

## **Purpose of Statistical Analysis Summary Report**

During the initial phase of ground water monitoring, the CCR rule requires AEP to collect at least eight independent samples from at least one up-gradient and three downgradient wells for 21 substances listed in the CCR rule. The CCR rule also requires us to select a statistical method that will be used to evaluate the samples in the later phases of the ground water monitoring program. The Statistical Plan, which has been posted to AEP's CCR website, describes the methods selected by AEP. *See AEP's Statistical Analysis Plans.*

Each **Statistical Analysis Summary Report** is based on the results of the 8 independent samples that were collected by October 17, 2017, and reported in the Annual Groundwater Monitoring Report. Using the statistical methods chosen by AEP, the samples were evaluated to eliminate outliers, determine variability and general trends in the data, and establish background values for: boron, calcium chloride, fluoride, pH, sulfate, and total dissolved solids. Appendix IV substances were evaluated for purposes of identifying outliers and understanding data trends.

A subsequent sample taken during the first detection monitoring sampling event was also compared using the proper statistical methods to the background values that were established for these seven substances from the eight independent samples. A second or third re-sampling event occurred, and the results compared using the same methods. This work is reported in the memorandum included in attachment A. If confirmed, AEP will be required to enter the next phase of monitoring. The results of future sampling will be further analyzed to target any specific substances for which ongoing monitoring or potential corrective action is required.

# STATISTICAL ANALYSIS SUMMARY

## BOTTOM ASH PONDS

### Rockport Plant

### Rockport, Indiana

*Submitted to*



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## **LIST OF ACRONYMS AND ABBREVIATIONS**

AEP	American Electric Power
ANOVA	Analysis of Variance
BAPs	Bottom Ash Ponds
CCR	Coal Combustion Residuals
CCV	Continuing Calibration Value
CFR	Code of Federal Regulations
EPA	Environmental Protection Agency
LFB	Laboratory Fortified Blank
LPL	Lower Prediction Limit
LRB	Laboratory Reagent Blank
NELAP	National Environmental Laboratory Accreditation Program
PQL	Practical Quantitation Limit
QA	Quality Assurance
QC	Quality Control
SSI	Statistically Significant
SWFPR	Site-Wide False-Positive Rate
TDS	Total Dissolved Solids
UPL	Upper Prediction Limit
USEPA	United States Environmental Protection Agency

## **SECTION 1**

### **EXECUTIVE SUMMARY**

In accordance with the United States Environmental Protection Agency's (USEPA's) regulations regarding the disposal of coal combustion residuals (CCR) in landfills and surface impoundments (40 CFR 257.90-257.98, "CCR rule"), groundwater monitoring has been conducted at the Bottom Ash Ponds (BAPs), an existing CCR unit at the Rockport Power Plant located in Rockport, Indiana.

Eight monitoring events were completed prior to October 17, 2017, to establish background concentrations for Appendix III and Appendix IV parameters under the CCR rule. Groundwater data underwent several validation tests, including those for completeness, sample tracking accuracy, transcription errors, and consistent use of measurement units. No data quality issues were identified which would impact the usability of the data.

The monitoring data were submitted to Groundwater Stats Consulting, LLC for statistical analysis. The background data were reviewed for outliers, which were removed (when appropriate) prior to calculating upper prediction limits (UPLs) for each Appendix III parameter to represent background values. Oversight on the use of statistical calculations was provided by Dr. Kirk Cameron of MacStat Consulting, Ltd.

A detection monitoring event was completed on October 3 and 4, 2017 at the BAPs. The results of this detection monitoring event are included in this report.

## SECTION 2

### BOTTOM ASH PONDS EVALUATION

#### 2.1 Data Validation & QA/QC

During the background monitoring program, eight sets of samples were collected for analysis from each upgradient and downgradient well. A summary of data collected during background and detection monitoring sampling may be found in Table 1.

Chemical analysis was completed by an analytical laboratory certified by the National Environmental Laboratory Accreditation Program (NELAP). Quality assurance and quality control (QA/QC) samples completed by the analytical laboratory included the use of laboratory reagent blanks (LRBs), continuing calibration verification (CCV) samples, and laboratory fortified blanks (LFBs).

The analytical data were imported into a Microsoft Access database, where checks were completed to assess the accuracy of sample location identification and analyte identification. Where necessary, unit conversions were applied to standardize reported units across all sampling events. Exported data files were created for use with the Sanitas™ v.9.5.32 statistics software. The export was checked against the analytical data for transcription errors and completeness. No QA/QC issues were noted which would impact data usability.

#### 2.2 Statistical Analysis

The background data used to conduct the statistical analyses and the detection monitoring data are summarized in Table 1. Statistical analyses for the BAPs were conducted in accordance with the January 2017 *Statistical Analysis Plan* (AEP, 2017), except where noted below. The complete statistical analysis results are included in Attachment A.

Time series plots of Appendix III and IV parameters are included in Attachment A. Mann-Kendall analyses ( $\alpha = 0.01$ ) were conducted to evaluate trends in the background data. The following trends were observed:

- Arsenic was found to be significantly increasing at upgradient wells MW-1601I and MW-1601D.
- Barium was found to be significantly decreasing at upgradient well MW-1600S.
- Boron was found to be significantly decreasing at downgradient well MW-1002.
- Chloride was found to be significantly decreasing at upgradient well MW-1601S and downgradient wells MW-1602I and MW-1604D.

- Cobalt was found to be significantly decreasing at upgradient well MW-1601D and downgradient well MW-1606D.
- Combined radium 226 + 228 was found to be significantly decreasing at downgradient well MW-1606I.
- Fluoride was found to be significantly decreasing at downgradient wells MW-1002 and MW-1602I.
- Molybdenum was found to be significantly decreasing at downgradient wells MW-1602I and MW-1603S.
- Sulfate was found to be significantly decreasing at downgradient wells MW-1603D and MW-1604D.

No other significant increasing or decreasing trends were observed for other parameters or at other monitoring wells.

### 2.2.1 Background Outlier Evaluation

Potential outliers were identified using Tukey's outlier test; i.e., data points were considered potential outliers if they met one of the following criteria:

$$x_i < \tilde{x}_{0.25} - 3 \times IQR \quad (1)$$

or

$$x_i > \tilde{x}_{0.75} + 3 \times IQR \quad (2)$$

where:

$$\begin{aligned} x_i &= \text{individual data point} \\ \tilde{x}_{0.25} &= \text{first quartile} \\ \tilde{x}_{0.75} &= \text{third quartile} \\ IQR &= \text{the interquartile range} = \tilde{x}_{0.75} - \tilde{x}_{0.25} \end{aligned}$$

Upgradient well data were first pooled and Tukey's outlier test was performed on the pooled dataset. For the downgradient wells, Tukey's outlier test was applied individually to each downgradient well.

Data that were evaluated as potential outliers are summarized in Attachment A. Tukey's outlier test indicated 23 potential outliers, which are summarized in Table 2. Next, the data were reviewed to identify possible sources of errors or discrepancies, including data recording errors, unusual



sampling conditions, laboratory quality, or inconsistent sample turbidity. The findings of this data review are summarized below.

For three outliers (boron, calcium, and lithium), the primary sample concentrations reported for MW-1605S on June 7, 2016 were replaced with the reported concentrations for a duplicate sample also collected from MW-1605S on this sampling date. The statistical analysis was rerun using the duplicate results, which were considered more representative based on the reported concentrations from the other background sampling events.

The reported value of 0.13 µg/L for antimony at MW-1604S for the sample collected on July 20, 2016 was also identified as an outlier. A review of the field documentation showed that an equipment blank was collected prior to sampling at this location, with a reported antimony concentration of 0.20 µg/L. The reported concentration of antimony at MW-1605S may have been biased high due to contamination from the sampling equipment and was removed from the dataset.

Seven potential pH outliers were identified for the field parameters reported during the July 17, 2017 sampling. The frequency of the potential outliers suggests that the elevated pH values were likely due to a field instrument error and the values were removed from the dataset. The removal of the three upgradient pH outliers at MW-16001I, MW-1600S, and MW-1601I resulted in the generation of more conservative (i.e., lower) background values. The removal of the downgradient pH outliers did not affect the calculation of the background levels presented below.

Two values for thallium were identified as potential outliers at MW-1603D. One value was estimated below the reporting limit (i.e., J-flagged) and the other value was detected slightly above the reporting limit. Since the dataset was 50% non-detect data, both potential outliers were considered representative of aquifer conditions at MW-1603D and were retained in the dataset.

The remaining ten potential outliers, which did not have an apparent reason for their elevated values were removed. Because these outliers were associated downgradient monitoring wells and either Appendix IV parameters or Appendix III parameters for which interwell tests were being performed, their removal did not affect the calculation of background levels presented below.

### **2.2.2 Establishment of Background Levels**

ANOVA was conducted to determine whether spatial variation was present among the six upgradient wells (Attachment A). Significant variation was observed for all Appendix III parameters. Therefore, the appropriateness of using intrawell tests was evaluated for the Appendix III parameters at the Rockport BAPs.

Intrawell tests presume that the groundwater quality in the downgradient wells was not initially impacted by the CCR unit. To test this presumption, the data from the upgradient wells were pooled, and the data from each downgradient well were compared to a pooled background value. Tolerance limits were calculated using the pooled background data for each Appendix III

parameter. Parametric tolerance limits with 99% confidence and 95% coverage were calculated for boron, calcium, chloride, pH, sulfate, and TDS; non-parametric tolerance limits were calculated for fluoride, given the greater spatial variability observed for fluoride. Confidence intervals were calculated for each Appendix III parameter at each downgradient monitoring well. If the lower confidence limit from a downgradient well exceeded the upper tolerance limit for the pooled background data, it was concluded that downgradient groundwater concentrations were above background concentrations. In these instances, intrawell tests would not be appropriate. However, these analyses indicated no significant exceedances for calcium and pH; elevated concentrations of boron, chloride, fluoride, sulfate, and TDS were observed. (Non-parametric analyses also indicated no significant exceedances for calcium and pH and elevated concentrations of boron, chloride, sulfate, and TDS in downgradient wells.) Therefore, intrawell tests were used to evaluate potential statistically significant increases (SSIs) for calcium and pH. Interwell tests were used to evaluate potential SSIs for boron, chloride, fluoride, sulfate, and TDS.

After equality of variance was tested and identified outliers were removed (where appropriate), a parametric or non-parametric analysis was selected based on the distribution of the data and the frequency of non-detect data. Estimated results less than the practical quantitation limit (PQL) – i.e., “J-flagged” data – were considered detections and the estimated results were used in the statistical analyses. Non-parametric analyses were selected for datasets with at least 50% non-detect data or datasets that could not be normalized. Parametric analyses were selected for datasets (either transformed or untransformed) that passed the Shapiro-Wilk / Shapiro-Francia test for normality. The Kaplan-Meier non-detect adjustment was applied to datasets with between 15% and 50% non-detect data. For datasets with fewer than 15% non-detect data, non-detect data were replaced with one half of the PQL. The selected transformation (where applicable) for each background dataset is shown in Attachment A.

Upper prediction limits (UPLs) were calculated for each Appendix III parameter to represent background values. A lower prediction limit (LPL) was also calculated for pH. To conduct the intrawell tests for calcium and pH, a separate prediction interval was calculated for each downgradient well. To conduct the interwell tests for boron, chloride, fluoride, sulfate, and TDS, a single prediction interval was calculated for each of these parameters using pooled data from the six upgradient wells. The background data used for the UPL calculations are summarized in Table 1; the calculated UPLs are summarized in Table 3.

Although a significant decreasing trend in chloride concentrations was observed at upgradient well MW-1601S, the UPL was calculated as if no trend were present; i.e., background data were pooled, and the dataset was not limited to more recent data nor was the prediction interval constructed around a trendline. This was done because the rate of change at MW-1601S is low relative to absolute chloride concentrations at MW-1601S. The possibility of an ongoing decrease and the need for truncating the dataset for chloride at MW-1601S will be reevaluated after additional data are collected.

Intrawell UPLs for calcium and pH were calculated for a one-of-three retesting procedure, and interwell UPLs for the other Appendix III parameters were calculated for a one-of-two retesting procedure; i.e., if at least one sample in a series of three or two (respectively) does not exceed the UPL, then it can be concluded that an SSI has not occurred. In practice, where initial results did not exceed the UPL, a second (or third) sample was not collected. The retesting procedures allowed achieving an acceptably high statistical power while maintaining a site-wide false-positive rate (SWFPR) of 10% per year or less. Power curves were constructed for the interwell and intrawell parametric tests and are compared with the EPA Reference Power Curve in Attachment A. The power curve associated with the interwell statistical tests for the BAPs exceed the EPA Reference Power Curve at 3 and 4 standard deviations; this is considered a “good” level of statistical power according to USEPA’s *Unified Guidance* (USEPA, 2009). The power curve associated with the intrawell statistical tests for the BAPs exceed the EPA Reference Power Curve at 4 standard deviations; this is considered an “acceptable” level of statistical power according to USEPA’s *Unified Guidance* (USEPA, 2009).

### 2.2.3 Certification by Qualified Professional Engineer

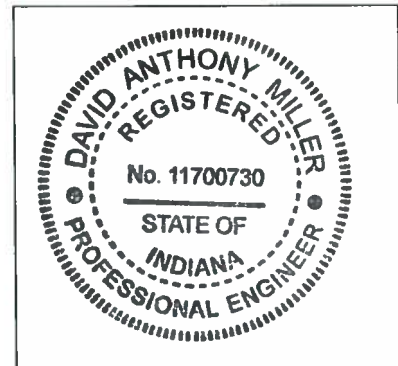
I certify that the selected and above described statistical method is appropriate for evaluating the groundwater monitoring data for the Rockport Bottom Ash Ponds CCR management area and that the requirements of 40 CFR 257.93(f) have been met.

DAVID ANTHONY MILLER

Printed Name of Licensed Professional Engineer

David Anthony Miller

Signature



11700730

License Number

INDIANA

Licensing State

02.27.18

Date

### **2.3    Conclusions**

Eight background monitoring events and one detection monitoring event were completed in accordance with the CCR Rule. The laboratory and field data were reviewed prior to statistical analysis, with no QA/QC issues identified that impacted data usability. A review of outliers identified 23 potential outliers, with three values replaced with duplicate sample results and 18 values removed from the dataset without replacement. Prediction intervals were constructed based on the remaining background data and a one-of-two or one-of-three retesting procedure. Interwell tests were selected for boron, chloride, fluoride, sulfate, and TDS, whereas intrawell tests were selected for calcium and pH.

### **SECTION 3**

#### **REFERENCES**

American Electric Power (AEP). 2017. Statistical Analysis Plan – Rockport Plant. January 2017.

United States Environmental Protection Agency (USEPA). 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance. EPA 530/R-09-007. March 2009.

# TABLES

Table 1: Groundwater Data Summary  
Rockport Plant - Bottom Ash Pond

Geosyntec Consultants, Inc.

Parameter	Unit	MW-1002									MW-1600D								
		6/7/2016	7/18/2016	9/20/2016	11/15/2016	1/9/2017	3/7/2017	5/8/2017	7/17/2017	10/3/2017	6/8/2016	7/19/2016	9/19/2016	11/16/2016	1/10/2017	3/7/2017	5/8/2017	7/17/2017	10/3/2017
		Background									Background								
Antimony	µg/L	0.05	0.05	0.04J	0.06	0.05J	0.05	0.05	0.04J		0.01J	0.02J	0.01J	0.05U	0.05U	0.05U	0.05	0.03J	
Arsenic	µg/L	0.32	0.29	0.24	0.24	0.25	0.2	0.24	0.21		15.4	17.2	15.1	15.8	15.2	16.2	15.9	15	
Barium	µg/L	12.3	14.2	18.5	23.5	26.9	35.6	26.8	21.4		940	946	910	997	877	986	914	817	
Beryllium	µg/L	0.02U	0.02U	0.02U	0.006J	0.02U	0.02U	0.02	0.02U		0.006J	0.005J	0.02U	0.02U	0.02U	0.02U	0.02	0.004J	
Boron	mg/L	1.77	1.7	1.57	1.67	1.57	1.32	1.04	1.28	1.63	0.016	0.015	0.005U	0.024	0.014	0.036	0.037	0.038	0.04
Cadmium	µg/L	0.02	0.03	0.03	0.15	0.04	0.07	0.05	0.03		0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02	0.02U	
Calcium	mg/L	33.2	32.3	40.1	49.4	55.6	76.3	78.1	50	36.4	83.5	74.9	85.6	83.1	87.8	84.9	89.1	73.6	78.3
Chloride	mg/L	58.9	57.8	54	53	59	81.1	75.5	59.9	54.4	31.5	32.2	30.9	30.9	31	31.6	32.6	31.6	31.5
Chromium	µg/L	0.3	0.7	0.1	0.075	0.078	0.331	0.177	0.107		0.2	0.2	0.9	0.128	0.115	0.427	0.17	0.18	
Cobalt	µg/L	0.83	0.931	0.699	0.664	0.692	0.568	0.526	0.665		0.109	0.094	0.071	0.085	0.1	0.081	0.096	0.112	
Combined Radium	pCi/L	0.1116	0.741	1.377	0.686	1.052	0.483	0.305	3.029		2.148	1.615	1.636	1.402	2.265	1.322	1.104	2.223	
Fluoride	mg/L	1.05	1.03	0.98	0.87	0.74	0.73	0.73	0.73	0.8	0.2	0.22	0.2	0.17	0.22	0.19	0.21	0.17	0.2
Lead	µg/L	0.034	0.026	0.01J	0.031	0.022	0.163	0.037	0.02J		0.095	0.021	0.02	0.064	0.053	0.038	0.073	0.076	
Lithium	mg/L	0.002	0.016	0.004	0.01	0.006	0.003	0.009	0.009		0.001U	0.02	0.011	0.008	0.009	0.008	0.006	0.009	
Mercury	µg/L	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005	0.005U		0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005	0.005U	
Molybdenum	µg/L	1.92	2.54	3.38	2.47	3.16	2.69	2.69	3.05		1.94	2.19	1.75	1.79	1.65	1.78	1.64	1.56	
Selenium	µg/L	0.08J	0.1J	0.1J	0.08J	0.06J	0.1J	0.1	0.07J		0.1U	0.05J	0.1U	0.04J	0.1U	0.05J	0.1	0.04J	
Total Dissolved Solids	mg/L	390	385	399	405	440	503	498	430	403	444	413	385	415	384	374	402	389	398
Sulfate	mg/L	149	154	164	178	190	228	215	184	166	43.9	44.9	38.7	35.9	42.5	39.2	38.4	40.1	40.8
Thallium	µg/L	0.02J	0.03J	0.02J	0.04J	0.03J	0.04J	0.05	0.04J		0.01J	0.054	0.01J	0.05U	0.05U	0.05U	0.05	0.05U	
pH	SU	6.95	7.07	6.78	6.52	6.25	6.5	6.7	6.65	7.1	7.56	7.19	7.13	7.24	7.14	7.04	6.54	6.54	7.25

Notes:  
mg/L: milligrams per liter  
µg/L: micrograms per liter  
pCi/L: picocuries per liter  
SU: standard unit  
U: Component was not present in concentrations above method detection limit and is reported as the reporting limit  
J: Estimated value. Component was detected in concentrations below the reporting limit  
-: Not sampled

Table 1: Groundwater Data Summary  
Rockport Plant - Bottom Ash Pond

Geosyntec Consultants, Inc.

Parameter	Unit	MW-1600I									MW-1600S								
		6/8/2016	7/19/2016	9/19/2016	11/16/2016	1/10/2017	3/7/2017	5/8/2017	7/17/2017	10/3/2017	6/8/2016	7/19/2016	9/19/2016	11/16/2016	1/10/2017	3/7/2017	5/8/2017	7/17/2017	10/3/2017
		Background									Detection	Background							
Antimony	µg/L	0.05J	0.03J	0.03J	0.03J	0.02J	0.02J	0.05	0.02J		0.02J	0.02J	0.02J	0.04J	0.02J	0.03J	0.05	0.02J	
Arsenic	µg/L	15.9	17.9	16	16.3	16.7	16.8	17	16.8		0.67	0.67	0.58	0.75	0.65	0.7	0.65	0.61	
Barium	µg/L	832	805	778	801	736	696	762	710		36.1	37.9	30.9	32.9	29.3	30.5	26.9	26.1	
Beryllium	µg/L	0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02	0.02U		0.02U	0.02U	0.02U	0.008J	0.006J	0.008J	0.02	0.006J	
Boron	mg/L	0.019	0.019	0.004J	0.031	0.016	0.049	0.033	0.046	0.051	0.045	0.045	0.026	0.061	0.034	0.129	0.039	0.068	0.049
Cadmium	µg/L	0.005J	0.02U	0.01J	0.01J	0.02U	0.02J	0.02	0.02U		0.02J	0.02J	0.01J	0.03	0.01J	0.02J	0.02	0.02J	
Calcium	mg/L	79.2	76	77.6	76	76.5	75.5	80.2	71.5	71.1	69.8	67	63.2	63.5	68.5	63.2	69	58	61.4
Chloride	mg/L	33.5	26.7	24.9	24.5	23.7	26.4	25	24.4	24.4	32	29.9	21.3	27.1	23.7	25	26	18	27.8
Chromium	µg/L	0.4	0.3	0.2	0.081	0.158	0.27	0.095	0.397		0.2	0.4	0.2	0.284	0.892	0.459	0.163	0.302	
Cobalt	µg/L	1.27	1.38	1.13	1.14	1.2	1.13	1.26	1.27		0.243	0.099	0.129	0.69	0.306	0.587	0.398	0.441	
Combined Radium	pCi/L	7.25	1.902	1.55	2.47	0.9137	1.624	1.75	2.009		0.149	0.52826	0.0715	0.1634	1.8182	1.697	0.305	0.117	
Fluoride	mg/L	0.23	0.23	0.21	0.17	0.19	0.2	0.22	0.17	0.21	0.33	0.34	0.32	0.28	0.32	0.37	0.4	0.36	0.37
Lead	µg/L	0.107	0.099	0.037	0.01J	0.006J	0.054	0.02	0.108		0.118	0.048	0.087	0.36	0.151	0.319	0.195	0.233	
Lithium	mg/L	0.003	0.01	0.01	0.013	0.005	0.005	0.011	0.01		0.003	0.038	0.019	0.024	0.016	0.013	0.019	0.019	
Mercury	µg/L	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005	0.005U		0.002J	0.005U	0.005U	0.005U	0.005U	0.005U	0.005	0.005U	
Molybdenum	µg/L	1.68	1.83	1.89	1.63	1.64	1.67	1.54	1.53		0.61	0.56	0.56	0.64	0.6	0.66	0.56	0.74	
Selenium	µg/L	0.1U	0.03J	0.06J	0.1U	0.1U	0.04J	0.1	0.1U		0.5	0.3	0.3	0.4	0.4	0.5	0.5	0.5	
Total Dissolved Solids	mg/L	442	423	404	408	394	392	406	398	400	491	448	408	426	433	402	427	393	430
Sulfate	mg/L	52.2	55.3	48.4	44.5	45.8	49.2	48.5	48	50.7	75.8	76	60.8	54.4	53.1	58.5	54.6	41	54.9
Thallium	µg/L	0.02J	0.05U	0.065	0.02J	0.02J	0.03J	0.05	0.02J		0.05U	0.01J	0.02J	0.04J	0.01J	0.01J	0.05	0.02J	
pH	SU		7.33	7.17	7.23	7.09	7.2	6.81	9.29	7.25	6.62	6.75	6.43	6.77	6.47	6.8	6.55	9.46	6.76

Notes:  
mg/L: milligrams per liter  
µg/L: micrograms per liter  
pCi/L: picocuries per liter  
SU: standard unit  
U: Component was not present in concentrations above method detection limit and is reported as the reporting limit  
J: Estimated value. Component was detected in concentrations below the reporting limit  
-: Not sampled



Table 1: Groundwater Data Summary  
Rockport Plant - Bottom Ash Pond

Geosyntec Consultants, Inc.

Parameter	Unit	MW-1601D									MW-1601I								
		6/27/2016	7/19/2016	9/20/2016	11/16/2016	1/10/2017	3/7/2017	5/9/2017	7/17/2017	10/4/2017	6/8/2016	7/19/2016	9/20/2016	11/16/2016	1/10/2017	3/7/2017	5/9/2017	7/17/2017	10/4/2017
		Background									Background								
Antimony	µg/L	0.03J	0.02J	0.01J	0.02J	0.05U	0.05U	0.05	0.05U		0.02J	0.02J	0.02J	0.02J	0.01J	0.03J	0.05	0.02J	
Arsenic	µg/L	6.04	8.2	8.59	9.2	8.95	9.32	9.47	9.38		11.4	14.6	14.9	16.2	16.2	16.9	17.9	18	
Barium	µg/L	491	540	602	616	527	582	583	532		612	620	681	689	605	650	634	613	
Beryllium	µg/L	0.024	0.02U	0.02U	0.02U	0.02U	0.02U	0.02	0.02U		0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02	0.02U	
Boron	mg/L	0.038	0.035	0.026	0.035	0.029	0.055	0.038	0.09	0.044	0.024	0.023	0.043	0.026	0.018	0.029	0.079	0.039	0.088
Cadmium	µg/L	0.12	0.01J	0.02U	0.01J	0.02U	0.02U	0.02	0.006J		0.02U	0.02U	0.02U	0.007J	0.02U	0.02U	0.02	0.02U	
Calcium	mg/L	79.7	89	87	89.5	90.7	85.2	90.8	77.7	86.8	84.9	84.1	85.2	91.6	92.6	84	90	82	77.5
Chloride	mg/L	21.8	18.9	22.6	21.8	19.5	28.7	22.5	21.3	17.9	26.3	33.3	32.3	31.7	31.3	32.5	33.1	32	31.6
Chromium	µg/L	0.8	0.4	0.2	0.089	0.293	0.417	0.121	0.129		0.1	0.9	0.2	0.11	0.387	0.267	0.156	0.16	
Cobalt	µg/L	1.36	0.502	0.224	0.174	0.197	0.148	0.152	0.103		1.84	1.98	1.68	1.68	1.58	1.59	1.69	1.74	
Combined Radium	pCi/L	1.116	2.248	1.732	0.946	1.929	0.868	0.983	3.139		1.432	1.036	2.329	1.451	0.993	0.986	1.064	1.276	
Fluoride	mg/L	0.22	0.22	0.17	0.15	0.19	0.17	0.17	0.17	0.16	0.21	0.25	0.22	0.19	0.19	0.22	0.21	0.19	0.2
Lead	µg/L	1.05	0.031	0.01J	0.022	0.006J	0.021	0.026	0.031		0.042	0.045	0.02J	0.03	0.02J	0.07	0.052	0.042	
Lithium	mg/L	0.003	0.005	0.001U	0.015	0.004	0.004	0.008	0.006		0.003	0.004	0.008	0.002	0.007	0.01	0.014	0.011	
Mercury	µg/L	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005	0.005U		0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005	0.005U	
Molybdenum	µg/L	2.54	3.96	3.08	3.14	3.1	2.66	2.84	2.67		2.8	2.81	2.53	2.36	2.24	2.74	2.23	2.13	
Selenium	µg/L	0.1	0.07J	0.1U	0.1U	0.1U	0.1U	0.1	0.1U		0.1U	0.1U	0.1U	0.1U	0.1U	0.06J	0.1	0.1U	
Total Dissolved Solids	mg/L	460	412	410	413	407	392	399	393	390	419	430	432	434	429	427	422	418	428
Sulfate	mg/L	21.9	18.9	20.4	18	20.3	25.4	21.3	21.4	18.8	54	54	49.1	46.7	47.7	48.5	49.1	49.9	51.8
Thallium	µg/L	0.01J	0.055	0.05U	0.04J	0.05U	0.05U	0.05	0.05U		0.05U	0.05U	0.01J	0.02J	0.02J	0.03J	0.05	0.02J	
pH	SU	7.47	7.36	7.19	7.35	6.78	7.07	6.7	6.8	7.29	7.44	7.18	7.1	7.2	6.71	7.08	6.83	9.45	6.8

Notes:  
mg/L: milligrams per liter  
µg/L: micrograms per liter  
pCi/L: picocuries per liter  
SU: standard unit  
U: Component was not present in concentrations above method detection limit and is reported as the reporting limit  
J: Estimated value. Component was detected in concentrations below the reporting limit  
-: Not sampled

Table 1: Groundwater Data Summary  
Rockport Plant - Bottom Ash Pond

Geosyntec Consultants, Inc.

Parameter	Unit	MW-1601S									MW-1602D								
		6/8/2016	7/19/2016	9/20/2016	11/16/2016	1/10/2017	3/7/2017	5/8/2017	7/17/2017	10/4/2017	6/7/2016	7/18/2016	9/20/2016	11/15/2016	1/9/2017	3/7/2017	5/8/2017	7/17/2017	10/3/2017
		Background									Detection	Background							
Antimony	µg/L	0.02J	0.02J	0.02J	0.03J	0.05J	0.02J	0.05	0.05		0.02J	0.01J	0.02J	0.03J	0.01J	0.01J	0.05	0.01J	
Arsenic	µg/L	1.9	2.12	1.99	2	2	2.25	2.02	2.7		7.35	8.54	8.24	8.32	7.92	8.04	9.08	8.51	
Barium	µg/L	49.4	47.7	41.6	39	43.5	50.7	42.6	70		380	507	487	585	503	458	436	419	
Beryllium	µg/L	0.006J	0.02U	0.02U	0.02U	0.02U	0.02U	0.02	0.01J		0.02U	0.02U	0.02U	0.01J	0.02U	0.02U	0.02	0.005J	
Boron	mg/L	0.108	0.106	0.094	0.1	0.113	0.098	0.092	0.077	0.113	0.058	0.065	0.047	0.078	0.084	0.076	0.073	0.091	0.064
Cadmium	µg/L	0.01J	0.007J	0.006J	0.01J	0.03	0.01J	0.02	0.03		0.02U	0.02U	0.02U	0.02	0.02U	0.02U	0.07	0.02U	
Calcium	mg/L	76.9	71.8	74.2	78.2	78.5	79.2	86.7	76.8	73.5	69.7	77.6	71.7	78	75.3	66.8	71.9	64.6	68.3
Chloride	mg/L	45.9	46.4	43.5	42.3	42	41.1	41.9	41.7	40.9	138	166	172	177	178	158	124	112	135
Chromium	µg/L	0.2	0.6	0.2	0.123	0.279	1.52	0.192	1.05		0.3	0.5	0.2	0.338	0.187	0.395	0.232	0.268	
Cobalt	µg/L	0.957	0.478	0.381	0.274	0.52	0.98	0.411	2.67		0.227	0.166	0.116	0.248	0.112	0.106	0.115	0.11	
Combined Radium	pCi/L	0.788	1.26	0.4671	0.1634	0.717	0.1969	0.3203	1.812		1.147	2.43	1.128	4.204	0.976	0.705	0.5884	1.349	
Fluoride	mg/L	0.34	0.36	0.33	0.26	0.28	0.3	0.31	0.25	0.29	0.36	0.34	0.3	0.33	0.34	0.31	0.31	0.26	0.29
Lead	µg/L	0.22	0.114	0.127	0.084	0.247	0.348	0.119	0.807		0.061	0.02J	0.022	0.195	0.01J	0.029	0.056	0.036	
Lithium	mg/L	0.001U	0.024	0.005	0.009	0.006	0.01	0.01	0.012		0.001	0.022	0.007	0.012	0.005	0.004	0.007	0.003	
Mercury	µg/L	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005	0.003J		0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005	0.005U	
Molybdenum	µg/L	2.17	1.91	1.4	2.17	1.61	1.49	1.24	1.46		4.69	3.89	3.31	3.31	3.36	3.88	3.93	3.6	
Selenium	µg/L	1.3	1.3	1.3	1.3	1.4	1.4	1.7	1.8		0.03J	0.1U	0.03J	0.05J	0.1U	0.05J	0.1	0.1U	
Total Dissolved Solids	mg/L	440	415	442	442	424	413	389	443	441	528	574	580	601	594	586	520	472	518
Sulfate	mg/L	39.2	40.1	37.6	36.4	35.9	42.5	44	40.5	41.6	20.5	18.5	12.9	17.4	11.4	14.5	16.1	17.5	16
Thallium	µg/L	0.05J	0.05U	0.03J	0.03J	0.104	0.01J	0.05	0.04J		0.05U	0.05U	0.05U	0.066	0.02J	0.02J	0.05	0.05U	
pH	SU	7.55	7.19	7.22	7.21	6.84	7.19	6.75	6.56	7.31	5.12	8.23	7.78	7.12	7.31	7.33	7.01	6.95	7.35

Notes:  
mg/L: milligrams per liter  
µg/L: micrograms per liter  
pCi/L: picocuries per liter  
SU: standard unit  
U: Component was not present in concentrations above method detection limit and is reported as the reporting limit  
J: Estimated value. Component was detected in concentrations below the reporting limit  
-: Not sampled

Table 1: Groundwater Data Summary  
Rockport Plant - Bottom Ash Pond

Geosyntec Consultants, Inc.

Parameter	Unit	MW-1602I									MW-1603D								
		6/7/2016	7/18/2016	9/20/2016	11/15/2016	1/9/2017	3/7/2017	5/8/2017	7/17/2017	10/3/2017	6/8/2016	7/18/2016	10/10/2016	11/15/2016	1/9/2017	3/7/2017	5/8/2017	7/17/2017	10/3/2017
		Background									Detection	Background							
Antimony	µg/L	0.02J	0.02J	0.02J	0.03J	0.02J	0.03J	0.14	0.05		0.01J	0.02J	0.09	0.03J	0.01J	0.01J	0.05	0.02J	
Arsenic	µg/L	16.5	18.7	15.5	18.2	18.3	20	25.5	27.3		10.2	11	9.91	11.3	11.3	11.3	11.3	12.1	
Barium	µg/L	135	145	123	136	126	122	123	127		112	120	122	113	111	108	103	114	
Beryllium	µg/L	0.02U	0.02U	0.02U	0.02U	0.02U	0.005J	0.02	0.006J		0.02U	0.02U	0.049	0.04U	0.02U	0.02U	0.02	0.02U	
Boron	mg/L	0.047	0.043	0.037	0.057	0.039	0.061	0.108	0.052	0.065	0.073	0.074	0.065	0.062	0.055	0.061	0.082	0.08	0.054
Cadmium	µg/L	0.005J	0.006J	0.02U	0.006J	0.02U	0.02U	0.02	0.006J		0.02U	0.007J	0.03	0.01J	0.009J	0.02U	0.02	0.02U	
Calcium	mg/L	78.6	81.1	79.9	87.6	80.6	71.1	79.7	68.8	69.2	70.8	79.6	81.2	90.5	91.9	86.8	91.1	80.4	79.4
Chloride	mg/L	33	32.3	30.2	28.7	27.8	27.5	27.6	27.1	27.5	26.7	26.7	26	25.5	25.1	26.1	26.3	25.9	26.2
Chromium	µg/L	0.2	0.2	0.2	0.075	0.161	0.484	0.459	0.193		0.2	0.3	23.8	0.08J	0.143	0.22	0.238	0.112	
Cobalt	µg/L	1.35	1.7	1.34	1.44	1.38	1.43	1.69	1.52		1.34	1.3	2.01	0.703	0.584	0.553	0.586	0.525	
Combined Radium	pCi/L	0.983	1.526	1.421	1.19	0.7655	0.845	1.024	0.8024		1.206	0.66	0.954	1.275	0.343	0.838	0.982	1.696	
Fluoride	mg/L	0.32	0.3	0.28	0.29	0.26	0.27	0.28	0.23	0.26	0.31	0.33	0.32	0.3	0.26	0.29	0.27	0.24	0.26
Lead	µg/L	0.096	0.074	0.045	0.02J	0.045	0.178	0.292	0.167		0.02J	0.01J	1.38	0.02J	0.029	0.024	0.068	0.006J	
Lithium	mg/L	0.003	0.006	0.006	0.015	0.003	0.009	0.009	0.01		0.003	0.008	0.007	0.011	0.012	0.007	0.006	0.008	
Mercury	µg/L	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005	0.005U		0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005	0.005U	
Molybdenum	µg/L	2.61	2.68	2.31	2.13	2.23	2.21	2.08	2.01		6.7	6.39	6.82	5.02	4.98	5.11	4.78	4.68	
Selenium	µg/L	0.1U	0.03J	0.05J	0.04J	0.1U	0.06J	0.1	0.1U		0.1U	0.04J	0.3	0.2U	0.1U	0.04J	0.1	0.1U	
Total Dissolved Solids	mg/L	424	452	412	457	420	388	430	421	414	433	430	406	399	401	392	417	400	393
Sulfate	mg/L	84.1	89.4	77.7	85.3	77.6	77.8	78.4	76.3	80.8	59	55.3	47.2	50.6	49.7	47.7	47.1	45.9	44.6
Thallium	µg/L	0.05U	0.01J	0.01J	0.03J	0.02J	0.02J	0.05	0.04J		0.05U	0.068	0.04J	0.1U	0.05U	0.02J	0.05	0.05U	
pH	SU	7.07	7.38	7.31	7.07	7.36	7.27	6.93	6.93	7.34	7.1	6.91	7.25	7.13	7.25	7.22	7.16	6.74	7.12

Notes:  
mg/L: milligrams per liter  
µg/L: micrograms per liter  
pCi/L: picocuries per liter  
SU: standard unit  
U: Component was not present in concentrations above method detection limit and is reported as the reporting limit  
J: Estimated value. Component was detected in concentrations below the reporting limit  
-: Not sampled

Table 1: Groundwater Data Summary  
Rockport Plant - Bottom Ash Pond

Geosyntec Consultants, Inc.

Parameter	Unit	MW-1603I									MW-1603S								
		6/8/2016	7/18/2016	9/20/2016	11/15/2016	1/9/2017	3/7/2017	5/8/2017	7/17/2017	10/3/2017	6/8/2016	7/18/2016	9/20/2016	11/15/2016	1/9/2017	3/7/2017	5/8/2017	7/17/2017	10/3/2017
		Background								Detection	Background								Detection
Antimony	µg/L	0.05J	0.03J	0.03J	0.04J	0.03J	0.03J	0.05	0.03J		0.04J	0.05J	0.04J	0.06	0.04J	0.06	0.05	0.04J	
Arsenic	µg/L	13	12.8	12.2	12.2	12.9	12.5	13	12.5		0.36	0.27	0.21	0.19	0.2	0.18	0.23	0.19	
Barium	µg/L	81.1	83.1	94.2	86.6	84.6	82.5	76.8	85.3		13	12.5	16.7	18.4	16.2	22.3	16.3	16.2	
Beryllium	µg/L	0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02	0.02U		0.02U	0.02U	0.02U	0.008J	0.02U	0.02U	0.02	0.02U	
Boron	mg/L	0.151	0.157	0.153	0.173	0.147	0.187	0.187	0.196	0.134	1.77	1.77	1.83	2.19	2.22	1.72	1.25	1.94	1.84
Cadmium	µg/L	0.004J	0.02U	0.02U	0.007J	0.02U	0.02U	0.02	0.02U		0.02	0.02	0.02J	0.03	0.02J	0.06	0.02	0.03	
Calcium	mg/L	89.2	93.9	99.8	101	94.7	85	87.2	79.3	80.9	49.6	46.4	59.3	71.9	74.8	99.4	81.7	68.1	51.5
Chloride	mg/L	37.7	38.8	40.1	37.4	34.6	34.7	36.8	35.1	35.6	60.3	53.6	57.6	50.9	55.6	67.6	55.1	52.9	20.8
Chromium	µg/L	0.3	0.8	0.1	0.074	0.232	0.743	0.145	0.109		0.2	0.2	0.3	0.104	0.653	0.53	0.325	0.154	
Cobalt	µg/L	1.36	1.3	1.41	1.17	1.26	1.1	1.24	1.3		0.648	0.656	0.31	0.233	0.176	0.092	0.219	0.349	
Combined Radium	pCi/L	0.593	1.821	0.904	1.583	1.417	1.076	0.824	2.746		0.485	1.123	1.373	0.508	0.391	0.2002	0.4136	2.9307	
Fluoride	mg/L	0.39	0.43	0.39	0.42	0.38	0.4	0.4	0.35	0.39	0.44	0.5	0.39	0.43	0.4	0.33	0.36	0.27	0.17
Lead	µg/L	0.117	0.053	0.008J	0.021	0.066	0.057	0.174	0.02J		0.171	0.13	0.025	0.072	0.023	0.037	0.116	0.042	
Lithium	mg/L	0.001U	0.013	0.009	0.015	0.008	0.009	0.009	0.013		0.001U	0.013	0.007	0.013	0.002	0.005	0.006	0.007	
Mercury	µg/L	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005	0.005U		0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005	0.005U	
Molybdenum	µg/L	8.86	9.76	9.85	9.21	9.47	8.79	8.86	8.27		1.36	0.74	0.5	0.39	0.47	0.23	0.15	0.2	
Selenium	µg/L	0.1U	0.1U	0.04J	0.1U	0.1U	0.05J	0.1	0.1U		0.04J	0.1U	0.7	0.2	0.06J	0.2	0.2	0.06J	
Total Dissolved Solids	mg/L	465	502	500	481	478	460	452	449	442	480	445	479	469	483	581	466	482	481
Sulfate	mg/L	71.9	83.8	111	88.5	75.3	73.2	71	74.9	74.1	197	171	197	208	220	261	203	222	75.1
Thallium	µg/L	0.03J	0.02J	0.04J	0.03J	0.03J	0.05J	0.05	0.05J		0.02J	0.02J	0.04J	0.091	0.02J	0.02J	0.05	0.02J	
pH	SU	7.61	7.15	7.28	7.22	7.22	7.26	7.25	9.78	7.24	7.63	7.17	6.95	6.88	6.47	6.74	6.89	9.63	6.92

Notes:  
mg/L: milligrams per liter  
µg/L: micrograms per liter  
pCi/L: picocuries per liter  
SU: standard unit  
U: Component was not present in concentrations above method detection limit and is reported as the reporting limit  
J: Estimated value. Component was detected in concentrations below the reporting limit  
-: Not sampled

Table 1: Groundwater Data Summary  
Rockport Plant - Bottom Ash Pond

Geosyntec Consultants, Inc.

