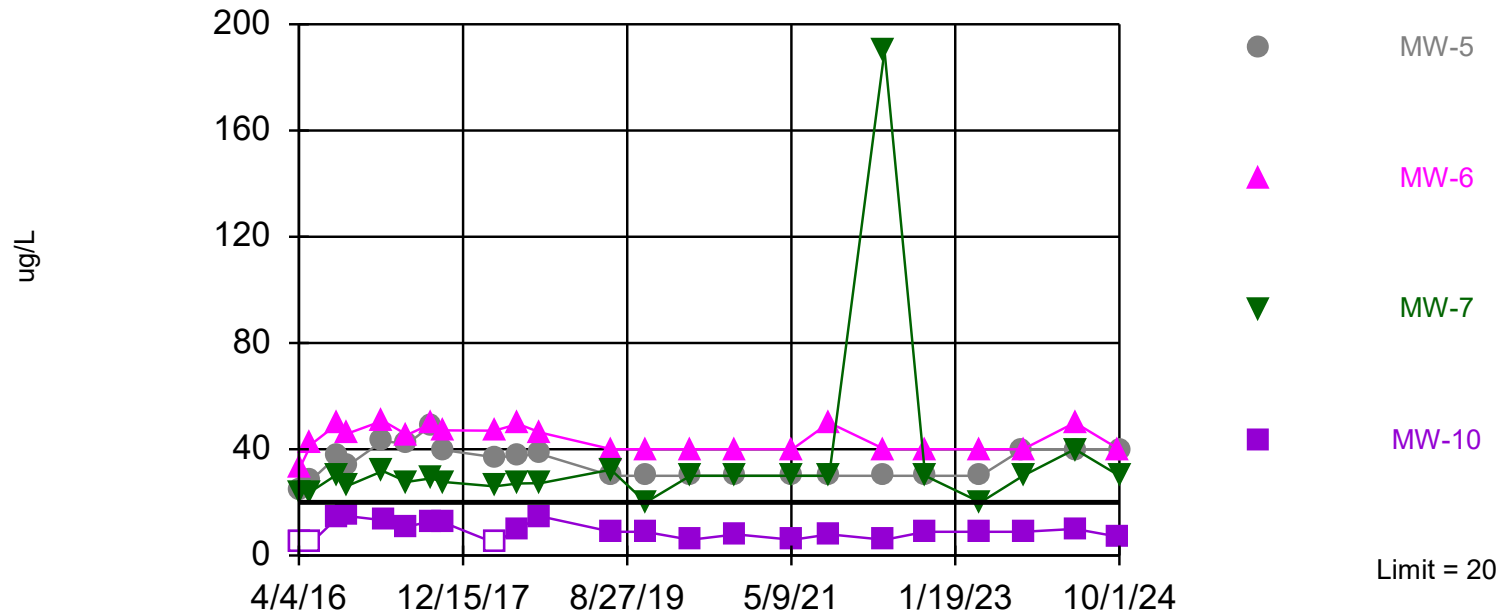
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 23 background values. 65.22% NDs. Report alpha = 0.1481. Individual comparison alpha = 0.03929. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Lead Analysis Run 12/16/2024 12:28 PM View: BREC Wilson GW
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Exceeds Limit: MW-5, MW-6, MW-7

Prediction Limit

Interwell Non-parametric



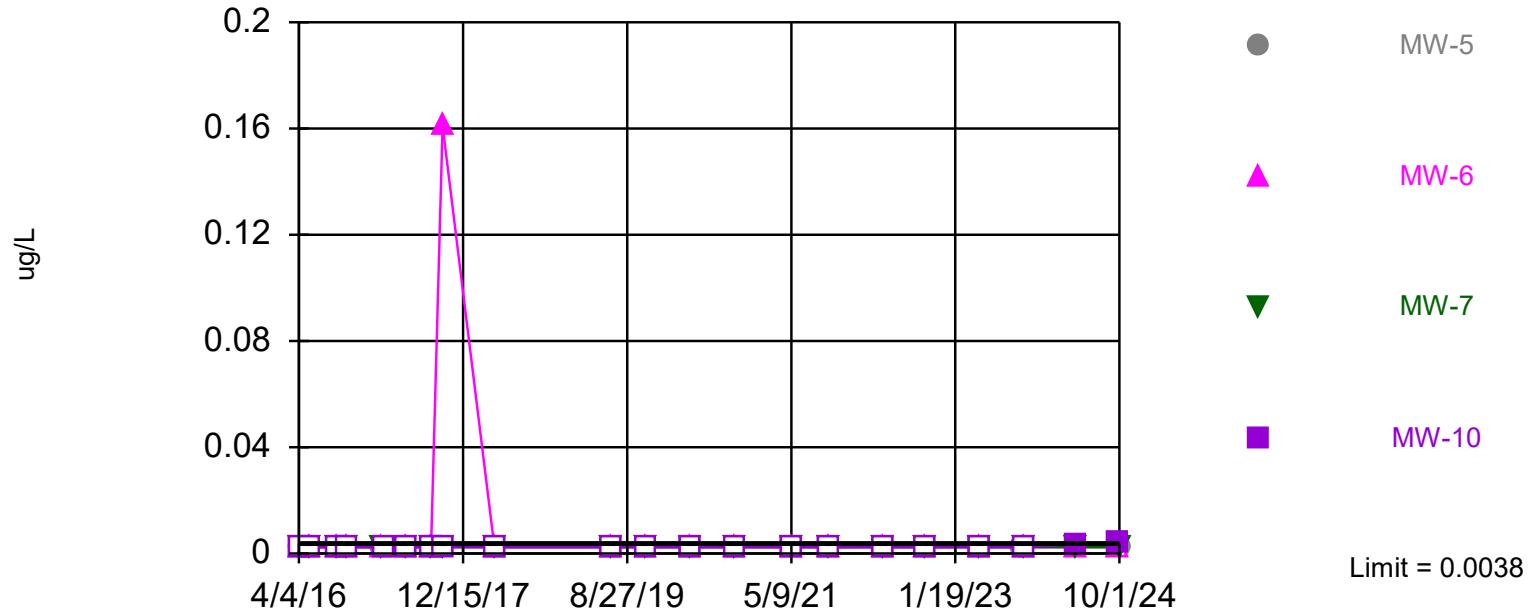
Non-parametric test used in lieu of parametric prediction limit because the data required both a power transformation and Cohen's adjustment. Limit is highest of 23 background values. 17.39% NDs. Report alpha = 0.1481. Individual comparison alpha = 0.03929. Most recent point for each compliance well compared to limit. EPA 1989 outlier screening was performed on the background data. No background outliers were found. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Lithium Analysis Run 12/16/2024 12:28 PM View: BREC Wilson GW
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Exceeds Limit: MW-10

