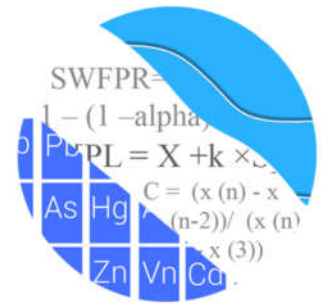# GROUNDWATER STATS CONSULTING

October 11, 2018

HR Green, Inc.
Attn: Mr. Greg Brennan
8710 Earhart Ln, SW
Cedar Rapids, Iowa 52404

Dear Mr. Brennan,

Groundwater Stats Consulting, formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the statistical analysis of groundwater data for the August 2018 sample event at the Muscatine Power & Water for the Coal Combustion Residuals (CCR) program. The analysis complies with the federal rule for the Disposal of Coal Combustion Residuals from Electric Utilities (CCR Rule, 2015) as well as with the USEPA Unified Guidance (2009).

Data were sent electronically to Groundwater Stats Consulting, and the statistical analysis was reviewed by Dr. Jim Loftis, professor emeritus of Civil and Environmental Engineering at Colorado State University and consultant to Groundwater Stats Consulting.

The monitoring well network at Muscatine Power & Water consists of the following: upgradient wells MW-08 and MW-10 as well as MW-22 which was installed this year; and downgradient wells MW-4A, MW-5B, MW-6A, MW-13, MW-14A, MW-15A, MW-18A, and MW-21. Sampling began for the CCR program in June 2016 and a total of 8 background sample events were completed for all wells except newly installed well MW-22.

The following Appendix III constituents were evaluated using prediction limits: boron, calcium, chloride, fluoride, pH, sulfate, and total dissolved solids (TDS). The following Appendix IV parameters were evaluated using confidence intervals: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, combined radium 226 + 228, fluoride, lead, lithium, mercury, molybdenum, selenium and thallium.

Background Screening

Background data were screened in October 2017 for all parameters at each well for the constituents listed above, and the results of the screening were submitted during that time. A summary of those findings was submitted with that report, and discussed below.

Outlier Screening and Trend Tests

Time series plots were used to initially screen for suspected outliers, trends, and seasonal patterns. Outliers and trends in background data result in increased variation and statistical limits that are not conservative from a regulatory perspective, if not addressed.

Box plots provide visual representation of variation within individual wells and between all wells. Data were further evaluated through the Analysis of Variance test to determine whether observed variation is statistically significant, and guide the decision logic for determining an appropriate statistical limit as discussed below.

A handful of possible outliers were identified and formally tested using Tukey's box plot method. When outliers were confirmed, these values were flagged in the computer database with "o" in order to deselect prior to construction of statistical limits. Flagged values appear as a disconnected, lighter symbol on the time series graphs.

No seasonal patterns were visually apparent in the any of the detected data; therefore, no deseasonalizing adjustments were made to the data. When seasonal patterns are observed, data may be optionally deseasonalized so that the resulting limits will correctly account for the seasonality as a predictable pattern rather than random variation or a release.

The Sen's Slope/Mann Kendall trend test was used to evaluate all proposed background data through August 2017 to identify statistically significant increasing or decreasing trends. In the absence of suspected contamination, significant trending data are typically not included as part of the background data used for construction of prediction limits. This step serves to eliminate the trend and, thus, reduce variation in background. When statistically significant decreasing trends are present, earlier data are evaluated to determine whether earlier concentration levels are significantly different than current reported concentrations and will be deselected as necessary. When the historical records of data are truncated for the reasons above, a summary report will be provided to show the date ranges used in construction of the statistical limits.

The results of the trend analyses showed a statistically significant decreasing trend for chloride in upgradient well MW-08. This trend was relatively low in magnitude when compared to average concentrations; therefore, no adjustments were made to the data sets. No other statistically significant trends were identified for any of the Appendix III parameters.

Natural systems continuously evolve due to physical changes made to the environment and unrelated to the site. To accommodate these types of changes, data for all wells and constituents are re-evaluated for the purpose of updating statistical limits. Improved sample size results in statistical limits that provide better representation of the true background population. In the case of interwell prediction limits, when a minimum of 2 new data points are available at each upgradient well, data will be evaluated to determine whether newer measurements are representative of earlier measurements in which case they may be incorporated into background.

Determination of Statistical Method

The Analysis of Variance (ANOVA) was used to identify the most appropriate statistical approach for Muscatine Power & Water. Interwell tests, which compare downgradient well data to statistical limits constructed from pooled upgradient well data, are appropriate when average concentrations are similar across upgradient wells. Intrawell tests, which compare compliance data from a single well to screened historical data within the same well, are appropriate when upgradient wells exhibit spatial variation; when statistical limits constructed from upgradient wells would not be conservative from a regulatory perspective; and when downgradient water quality is unimpacted compared to upgradient water quality for the same parameters.

In cases where downgradient concentrations are elevated relative to upgradient concentrations, an independent study and hydrogeological investigation would be required to identify local geochemical conditions and expected groundwater quality for the region to justify an intrawell approach. Such an assessment is beyond the scope of services provided by Groundwater Stats Consulting.

The ANOVA noted no variation in groundwater among upgradient wells for fluoride and pH. Boron contained 100% nondetects in upgradient wells; therefore, the ANOVA test could not be performed. As a result, interwell tests are recommended for boron, fluoride and pH. The ANOVA identified spatial variation in groundwater upgradient of the site for calcium, chloride, sulfate and TDS, indicating intrawell methods should be considered for these parameters if no pre-existing contamination from the site is

suspected downgradient wells. Additional testing was conducted as described below to determine intrawell eligibility.

Intrawell limits constructed from carefully screened background data from within each well serve to provide statistical limits that are conservative (i.e. lower) from a regulatory perspective, and that will rapidly identify a change in more recent compliance data from within a given well. This statistical method removes the element of variation from across wells and eliminates the chance of mistaking natural spatial variation for a release from the facility. Prior to performing intrawell prediction limits, it is necessary to demonstrate that water at downgradient wells is not suspected to have existing impacts from the practices of the facility.

First, to establish baseline upgradient concentrations, tolerance limits (either parametric or nonparametric as appropriate) were constructed using pooled upgradient well data for each of the Appendix III parameters recommended for intrawell analyses. Parametric tolerance limits were constructed with a target of 99% confidence and 95% coverage. The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples. As more data are collected, the background population is better represented and the confidence and coverage levels increase.

Next, to determine whether average downgradient concentrations are elevated relative to the upgradient well baseline concentrations established by the tolerance limits above, confidence intervals were constructed on downgradient wells for each of the Appendix III parameters exhibiting spatial variation. The results showed that at least one confidence interval exceeded its respective limit for each of the parameters tested.

When the entire confidence interval exceeds a background standard, it is an indication that downgradient concentrations are elevated above background levels. Therefore, interwell methods are recommended initially in lieu of intrawell methods until further research identifies whether the elevated downgradient concentrations are likely the result of natural geological conditions, an off-site source, or may be the result of the facility. After such a study, data would be re-evaluated to determine the most appropriate statistical Detection Monitoring method.

Prediction Limits – Appendix III Parameters August 2018

Interwell prediction limits were constructed as recommended in the CCR Rule (2015) and in the EPA Unified Guidance (2009), based on a 1-of-2 resample plan using pooled upgradient well data for all Appendix III parameters. In the event of an initial exceedance of compliance well data, a resample will be collected to determine whether the initial

exceedance is confirmed, in which case a statistically significant increase (SSI) is identified. If the resample falls within the statistical limit, the initial exceedance is considered to be a false positive result and, therefore, no further action is necessary.

Parametric prediction limits were constructed when background data followed a normal or transformed-normal distribution. Non-parametric prediction limits are provided for data sets with greater than 50% nondetects, and for data sets which do not follow a normal or transformed-normal distribution. Downgradient measurements were compared to these background limits. A summary table of well/constituent pairs found to exceed their respective limits follows this letter.

The Sen's Slope/Mann Kendall trend test was performed on the exceedances noted above to determine whether concentrations are increasing, decreasing or stabilizing over time. No statistically significant increasing trends were noted. Well MW-18A showed statistically significant decreasing trends for boron, calcium and sulfate.

Confidence Intervals – Appendix IV Parameters

Confidence intervals were constructed at all downgradient wells for detected Appendix IV parameters. A minimum of 4 samples is required to construct confidence intervals; however, 8 samples are generally recommended for better representation of the true average population. Established Maximum Contaminant Levels (MCLs) are used as the GWPS comparisons, unless background limits are higher as discussed below. For parameters without MCLs (cobalt, lithium, and molybdenum), the Regional Screening Level (RSL) was used unless background was higher. Parametric confidence intervals are constructed with 99% confidence when data follow a normal or transformed-normal distribution. For all other cases, nonparametric confidence intervals are constructed, with the confidence level based on the number of samples available.

Background limits are established for the Appendix IV parameters using upper tolerance limits constructed with 95% confidence/95% coverage using pooled upgradient well data, for comparison against established MCLs. When background limits, or Alternate Contaminant Levels (ACLs), are higher than established MCLs or RSLs, the CCR Rule recommends using these as the GWPS for the confidence interval comparisons. The GWPS is exceeded only when the entire confidence interval exceeds its respective GWPS. None of the confidence intervals exceeded their respective standard.

Thank you for the opportunity to assist you in the statistical analysis of groundwater quality for Muscatine Power & Water. If you have any questions or comments, please feel free to contact me.

For Groundwater Stats Consulting,

Kristina L. Rayner
Groundwater Statistician

Interwell Prediction Limit Summary - Significant Results

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water   Printed 10/10/2018, 5:25 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Boron (mg/L)	MW-13	0.2	n/a	8/28/2018	1.45	Yes	27	n/a	n/a	100	n/a	n/a	0.00233	NP Inter (NDs) 1 of 2
Boron (mg/L)	MW-14A	0.2	n/a	8/29/2018	14	Yes	27	n/a	n/a	100	n/a	n/a	0.00233	NP Inter (NDs) 1 of 2
Boron (mg/L)	MW-15A	0.2	n/a	8/29/2018	14.6	Yes	27	n/a	n/a	100	n/a	n/a	0.00233	NP Inter (NDs) 1 of 2
Boron (mg/L)	MW-18A	0.2	n/a	8/29/2018	10.5	Yes	27	n/a	n/a	100	n/a	n/a	0.00233	NP Inter (NDs) 1 of 2
Boron (mg/L)	MW-21	0.2	n/a	8/28/2018	1.36	Yes	27	n/a	n/a	100	n/a	n/a	0.00233	NP Inter (NDs) 1 of 2
Calcium (mg/L)	MW-14A	152	n/a	8/29/2018	309	Yes	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Calcium (mg/L)	MW-15A	152	n/a	8/29/2018	155	Yes	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Calcium (mg/L)	MW-18A	152	n/a	8/29/2018	223	Yes	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Chloride (mg/L)	MW-5B	30	n/a	8/29/2018	70.8	Yes	27	n/a	n/a	40.74	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Chloride (mg/L)	MW-14A	30	n/a	8/29/2018	33.1	Yes	27	n/a	n/a	40.74	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MW-14A	366	n/a	8/29/2018	1070	Yes	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MW-15A	366	n/a	8/29/2018	400	Yes	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MW-18A	366	n/a	8/29/2018	675	Yes	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	MW-14A	752.2	n/a	8/29/2018	1900	Yes	27	500.5	119.7	0	None	No	0.0009403	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-15A	752.2	n/a	8/29/2018	948	Yes	27	500.5	119.7	0	None	No	0.0009403	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-18A	752.2	n/a	8/29/2018	1330	Yes	27	500.5	119.7	0	None	No	0.0009403	Param Inter 1 of 2

Trend Tests Summary Table - Prediction Limit Increases

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water   Printed 10/4/2018, 12:25 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron (mg/L)	MW-13	-3.238	-13	-30	No	10	0	n/a	n/a	0.01	NP
Boron (mg/L)	MW-14A	-2.063	-24	-38	No	12	0	n/a	n/a	0.01	NP
Boron (mg/L)	MW-15A	-2.814	-35	-38	No	12	0	n/a	n/a	0.01	NP
Boron (mg/L)	**MW-18A**	**-2.346**	**-41**	**-38**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	MW-21	-3.071	-30	-38	No	12	8.333	n/a	n/a	0.01	NP
Calcium (mg/L)	MW-14A	-1.299	-9	-38	No	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MW-15A	-6.217	-3	-38	No	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	**MW-18A**	**-41.32**	**-53**	**-38**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Chloride (mg/L)	MW-5B	1.581	21	38	No	12	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MW-14A	2.509	21	38	No	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MW-14A	31.02	12	38	No	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MW-15A	-11.41	-2	-38	No	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	**MW-18A**	**-154.7**	**-46**	**-38**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Total Dissolved Solids (mg/L)	MW-14A	-42.1	-3	-38	No	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	MW-15A	-161	-15	-38	No	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	MW-18A	-307.4	-29	-34	No	11	0	n/a	n/a	0.01	NP

MUSCATINE POWER & WATER GWPS			
Constituent Name	MCL	RSL	Background Limit
Antimony, Total (mg/L)	0.006		0.001
Arsenic, Total (mg/L)	0.01		0.0037
Barium, Total (mg/L)	2		0.22
Beryllium, Total (mg/L)	0.004		0.001
Cadmium, Total (mg/L)	0.005		0.0005
Chromium, Total (mg/L)	0.1		0.005
Cobalt, Total (mg/L)	n/a	0.006	0.0015
Combined Radium, Total (pCi/L)	5		0.94
Fluoride, Total (mg/L)	4		0.83
Lead, Total (mg/L)	0.015		0.0005
Lithium, Total (mg/L)	n/a	0.04	0.01
Mercury, Total (mg/L)	0.002		0.0002
Molybdenum, Total (mg/L)	n/a	0.1	0.0057
Selenium, Total (mg/L)	0.05		0.005
Thallium, Total (mg/L)	0.002		0.001

MCL = Maximum Contaminant Level

RSL = Regional Screening Level

Confidence Interval Summary Table - All Results

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig. N	Mean	Std. Dev.	%NDs	ND Adj	Transform	Alpha	Method
Antimony (mg/L)	MW-4A	0.001	0.001	0.006	No 11	0.001	0	100	None	No	0.006	NP (NDs)
Antimony (mg/L)	MW-5B	0.001	0.001	0.006	No 11	0.001	0	100	None	No	0.006	NP (NDs)
Antimony (mg/L)	MW-6A	0.001	0.001	0.006	No 11	0.001	0	100	None	No	0.006	NP (NDs)
Antimony (mg/L)	MW-13	0.001	0.001	0.006	No 11	0.001	0	100	None	No	0.006	NP (NDs)
Antimony (mg/L)	MW-14A	0.001	0.001	0.006	No 11	0.001	0	100	None	No	0.006	NP (NDs)
Antimony (mg/L)	MW-15A	0.001	0.001	0.006	No 11	0.005455	0.01477	100	None	No	0.006	NP (NDs)
Antimony (mg/L)	MW-18A	0.00195	0.001	0.006	No 11	0.005541	0.01475	90.91	None	No	0.006	NP (NDs)
Arsenic (mg/L)	MW-4A	0.002	0.002	0.01	No 11	0.002	0	100	None	No	0.006	NP (NDs)
Arsenic (mg/L)	MW-5B	0.002	0.002	0.01	No 11	0.002	0	100	None	No	0.006	NP (NDs)
Arsenic (mg/L)	MW-6A	0.002	0.002	0.01	No 11	0.002	0	100	None	No	0.006	NP (NDs)
Arsenic (mg/L)	MW-13	0.002	0.002	0.01	No 11	0.002	0	100	None	No	0.006	NP (NDs)
Arsenic (mg/L)	MW-14A	0.002	0.002	0.01	No 11	0.002	0	100	None	No	0.006	NP (NDs)
Arsenic (mg/L)	MW-15A	0.002	0.002	0.01	No 11	0.01091	0.02955	100	None	No	0.006	NP (NDs)
Arsenic (mg/L)	MW-18A	0.00265	0.002	0.01	No 11	0.01097	0.02953	90.91	None	No	0.006	NP (NDs)
Barium (mg/L)	MW-4A	0.1447	0.124	2	No 11	0.1344	0.01245	0	None	No	0.01	Param.
Barium (mg/L)	MW-5B	0.3353	0.3013	2	No 11	0.3183	0.02038	0	None	No	0.01	Param.
Barium (mg/L)	MW-6A	0.2136	0.1851	2	No 11	0.1991	0.01823	0	None	x^2	0.01	Param.
Barium (mg/L)	MW-13	0.1101	0.05594	2	No 11	0.08301	0.03248	0	None	No	0.01	Param.
Barium (mg/L)	MW-14A	0.0391	0.03103	2	No 11	0.03506	0.004841	0	None	No	0.01	Param.
Barium (mg/L)	MW-15A	0.04101	0.03355	2	No 10	0.03728	0.004185	0	None	No	0.01	Param.
Barium (mg/L)	MW-18A	0.0403	0.0281	2	No 11	0.04092	0.02002	9.091	None	No	0.006	NP (normality)
Beryllium (mg/L)	MW-4A	0.001	0.001	0.004	No 11	0.001	0	100	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MW-5B	0.001	0.001	0.004	No 11	0.001	0	100	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MW-6A	0.001	0.001	0.004	No 11	0.001	0	100	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MW-13	0.001	0.001	0.004	No 11	0.001	0	100	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MW-14A	0.001	0.001	0.004	No 11	0.001	0	100	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MW-15A	0.001	0.001	0.004	No 11	0.005455	0.01477	100	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MW-18A	0.001	0.001	0.004	No 11	0.005455	0.01477	100	None	No	0.006	NP (NDs)
Cadmium (mg/L)	MW-4A	0.0005	0.0005	0.005	No 11	0.0005	0	100	None	No	0.006	NP (NDs)
Cadmium (mg/L)	MW-5B	0.0005	0.0005	0.005	No 11	0.0005	0	100	None	No	0.006	NP (NDs)
Cadmium (mg/L)	MW-6A	0.0005	0.0005	0.005	No 11	0.0005	0	100	None	No	0.006	NP (NDs)
Cadmium (mg/L)	MW-13	0.0005	0.0005	0.005	No 11	0.0005	0	100	None	No	0.006	NP (NDs)
Cadmium (mg/L)	MW-14A	0.0005	0.0005	0.005	No 11	0.0005	0	100	None	No	0.006	NP (NDs)
Cadmium (mg/L)	MW-15A	0.0005	0.0005	0.005	No 11	0.002727	0.007387	100	None	No	0.006	NP (NDs)
Cadmium (mg/L)	MW-18A	0.0005	0.0005	0.005	No 11	0.002727	0.007387	100	None	No	0.006	NP (NDs)
Chromium (mg/L)	MW-4A	0.005	0.005	0.1	No 11	0.005	0	100	None	No	0.006	NP (NDs)
Chromium (mg/L)	MW-5B	0.005	0.005	0.1	No 11	0.005	0	100	None	No	0.006	NP (NDs)
Chromium (mg/L)	MW-6A	0.005	0.005	0.1	No 11	0.005	0	100	None	No	0.006	NP (NDs)
Chromium (mg/L)	MW-13	0.005	0.005	0.1	No 10	0.005158	0.0004996	90	None	No	0.011	NP (NDs)
Chromium (mg/L)	MW-14A	0.005	0.005	0.1	No 11	0.005	0	100	None	No	0.006	NP (NDs)
Chromium (mg/L)	MW-15A	0.005	0.005	0.1	No 11	0.02727	0.07387	100	None	No	0.006	NP (NDs)
Chromium (mg/L)	MW-18A	0.005	0.005	0.1	No 11	0.02727	0.07387	100	None	No	0.006	NP (NDs)
Cobalt (mg/L)	MW-4A	0.0005	0.0005	0.006	No 11	0.0005165	0.00005457	90.91	None	No	0.006	NP (NDs)
Cobalt (mg/L)	MW-5B	0.0005	0.0005	0.006	No 11	0.0005	0	100	None	No	0.006	NP (NDs)
Cobalt (mg/L)	MW-6A	0.0005	0.0005	0.006	No 11	0.0005	0	100	None	No	0.006	NP (NDs)
Cobalt (mg/L)	MW-13	0.0007805	0.0005411	0.006	No 10	0.0006608	0.0001414	30	Kapla..	No	0.01	Param.
Cobalt (mg/L)	MW-14A	0.0005	0.0005	0.006	No 11	0.0005	0	100	Kapla..	No	0.006	NP (NDs)
Cobalt (mg/L)	MW-15A	0.0005	0.0005	0.006	No 11	0.002727	0.007387	100	Kapla..	No	0.006	NP (NDs)
Cobalt (mg/L)	MW-18A	0.0005	0.0005	0.006	No 11	0.002727	0.007387	100	Kapla..	No	0.006	NP (NDs)
Combined Radium 226 + 228 (pCi/L)	MW-4A	0.7583	0.3735	5	No 9	0.5659	0.1992	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-5B	1.031	0.5925	5	No 9	0.8118	0.2271	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-6A	0.7309	0.3134	5	No 9	0.5211	0.2298	0	None	sqrt(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-13	0.5607	0.1772	5	No 8	0.363	0.2029	0	None	sqrt(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-14A	0.4542	0.1302	5	No 9	0.2922	0.1678	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-15A	0.2876	0.1315	5	No 9	0.2095	0.08085	0	None	No	0.01	Param.