Parameter	Unit	MW-1604D									MW-1604I								
		6/7/2016	7/18/2016	9/19/2016	11/15/2016	1/9/2017	3/7/2017	5/8/2017	7/18/2017	10/3/2017	6/7/2016	7/18/2016	9/19/2016	11/15/2016	1/9/2017	3/7/2017	5/9/2017	7/18/2017	10/3/2017
		Background									Detection	Background							
Antimony	µg/L	0.02J	0.01J	0.01J	0.03J	0.02J	0.02J	0.05	0.02J		0.02J	0.02J	0.03J	0.04J	0.02J	0.02J	0.06	0.24	
Arsenic	µg/L	14.6	17.9	16.2	16.7	16.9	18.4	18.1	16.8		19.5	19.1	20.4	19.4	20.2	20	26.4	19	
Barium	µg/L	216	239	234	247	243	267	226	249		124	132	123	123	114	117	125	130	
Beryllium	µg/L	0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02	0.02U		0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02	0.02U	
Boron	mg/L	0.032	0.022	0.01	0.025	0.016	0.075	0.05	0.095	0.075	0.111	0.185	0.32	0.368	0.241	0.252	0.363	0.379	0.442
Cadmium	µg/L	0.02U	0.02U	0.02U	0.008J	0.007J	0.02U	0.02	0.02U		0.12	0.02U	0.02U	0.009J	0.02U	0.02U	0.02	0.005J	
Calcium	mg/L	70.8	67.8	69.8	74.9	72.9	67.2	71.8	63.7	62.7	76.5	79.7	73.1	78.7	72.4	68.7	81.3	73.5	69.5
Chloride	mg/L	19.6	19.3	17.8	18	17.1	17.4	17.3	16.9	16.5	50.4	53.6	46.5	46.2	39.5	41.6	53.4	49.3	45.2
Chromium	µg/L	0.2	0.2	0.1	0.117	0.158	0.267	0.128	0.165		0.1	0.4	0.4	0.153	0.114	0.573	0.112	0.208	
Cobalt	µg/L	0.119	0.086	0.052	0.047	0.057	0.07	0.091	0.072		0.893	0.875	0.742	0.704	0.696	0.743	1.03	0.877	
Combined Radium	pCi/L	0.374	0.8422	0.377	0.454	2.235	0.868	0.744	1.079		1.118	1.299	0.624	1.664	1.455	0.671	0.844	1.059	
Fluoride	mg/L	0.3	0.28	0.26	0.27	0.24	0.24	0.26	0.21	0.24	0.34	0.33	0.29	0.32	0.31	0.31	0.34	0.27	0.3
Lead	µg/L	0.098	0.022	0.02J	0.02J	0.01J	0.061	0.043	0.02J		0.02J	0.02J	0.02J	0.045	0.01J	0.024	0.043	0.093	
Lithium	mg/L	0.002	0.01	0.004	0.009	0.001U	0.003	0.004	0.002		0.004	0.011	0.008	0.015	0.003	0.009	0.013	0.009	
Mercury	µg/L	0.005U	0.005U	0.005U	0.005U	0.005U	0.002J	0.005	0.005U		0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005	0.005U	
Molybdenum	µg/L	3.96	3.33	2.82	2.8	3.04	3.2	2.9	2.61		2.59	2.48	2.87	2.49	2.84	3.08	3.02	2.75	
Selenium	µg/L	0.1U	0.04J	0.1U	0.1U	0.03J	0.06J	0.1	0.1U		0.03J	0.1U	0.07J	0.1U	0.1U	0.05J	0.1	0.1U	
Total Dissolved Solids	mg/L	292	332	280	320	326	290	318	304	318	530	548	504	521	456	448	546	522	502
Sulfate	mg/L	39.1	38.6	31.9	35	29.6	30.4	29.2	28.7	28.7	138	152	120	130	99.8	104	139	139	129
Thallium	µg/L	0.05U	0.05U	0.05U	0.02J	0.095	0.05U	0.05	0.05U		0.01J	0.01J	0.078	0.02J	0.02J	0.02J	0.05	0.02J	
pH	SU	7.12	6.91	7.33	7.13	7.17	7.3	7.18	7.22	7.34	7.09	7.42	7.5	7.25	7.54	7.41	7.47	7.33	7.5

Notes:  
mg/L: milligrams per liter  
µg/L: micrograms per liter  
pCi/L: picocuries per liter  
SU: standard unit  
U: Component was not present in concentrations above method detection limit and is reported as the reporting limit  
J: Estimated value. Component was detected in concentrations below the reporting limit  
-: Not sampled

Table 1: Groundwater Data Summary  
Rockport Plant - Bottom Ash Pond

Geosyntec Consultants, Inc.

Parameter	Unit	MW-1604S										MW-1605D									
		6/7/2016	7/20/2016	9/19/2016	11/15/2016	1/9/2017	3/7/2017	5/8/2017	5/18/2017	7/17/2017	10/3/2017	6/7/2016	7/18/2016	9/19/2016	11/16/2016	1/10/2017	3/7/2017	5/9/2017	7/18/2017	10/3/2017	
		Background									Detection	Background									Detection
Antimony	µg/L	0.06	0.13	0.06	0.07	0.06	0.05	0.07		0.07		0.02J	0.01J	0.01J	0.01J	0.01J	0.02J	0.05	0.02J		
Arsenic	µg/L	0.41	0.76	0.24	0.24	0.31	0.2	0.3		0.24		17.5	17.4	18.1	18.6	19	19.1	18.3	17.9		
Barium	µg/L	19.2	21.7	13.3	18.5	17.3	16	18.8		20.7		400	434	488	453	430	490	420	457		
Beryllium	µg/L	0.007J	0.059	0.02U	0.005J	0.02U	0.02U	0.02		0.02U		0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02	0.02U		
Boron	mg/L	0.653	0.53	0.65	0.736	0.721	0.725	0.554		0.473	0.562	0.027	0.021	0.002J	0.021	0.014	0.045	0.021	0.025	0.022	
Cadmium	µg/L	0.02	0.09	0.01J	0.03	0.02J	0.01J	0.02		0.02J		0.02U	0.02U	0.02U	0.02U	0.02U	0.006J	0.02	0.02U		
Calcium	mg/L	84.5	79.8	68.1	82.9	83.9	79.1	111		98.6	67.8	81.7	85.7	84.2	93.9	89.9	88.5	90.1	84.6	83.1	
Chloride	mg/L	62.6	60.8	50.3	58.3	63.5	64.1	88		76	55.3	31.9	31.5	29.8	28.8	27.4	29.4	29.2	28.6	26.4	
Chromium	µg/L	0.2	0.6	0.5	0.081	0.701	0.326	0.079		0.136		0.2	0.3	0.3	0.259	0.128	0.322	0.131	0.119		
Cobalt	µg/L	0.548	0.955	0.325	0.326	0.338	0.321	0.355		0.285		0.284	0.17	0.118	0.097	0.086	0.107	0.108	0.111		
Combined Radium	pCi/L	0.3437	0.9695	1.126	0.377	1.629	0.151	0.579		0.731		1.094	1.666	0.873	1.371	1.589	1.104	0.4527	1.657		
Fluoride	mg/L	0.89	0.88	0.92	0.83	0.91	0.94	0.81		0.76	0.87	0.25	0.22	0.19	0.21	0.21	0.19	0.19	0.17	0.18	
Lead	µg/L	0.315	0.911	0.06	0.045	0.02J	0.027	0.05		0.064		0.051	0.051	0.009J	0.008J	0.02U	0.045	0.037	0.009J		
Lithium	mg/L	0.011	0.006	0.008	0.014	0.013	0.013	0.018		0.014		0.004	0.005	0.006	0.006	0.004	0.006	0.003	0.005		
Mercury	µg/L	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005		0.005U		0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005	0.005U		
Molybdenum	µg/L	2.57	2.33	2.51	4.79	2.59	2.61	2.16		1.88		7.65	3.19	2.72	2.21	2.21	2.44	2.08	1.98		
Selenium	µg/L	0.07J	0.2	0.07J	0.05J	0.06J	0.07J	0.1		0.03J		0.03J	0.1U	0.1U	0.1U	0.1U	0.03J	0.1	0.1U		
Total Dissolved Solids	mg/L	532	526	456	533	535	528	672		657	462	406	408	370	400	794	386	400	416	390	
Sulfate	mg/L	187	186	141	165	173	170	251		234	123	59.7	61.6	54.1	56.2	55.1	58.4	58.5	59.1	56.8	
Thallium	µg/L	0.02J	0.057	0.05J	0.096	0.04J	0.03J	0.05		0.02J		0.05U	0.05U	0.05U	0.01J	0.05U	0.05U	0.05	0.03J		
pH	SU	7.19	7.3	7.52		7.41	7.47	7.52	7.32	7.29	7.65	7.09	7.2	7.12	7.1	7.25	7.2	6.87	9.51	7.12	

Notes:  
mg/L: milligrams per liter  
µg/L: micrograms per liter  
pCi/L: picocuries per liter  
SU: standard unit  
U: Component was not present in concentrations above method detection limit and is reported as the reporting limit  
J: Estimated value. Component was detected in concentrations below the reporting limit  
-: Not sampled

Table 1: Groundwater Data Summary  
Rockport Plant - Bottom Ash Pond

Geosyntec Consultants, Inc.

Parameter	Unit	MW-1605I									MW-1605S								
		6/7/2016	7/19/2016	9/19/2016	11/16/2016	1/10/2017	3/7/2017	5/9/2017	7/18/2017	10/3/2017	6/7/2016	7/19/2016	9/19/2016	11/16/2016	1/10/2017	3/7/2017	5/9/2017	7/17/2017	10/3/2017
		Background									Detection	Background							
Antimony	µg/L	0.02J	0.03J	0.04J	0.04J	0.03J	0.03J	0.05	0.05J		0.04J	0.1	0.04J	0.05	0.06	0.04J	0.05	0.04J	
Arsenic	µg/L	17.3	20.1	19.5	18	18.5	18.6	20.1	26.2		0.52	0.6	0.42	0.36	0.5	0.39	0.45	0.42	
Barium	µg/L	151	178	180	168	161	156	148	153		8.07	8.65	7.61	7.76	8.33	8.72	8.41	8.55	
Beryllium	µg/L	0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02	0.02U		0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02	0.02U	
Boron	mg/L	0.027	0.027	0.02	0.034	0.02	0.046	0.043	0.036	0.041	0.48	0.438	0.482	0.584	0.533	0.608	0.47	0.49	0.539
Cadmium	µg/L	0.02U	0.02U	0.005J	0.008J	0.02U	0.008J	0.02	0.02U		0.03	0.04	0.03	0.04	0.04	0.03	0.03	0.03	
Calcium	mg/L	89.5	92.5	97.9	103	91.3	81.9	93.5	79.9	82.5	76.6	72.6	79.1	84	78.5	71.2	79.9	68.6	71.6
Chloride	mg/L	45.6	46.8	45.6	44.4	43.5	44.7	41.8	39.7	40.7	51	53.1	54	49.7	48.2	52	50.1	47.5	44.1
Chromium	µg/L	0.2	1.2	0.2	0.091	0.11	0.214	0.137	0.104		0.2	0.4	0.9	0.108	0.135	0.279	0.247	0.113	
Cobalt	µg/L	1.67	1.79	1.66	1.58	1.52	1.48	1.56	1.49		0.471	0.856	0.443	0.355	0.401	0.307	0.37	0.336	
Combined Radium	pCi/L	1.219	2.288	2.171	1.912	1.823	1.721	1.139	2.173		0.2307	0.39	0.15	0.964	1.6248	0.339	0.255	1.254	
Fluoride	mg/L	0.21	0.22	0.18	0.19	0.19	0.17	0.19	0.1J	0.19	0.55	0.55	0.51	0.53	0.43	0.55	0.5	0.43	0.46
Lead	µg/L	0.122	0.032	0.16	0.079	0.02J	0.063	0.037	0.137		0.116	0.223	0.049	0.021	0.02J	0.033	0.02	0.026	
Lithium	mg/L	0.004	0.005	0.008	0.017	0.004	0.007	0.01	0.01		0.13	0.017	0.015	0.021	0.016	0.015	0.013	0.015	
Mercury	µg/L	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005	0.005U		0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005	0.005U	
Molybdenum	µg/L	1.42	1.39	1.23	1.07	1.43	1.33	1.18	1.16		2.52	2.2	1.83	1.79	2.01	1.85	1.81	1.73	
Selenium	µg/L	0.03J	0.07J	0.1U	0.1U	0.04J	0.04J	0.1	0.1U		1.3	1	1	1.1	1.1	0.5	0.9	1.2	
Total Dissolved Solids	mg/L	522	544	548	567	534	474	508	488	494	576	586	594	599	584	564	606	582	578
Sulfate	mg/L	130	135	140	140	119	115	115	116	120	167	174	179	186	170	180	181	177	175
Thallium	µg/L	0.02J	0.02J	0.03J	0.03J	0.183	0.03J	0.05	0.03J		0.02J	0.02J	0.03J	0.03J	0.06	0.03J	0.05	0.03J	
pH	SU	6.96	7.34	7.27	7.12	7.23	7.3	6.98	7.01	7.22	7.07	7.21	7.26	7.07	7.19	7.21	7.18	7.13	7.12

Notes:  
mg/L: milligrams per liter  
pCi/L: picocuries per liter  
SU: standard unit  
U: Component was not present in concentrations above method detection limit  
\*: Component was not present in concentrations above method detection limit  
-: Not sampled

Table 1: Groundwater Data Summary  
Rockport Plant - Bottom Ash Pond

Geosyntec Consultants, Inc.

Parameter	Unit	MW-1606D									MW-1606I								
		6/7/2016	7/19/2016	9/19/2016	11/16/2016	1/10/2017	3/6/2017	5/9/2017	7/18/2017	10/3/2017	6/7/2016	7/19/2016	9/19/2016	11/16/2016	1/10/2017	3/6/2017	5/9/2017	7/18/2017	10/3/2017
		Background									Detection	Background							
Antimony	µg/L	0.03J	0.02J	0.01J	0.01J	0.03J	0.01J	0.05	0.02J		0.03J	0.03J	0.02J	0.02J	0.02J	0.02J	0.05	0.02J	
Arsenic	µg/L	11.5	13.7	13.4	14.4	13.9	13.5	14.3	14.8		3	3.99	4.99	4.59	5.11	5.07	4.81	4.72	
Barium	µg/L	327	372	378	419	383	374	370	401		49.4	54	46.7	48.1	53.6	54.7	49.9	51.1	
Beryllium	µg/L	0.01J	0.02U	0.02U	0.02U	0.034	0.02U	0.02	0.02U		0.02U	0.02U	0.02U	0.02U	0.007J	0.02U	0.02	0.02U	
Boron	mg/L	0.02	0.018	0.02	0.017	0.012	0.073	0.034	0.028	0.022	0.011	0.013	0.005U	0.014	0.007	0.025	0.07	0.023	0.021
Cadmium	µg/L	0.02U	0.02U	0.02U	0.02U	0.02J	0.02U	0.02	0.02U		0.004J	0.02U	0.02U	0.02U	0.01J	0.02U	0.02	0.02U	
Calcium	mg/L	67.5	69.9	72.3	77.1	75.5	69.9	78.1	69.3	74.4	66.6	62	62.8	70.7	68	64.1	67.8	55.5	57.8
Chloride	mg/L	21.3	20.8	21.7	22	21.6	22.3	22.3	21.6	22.3	23.9	25.1	24.2	25	24.5	23.8	23	22.6	23
Chromium	µg/L	0.5	0.3	0.1	0.138	0.16	0.667	0.153	0.131		0.2	0.4	0.1	0.07	0.138	0.524	0.179	0.097	
Cobalt	µg/L	0.508	0.178	0.113	0.102	0.109	0.098	0.086	0.084		0.929	0.823	0.733	0.7	0.921	0.95	1.26	1.06	
Combined Radium	pCi/L	0.551	0.464	1.152	0.333	1.612	0.924	2.3	1.584		1.347	1.286	1.104	0.951	4.283	0.934	0.677	0.813	
Fluoride	mg/L	0.23	0.2	0.19	0.19	0.16	0.18	0.17	0.15	0.16	0.22	0.21	0.19	0.21	0.17	0.19	0.19	0.17	0.18
Lead	µg/L	0.214	0.086	0.02U	0.02U	0.023	0.02J	0.02	0.01J		0.166	0.037	0.02J	0.02U	0.022	0.032	0.071	0.043	
Lithium	mg/L	0.003	0.009	0.002	0.002	0.001U	0.007	0.004	0.006		0.004	0.013	0.009	0.008	0.005	0.007	0.008	0.008	
Mercury	µg/L	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005	0.005U		0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005	0.005U	
Molybdenum	µg/L	3.82	2.1	2	2.21	2.46	2	2.07	1.85		1.64	1.57	1.5	1.83	2.12	1.78	1.27	1.11	
Selenium	µg/L	0.06J	0.05J	0.1U	0.1U	0.04J	0.1U	0.1	0.1U		0.05J	0.1U	0.1U	0.1U	0.1U	0.03J	0.1	0.1U	
Total Dissolved Solids	mg/L	290	298	290	301	284	325	308	307	308	300	350	314	325	326	317	318	304	304
Sulfate	mg/L	13.9	12.8	13.2	16.4	12.8	8.7	14.4	13.5	17.1	42.3	42.9	36.7	42.6	39.3	37.8	36.8	37.1	38.4
Thallium	µg/L	0.05U	0.05U	0.05U	0.05U	0.124	0.05U	0.05	0.05U		0.03J	0.03J	0.03J	0.04J	0.05J	0.04J	0.05	0.04J	
pH	SU	7.14	5.85	7.31	7.18	7.23	7.19	6.88	8.37	7.01	7.02	4.98	7.21	7.29	7.4	7.37	7.35	6.73	7.07

Notes:  
mg/L: milligrams per liter  
µg/L: micrograms per liter  
pCi/L: picocuries per liter  
SU: standard unit  
U: Component was not present in concentrations above method detection limit and is reported as the reporting limit  
J: Estimated value. Component was detected in concentrations below the reporting limit  
-: Not sampled



Table 1: Groundwater Data Summary  
Rockport Plant - Bottom Ash Pond

Geosyntec Consultants, Inc.

Parameter	Unit	MW-1606S								
		6/7/2016	7/19/2016	9/19/2016	11/16/2016	1/10/2017	3/7/2017	5/9/2017	7/18/2017	10/3/2017
		Background								
Antimony	µg/L	0.08	0.06	0.05J	0.05J	0.04J	0.07	0.05	0.05	
Arsenic	µg/L	0.26	0.23	0.22	0.2	0.24	0.6	0.29	0.32	
Barium	µg/L	12.5	11.5	9.34	11.1	10.7	16.7	12	12.6	
Beryllium	µg/L	0.02U	0.02U	0.02U	0.02U	0.01J	0.024	0.02	0.01J	
Boron	mg/L	0.024	0.019	0.005U	0.02	0.014	0.054	0.02	0.09	0.026
Cadmium	µg/L	0.02	0.02J	0.01J	0.02J	0.02J	0.06	0.03	0.03	
Calcium	mg/L	55.8	46	44.4	54.1	48.5	47.2	52.7	44.7	43.4
Chloride	mg/L	30.6	24	18.7	26.6	22.1	23.9	24.7	22.8	24.1
Chromium	µg/L	0.1	0.5	0.2	0.148	1.29	1.25	0.277	0.259	
Cobalt	µg/L	0.09	0.052	0.038	0.038	0.141	0.883	0.371	0.363	
Combined Radium	pCi/L	0.7867	0.94	0.75	0.574	2.025	1.822	0.193	0.268	
Fluoride	mg/L	0.46	0.43	0.4	0.4	0.31	0.41	0.38	0.37	0.41
Lead	µg/L	0.145	0.034	0.02	0.004J	0.097	1.33	0.355	0.386	
Lithium	mg/L	0.012	0.017	0.01	0.013	0.006	0.011	0.01	0.01	
Mercury	µg/L	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005	0.005U	
Molybdenum	µg/L	1.91	1.56	1.32	1.02	1.11	1.22	0.9	1.08	
Selenium	µg/L	3.3	4	5.7	3.1	4.2	4.5	6	4.7	
Total Dissolved Solids	mg/L	410	386	316	358	351	331	377	367	363
Sulfate	mg/L	47.6	38.1	31.8	40	30.5	33.2	37.5	36.8	35.6
Thallium	µg/L	0.02J	0.05U	0.01J	0.01J	0.02J	0.03J	0.05	0.02J	
pH	SU	6.9	7.14	7.07	6.93	6.68	7.06	7.03	6.88	6.62

Notes:  
mg/L: milligrams per liter  
µg/L: micrograms per liter  
pCi/L: picocuries per liter  
SU: standard unit  
U: Component was not present in concentrations above method detection limit and is reported as the reporting limit  
J: Estimated value. Component was detected in concentrations below the reporting limit  
-: Not sampled

**Table 2: Outlier Analysis Summary**  
**Rockport Bottom Ash Ponds**

*Geosyntec Consultants, Inc.*

Location	Well ID	Sample Date	Parameter	Reported Value	Units	Conclusions
Upgradient	MW-1600I	7/17/2017	pH	9.29	SU	Multiple pH values were identified as anomalously high during the July 2017 sampling event, suggesting field instrumentation error. These values were removed from the dataset as outliers.
Upgradient	MW-1600S	7/17/2017	pH	9.46	SU	
Upgradient	MW-1601I	7/17/2017	pH	9.45	SU	
Downgradient	MW-1604S	7/20/2016	Antimony	0.00013	mg/L	An equipment blank collected prior to sampling had a reported antimony concentration of 0.20 µg/L. The reported concentration was possibly elevated due to contamination from the pump and was removed from the dataset.
Downgradient	MW-1604I	5/9/2017	Arsenic	0.0264	mg/L	This value was removed from the dataset as an outlier. Its removal did not affect the calculated background values.
Downgradient	MW-1605S	6/7/2016	Boron	4.76	mg/L	This value was replaced with 0.480 mg/L, the reported boron concentration for the duplicate sample collected at MW-1605S.
Downgradient	MW-1604I	6/7/2016	Cadmium	0.00012	mg/L	This value was removed from the dataset as an outlier. Its removal did not affect the calculated background values.
Downgradient	MW-1605S	6/7/2016	Calcium	752	mg/L	This value was replaced with 76.6 mg/L, the reported calcium concentration for the duplicate sample collected at MW-1605S.
Downgradient	MW-1603D	10/10/2016	Chromium	0.0238	mg/L	This value was removed from the dataset as an outlier. Its removal did not affect the calculated background values.
Downgradient	MW-1603D	10/10/2016	Lead	0.00138	mg/L	This value was removed from the dataset as an outlier. Its removal did not affect the calculated background values.
Downgradient	MW-1605S	6/7/2016	Lithium	0.106	mg/L	This value was replaced with 0.013 mg/L, the reported lithium concentration for the duplicate sample collected at MW-1605S.
Downgradient	MW-1604S	11/15/2016	Molybdenum	0.00479	mg/L	This value was removed from the dataset as an outlier. Its removal did not affect the calculated background values.
Downgradient	MW-1605D	6/7/2016	Molybdenum	0.00765	mg/L	This value was removed from the dataset as an outlier. Its removal did not affect the calculated background values.
Downgradient	MW-1606D	6/7/2016	Molybdenum	0.00382	mg/L	This value was removed from the dataset as an outlier. Its removal did not affect the calculated background values.
Downgradient	MW-1603I	7/17/2017	pH	9.78	SU	Multiple pH values were identified as anomalously high during the July 2017 sampling event, suggesting field instrumentation error. These values were removed from the dataset as outliers.
Downgradient	MW-1603S	7/17/2017	pH	9.63	SU	
Downgradient	MW-1605D	7/18/2017	pH	9.51	SU	
Downgradient	MW-1606D	7/18/2017	pH	8.37	SU	
Downgradient	MW-1603D	7/18/2016	Thallium	0.000068	mg/L	This value was slightly above the reporting limit in a dataset with 50% non-detects. This value was retained in the dataset as it is likely representative of aquifer conditions.
Downgradient	MW-1603D	3/7/2017	Thallium	0.00002	mg/L	This value was estimated (J-flagged) in a dataset with 50% non-detects. This value was retained in the dataset.
Downgradient	MW-1605I	1/10/2017	Thallium	0.000183	mg/L	This value was removed from the dataset as an outlier. Its removal did not affect the calculated background values.
Downgradient	MW-1603S	3/7/2017	Total Dissolved Solids	581	mg/L	This value was conservatively removed from the dataset as an outlier per the <i>Unified Guidance</i> .
Downgradient	MW-1605D	1/10/2017	Total Dissolved Solids	794	mg/L	This value was conservatively removed from the dataset as an outlier per the <i>Unified Guidance</i> .

Table 3: Background Level Summary  
Rockport Plant - Bottom Ash Ponds

Geosyntec Consultants, Inc.

Parameter	Units	Description	MW-1002	MW-1602D	MW-1602I	MW-1603D	MW-1603I	MW-1603S	MW-1604D	MW-1604I	MW-1604S	MW-1605D	MW-1605I	MW-1605S	MW-1606D	MW-1606I	MW-1606S
Boron	mg/L	Interwell Background Value (UPL)	0.1285														
Calcium	mg/L	Intrawell Background Value (UPL)	94.34	83.65	92.7	101.7	109.2	110.7	78.42	85.79	117.6	96.88	109.6	88.65	82	76.05	59.86
Chloride	mg/L	Interwell Background Value (UPL)	46.95														
Fluoride	mg/L	Interwell Background Value (UPL)	0.4														
pH	SU	Interwell Background Value (UPL)	7.307	9.295	7.615	7.531	7.61	7.948	7.481	7.733	7.669	7.457	7.521	7.331	7.87	8.009	7.312
	SU	Interwell Background Value (LPL)	6.048	4.918	6.715	6.659	7.15	5.975	6.859	7.019	7.086	6.78	6.782	6.999	5.257	4.524	6.61
Total Dissolved Solids	mg/L	Interwell Background Value (UPL)	465.1														
Sulfate	mg/L	Interwell Background Value (UPL)	71.31														

Notes:  
UPL: Upper prediction limit  
LPL: Lower prediction limit

## ATTACHMENT A

### Evaluation of Detection Monitoring Data

## Memorandum

Date: February 27, 2018

To: David Miller (AEP)

Copies to: Dana Sheets (AEP)

From: Allison Kreinberg and Bruce Sass, Ph.D. (Geosyntec)

Subject: Evaluation of Detection Monitoring Data at  
Rockport Plant's Bottom Ash Ponds (BAPs)

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In accordance with the United States Environmental Protection Agency's (USEPA's) regulations regarding the disposal of coal combustion residuals (CCR) in landfills and surface impoundments (40 CFR 257.90-257.98, "CCR rule"), detection monitoring events were completed on October 3, 2017, December 12, and January 3, 2018 at the Bottom Ash Pond (BAP), an existing CCR unit at the Rockport Power Plant located in Rockport, Indiana.

Eight background monitoring events were conducted at the Rockport BAP prior to these detection monitoring events, and upper prediction limits (UPLs) were calculated for each Appendix III parameter to represent background values. A lower prediction limit (LPL) was also calculated for pH. Details on the calculation of these background values are described in Geosyntec's *Statistical Analysis Summary* report, dated January 15, 2018.

To achieve an acceptably high statistical power while maintaining a site-wide false-positive rate (SWFPR) of 10% per year or less, prediction limits were calculated based on a one-of-two retesting procedure for boron, chloride, fluoride, total dissolved solids (TDS) and sulfate and one-of-three retesting procedure for calcium and pH. With this procedure, a statistically significant increase (SSI) is only concluded if all samples in a series of two or three, respectively, exceeds the UPL. In practice, if the initial result did not exceed the UPL, a second sample was not collected or analyzed.

Detection monitoring results and the relevant background values are summarized in Table 1.

- Boron concentrations exceeded the interwell UPL of 0.129 mg/L in both the initial (1.63 mg/L) and second (1.71 mg/L) samples collected at MW-1002, in both the initial (0.134

mg/L) and second (0.166 mg/L) samples collected at MW-1603I, in both the initial (1.84 mg/L) and second (1.67 mg/L) samples collected at MW-1603S, in both the initial (0.442 mg/L) and second (0.385 mg/L) samples collected at MW-1604I, in both the initial (0.562 mg/L) and second (0.778 mg/L) samples collected at MW-1604S, and in both the initial (0.539 mg/L) and second (0.616 mg/L) samples collected at MW-1605S. Therefore, an SSI over background is concluded for boron at MW-1002, MW-1603I/S, MW-1604I/S, and MW-1605S.

- Chloride concentrations exceeded the interwell UPL of 47 mg/L in both the initial (54.4 mg/L) and second (52.5 mg/L) samples collected at MW-1002, in both the initial (135 mg/L) and second (141 mg/L) samples collected at MW-1602D, in both the initial (55.3 mg/L) and second (53.9 mg/L) samples collected at MW-1604S. Therefore, an SSI over background is concluded for chloride at MW-1002, MW-1602D, MW-1604S.
- Fluoride concentrations exceeded the interwell UPL of 0.40 mg/L in both initial (0.8 mg/L) and second (0.97 mg/L) samples collected at MW-1002, in both the initial (0.87 mg/L) and the second (0.97 mg/L) samples collected at MW-1604S, in both the initial (0.46 mg/L) and second (0.53 mg/L) samples collected at MW-1605S, and in both the initial (0.41 mg/L) and second (0.41 mg/L) samples collected at MW-1606S. Therefore, an SSI over background is concluded for fluoride at MW-1002, MW-1604S, MW-1605S, and MW-1606S.
- TDS concentrations exceeded the interwell UPL of 465 mg/L in both the initial (518 mg/L) and second (574 mg/L) samples collected at MW-1602D, in both the initial (481 mg/L) and second (514 mg/L) samples collected at MW-1603S, in both the initial (502 mg/L) and second (504 mg/L) samples collected at MW-1604I, in both the initial (494 mg/L) and second (536 mg/L) samples collected at MW-1605I, and in both the initial (578 mg/L) and second (614 mg/L) samples collected at MW-1605S. Therefore, an SSI over background is concluded for TDS at MW-1602D, MW-1603S, MW-1604I, and MW-1605I/S.
- Sulfate concentrations exceeded the interwell UPL of 71.3 mg/L in both the initial (166 mg/L) and second (177 mg/L) samples collected at MW-1002, in both the initial 80.8 mg/L and second (82.8 mg/L) samples collected at MW-1602I, in both the initial (129 mg/L) and second (132 mg/L) samples collected at MW-1604I, in both the initial (123 mg/L) and second (112 mg/L) samples collected at MW-1604S, in both the initial (120 mg/L) and second (135 mg/L) samples collected at MW-1605I, and in both the initial (175 mg/L) and second 164 mg/L) samples collected at MW-1605S,. Therefore, an SSI over

background is concluded for sulfate at MW-1002, MW-1602I, MW-1604I/S, and MW-1605I/S.

As a result, an alternate source demonstration will be conducted for the Rockport BAP CCR unit.

No other exceedances of UPLs were observed during these detection monitoring events.

The following modifications to Geosyntec's *Statistical Analysis Summary* report were incorporated after the certification date of January 15, 2018:

- An error was discovered with the analysis of variance (ANOVA) performed to evaluate spatial variability among the six upgradient wells. After this error was corrected, ANOVA indicated that significant variation was present among the upgradient wells for pH. Because of this conclusion and because downgradient pH results were not significantly different from upgradient pH results, intrawell tests were selected to evaluate potential SSIs for pH at the Rockport BAPs. The text of the report, Table 3 ("Background Level Summary"); and the letter from Groundwater Stats Consulting, Figure E ("Analysis of Variance"), Figure H ("Intrawell Prediction Limit Summary Table"), and Figure I ("Interwell Prediction Limit Summary Table") in Attachment A were revised to reflect these changes. The revised intrawell prediction limits were used to evaluate potential SSIs for pH in this memorandum. The certification page for the original report is provided in Appendix A of this addendum for documentation purposes.

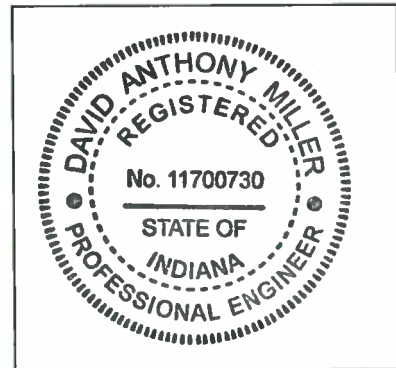
\* \* \* \* \*

### CERTIFICATION BY QUALIFIED PROFESSIONAL ENGINEER

I certify that the selected statistical method, described above and in the January 15, 2018 *Statistical Analysis Summary* report, is appropriate for evaluating the groundwater monitoring data for the Rockport BAP CCR management area and that the requirements of 40 CFR 257.93(f) have been met.

DAVID ANTHONY MILLER

Printed Name of Licensed Professional Engineer



David Anthony Miller

Signature

11700730

License Number

INDIANA

Licensing State

02.27.18

Date



Table 1: Detection Monitoring Data Evaluation  
Rockport Plant - Bottom Ash Pond

Geosyntec Consultants, Inc.

Parameter	Units	Description	MW-1002			MW-1602D			MW-1602I			MW-1603D		MW-1603I		
			10/3/2017	12/12/2017	1/11/2018	10/3/2017	12/12/2017	1/3/2018	10/3/2017	12/12/2017	1/3/2018	10/3/2017	12/12/2017	10/3/2017	12/12/2017	1/3/2018
Boron	mg/L	Interwell Background Value (UPL)	0.129													
	mg/L	Detection Monitoring Result	1.63	-	1.71	0.064	-	-	0.065	-	-	0.054	-	0.134	-	0.166
Calcium	mg/L	Intrawell Background Value (UPL)	94.3			83.7			92.7			102		109		
	mg/L	Detection Monitoring Result	36.4	-	-	68.3	-	-	69.2	-	-	79.4	-	80.9	-	-
Chloride	mg/L	Interwell Background Value (UPL)	47.0													
	mg/L	Detection Monitoring Result	54.4	52.5	53.2	135	141	146	27.5	28.3	-	26.2	27	35.6	57.4	-
Fluoride	mg/L	Interwell Background Value (UPL)	0.40													
	mg/L	Detection Monitoring Result	0.8	0.97	0.91	0.29	0.3	-	0.26	0.26	-	0.26	0.27	0.39	0.52	-
pH	SU	Interwell Background Value (UPL)	7.67													
	SU	Interwell Background Value (LPL)	6.34													
	SU	Detection Monitoring Result	7.1	7.29	6.96	7.35	7.35	7.77	7.34	7.31	7.72	7.12	7.03	7.24	6.75	7.88
Total Dissolved Solids	mg/L	Interwell Background Value (UPL)	465													
	mg/L	Detection Monitoring Result	403	-	-	518	-	574	414	-	-	393	-	442	-	-
Sulfate	mg/L	Interwell Background Value (UPL)	71.3													
	mg/L	Detection Monitoring Result	166	177	183	16	16.9	-	80.8	82.8	82.3	44.6	42.3	74.1	42.3	65.1

Parameter	Units	Description	MW-1603S			MW-1604D		MW-1604I			MW-1604S			MW-1605D	
			10/3/2017	12/12/2017	1/3/2018	10/3/2017	12/12/2017	10/3/2017	12/12/2017	1/4/2018	10/3/2017	12/12/2017	1/4/2018	10/3/2017	12/11/2017
Boron	mg/L	Interwell Background Value (UPL)	0.129												
	mg/L	Detection Monitoring Result	1.84	-	1.67	0.075	-	0.442	-	0.385	0.562	-	0.778	0.022	-
Calcium	mg/L	Intrawell Background Value (UPL)	111			78.4		85.8			118			96.9	
	mg/L	Detection Monitoring Result	51.5	-	-	62.7	-	69.5	-	-	67.8	-	-	83.1	-
Chloride	mg/L	Interwell Background Value (UPL)	47.0												
	mg/L	Detection Monitoring Result	20.8	33.9	-	16.5	16.3	45.2	45.6	-	55.3	53.9	54.5	26.4	25.8
Fluoride	mg/L	Interwell Background Value (UPL)	0.40												
	mg/L	Detection Monitoring Result	0.17	0.41	-	0.24	0.24	0.3	0.32	-	0.87	0.97	1.02	0.18	0.19
pH	SU	Interwell Background Value (UPL)	7.67												
	SU	Interwell Background Value (LPL)	6.34												
	SU	Detection Monitoring Result	6.92	7.13	7.51	7.34	7.32	7.5	7.45	7.88	7.65	7.69	7.95	7.12	7.2
Total Dissolved Solids	mg/L	Interwell Background Value (UPL)	465												
	mg/L	Detection Monitoring Result	481	-	514	318	-	502	-	504	462	-	-	390	-
Sulfate	mg/L	Interwell Background Value (UPL)	71.3												
	mg/L	Detection Monitoring Result	75.1	65.8	218	28.7	29.3	129	132	119	123	112	104	56.8	56.4

Parameter	Units	Description	MW-1605I			MW-1605S			MW-1606D		MW-1606I		MW-1606S		
			10/3/2017	12/11/2017	1/4/2018	10/3/2017	12/11/2017	1/4/2018	10/3/2017	12/11/2017	10/3/2017	12/11/2017	10/3/2017	12/11/2017	1/4/2018
Boron	mg/L	Interwell Background Value (UPL)	0.129												
	mg/L	Detection Monitoring Result	0.041	-	-	0.539	-	0.616	0.022	-	0.021	-	0.026	-	-
Calcium	mg/L	Intrawell Background Value (UPL)	110			88.7			82		76.1		59.9		
	mg/L	Detection Monitoring Result	82.5	-	-	71.6	-	-	74.4	-	57.8	-	43.4	-	-
Chloride	mg/L	Interwell Background Value (UPL)	47.0												
	mg/L	Detection Monitoring Result	40.7	41.3	-	44.1	42.5		22.3	22.6	23	23	24.1	24	-
Fluoride	mg/L	Interwell Background Value (UPL)	0.40												
	mg/L	Detection Monitoring Result	0.19	0.18	-	0.46	0.53	0.48	0.16	0.17	0.18	0.19	0.41	0.41	0.42
pH	SU	Interwell Background Value (UPL)	7.67												
	SU	Interwell Background Value (LPL)	6.34												
	SU	Detection Monitoring Result	7.22	7.27	7.61	7.12	7.21	7.67	7.01	7.06	7.07	7.12	6.62	6.62	7.42
Total Dissolved Solids	mg/L	Interwell Background Value (UPL)	465												
	mg/L	Detection Monitoring Result	494	-	536	578	-	614	308	-	304	-	363	-	-
Sulfate	mg/L	Interwell Background Value (UPL)	71.3												
	mg/L	Detection Monitoring Result	120	135	144	175	164	168	17.1	19.4	38.4	37.9	35.6	36.8	-

Notes:  
-: Not Sampled  
UPL: Upper prediction limit  
LPL: Lower prediction limit  
**Bold values exceed the background value.**  
Background values are shaded gray.

## APPENDIX A

### Original Report Certification Prior to Revisions

need for truncating the dataset for chloride at MW-1601S will be reevaluated after additional data are collected.

Intrawell UPLs for calcium and interwell UPLs for the other Appendix III parameters were calculated for a one-of-three and one-of-two retesting procedure, respectively; i.e., if at least one sample in a series of three or two (respectively) does not exceed the UPL, then it can be concluded that an SSI has not occurred. In practice, where initial results did not exceed the UPL, a second (or third) sample was not collected. The retesting procedures allowed achieving an acceptably high statistical power while maintaining a site-wide false-positive rate (SWFPR) of 10% per year or less. Power curves were constructed for the interwell and intrawell parametric tests and are compared with the EPA Reference Power Curve in Attachment A. The power curve associated with the interwell statistical tests for the BAPs exceed the EPA Reference Power Curve at 3 and 4 standard deviations; this is considered a “good” level of statistical power according to USEPA’s *Unified Guidance* (USEPA, 2009). The power curve associated with the intrawell statistical tests for the BAPs exceed the EPA Reference Power Curve at 4 standard deviations; this is considered an “acceptable” level of statistical power according to USEPA’s *Unified Guidance* (USEPA, 2009).

### 2.2.3 Certification by Qualified Professional Engineer

I certify that the selected and above described statistical method is appropriate for evaluating the groundwater monitoring data for the Rockport Bottom Ash Ponds CCR management area and that the requirements of 40 CFR 257.93(f) have been met.