Prediction Limit

Interwell Non-parametric



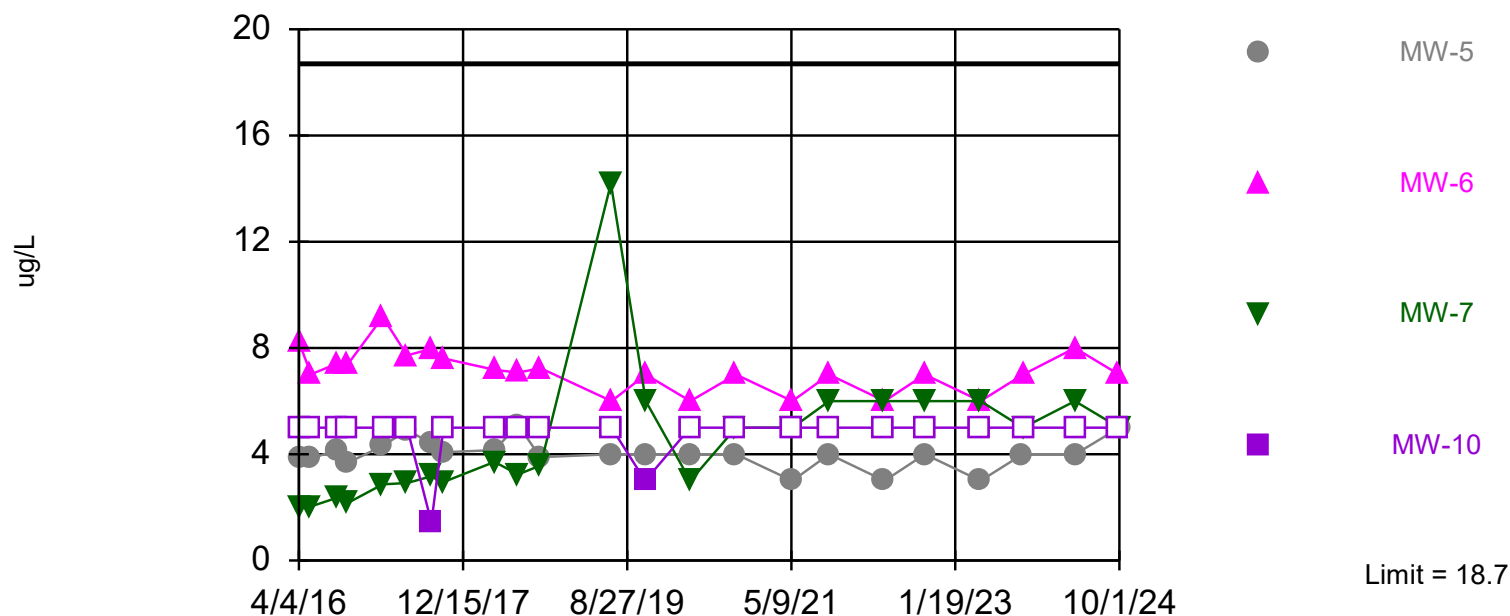
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 95.45% NDs. Report alpha = 0.1538. Individual comparison alpha = 0.0409. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Mercury Analysis Run 12/16/2024 12:28 PM View: BREC Wilson GW
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 23 background values. Report alpha = 0.1481. Individual comparison alpha = 0.03929. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