Confidence Interval Summary Table - All Results

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water   Printed 10/10/2018, 6:13 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig. N	Mean	Std. Dev.	%NDs	ND Adj	Transform	Alpha	Method
Combined Radium 226 + 228 (pCi/L)	MW-18A	0.5629	0.2171	5	No 9	0.39	0.1791	0	None	No	0.01	Param.
Fluoride (mg/L)	MW-4A	0.664	0.5	4	No 12	0.5388	0.0951	83.33	None	No	0.01	NP (NDs)
Fluoride (mg/L)	MW-5B	1.88	0.5	4	No 12	0.7623	0.5866	75	None	No	0.01	NP (normality)
Fluoride (mg/L)	MW-6A	1.89	0.5	4	No 12	0.7687	0.5621	75	None	No	0.01	NP (normality)
Fluoride (mg/L)	MW-13	1.21	0.5	4	No 11	0.7559	0.5028	63.64	None	No	0.006	NP (normality)
Fluoride (mg/L)	MW-14A	0.684	0.5	4	No 11	0.5501	0.1187	81.82	None	No	0.006	NP (NDs)
Fluoride (mg/L)	MW-15A	0.5	0.5	4	No 11	0.5045	0.01477	90.91	None	No	0.006	NP (NDs)
Fluoride (mg/L)	MW-18A	0.5	0.5	4	No 11	0.5265	0.08774	90.91	None	No	0.006	NP (NDs)
Lead (mg/L)	MW-4A	0.0005	0.0005	0.015	No 10	0.0005	0	100	None	No	0.011	NP (NDs)
Lead (mg/L)	MW-5B	0.0005	0.0005	0.015	No 11	0.0005	0	100	None	No	0.006	NP (NDs)
Lead (mg/L)	MW-6A	0.0005	0.0005	0.015	No 11	0.0005	0	100	None	No	0.006	NP (NDs)
Lead (mg/L)	MW-13	0.0005	0.0005	0.015	No 11	0.0005	0	100	None	No	0.006	NP (NDs)
Lead (mg/L)	MW-14A	0.0005	0.0005	0.015	No 11	0.0005	0	100	None	No	0.006	NP (NDs)
Lead (mg/L)	MW-15A	0.0005	0.0005	0.015	No 11	0.002727	0.007387	100	None	No	0.006	NP (NDs)
Lead (mg/L)	MW-18A	0.0005	0.0005	0.015	No 11	0.002727	0.007387	100	None	No	0.006	NP (NDs)
Lithium (mg/L)	MW-4A	0.05	0.01	0.04	No 11	0.03909	0.01868	100	None	No	0.006	NP (NDs)
Lithium (mg/L)	MW-5B	0.05	0.01	0.04	No 11	0.03909	0.01868	100	None	No	0.006	NP (NDs)
Lithium (mg/L)	MW-6A	0.05	0.01	0.04	No 11	0.03909	0.01868	100	None	No	0.006	NP (NDs)
Lithium (mg/L)	MW-13	0.1	0.01	0.04	No 12	0.04935	0.04126	91.67	None	No	0.01	NP (NDs)
Lithium (mg/L)	MW-14A	0.05	0.01	0.04	No 11	0.03909	0.01868	100	None	No	0.006	NP (NDs)
Lithium (mg/L)	MW-15A	0.05	0.01	0.04	No 11	0.03909	0.01868	100	None	No	0.006	NP (NDs)
Lithium (mg/L)	MW-18A	0.05	0.01	0.04	No 11	0.03909	0.01868	100	None	No	0.006	NP (NDs)
Mercury (mg/L)	MW-4A	0.0002	0.0002	0.002	No 11	0.0002	0	100	None	No	0.006	NP (NDs)
Mercury (mg/L)	MW-5B	0.0002	0.0002	0.002	No 11	0.0002	0	100	None	No	0.006	NP (NDs)
Mercury (mg/L)	MW-6A	0.0002	0.0002	0.002	No 11	0.0002	0	100	None	No	0.006	NP (NDs)
Mercury (mg/L)	MW-13	0.0002	0.0002	0.002	No 11	0.0002	0	100	None	No	0.006	NP (NDs)
Mercury (mg/L)	MW-14A	0.0002	0.0002	0.002	No 11	0.0002	0	100	None	No	0.006	NP (NDs)
Mercury (mg/L)	MW-15A	0.0002	0.0002	0.002	No 11	0.0002	0	100	None	No	0.006	NP (NDs)
Mercury (mg/L)	MW-18A	0.0002	0.0002	0.002	No 10	0.0002	0	100	None	No	0.011	NP (NDs)
Molybdenum (mg/L)	MW-4A	0.002	0.002	0.1	No 11	0.002	0	100	None	No	0.006	NP (NDs)
Molybdenum (mg/L)	MW-5B	0.002	0.002	0.1	No 11	0.002	0	100	None	No	0.006	NP (NDs)
Molybdenum (mg/L)	MW-6A	0.002	0.002	0.1	No 11	0.002	0	100	None	No	0.006	NP (NDs)
Molybdenum (mg/L)	MW-13	0.006416	0.002921	0.1	No 10	0.004691	0.002111	0	None	sqrt(x)	0.01	Param.
Molybdenum (mg/L)	MW-14A	0.002	0.002	0.1	No 11	0.002	0	100	None	No	0.006	NP (NDs)
Molybdenum (mg/L)	MW-15A	0.002	0.002	0.1	No 11	0.01091	0.02955	100	None	No	0.006	NP (NDs)
Molybdenum (mg/L)	MW-18A	0.002	0.002	0.1	No 11	0.01091	0.02955	100	None	No	0.006	NP (NDs)
Selenium (mg/L)	MW-4A	0.005	0.005	0.05	No 11	0.005	0	100	None	No	0.006	NP (NDs)
Selenium (mg/L)	MW-5B	0.005	0.005	0.05	No 11	0.005	0	100	None	No	0.006	NP (NDs)
Selenium (mg/L)	MW-6A	0.005	0.005	0.05	No 11	0.005	0	100	None	No	0.006	NP (NDs)
Selenium (mg/L)	MW-13	0.005	0.005	0.05	No 10	0.00645	0.004585	90	None	No	0.011	NP (NDs)
Selenium (mg/L)	MW-14A	0.008282	0.0072	0.05	No 11	0.007641	0.0009769	9.091	None	x^5	0.01	Param.
Selenium (mg/L)	MW-15A	0.00502	0.005	0.05	No 11	0.02727	0.07387	90.91	None	No	0.006	NP (NDs)
Selenium (mg/L)	MW-18A	0.005	0.005	0.05	No 11	0.02727	0.07387	100	None	No	0.006	NP (NDs)
Thallium (mg/L)	MW-4A	0.001	0.001	0.002	No 11	0.001	0	100	None	No	0.006	NP (NDs)
Thallium (mg/L)	MW-5B	0.001	0.001	0.002	No 11	0.001	0	100	None	No	0.006	NP (NDs)
Thallium (mg/L)	MW-6A	0.001	0.001	0.002	No 11	0.001	0	100	None	No	0.006	NP (NDs)
Thallium (mg/L)	MW-13	0.001	0.001	0.002	No 11	0.001	0	100	None	No	0.006	NP (NDs)
Thallium (mg/L)	MW-14A	0.001	0.001	0.002	No 11	0.001	0	100	None	No	0.006	NP (NDs)
Thallium (mg/L)	MW-15A	0.001	0.001	0.002	No 11	0.005455	0.01477	100	None	No	0.006	NP (NDs)
Thallium (mg/L)	MW-18A	0.001	0.001	0.002	No 11	0.005455	0.01477	100	None	No	0.006	NP (NDs)

Prediction Limits

Interwell Prediction Limit Summary - Significant Results

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Boron (mg/L)	MW-13	0.2	n/a	8/28/2018	1.45	Yes	27	n/a	n/a	100	n/a	n/a	0.00233	NP Inter (NDs) 1 of 2
Boron (mg/L)	MW-14A	0.2	n/a	8/29/2018	14	Yes	27	n/a	n/a	100	n/a	n/a	0.00233	NP Inter (NDs) 1 of 2
Boron (mg/L)	MW-15A	0.2	n/a	8/29/2018	14.6	Yes	27	n/a	n/a	100	n/a	n/a	0.00233	NP Inter (NDs) 1 of 2
Boron (mg/L)	MW-18A	0.2	n/a	8/29/2018	10.5	Yes	27	n/a	n/a	100	n/a	n/a	0.00233	NP Inter (NDs) 1 of 2
Boron (mg/L)	MW-21	0.2	n/a	8/28/2018	1.36	Yes	27	n/a	n/a	100	n/a	n/a	0.00233	NP Inter (NDs) 1 of 2
Calcium (mg/L)	MW-14A	152	n/a	8/29/2018	309	Yes	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Calcium (mg/L)	MW-15A	152	n/a	8/29/2018	155	Yes	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Calcium (mg/L)	MW-18A	152	n/a	8/29/2018	223	Yes	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Chloride (mg/L)	MW-5B	30	n/a	8/29/2018	70.8	Yes	27	n/a	n/a	40.74	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Chloride (mg/L)	MW-14A	30	n/a	8/29/2018	33.1	Yes	27	n/a	n/a	40.74	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MW-14A	366	n/a	8/29/2018	1070	Yes	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MW-15A	366	n/a	8/29/2018	400	Yes	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MW-18A	366	n/a	8/29/2018	675	Yes	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	MW-14A	752.2	n/a	8/29/2018	1900	Yes	27	500.5	119.7	0	None	No	0.0009403	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-15A	752.2	n/a	8/29/2018	948	Yes	27	500.5	119.7	0	None	No	0.0009403	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-18A	752.2	n/a	8/29/2018	1330	Yes	27	500.5	119.7	0	None	No	0.0009403	Param Inter 1 of 2

Interwell Prediction Limit Summary - All Results

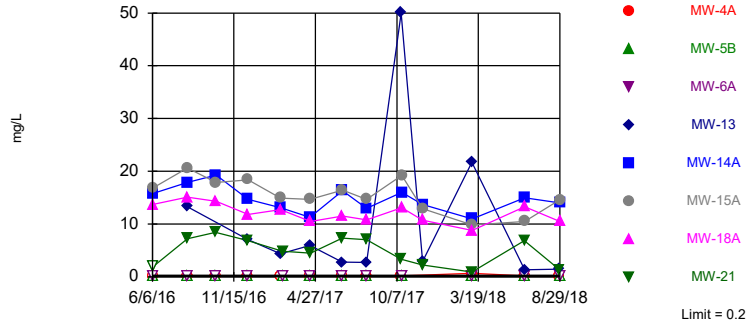| Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Boron (mg/L)	MW-4A	0.2	n/a	8/28/2018	0.2ND	No	27	n/a	n/a	100	n/a	n/a	0.00233	NP Inter (NDs) 1 of 2
Boron (mg/L)	MW-5B	0.2	n/a	8/29/2018	0.2ND	No	27	n/a	n/a	100	n/a	n/a	0.00233	NP Inter (NDs) 1 of 2
Boron (mg/L)	MW-6A	0.2	n/a	8/29/2018	0.2ND	No	27	n/a	n/a	100	n/a	n/a	0.00233	NP Inter (NDs) 1 of 2
Boron (mg/L)	**MW-13**	**0.2**	**n/a**	**8/28/2018**	**1.45**	**Yes**	**27**	**n/a**	**n/a**	**100**	**n/a**	**n/a**	**0.00233**	**NP Inter (NDs) 1 of 2**
Boron (mg/L)	**MW-14A**	**0.2**	**n/a**	**8/29/2018**	**14**	**Yes**	**27**	**n/a**	**n/a**	**100**	**n/a**	**n/a**	**0.00233**	**NP Inter (NDs) 1 of 2**
Boron (mg/L)	**MW-15A**	**0.2**	**n/a**	**8/29/2018**	**14.6**	**Yes**	**27**	**n/a**	**n/a**	**100**	**n/a**	**n/a**	**0.00233**	**NP Inter (NDs) 1 of 2**
Boron (mg/L)	**MW-18A**	**0.2**	**n/a**	**8/29/2018**	**10.5**	**Yes**	**27**	**n/a**	**n/a**	**100**	**n/a**	**n/a**	**0.00233**	**NP Inter (NDs) 1 of 2**
Boron (mg/L)	**MW-21**	**0.2**	**n/a**	**8/28/2018**	**1.36**	**Yes**	**27**	**n/a**	**n/a**	**100**	**n/a**	**n/a**	**0.00233**	**NP Inter (NDs) 1 of 2**
Calcium (mg/L)	MW-4A	152	n/a	8/28/2018	91.3	No	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Calcium (mg/L)	MW-5B	152	n/a	8/29/2018	146	No	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Calcium (mg/L)	MW-6A	152	n/a	8/29/2018	73.3	No	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Calcium (mg/L)	MW-13	152	n/a	8/28/2018	93.1	No	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Calcium (mg/L)	**MW-14A**	**152**	**n/a**	**8/29/2018**	**309**	**Yes**	**27**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.00233**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**MW-15A**	**152**	**n/a**	**8/29/2018**	**155**	**Yes**	**27**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.00233**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**MW-18A**	**152**	**n/a**	**8/29/2018**	**223**	**Yes**	**27**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.00233**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	MW-21	152	n/a	8/28/2018	78.7	No	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Chloride (mg/L)	MW-4A	30	n/a	8/28/2018	19.4	No	27	n/a	n/a	40.74	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Chloride (mg/L)	**MW-5B**	**30**	**n/a**	**8/29/2018**	**70.8**	**Yes**	**27**	**n/a**	**n/a**	**40.74**	**n/a**	**n/a**	**0.00233**	**NP Inter (normality) 1 of 2**
Chloride (mg/L)	MW-6A	30	n/a	8/29/2018	5ND	No	27	n/a	n/a	40.74	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Chloride (mg/L)	MW-13	30	n/a	8/28/2018	7.24	No	27	n/a	n/a	40.74	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Chloride (mg/L)	**MW-14A**	**30**	**n/a**	**8/29/2018**	**33.1**	**Yes**	**27**	**n/a**	**n/a**	**40.74**	**n/a**	**n/a**	**0.00233**	**NP Inter (normality) 1 of 2**
Chloride (mg/L)	MW-15A	30	n/a	8/29/2018	10.1	No	27	n/a	n/a	40.74	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Chloride (mg/L)	MW-18A	30	n/a	8/29/2018	26.9	No	27	n/a	n/a	40.74	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Chloride (mg/L)	MW-21	30	n/a	8/28/2018	5ND	No	27	n/a	n/a	40.74	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Fluoride (mg/L)	MW-4A	0.826	n/a	8/28/2018	0.5ND	No	26	n/a	n/a	84.62	n/a	n/a	0.002476	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	MW-5B	0.826	n/a	8/29/2018	0.5ND	No	26	n/a	n/a	84.62	n/a	n/a	0.002476	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	MW-6A	0.826	n/a	8/29/2018	0.5ND	No	26	n/a	n/a	84.62	n/a	n/a	0.002476	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	MW-13	0.826	n/a	8/28/2018	0.5ND	No	26	n/a	n/a	84.62	n/a	n/a	0.002476	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	MW-14A	0.826	n/a	8/29/2018	0.5ND	No	26	n/a	n/a	84.62	n/a	n/a	0.002476	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	MW-15A	0.826	n/a	8/29/2018	0.5ND	No	26	n/a	n/a	84.62	n/a	n/a	0.002476	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	MW-18A	0.826	n/a	8/29/2018	0.5ND	No	26	n/a	n/a	84.62	n/a	n/a	0.002476	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	MW-21	0.826	n/a	8/28/2018	0.5ND	No	26	n/a	n/a	84.62	n/a	n/a	0.002476	NP Inter (NDs) 1 of 2
pH (SU)	MW-4A	7.9	7.04	8/28/2018	7.44	No	27	n/a	n/a	0	n/a	n/a	0.00466	NP Inter (normality) 1 of 2
pH (SU)	MW-5B	7.9	7.04	8/29/2018	7.14	No	27	n/a	n/a	0	n/a	n/a	0.00466	NP Inter (normality) 1 of 2
pH (SU)	MW-6A	7.9	7.04	8/29/2018	7.18	No	27	n/a	n/a	0	n/a	n/a	0.00466	NP Inter (normality) 1 of 2
pH (SU)	MW-13	7.9	7.04	8/28/2018	7.37	No	27	n/a	n/a	0	n/a	n/a	0.00466	NP Inter (normality) 1 of 2
pH (SU)	MW-14A	7.9	7.04	8/29/2018	7.09	No	27	n/a	n/a	0	n/a	n/a	0.00466	NP Inter (normality) 1 of 2
pH (SU)	MW-15A	7.9	7.04	8/29/2018	7.25	No	27	n/a	n/a	0	n/a	n/a	0.00466	NP Inter (normality) 1 of 2
pH (SU)	MW-18A	7.9	7.04	8/29/2018	7.12	No	27	n/a	n/a	0	n/a	n/a	0.00466	NP Inter (normality) 1 of 2
pH (SU)	MW-21	7.9	7.04	8/28/2018	7.07	No	27	n/a	n/a	0	n/a	n/a	0.00466	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MW-4A	366	n/a	8/28/2018	52.2	No	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MW-5B	366	n/a	8/29/2018	120	No	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MW-6A	366	n/a	8/29/2018	5ND	No	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MW-13	366	n/a	8/28/2018	72.7	No	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Sulfate (mg/L)	**MW-14A**	**366**	**n/a**	**8/29/2018**	**1070**	**Yes**	**27**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.00233**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**MW-15A**	**366**	**n/a**	**8/29/2018**	**400**	**Yes**	**27**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.00233**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**MW-18A**	**366**	**n/a**	**8/29/2018**	**675**	**Yes**	**27**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.00233**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	MW-21	366	n/a	8/28/2018	96.6	No	27	n/a	n/a	0	n/a	n/a	0.00233	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	MW-4A	752.2	n/a	8/28/2018	420	No	27	500.5	119.7	0	None	No	0.0009403	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-5B	752.2	n/a	8/29/2018	622	No	27	500.5	119.7	0	None	No	0.0009403	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-6A	752.2	n/a	8/29/2018	298	No	27	500.5	119.7	0	None	No	0.0009403	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	MW-13	752.2	n/a	8/28/2018	384	No	27	500.5	119.7	0	None	No	0.0009403	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	**MW-14A**	**752.2**	**n/a**	**8/29/2018**	**1900**	**Yes**	**27**	**500.5**	**119.7**	**0**	**None**	**No**	**0.0009403**	**Param Inter 1 of 2**
Total Dissolved Solids (mg/L)	**MW-15A**	**752.2**	**n/a**	**8/29/2018**	**948**	**Yes**	**27**	**500.5**	**119.7**	**0**	**None**	**No**	**0.0009403**	**Param Inter 1 of 2**
Total Dissolved Solids (mg/L)	**MW-18A**	**752.2**	**n/a**	**8/29/2018**	**1330**	**Yes**	**27**	**500.5**	**119.7**	**0**	**None**	**No**	**0.0009403**	**Param Inter 1 of 2**

Interwell Prediction Limit Summary - All Results

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water   Printed 10/10/2018, 5:25 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Total Dissolved Solids (mg/L)	MW-21	752.2	n/a	8/28/2018	416	No	27	500.5	119.7	0	None	No	0.0009403	Param Inter 1 of 2

Sanitas™ v.9.6.10b Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Exceeds Limit: MW-13, MW-14A, MW-15A, MW-18A, MW-21

Prediction Limit

Interwell Non-parametric

Limit = 0.2

Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 27) were censored; limit is most recent reporting limit. Annual per-constituent alpha = 0.03664. Individual comparison alpha = 0.00233 (1 of 2). Comparing 8 points to limit.

Constituent: Boron   Analysis Run 10/10/2018 5:24 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Sanitas™ v.9.6.10b Groundwater Stats Consulting. UG

Exceeds Limit: MW-14A, MW-15A, MW-18A

Prediction Limit

Interwell Non-parametric

Limit = 152

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 0.01 alpha level. Limit is highest of 27 background values. Annual per-constituent alpha = 0.03664. Individual comparison alpha = 0.00233 (1 of 2). Comparing 8 points to limit.

Constituent: Calcium   Analysis Run 10/10/2018 5:24 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Sanitas™ v.9.6.10b Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Exceeds Limit: MW-5B, MW-14A

Prediction Limit
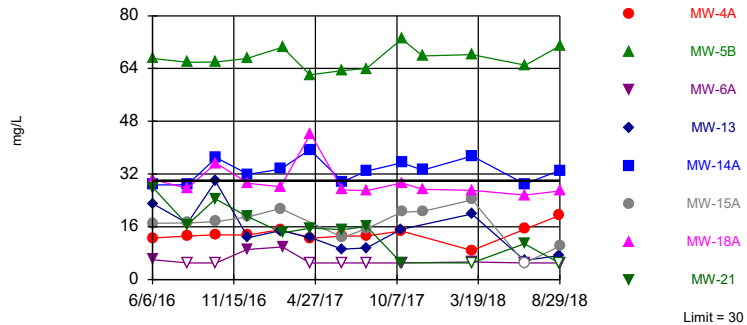
Interwell Non-parametric

Limit = 30

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 0.01 alpha level. Limit is highest of 27 background values. 40.74% NDs. Annual per-constituent alpha = 0.03664. Individual comparison alpha = 0.00233 (1 of 2). Comparing 8 points to limit.