DAVID ANTHONY MILLER

Printed Name of Licensed Professional Engineer

David Anthony Miller

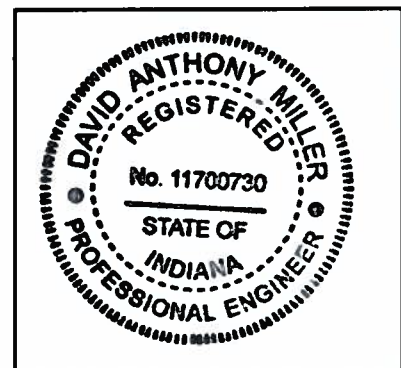
Signature

11700730

License Number

INDIANA

Licensing State

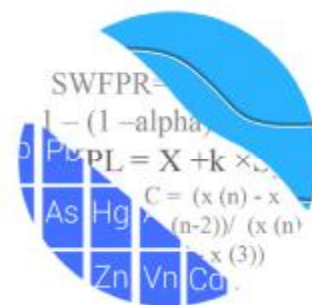


01.15.18

Date

**ATTACHMENT B**  
**Statistical Analysis Output**

## GROUNDWATER STATS CONSULTING



January 15, 2018

Geosyntec Consultants  
Attn: Mr. Bruce Sass  
150 E. Wilson Bridge Rd., #232  
Worthington, OH 43085

Dear Mr. Sass,

Groundwater Stats Consulting, formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the screening and statistical analysis of background groundwater data for American Electric Power's Rockport Bottom Ash Pond. 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).

Sampling began at Rockport Bottom Ash Pond for the CCR program in 2016, and 8 background samples have been collected at each of the groundwater monitoring wells. The monitoring well network, as provided by Geosyntec Consultants, consists of the following: upgradient wells MW-1600D, MW-1600I, MW-1600S, MW-1601D, MW-1601I, and MW-1601S; and downgradient wells MW-1602D, MW-1602I, MW-1602S, MW-1603D, MW-1603I, MW-1603S, MW-1604D, MW-1604I, MW-1604S, MW-1605D, MW-1605I, MW-1605S, MW-1606D, MW-1606I, and MW-1606S.

Data were sent electronically to Groundwater Stats Consulting, and the statistical analysis was reviewed by Dr. Kirk Cameron, PhD Statistician with MacStat Consulting, primary author of the USEPA Unified Guidance, and Senior Advisor to Groundwater Stats Consulting.

The following constituents were evaluated: Appendix III parameters – boron, calcium, chloride, fluoride, pH, sulfate, and TDS; and Appendix IV parameters - antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, combined radium 226 & 228, fluoride, lead, lithium, mercury, molybdenum, selenium, and thallium.

Time series plots for Appendix III and IV parameters at all wells are provided for the purpose of screening data at these wells (Figure A). Additionally, box plots are included for all constituents at upgradient and downgradient wells (Figure B). The time series plots are used to initially screen for suspected outliers and trends, while the box plots provide visual representation of variation within individual wells and between all wells.

Data at all wells were evaluated for the following: 1) outliers; 2) trends; 3) most appropriate statistical method for Appendix III parameters based on site characteristics of groundwater data upgradient of the facility; and 4) eligibility of downgradient wells when intrawell statistical methods are recommended. Power curves are provided to demonstrate that the selected statistical methods for Appendix III parameters comply with the USEPA Unified Guidance recommendations as discussed below.

#### Summary of Statistical Method:

- 1) Intrawell prediction limits, combined with a 1-of-3 resample plan for calcium and pH; and
- 2) Interwell prediction limits combined with a 1-of-2 resample plan for boron, chloride, fluoride, sulfate and TDS.

Parametric prediction limits are utilized when the screened historical data follow a normal or transformed-normal distribution. When data cannot be normalized or the majority of data are nondetects, a nonparametric test is utilized. The distribution of data is tested using the Shapiro-Wilk/Shapiro-Francia test for normality. After testing for normality and performing any adjustments as discussed below (US EPA, 2009), data are analyzed using either parametric or non-parametric prediction limits.

- No statistical analyses are required on wells and analytes containing 100% nondetects (USEPA Unified Guidance, 2009, Chapter 6).
- When data contain <15% nondetects in background, simple substitution of one-half the reporting limit is utilized in the statistical analysis. The reporting limit utilized for nondetects is the practical quantification limit (PQL) as reported by the laboratory.
- When data contain between 15-50% nondetects, the Kaplan-Meier nondetect adjustment is applied to the background data. This technique adjusts the mean and standard deviation of the historical concentrations to account for concentrations below the reporting limit.

- Nonparametric prediction limits are used on data containing greater than 50% nondetects.

## Background Screening

### Outlier Evaluation

Time series plots are used to identify suspected outliers, or extreme values that would result in limits that are not conservative from a regulatory perspective, in proposed background data. Suspected outliers at all wells for Appendix III and Appendix IV parameters were formally tested using Tukey's box plot method and, when identified, flagged in the computer database with "o" and deselected prior to construction of statistical limits (Figure C).

Tukey's outlier test noted several outliers as may be seen on the Outlier Summary Table and accompanying graphs. Note that the most recent values in a several wells were identified as outliers for pH. Typically these values would not be flagged as they may be indicative of a trend; however, the values were, reportedly, suspected to be a result of a field sampling error and were flagged as outliers in the database. Additionally, the outlier identified by Tukey's outlier test for thallium in well MW-1603D was not flagged as the concentrations are very low and only mildly fluctuating. Any values identified as outliers are plotted in a lighter font on the time series graph. A substitution of the most recent reporting limit was applied when varying detection limits existed in data.

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

While trends may be visual, a quantification of the trend and its significance is needed. The Sen's Slope/Mann Kendall trend test was used to evaluate all data at each well to identify statistically significant increasing or decreasing trends (Figure D). 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 several statistically significant decreasing trends, along with a couple statistically significant increasing trends noted in upgradient wells as may be seen on the Trend Test Summary Table that accompanies the trend tests. All of these trends are relatively low in magnitude when compared to average concentrations; therefore, no adjustments were made to the data sets.

### Appendix III – Determination of Spatial Variation

The Analysis of Variance (ANOVA) was used to statistically evaluate differences in average concentrations among upgradient wells, which assists in identifying the most appropriate statistical approach (Figure E). 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 parameter.

The ANOVA identified variation among upgradient well data for all of the Appendix III parameters. Therefore, all other data were further evaluated as described for the appropriateness of intrawell testing to accommodate the groundwater quality. A summary table of the ANOVA results is included with the reports.

### Appendix III - Statistical Limits

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, several steps are required to reasonably demonstrate downgradient water quality does not have existing impacts from the practices of the facility.



Exploratory data analysis was used as a general comparison of concentrations in downgradient wells for all Appendix III parameters recommended for intrawell analyses to concentrations reported in upgradient wells. Upper tolerance limits are used in conjunction with confidence intervals to determine whether the estimated averages in downgradient wells are higher than observed levels upgradient of the facility. The upper tolerance limits were constructed to represent the extreme upper range of possible background levels at the site.

In cases where downgradient average concentrations are higher than observed concentrations upgradient for a given constituent, 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. When there is not an obvious explanation for observed concentration differences in downgradient wells relative to reported concentrations in upgradient wells, interwell prediction limits will initially be selected for the statistical method until further evidence shows that concentrations are due to natural variation rather than a result of the facility.

Parametric tolerance limits were constructed with a target of 99% confidence and 95% coverage using pooled upgradient well data for each of the Appendix III parameters recommended for intrawell analyses (Figure F). 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.

Confidence intervals were constructed on downgradient wells for each of the Appendix III parameters using the tolerance limits discussed above, to determine intrawell eligibility for those parameters exhibiting spatial variation (Figure G). When the entire confidence interval is above a background standard for a given parameter, interwell methods are initially recommended as the statistical method. Therefore, only parameters with confidence intervals which did not exceed background standards are eligible for intrawell prediction limits.

Confidence intervals for the above parameters were found to be within their respective background limit for calcium and pH; while the confidence intervals for all other Appendix III parameters were above the background standards. Therefore, intrawell methods are recommended for calcium and pH at this time, and interwell methods are recommended for boron, chloride, fluoride, sulfate, and TDS. As mentioned earlier, if a

demonstration supports natural variation in groundwater, intrawell methods will be considered for all parameters.

All available data through July 2017 for calcium and pH at each well were used to establish intrawell background limits based on a 1-of-3 resample plan that will be used for future comparisons (Figure H). Interwell prediction limits, combined with a 1-of-2 resample plan, were constructed from upgradient wells for Appendix III parameters identified above (Figure I). Downgradient measurements will be compared to these background limits during each subsequent semi-annual sampling event.

Natural systems continuously evolve due to physical changes made to the environment. Examples include capping a landfill, paving areas near a well, or lining a drainage channel to prevent erosion. Periodic updating of background statistical limits will be necessary to accommodate these types of changes. In the interwell case, newer data will be included in background when a minimum of 2 new samples per well are available. In the intrawell case, data for all wells and constituents are re-evaluated when a minimum of 4 new data points are available to determine whether earlier concentrations are representative of present-day groundwater quality. In some cases, the earlier portion of data are deselected prior to construction of limits in order to provide sensitive limits that will rapidly detect changes in groundwater quality. Even though the data are excluded from the calculation, the values will continue to be reported and shown in tables and graphs. As more data are collected, the resample plan will be re-evaluated for appropriateness of the 1-of-2 plan for intrawell analyses.

In the event of an initial exceedance of compliance well data, the 1-of-3 resample plan allows for collection of up to two additional samples to determine whether the initial exceedance is confirmed. When both resamples confirm the initial exceedance, a statistically significant increase (SSI) is identified and further research would be required to identify the cause of the exceedance (i.e. impact from the site, natural variation, or an off-site source). In the 1-of-2 resample plan, one additional sample may be collected to confirm the initial exceedance. 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. A summary table of the background prediction limits follows this letter.

#### Appendix IV – Assessment Monitoring Program

During an Assessment Monitoring program confidence intervals are constructed at all 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. 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. The GWPS is exceeded only when the entire confidence interval exceeds its respective GWPS.

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, the CCR Rule recommends using these ACLs as the GWPS for the confidence interval comparisons. Additionally, tolerance limits are also recommended to establish ACLs for Appendix IV parameters, cobalt, lithium, and molybdenum, which do not have established MCLs. Since the scope of this project included screening and development of background limits for Appendix III Detection Monitoring statistics, comparison of the Appendix IV parameters with confidence intervals was not included in this report.

### Recommendations

In summary, as a result of the background screening described in this letter, intrawell prediction limits combined with a 1-of-3 resample plan are recommended for calcium and pH. Interwell prediction limits combined with a 1-of-2 resample plan are recommended for boron, chloride, fluoride, sulfate, and TDS. The statistical analyses will be constructed according to the USEPA Unified Guidance, based on 7 Appendix III parameters and 15 downgradient wells.

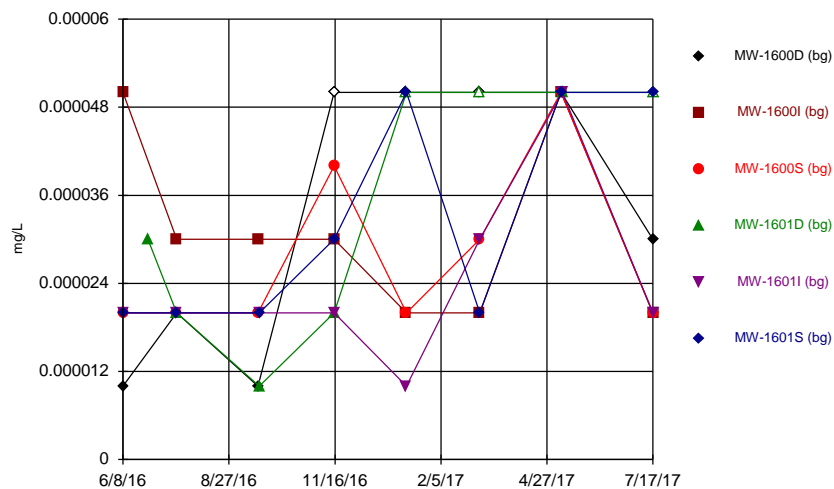
Thank you for the opportunity to assist you in the statistical analysis of groundwater quality for the Rockport Bottom Ash Pond. If you have any questions or comments, please feel free to contact me.

For Groundwater Stats Consulting,

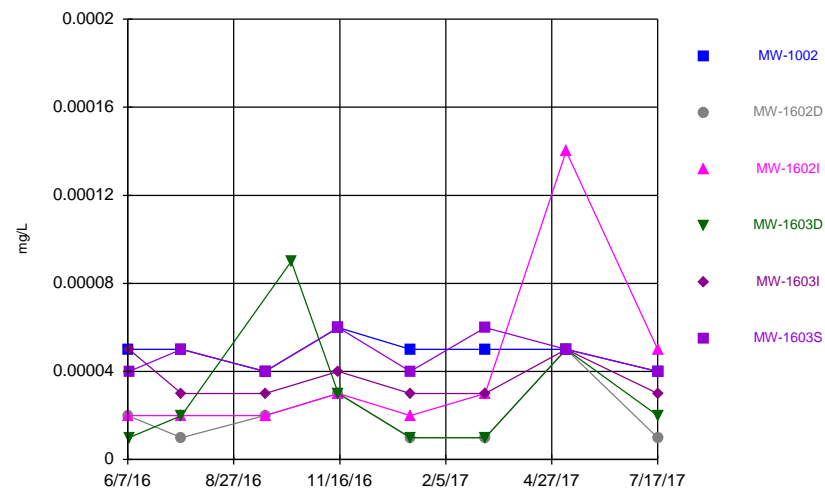
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Kristina L. Rayner  
Groundwater Statistician

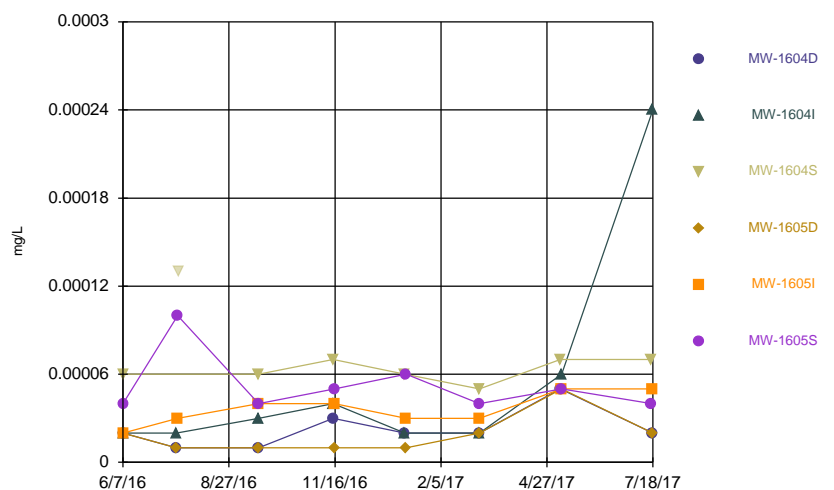
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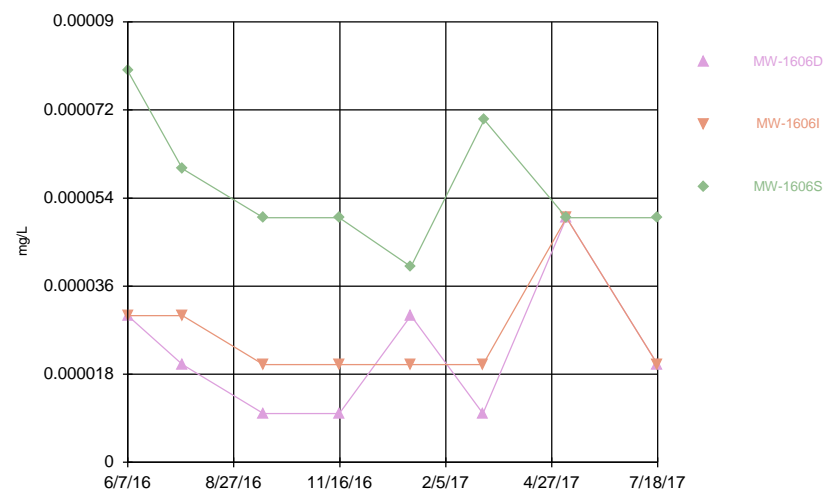
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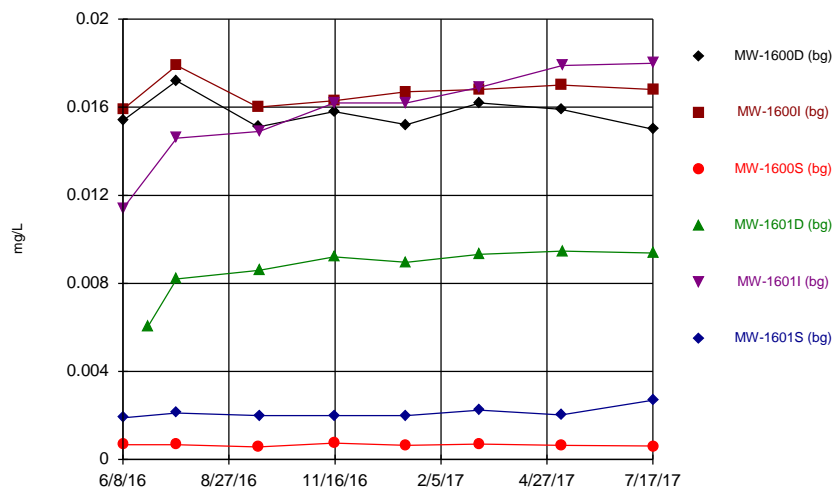
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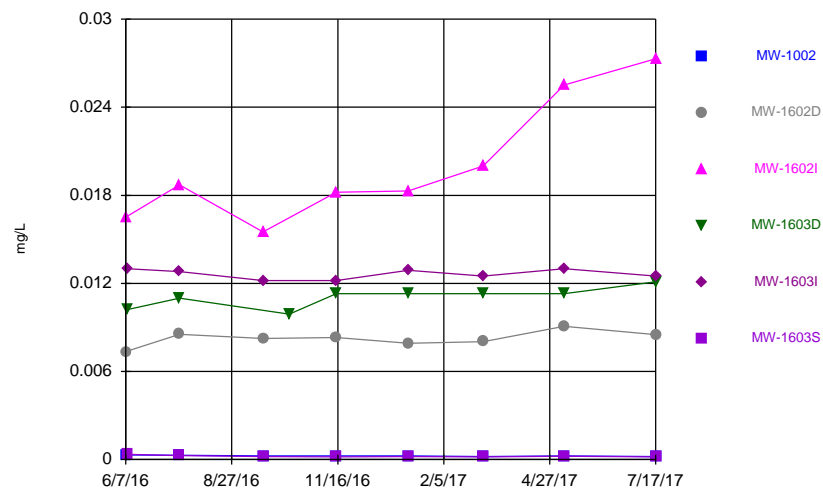


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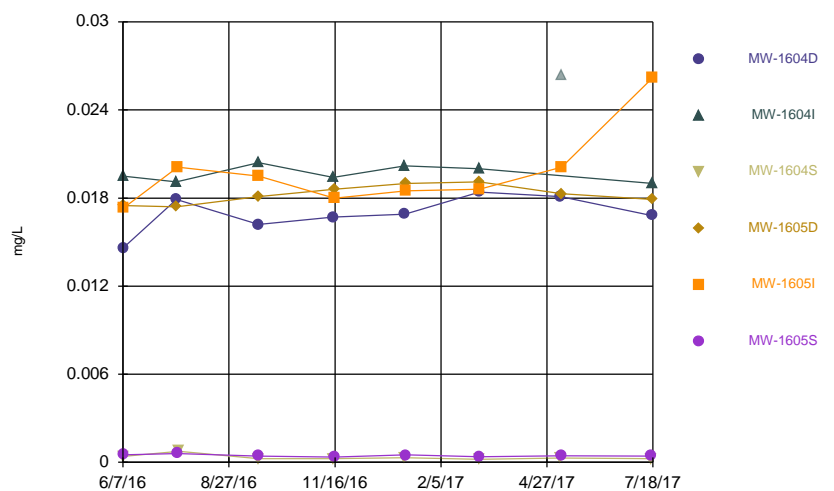
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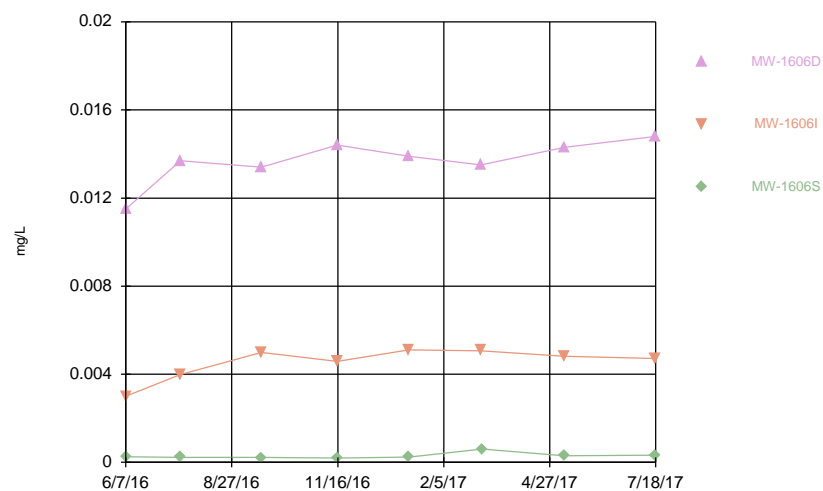
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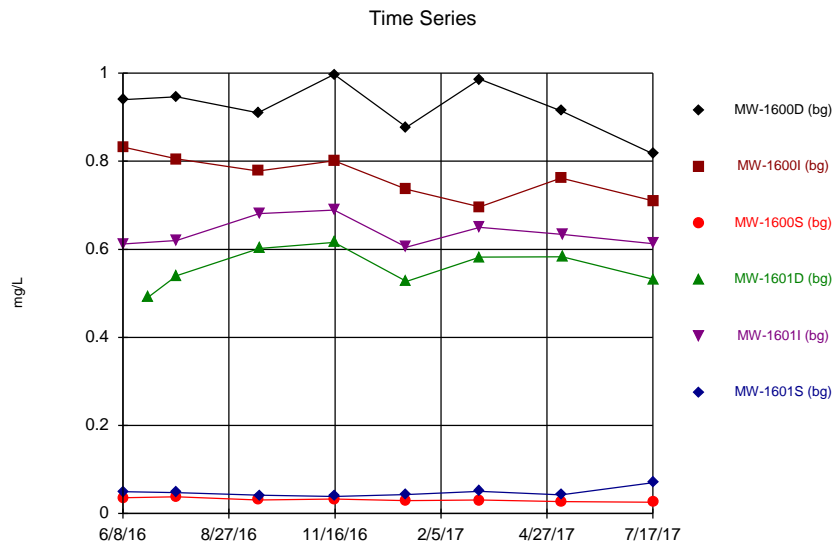


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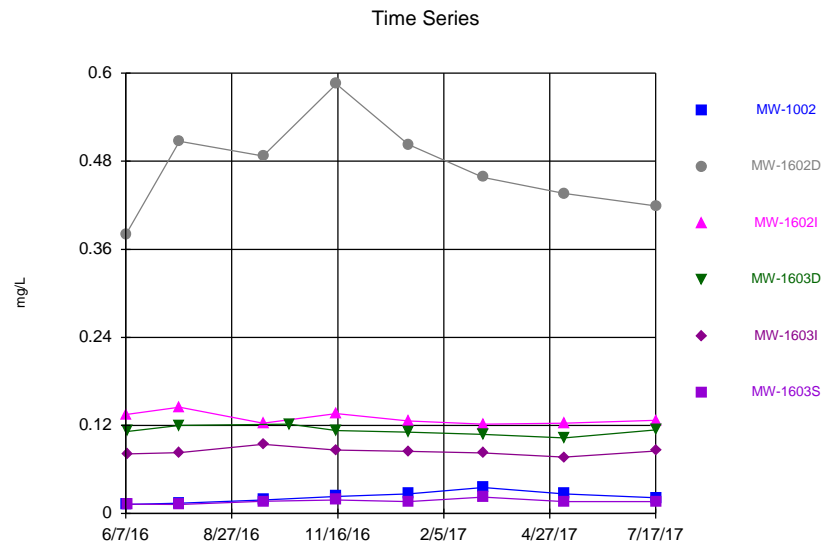
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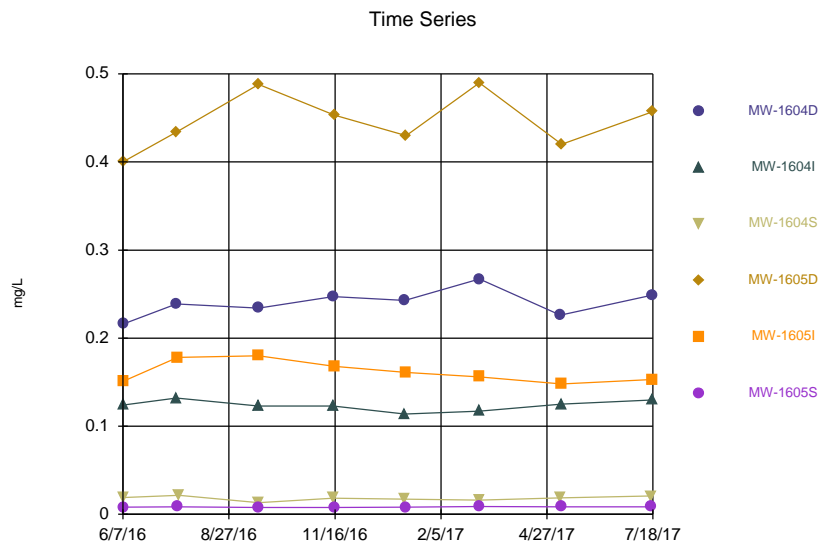
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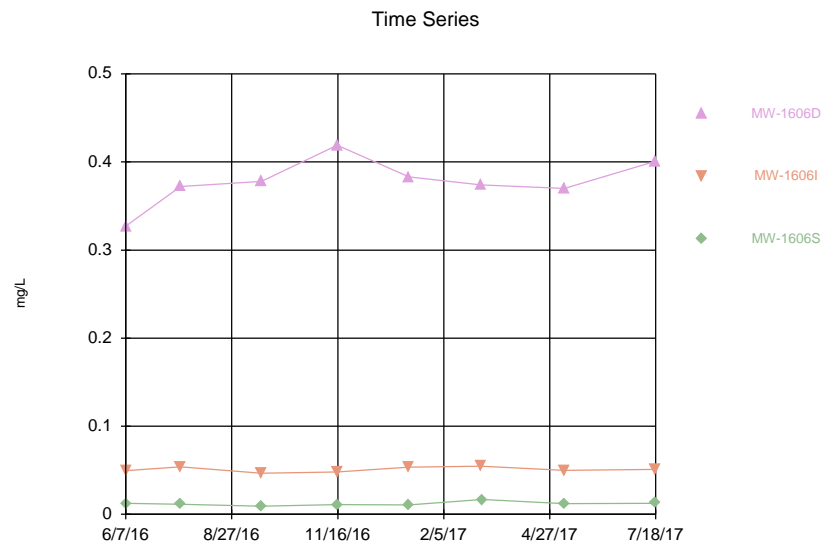
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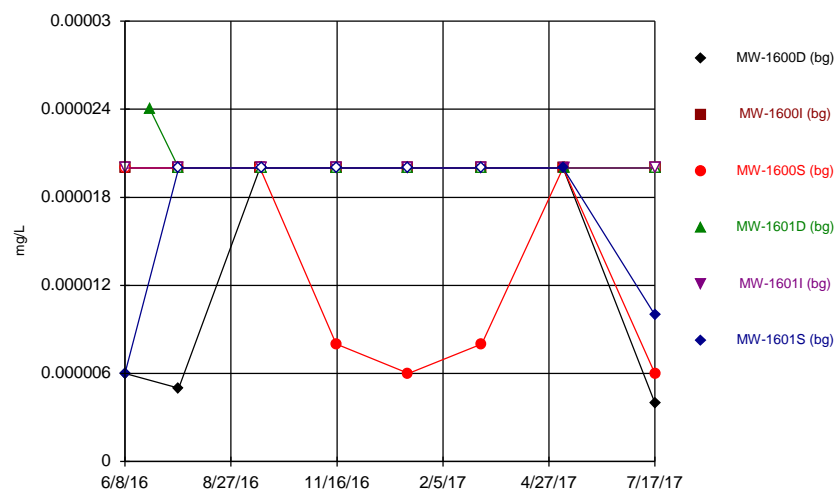


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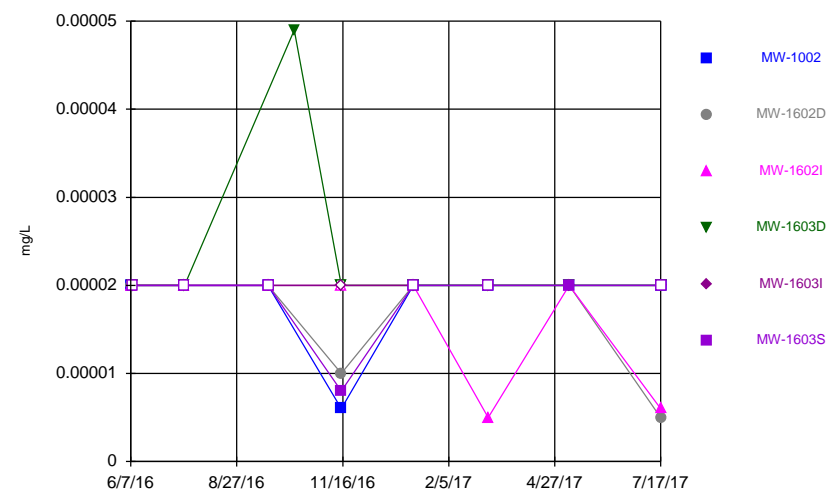


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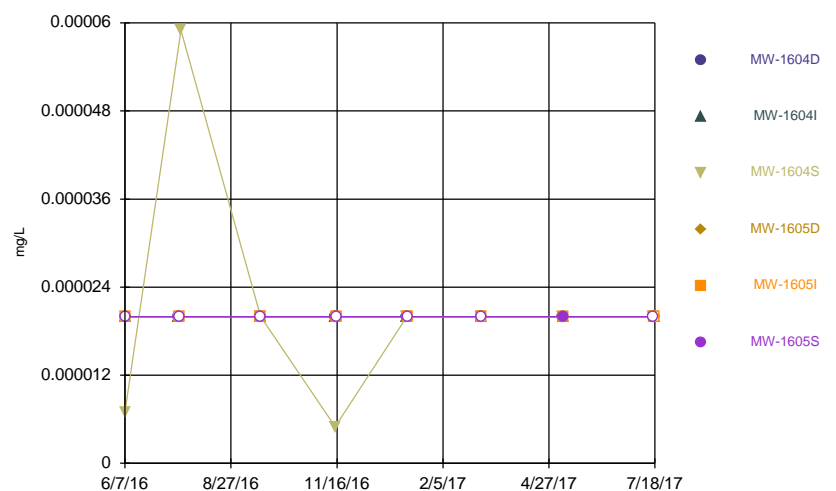
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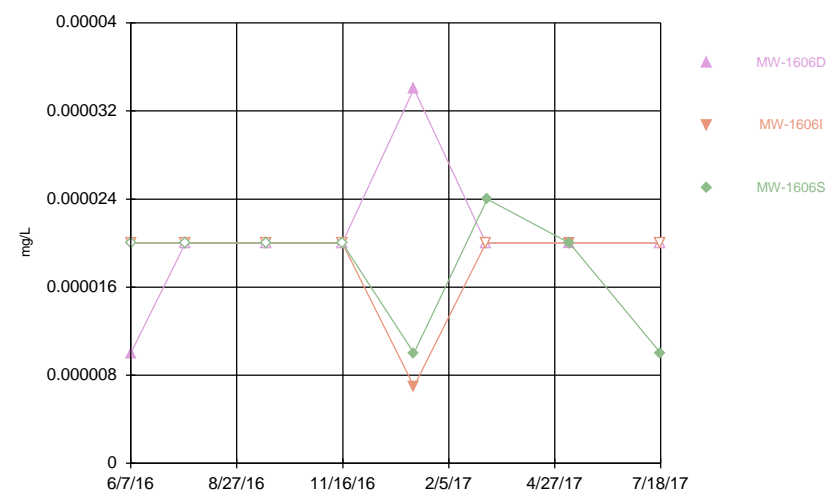
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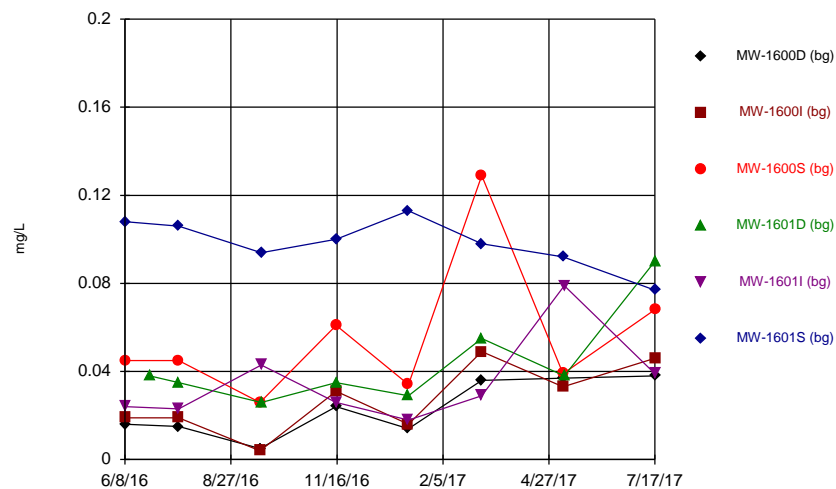
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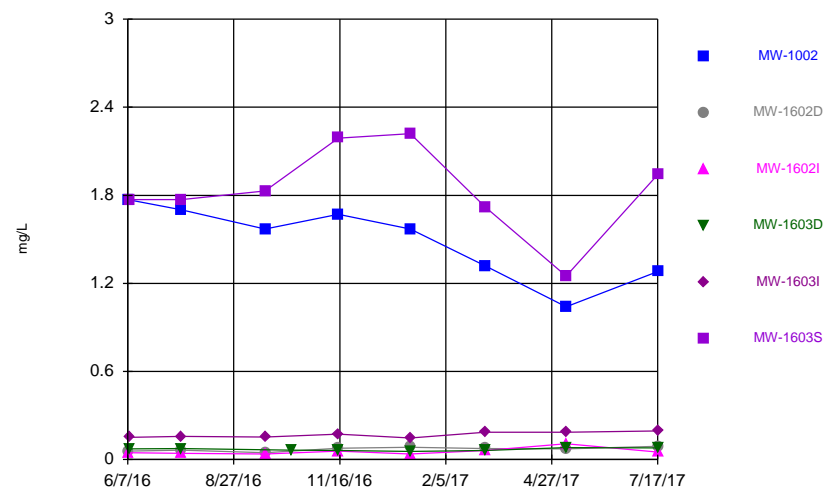


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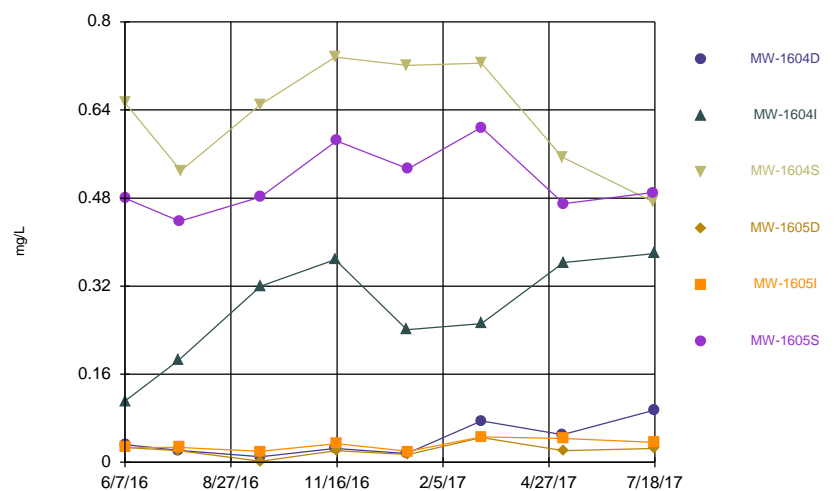
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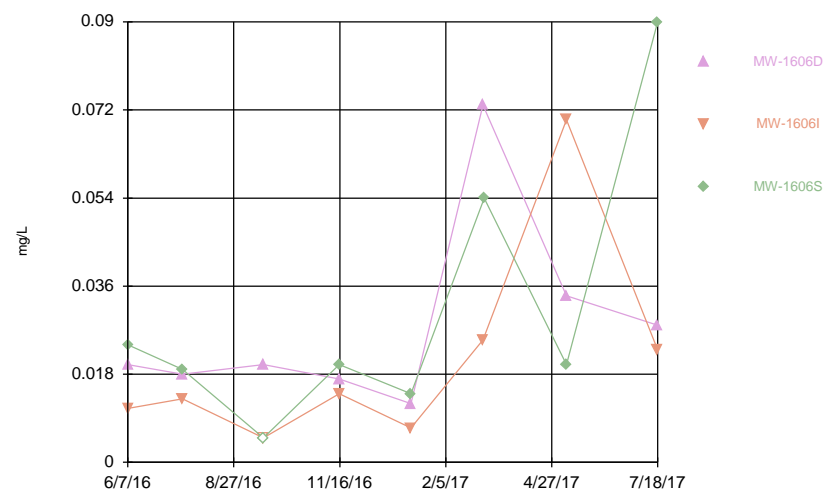
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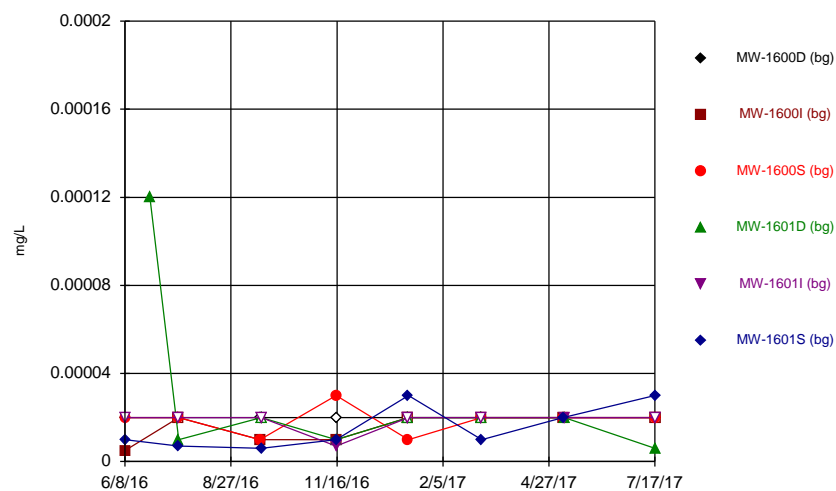
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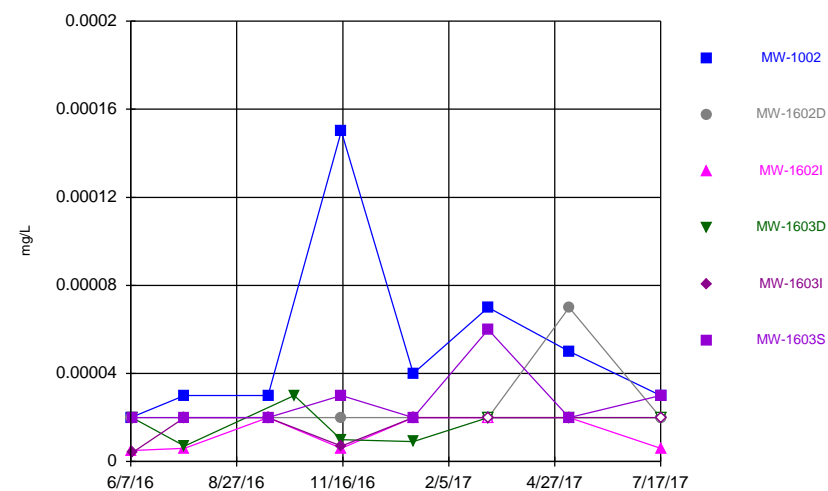
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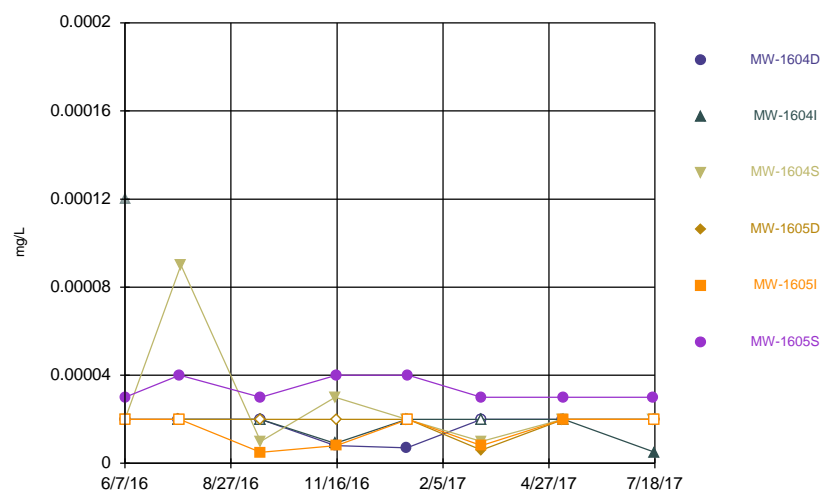
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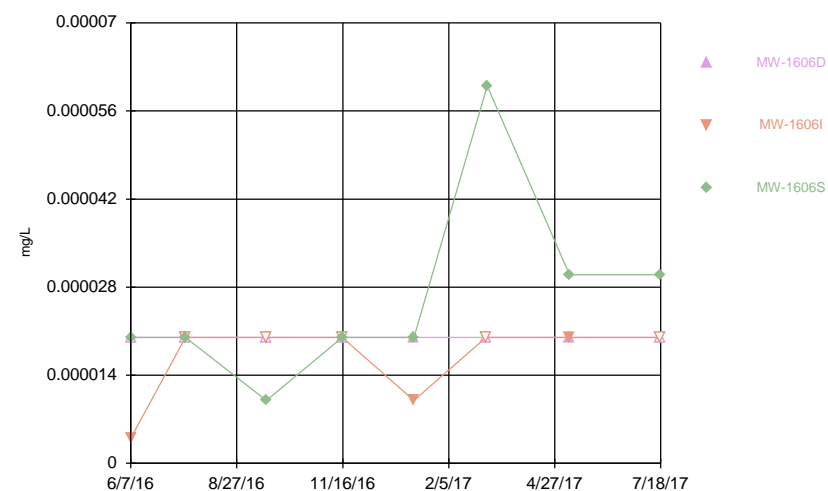
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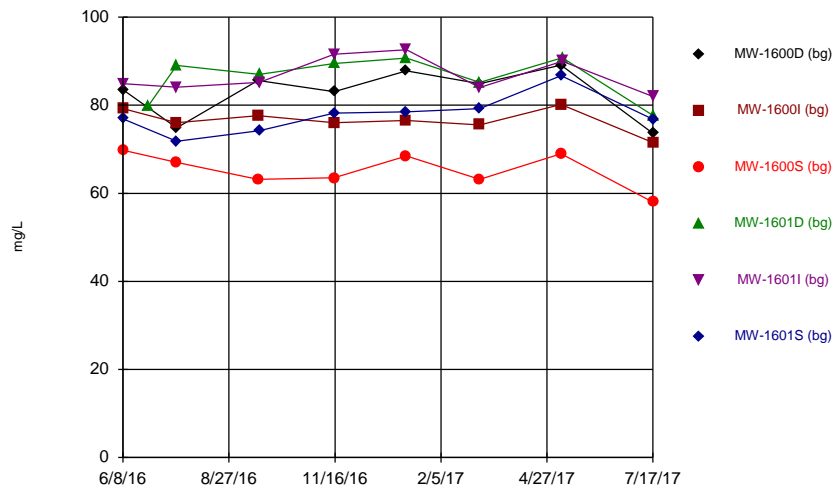
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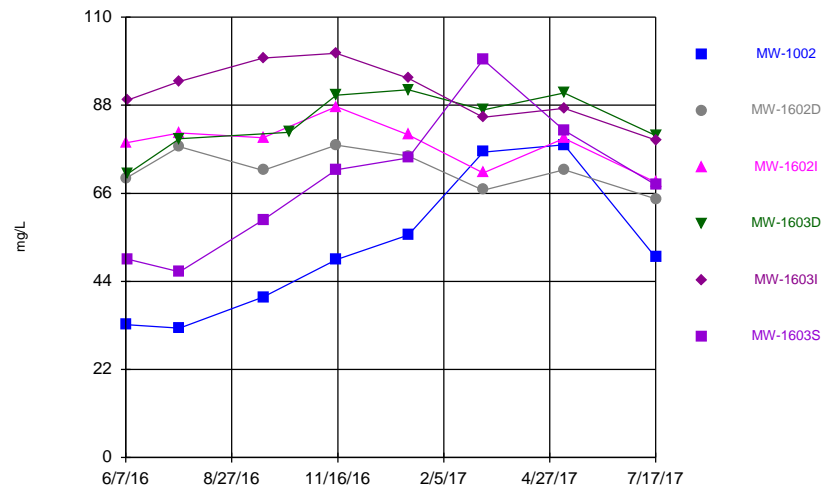