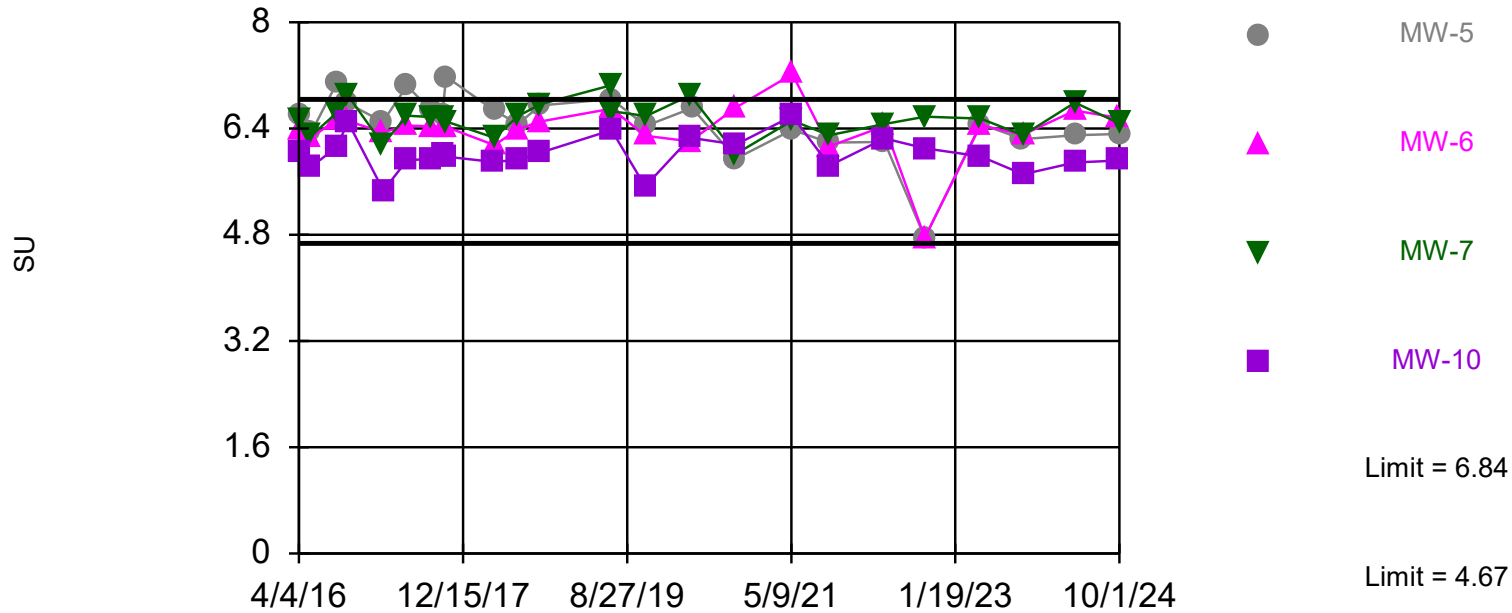
Constituent: Molybdenum Analysis Run 12/16/2024 12:28 PM View: BREC Wilson GW

Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Within Limits

Prediction Limit

Interwell Non-parametric



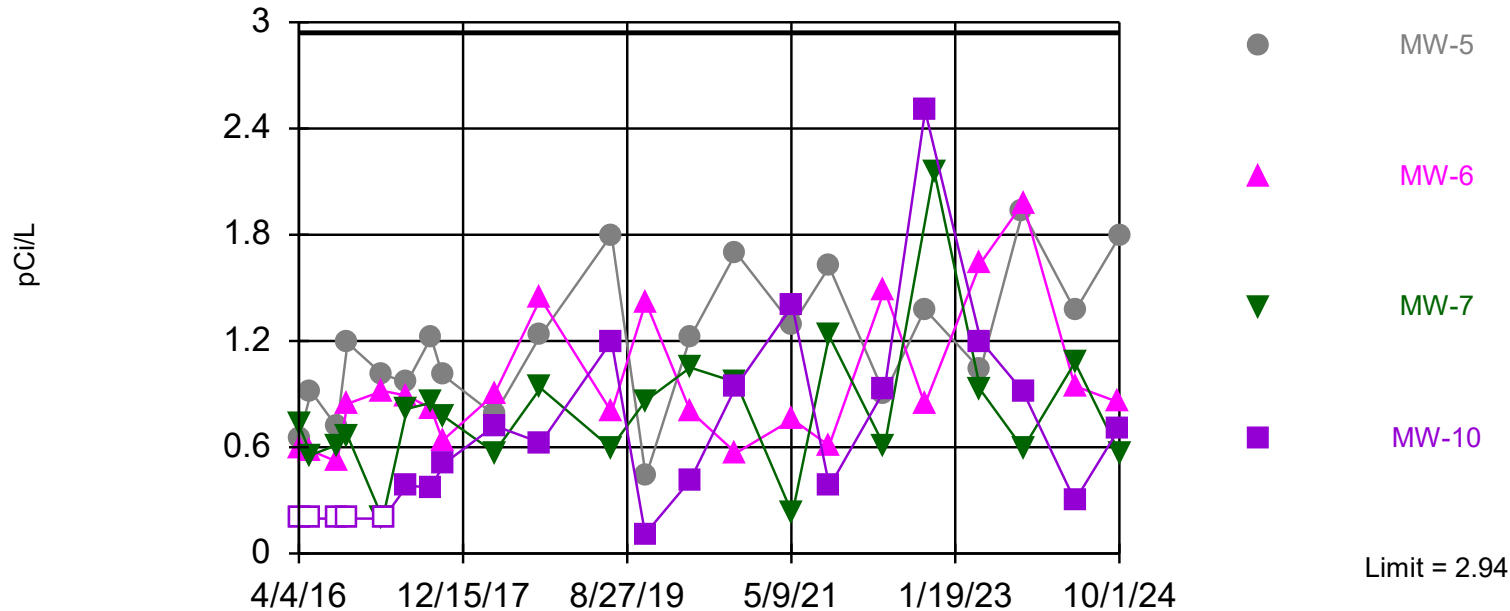
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limits are highest and lowest of 23 background values. Report alpha = 0.2963. Individual comparison alpha = 0.07859. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: pH Analysis Run 12/16/2024 12:28 PM View: BREC Wilson GW
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 22 background values. Report alpha = 0.1538. Individual comparison alpha = 0.0409. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