Constituent: Chloride   Analysis Run 10/10/2018 5:24 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Sanitas™ v.9.6.10b Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit
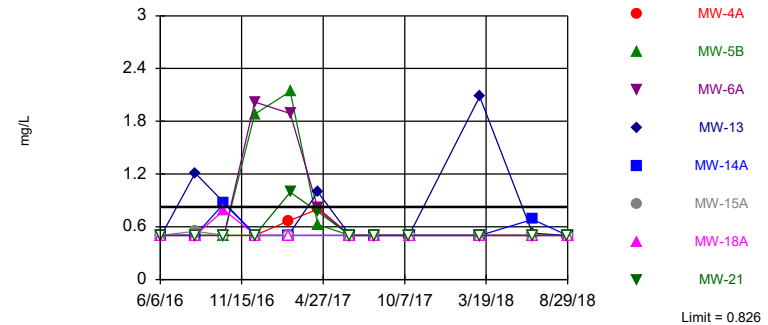
Interwell Non-parametric

Limit = 0.826

Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 26 background values. 84.62% NDs. Annual per-constituent alpha = 0.03888. Individual comparison alpha = 0.002476 (1 of 2). Comparing 8 points to limit.

Constituent: Fluoride   Analysis Run 10/10/2018 5:24 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Prediction Limit

Constituent: Boron (mg/L)   Analysis Run 10/10/2018 5:25 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-15A	MW-18A	MW-10 (bg)	MW-08 (bg)	MW-5B	MW-4A	MW-6A	MW-21	MW-14A
6/6/2016	16.8	13.7	<0.2						
6/7/2016				<0.2	<0.2	<0.2	<0.2		
6/8/2016								<2	15.8
8/15/2016	20.6	15.1	<0.2					7.23	17.9
8/16/2016				<0.2	<0.2	<0.2	<0.2		
10/10/2016			<0.2	<0.2				8.45	
10/11/2016	17.9	14.3			<0.2	<0.2	<0.2		19.3
12/12/2016					<0.2	<0.2	<0.2	6.93	
12/14/2016	18.4	11.8	<0.2	<0.2					14.7
2/17/2017	14.9	12.7	<0.2			<0.2			13.1
2/21/2017				<0.2	<0.2		<0.2	4.87	
4/17/2017	14.7		<0.2	<0.2	<0.2	<0.2	<0.2		11.3
4/18/2017		10.5						4.49	
6/19/2017			<0.2	<0.2					
6/20/2017					<0.2	<0.2		7.36	
6/21/2017	16.4	11.5					<0.2		16.3
8/7/2017			<0.2	<0.2		<0.2			
8/8/2017	14.7	10.8			<0.2		<0.2	7.05	13
10/16/2017			<0.2	<0.2		<0.2		3.33	
10/17/2017	19.2	13.1			<0.2		<0.2		16
11/28/2017	12.9 (R)	10.7 (R)						2.24 (R)	13.7 (R)
3/5/2018			<0.2						
3/6/2018				<0.2	<0.2	0.66	<0.2	0.885	
3/7/2018	9.8	8.81							11
6/19/2018			<0.2	<0.2				6.84	
6/20/2018	10.5	13.3							15
6/21/2018					<0.2	<0.2	<0.2		
8/27/2018			<0.2	<0.2					
8/28/2018						<0.2		1.36	
8/29/2018	14.6	10.5			<0.2		<0.2		14

Prediction Limit

Constituent: Boron (mg/L)   Analysis Run 10/10/2018 5:25 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-13	MW-22 (bg)
6/6/2016		
6/7/2016		
6/8/2016	47.2 (o)	
8/15/2016	13.3	
8/16/2016		
10/10/2016	74.8 (o)	
10/11/2016		
12/12/2016		
12/14/2016	7.03	
2/17/2017	4.35	
2/21/2017		
4/17/2017	5.93	
4/18/2017		
6/19/2017		
6/20/2017	2.77	
6/21/2017		
8/7/2017		
8/8/2017	2.72	
10/16/2017	50	
10/17/2017		
11/28/2017	2.92 (R)	
3/5/2018		
3/6/2018	21.7	<0.2
3/7/2018		
6/19/2018		<0.2
6/20/2018	1.34	
6/21/2018		
8/27/2018		<0.2
8/28/2018	1.45	
8/29/2018		

Prediction Limit

Constituent: Calcium (mg/L)   Analysis Run 10/10/2018 5:25 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-15A	MW-18A	MW-10 (bg)	MW-08 (bg)	MW-5B	MW-4A	MW-6A	MW-21	MW-14A
6/6/2016	206	294	89.3						
6/7/2016				152	147	98.2	81.4		
6/8/2016								37.2	281
8/15/2016	199	294	80.7					146	311
8/16/2016				117	139	88.8	75.4		
10/10/2016			83.3	118				185	
10/11/2016	203	280			140	89.3	75.7		308
12/12/2016					147	94.5	85.6	178	
12/14/2016	244	291	86.5	109					333
2/17/2017	233	266	81.2				86.8		268
2/21/2017				89.9	126		68.8	118	
4/17/2017	226		79.2	96.5	130	85.9	56.3		310
4/18/2017		237						110	
6/19/2017			83.6	113					
6/20/2017					140	88.7		149	
6/21/2017	186	255					72.9		307
8/7/2017			85.5	91.3		89.7			
8/8/2017	206	258			139		71.2	163	296
10/16/2017			83.3	77		85.3		62.3	
10/17/2017	218	239			136		71.9		310
11/28/2017	217 (R)	232 (R)							301 (R)
3/5/2018			77.3						
3/6/2018				74.7	134	95.8	74.1	25.1	
3/7/2018	229	191							278
6/19/2018			88.5	115				159	
6/20/2018	102	264							297
6/21/2018					147	91.4	80.1		
8/27/2018			85.4	83.6					
8/28/2018						91.3		78.7	
8/29/2018	155	223			146		73.3		309

Prediction Limit

Constituent: Calcium (mg/L)   Analysis Run 10/10/2018 5:25 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-13	MW-22 (bg)
6/6/2016		
6/7/2016		
6/8/2016	218 (o)	
8/15/2016	112	
8/16/2016		
10/10/2016	276 (o)	
10/11/2016		
12/12/2016		
12/14/2016	105	
2/17/2017	87.6	
2/21/2017		
4/17/2017	97.5	
4/18/2017		
6/19/2017		
6/20/2017	92.8	
6/21/2017		
8/7/2017		
8/8/2017	95.4	
10/16/2017	208	
10/17/2017		
11/28/2017	93.2 (R)	
3/5/2018		
3/6/2018	149	69.8
3/7/2018		
6/19/2018		91.5
6/20/2018	89.5	
6/21/2018		
8/27/2018		80.7
8/28/2018	93.1	
8/29/2018		

Prediction Limit

Constituent: Chloride (mg/L)   Analysis Run 10/10/2018 5:25 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

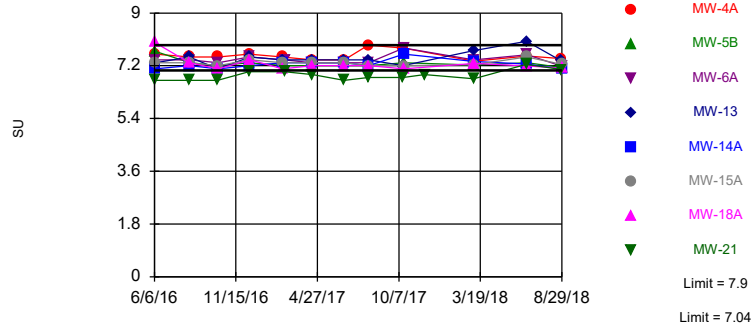|	MW-18A	MW-15A	MW-10 (bg)	MW-08 (bg)	MW-6A	MW-5B	MW-4A	MW-21	MW-14A
6/6/2016	30.4	17.1	6.22						
6/7/2016				19.8	5.97	67	12.6		
6/8/2016								27.7	28.7
8/15/2016	27.6	17.2	<5					16.6	28.7
8/16/2016				17.8	<5	65.9	13.2		
10/10/2016			<5	16.2				24.4	
10/11/2016	35.3	17.6			<5	66	13.6		37
12/12/2016					9.08	67	13.5	19.2	
12/14/2016	29.2	19	<5	17.2					31.9
2/17/2017	28.1	21.5	<5				15.1		33.5
2/21/2017				15.4	9.93	70.4		14.2	
4/17/2017		47.4 (o)	<5	17.1	<5	62.1	12.5		39.4
4/18/2017	44.2							15.6	
6/19/2017			<5	14.1					
6/20/2017						63.4	13.2	15.1	
6/21/2017	27.2	12.8			<5				29.7
8/7/2017			<5	14			13.2		
8/8/2017	27	15.4			<5	64		16.1	32.9
10/16/2017			<5	14.4			14.7	5.09	
10/17/2017	29.3	20.5			<5	73			35.4
11/28/2017	27.4 (R)	20.7 (R)				67.8 (R)			33.2 (R)
3/5/2018			<5						
3/6/2018				14.5	5.33	68.2	8.81	<5	
3/7/2018	27.1	24.2							37.4
6/19/2018			<5	14.9				10.9	
6/20/2018	25.6	<5							29
6/21/2018					<5	65	15.3		
8/27/2018			<5	15.6					
8/28/2018							19.4	<5	
8/29/2018	26.9	10.1			<5	70.8			33.1

Prediction Limit

Constituent: Chloride (mg/L)   Analysis Run 10/10/2018 5:25 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-13	MW-22 (bg)
6/6/2016		
6/7/2016		
6/8/2016	22.9	
8/15/2016	17.1	
8/16/2016		
10/10/2016	29.8	
10/11/2016		
12/12/2016		
12/14/2016	12.7	
2/17/2017	14.8	
2/21/2017		
4/17/2017	12.8	
4/18/2017		
6/19/2017		
6/20/2017	9.17	
6/21/2017		
8/7/2017		
8/8/2017	9.62	
10/16/2017	15.2	
10/17/2017		
11/28/2017		
3/5/2018		
3/6/2018	19.9	30
3/7/2018		
6/19/2018		27.2
6/20/2018	5.84	
6/21/2018		
8/27/2018		29.8
8/28/2018	7.24	
8/29/2018		

Prediction Limit

Constituent: Fluoride (mg/L)   Analysis Run 10/10/2018 5:25 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-10 (bg)	MW-15A	MW-18A	MW-08 (bg)	MW-6A	MW-4A	MW-5B	MW-13	MW-21
6/6/2016	0.731	<0.5	<0.5						
6/7/2016				<0.5	<0.5	<0.5	<0.5		
6/8/2016								<0.5	<0.5
8/15/2016	<0.5	0.549	<0.5					1.21	<0.5
8/16/2016				<0.5	<0.5	<0.5	<0.5		
10/10/2016	<0.5			<0.5				3.25 (o)	<0.5
10/11/2016		<0.5	0.791		<0.5	<0.5	<0.5		
12/12/2016					2.02	<0.5	1.88		<0.5
12/14/2016	<0.5	<0.5	<0.5 (F2)	0.72				<0.5	
2/17/2017	<0.5	<0.5	<0.5			0.664		<0.5	
2/21/2017				<0.5	1.89		2.14		0.993
4/17/2017	0.774	6.7 (o)		1.69 (F1o)	0.814	0.801	0.627	0.997	
4/18/2017			3.16 (o)						0.768
6/19/2017	<0.5			<0.5					
6/20/2017						<0.5	<0.5	<0.5	<0.5
6/21/2017		<0.5	<0.5		<0.5				
8/7/2017	<0.5			<0.5		<0.5			
8/8/2017		<0.5	<0.5		<0.5		<0.5	<0.5	<0.5
10/16/2017	<0.5			<0.5		<0.5		<0.5	<0.5
10/17/2017		<0.5	<0.5		<0.5		<0.5		
3/5/2018	<0.5								
3/6/2018				<0.5	<0.5	<0.5	<0.5	2.08	<0.5
3/7/2018		<0.5	<0.5						
6/19/2018	<0.5			0.826					<0.5
6/20/2018		<0.5	<0.5					0.528	
6/21/2018					<0.5	<0.5	<0.5		
8/27/2018	<0.5			<0.5					
8/28/2018						<0.5		<0.5	<0.5
8/29/2018		<0.5	<0.5		<0.5		<0.5		

Prediction Limit

Constituent: Fluoride (mg/L)   Analysis Run 10/10/2018 5:25 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-14A	MW-22 (bg)
6/6/2016		
6/7/2016		
6/8/2016	<0.5	
8/15/2016	<0.5	
8/16/2016		
10/10/2016		
10/11/2016	0.867	
12/12/2016		
12/14/2016	<0.5	
2/17/2017	<0.5	
2/21/2017		
4/17/2017	1.93 (o)	
4/18/2017		
6/19/2017		
6/20/2017		
6/21/2017	<0.5	
8/7/2017		
8/8/2017	<0.5	
10/16/2017		
10/17/2017	<0.5	
3/5/2018		
3/6/2018		<0.5
3/7/2018	<0.5	
6/19/2018		<0.5
6/20/2018	0.684	
6/21/2018		
8/27/2018		<0.5
8/28/2018		
8/29/2018	<0.5	

Within Limits

Prediction Limit
Interwell Non-parametric

SU

Limit = 7.9

Limit = 7.04

- MW-4A
- MW-5B
- MW-6A
- MW-13
- MW-14A
- MW-15A
- MW-18A
- MW-21

6/6/16 · 11/15/16 · 4/27/17 · 10/7/17 · 3/19/18 · 8/29/18

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 0.01 alpha level. Limits are highest and lowest of 27 background values. Annual per-constituent alpha = 0.07327. Individual comparison alpha = 0.00466 (1 of 2). Comparing 8 points to limit.

Constituent: pH   Analysis Run 10/10/2018 5:24 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Exceeds Limit: MW-14A, MW-15A, MW-18A

Prediction Limit
Interwell Non-parametric

mg/L

Limit = 366

- MW-4A
- MW-5B
- MW-6A
- MW-13
- MW-14A
- MW-15A
- MW-18A
- MW-21

6/6/16 · 11/15/16 · 4/27/17 · 10/7/17 · 3/19/18 · 8/29/18

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 0.01 alpha level. Limit is highest of 27 background values. Annual per-constituent alpha = 0.03664. Individual comparison alpha = 0.00233 (1 of 2). Comparing 8 points to limit.

Constituent: Sulfate   Analysis Run 10/10/2018 5:24 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Exceeds Limit: MW-14A, MW-15A, MW-18A

Prediction Limit
Interwell Parametric

mg/L

Limit = 752.2

- MW-4A
- MW-5B
- MW-6A
- MW-13
- MW-14A
- MW-15A
- MW-18A
- MW-21

6/6/16 · 11/15/16 · 4/27/17 · 10/7/17 · 3/19/18 · 8/29/18
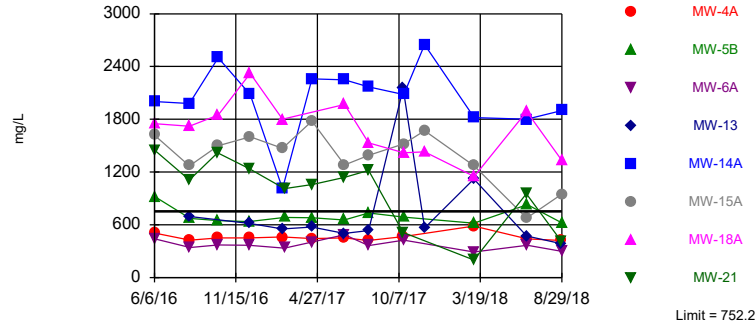
Background Data Summary: Mean=500.5, Std. Dev.=119.7, n=27.   Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9099, critical = 0.894.   Kappa = 2.102 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.0009403. Comparing 8 points to limit.

Constituent: Total Dissolved Solids   Analysis Run 10/10/2018 5:24 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Prediction Limit

Constituent: pH (SU)   Analysis Run 10/10/2018 5:25 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-18A	MW-15A	MW-10 (bg)	MW-08 (bg)	MW-6A	MW-5B	MW-4A	MW-21	MW-14A
6/6/2016	8	7.3	7.4						
6/7/2016				7.2	7.4	7.7	7.6		
6/8/2016								6.7	7.1
8/15/2016	7.3	7.3	7.3					6.7	7.2
8/16/2016				7.3	7.4	7.3	7.5		
10/10/2016			7.2	7.1				6.7	
10/11/2016	7.1	7.2			7.3	7.2	7.5		7.1
12/12/2016					7.5	7.3	7.6	7	
12/14/2016	7.4	7.4	7.3	7.3					7.2
2/17/2017	7.1	7.3	7.2				7.5		7.3
2/21/2017				7.3	7.4	7.2		7	
4/17/2017		7.3	7.3	7.1	7.3	7.2	7.4		7.3
4/18/2017	7.2							6.9	
6/19/2017			7.2	7.1					
6/20/2017						7.2	7.4	6.7	
6/21/2017	7.2	7.3			7.3				7.3
8/7/2017			7.9	7.3			7.9		
8/8/2017	7.2	7.2			7.3	7.2		6.8	7.2
10/16/2017			7.3	7.4			7.8	6.8	
10/17/2017	7.1	7.2			7.8	7.3			7.6
11/28/2017								6.9 (R)	
3/5/2018			7.04						
3/6/2018				7.3	7.4	7.23	7.36	6.76	
3/7/2018	7.28	7.24							7.35
6/19/2018			7.72	7.56				7.25	
6/20/2018	7.19	7.5							7.26
6/21/2018					7.58	7.3	7.53		
8/27/2018			7.23	7.2					
8/28/2018							7.44	7.07	
8/29/2018	7.12	7.25			7.18	7.14			7.09

Prediction Limit

Constituent: pH (SU)   Analysis Run 10/10/2018 5:25 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-13	MW-22 (bg)
6/6/2016		
6/7/2016		
6/8/2016	7.3	
8/15/2016	7.5	
8/16/2016		
10/10/2016	7.1	
10/11/2016		
12/12/2016		
12/14/2016	7.5	
2/17/2017	7.4	
2/21/2017		
4/17/2017	7.4	
4/18/2017		
6/19/2017		
6/20/2017	7.4	
6/21/2017		
8/7/2017		
8/8/2017	7.4	
10/16/2017	7.2	
10/17/2017		
11/28/2017		
3/5/2018		
3/6/2018	7.72	7.36
3/7/2018		
6/19/2018		7.9
6/20/2018	8.03	
6/21/2018		
8/27/2018		7.42
8/28/2018	7.37	
8/29/2018		

Prediction Limit

Constituent: Sulfate (mg/L)   Analysis Run 10/10/2018 5:25 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-15A	MW-18A	MW-10 (bg)	MW-08 (bg)	MW-5B	MW-4A	MW-6A	MW-21	MW-14A
6/6/2016	827	1100	42.1						
6/7/2016				366	109	32.2	<5		
6/8/2016								713	1050
8/15/2016	605	874	33.8					520	1040
8/16/2016				187	109	28.4	<5		
10/10/2016			36.4	187				603	
10/11/2016	607	855			105	27.2	<5		1010
12/12/2016					109	32.7	<5	645	
12/14/2016	732	886	38.4	149					1140
2/17/2017	849	917	47.3			36			1190
2/21/2017				145	111		5.94	415	
4/17/2017	853		38.3	145	108	39.5	<5		1200
4/18/2017		863						461	
6/19/2017			35.4	190					
6/20/2017					108	33		541	
6/21/2017	537	796					<5		1020
8/7/2017			39	119		35.3			
8/8/2017	664	801			114		<5	590	1110
10/16/2017			46.9	106		45.4		206	
10/17/2017	835	808			135		<5		1210
11/28/2017	779 (R)	737 (R)							1140 (R)
3/5/2018			51.4						
3/6/2018				87.3	122	162	<5	53.7	
3/7/2018	824	624							1110
6/19/2018			37.3	136				489	
6/20/2018	210	709							1090
6/21/2018					119	51.3	<5		
8/27/2018			34.3	94.7					
8/28/2018						52.2		96.6	
8/29/2018	400	675			120		<5		1070

Prediction Limit

Constituent: Sulfate (mg/L)   Analysis Run 10/10/2018 5:25 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-13	MW-22 (bg)
6/6/2016		
6/7/2016		
6/8/2016	975 (o)	
8/15/2016	197	
8/16/2016		
10/10/2016	1170 (o)	
10/11/2016		
12/12/2016		
12/14/2016	117	
2/17/2017	110	
2/21/2017		
4/17/2017	174	
4/18/2017		
6/19/2017		
6/20/2017	86.7	
6/21/2017		
8/7/2017		
8/8/2017	99.4	
10/16/2017	931	
10/17/2017		
11/28/2017	102 (R)	
3/5/2018		
3/6/2018	506	123
3/7/2018		
6/19/2018		134
6/20/2018	62.1	
6/21/2018		
8/27/2018		125
8/28/2018	72.7	
8/29/2018		

Prediction Limit

Constituent: Total Dissolved Solids (mg/L)   Analysis Run 10/10/2018 5:25 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-15A	MW-10 (bg)	MW-18A	MW-6A	MW-4A	MW-08 (bg)	MW-5B	MW-14A	MW-21
6/6/2016	1620	468	1750						
6/7/2016				440	507	836	920		
6/8/2016								2000	1440
8/15/2016	1270	412	1720					1980	1110
8/16/2016				340	426	664	672		
10/10/2016		444				708			1420
10/11/2016	1500		1850	370	450		646	2500	
12/12/2016				368	450		636		1240
12/14/2016	1600	428	2320			634		2080	
2/17/2017	1470	498	1800		460			1010	
2/21/2017				336		578	684		1010
4/17/2017	1780	538		402	442	624	680	2260	
4/18/2017			4160 (o)						1060
6/19/2017		524				656			
6/20/2017					452		656		1140
6/21/2017	1280		1970	486				2250	
8/7/2017		458			420	488			
8/8/2017	1390		1530	364			734	2170	1220
10/16/2017		414			466	470			514
10/17/2017	1520		1420	424			688	2080	
11/28/2017	1670 (R)		1430 (R)					2650 (R)	
3/5/2018		314							
3/6/2018				292	586	376	620		200
3/7/2018	1270		1150					1820	
6/19/2018		396				502			952
6/20/2018	676		1890					1800	
6/21/2018				368	440		828		
8/27/2018		392				414			
8/28/2018					420				416
8/29/2018	948		1330	298			622	1900	