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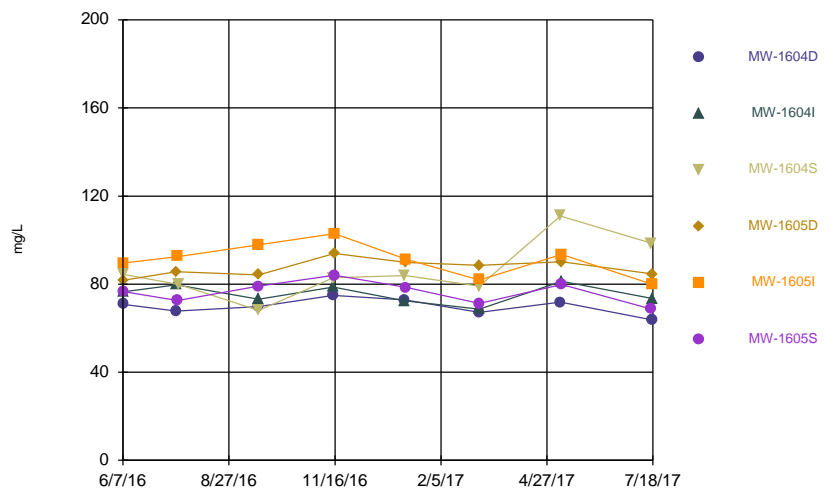
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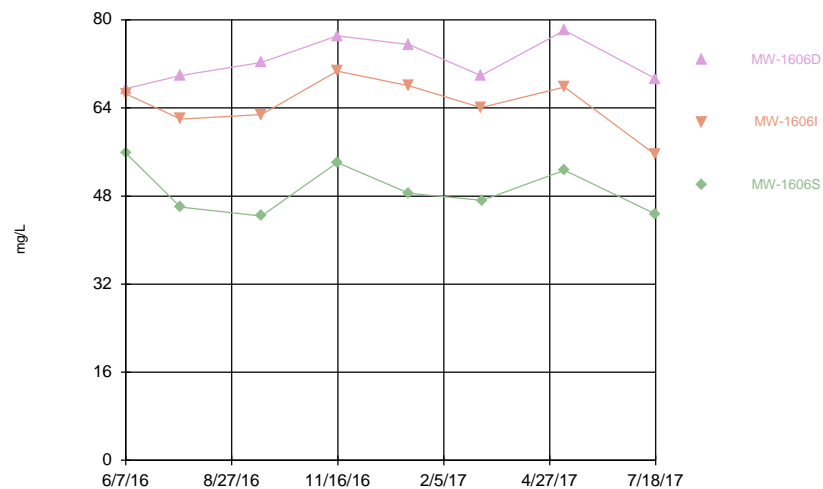
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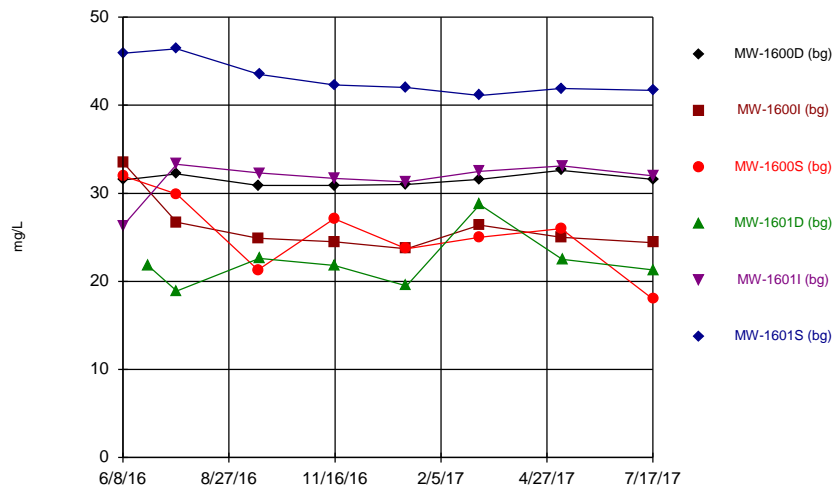
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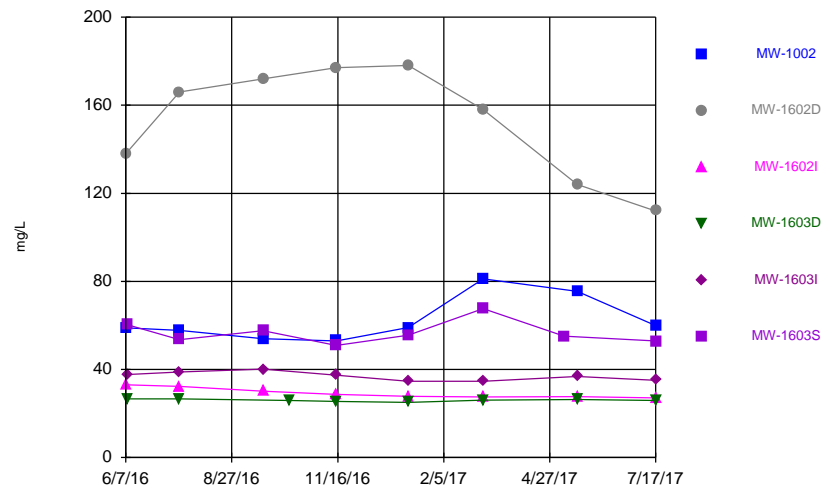
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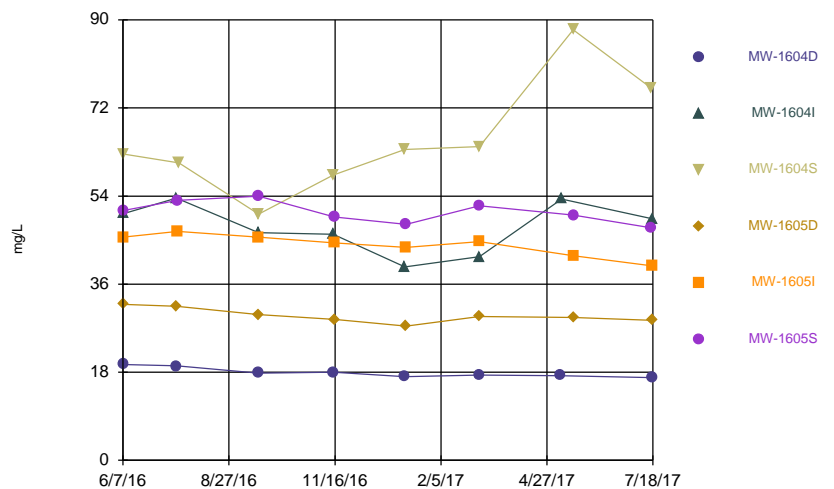
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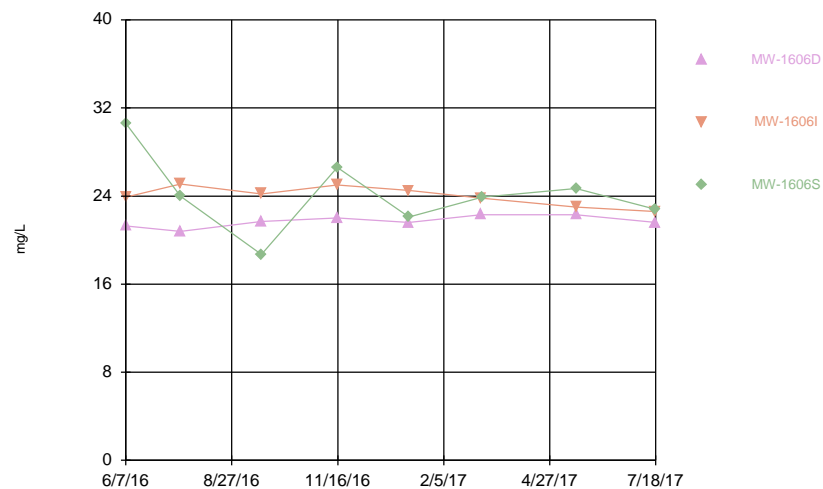
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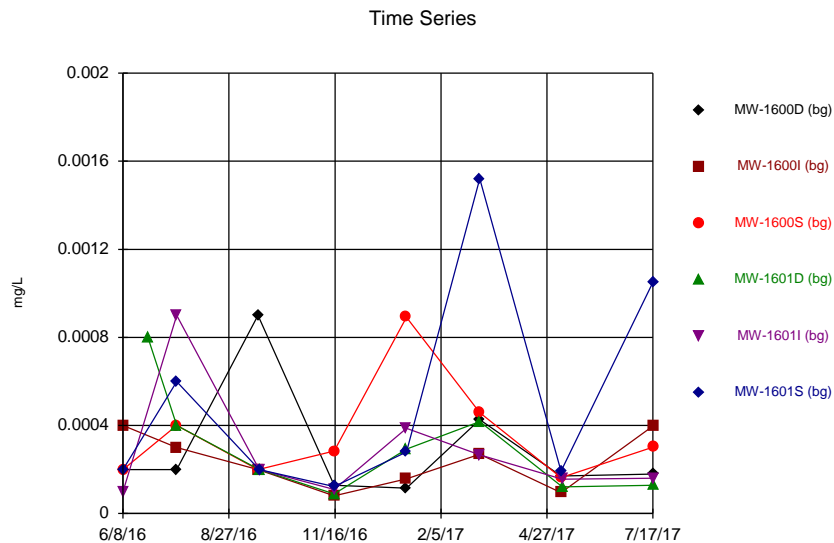


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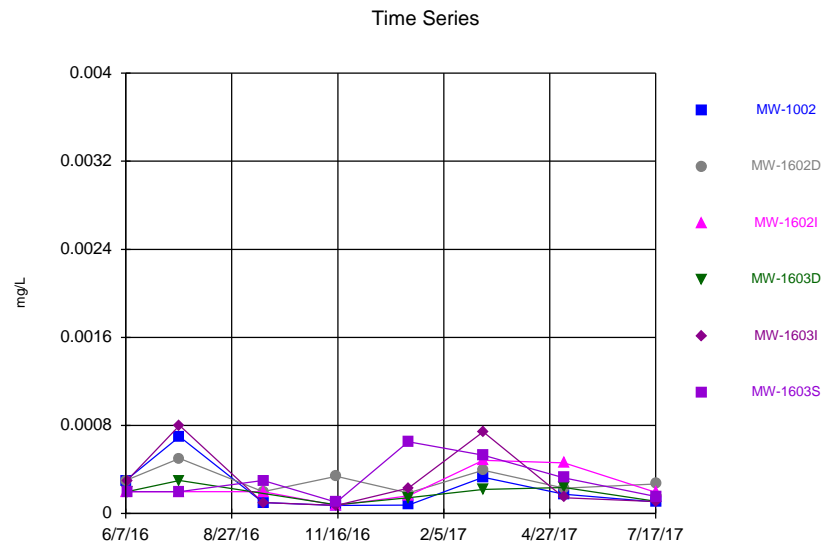
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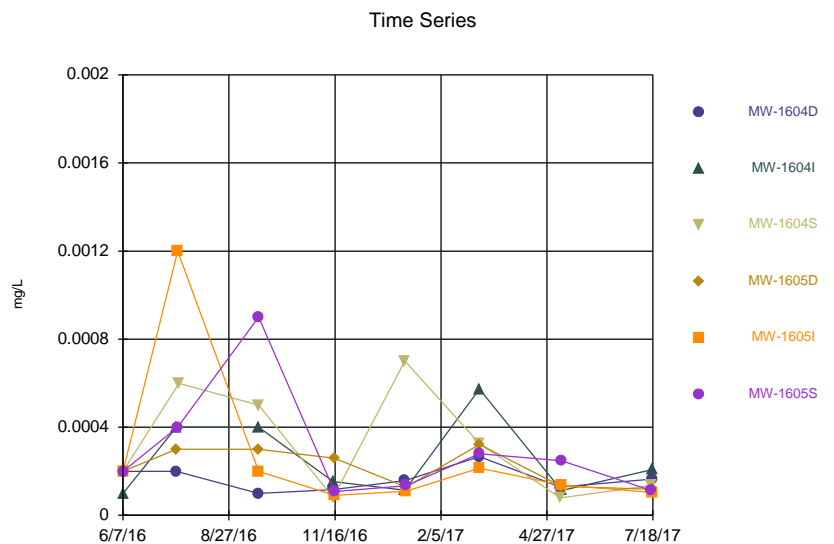
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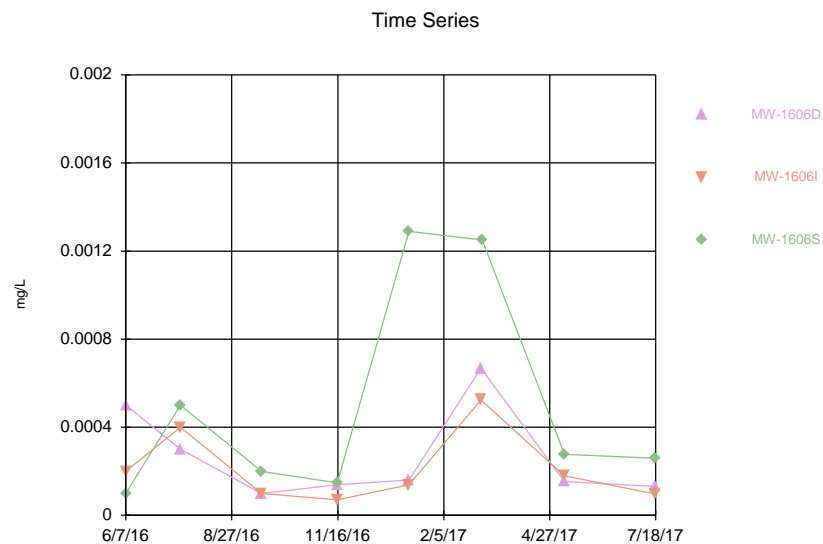
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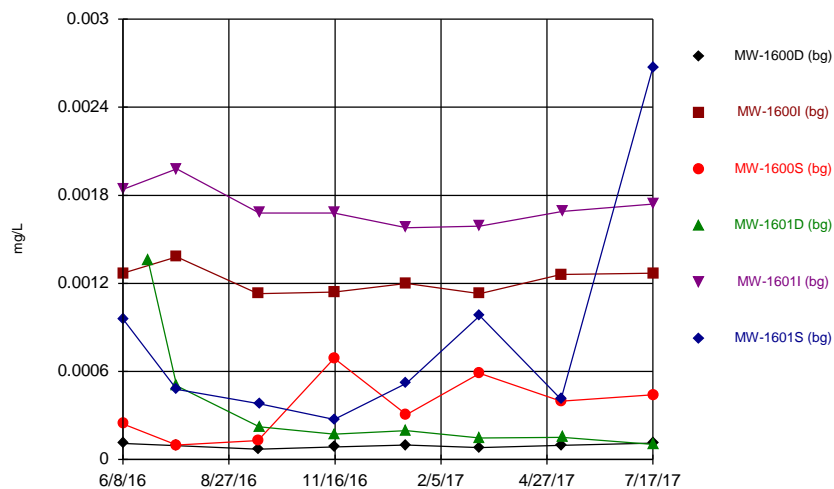


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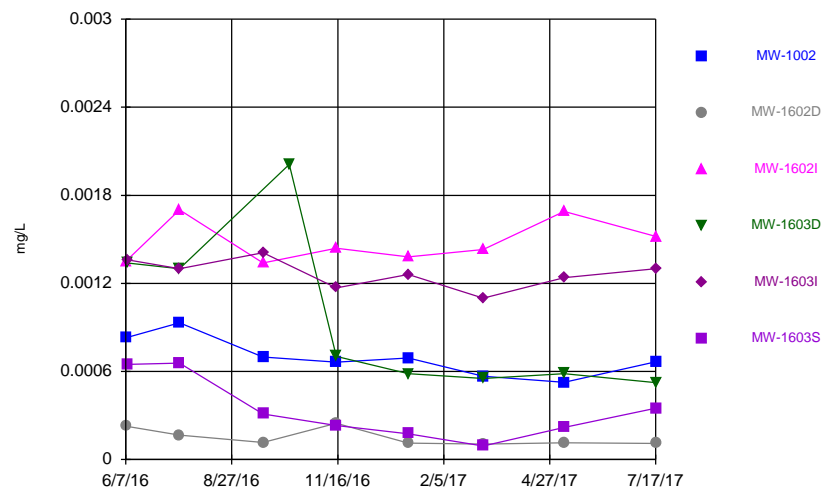
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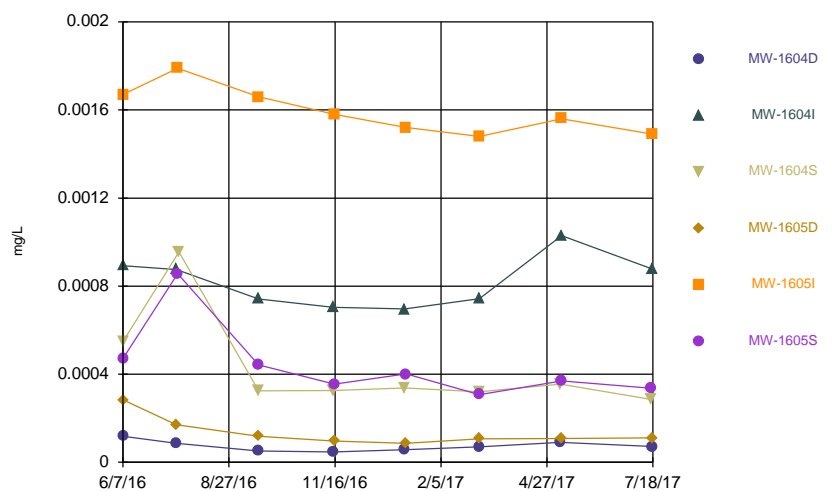
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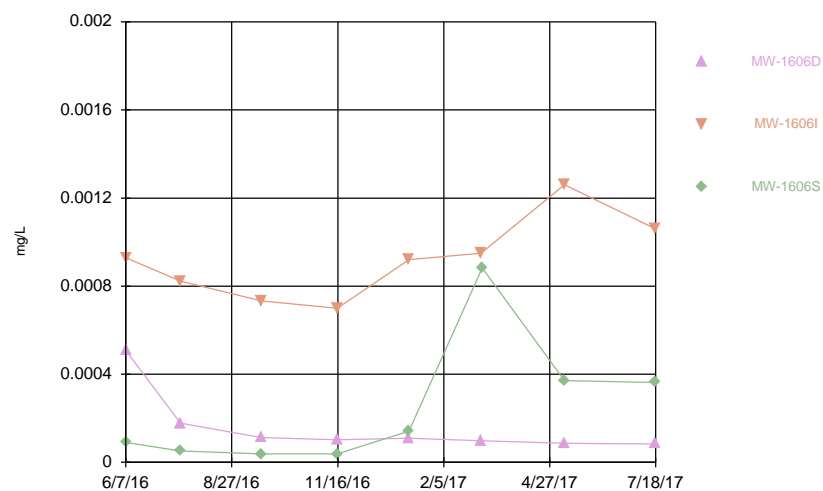
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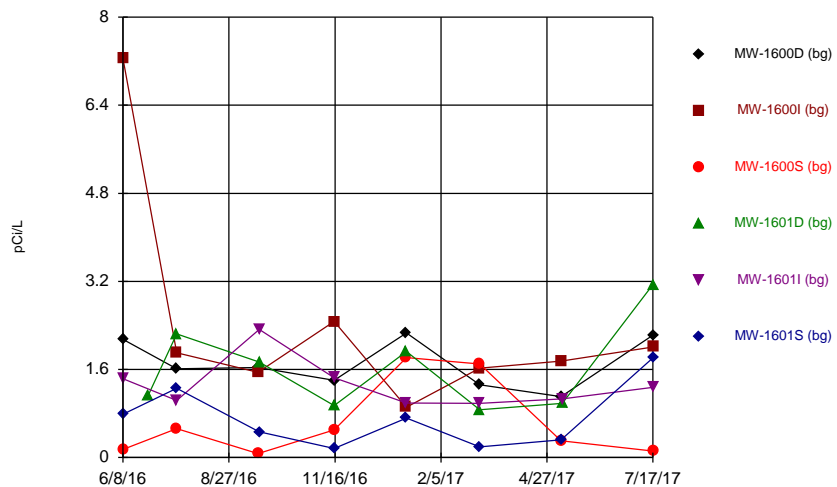
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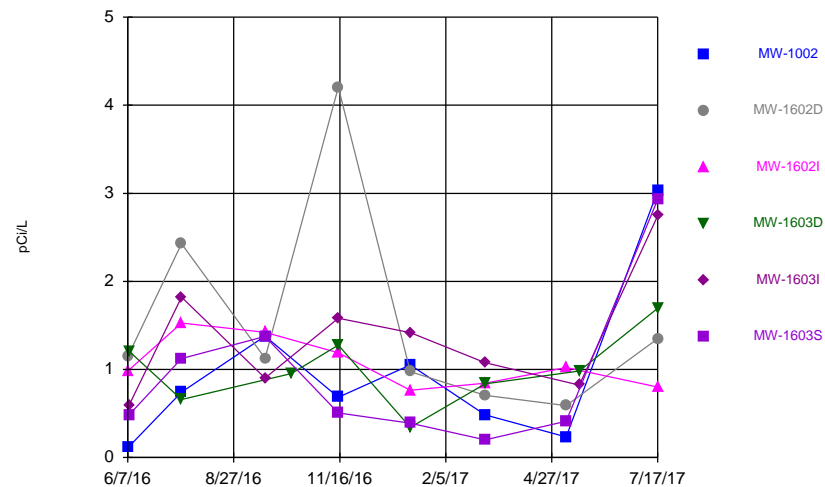
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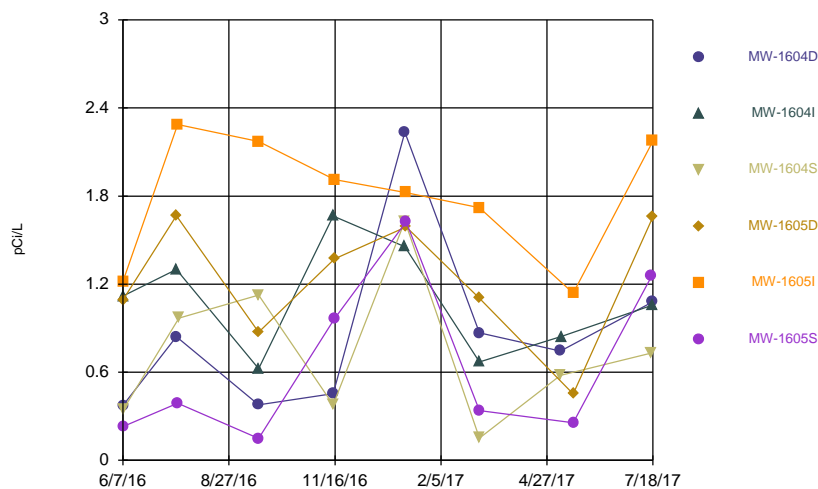
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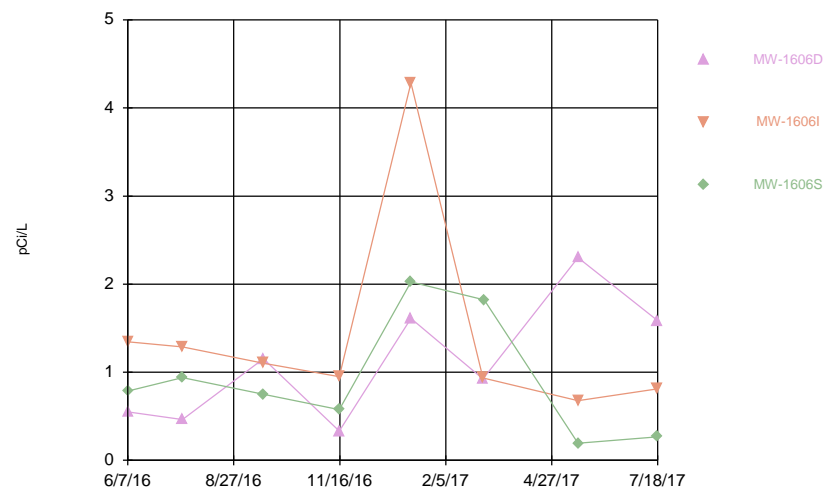
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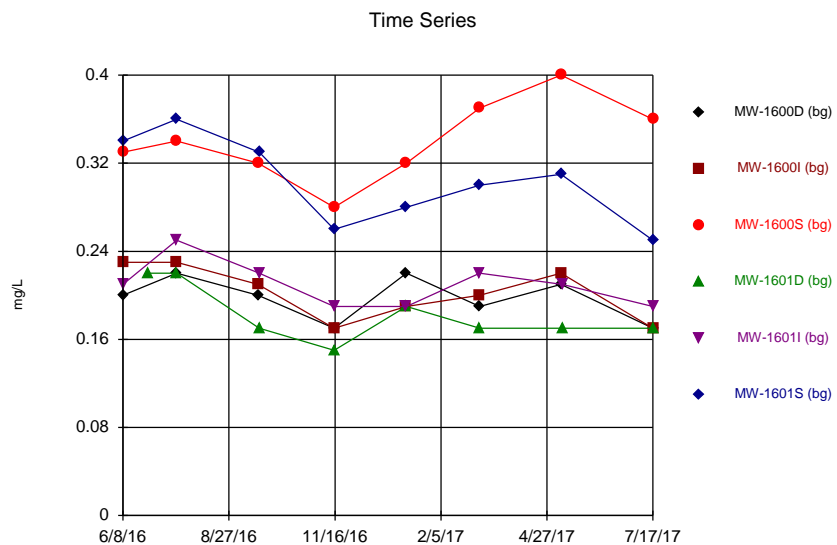


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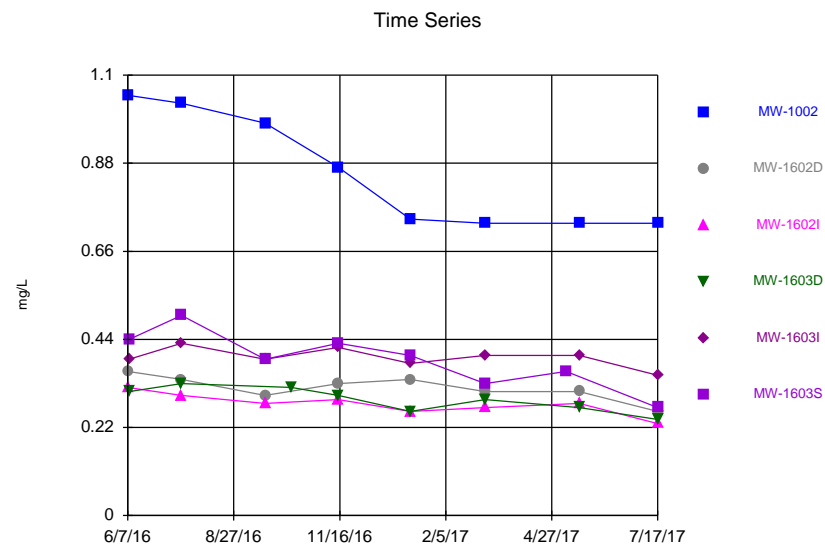
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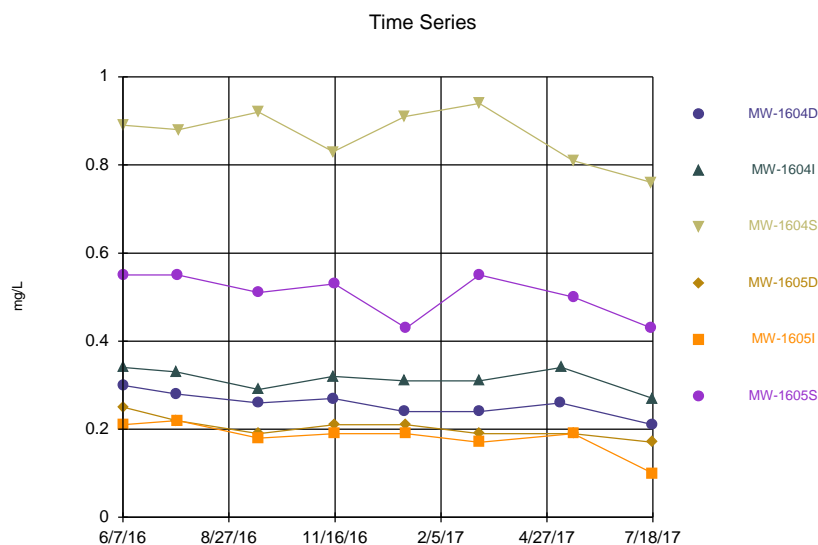
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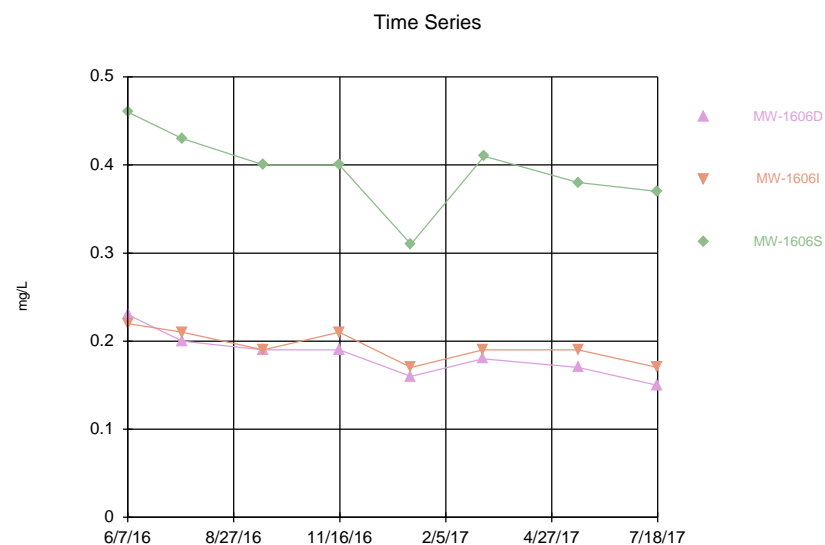
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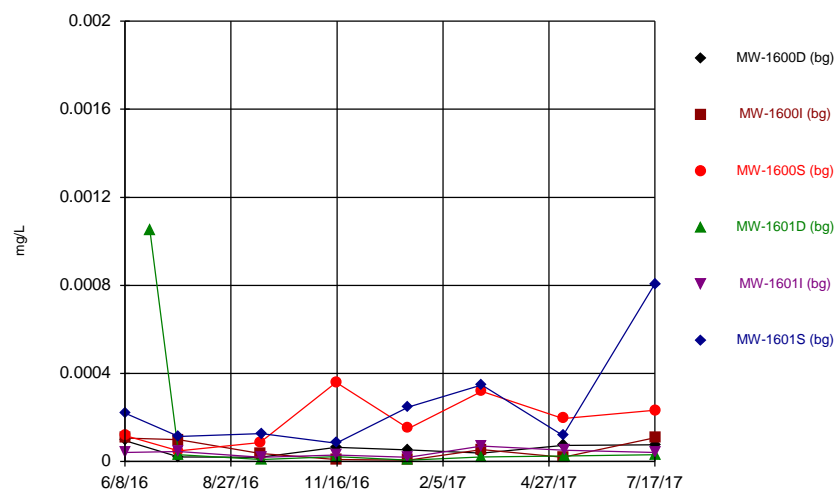


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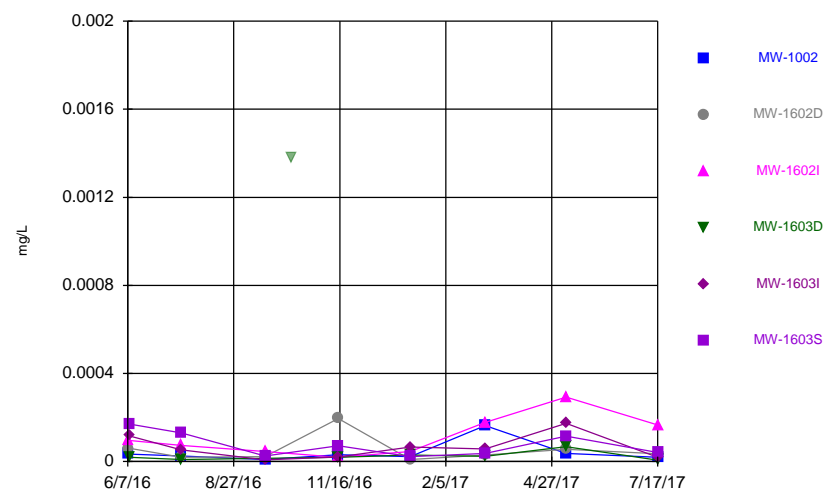
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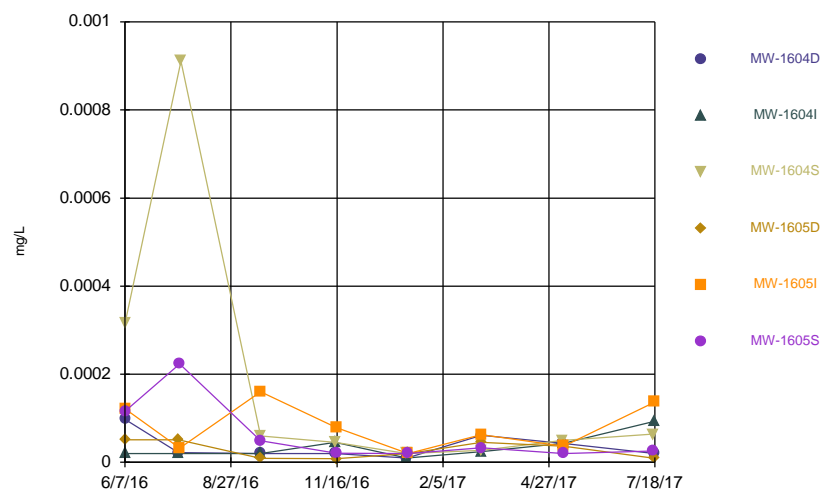
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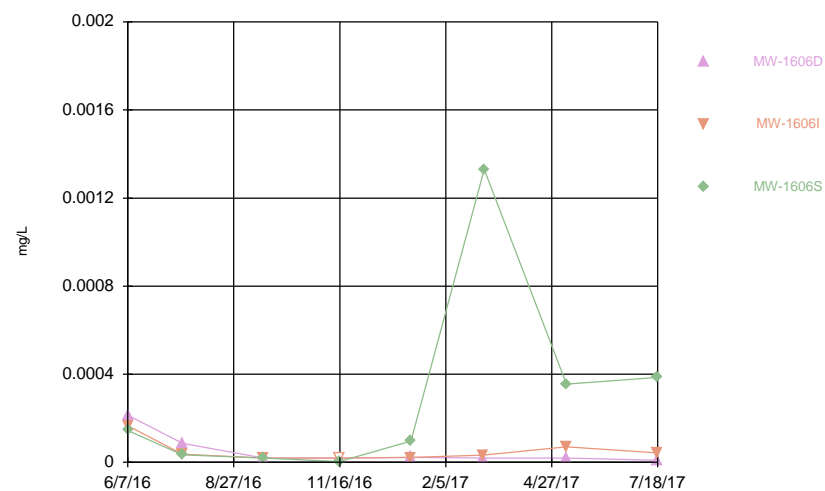
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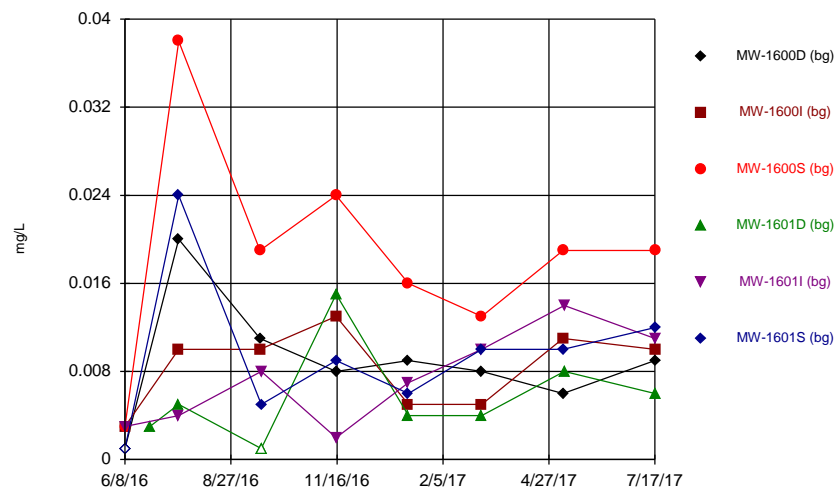
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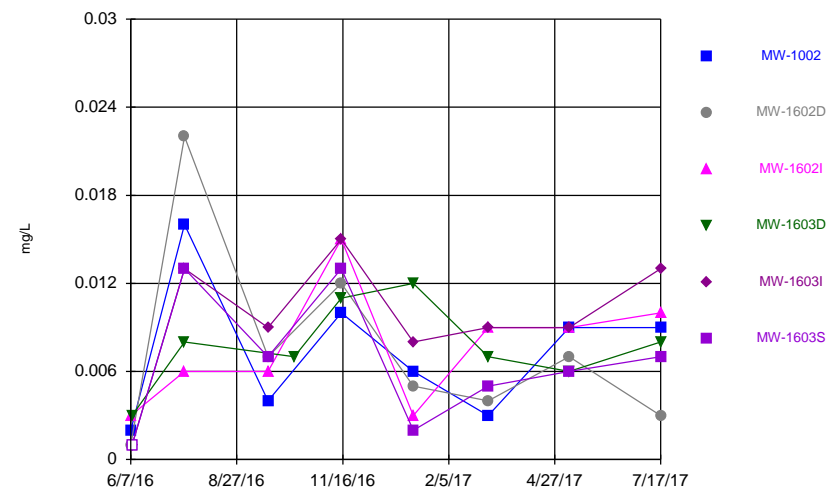