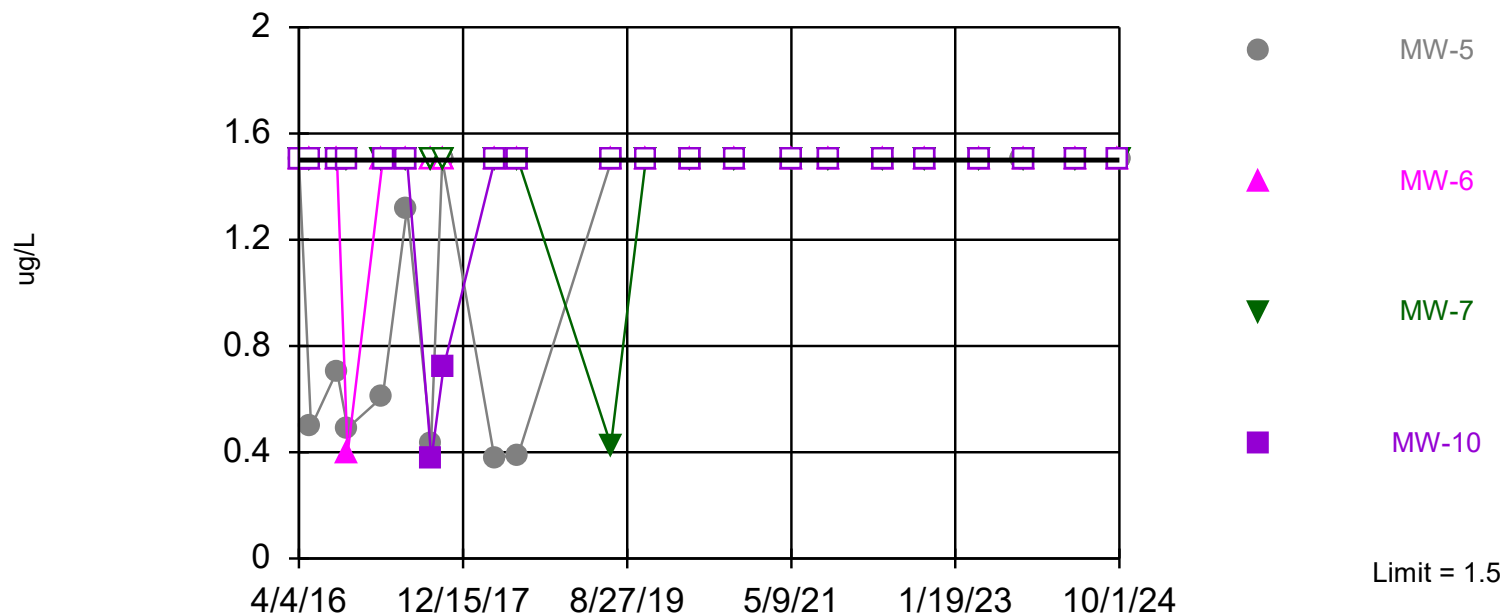
Constituent: Radium 226 + 228 Analysis Run 12/16/2024 12:28 PM View: BREC Wilson GW

Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Within Limit

Prediction Limit

Interwell Non-parametric



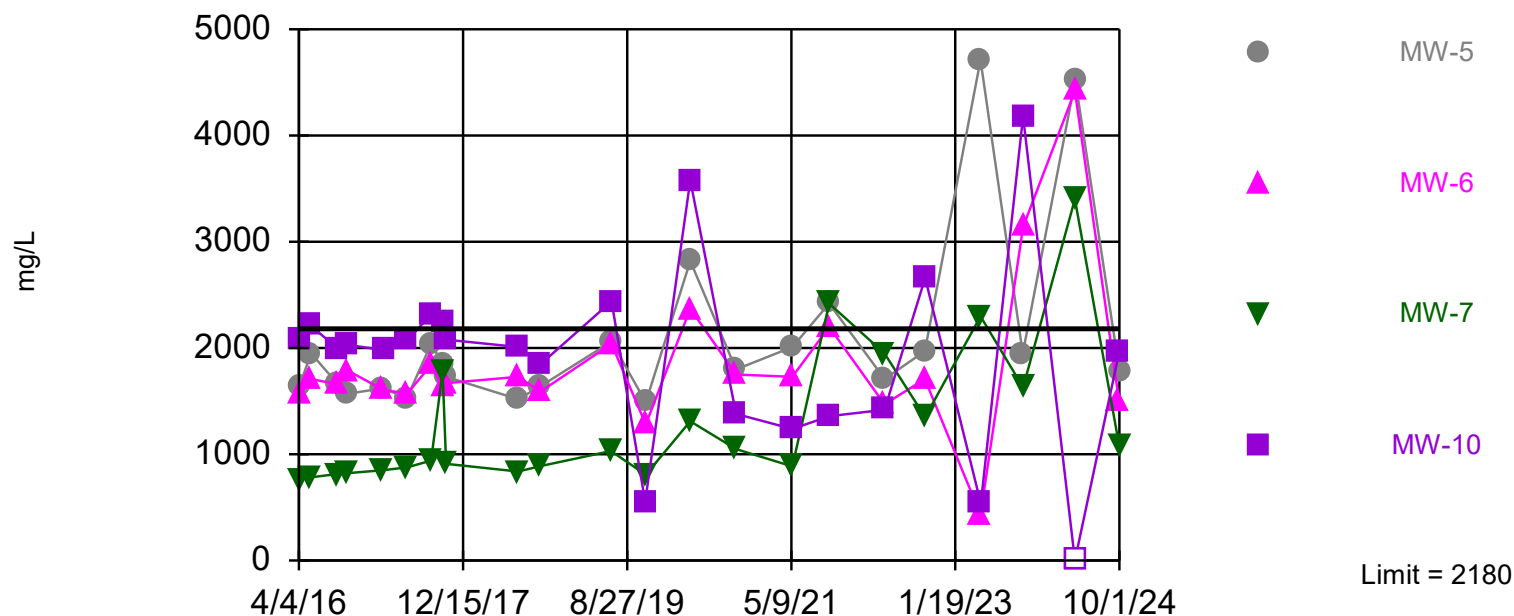
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 90.91% NDs. Report alpha = 0.1538. Individual comparison alpha = 0.0409. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Selenium Analysis Run 12/16/2024 12:28 PM View: BREC Wilson GW
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Within Limit