Prediction Limit

Constituent: Total Dissolved Solids (mg/L)   Analysis Run 10/10/2018 5:25 PM   View: Interwell PLs

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-13	MW-22 (bg)
6/6/2016		
6/7/2016		
6/8/2016	1970 (o)	
8/15/2016	694	
8/16/2016		
10/10/2016	2740 (o)	
10/11/2016		
12/12/2016		
12/14/2016	616	
2/17/2017	554	
2/21/2017		
4/17/2017	574	
4/18/2017		
6/19/2017		
6/20/2017	502	
6/21/2017		
8/7/2017		
8/8/2017	536	
10/16/2017	2150	
10/17/2017		
11/28/2017	562 (R)	
3/5/2018		
3/6/2018	1120	424
3/7/2018		
6/19/2018		434
6/20/2018	472	
6/21/2018		
8/27/2018		420
8/28/2018	384	
8/29/2018		

Trend Tests

Trend Tests Summary Table - Prediction Limit Increases

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water   Printed 10/4/2018, 12:25 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron (mg/L)	MW-13	-3.238	-13	-30	No	10	0	n/a	n/a	0.01	NP
Boron (mg/L)	MW-14A	-2.063	-24	-38	No	12	0	n/a	n/a	0.01	NP
Boron (mg/L)	MW-15A	-2.814	-35	-38	No	12	0	n/a	n/a	0.01	NP
Boron (mg/L)	**MW-18A**	**-2.346**	**-41**	**-38**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	MW-21	-3.071	-30	-38	No	12	8.333	n/a	n/a	0.01	NP
Calcium (mg/L)	MW-14A	-1.299	-9	-38	No	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MW-15A	-6.217	-3	-38	No	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	**MW-18A**	**-41.32**	**-53**	**-38**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Chloride (mg/L)	MW-5B	1.581	21	38	No	12	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MW-14A	2.509	21	38	No	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MW-14A	31.02	12	38	No	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MW-15A	-11.41	-2	-38	No	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	**MW-18A**	**-154.7**	**-46**	**-38**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Total Dissolved Solids (mg/L)	MW-14A	-42.1	-3	-38	No	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	MW-15A	-161	-15	-38	No	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	MW-18A	-307.4	-29	-34	No	11	0	n/a	n/a	0.01	NP

Sen's Slope Estimator
MW-13
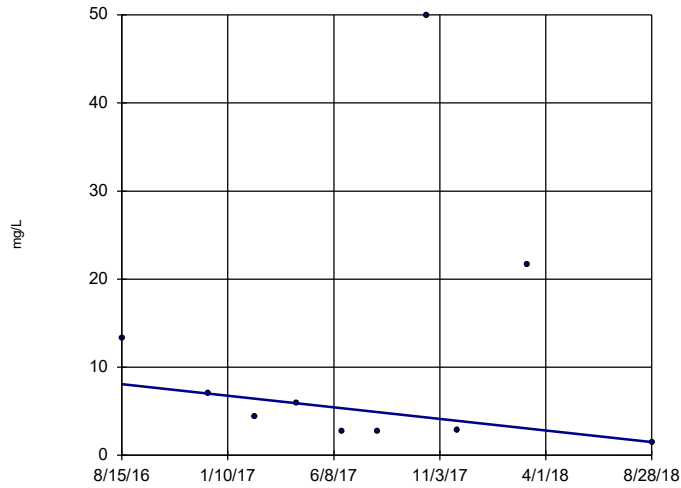
n = 10

Slope = -3.238
units per year.

Mann-Kendall
statistic = -13
critical = -30

Trend not sig-
nificant at 99%
confidence level
(α = 0.005 per
tail).

Constituent: Boron   Analysis Run 10/4/2018 12:24 PM   View: Trend Tests
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water
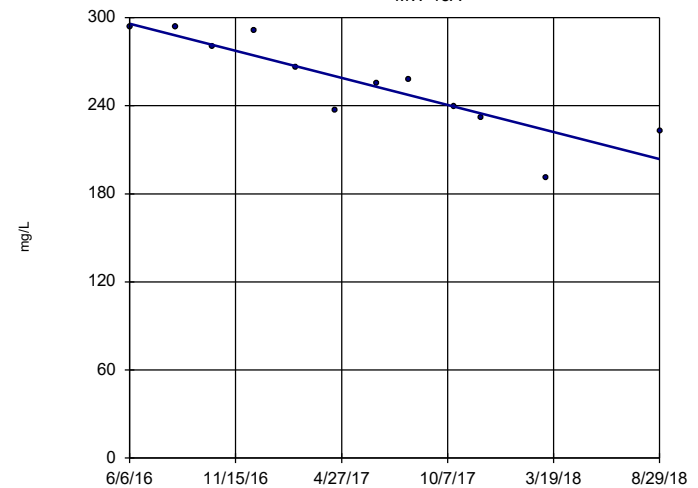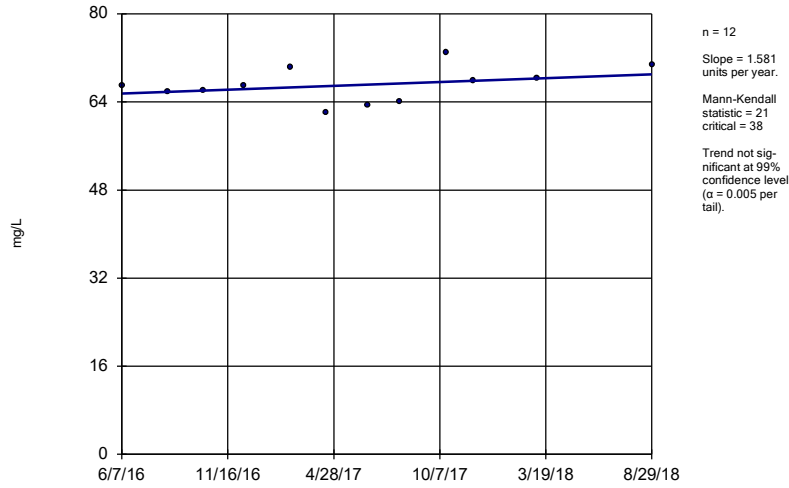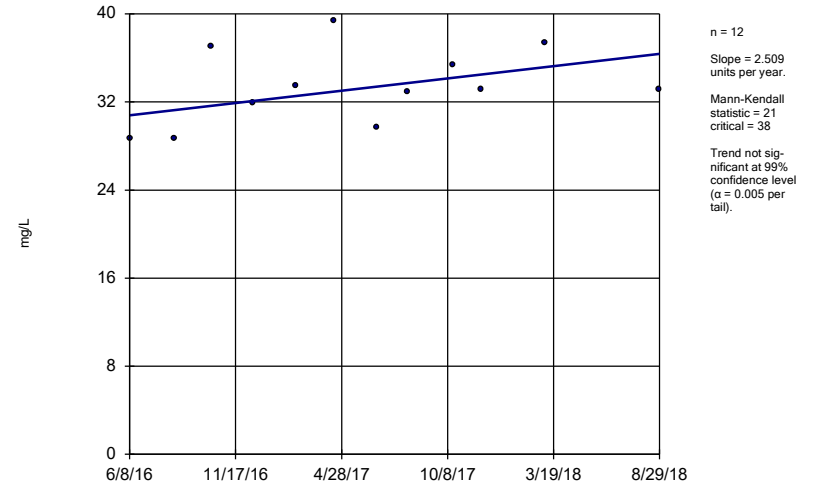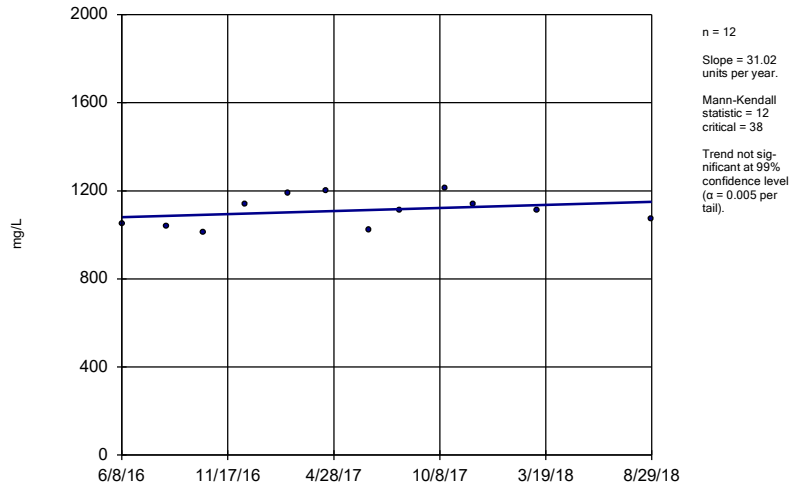
Sen's Slope Estimator
MW-14A
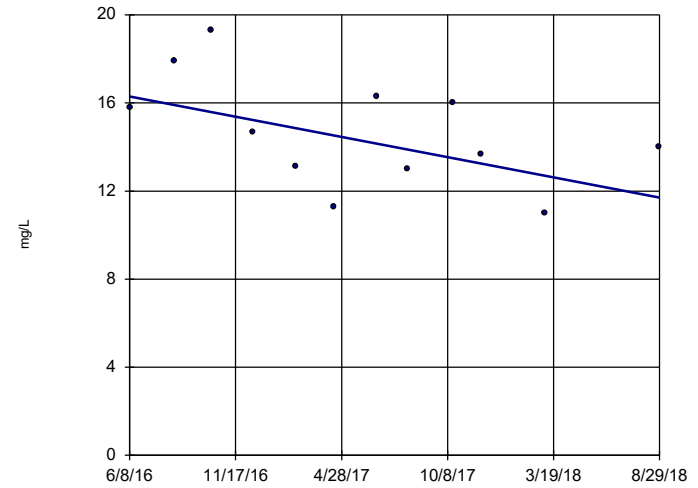
n = 12

Slope = -2.063
units per year.

Mann-Kendall
statistic = -24
critical = -38

Trend not sig-
nificant at 99%
confidence level
(α = 0.005 per
tail).

Constituent: Boron   Analysis Run 10/4/2018 12:24 PM   View: Trend Tests
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Sen's Slope Estimator
MW-15A
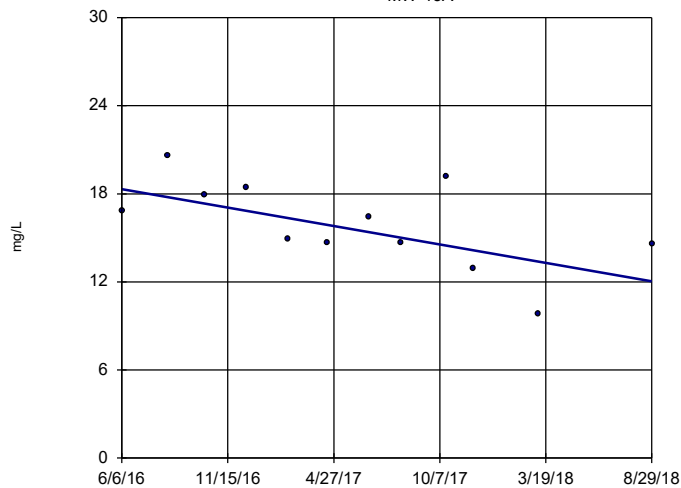
n = 12

Slope = -2.814
units per year.

Mann-Kendall
statistic = -35
critical = -38

Trend not sig-
nificant at 99%
confidence level
(α = 0.005 per
tail).

Constituent: Boron   Analysis Run 10/4/2018 12:24 PM   View: Trend Tests
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water
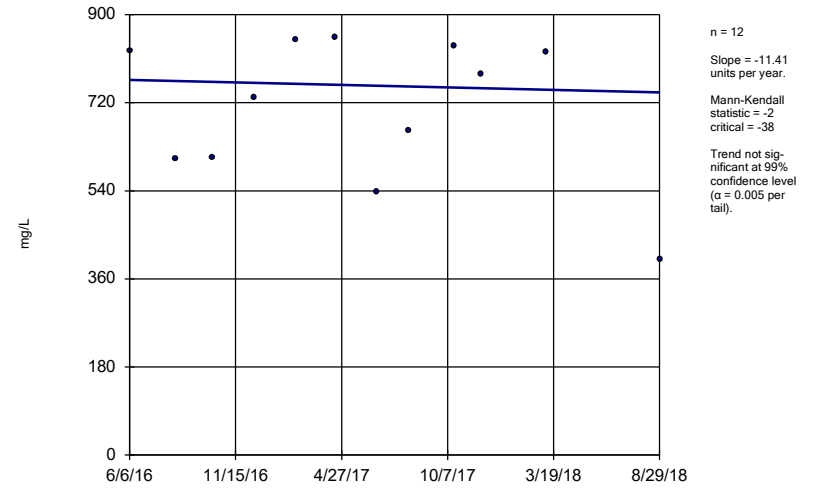
Sen's Slope Estimator
MW-18A
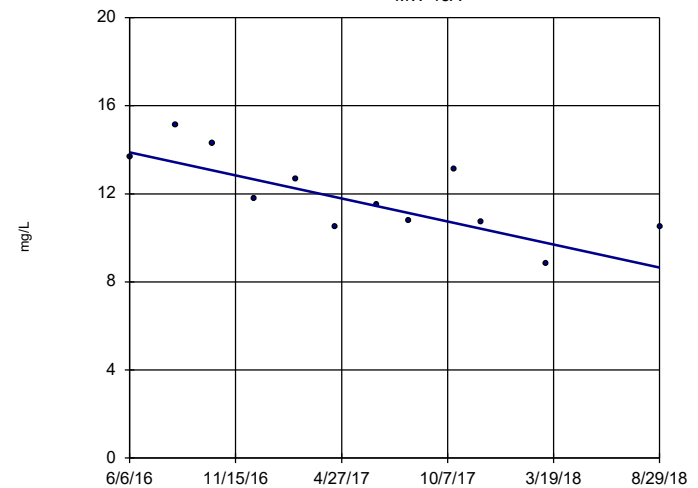
n = 12

Slope = -2.346
units per year.

Mann-Kendall
statistic = -41
critical = -38

Decreasing trend
significant at 99%
confidence level
(α = 0.005 per
tail).

Constituent: Boron   Analysis Run 10/4/2018 12:24 PM   View: Trend Tests
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water
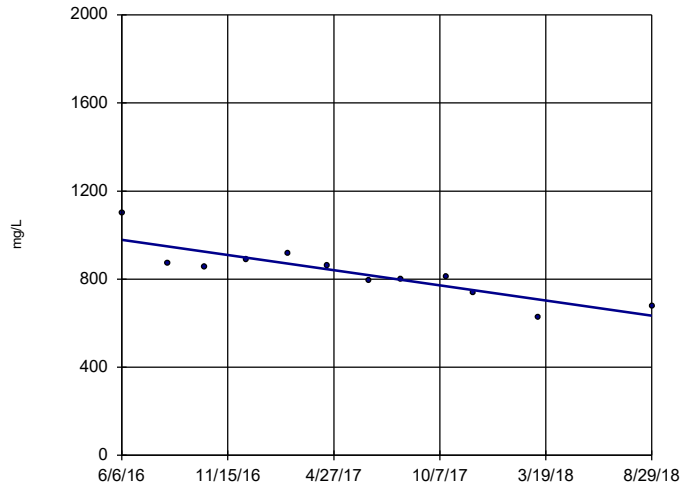
Sen's Slope Estimator
MW-21
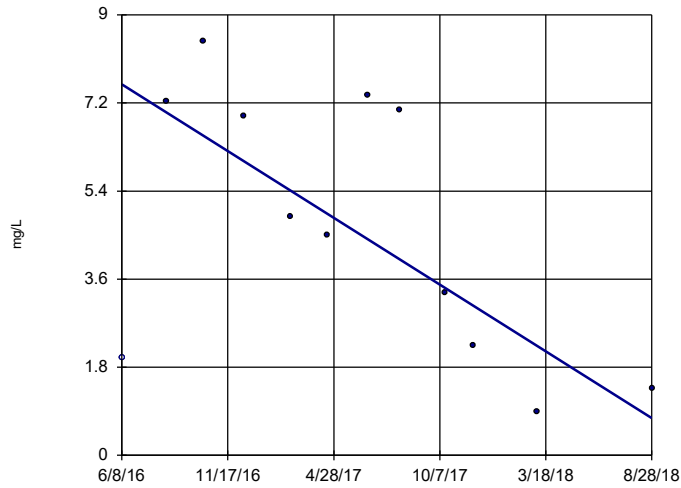
n = 12

Slope = -3.071 units per year.

Mann-Kendall statistic = -30 critical = -38

Trend not significant at 99% confidence level (α = 0.005 per tail).

mg/L

Constituent: Boron   Analysis Run 10/4/2018 12:24 PM   View: Trend Tests

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water
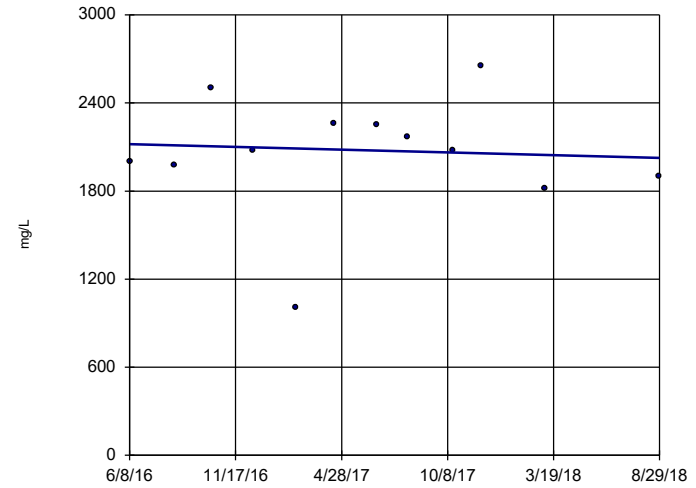
Sen's Slope Estimator
MW-14A
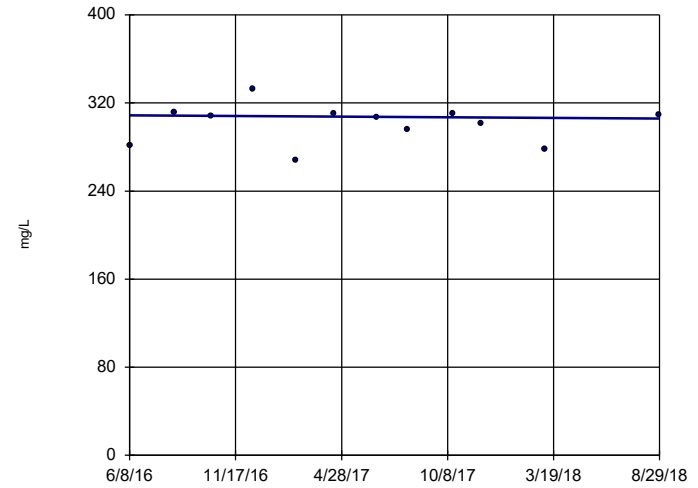
n = 12

Slope = -1.299 units per year.

Mann-Kendall statistic = -9 critical = -38

Trend not significant at 99% confidence level (α = 0.005 per tail).

mg/L

Constituent: Calcium   Analysis Run 10/4/2018 12:24 PM   View: Trend Tests

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Sen's Slope Estimator
MW-15A
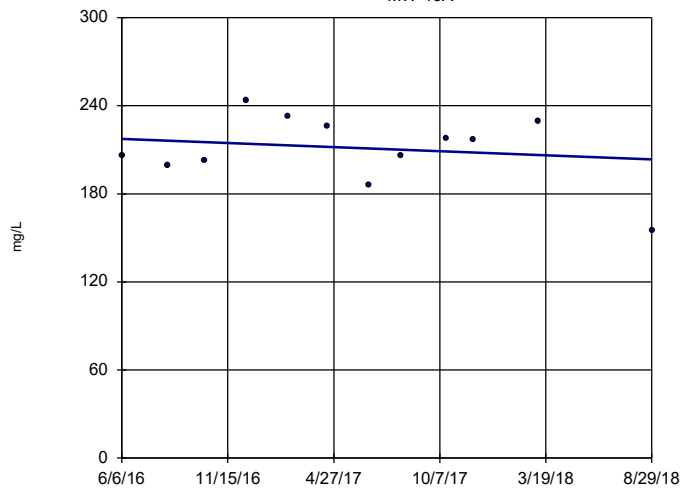
n = 12

Slope = -6.217 units per year.

Mann-Kendall statistic = -3 critical = -38

Trend not significant at 99% confidence level (α = 0.005 per tail).

mg/L

Constituent: Calcium   Analysis Run 10/4/2018 12:24 PM   View: Trend Tests

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water
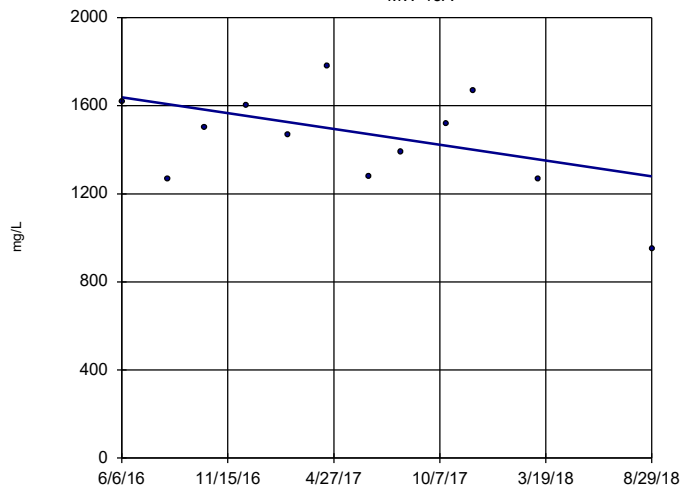
Sen's Slope Estimator
MW-18A

n = 12

Slope = -41.32 units per year.