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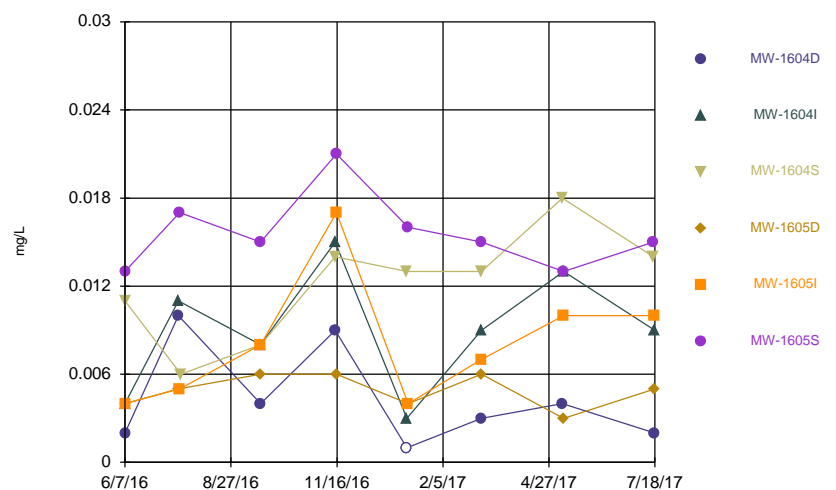
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Time Series



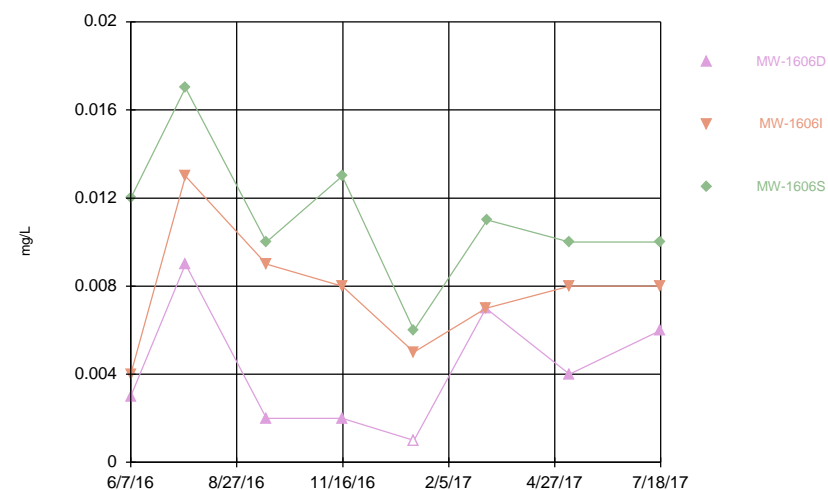
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Time Series



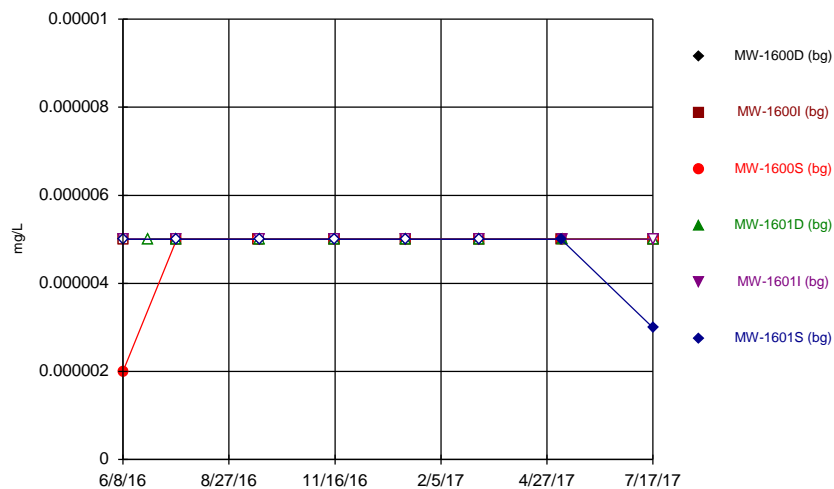
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Time Series



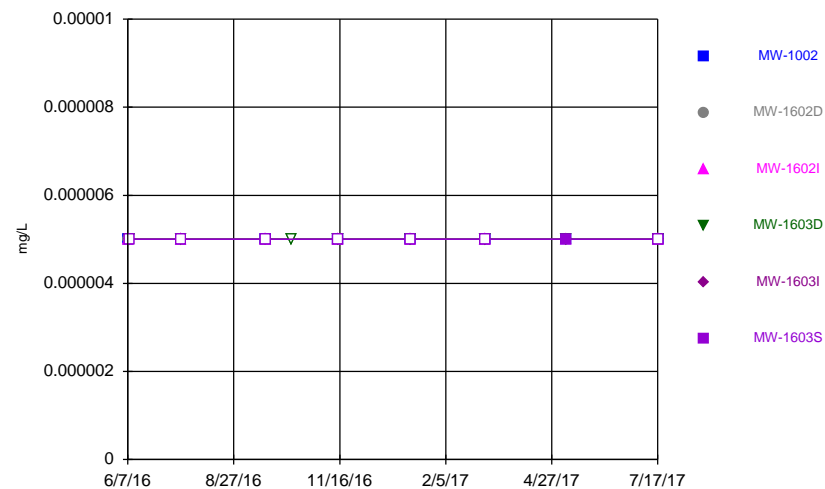
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

### Time Series



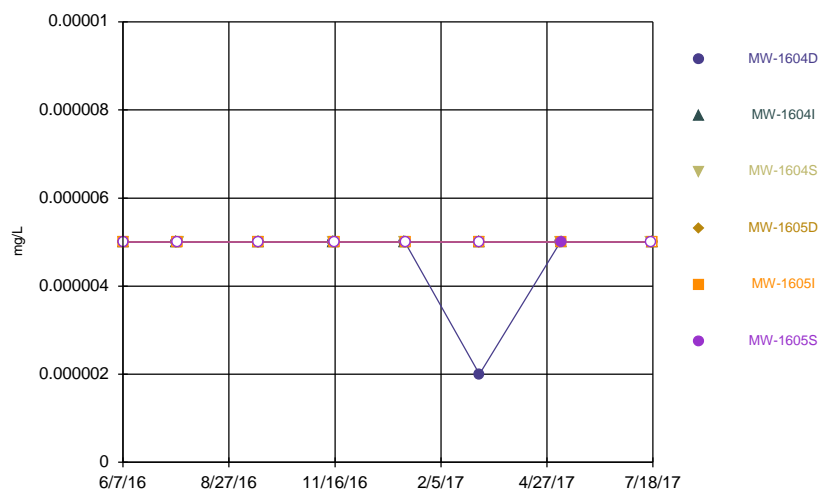
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

### Time Series



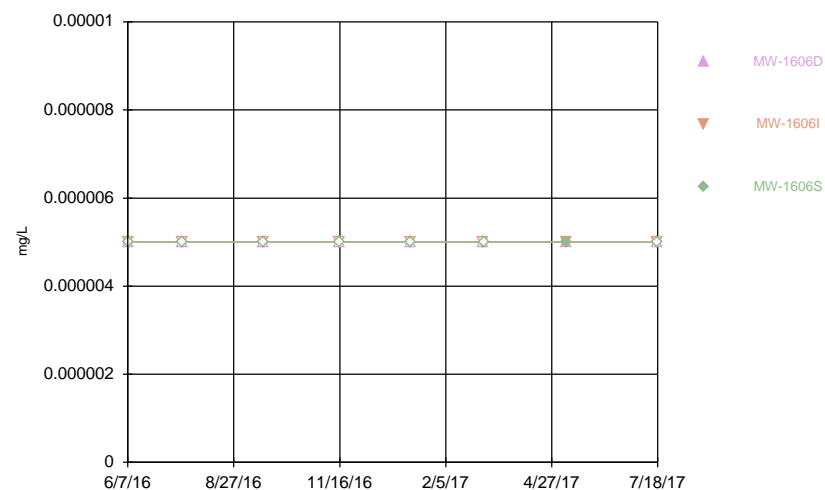
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

### Time Series



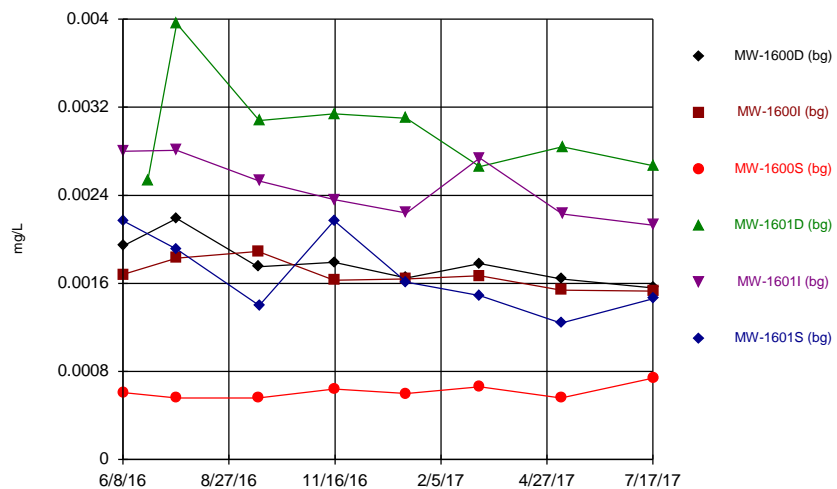
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### Time Series



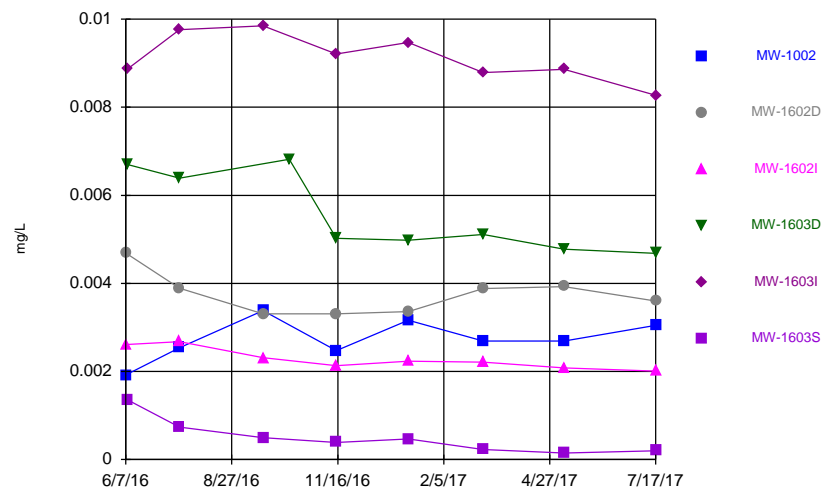
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Time Series



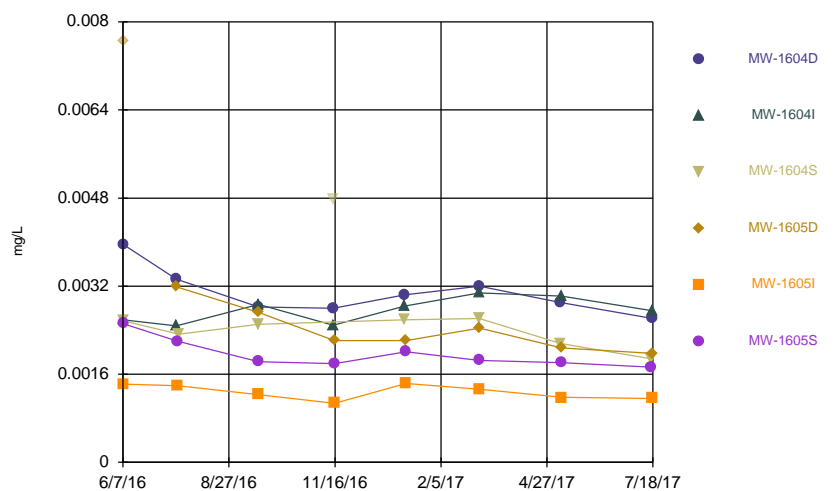
Constituent: Molybdenum, total Analysis Run 12/26/2017 8:09 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Time Series



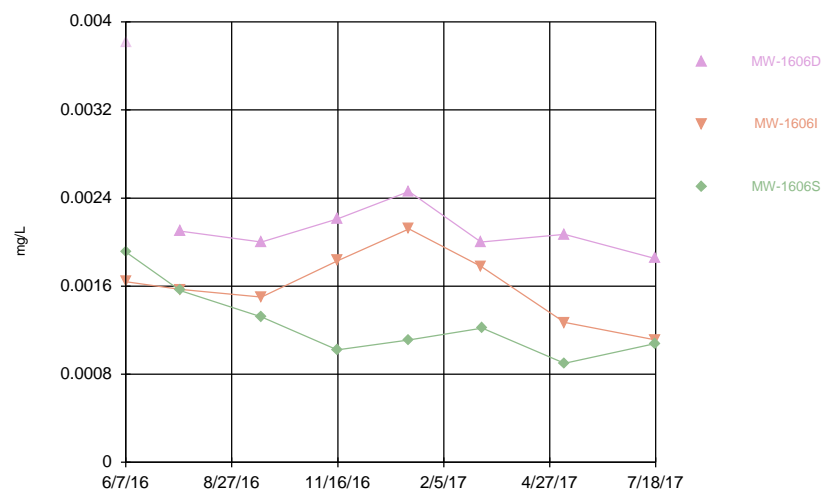
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Time Series



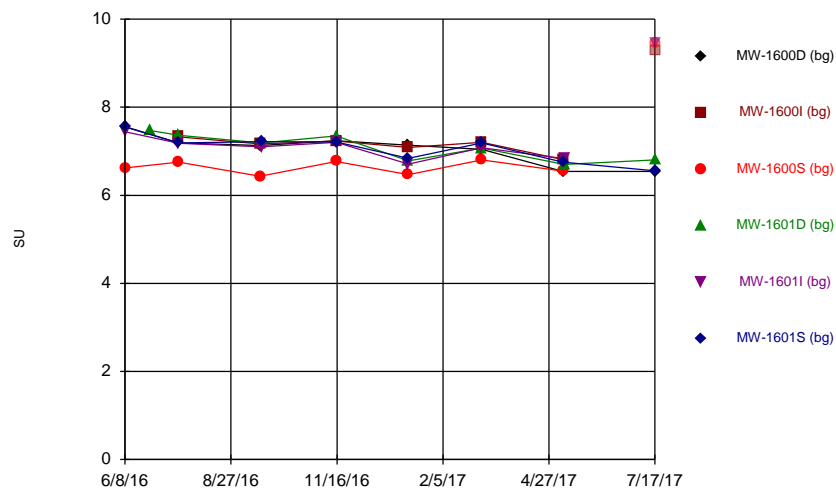
Constituent: Molybdenum, total Analysis Run 12/26/2017 8:09 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Time Series



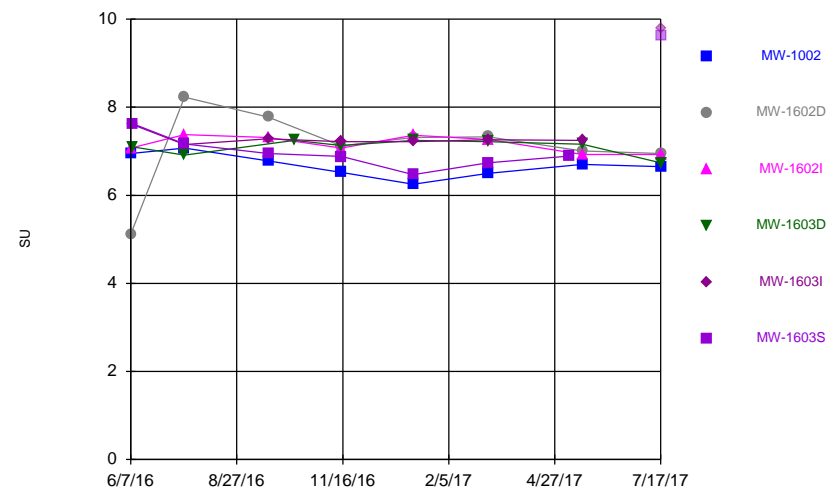
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Time Series



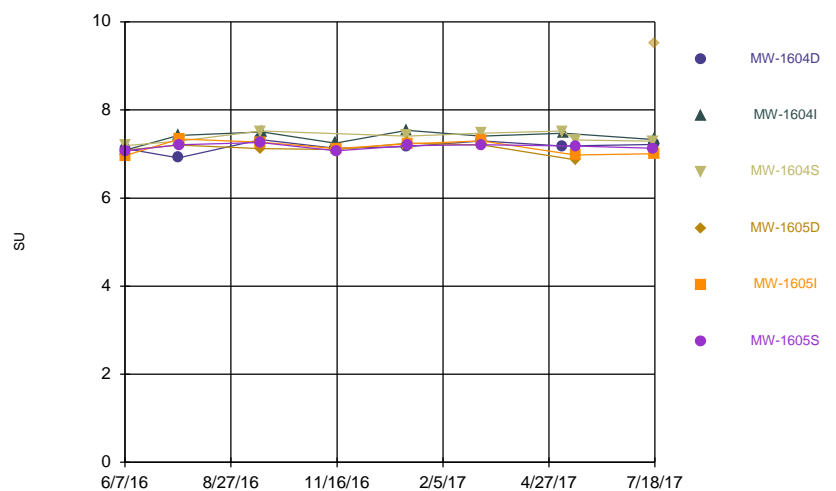
Constituent: pH, field Analysis Run 12/26/2017 8:09 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Time Series



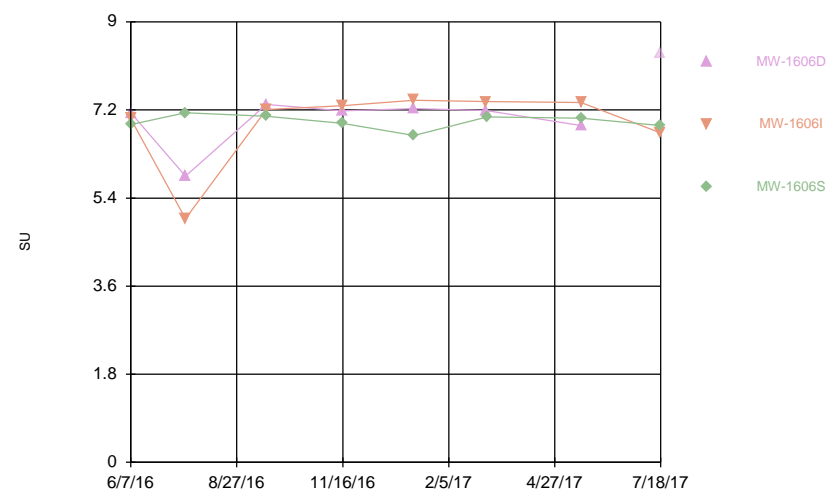
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Time Series



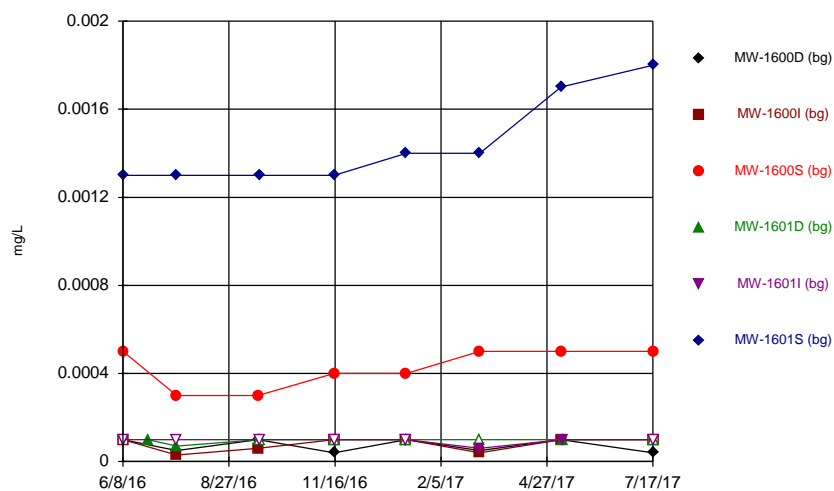
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Time Series



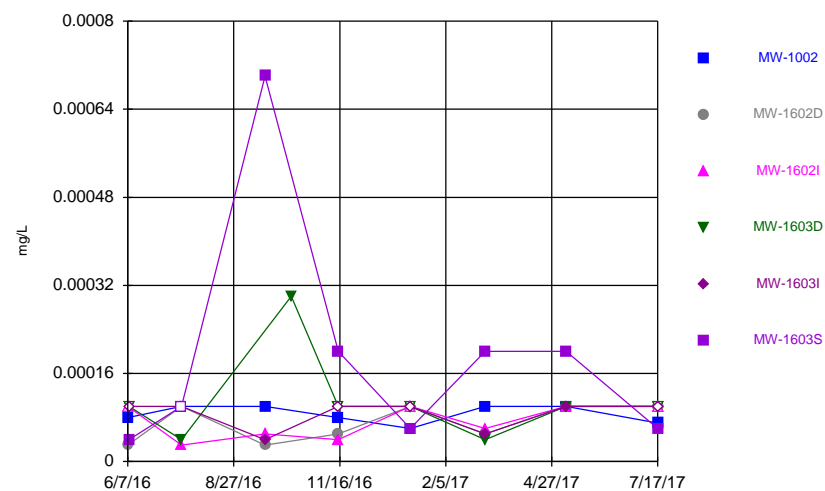
Constituent: pH, field Analysis Run 12/26/2017 8:09 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Time Series



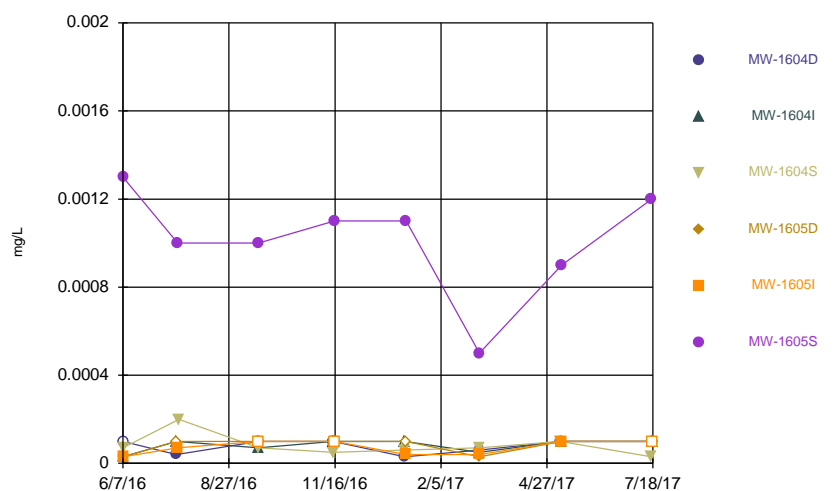
Constituent: Selenium, total Analysis Run 12/26/2017 8:09 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Time Series



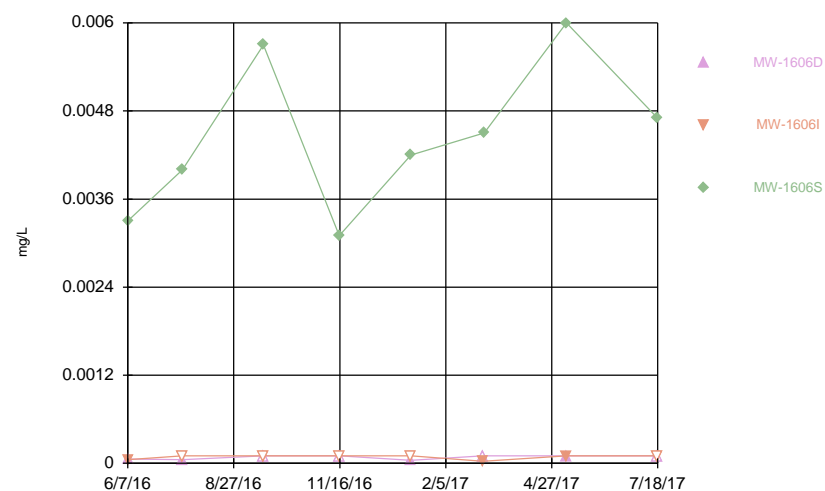
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Time Series



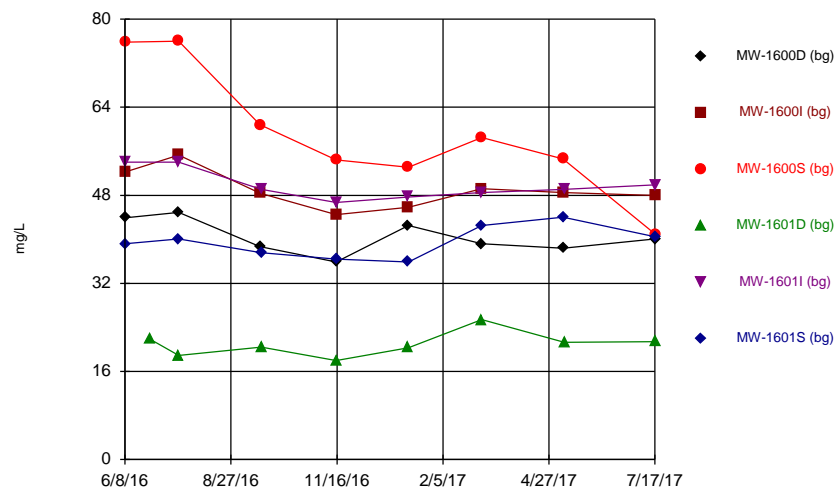
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Time Series



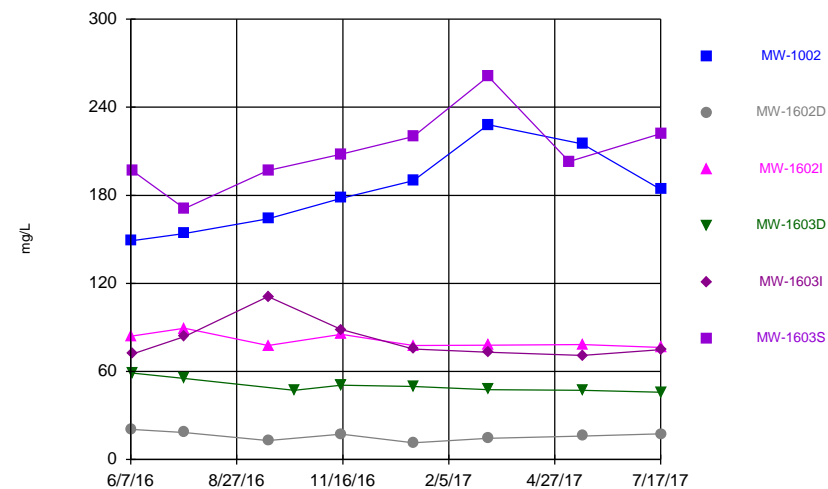
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Time Series



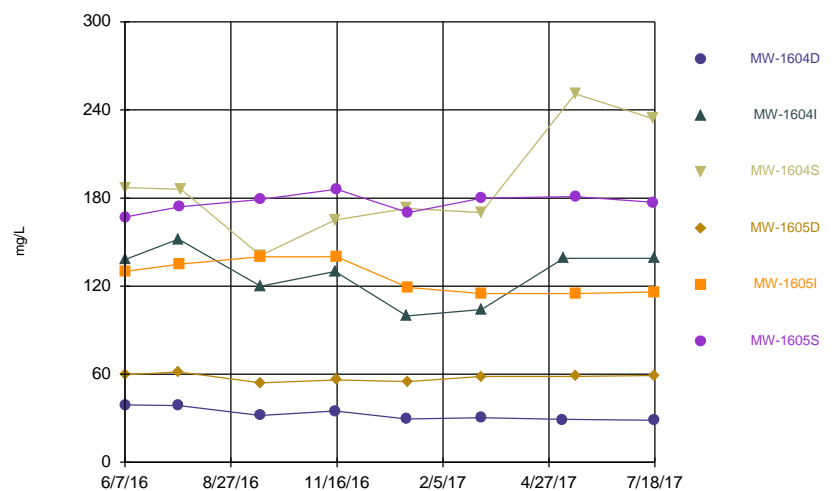
Constituent: Sulfate, total Analysis Run 12/26/2017 8:09 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Time Series



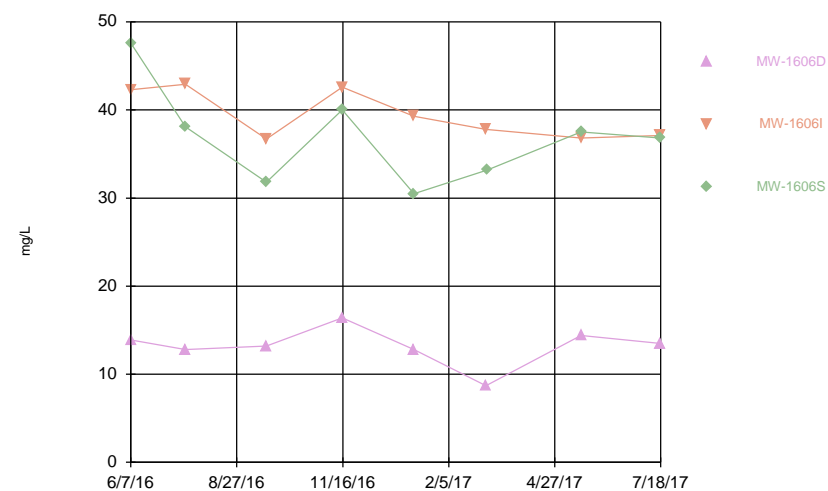
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Time Series



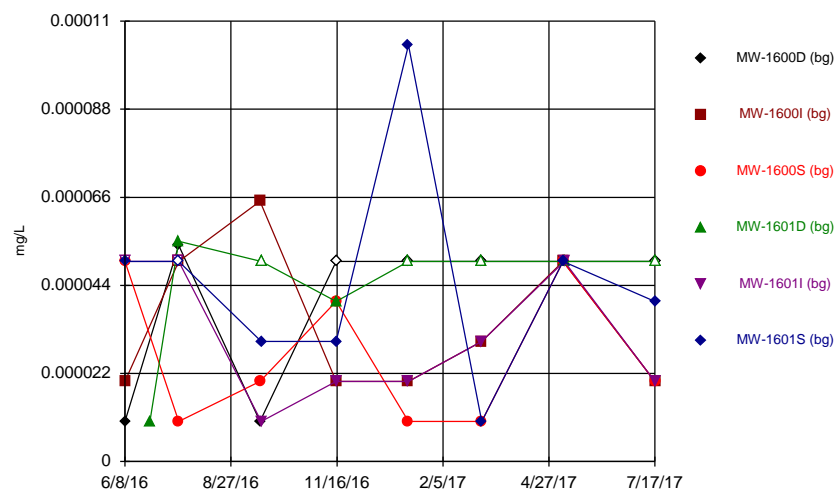
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Time Series



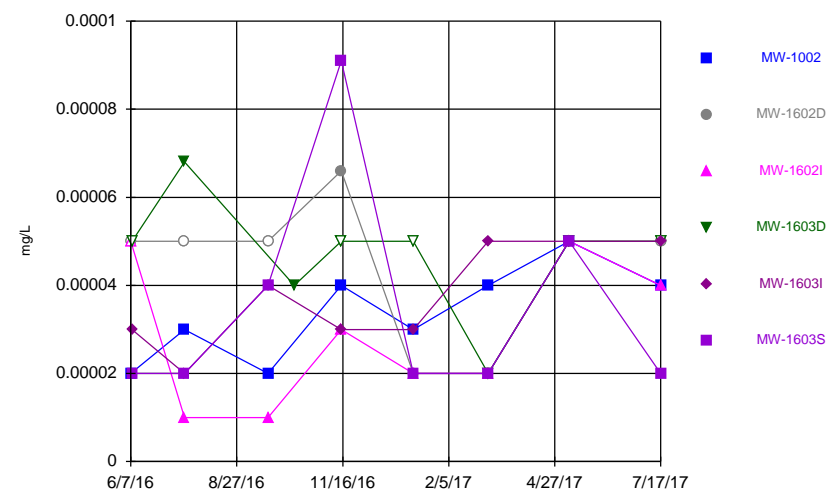
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

### Time Series



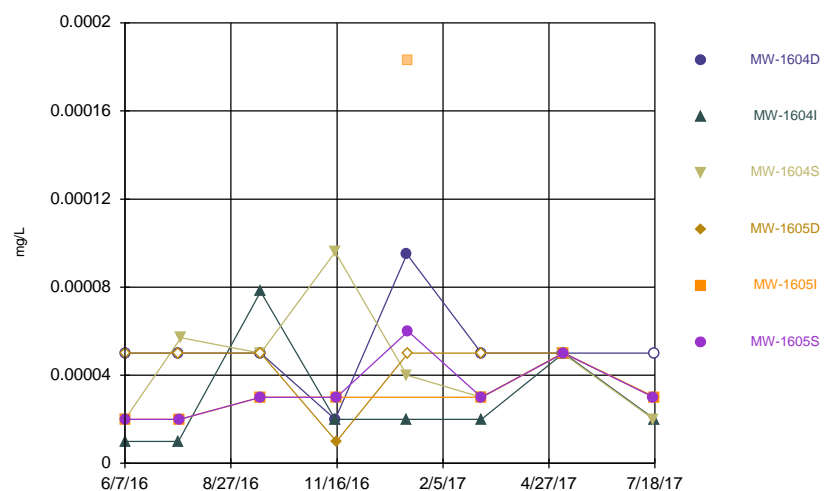
Constituent: Thallium, total Analysis Run 12/26/2017 8:09 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

### Time Series



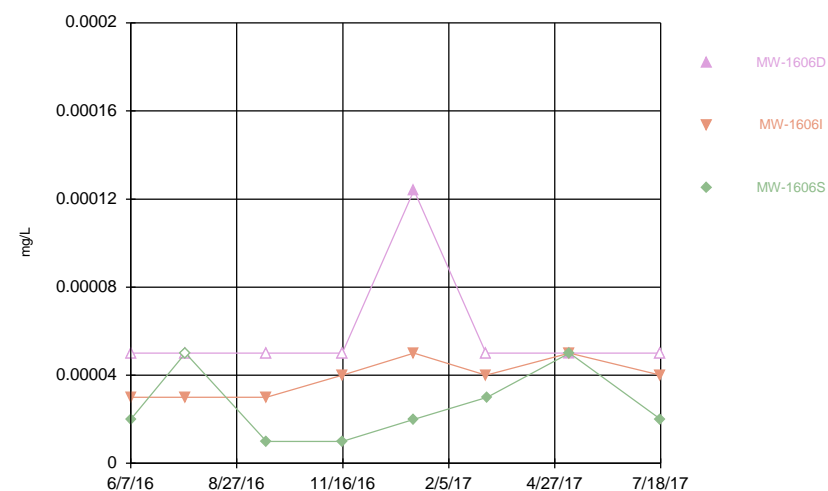
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

### Time Series



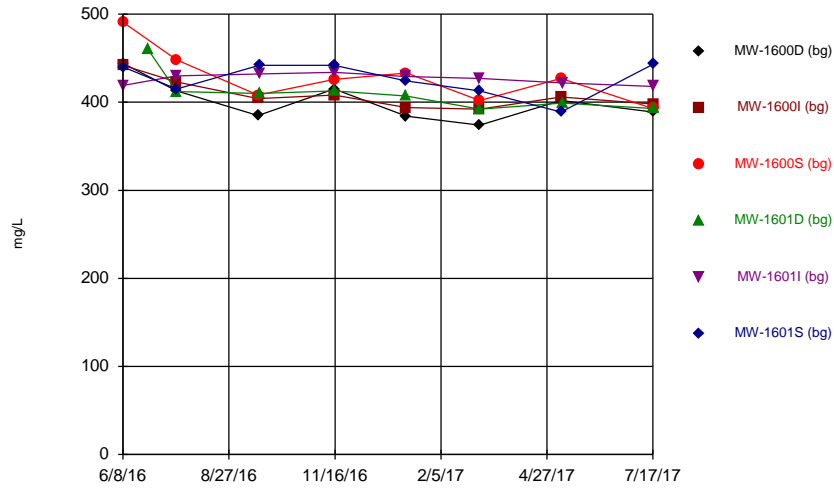
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

### Time Series



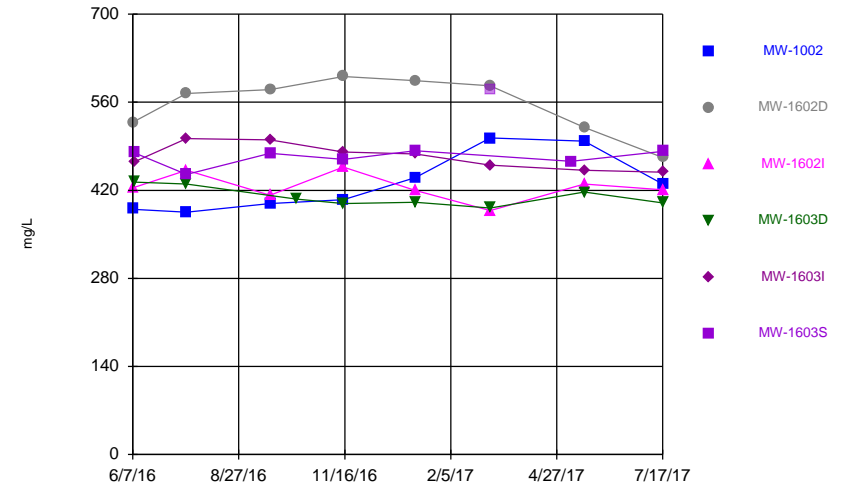
Constituent: Thallium, total Analysis Run 12/26/2017 8:09 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Time Series



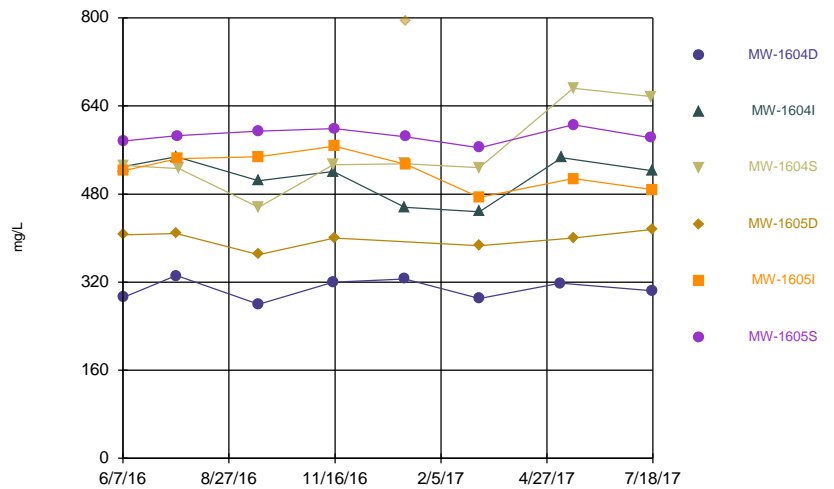
Constituent: Total Dissolved Solids [TDS] Analysis Run 12/26/2017 8:09 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Time Series



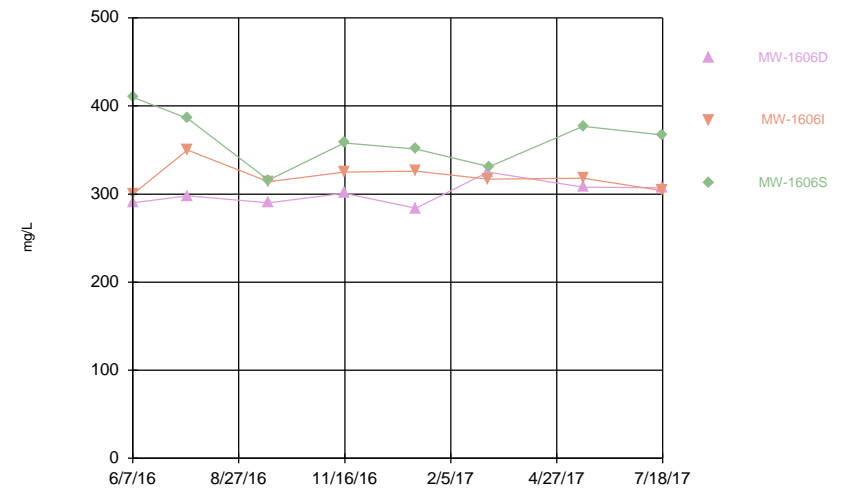
Constituent: Total Dissolved Solids [TDS] Analysis Run 12/26/2017 8:09 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Time Series



Constituent: Total Dissolved Solids [TDS] Analysis Run 12/26/2017 8:09 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