Prediction Limit

Interwell Non-parametric



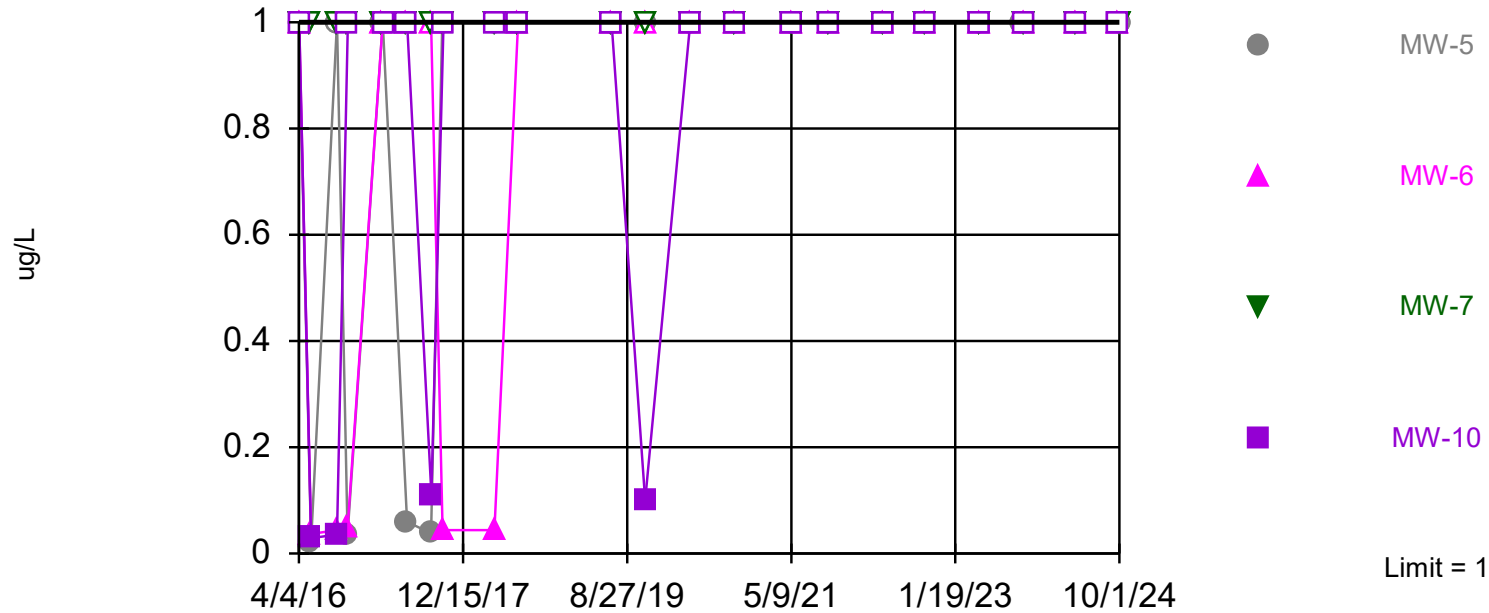
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 24 background values. Report alpha = 0.1429. Individual comparison alpha = 0.0378. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Sulfate Analysis Run 12/16/2024 12:28 PM View: BREC Wilson GW
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Within Limit