Mann-Kendall statistic = -53 critical = -38

Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

mg/L

Constituent: Calcium   Analysis Run 10/4/2018 12:24 PM   View: Trend Tests

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Sen's Slope Estimator
### MW-5B

mg/L

80

64

48

32

16

0

6/7/16   11/16/16   4/28/17   10/7/17   3/19/18   8/29/18

n = 12

Slope = 1.581 units per year.

Mann-Kendall statistic = 21 critical = 38

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride   Analysis Run 10/4/2018 12:24 PM   View: Trend Tests
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Sen's Slope Estimator
MW-14A

mg/L

40

32

24

16

8

0

6/8/16   11/17/16   4/28/17   10/8/17   3/19/18   8/29/18

n = 12

Slope = 2.509 units per year.

Mann-Kendall statistic = 21 critical = 38

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride   Analysis Run 10/4/2018 12:24 PM   View: Trend Tests
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water
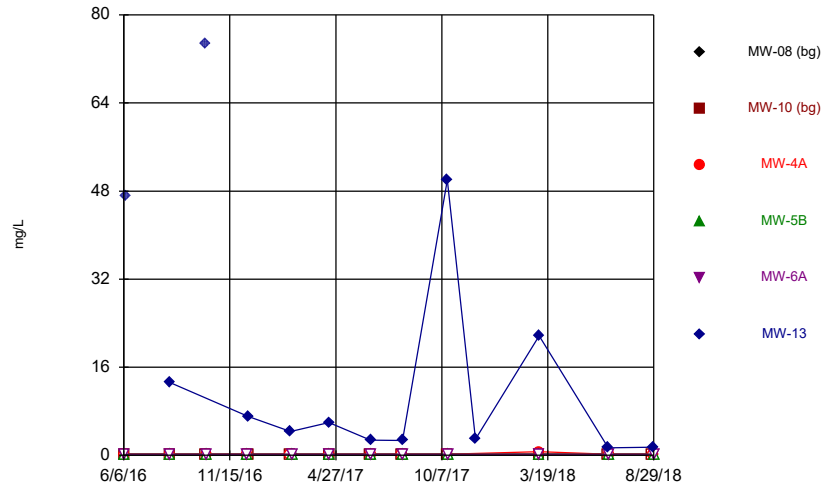
Sen's Slope Estimator
MW-14A

mg/L

2000

1600

1200

800

400

0

6/8/16   11/17/16   4/28/17   10/8/17   3/19/18   8/29/18

n = 12

Slope = 31.02 units per year.

Mann-Kendall statistic = 12 critical = 38

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate   Analysis Run 10/4/2018 12:24 PM   View: Trend Tests
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

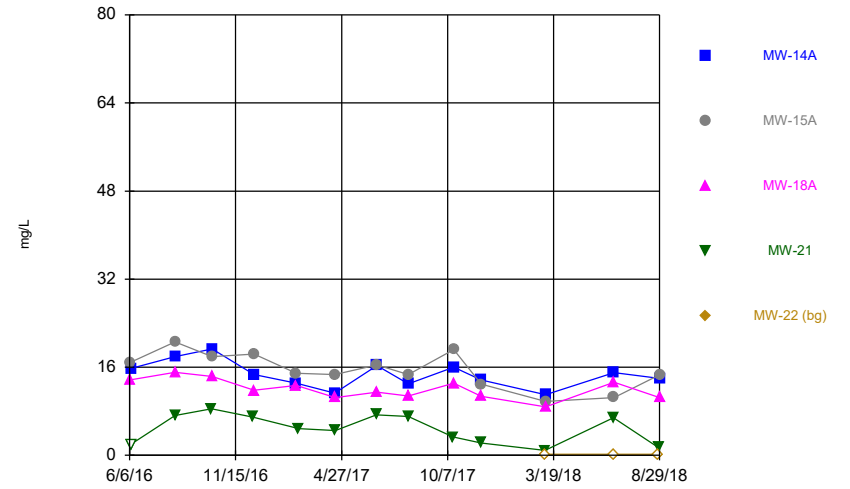## Sen's Slope Estimator
MW-15A

mg/L

900

720

540

360

180

0

6/6/16   11/15/16   4/27/17   10/7/17   3/19/18   8/29/18

n = 12

Slope = -11.41 units per year.

Mann-Kendall statistic = -2 critical = -38

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate   Analysis Run 10/4/2018 12:24 PM   View: Trend Tests
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

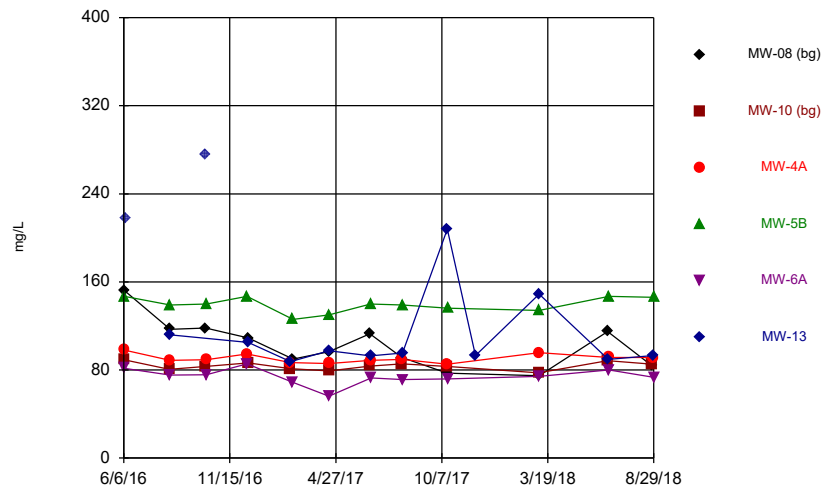## Sen's Slope Estimator
MW-18A

n = 12

Slope = -154.7 units per year.

Mann-Kendall statistic = -46 critical = -38

Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

mg/L

2000 — 1600 — 1200 — 800 — 400 — 0

6/6/16   11/15/16   4/27/17   10/7/17   3/19/18   8/29/18

Constituent: Sulfate   Analysis Run 10/4/2018 12:24 PM   View: Trend Tests

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Sen's Slope Estimator
MW-14A

n = 12

Slope = -42.1 units per year.

Mann-Kendall statistic = -3 critical = -38

Trend not significant at 99% confidence level (α = 0.005 per tail).

mg/L

3000 — 2400 — 1800 — 1200 — 600 — 0

6/8/16   11/17/16   4/28/17   10/8/17   3/19/18   8/29/18

Constituent: Total Dissolved Solids   Analysis Run 10/4/2018 12:24 PM   View: Trend Tests

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Sen's Slope Estimator
MW-15A

n = 12

Slope = -161 units per year.

Mann-Kendall statistic = -15 critical = -38

Trend not significant at 99% confidence level (α = 0.005 per tail).

mg/L

2000 — 1600 — 1200 — 800 — 400 — 0

6/6/16   11/15/16   4/27/17   10/7/17   3/19/18   8/29/18

Constituent: Total Dissolved Solids   Analysis Run 10/4/2018 12:24 PM   View: Trend Tests

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Sen's Slope Estimator
MW-18A
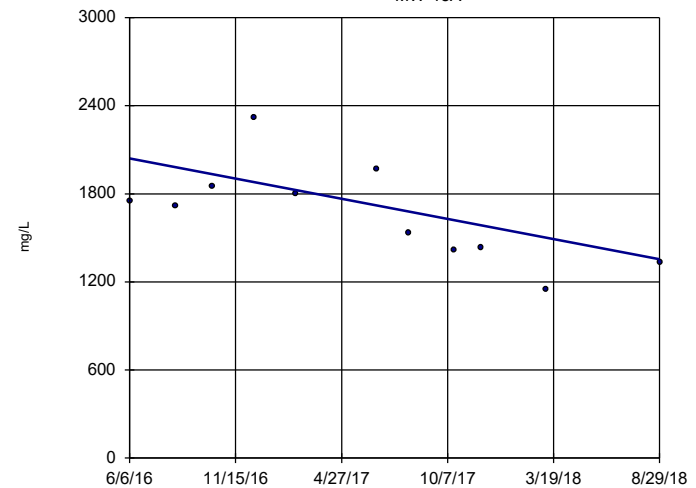
n = 11

Slope = -307.4 units per year.

Mann-Kendall statistic = -29 critical = -34

Trend not significant at 99% confidence level (α = 0.005 per tail).

mg/L

3000 — 2400 — 1800 — 1200 — 600 — 0

6/6/16   11/15/16   4/27/17   10/7/17   3/19/18   8/29/18

Constituent: Total Dissolved Solids   Analysis Run 10/4/2018 12:24 PM   View: Trend Tests

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water
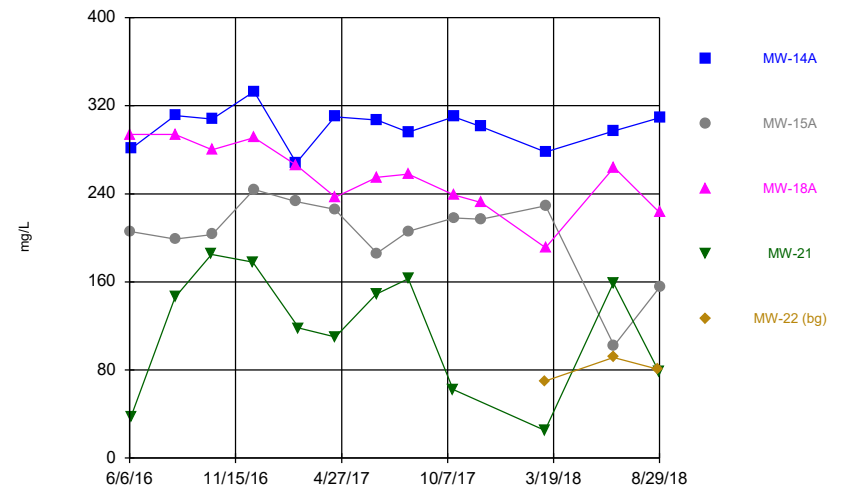
Time Series

Time Series

Constituent: Boron   Analysis Run 10/10/2018 4:45 PM   View: Descriptive
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Time Series

Constituent: Boron   Analysis Run 10/10/2018 4:45 PM   View: Descriptive
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Time Series

Constituent: Calcium   Analysis Run 10/10/2018 4:45 PM   View: Descriptive
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Time Series

Constituent: Calcium   Analysis Run 10/10/2018 4:45 PM   View: Descriptive
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water
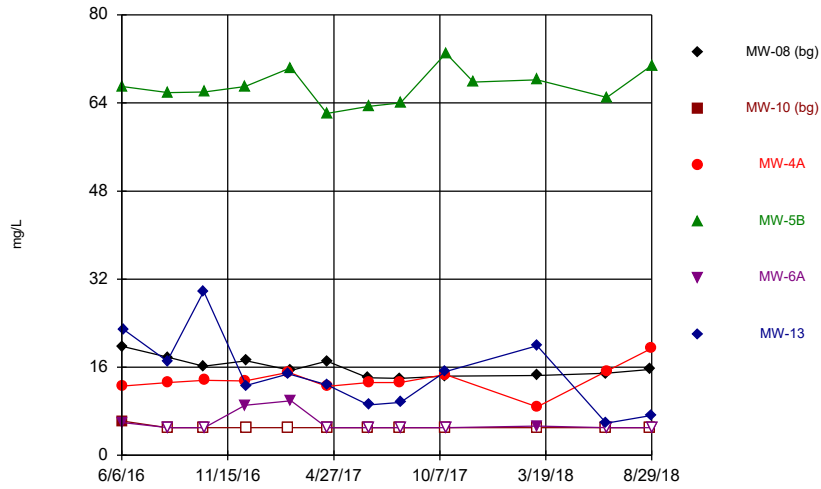
Time Series

Constituent: Boron (mg/L)   Analysis Run 10/10/2018 4:48 PM   View: Descriptive

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-08 (bg)	MW-10 (bg)	MW-4A	MW-5B	MW-6A	MW-13
6/6/2016		<0.2				
6/7/2016	<0.2		<0.2	<0.2	<0.2	
6/8/2016						47.2 (o)
8/15/2016		<0.2				13.3
8/16/2016	<0.2		<0.2	<0.2	<0.2	
10/10/2016	<0.2	<0.2				74.8 (o)
10/11/2016			<0.2	<0.2	<0.2	
12/12/2016			<0.2	<0.2	<0.2	
12/14/2016	<0.2	<0.2				7.03
2/17/2017		<0.2	<0.2			4.35
2/21/2017	<0.2			<0.2	<0.2	
4/17/2017	<0.2	<0.2	<0.2	<0.2	<0.2	5.93
6/19/2017	<0.2	<0.2				
6/20/2017			<0.2	<0.2		2.77
6/21/2017					<0.2	
8/7/2017	<0.2	<0.2	<0.2			
8/8/2017				<0.2	<0.2	2.72
10/16/2017	<0.2	<0.2	<0.2			50
10/17/2017				<0.2	<0.2	
11/28/2017						2.92 (R)
3/5/2018		<0.2				
3/6/2018	<0.2		0.66	<0.2	<0.2	21.7
6/19/2018	<0.2	<0.2				
6/20/2018						1.34
6/21/2018			<0.2	<0.2	<0.2	
8/27/2018	<0.2	<0.2				
8/28/2018			<0.2			1.45
8/29/2018				<0.2	<0.2	

Time Series

	MW-14A	MW-15A	MW-18A	MW-21	MW-22 (bg)
6/6/2016		16.8	13.7		
6/8/2016	15.8			<2	
8/15/2016	17.9	20.6	15.1	7.23	
10/10/2016				8.45	
10/11/2016	19.3	17.9	14.3		
12/12/2016				6.93	
12/14/2016	14.7	18.4	11.8		
2/17/2017	13.1	14.9	12.7		
2/21/2017				4.87	
4/17/2017	11.3	14.7			
4/18/2017			10.5	4.49	
6/20/2017				7.36	
6/21/2017	16.3	16.4	11.5		
8/8/2017	13	14.7	10.8	7.05	
10/16/2017				3.33	
10/17/2017	16	19.2	13.1		
11/28/2017	13.7 (R)	12.9 (R)	10.7 (R)	2.24 (R)	
3/6/2018				0.885	<0.2
3/7/2018	11	9.8	8.81		
6/19/2018				6.84	<0.2
6/20/2018	15	10.5	13.3		
8/27/2018					<0.2
8/28/2018				1.36	
8/29/2018	14	14.6	10.5		

Time Series

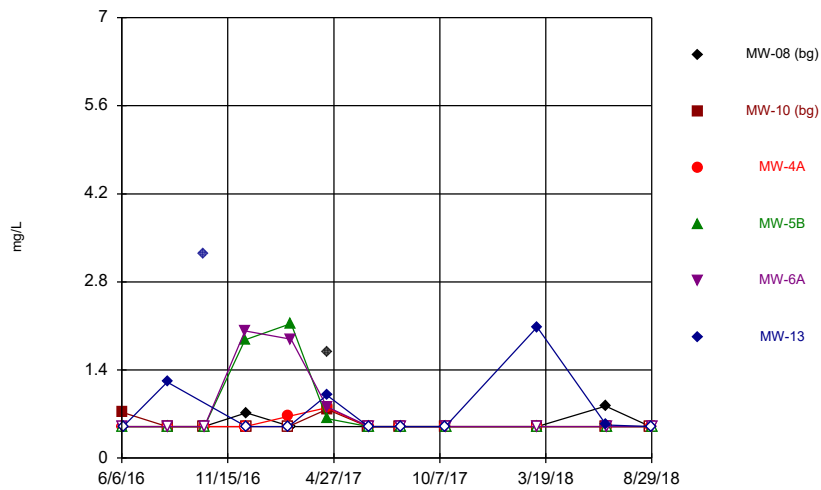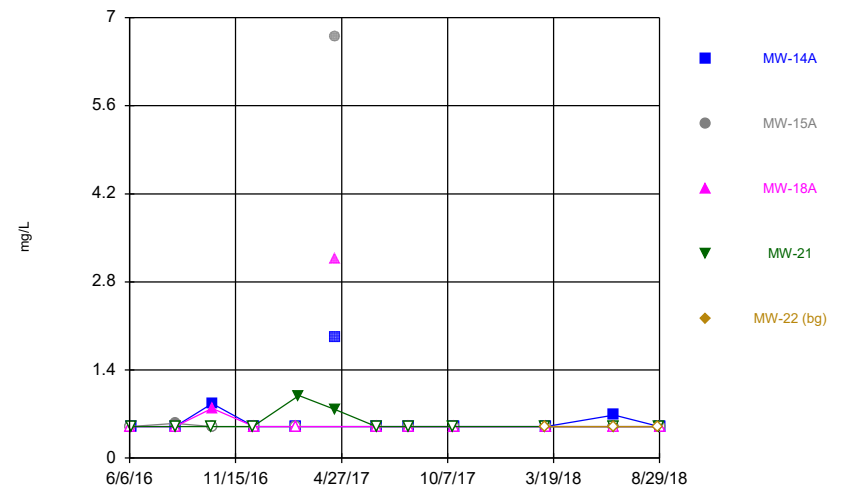|	MW-08 (bg)	MW-10 (bg)	MW-4A	MW-5B	MW-6A	MW-13
6/6/2016		89.3				
6/7/2016	152		98.2	147	81.4	
6/8/2016						218 (o)
8/15/2016		80.7				112
8/16/2016	117		88.8	139	75.4	
10/10/2016	118	83.3				276 (o)
10/11/2016			89.3	140	75.7	
12/12/2016			94.5	147	85.6	
12/14/2016	109	86.5				105
2/17/2017		81.2	86.8			87.6
2/21/2017	89.9			126	68.8	
4/17/2017	96.5	79.2	85.9	130	56.3	97.5
6/19/2017	113	83.6				
6/20/2017			88.7	140		92.8
6/21/2017					72.9	
8/7/2017	91.3	85.5	89.7			
8/8/2017				139	71.2	95.4
10/16/2017	77	83.3	85.3			208
10/17/2017				136	71.9	
11/28/2017						93.2 (R)
3/5/2018		77.3				
3/6/2018	74.7		95.8	134	74.1	149
6/19/2018	115	88.5				
6/20/2018						89.5
6/21/2018			91.4	147	80.1	
8/27/2018	83.6	85.4				
8/28/2018			91.3			93.1
8/29/2018				146	73.3	

Time Series

Constituent: Calcium (mg/L)   Analysis Run 10/10/2018 4:48 PM   View: Descriptive

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-14A	MW-15A	MW-18A	MW-21	MW-22 (bg)
6/6/2016		206	294		
6/8/2016	281			37.2	
8/15/2016	311	199	294	146	
10/10/2016				185	
10/11/2016	308	203	280		
12/12/2016				178	
12/14/2016	333	244	291		
2/17/2017	268	233	266		
2/21/2017				118	
4/17/2017	310	226			
4/18/2017			237	110	
6/20/2017				149	
6/21/2017	307	186	255		
8/8/2017	296	206	258	163	
10/16/2017				62.3	
10/17/2017	310	218	239		
11/28/2017	301 (R)	217 (R)	232 (R)		
3/6/2018				25.1	69.8
3/7/2018	278	229	191		
6/19/2018				159	91.5
6/20/2018	297	102	264		
8/27/2018					80.7
8/28/2018				78.7	
8/29/2018	309	155	223		

Time Series

Constituent: Chloride   Analysis Run 10/10/2018 4:45 PM   View: Descriptive
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Time Series

Constituent: Chloride   Analysis Run 10/10/2018 4:45 PM   View: Descriptive
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Time Series

Constituent: Fluoride   Analysis Run 10/10/2018 4:45 PM   View: Descriptive
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Time Series

Constituent: Fluoride   Analysis Run 10/10/2018 4:45 PM   View: Descriptive
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Time Series

	MW-08 (bg)	MW-10 (bg)	MW-4A	MW-5B	MW-6A	MW-13
6/6/2016		6.22				
6/7/2016	19.8		12.6	67	5.97	
6/8/2016						22.9
8/15/2016		<5				17.1
8/16/2016	17.8		13.2	65.9	<5	
10/10/2016	16.2	<5				29.8
10/11/2016			13.6	66	<5	
12/12/2016			13.5	67	9.08	
12/14/2016	17.2	<5				12.7
2/17/2017		<5	15.1			14.8
2/21/2017	15.4			70.4	9.93	
4/17/2017	17.1	<5	12.5	62.1	<5	12.8
6/19/2017	14.1	<5				
6/20/2017			13.2	63.4		9.17
6/21/2017					<5	
8/7/2017	14	<5	13.2			
8/8/2017				64	<5	9.62
10/16/2017	14.4	<5	14.7			15.2
10/17/2017				73	<5	
11/28/2017				67.8 (R)		
3/5/2018		<5				
3/6/2018	14.5		8.81	68.2	5.33	19.9
6/19/2018	14.9	<5				
6/20/2018						5.84
6/21/2018			15.3	65	<5	
8/27/2018	15.6	<5				
8/28/2018			19.4			7.24
8/29/2018				70.8	<5	

Time Series

Constituent: Chloride (mg/L)   Analysis Run 10/10/2018 4:48 PM   View: Descriptive