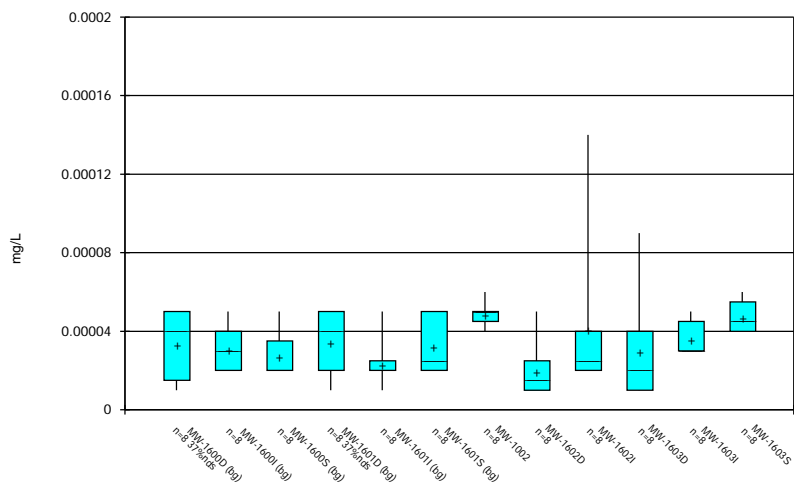
## Time Series



Constituent: Total Dissolved Solids [TDS] Analysis Run 12/26/2017 8:09 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

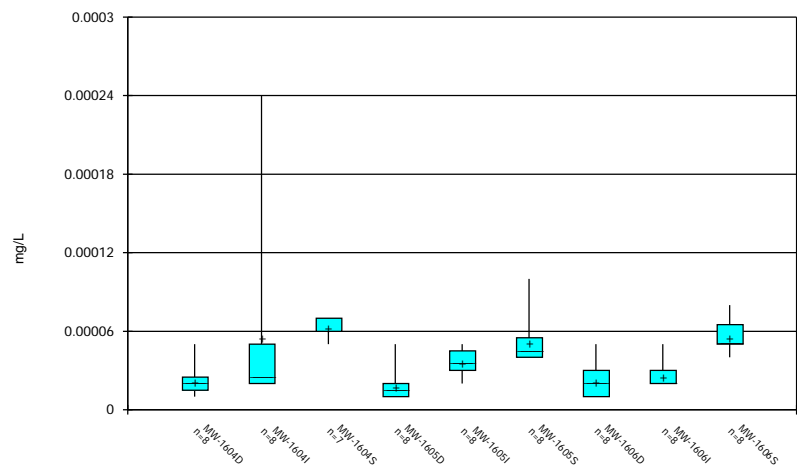


Box &amp; Whiskers Plot



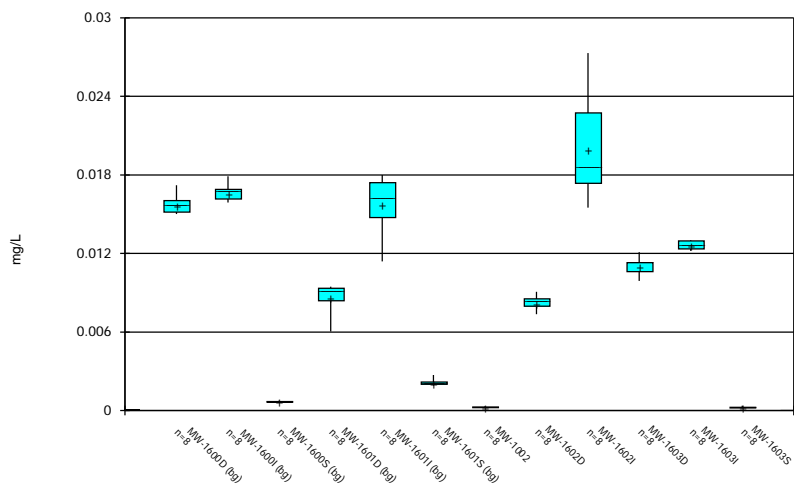
Constituent: Antimony, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



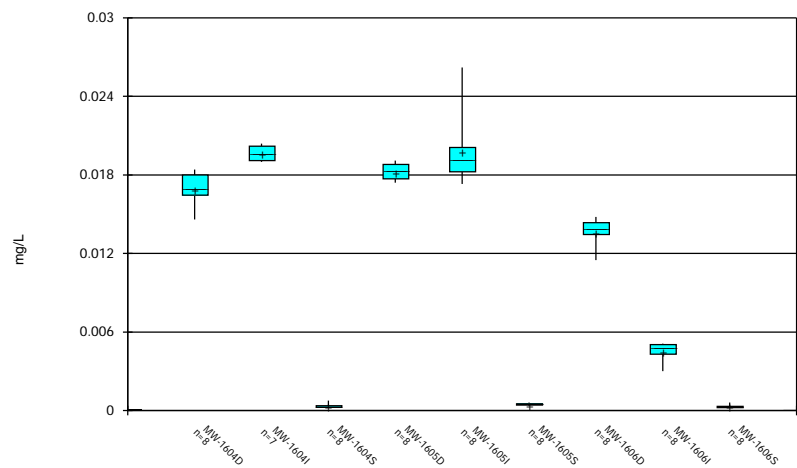
Constituent: Antimony, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



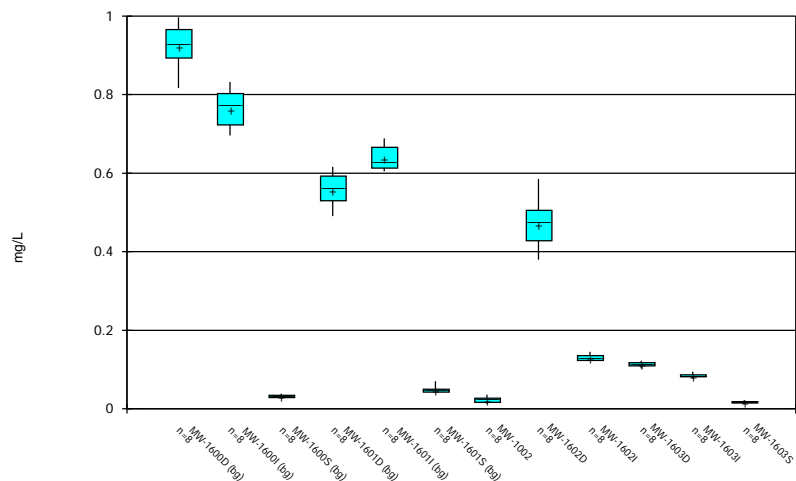
Constituent: Arsenic, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



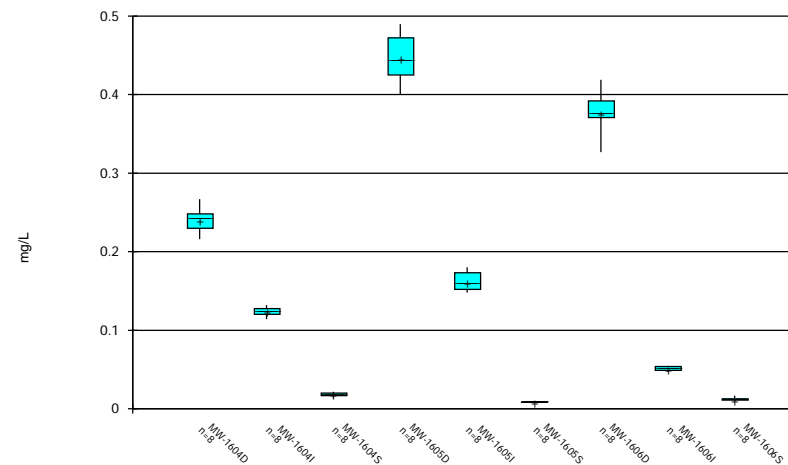
Constituent: Arsenic, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



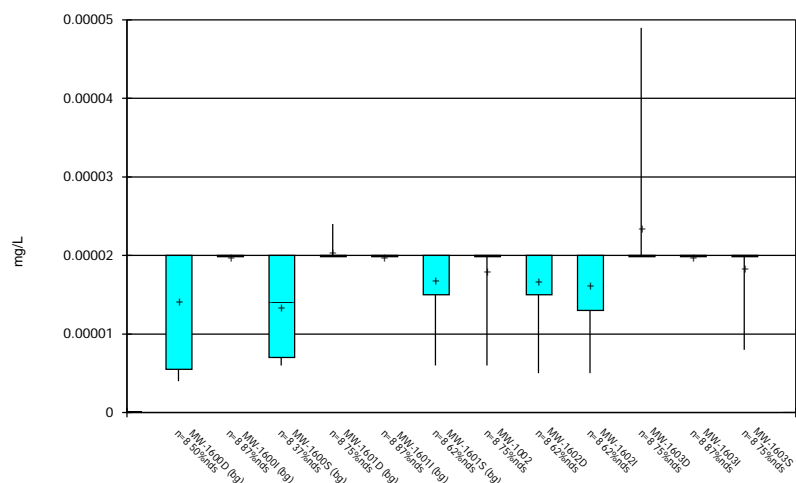
Constituent: Barium, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



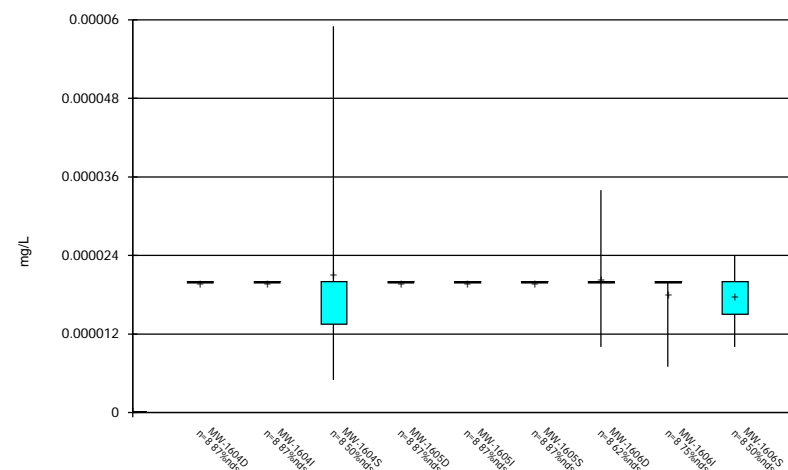
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



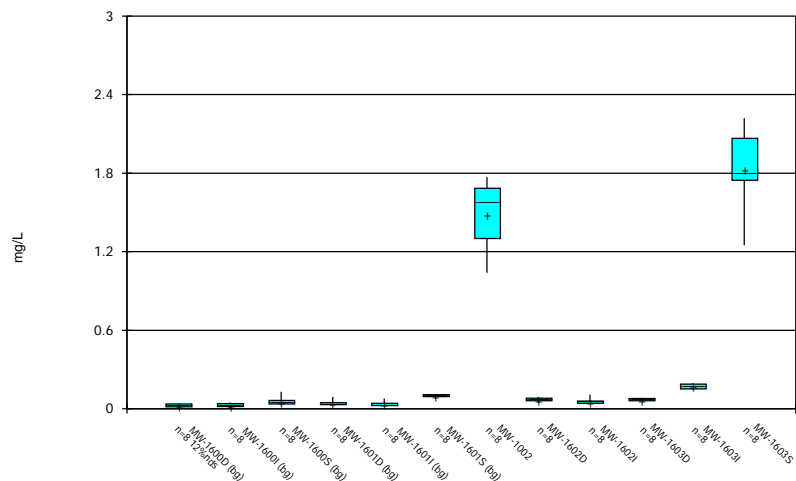
Constituent: Beryllium, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



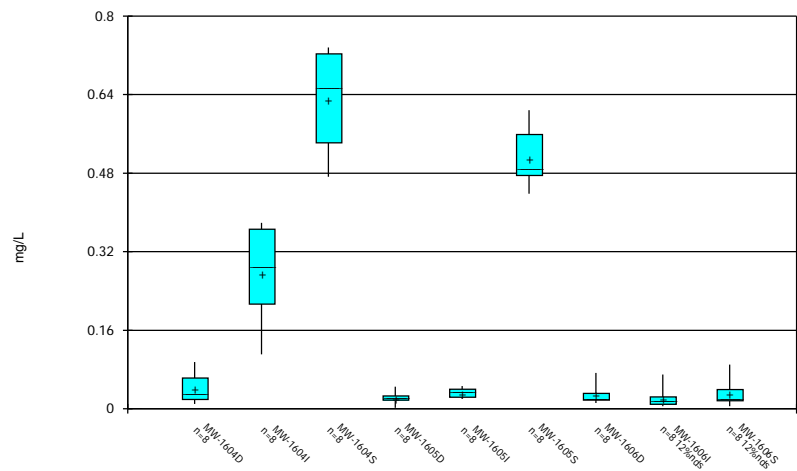
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



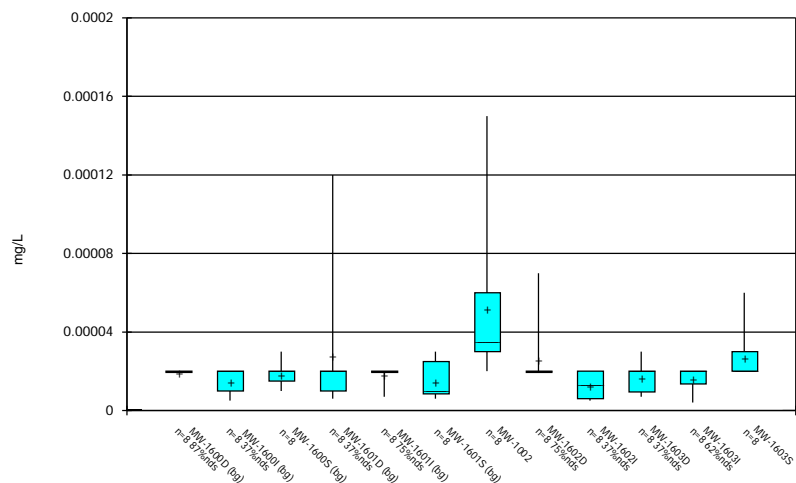
Constituent: Boron, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



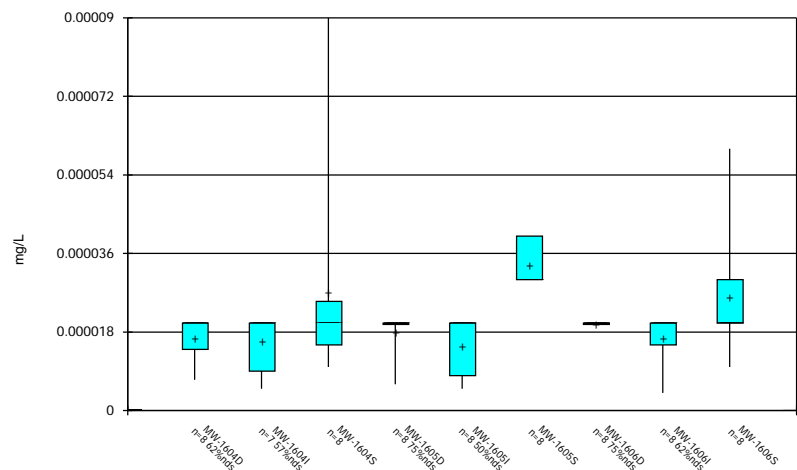
Constituent: Boron, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



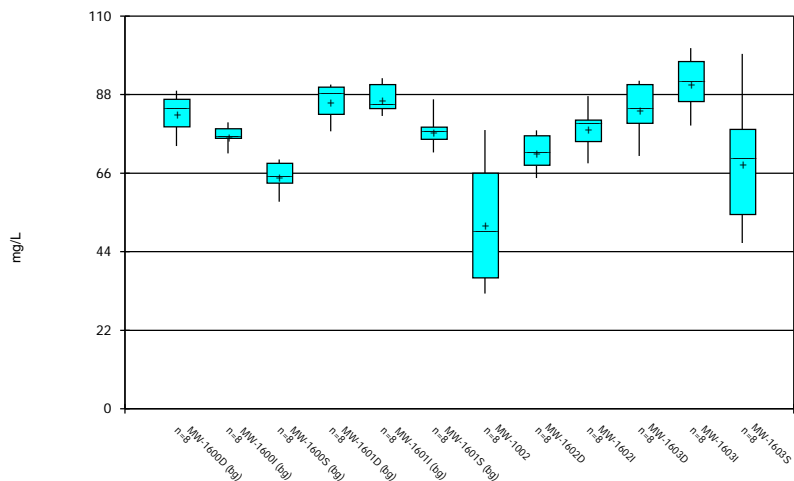
Constituent: Cadmium, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



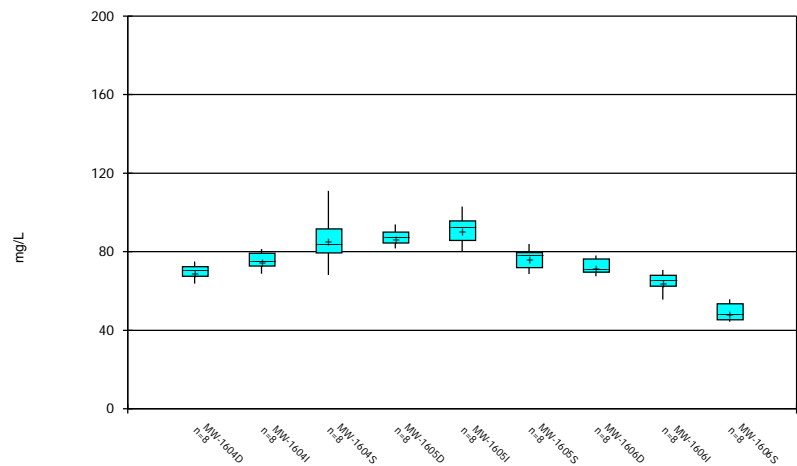
Constituent: Cadmium, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



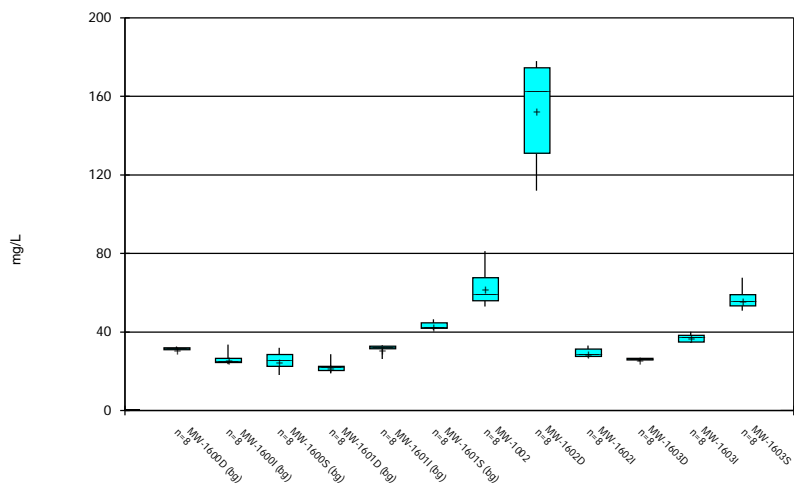
Constituent: Calcium, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



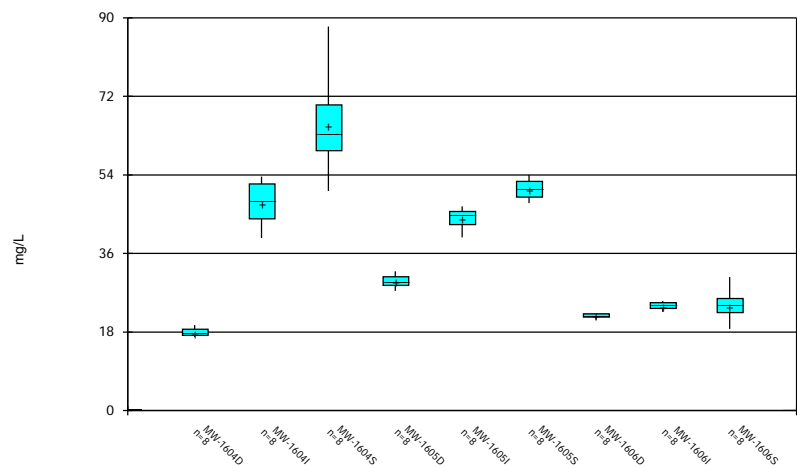
Constituent: Calcium, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



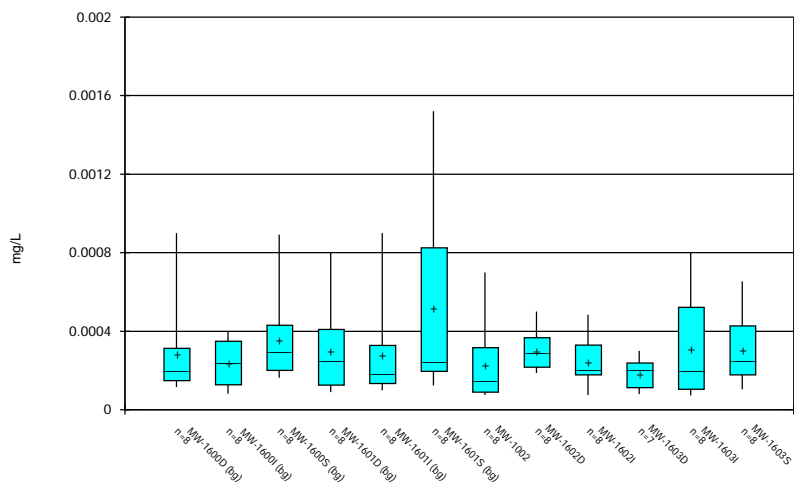
Constituent: Chloride, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



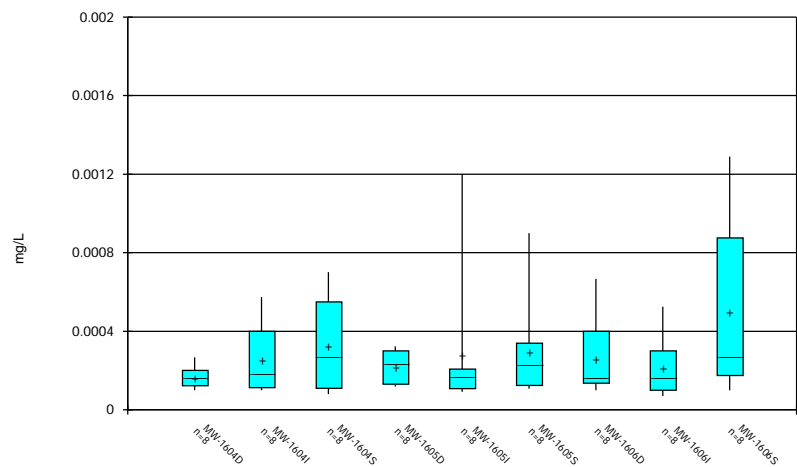
Constituent: Chloride, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



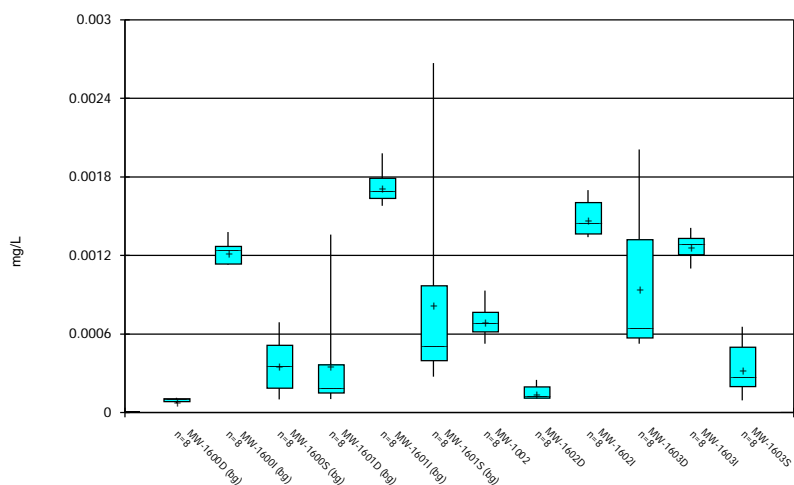
Constituent: Chromium, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



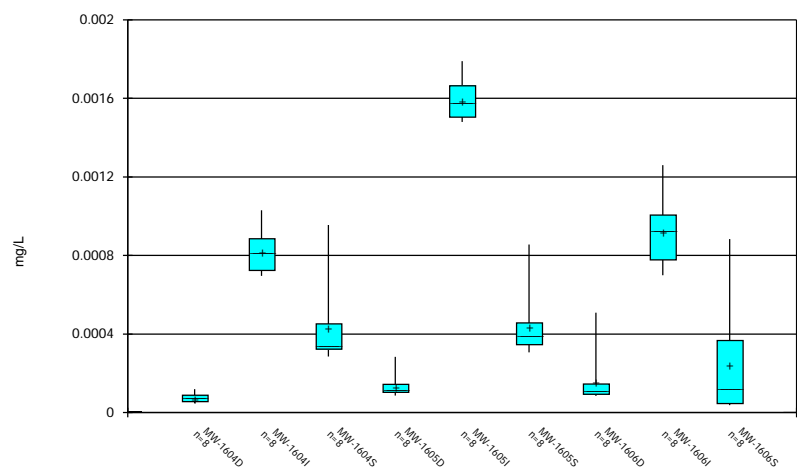
Constituent: Chromium, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



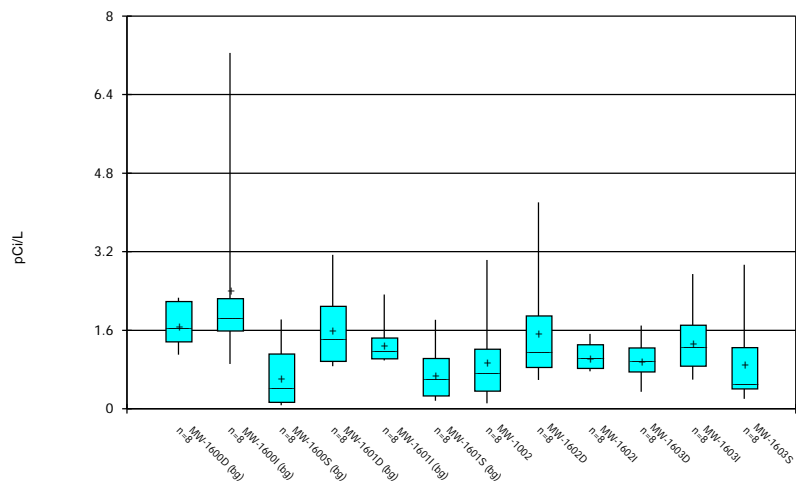
Constituent: Cobalt, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



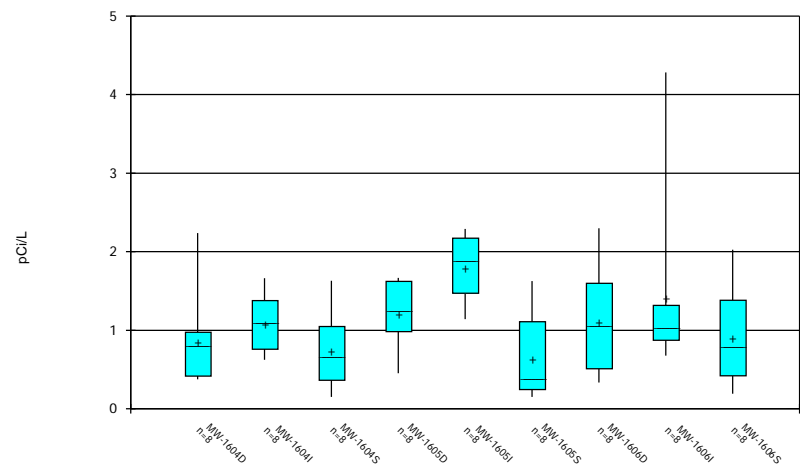
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



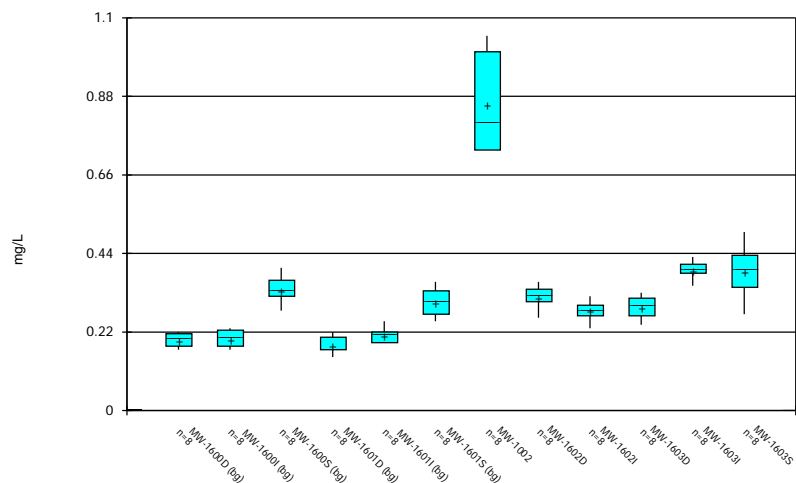
Constituent: Combined Radium 226 + 228 Analysis Run 12/26/2017 8:14 PM View: Time Series - All Well  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



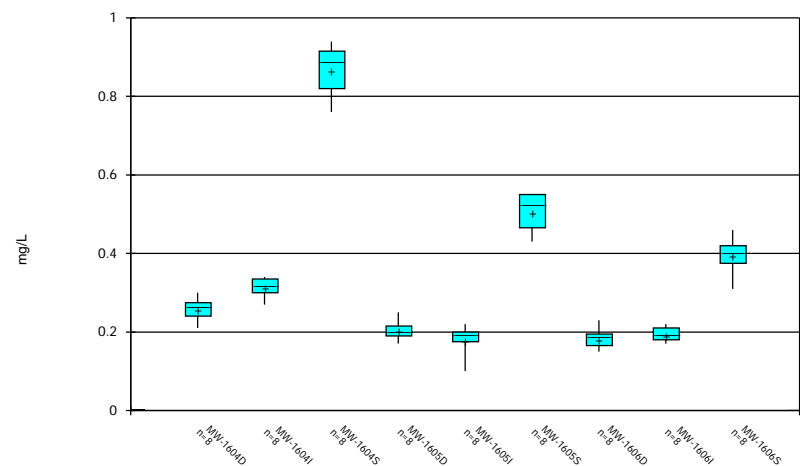
Constituent: Combined Radium 226 + 228 Analysis Run 12/26/2017 8:14 PM View: Time Series - All Well  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



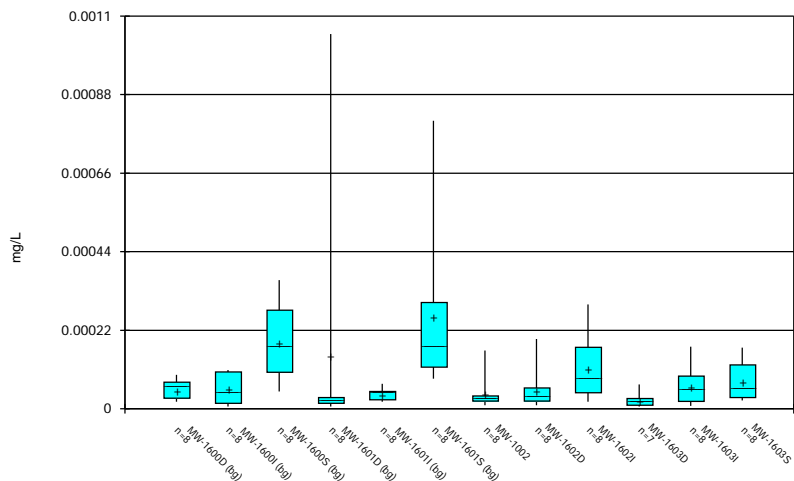
Constituent: Fluoride, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



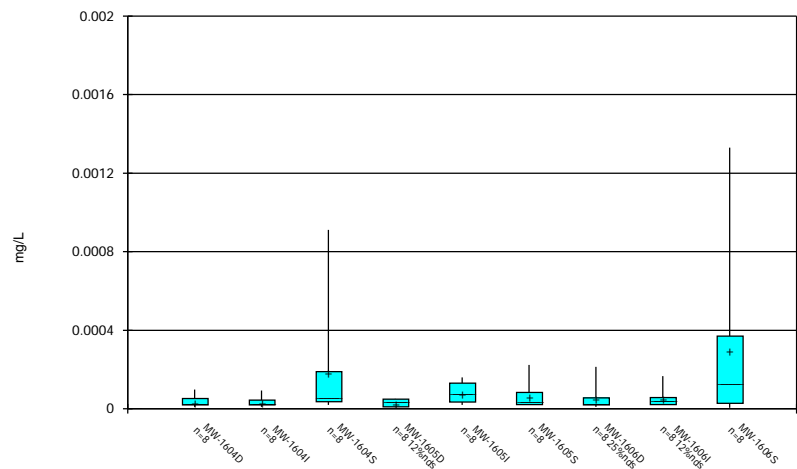
Constituent: Fluoride, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



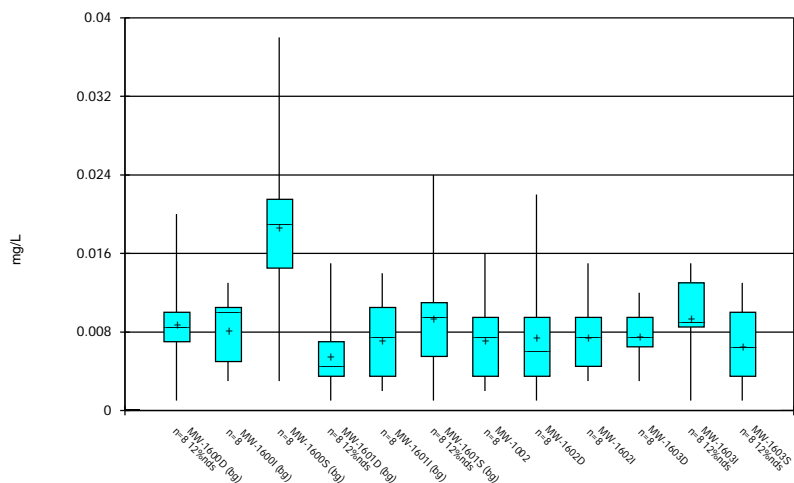
Constituent: Lead, total Analysis Run 12/29/2017 9:39 AM View: Time Series  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



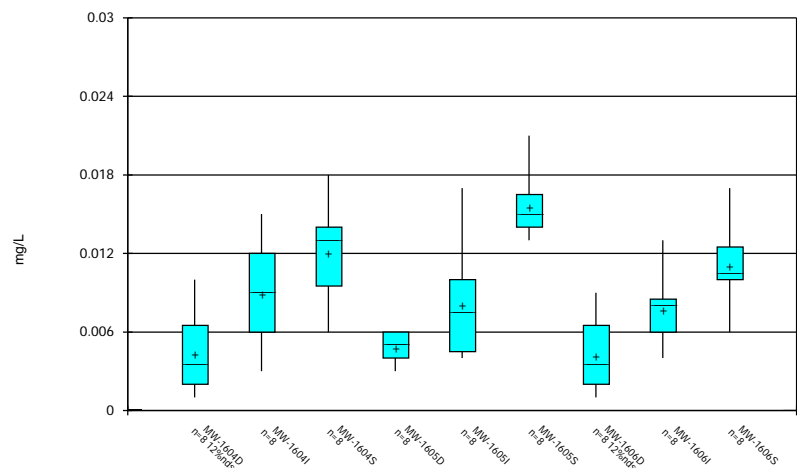
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



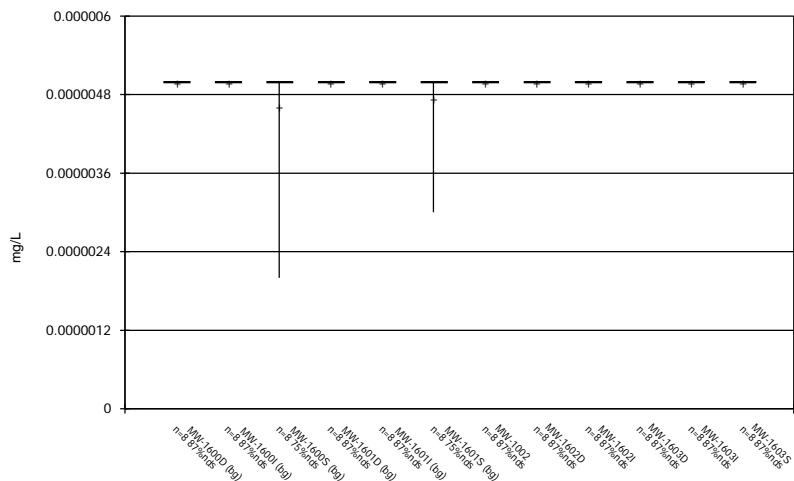
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Box &amp; Whiskers Plot



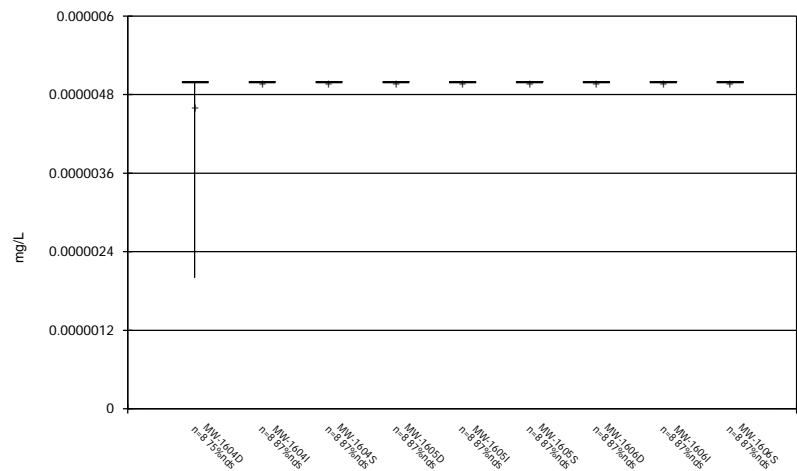
Constituent: Lithium, total Analysis Run 12/29/2017 9:39 AM View: Time Series  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



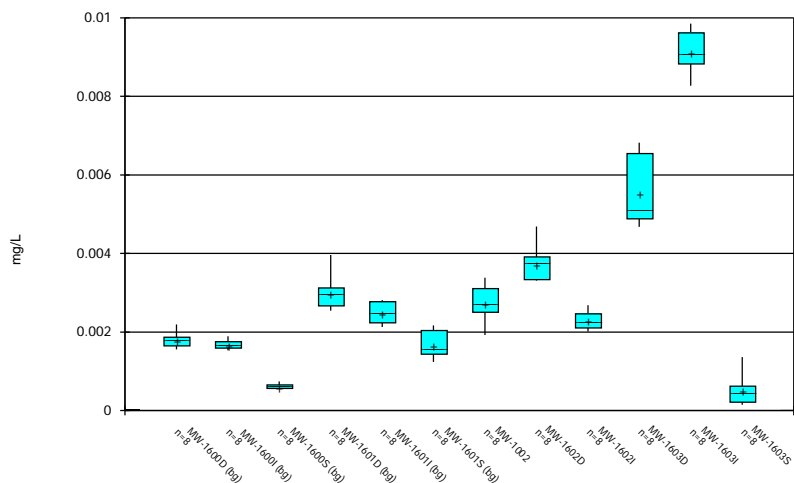
Constituent: Mercury, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



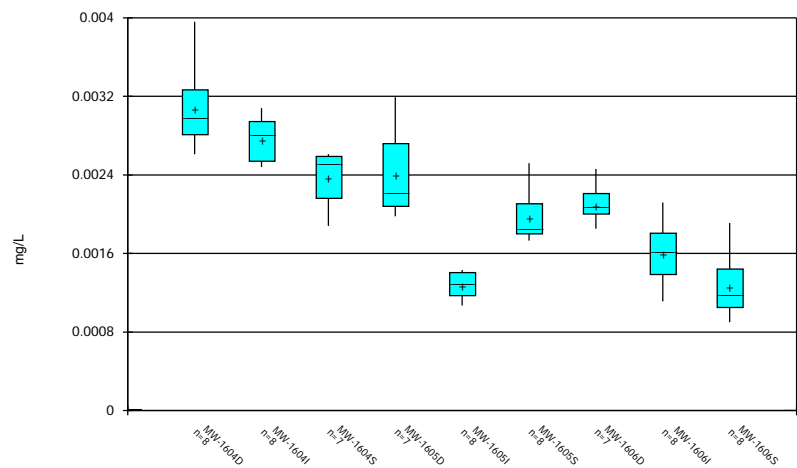
Constituent: Mercury, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



Constituent: Molybdenum, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

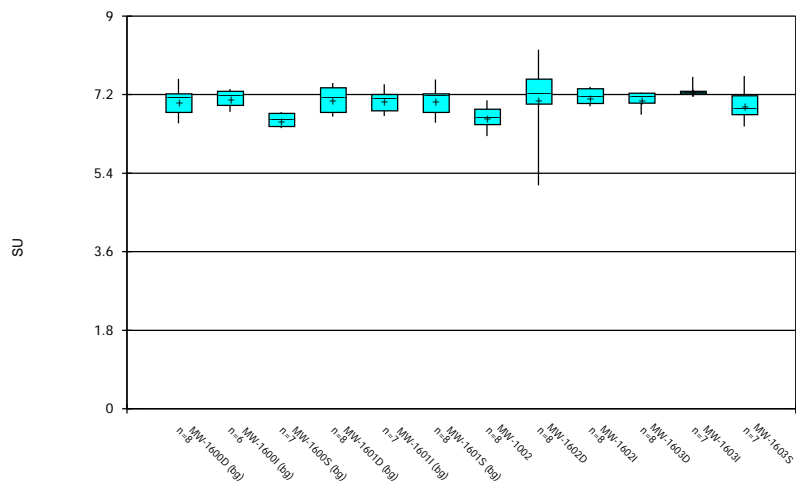
Box &amp; Whiskers Plot



Constituent: Molybdenum, total Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