Prediction Limit

Interwell Non-parametric



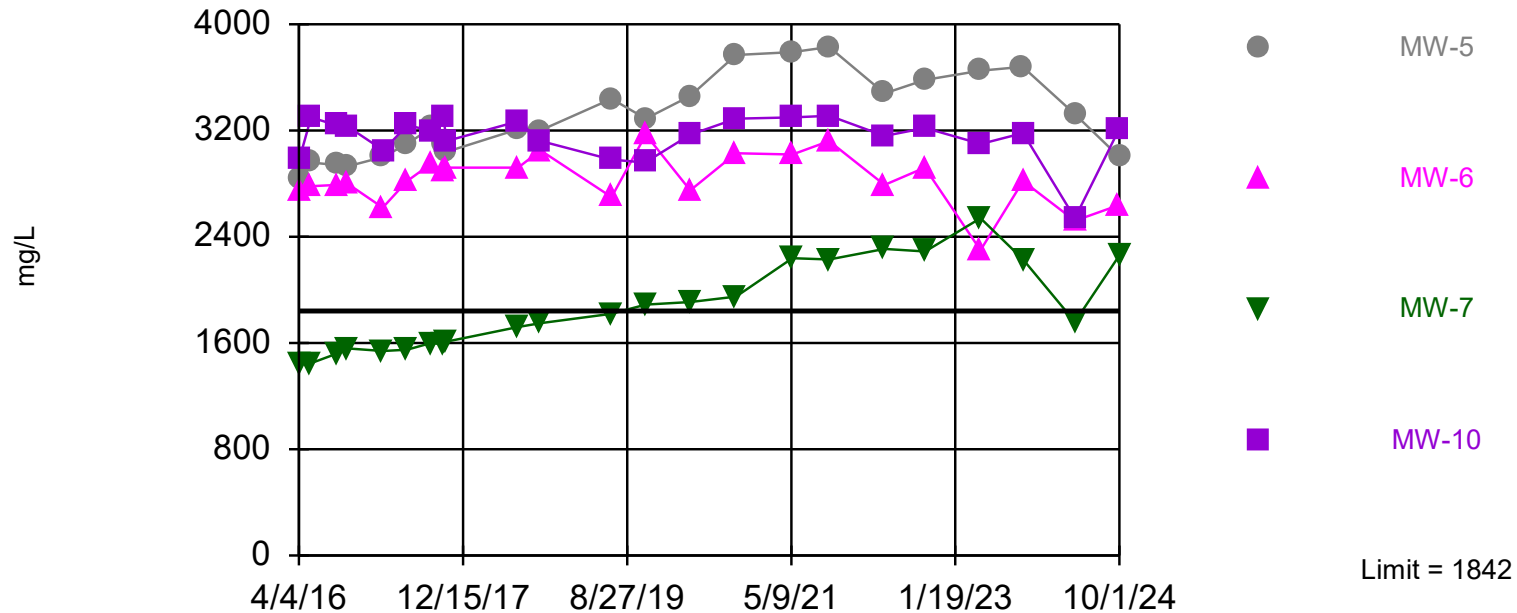
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 23 background values. 86.96% NDs. Report alpha = 0.1481. Individual comparison alpha = 0.03929. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Thallium Analysis Run 12/16/2024 12:28 PM View: BREC Wilson GW
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Exceeds Limit: MW-5, MW-6, MW-7, MW-10

Prediction Limit

Interwell Parametric



Background Data Summary (based on square transformation): Mean=2380588, Std. Dev.=396693, n=24. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9306, critical = 0.916. Report alpha = 0.0394. Individual comparison alpha = 0.01. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified.

Constituent: Total Dissolved Solids Analysis Run 12/16/2024 12:28 PM View: BREC Wilson GW

Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Confidence Interval

Big Rivers Electric Corp.

Client: Burns & McDonnell

Data: BREC Wilson_Datafile

Printed 12/16/2024, 1:35 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Cobalt (ug/L)	MW-5	7.603	6.528	9	No	23	0	No	0.05	Param.
Cobalt (ug/L)	MW-6	7.574	6.898	9	No	23	0	No	0.05	Param.
Cobalt (ug/L)	MW-7	4.54	2	9	No	23	43.48	No	0.05	NP (normality)
Cobalt (ug/L)	MW-8 (bg)	2	1.18	9	No	23	47.83	No	0.05	NP (normality)
Cobalt (ug/L)	MW-10	104	80.92	9	Yes	23	0	No	0.05	Param.
Lithium (ug/L)	MW-5	36.98	32.62	40	No	23	0	No	0.05	Param.
Lithium (ug/L)	MW-6	47	40	40	No	23	0	No	0.05	NP (normality)
Lithium (ug/L)	MW-7	30	27.3	40	No	23	0	No	0.05	NP (normality)
Lithium (ug/L)	MW-8 (bg)	12.04	9.364	40	No	23	17.39	No	0.05	Param.
Lithium (ug/L)	MW-10	10.45	8.141	40	No	23	13.04	No	0.05	Param.
Mercury (ug/L)	MW-5	0.0025	0.0025	2	No	21	100	No	0.05	NP (NDs)
Mercury (ug/L)	MW-6	0.0025	0.0025	2	No	21	95.24	No	0.05	NP (NDs)
Mercury (ug/L)	MW-7	0.0025	0.0025	2	No	21	100	No	0.05	NP (NDs)
Mercury (ug/L)	MW-8 (bg)	0.0025	0.0025	2	No	22	95.45	No	0.05	NP (NDs)
Mercury (ug/L)	MW-10	0.0034	0.0025	2	No	21	90.48	No	0.05	NP (NDs)