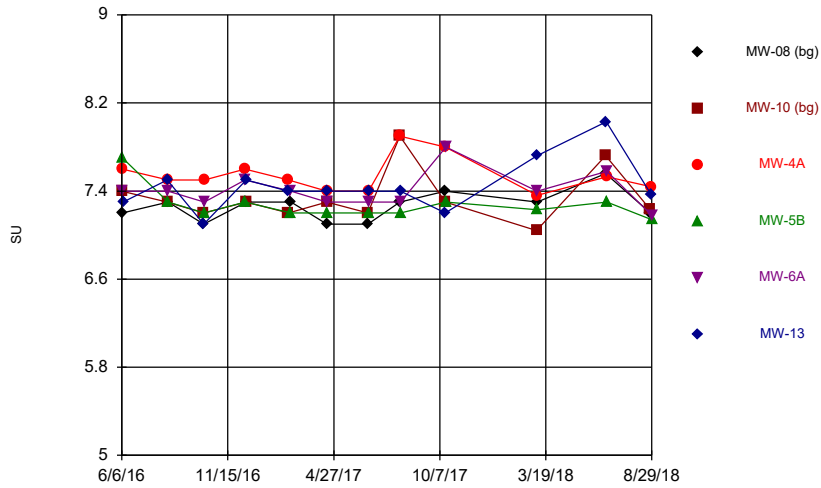Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-14A	MW-15A	MW-18A	MW-21	MW-22 (bg)
6/6/2016		17.1	30.4		
6/8/2016	28.7			27.7	
8/15/2016	28.7	17.2	27.6	16.6	
10/10/2016				24.4	
10/11/2016	37	17.6	35.3		
12/12/2016				19.2	
12/14/2016	31.9	19	29.2		
2/17/2017	33.5	21.5	28.1		
2/21/2017				14.2	
4/17/2017	39.4	47.4 (o)			
4/18/2017			44.2	15.6	
6/20/2017				15.1	
6/21/2017	29.7	12.8	27.2		
8/8/2017	32.9	15.4	27	16.1	
10/16/2017				5.09	
10/17/2017	35.4	20.5	29.3		
11/28/2017	33.2 (R)	20.7 (R)	27.4 (R)		
3/6/2018				<5	30
3/7/2018	37.4	24.2	27.1		
6/19/2018				10.9	27.2
6/20/2018	29	<5	25.6		
8/27/2018					29.8
8/28/2018				<5	
8/29/2018	33.1	10.1	26.9		

Time Series

Constituent: Fluoride (mg/L)   Analysis Run 10/10/2018 4:48 PM   View: Descriptive

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water
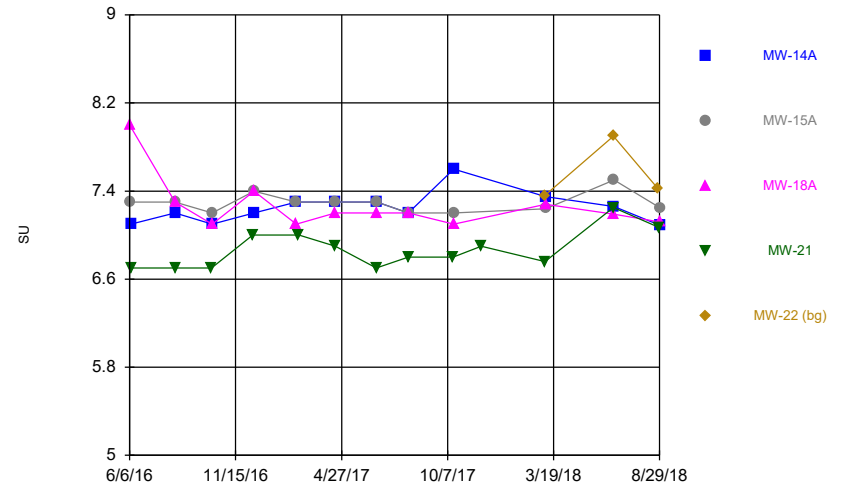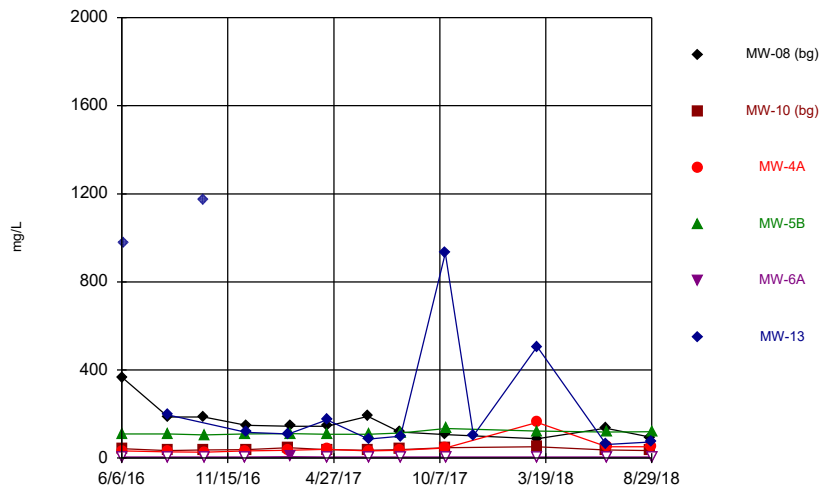
	MW-08 (bg)	MW-10 (bg)	MW-4A	MW-5B	MW-6A	MW-13
6/6/2016		0.731				
6/7/2016	<0.5		<0.5	<0.5	<0.5	
6/8/2016						<0.5
8/15/2016		<0.5				1.21
8/16/2016	<0.5		<0.5	<0.5	<0.5	
10/10/2016	<0.5	<0.5				3.25 (o)
10/11/2016			<0.5	<0.5	<0.5	
12/12/2016			<0.5	1.88	2.02	
12/14/2016	0.72	<0.5				<0.5
2/17/2017		<0.5	0.664			<0.5
2/21/2017	<0.5			2.14	1.89	
4/17/2017	1.69 (F1o)	0.774	0.801	0.627	0.814	0.997
6/19/2017	<0.5	<0.5				
6/20/2017			<0.5	<0.5		<0.5
6/21/2017					<0.5	
8/7/2017	<0.5	<0.5	<0.5			
8/8/2017				<0.5	<0.5	<0.5
10/16/2017	<0.5	<0.5	<0.5			<0.5
10/17/2017				<0.5	<0.5	
3/5/2018		<0.5				
3/6/2018	<0.5		<0.5	<0.5	<0.5	2.08
6/19/2018	0.826	<0.5				
6/20/2018						0.528
6/21/2018			<0.5	<0.5	<0.5	
8/27/2018	<0.5	<0.5				
8/28/2018			<0.5			<0.5
8/29/2018				<0.5	<0.5	

Time Series

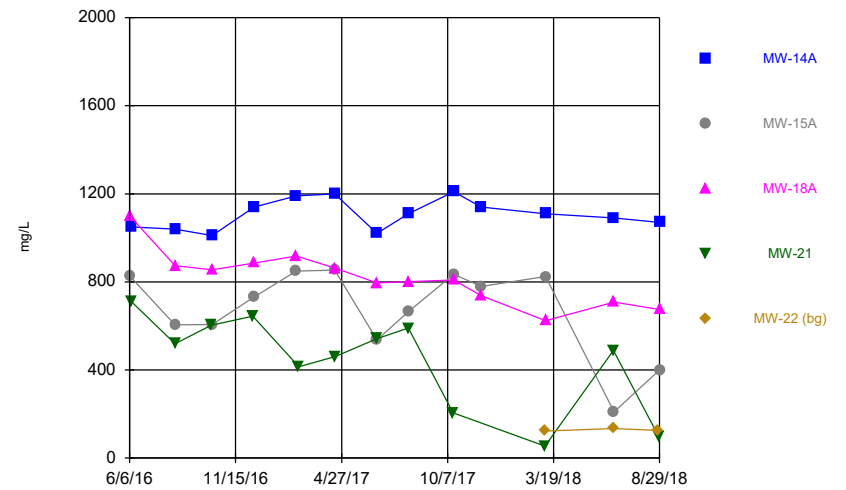Constituent: Fluoride (mg/L)   Analysis Run 10/10/2018 4:48 PM   View: Descriptive

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-14A	MW-15A	MW-18A	MW-21	MW-22 (bg)
6/6/2016		<0.5	<0.5		
6/8/2016	<0.5			<0.5	
8/15/2016	<0.5	0.549	<0.5	<0.5	
10/10/2016				<0.5	
10/11/2016	0.867	<0.5	0.791		
12/12/2016				<0.5	
12/14/2016	<0.5	<0.5	<0.5 (F2)		
2/17/2017	<0.5	<0.5	<0.5		
2/21/2017				0.993	
4/17/2017	1.93 (o)	6.7 (o)			
4/18/2017			3.16 (o)	0.768	
6/20/2017				<0.5	
6/21/2017	<0.5	<0.5	<0.5		
8/8/2017	<0.5	<0.5	<0.5	<0.5	
10/16/2017				<0.5	
10/17/2017	<0.5	<0.5	<0.5		
3/6/2018				<0.5	<0.5
3/7/2018	<0.5	<0.5	<0.5		
6/19/2018				<0.5	<0.5
6/20/2018	0.684	<0.5	<0.5		
8/27/2018					<0.5
8/28/2018				<0.5	
8/29/2018	<0.5	<0.5	<0.5		

Time Series

Constituent: pH   Analysis Run 10/10/2018 4:45 PM   View: Descriptive
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Time Series

Constituent: pH   Analysis Run 10/10/2018 4:45 PM   View: Descriptive
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Time Series

Constituent: Sulfate   Analysis Run 10/10/2018 4:45 PM   View: Descriptive
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Time Series

Constituent: Sulfate   Analysis Run 10/10/2018 4:45 PM   View: Descriptive
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water
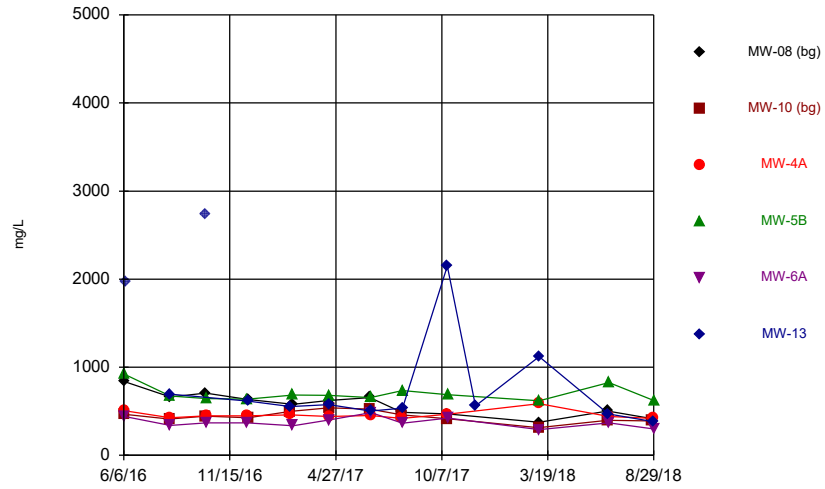
Time Series

Constituent: pH (SU)   Analysis Run 10/10/2018 4:48 PM   View: Descriptive

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-08 (bg)	MW-10 (bg)	MW-4A	MW-5B	MW-6A	MW-13
6/6/2016		7.4				
6/7/2016	7.2		7.6	7.7	7.4	
6/8/2016						7.3
8/15/2016		7.3				7.5
8/16/2016	7.3		7.5	7.3	7.4	
10/10/2016	7.1	7.2				7.1
10/11/2016			7.5	7.2	7.3	
12/12/2016			7.6	7.3	7.5	
12/14/2016	7.3	7.3				7.5
2/17/2017		7.2	7.5			7.4
2/21/2017	7.3			7.2	7.4	
4/17/2017	7.1	7.3	7.4	7.2	7.3	7.4
6/19/2017	7.1	7.2				
6/20/2017			7.4	7.2		7.4
6/21/2017					7.3	
8/7/2017	7.3	7.9	7.9			
8/8/2017				7.2	7.3	7.4
10/16/2017	7.4	7.3	7.8			7.2
10/17/2017				7.3	7.8	
3/5/2018		7.04				
3/6/2018	7.3		7.36	7.23	7.4	7.72
6/19/2018	7.56	7.72				
6/20/2018						8.03
6/21/2018			7.53	7.3	7.58	
8/27/2018	7.2	7.23				
8/28/2018			7.44			7.37
8/29/2018				7.14	7.18	

Time Series

	MW-14A	MW-15A	MW-18A	MW-21	MW-22 (bg)
6/6/2016		7.3	8		
6/8/2016	7.1			6.7	
8/15/2016	7.2	7.3	7.3	6.7	
10/10/2016				6.7	
10/11/2016	7.1	7.2	7.1		
12/12/2016				7	
12/14/2016	7.2	7.4	7.4		
2/17/2017	7.3	7.3	7.1		
2/21/2017				7	
4/17/2017	7.3	7.3			
4/18/2017			7.2	6.9	
6/20/2017				6.7	
6/21/2017	7.3	7.3	7.2		
8/8/2017	7.2	7.2	7.2	6.8	
10/16/2017				6.8	
10/17/2017	7.6	7.2	7.1		
11/28/2017				6.9 (R)	
3/6/2018				6.76	7.36
3/7/2018	7.35	7.24	7.28		
6/19/2018				7.25	7.9
6/20/2018	7.26	7.5	7.19		
8/27/2018					7.42
8/28/2018				7.07	
8/29/2018	7.09	7.25	7.12		

Time Series

Constituent: Sulfate (mg/L)   Analysis Run 10/10/2018 4:48 PM   View: Descriptive

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-08 (bg)	MW-10 (bg)	MW-4A	MW-5B	MW-6A	MW-13
6/6/2016		42.1				
6/7/2016	366		32.2	109	<5	
6/8/2016						975 (o)
8/15/2016		33.8				197
8/16/2016	187		28.4	109	<5	
10/10/2016	187	36.4				1170 (o)
10/11/2016			27.2	105	<5	
12/12/2016			32.7	109	<5	
12/14/2016	149	38.4				117
2/17/2017		47.3	36			110
2/21/2017	145			111	5.94	
4/17/2017	145	38.3	39.5	108	<5	174
6/19/2017	190	35.4				
6/20/2017			33	108		86.7
6/21/2017					<5	
8/7/2017	119	39	35.3			
8/8/2017				114	<5	99.4
10/16/2017	106	46.9	45.4			931
10/17/2017				135	<5	
11/28/2017						102 (R)
3/5/2018		51.4				
3/6/2018	87.3		162	122	<5	506
6/19/2018	136	37.3				
6/20/2018						62.1
6/21/2018			51.3	119	<5	
8/27/2018	94.7	34.3				
8/28/2018			52.2			72.7
8/29/2018				120	<5	

Time Series

Constituent: Sulfate (mg/L)   Analysis Run 10/10/2018 4:48 PM   View: Descriptive

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-14A	MW-15A	MW-18A	MW-21	MW-22 (bg)
6/6/2016		827	1100		
6/8/2016	1050			713	
8/15/2016	1040	605	874	520	
10/10/2016				603	
10/11/2016	1010	607	855		
12/12/2016				645	
12/14/2016	1140	732	886		
2/17/2017	1190	849	917		
2/21/2017				415	
4/17/2017	1200	853			
4/18/2017			863	461	
6/20/2017				541	
6/21/2017	1020	537	796		
8/8/2017	1110	664	801	590	
10/16/2017				206	
10/17/2017	1210	835	808		
11/28/2017	1140 (R)	779 (R)	737 (R)		
3/6/2018				53.7	123
3/7/2018	1110	824	624		
6/19/2018				489	134
6/20/2018	1090	210	709		
8/27/2018					125
8/28/2018				96.6	
8/29/2018	1070	400	675		

Time Series
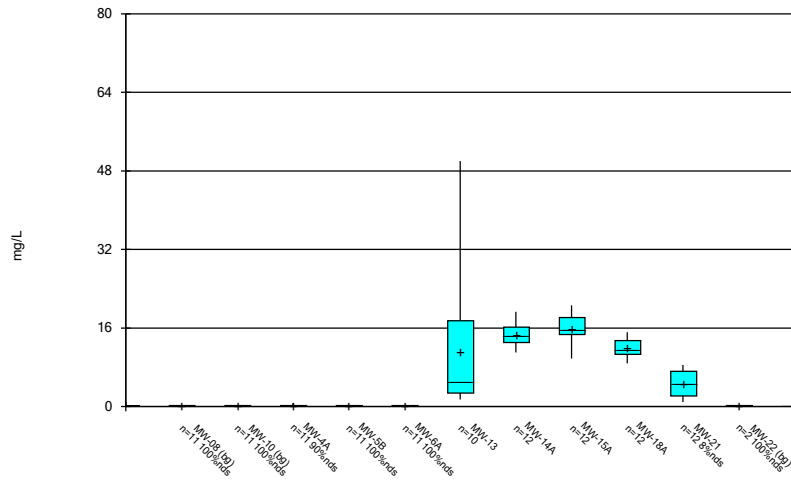

Constituent: Total Dissolved Solids   Analysis Run 10/10/2018 4:45 PM   View: Descriptive
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water
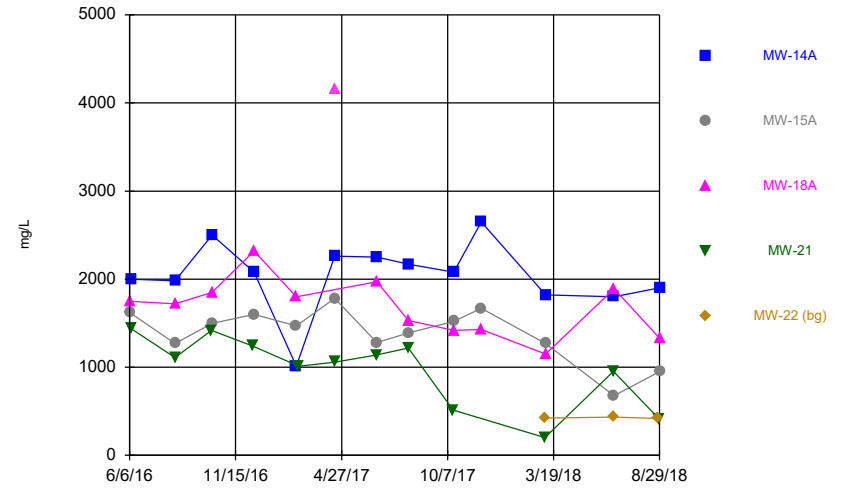
Time Series

Constituent: Total Dissolved Solids   Analysis Run 10/10/2018 4:45 PM   View: Descriptive
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water
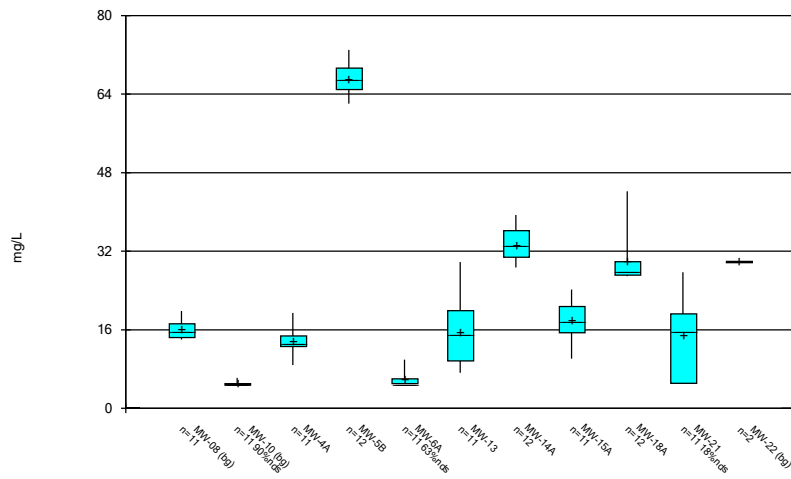
Time Series

Constituent: Total Dissolved Solids (mg/L)   Analysis Run 10/10/2018 4:48 PM   View: Descriptive

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-08 (bg)	MW-10 (bg)	MW-4A	MW-5B	MW-6A	MW-13
6/6/2016		468				
6/7/2016	836		507	920	440	
6/8/2016						1970 (o)
8/15/2016		412				694
8/16/2016	664		426	672	340	
10/10/2016	708	444				2740 (o)
10/11/2016			450	646	370	
12/12/2016			450	636	368	
12/14/2016	634	428				616
2/17/2017		498	460			554
2/21/2017	578			684	336	
4/17/2017	624	538	442	680	402	574
6/19/2017	656	524				
6/20/2017			452	656		502
6/21/2017					486	
8/7/2017	488	458	420			
8/8/2017				734	364	536
10/16/2017	470	414	466			2150
10/17/2017				688	424	
11/28/2017						562 (R)
3/5/2018		314				
3/6/2018	376		586	620	292	1120
6/19/2018	502	396				
6/20/2018						472
6/21/2018			440	828	368	
8/27/2018	414	392				
8/28/2018			420			384
8/29/2018				622	298	

Time Series

Constituent: Total Dissolved Solids (mg/L)   Analysis Run 10/10/2018 4:48 PM   View: Descriptive