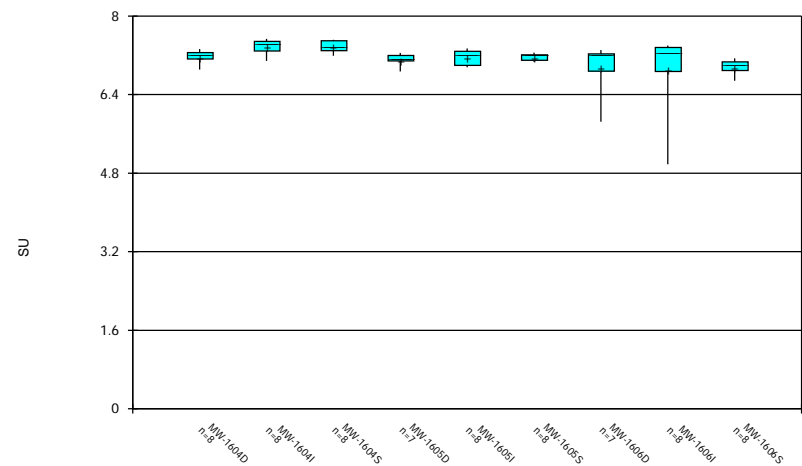


Box &amp; Whiskers Plot



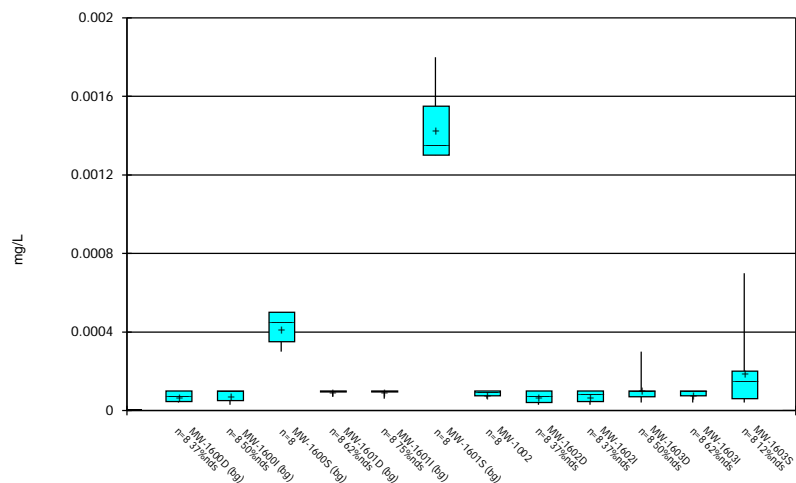
Constituent: pH, field Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



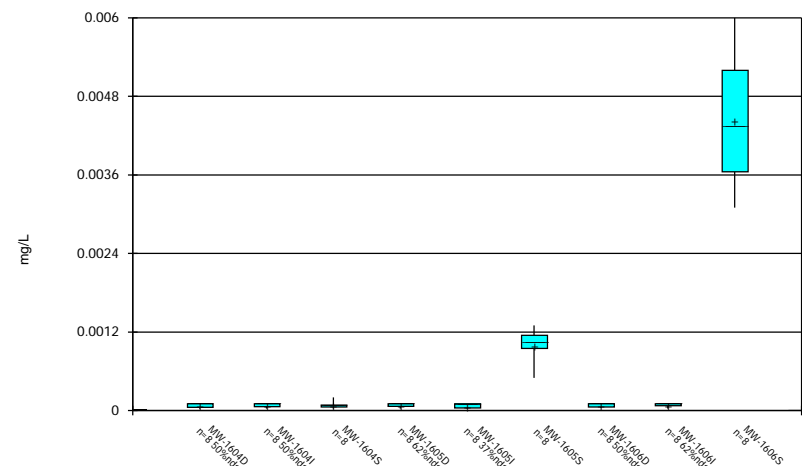
Constituent: pH, field Analysis Run 12/26/2017 8:14 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



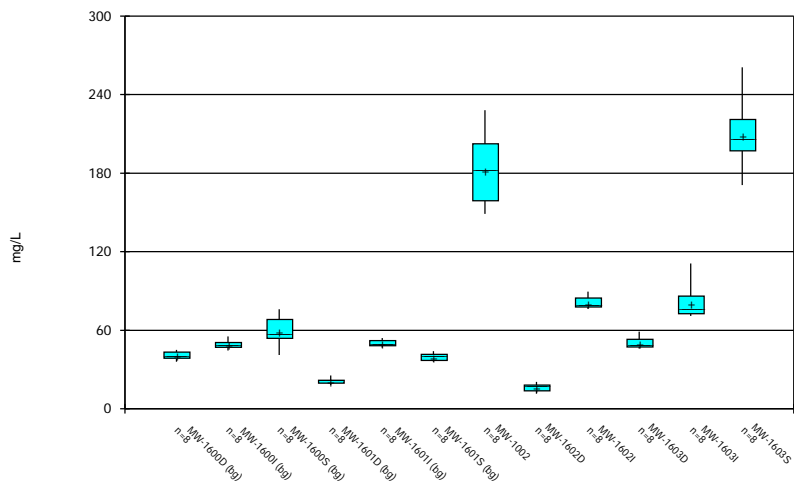
Constituent: Selenium, total Analysis Run 12/26/2017 8:15 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



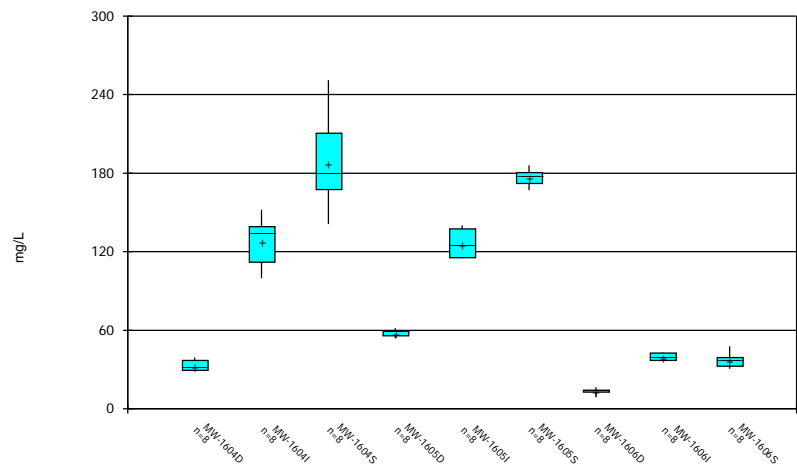
Constituent: Selenium, total Analysis Run 12/26/2017 8:15 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



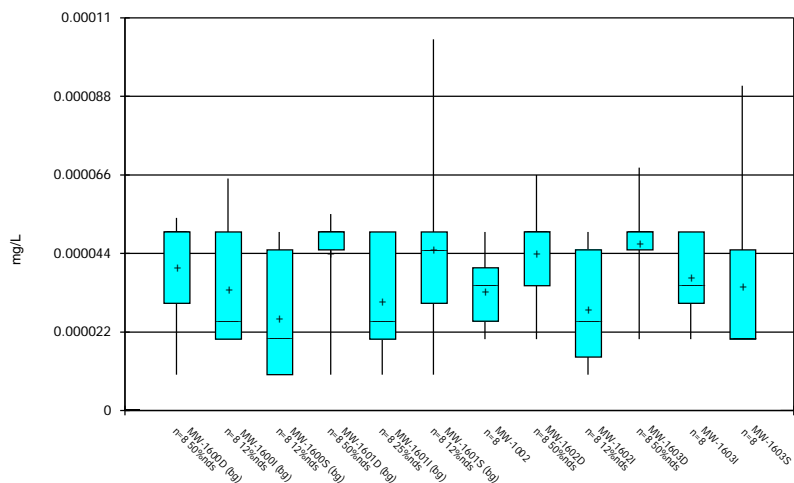
Constituent: Sulfate, total Analysis Run 12/26/2017 8:15 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



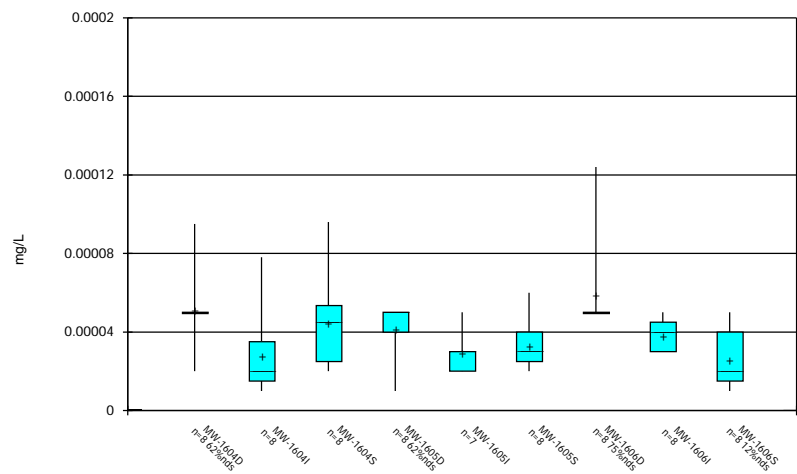
Constituent: Sulfate, total Analysis Run 12/26/2017 8:15 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



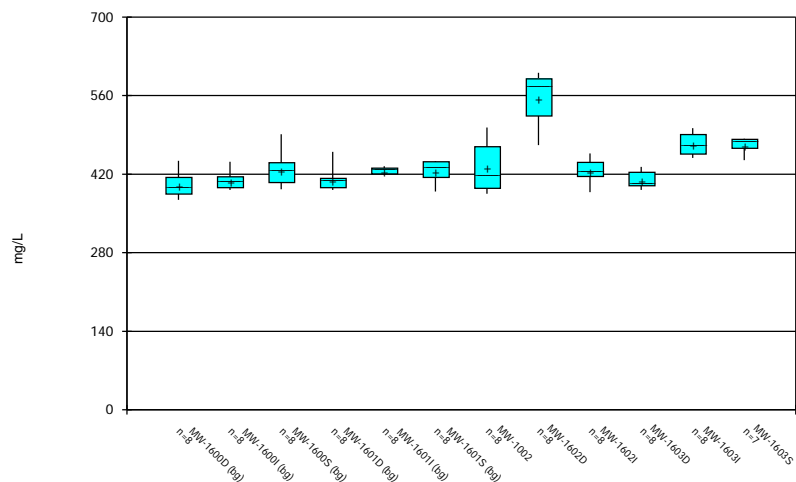
Constituent: Thallium, total Analysis Run 12/26/2017 8:15 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



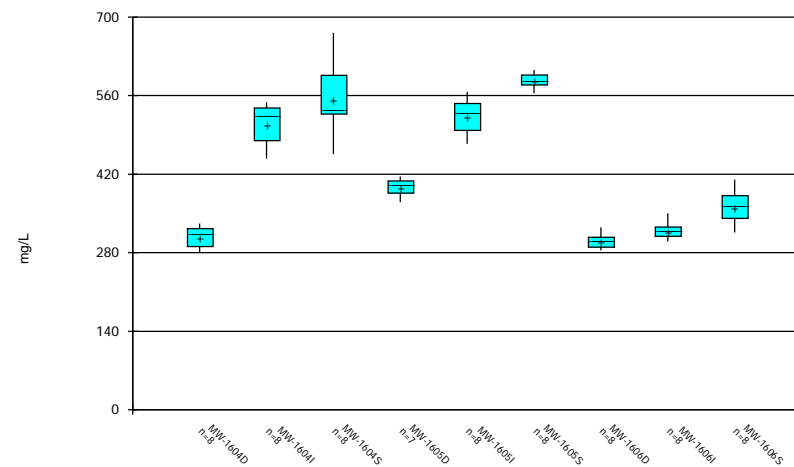
Constituent: Thallium, total Analysis Run 12/26/2017 8:15 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



Constituent: Total Dissolved Solids [TDS] Analysis Run 12/26/2017 8:15 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

Box &amp; Whiskers Plot



Constituent: Total Dissolved Solids [TDS] Analysis Run 12/26/2017 8:15 PM View: Time Series - All Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

# Outlier Summary Table

Rockport BAP Client: Geosyntec Data: Rockport\_BAP Printed 12/29/2017, 9:24 AM

	MW-1604S Antimony, total (mg/L)	MW-1604I Arsenic, total (mg/L)	MW-1604I Cadmium, total (mg/L)	MW-1603D Chromium, total (mg/L)	MW-1603D Lead, total (mg/L)	MW-1604S Molybdenum, total (mg/L)	MW-1605D Molybdenum, total (mg/L)	MW-1606D Molybdenum, total (mg/L)	MW-1600I pH, field (SU)	MW-1600S pH, field (SU)
6/7/2016			0.00012 (o)				0.00765 (o)	0.00382 (o)		
7/20/2016	0.00013 (o)									
10/10/2016				0.0238 (o)	0.00138 (o)					
11/15/2016						0.00479 (o)				
1/10/2017										
3/7/2017										
5/9/2017		0.0264 (o)								
7/17/2017									9.29 (o)	9.46 (o)
7/18/2017										

	MW-1601I	MW-1603I	MW-1603S	MW-1605D	MW-1606D	MW-1605I Thallium, total (mg/L)	MW-1603S Total Dissolved Solids [TDS] (mg/L)	MW-1605D
6/7/2016								
7/20/2016								
10/10/2016								
11/15/2016								
1/10/2017						0.000183 (o)		794 (o)
3/7/2017								581 (o)
5/9/2017								
7/17/2017	9.45 (o)	9.78 (o)	9.63 (o)					
7/18/2017				9.51 (o)	8.37 (o)			

# Outlier Analysis - Significant Upgradient Results

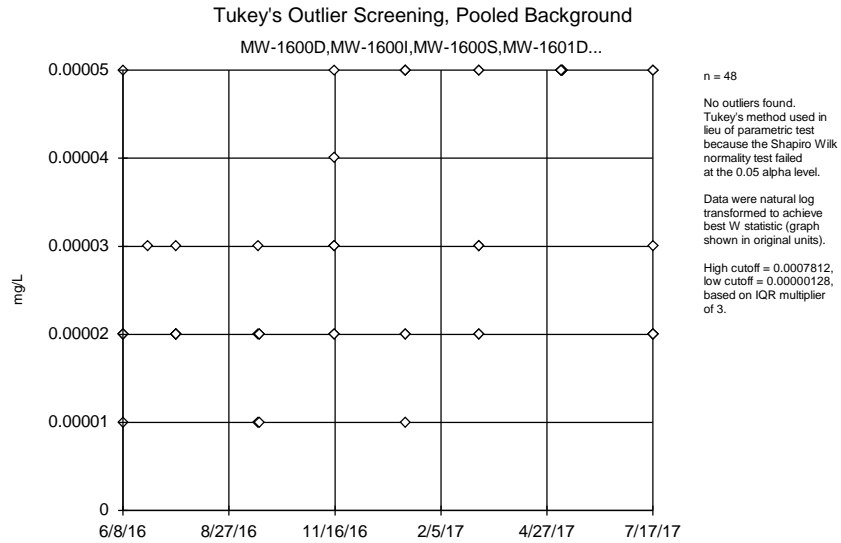
Rockport BAP   Client: Geosyntec   Data: Rockport\_BAP   Printed 12/26/2017, 7:38 PM

<u>Constituent</u>	<u>Well</u>	<u>Outlier</u>	<u>Value(s)</u>	<u>Method</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Distribution</u>	<u>Normality Test</u>
pH, field (SU)	MW-1600D,MW-1600L...	Yes	9.29, 9.45, 9.46	NP (nrm)	47	7.161	0.6621	unknown	ShapiroWilk

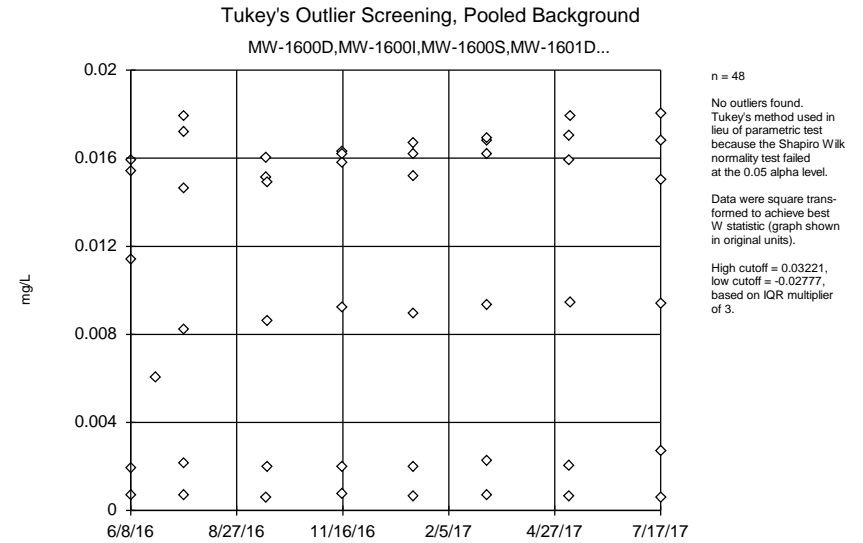
# Outlier Analysis - All Upgradient Results

Rockport BAP Client: Geosyntec Data: Rockport\_BAP Printed 12/26/2017, 7:38 PM

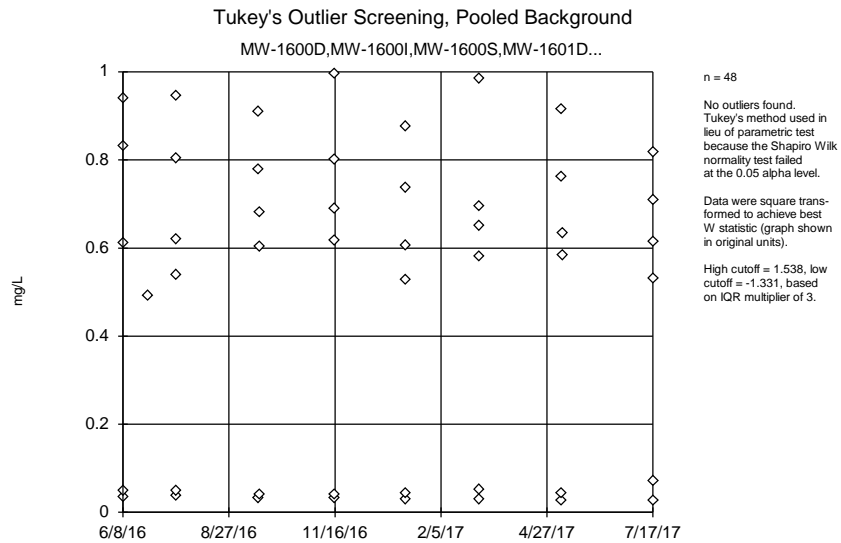
Constituent	Well	Outlier	Value(s)	Method	N	Mean	Std. Dev.	Distribution	Normality Test
Antimony, total (mg/L)	MW-1600D,MW-1600I...	No	n/a	NP (nrm)	48	0.00003062	0.00001435	unknown	ShapiroWilk
Arsenic, total (mg/L)	MW-1600D,MW-1600I...	No	n/a	NP (nrm)	48	0.009931	0.00675	unknown	ShapiroWilk
Barium, total (mg/L)	MW-1600D,MW-1600I...	No	n/a	NP (nrm)	48	0.4941	0.346	unknown	ShapiroWilk
Beryllium, total (mg/L)	MW-1600D,MW-1600I...	No	n/a	NP (nrm)	48	0.00001756	0.000005426	unknown	ShapiroWilk
Boron, total (mg/L)	MW-1600D,MW-1600I...	No	n/a	NP	48	0.04717	0.03182	x^(1/3)	ShapiroWilk
Cadmium, total (mg/L)	MW-1600D,MW-1600I...	No	n/a	NP (nrm)	48	0.0000194	0.00001607	unknown	ShapiroWilk
Calcium, total (mg/L)	MW-1600D,MW-1600I...	No	n/a	NP	48	79.24	8.489	x^3	ShapiroWilk
Chloride, total (mg/L)	MW-1600D,MW-1600I...	No	n/a	NP	48	29.98	7.343	ln(x)	ShapiroWilk
Chromium, total (mg/L)	MW-1600D,MW-1600I...	No	n/a	NP (nrm)	48	0.0003336	0.000295	unknown	ShapiroWilk
Cobalt, total (mg/L)	MW-1600D,MW-1600I...	No	n/a	NP (nrm)	48	0.0007653	0.0006741	unknown	ShapiroWilk
Combined Radium 226 + 228 (pCi/L)	MW-1600D,MW-1600I...	No	n/a	NP (nrm)	48	1.409	1.12	unknown	ShapiroWilk
Fluoride, total (mg/L)	MW-1600D,MW-1600I...	No	n/a	NP (nrm)	48	0.2394	0.06625	unknown	ShapiroWilk
Lead, total (mg/L)	MW-1600D,MW-1600I...	No	n/a	NP	48	0.0001245	0.0001928	ln(x)	ShapiroWilk
Lithium, total (mg/L)	MW-1600D,MW-1600I...	No	n/a	NP (nrm)	48	0.009833	0.007156	unknown	ShapiroWilk
Mercury, total (mg/L)	MW-1600D,MW-1600I...	No	n/a	NP (nrm)	48	0.000004896	5.2e-7	unknown	ShapiroWilk
Molybdenum, total (mg/L)	MW-1600D,MW-1600I...	No	n/a	NP	48	0.001873	0.0007943	normal	ShapiroWilk
<b>pH, field (SU)</b>	<b>MW-1600D,MW-1600I...</b>	<b>Yes</b>	<b>9.29, 9.45, 9.46</b>	<b>NP (nrm)</b>	<b>47</b>	<b>7.161</b>	<b>0.6621</b>	<b>unknown</b>	<b>ShapiroWilk</b>
Selenium, total (mg/L)	MW-1600D,MW-1600I...	No	n/a	NP (nrm)	48	0.0003675	0.000507	unknown	ShapiroWilk
Sulfate, total (mg/L)	MW-1600D,MW-1600I...	No	n/a	NP (nrm)	48	43.18	13.12	unknown	ShapiroWilk
Thallium, total (mg/L)	MW-1600D,MW-1600I...	No	n/a	NP (nrm)	48	0.00003704	0.00001953	unknown	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-1600D,MW-1600I...	No	n/a	NP	48	416.8	22.53	ln(x)	ShapiroWilk



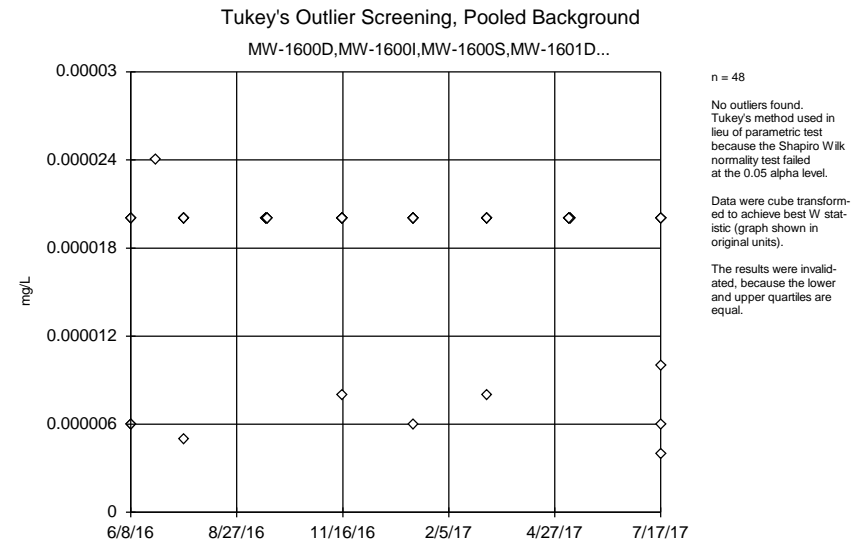
Constituent: Antimony, total Analysis Run 12/26/2017 7:32 PM View: Tukey's Upgradient Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



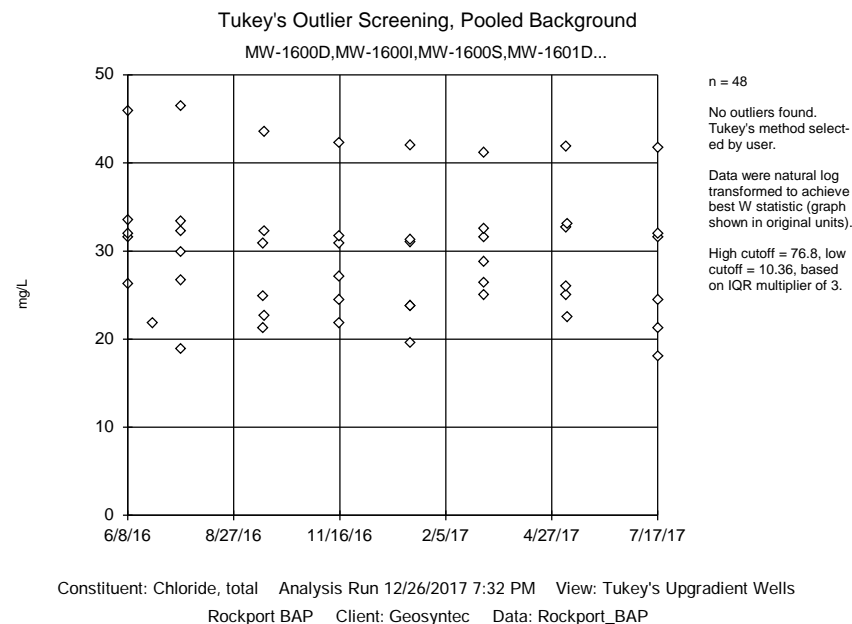
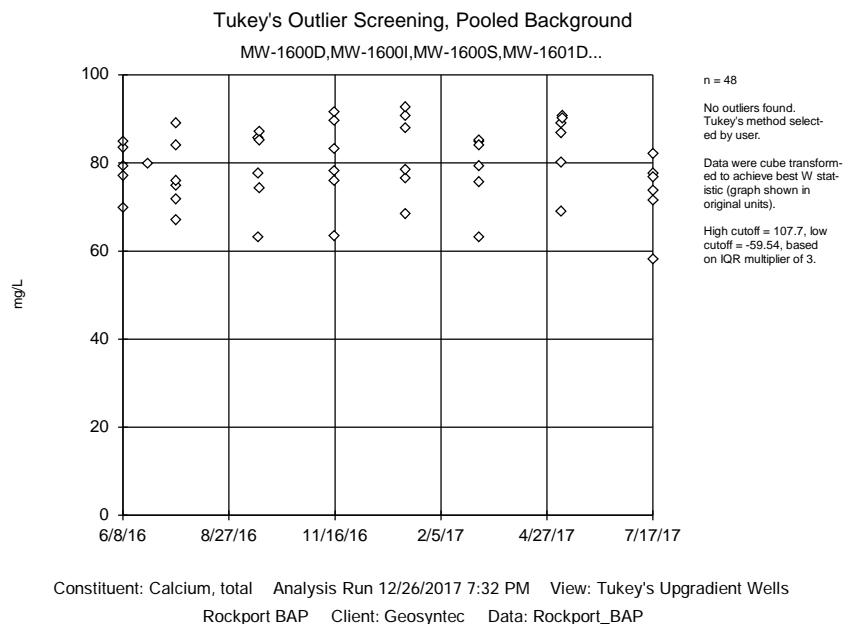
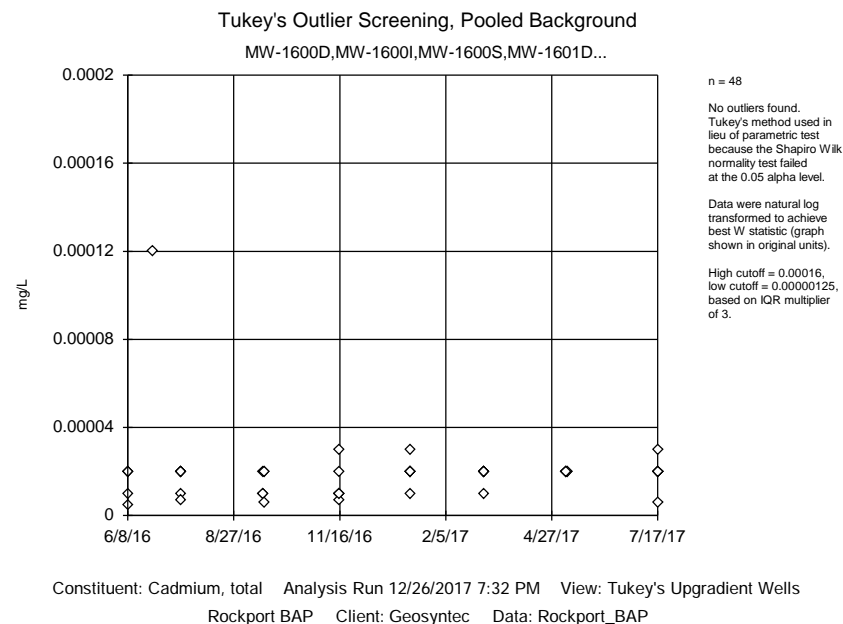
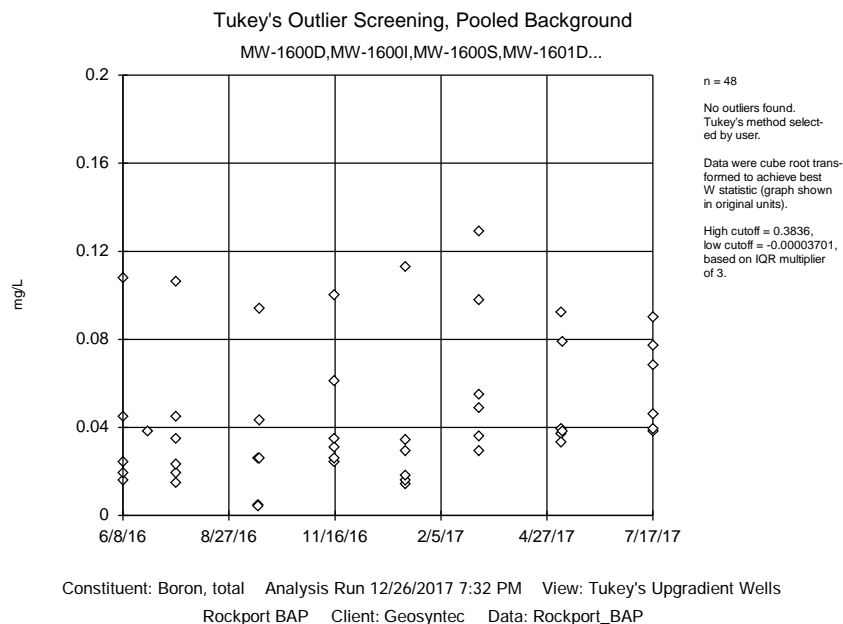
Constituent: Arsenic, total Analysis Run 12/26/2017 7:32 PM View: Tukey's Upgradient Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



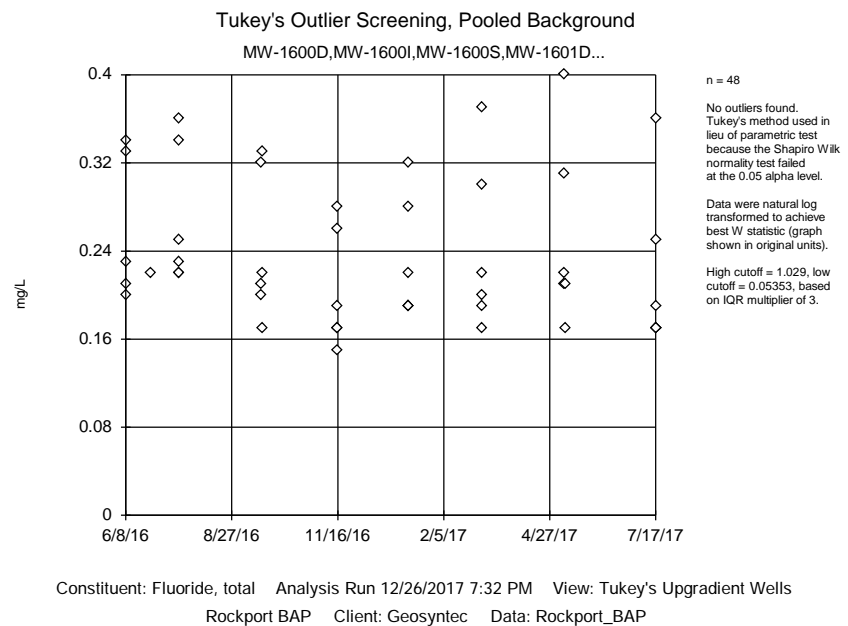
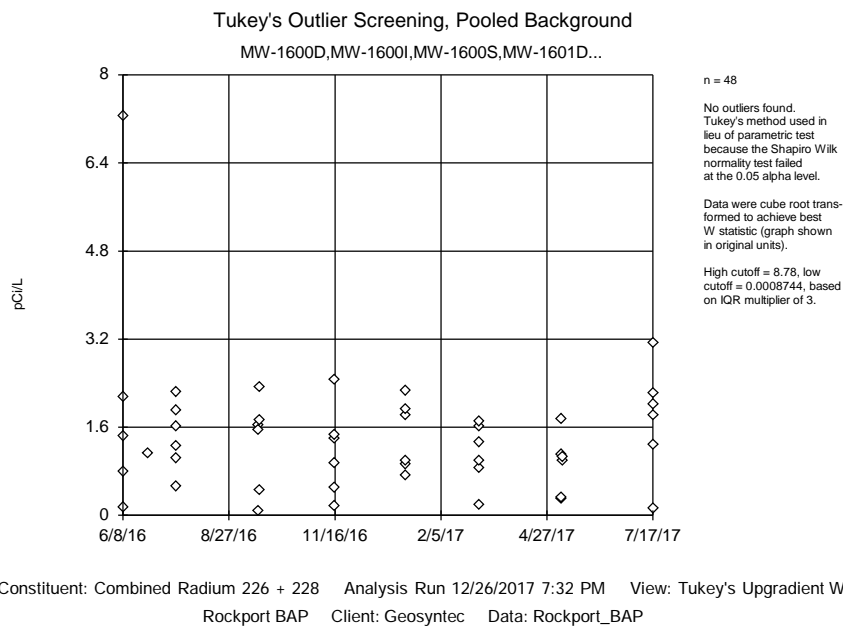
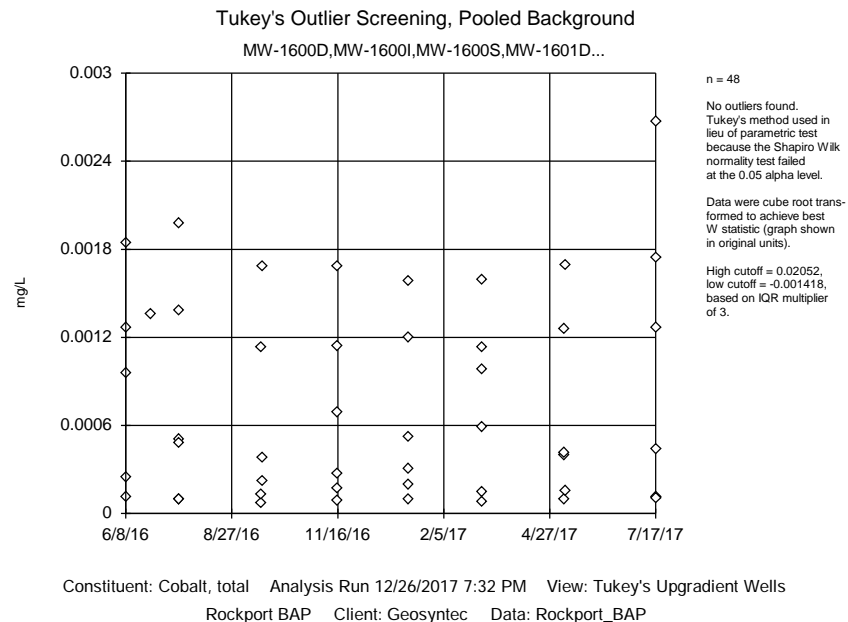
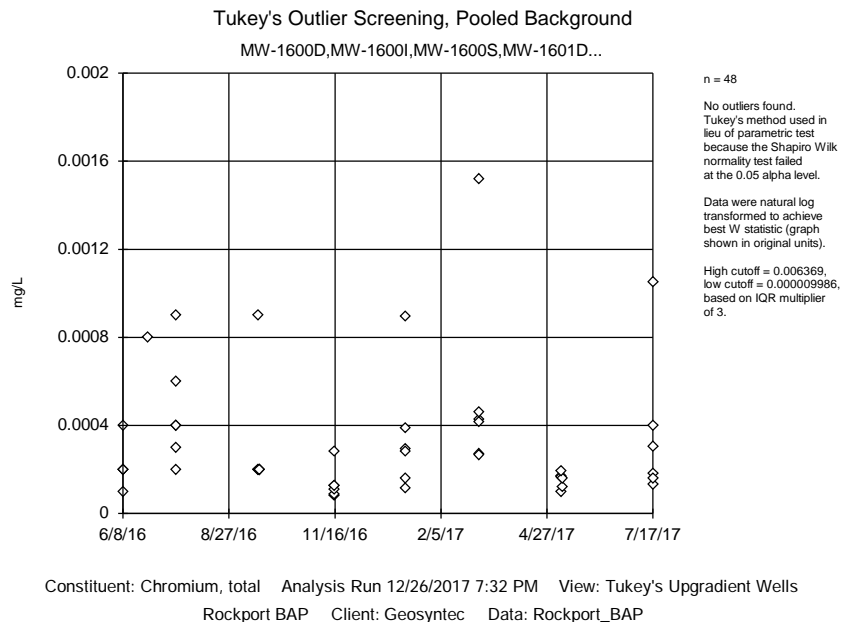
Constituent: Barium, total Analysis Run 12/26/2017 7:32 PM View: Tukey's Upgradient Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