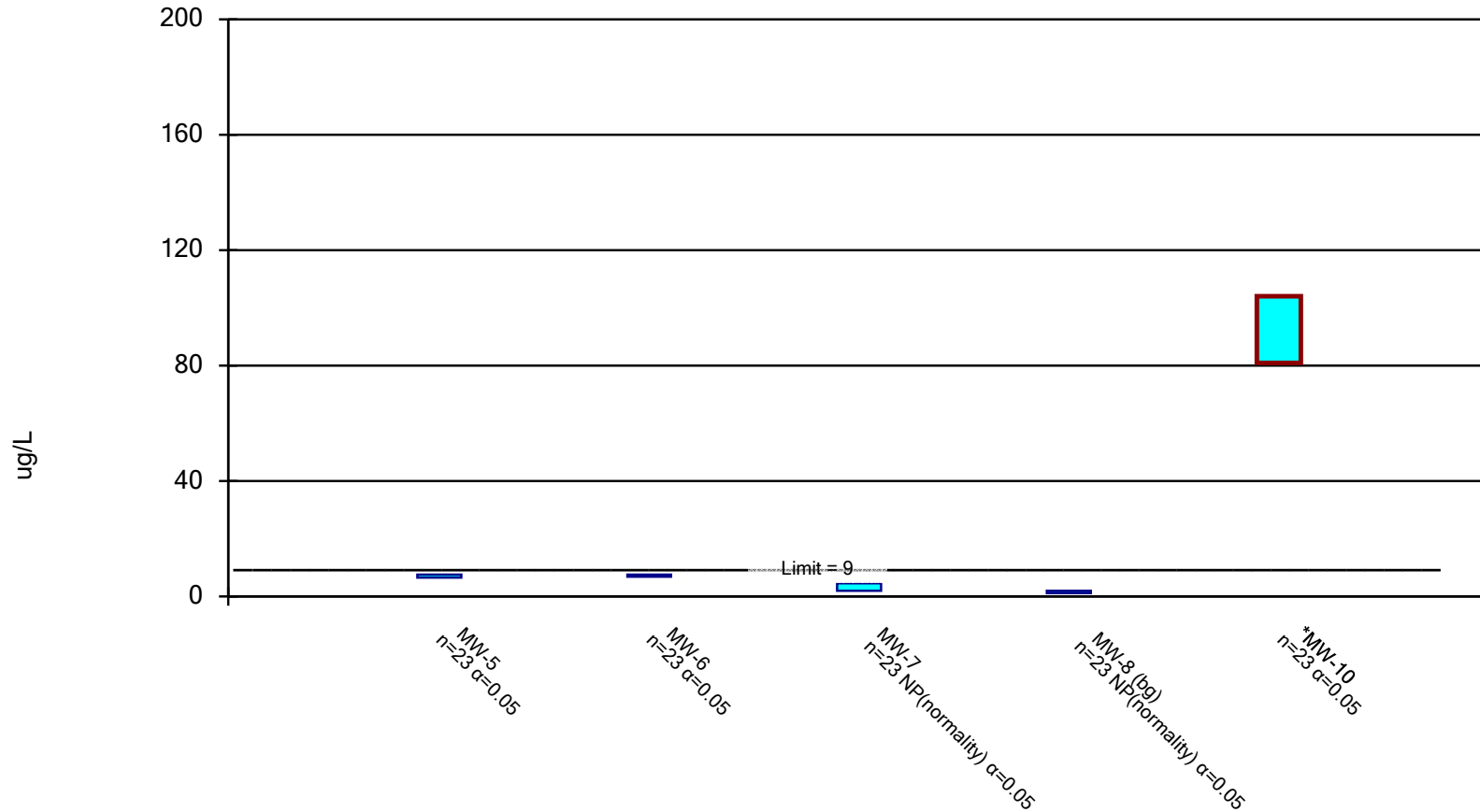
Confidence Interval

Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile Printed 12/16/2024, 1:35 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Cobalt (ug/L)	MW-10	104	80.92	9	Yes	23	0	No	0.05	Param.

Parametric and Non-Parametric (NP) Confidence Interval

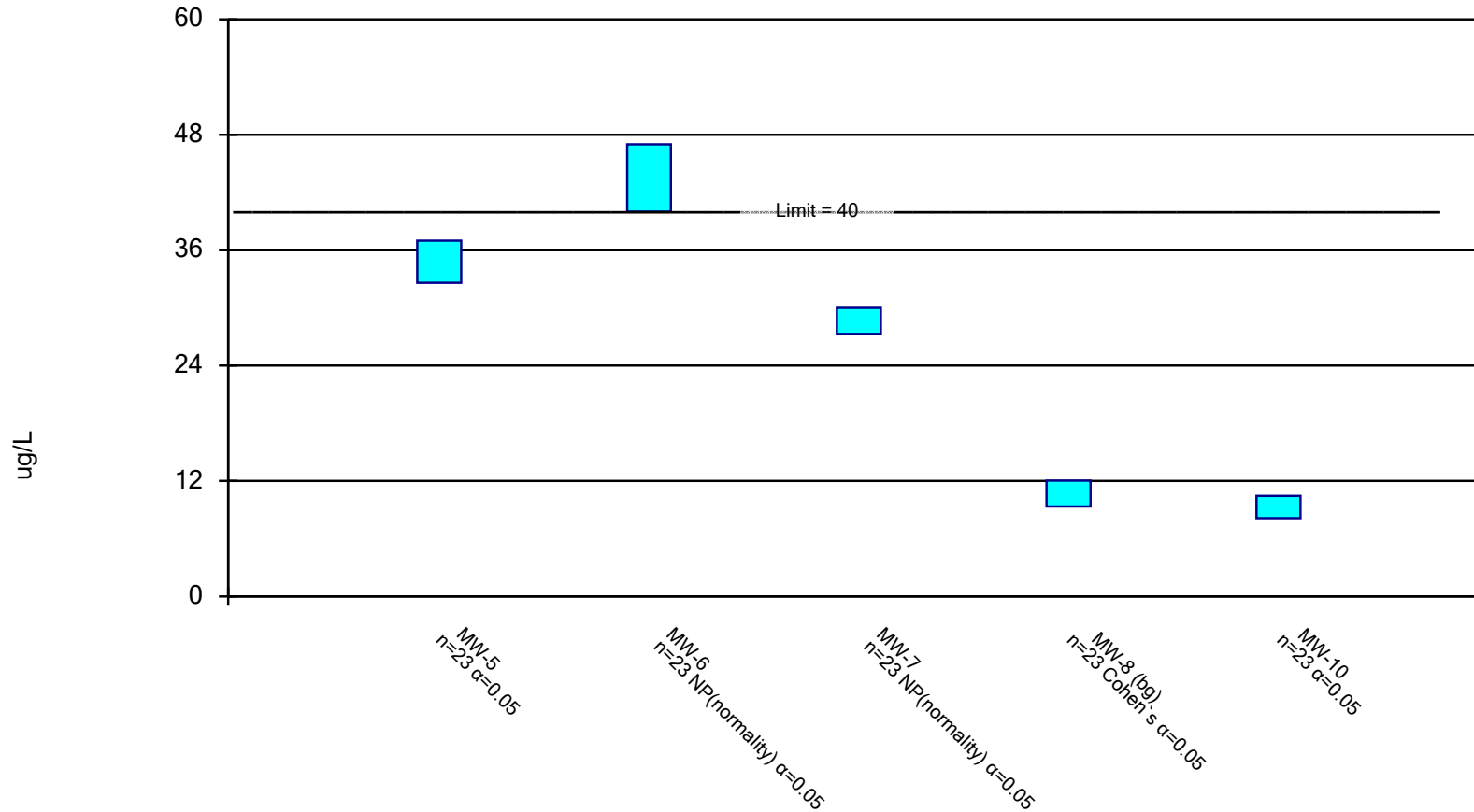
Compliance limit is exceeded.* Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt Analysis Run 12/16/2024 1:34 PM View: BREC Wilson GW
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Parametric and Non-Parametric (NP) Confidence Interval