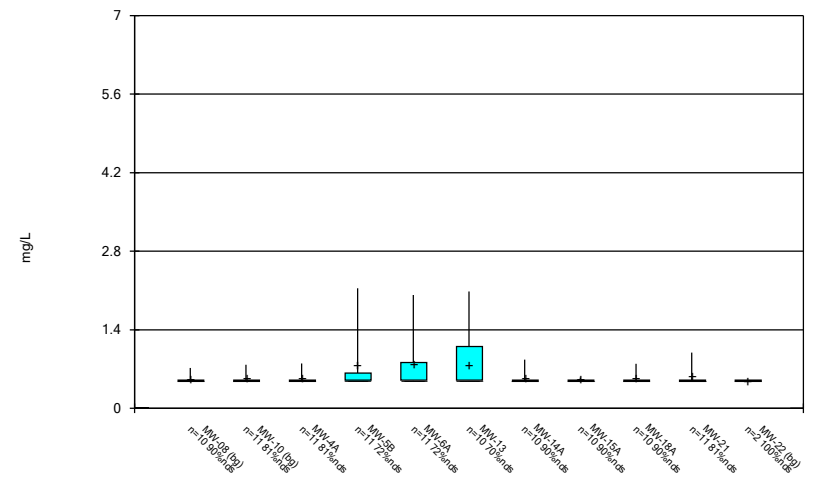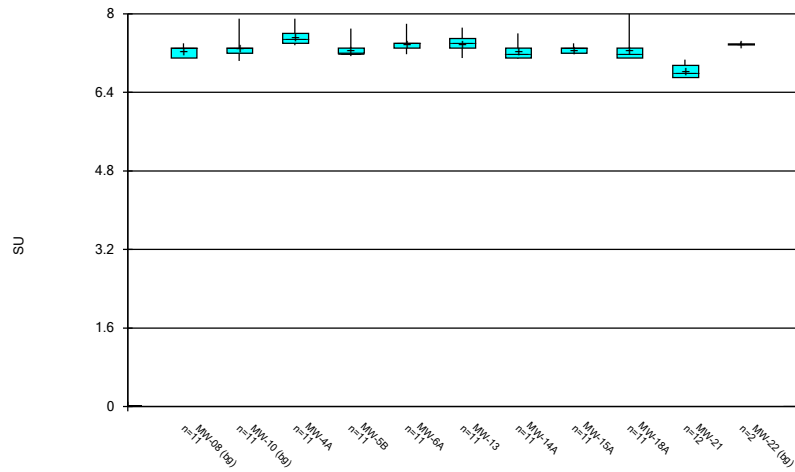Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

	MW-14A	MW-15A	MW-18A	MW-21	MW-22 (bg)
6/6/2016		1620	1750		
6/8/2016	2000			1440	
8/15/2016	1980	1270	1720	1110	
10/10/2016				1420	
10/11/2016	2500	1500	1850		
12/12/2016				1240	
12/14/2016	2080	1600	2320		
2/17/2017	1010	1470	1800		
2/21/2017				1010	
4/17/2017	2260	1780			
4/18/2017			4160 (o)	1060	
6/20/2017				1140	
6/21/2017	2250	1280	1970		
8/8/2017	2170	1390	1530	1220	
10/16/2017				514	
10/17/2017	2080	1520	1420		
11/28/2017	2650 (R)	1670 (R)	1430 (R)		
3/6/2018				200	424
3/7/2018	1820	1270	1150		
6/19/2018				952	434
6/20/2018	1800	676	1890		
8/27/2018					420
8/28/2018				416	
8/29/2018	1900	948	1330		

Box Plots

Box & Whiskers Plot

Constituent: Boron   Analysis Run 10/4/2018 12:27 PM   View: Descriptive

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water
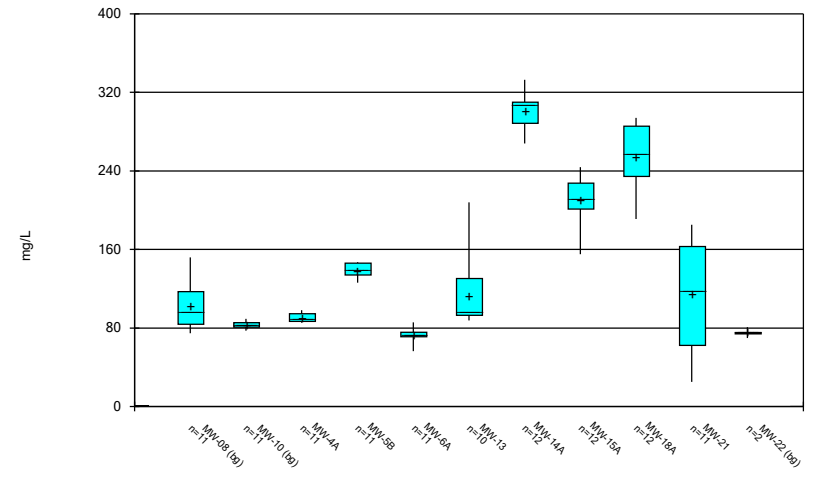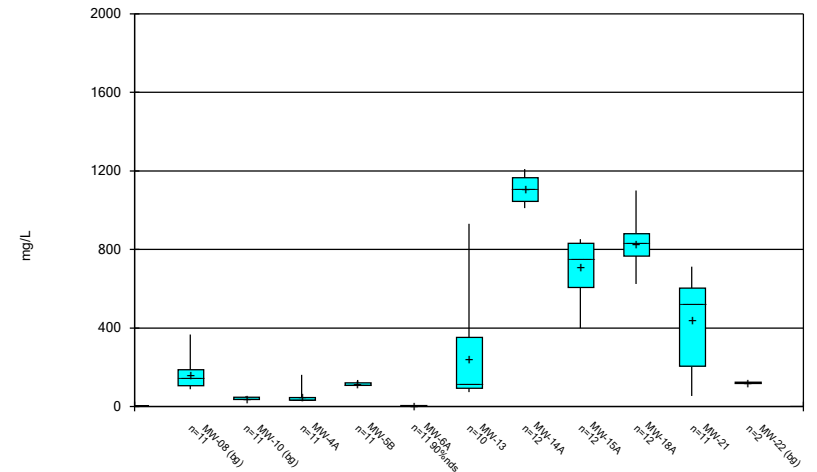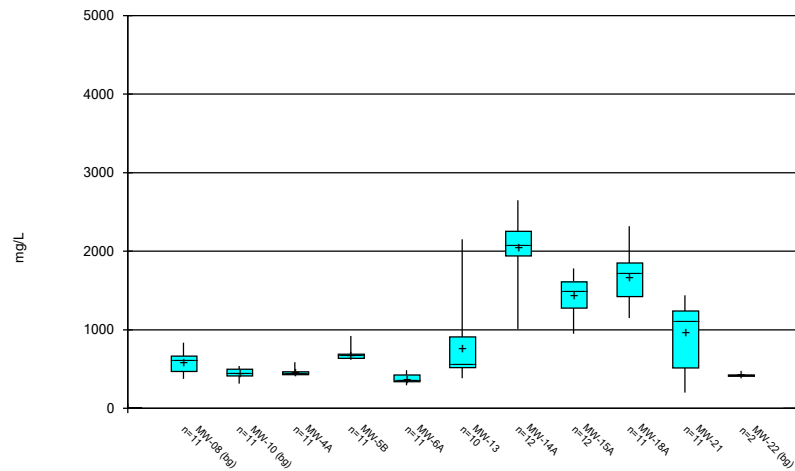
Box & Whiskers Plot

Constituent: Calcium   Analysis Run 10/4/2018 12:27 PM   View: Descriptive

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Box & Whiskers Plot

Constituent: Chloride   Analysis Run 10/4/2018 12:27 PM   View: Descriptive

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Box & Whiskers Plot

Constituent: Fluoride   Analysis Run 10/4/2018 12:27 PM   View: Descriptive

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Box & Whiskers Plot

Constituent: pH   Analysis Run 10/4/2018 12:27 PM   View: Descriptive

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Box & Whiskers Plot

Constituent: Sulfate   Analysis Run 10/4/2018 12:27 PM   View: Descriptive

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Box & Whiskers Plot

Constituent: Total Dissolved Solids   Analysis Run 10/4/2018 12:27 PM   View: Descriptive

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Confidence Intervals

Confidence Interval Summary Table - All Results

| Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj	Transform	Alpha	Method
Antimony (mg/L)	MW-4A	0.001	0.001	0.006	No	11	0.001	0	100	None	No	0.006	NP (NDs)
Antimony (mg/L)	MW-5B	0.001	0.001	0.006	No	11	0.001	0	100	None	No	0.006	NP (NDs)
Antimony (mg/L)	MW-6A	0.001	0.001	0.006	No	11	0.001	0	100	None	No	0.006	NP (NDs)
Antimony (mg/L)	MW-13	0.001	0.001	0.006	No	11	0.001	0	100	None	No	0.006	NP (NDs)
Antimony (mg/L)	MW-14A	0.001	0.001	0.006	No	11	0.001	0	100	None	No	0.006	NP (NDs)
Antimony (mg/L)	MW-15A	0.001	0.001	0.006	No	11	0.005455	0.01477	100	None	No	0.006	NP (NDs)
Antimony (mg/L)	MW-18A	0.00195	0.001	0.006	No	11	0.005541	0.01475	90.91	None	No	0.006	NP (NDs)
Arsenic (mg/L)	MW-4A	0.002	0.002	0.01	No	11	0.002	0	100	None	No	0.006	NP (NDs)
Arsenic (mg/L)	MW-5B	0.002	0.002	0.01	No	11	0.002	0	100	None	No	0.006	NP (NDs)
Arsenic (mg/L)	MW-6A	0.002	0.002	0.01	No	11	0.002	0	100	None	No	0.006	NP (NDs)
Arsenic (mg/L)	MW-13	0.002	0.002	0.01	No	11	0.002	0	100	None	No	0.006	NP (NDs)
Arsenic (mg/L)	MW-14A	0.002	0.002	0.01	No	11	0.002	0	100	None	No	0.006	NP (NDs)
Arsenic (mg/L)	MW-15A	0.002	0.002	0.01	No	11	0.01091	0.02955	100	None	No	0.006	NP (NDs)
Arsenic (mg/L)	MW-18A	0.00265	0.002	0.01	No	11	0.01097	0.02953	90.91	None	No	0.006	NP (NDs)
Barium (mg/L)	MW-4A	0.1447	0.124	2	No	11	0.1344	0.01245	0	None	No	0.01	Param.
Barium (mg/L)	MW-5B	0.3353	0.3013	2	No	11	0.3183	0.02038	0	None	No	0.01	Param.
Barium (mg/L)	MW-6A	0.2136	0.1851	2	No	11	0.1991	0.01823	0	None	x^2	0.01	Param.
Barium (mg/L)	MW-13	0.1101	0.05594	2	No	11	0.08301	0.03248	0	None	No	0.01	Param.
Barium (mg/L)	MW-14A	0.0391	0.03103	2	No	11	0.03506	0.004841	0	None	No	0.01	Param.
Barium (mg/L)	MW-15A	0.04101	0.03355	2	No	10	0.03728	0.004185	0	None	No	0.01	Param.
Barium (mg/L)	MW-18A	0.0403	0.0281	2	No	11	0.04092	0.02002	9.091	None	No	0.006	NP (normality)
Beryllium (mg/L)	MW-4A	0.001	0.001	0.004	No	11	0.001	0	100	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MW-5B	0.001	0.001	0.004	No	11	0.001	0	100	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MW-6A	0.001	0.001	0.004	No	11	0.001	0	100	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MW-13	0.001	0.001	0.004	No	11	0.001	0	100	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MW-14A	0.001	0.001	0.004	No	11	0.001	0	100	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MW-15A	0.001	0.001	0.004	No	11	0.005455	0.01477	100	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MW-18A	0.001	0.001	0.004	No	11	0.005455	0.01477	100	None	No	0.006	NP (NDs)
Cadmium (mg/L)	MW-4A	0.0005	0.0005	0.005	No	11	0.0005	0	100	None	No	0.006	NP (NDs)
Cadmium (mg/L)	MW-5B	0.0005	0.0005	0.005	No	11	0.0005	0	100	None	No	0.006	NP (NDs)
Cadmium (mg/L)	MW-6A	0.0005	0.0005	0.005	No	11	0.0005	0	100	None	No	0.006	NP (NDs)
Cadmium (mg/L)	MW-13	0.0005	0.0005	0.005	No	11	0.0005	0	100	None	No	0.006	NP (NDs)
Cadmium (mg/L)	MW-14A	0.0005	0.0005	0.005	No	11	0.0005	0	100	None	No	0.006	NP (NDs)
Cadmium (mg/L)	MW-15A	0.0005	0.0005	0.005	No	11	0.002727	0.007387	100	None	No	0.006	NP (NDs)
Cadmium (mg/L)	MW-18A	0.0005	0.0005	0.005	No	11	0.002727	0.007387	100	None	No	0.006	NP (NDs)
Chromium (mg/L)	MW-4A	0.005	0.005	0.1	No	11	0.005	0	100	None	No	0.006	NP (NDs)
Chromium (mg/L)	MW-5B	0.005	0.005	0.1	No	11	0.005	0	100	None	No	0.006	NP (NDs)
Chromium (mg/L)	MW-6A	0.005	0.005	0.1	No	11	0.005	0	100	None	No	0.006	NP (NDs)
Chromium (mg/L)	MW-13	0.005	0.005	0.1	No	10	0.005158	0.0004996	90	None	No	0.011	NP (NDs)
Chromium (mg/L)	MW-14A	0.005	0.005	0.1	No	11	0.005	0	100	None	No	0.006	NP (NDs)
Chromium (mg/L)	MW-15A	0.005	0.005	0.1	No	11	0.02727	0.07387	100	None	No	0.006	NP (NDs)
Chromium (mg/L)	MW-18A	0.005	0.005	0.1	No	11	0.02727	0.07387	100	None	No	0.006	NP (NDs)
Cobalt (mg/L)	MW-4A	0.0005	0.0005	0.006	No	11	0.0005165	0.00005457	90.91	None	No	0.006	NP (NDs)
Cobalt (mg/L)	MW-5B	0.0005	0.0005	0.006	No	11	0.0005	0	100	None	No	0.006	NP (NDs)
Cobalt (mg/L)	MW-6A	0.0005	0.0005	0.006	No	11	0.0005	0	100	None	No	0.006	NP (NDs)
Cobalt (mg/L)	MW-13	0.0007805	0.0005411	0.006	No	10	0.0006608	0.0001414	30	Kapla..	No	0.01	Param.
Cobalt (mg/L)	MW-14A	0.0005	0.0005	0.006	No	11	0.0005	0	100	Kapla..	No	0.006	NP (NDs)
Cobalt (mg/L)	MW-15A	0.0005	0.0005	0.006	No	11	0.002727	0.007387	100	Kapla..	No	0.006	NP (NDs)
Cobalt (mg/L)	MW-18A	0.0005	0.0005	0.006	No	11	0.002727	0.007387	100	Kapla..	No	0.006	NP (NDs)
Combined Radium 226 + 228 (pCi/L)	MW-4A	0.7583	0.3735	5	No	9	0.5659	0.1992	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-5B	1.031	0.5925	5	No	9	0.8118	0.2271	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-6A	0.7309	0.3134	5	No	9	0.5211	0.2298	0	None	sqrt(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-13	0.5607	0.1772	5	No	8	0.363	0.2029	0	None	sqrt(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-14A	0.4542	0.1302	5	No	9	0.2922	0.1678	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-15A	0.2876	0.1315	5	No	9	0.2095	0.08085	0	None	No	0.01	Param.

Confidence Interval Summary Table - All Results

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water   Printed 10/10/2018, 6:13 PM

| Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig. N	Mean	Std. Dev.	%NDs	ND Adj	Transform	Alpha	Method
Combined Radium 226 + 228 (pCi/L)	MW-18A	0.5629	0.2171	5	No 9	0.39	0.1791	0	None	No	0.01	Param.
Fluoride (mg/L)	MW-4A	0.664	0.5	4	No 12	0.5388	0.0951	83.33	None	No	0.01	NP (NDs)
Fluoride (mg/L)	MW-5B	1.88	0.5	4	No 12	0.7623	0.5866	75	None	No	0.01	NP (normality)
Fluoride (mg/L)	MW-6A	1.89	0.5	4	No 12	0.7687	0.5621	75	None	No	0.01	NP (normality)
Fluoride (mg/L)	MW-13	1.21	0.5	4	No 11	0.7559	0.5028	63.64	None	No	0.006	NP (normality)
Fluoride (mg/L)	MW-14A	0.684	0.5	4	No 11	0.5501	0.1187	81.82	None	No	0.006	NP (NDs)
Fluoride (mg/L)	MW-15A	0.5	0.5	4	No 11	0.5045	0.01477	90.91	None	No	0.006	NP (NDs)
Fluoride (mg/L)	MW-18A	0.5	0.5	4	No 11	0.5265	0.08774	90.91	None	No	0.006	NP (NDs)
Lead (mg/L)	MW-4A	0.0005	0.0005	0.015	No 10	0.0005	0	100	None	No	0.011	NP (NDs)
Lead (mg/L)	MW-5B	0.0005	0.0005	0.015	No 11	0.0005	0	100	None	No	0.006	NP (NDs)
Lead (mg/L)	MW-6A	0.0005	0.0005	0.015	No 11	0.0005	0	100	None	No	0.006	NP (NDs)
Lead (mg/L)	MW-13	0.0005	0.0005	0.015	No 11	0.0005	0	100	None	No	0.006	NP (NDs)
Lead (mg/L)	MW-14A	0.0005	0.0005	0.015	No 11	0.0005	0	100	None	No	0.006	NP (NDs)
Lead (mg/L)	MW-15A	0.0005	0.0005	0.015	No 11	0.002727	0.007387	100	None	No	0.006	NP (NDs)
Lead (mg/L)	MW-18A	0.0005	0.0005	0.015	No 11	0.002727	0.007387	100	None	No	0.006	NP (NDs)
Lithium (mg/L)	MW-4A	0.05	0.01	0.04	No 11	0.03909	0.01868	100	None	No	0.006	NP (NDs)
Lithium (mg/L)	MW-5B	0.05	0.01	0.04	No 11	0.03909	0.01868	100	None	No	0.006	NP (NDs)
Lithium (mg/L)	MW-6A	0.05	0.01	0.04	No 11	0.03909	0.01868	100	None	No	0.006	NP (NDs)
Lithium (mg/L)	MW-13	0.1	0.01	0.04	No 12	0.04935	0.04126	91.67	None	No	0.01	NP (NDs)
Lithium (mg/L)	MW-14A	0.05	0.01	0.04	No 11	0.03909	0.01868	100	None	No	0.006	NP (NDs)
Lithium (mg/L)	MW-15A	0.05	0.01	0.04	No 11	0.03909	0.01868	100	None	No	0.006	NP (NDs)
Lithium (mg/L)	MW-18A	0.05	0.01	0.04	No 11	0.03909	0.01868	100	None	No	0.006	NP (NDs)
Mercury (mg/L)	MW-4A	0.0002	0.0002	0.002	No 11	0.0002	0	100	None	No	0.006	NP (NDs)
Mercury (mg/L)	MW-5B	0.0002	0.0002	0.002	No 11	0.0002	0	100	None	No	0.006	NP (NDs)
Mercury (mg/L)	MW-6A	0.0002	0.0002	0.002	No 11	0.0002	0	100	None	No	0.006	NP (NDs)
Mercury (mg/L)	MW-13	0.0002	0.0002	0.002	No 11	0.0002	0	100	None	No	0.006	NP (NDs)
Mercury (mg/L)	MW-14A	0.0002	0.0002	0.002	No 11	0.0002	0	100	None	No	0.006	NP (NDs)
Mercury (mg/L)	MW-15A	0.0002	0.0002	0.002	No 11	0.0002	0	100	None	No	0.006	NP (NDs)
Mercury (mg/L)	MW-18A	0.0002	0.0002	0.002	No 10	0.0002	0	100	None	No	0.011	NP (NDs)
Molybdenum (mg/L)	MW-4A	0.002	0.002	0.1	No 11	0.002	0	100	None	No	0.006	NP (NDs)
Molybdenum (mg/L)	MW-5B	0.002	0.002	0.1	No 11	0.002	0	100	None	No	0.006	NP (NDs)
Molybdenum (mg/L)	MW-6A	0.002	0.002	0.1	No 11	0.002	0	100	None	No	0.006	NP (NDs)
Molybdenum (mg/L)	MW-13	0.006416	0.002921	0.1	No 10	0.004691	0.002111	0	None	sqrt(x)	0.01	Param.
Molybdenum (mg/L)	MW-14A	0.002	0.002	0.1	No 11	0.002	0	100	None	No	0.006	NP (NDs)
Molybdenum (mg/L)	MW-15A	0.002	0.002	0.1	No 11	0.01091	0.02955	100	None	No	0.006	NP (NDs)
Molybdenum (mg/L)	MW-18A	0.002	0.002	0.1	No 11	0.01091	0.02955	100	None	No	0.006	NP (NDs)
Selenium (mg/L)	MW-4A	0.005	0.005	0.05	No 11	0.005	0	100	None	No	0.006	NP (NDs)
Selenium (mg/L)	MW-5B	0.005	0.005	0.05	No 11	0.005	0	100	None	No	0.006	NP (NDs)
Selenium (mg/L)	MW-6A	0.005	0.005	0.05	No 11	0.005	0	100	None	No	0.006	NP (NDs)
Selenium (mg/L)	MW-13	0.005	0.005	0.05	No 10	0.00645	0.004585	90	None	No	0.011	NP (NDs)
Selenium (mg/L)	MW-14A	0.008282	0.0072	0.05	No 11	0.007641	0.0009769	9.091	None	x^5	0.01	Param.
Selenium (mg/L)	MW-15A	0.00502	0.005	0.05	No 11	0.02727	0.07387	90.91	None	No	0.006	NP (NDs)
Selenium (mg/L)	MW-18A	0.005	0.005	0.05	No 11	0.02727	0.07387	100	None	No	0.006	NP (NDs)
Thallium (mg/L)	MW-4A	0.001	0.001	0.002	No 11	0.001	0	100	None	No	0.006	NP (NDs)
Thallium (mg/L)	MW-5B	0.001	0.001	0.002	No 11	0.001	0	100	None	No	0.006	NP (NDs)
Thallium (mg/L)	MW-6A	0.001	0.001	0.002	No 11	0.001	0	100	None	No	0.006	NP (NDs)
Thallium (mg/L)	MW-13	0.001	0.001	0.002	No 11	0.001	0	100	None	No	0.006	NP (NDs)
Thallium (mg/L)	MW-14A	0.001	0.001	0.002	No 11	0.001	0	100	None	No	0.006	NP (NDs)
Thallium (mg/L)	MW-15A	0.001	0.001	0.002	No 11	0.005455	0.01477	100	None	No	0.006	NP (NDs)
Thallium (mg/L)	MW-18A	0.001	0.001	0.002	No 11	0.005455	0.01477	100	None	No	0.006	NP (NDs)