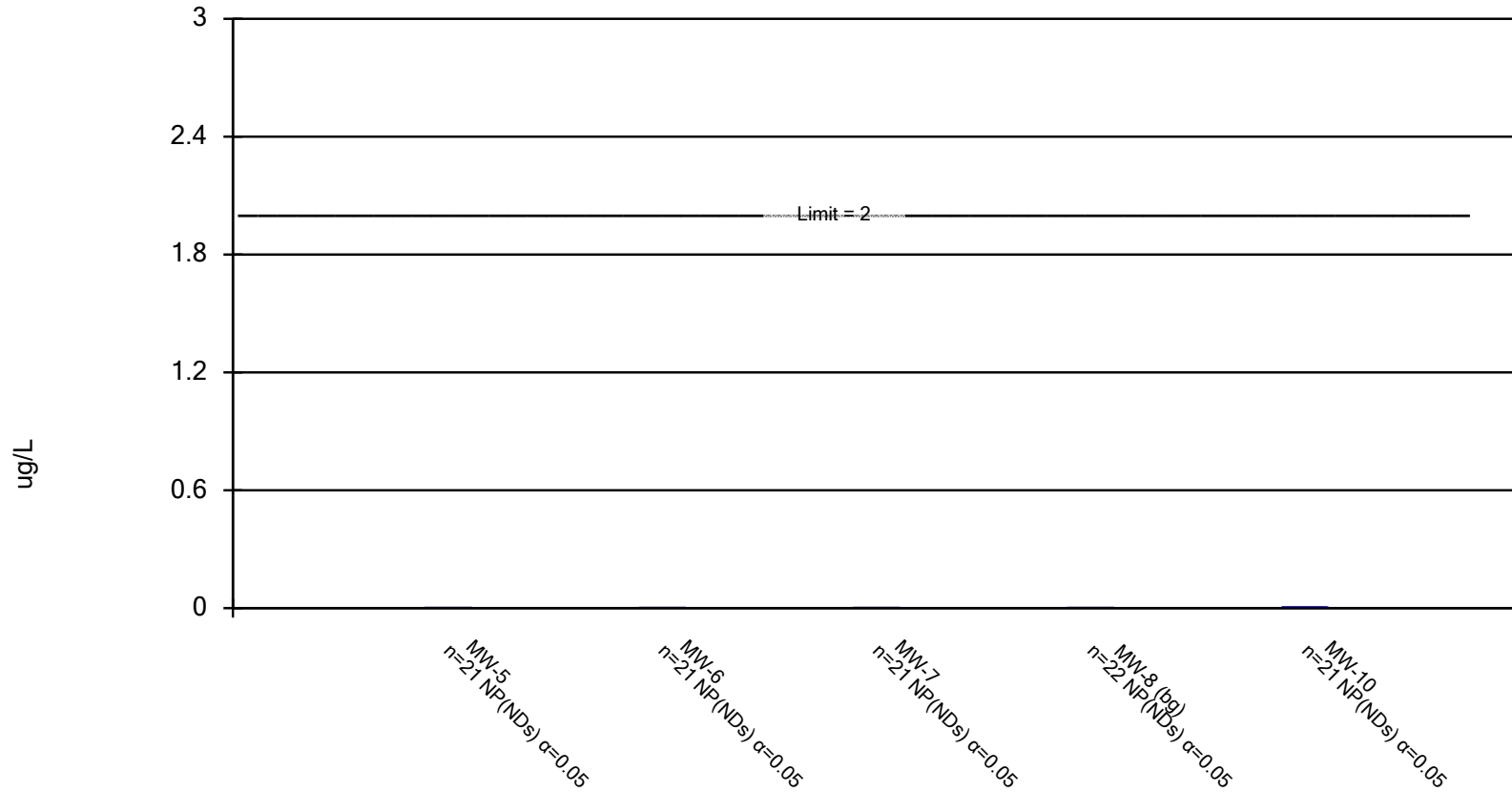
Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium Analysis Run 12/16/2024 1:34 PM View: BREC Wilson GW
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Mercury Analysis Run 12/16/2024 1:34 PM View: BREC Wilson GW
Big Rivers Electric Corp. Client: Burns & McDonnell Data: BREC Wilson_Datafile