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.
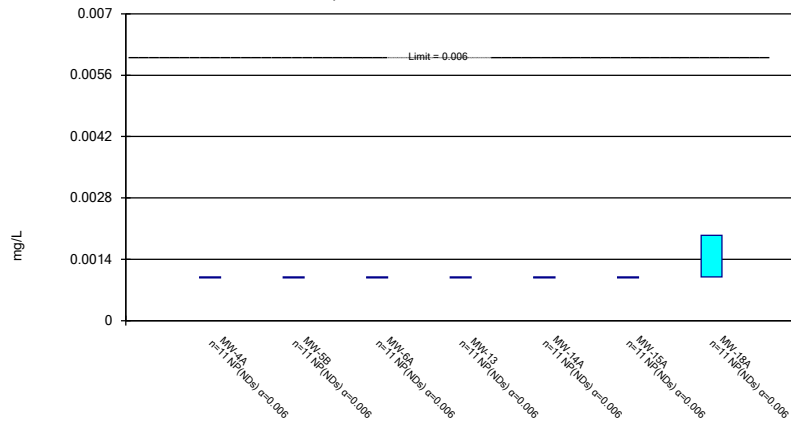
Constituent: Antimony   Analysis Run 10/10/2018 6:11 PM   View: Confidence Intervals - App IV
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water
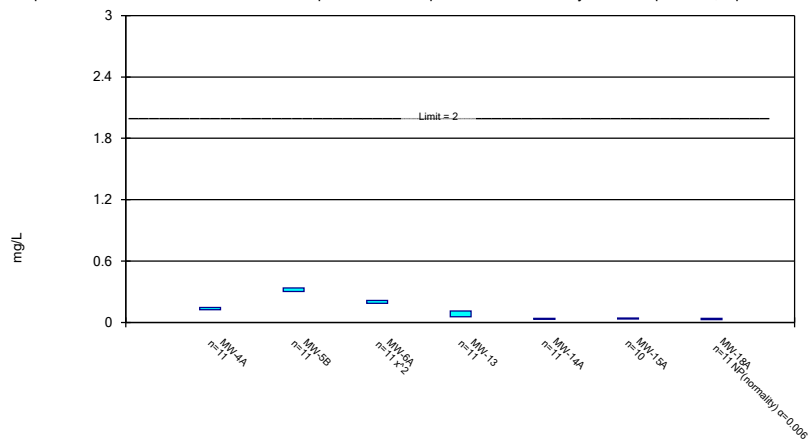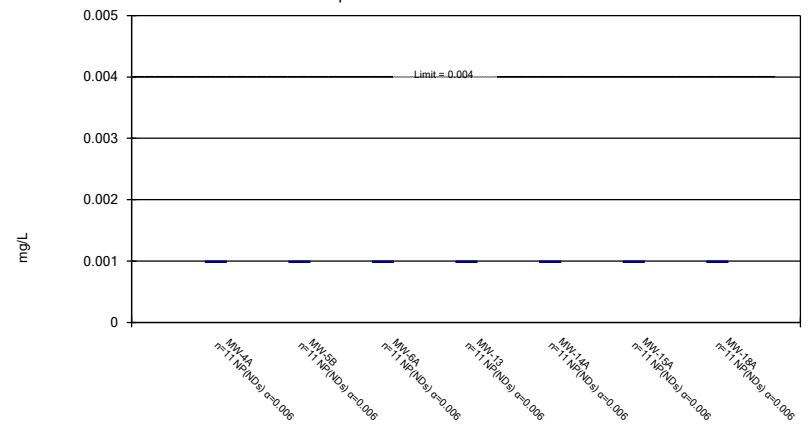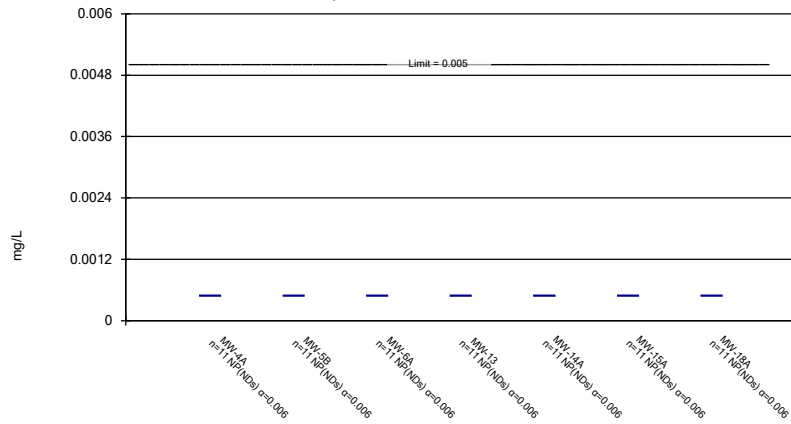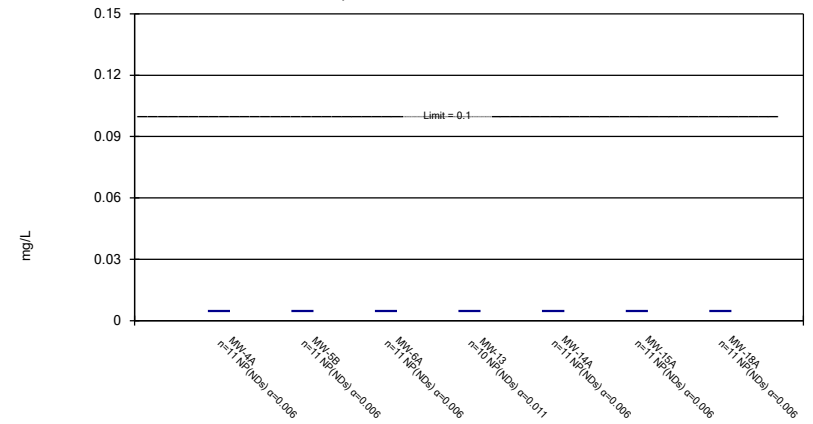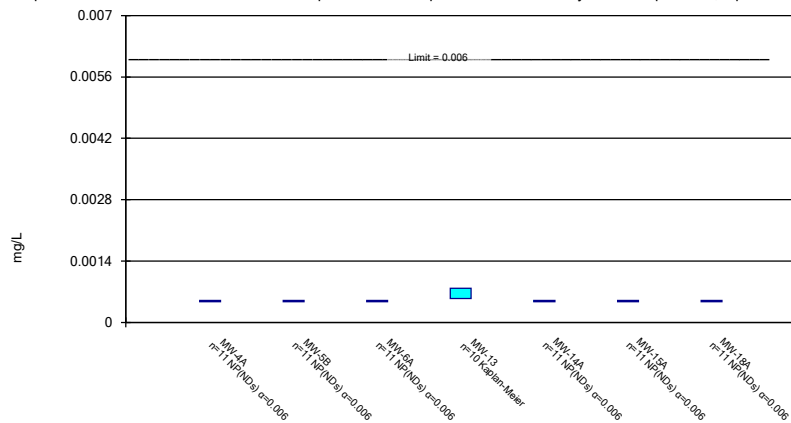
Non-Parametric Confidence Interval

Compliance Limit is not exceeded.
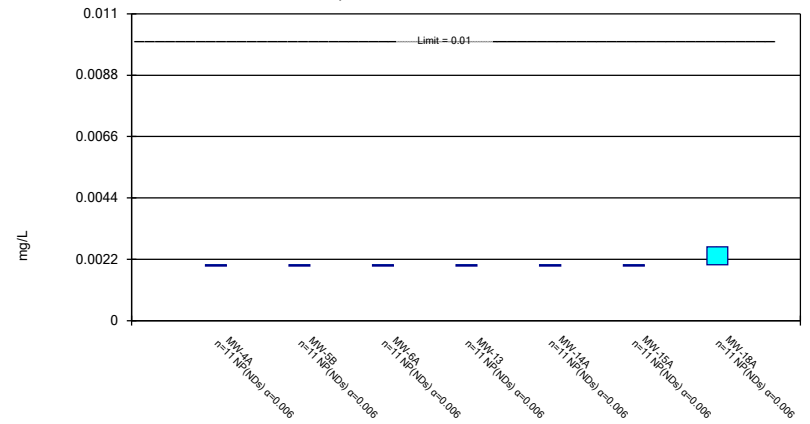
Constituent: Arsenic   Analysis Run 10/10/2018 6:11 PM   View: Confidence Intervals - App IV
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water
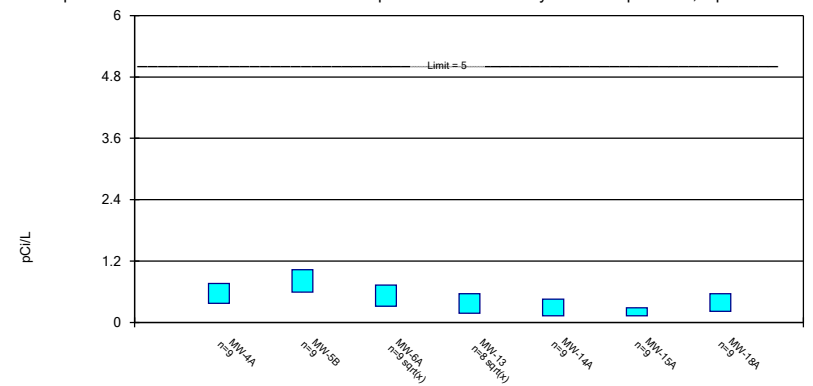
Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded.   Per-well alpha = 0.01 except as noted.   Normality Test: Shapiro Wilk, alpha based on n.

Constituent: Barium   Analysis Run 10/10/2018 6:11 PM   View: Confidence Intervals - App IV
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

Constituent: Beryllium   Analysis Run 10/10/2018 6:11 PM   View: Confidence Intervals - App IV
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

Constituent: Cadmium   Analysis Run 10/10/2018 6:11 PM   View: Confidence Intervals - App IV
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

Constituent: Chromium   Analysis Run 10/10/2018 6:11 PM   View: Confidence Intervals - App IV
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.

Constituent: Cobalt   Analysis Run 10/10/2018 6:11 PM   View: Confidence Intervals - App IV
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

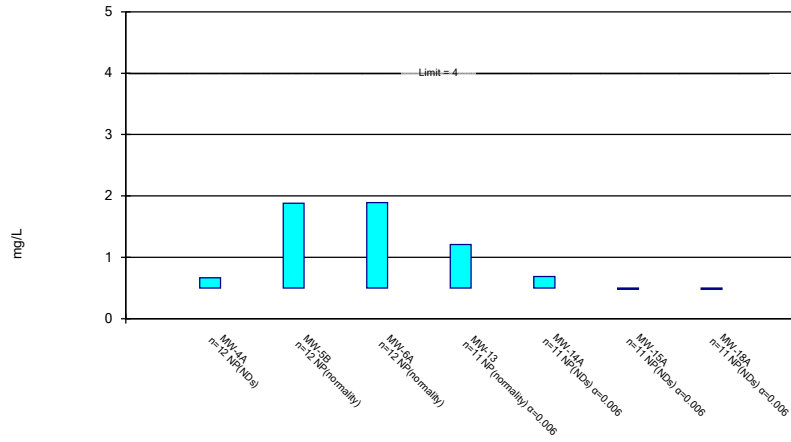### Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

Constituent: Combined Radium 226 + 228   Analysis Run 10/10/2018 6:11 PM   View: Confidence Intervals -
Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water
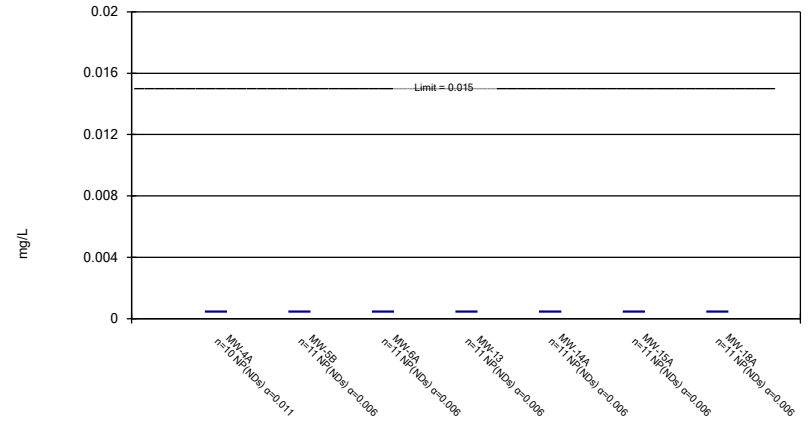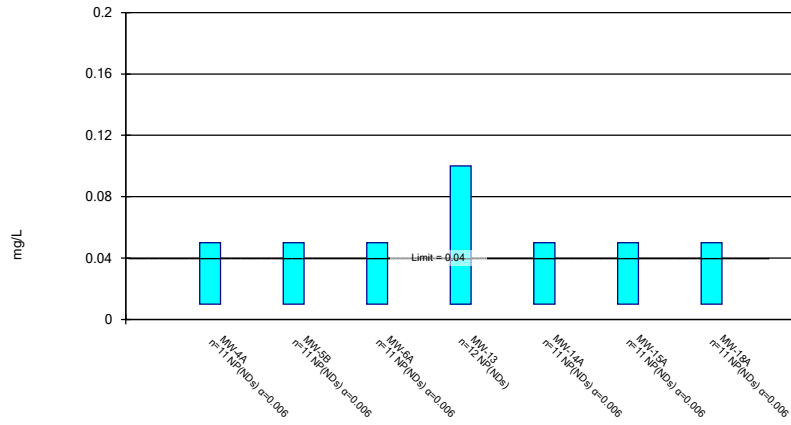
Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.

mg/L

Limit = 4

MW-4A n=12 NP(NDs)
MW-5B n=12 NP(normality)
MW-6A n=12 NP(normality)
MW-13 n=11 NP (normality) α=0.006
MW-14A n=11 NP(NDs) α=0.006
MW-15A n=11 NP(NDs) α=0.006
MW-19A n=11 NP(NDs) α=0.006

Constituent: Fluoride   Analysis Run 10/10/2018 6:11 PM   View: Confidence Intervals - App IV

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

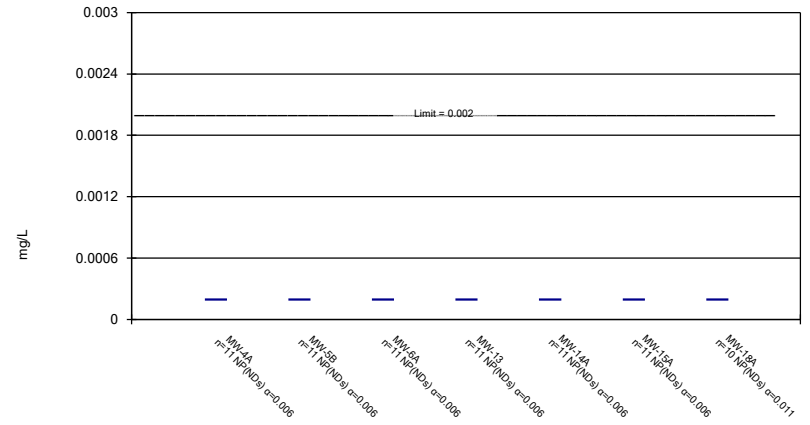## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

mg/L

Limit = 0.015

MW-4A n=10 NP(NDs) α=0.011
MW-5B n=11 NP(NDs) α=0.006
MW-6A n=11 NP(NDs) α=0.006
MW-13 n=11 NP(NDs) α=0.006
MW-14A n=11 NP(NDs) α=0.006
MW-15A n=11 NP(NDs) α=0.006
MW-19A n=11 NP(NDs) α=0.006

Constituent: Lead   Analysis Run 10/10/2018 6:11 PM   View: Confidence Intervals - App IV

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water
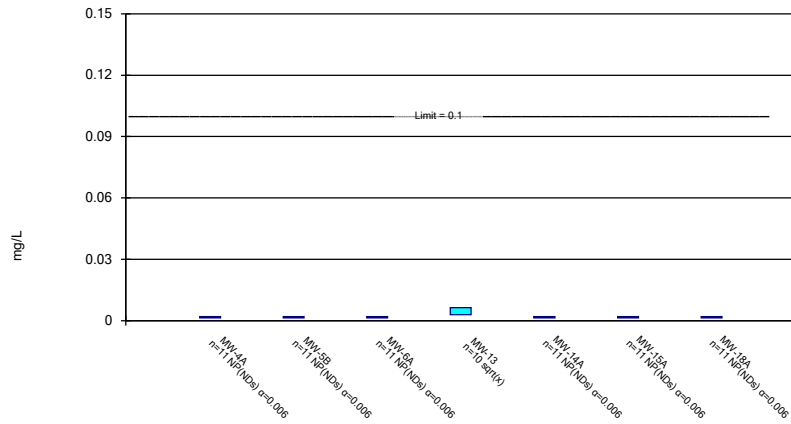
Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.

mg/L

Limit = 0.04

MW-4A n=11 NP(NDs) α=0.006
MW-5B n=11 NP(NDs) α=0.006
MW-6A n=11 NP(NDs) α=0.006
MW-13 n=12 NP(NDs)
MW-14A n=11 NP(NDs) α=0.006
MW-15A n=11 NP(NDs) α=0.006
MW-19A n=11 NP(NDs) α=0.006

Constituent: Lithium   Analysis Run 10/10/2018 6:11 PM   View: Confidence Intervals - App IV

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

mg/L

Limit = 0.002

MW-4A n=11 NP(NDs) α=0.006
MW-5B n=11 NP(NDs) α=0.006
MW-6A n=11 NP(NDs) α=0.006
MW-13 n=11 NP(NDs) α=0.006
MW-14A n=11 NP(NDs) α=0.006
MW-15A n=11 NP(NDs) α=0.006
MW-19A n=10 NP(NDs) α=0.011

Constituent: Mercury   Analysis Run 10/10/2018 6:11 PM   View: Confidence Intervals - App IV

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

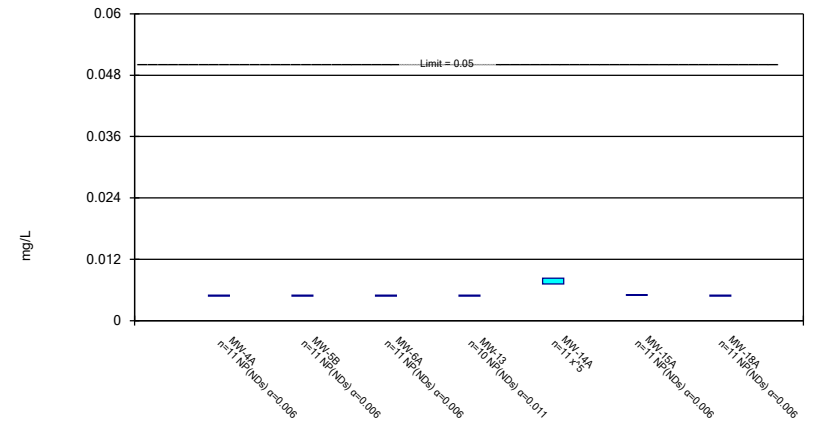## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.

Constituent: Molybdenum   Analysis Run 10/10/2018 6:11 PM   View: Confidence Intervals - App IV

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.

Constituent: Selenium   Analysis Run 10/10/2018 6:11 PM   View: Confidence Intervals - App IV

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.
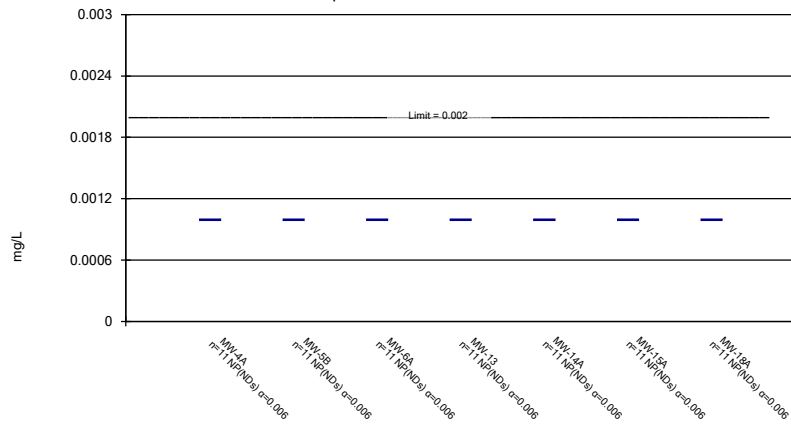
Constituent: Thallium   Analysis Run 10/10/2018 6:11 PM   View: Confidence Intervals - App IV

Muscatine Power & Water   Client: HR Green, Inc.   Data: Muscatine Power & Water