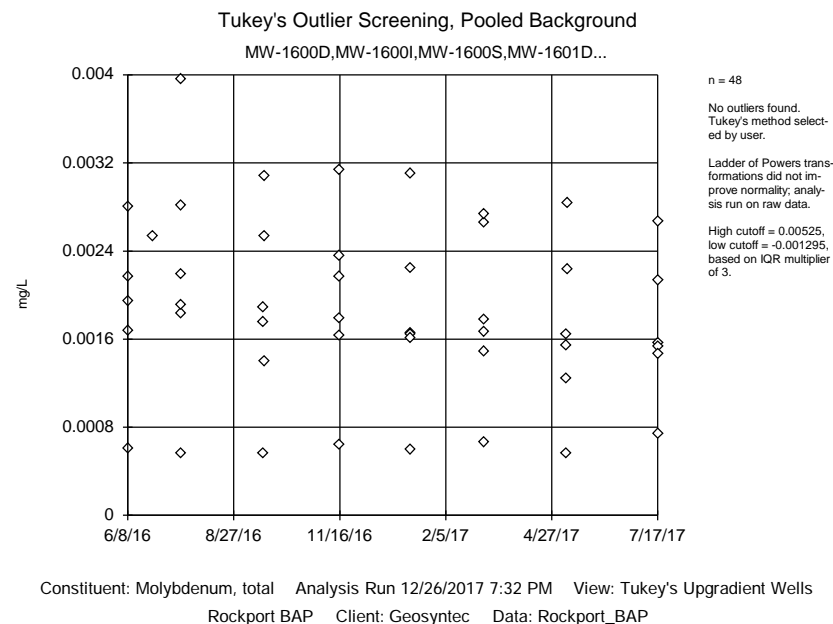
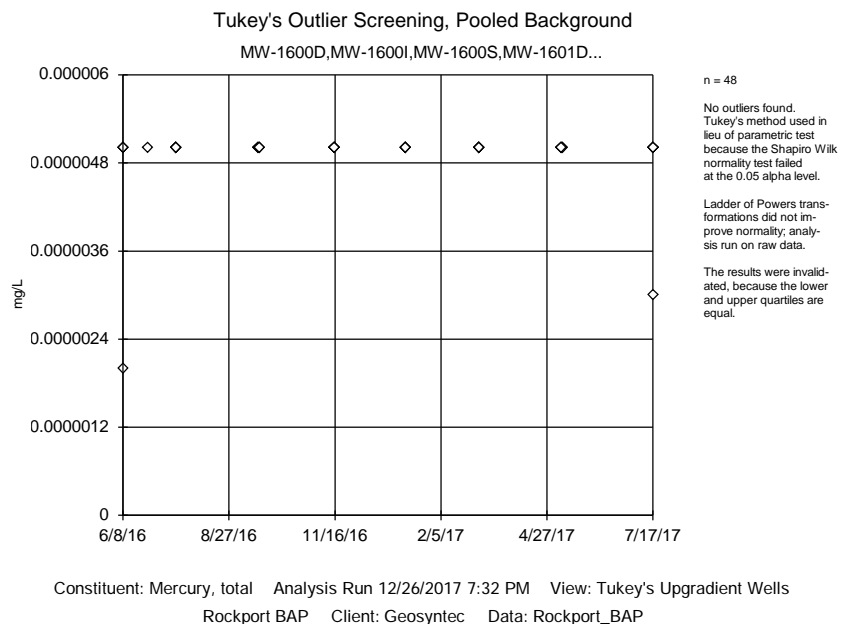
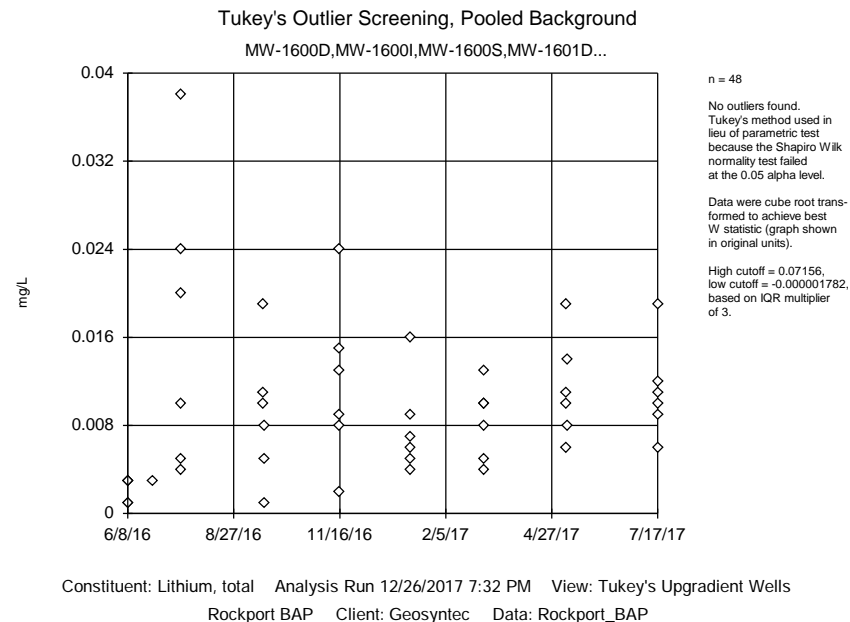
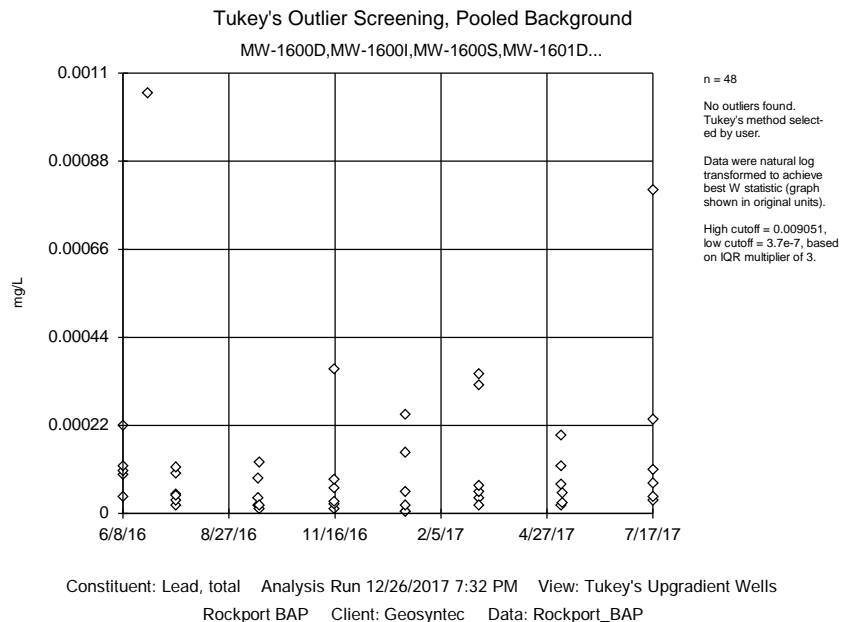


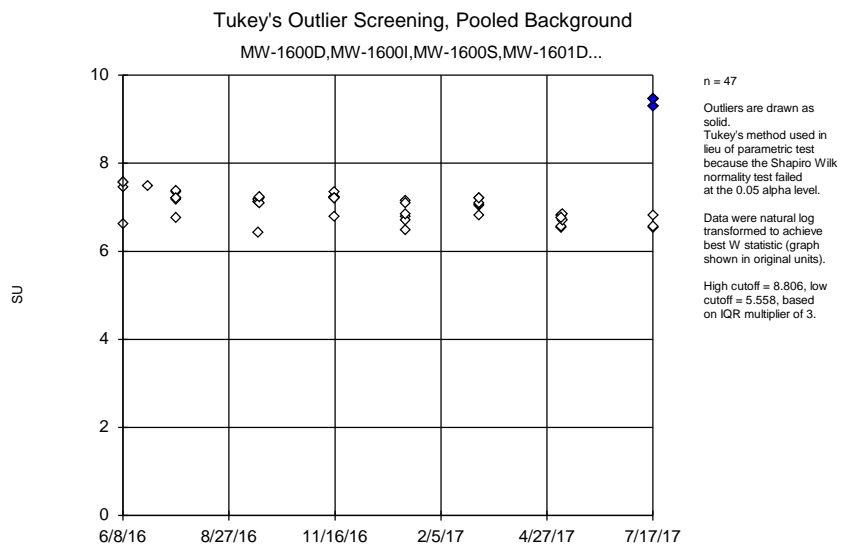
Constituent: Beryllium, total Analysis Run 12/26/2017 7:32 PM View: Tukey's Upgradient Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



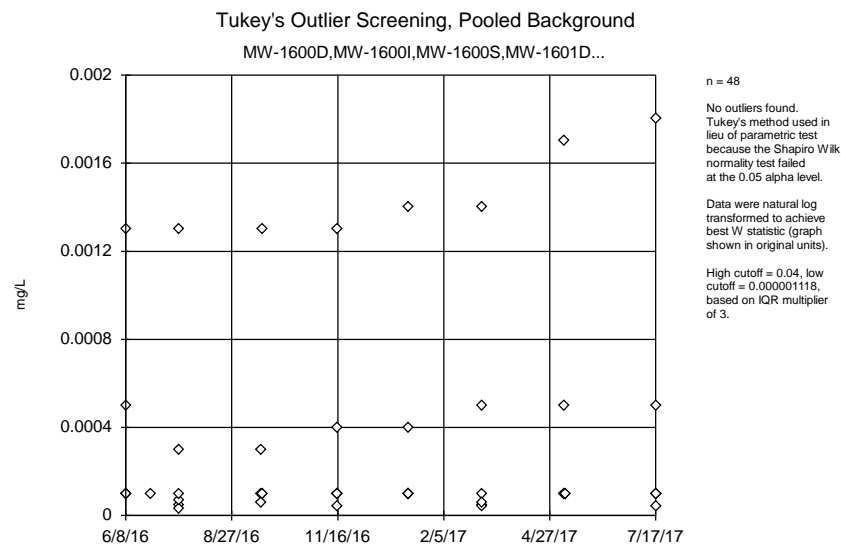




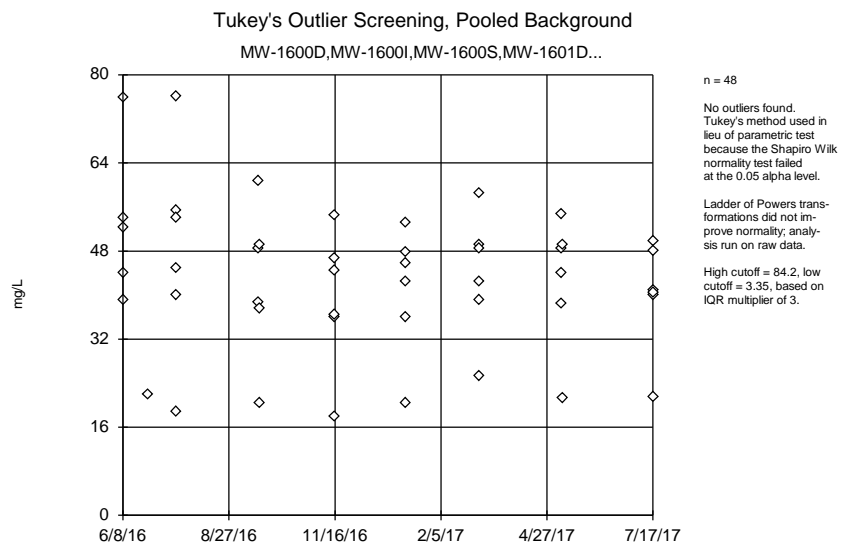




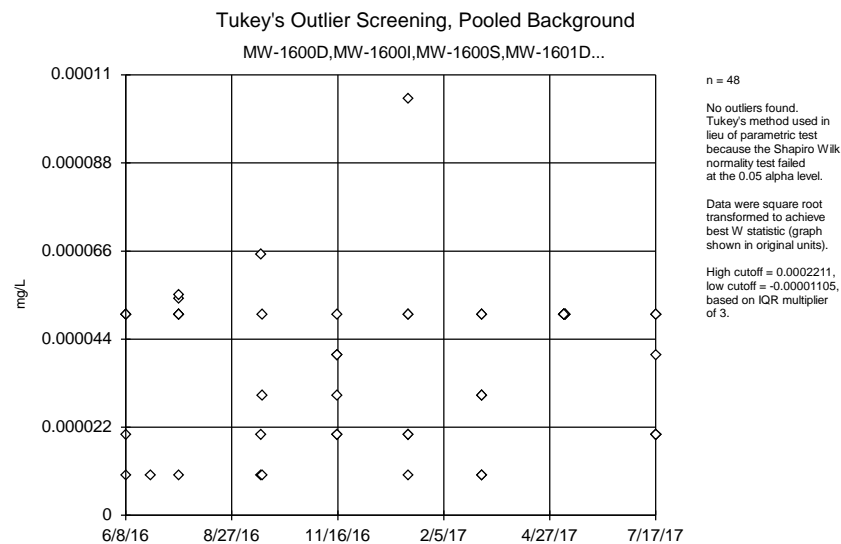
Constituent: pH, field Analysis Run 12/26/2017 7:32 PM View: Tukey's Upgradient Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



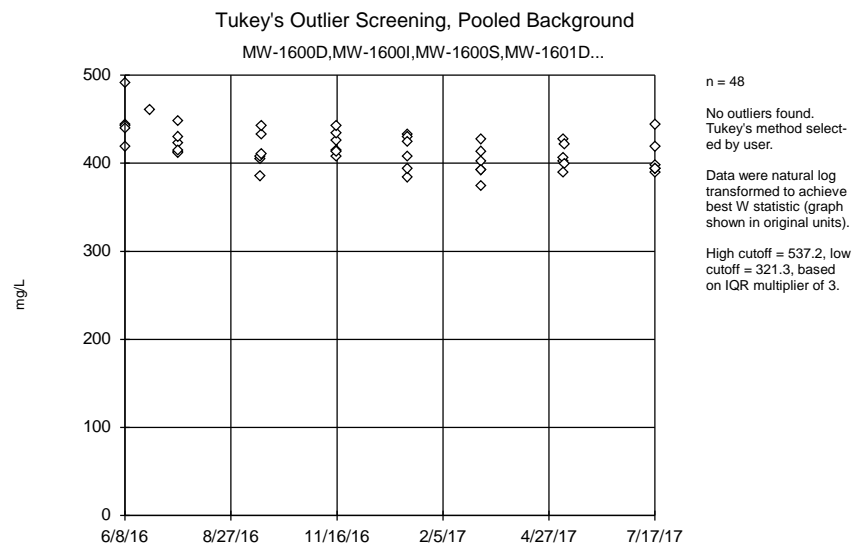
Constituent: Selenium, total Analysis Run 12/26/2017 7:32 PM View: Tukey's Upgradient Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



Constituent: Sulfate, total Analysis Run 12/26/2017 7:32 PM View: Tukey's Upgradient Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



Constituent: Thallium, total Analysis Run 12/26/2017 7:32 PM View: Tukey's Upgradient Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



Constituent: Total Dissolved Solids [TDS]    Analysis Run 12/26/2017 7:32 PM    View: Tukey's Upgradient We  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP

# Outlier Analysis - Significant Downgradient Wells

Rockport BAP Client: Geosyntec Data: Rockport\_BAP Printed 12/11/2017, 10:10 PM

Constituent	Well	Outlier	Value(s)	Method	N	Mean	Std. Dev.	Distribution	Normality Test
Antimony, total (mg/L)	MW-1604S	Yes	0.00013	NP	8	0.00007125	0.00002475	ln(x)	ShapiroWilk
Arsenic, total (mg/L)	MW-1604I	Yes	0.0264	NP	8	0.0205	0.002437	ln(x)	ShapiroWilk
Cadmium, total (mg/L)	MW-1604I	Yes	0.00012	NP	8	0.00002925	0.00003715	ln(x)	ShapiroWilk
Chromium, total (mg/L)	MW-1603D	Yes	0.0238	NP	8	0.003137	0.00835	ln(x)	ShapiroWilk
Lead, total (mg/L)	MW-1603D	Yes	0.00138	NP	8	0.0001946	0.0004793	ln(x)	ShapiroWilk
Molybdenum, total (mg/L)	MW-1604S	Yes	0.00479	NP	8	0.00268	0.0008895	ln(x)	ShapiroWilk
Molybdenum, total (mg/L)	MW-1605D	Yes	0.00765	NP	8	0.00306	0.001896	ln(x)	ShapiroWilk
Molybdenum, total (mg/L)	MW-1606D	Yes	0.00382	NP	8	0.002314	0.0006345	ln(x)	ShapiroWilk
pH, field (SU)	MW-1603I	Yes	9.78	NP	8	7.596	0.8932	ln(x)	ShapiroWilk
pH, field (SU)	MW-1603S	Yes	9.63	NP	8	7.295	1.002	ln(x)	ShapiroWilk
pH, field (SU)	MW-1605D	Yes	9.51	NP	8	7.418	0.8534	ln(x)	ShapiroWilk
pH, field (SU)	MW-1606D	Yes	5.85,8.37	NP	8	7.144	0.6851	normal	ShapiroWilk
Thallium, total (mg/L)	MW-1603D	Yes	0.000068,0.00002	NP (nrm)	8	0.00004725	0.00001344	unknown	ShapiroWilk
Thallium, total (mg/L)	MW-1605I	Yes	0.000183	NP	8	0.00004913	0.00005488	ln(x)	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-1603S	Yes	581	NP	8	485.6	40.54	ln(x)	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-1605D	Yes	794	NP	8	447.5	140.7	ln(x)	ShapiroWilk

# Outlier Analysis - All Downgradient Wells

Rockport BAP Client: Geosyntec Data: Rockport\_BAP Printed 12/11/2017, 10:10 PM

Constituent	Well	Outlier	Value(s)	Method	N	Mean	Std. Dev.	Distribution	Normality Test
Antimony, total (mg/L)	MW-1002	No	n/a	NP (nrm)	8	0.00004875	0.000006409	unknown	ShapiroWilk
Antimony, total (mg/L)	MW-1602D	No	n/a	NP	8	0.00002	0.00001414	ln(x)	ShapiroWilk
Antimony, total (mg/L)	MW-1602I	No	n/a	NP (nrm)	8	0.00004125	0.00004121	unknown	ShapiroWilk
Antimony, total (mg/L)	MW-1603D	No	n/a	NP	8	0.00003	0.00002777	ln(x)	ShapiroWilk
Antimony, total (mg/L)	MW-1603I	No	n/a	NP (nrm)	8	0.00003625	0.00000916	unknown	ShapiroWilk
Antimony, total (mg/L)	MW-1603S	No	n/a	NP (nrm)	8	0.0000475	0.000008864	unknown	ShapiroWilk
Antimony, total (mg/L)	MW-1604D	No	n/a	NP	8	0.0000225	0.00001282	ln(x)	ShapiroWilk
Antimony, total (mg/L)	MW-1604I	No	n/a	NP (nrm)	8	0.00005625	0.00007558	unknown	ShapiroWilk
<b>Antimony, total (mg/L)</b>	<b>MW-1604S</b>	<b>Yes</b>	<b>0.00013</b>	<b>NP</b>	<b>8</b>	<b>0.00007125</b>	<b>0.00002475</b>	<b>ln(x)</b>	<b>ShapiroWilk</b>
Antimony, total (mg/L)	MW-1605D	No	n/a	NP (nrm)	8	0.00001875	0.00001356	unknown	ShapiroWilk
Antimony, total (mg/L)	MW-1605I	No	n/a	NP	8	0.00003625	0.00001061	sqrt(x)	ShapiroWilk
Antimony, total (mg/L)	MW-1605S	No	n/a	NP (nrm)	8	0.0000525	0.00002053	unknown	ShapiroWilk
Antimony, total (mg/L)	MW-1606D	No	n/a	NP	8	0.0000225	0.00001389	x^(1/3)	ShapiroWilk
Antimony, total (mg/L)	MW-1606I	No	n/a	NP (nrm)	8	0.00002625	0.00001061	unknown	ShapiroWilk
Antimony, total (mg/L)	MW-1606S	No	n/a	NP	8	0.00005625	0.00001302	ln(x)	ShapiroWilk
Arsenic, total (mg/L)	MW-1002	No	n/a	NP	8	0.0002488	0.00003944	ln(x)	ShapiroWilk
Arsenic, total (mg/L)	MW-1602D	No	n/a	NP	8	0.00825	0.0005083	x^2	ShapiroWilk
Arsenic, total (mg/L)	MW-1602I	No	n/a	NP	8	0.02	0.004206	ln(x)	ShapiroWilk
Arsenic, total (mg/L)	MW-1603D	No	n/a	NP	8	0.01105	0.0006946	x^4	ShapiroWilk
Arsenic, total (mg/L)	MW-1603I	No	n/a	NP	8	0.01264	0.0003335	x^6	ShapiroWilk
Arsenic, total (mg/L)	MW-1603S	No	n/a	NP	8	0.0002288	0.00006034	ln(x)	ShapiroWilk
Arsenic, total (mg/L)	MW-1604D	No	n/a	NP	8	0.01695	0.001225	x^6	ShapiroWilk
<b>Arsenic, total (mg/L)</b>	<b>MW-1604I</b>	<b>Yes</b>	<b>0.0264</b>	<b>NP</b>	<b>8</b>	<b>0.0205</b>	<b>0.002437</b>	<b>ln(x)</b>	<b>ShapiroWilk</b>
Arsenic, total (mg/L)	MW-1604S	No	n/a	NP	8	0.0003375	0.0001826	ln(x)	ShapiroWilk
Arsenic, total (mg/L)	MW-1605D	No	n/a	NP	8	0.01824	0.0006368	ln(x)	ShapiroWilk
Arsenic, total (mg/L)	MW-1605I	No	n/a	NP	8	0.01979	0.002774	ln(x)	ShapiroWilk
Arsenic, total (mg/L)	MW-1605S	No	n/a	NP	8	0.0004575	0.00007833	ln(x)	ShapiroWilk
Arsenic, total (mg/L)	MW-1606D	No	n/a	NP	8	0.01369	0.001005	x^6	ShapiroWilk
Arsenic, total (mg/L)	MW-1606I	No	n/a	NP	8	0.004535	0.0007161	x^6	ShapiroWilk
Arsenic, total (mg/L)	MW-1606S	No	n/a	NP	8	0.000295	0.0001292	ln(x)	ShapiroWilk
Barium, total (mg/L)	MW-1002	No	n/a	NP	8	0.0224	0.007564	sqrt(x)	ShapiroWilk
Barium, total (mg/L)	MW-1602D	No	n/a	NP	8	0.4719	0.06318	ln(x)	ShapiroWilk
Barium, total (mg/L)	MW-1602I	No	n/a	NP	8	0.1296	0.00821	ln(x)	ShapiroWilk
Barium, total (mg/L)	MW-1603D	No	n/a	NP	8	0.1129	0.006105	ln(x)	ShapiroWilk
Barium, total (mg/L)	MW-1603I	No	n/a	NP	8	0.08428	0.005008	ln(x)	ShapiroWilk
Barium, total (mg/L)	MW-1603S	No	n/a	NP	8	0.01645	0.003065	ln(x)	ShapiroWilk
Barium, total (mg/L)	MW-1604D	No	n/a	NP	8	0.2401	0.01548	ln(x)	ShapiroWilk
Barium, total (mg/L)	MW-1604I	No	n/a	NP	8	0.1235	0.005976	x^3	ShapiroWilk
Barium, total (mg/L)	MW-1604S	No	n/a	NP	8	0.01819	0.002662	x^3	ShapiroWilk
Barium, total (mg/L)	MW-1605D	No	n/a	NP	8	0.4465	0.03176	ln(x)	ShapiroWilk
Barium, total (mg/L)	MW-1605I	No	n/a	NP	8	0.1619	0.01225	ln(x)	ShapiroWilk
Barium, total (mg/L)	MW-1605S	No	n/a	NP	8	0.008263	0.0004112	x^6	ShapiroWilk
Barium, total (mg/L)	MW-1606D	No	n/a	NP	8	0.378	0.0266	x^3	ShapiroWilk
Barium, total (mg/L)	MW-1606I	No	n/a	NP	8	0.05094	0.00293	ln(x)	ShapiroWilk
Barium, total (mg/L)	MW-1606S	No	n/a	NP	8	0.01206	0.002155	ln(x)	ShapiroWilk
Beryllium, total (mg/L)	MW-1002	No	n/a	NP (nrm)	8	0.00001825	0.00000495	unknown	ShapiroWilk
Beryllium, total (mg/L)	MW-1602D	No	n/a	NP (nrm)	8	0.00001687	0.000005939	unknown	ShapiroWilk
Beryllium, total (mg/L)	MW-1602I	No	n/a	NP (nrm)	8	0.00001637	0.000006718	unknown	ShapiroWilk
Beryllium, total (mg/L)	MW-1603D	No	n/a	NP (nrm)	8	0.00002362	0.00001025	unknown	ShapiroWilk
Beryllium, total (mg/L)	MW-1603I	No	n/a	NP (nrm)	8	0.00002	1.8e-13	unknown	ShapiroWilk
Beryllium, total (mg/L)	MW-1603S	No	n/a	NP (nrm)	8	0.0000185	0.000004243	unknown	ShapiroWilk
Beryllium, total (mg/L)	MW-1604D	No	n/a	NP (nrm)	8	0.00002	1.8e-13	unknown	ShapiroWilk
Beryllium, total (mg/L)	MW-1604I	No	n/a	NP (nrm)	8	0.00002	1.8e-13	unknown	ShapiroWilk
Beryllium, total (mg/L)	MW-1604S	No	n/a	NP	8	0.00002137	0.00001647	ln(x)	ShapiroWilk
Beryllium, total (mg/L)	MW-1605D	No	n/a	NP (nrm)	8	0.00002	1.8e-13	unknown	ShapiroWilk

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Constituent	Well	Outlier	Value(s)	Method	N	Mean	Std. Dev.	Distribution	Normality Test
Beryllium, total (mg/L)	MW-1605I	No	n/a	NP (nrm)	8	0.00002	1.8e-13	unknown	ShapiroWilk
Beryllium, total (mg/L)	MW-1605S	No	n/a	NP (nrm)	8	0.00002	1.8e-13	unknown	ShapiroWilk
Beryllium, total (mg/L)	MW-1606D	No	n/a	NP (nrm)	8	0.0000205	0.00000648	unknown	ShapiroWilk
Beryllium, total (mg/L)	MW-1606I	No	n/a	NP (nrm)	8	0.00001837	0.00000459	unknown	ShapiroWilk
Beryllium, total (mg/L)	MW-1606S	No	n/a	NP (nrm)	8	0.000018	0.00000512	unknown	ShapiroWilk
Boron, total (mg/L)	MW-1002	No	n/a	NP	8	1.49	0.2516	x^5	ShapiroWilk
Boron, total (mg/L)	MW-1602D	No	n/a	NP	8	0.0715	0.01427	x^2	ShapiroWilk
Boron, total (mg/L)	MW-1602I	No	n/a	NP	8	0.0555	0.02282	ln(x)	ShapiroWilk
Boron, total (mg/L)	MW-1603D	No	n/a	NP	8	0.069	0.009681	x^(1/3)	ShapiroWilk
Boron, total (mg/L)	MW-1603I	No	n/a	NP	8	0.1689	0.01928	ln(x)	ShapiroWilk
Boron, total (mg/L)	MW-1603S	No	n/a	NP	8	1.836	0.3045	x^2	ShapiroWilk
Boron, total (mg/L)	MW-1604D	No	n/a	NP	8	0.04063	0.03032	ln(x)	ShapiroWilk
Boron, total (mg/L)	MW-1604I	No	n/a	NP	8	0.2774	0.09701	x^2	ShapiroWilk
Boron, total (mg/L)	MW-1604S	No	n/a	NP	8	0.6303	0.09993	x^2	ShapiroWilk
Boron, total (mg/L)	MW-1605D	No	n/a	NP	8	0.022	0.01213	normal	ShapiroWilk
Boron, total (mg/L)	MW-1605I	No	n/a	NP	8	0.03163	0.009812	sqrt(x)	ShapiroWilk
Boron, total (mg/L)	MW-1605S	No	n/a	NP	8	0.5106	0.05913	ln(x)	ShapiroWilk
Boron, total (mg/L)	MW-1606D	No	n/a	NP	8	0.02775	0.01951	ln(x)	ShapiroWilk
Boron, total (mg/L)	MW-1606I	No	n/a	NP	8	0.021	0.021	ln(x)	ShapiroWilk
Boron, total (mg/L)	MW-1606S	No	n/a	NP	8	0.03075	0.0278	ln(x)	ShapiroWilk
Cadmium, total (mg/L)	MW-1002	No	n/a	NP	8	0.0000525	0.00004234	ln(x)	ShapiroWilk
Cadmium, total (mg/L)	MW-1602D	No	n/a	NP (nrm)	8	0.00002625	0.00001768	unknown	ShapiroWilk
Cadmium, total (mg/L)	MW-1602I	No	n/a	NP (nrm)	8	0.00001287	0.000007624	unknown	ShapiroWilk
Cadmium, total (mg/L)	MW-1603D	No	n/a	NP	8	0.000017	0.00000772	sqrt(x)	ShapiroWilk
Cadmium, total (mg/L)	MW-1603I	No	n/a	NP (nrm)	8	0.00001637	0.00000676	unknown	ShapiroWilk
Cadmium, total (mg/L)	MW-1603S	No	n/a	NP (nrm)	8	0.0000275	0.00001389	unknown	ShapiroWilk
Cadmium, total (mg/L)	MW-1604D	No	n/a	NP (nrm)	8	0.00001687	0.000005793	unknown	ShapiroWilk
<b>Cadmium, total (mg/L)</b>	<b>MW-1604I</b>	<b>Yes</b>	<b>0.00012</b>	<b>NP</b>	<b>8</b>	<b>0.00002925</b>	<b>0.00003715</b>	<b>ln(x)</b>	<b>ShapiroWilk</b>
Cadmium, total (mg/L)	MW-1604S	No	n/a	NP	8	0.0000275	0.00002605	ln(x)	ShapiroWilk
Cadmium, total (mg/L)	MW-1605D	No	n/a	NP (nrm)	8	0.00001825	0.00000495	unknown	ShapiroWilk
Cadmium, total (mg/L)	MW-1605I	No	n/a	NP (nrm)	8	0.00001512	0.000006792	unknown	ShapiroWilk
Cadmium, total (mg/L)	MW-1605S	No	n/a	NP (nrm)	8	0.00003375	0.000005175	unknown	ShapiroWilk
Cadmium, total (mg/L)	MW-1606D	No	n/a	NP (nrm)	8	0.00002	2.3e-13	unknown	ShapiroWilk
Cadmium, total (mg/L)	MW-1606I	No	n/a	NP (nrm)	8	0.00001675	0.00000622	unknown	ShapiroWilk
Cadmium, total (mg/L)	MW-1606S	No	n/a	NP	8	0.00002625	0.00001506	ln(x)	ShapiroWilk
Calcium, total (mg/L)	MW-1002	No	n/a	NP	8	51.88	17.64	ln(x)	ShapiroWilk
Calcium, total (mg/L)	MW-1602D	No	n/a	NP	8	71.95	4.861	normal	ShapiroWilk
Calcium, total (mg/L)	MW-1602I	No	n/a	NP	8	78.43	5.93	x^3	ShapiroWilk
Calcium, total (mg/L)	MW-1603D	No	n/a	NP	8	84.04	7.342	x^4	ShapiroWilk
Calcium, total (mg/L)	MW-1603I	No	n/a	NP	8	91.26	7.46	normal	ShapiroWilk
Calcium, total (mg/L)	MW-1603S	No	n/a	NP	8	68.9	17.36	x^(1/3)	ShapiroWilk
Calcium, total (mg/L)	MW-1604D	No	n/a	NP	8	69.86	3.557	x^5	ShapiroWilk
Calcium, total (mg/L)	MW-1604I	No	n/a	NP	8	75.49	4.278	x^2	ShapiroWilk
Calcium, total (mg/L)	MW-1604S	No	n/a	NP	8	85.99	13.13	ln(x)	ShapiroWilk
Calcium, total (mg/L)	MW-1605D	No	n/a	NP	8	87.33	3.972	ln(x)	ShapiroWilk
Calcium, total (mg/L)	MW-1605I	No	n/a	NP	8	91.19	7.636	x^2	ShapiroWilk
Calcium, total (mg/L)	MW-1605S	No	n/a	NP	8	76.31	5.127	x^3	ShapiroWilk
Calcium, total (mg/L)	MW-1606D	No	n/a	NP	8	72.45	3.97	ln(x)	ShapiroWilk
Calcium, total (mg/L)	MW-1606I	No	n/a	NP	8	64.69	4.721	x^6	ShapiroWilk
Calcium, total (mg/L)	MW-1606S	No	n/a	NP	8	49.18	4.437	ln(x)	ShapiroWilk
Chloride, total (mg/L)	MW-1002	No	n/a	NP	8	62.4	10.22	ln(x)	ShapiroWilk
Chloride, total (mg/L)	MW-1602D	No	n/a	NP	8	153.1	25.36	x^5	ShapiroWilk
Chloride, total (mg/L)	MW-1602I	No	n/a	NP	8	29.28	2.301	ln(x)	ShapiroWilk
Chloride, total (mg/L)	MW-1603D	No	n/a	NP	8	26.04	0.5528	x^6	ShapiroWilk
Chloride, total (mg/L)	MW-1603I	No	n/a	NP	8	36.9	2.004	normal	ShapiroWilk

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Constituent	Well	Outlier	Value(s)	Method	N	Mean	Std. Dev.	Distribution	Normality Test
Chloride, total (mg/L)	MW-1603S	No	n/a	NP	8	56.7	5.265	ln(x)	ShapiroWilk
Chloride, total (mg/L)	MW-1604D	No	n/a	NP	8	17.93	1.008	ln(x)	ShapiroWilk
Chloride, total (mg/L)	MW-1604I	No	n/a	NP	8	47.56	5.143	x^3	ShapiroWilk
Chloride, total (mg/L)	MW-1604S	No	n/a	NP	8	65.45	11.56	ln(x)	ShapiroWilk
Chloride, total (mg/L)	MW-1605D	No	n/a	NP	8	29.58	1.494	ln(x)	ShapiroWilk
Chloride, total (mg/L)	MW-1605I	No	n/a	NP	8	44.01	2.305	x^6	ShapiroWilk
Chloride, total (mg/L)	MW-1605S	No	n/a	NP	8	50.7	2.277	sqrt(x)	ShapiroWilk
Chloride, total (mg/L)	MW-1606D	No	n/a	NP	8	21.7	0.5071	x^6	ShapiroWilk
Chloride, total (mg/L)	MW-1606I	No	n/a	NP	8	24.01	0.8871	x^6	ShapiroWilk
Chloride, total (mg/L)	MW-1606S	No	n/a	NP	8	24.18	3.458	ln(x)	ShapiroWilk
Chromium, total (mg/L)	MW-1002	No	n/a	NP	8	0.0002335	0.0002131	ln(x)	ShapiroWilk
Chromium, total (mg/L)	MW-1602D	No	n/a	NP	8	0.0003025	0.0001061	ln(x)	ShapiroWilk
Chromium, total (mg/L)	MW-1602I	No	n/a	NP	8	0.0002465	0.0001452	ln(x)	ShapiroWilk
<b>Chromium, total (mg/L)</b>	<b>MW-1603D</b>	<b>Yes</b>	<b>0.0238</b>	<b>NP</b>	<b>8</b>	<b>0.003137</b>	<b>0.00835</b>	<b>ln(x)</b>	<b>ShapiroWilk</b>
Chromium, total (mg/L)	MW-1603I	No	n/a	NP	8	0.0003129	0.000293	ln(x)	ShapiroWilk
Chromium, total (mg/L)	MW-1603S	No	n/a	NP	8	0.0003083	0.0001917	ln(x)	ShapiroWilk
Chromium, total (mg/L)	MW-1604D	No	n/a	NP	8	0.0001669	0.00005448	ln(x)	ShapiroWilk
Chromium, total (mg/L)	MW-1604I	No	n/a	NP	8	0.0002575	0.0001773	ln(x)	ShapiroWilk
Chromium, total (mg/L)	MW-1604S	No	n/a	NP	8	0.0003279	0.0002446	x^(1/3)	ShapiroWilk
Chromium, total (mg/L)	MW-1605D	No	n/a	NP	8	0.0002199	0.00008595	x^2	ShapiroWilk
Chromium, total (mg/L)	MW-1605I	No	n/a	NP	8	0.000282	0.0003741	ln(x)	ShapiroWilk
Chromium, total (mg/L)	MW-1605S	No	n/a	NP	8	0.0002978	0.0002625	ln(x)	ShapiroWilk
Chromium, total (mg/L)	MW-1606D	No	n/a	NP	8	0.0002686	0.000208	ln(x)	ShapiroWilk
Chromium, total (mg/L)	MW-1606I	No	n/a	NP	8	0.0002135	0.0001627	ln(x)	ShapiroWilk
Chromium, total (mg/L)	MW-1606S	No	n/a	NP	8	0.000503	0.0004882	ln(x)	ShapiroWilk
Cobalt, total (mg/L)	MW-1002	No	n/a	NP	8	0.0006969	0.0001312	ln(x)	ShapiroWilk
Cobalt, total (mg/L)	MW-1602D	No	n/a	NP (nrm)	8	0.00015	0.00005751	unknown	ShapiroWilk
Cobalt, total (mg/L)	MW-1602I	No	n/a	NP	8	0.001481	0.0001438	ln(x)	ShapiroWilk
Cobalt, total (mg/L)	MW-1603D	No	n/a	NP	8	0.0009501	0.000543	ln(x)	ShapiroWilk
Cobalt, total (mg/L)	MW-1603I	No	n/a	NP	8	0.001268	0.00009953	x^3	ShapiroWilk
Cobalt, total (mg/L)	MW-1603S	No	n/a	NP	8	0.0003354	0.0002104	ln(x)	ShapiroWilk
Cobalt, total (mg/L)	MW-1604D	No	n/a	NP	8	0.00007425	0.00002384	ln(x)	ShapiroWilk
Cobalt, total (mg/L)	MW-1604I	No	n/a	NP	8	0.00082	0.0001174	ln(x)	ShapiroWilk
Cobalt, total (mg/L)	MW-1604S	No	n/a	NP	8	0.0004316	0.0002263	ln(x)	ShapiroWilk
Cobalt, total (mg/L)	MW-1605D	No	n/a	NP	8	0.0001351	0.00006508	ln(x)	ShapiroWilk
Cobalt, total (mg/L)	MW-1605I	No	n/a	NP	8	0.001594	0.0001064	ln(x)	ShapiroWilk
Cobalt, total (mg/L)	MW-1605S	No	n/a	NP	8	0.0004424	0.0001757	ln(x)	ShapiroWilk
Cobalt, total (mg/L)	MW-1606D	No	n/a	NP	8	0.0001598	0.0001438	ln(x)	ShapiroWilk
Cobalt, total (mg/L)	MW-1606I	No	n/a	NP	8	0.000922	0.0001808	ln(x)	ShapiroWilk
Cobalt, total (mg/L)	MW-1606S	No	n/a	NP	8	0.000247	0.0002914	ln(x)	ShapiroWilk
Combined Radium 226 + 228 (pCi/L)	MW-1002	No	n/a	NP	8	0.9642	0.9305	ln(x)	ShapiroWilk
Combined Radium 226 + 228 (pCi/L)	MW-1602D	No	n/a	NP	8	1.566	1.205	ln(x)	ShapiroWilk
Combined Radium 226 + 228 (pCi/L)	MW-1602I	No	n/a	NP	8	1.07	0.2854	ln(x)	ShapiroWilk
Combined Radium 226 + 228 (pCi/L)	MW-1603D	No	n/a	NP	8	0.9943	0.4103	normal	ShapiroWilk
Combined Radium 226 + 228 (pCi/L)	MW-1603I	No	n/a	NP	8	1.371	0.6918	ln(x)	ShapiroWilk
Combined Radium 226 + 228 (pCi/L)	MW-1603S	No	n/a	NP	8	0.9281	0.9025	ln(x)	ShapiroWilk
Combined Radium 226 + 228 (pCi/L)	MW-1604D	No	n/a	NP	8	0.8717	0.6078	ln(x)	ShapiroWilk
Combined Radium 226 + 228 (pCi/L)	MW-1604I	No	n/a	NP	8	1.092	0.3706	normal	ShapiroWilk
Combined Radium 226 + 228 (pCi/L)	MW-1604S	No	n/a	NP	8	0.7383	0.486	x^(1/3)	ShapiroWilk
Combined Radium 226 + 228 (pCi/L)	MW-1605D	No	n/a	NP	8	1.226	0.4288	x^2	ShapiroWilk
Combined Radium 226 + 228 (pCi/L)	MW-1605I	No	n/a	NP	8	1.806	0.4323	x^3	ShapiroWilk
Combined Radium 226 + 228 (pCi/L)	MW-1605S	No	n/a	NP	8	0.6509	0.5555	ln(x)	ShapiroWilk
Combined Radium 226 + 228 (pCi/L)	MW-1606D	No	n/a	NP	8	1.115	0.6827	x^(1/3)	ShapiroWilk
Combined Radium 226 + 228 (pCi/L)	MW-1606I	No	n/a	NP	8	1.424	1.177	ln(x)	ShapiroWilk
Combined Radium 226 + 228 (pCi/L)	MW-1606S	No	n/a	NP	8	0.9198	0.6714	x^(1/3)	ShapiroWilk



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Constituent	Well	Outlier	Value(s)	Method	N	Mean	Std. Dev.	Distribution	Normality Test
Fluoride, total (mg/L)	MW-1002	No	n/a	NP (nrm)	8	0.8575	0.1437	unknown	ShapiroWilk
Fluoride, total (mg/L)	MW-1602D	No	n/a	NP	8	0.3188	0.03091	x^4	ShapiroWilk
Fluoride, total (mg/L)	MW-1602I	No	n/a	NP	8	0.2788	0.02696	x^3	ShapiroWilk
Fluoride, total (mg/L)	MW-1603D	No	n/a	NP	8	0.29	0.03117	x^3	ShapiroWilk
Fluoride, total (mg/L)	MW-1603I	No	n/a	NP	8	0.395	0.02449	x^4	ShapiroWilk
Fluoride, total (mg/L)	MW-1603S	No	n/a	NP	8	0.39	0.07091	x^2	ShapiroWilk
Fluoride, total (mg/L)	MW-1604D	No	n/a	NP	8	0.2575	0.02765	x^2	ShapiroWilk
Fluoride, total (mg/L)	MW-1604I	No	n/a	NP	8	0.3138	0.02446	x^5	ShapiroWilk
Fluoride, total (mg/L)	MW-1604S	No	n/a	NP	8	0.8675	0.06182	x^6	ShapiroWilk
Fluoride, total (mg/L)	MW-1605D	No	n/a	NP	8	0.2038	0.02446	ln(x)	ShapiroWilk
Fluoride, total (mg/L)	MW-1605I	No	n/a	NP	8	0.1813	0.03643	x^4	ShapiroWilk
Fluoride, total (mg/L)	MW-1605S	No	n/a	NP (nrm)	8	0.5063	0.05069	unknown	ShapiroWilk
Fluoride, total (mg/L)	MW-1606D	No	n/a	NP	8	0.1838	0.02504	ln(x)	ShapiroWilk
Fluoride, total (mg/L)	MW-1606I	No	n/a	NP	8	0.1938	0.01847	x^2	ShapiroWilk
Fluoride, total (mg/L)	MW-1606S	No	n/a	NP	8	0.395	0.0444	x^3	ShapiroWilk
Lead, total (mg/L)	MW-1002	No	n/a	NP	8	0.00004288	0.00004929	ln(x)	ShapiroWilk
Lead, total (mg/L)	MW-1602D	No	n/a	NP	8	0.00005363	0.00005976	ln(x)	ShapiroWilk
Lead, total (mg/L)	MW-1602I	No	n/a	NP	8	0.0001146	0.0000917	ln(x)	ShapiroWilk
<b>Lead, total (mg/L)</b>	<b>MW-1603D</b>	<b>Yes</b>	<b>0.00138</b>	<b>NP</b>	<b>8</b>	<b>0.0001946</b>	<b>0.0004793</b>	<b>ln(x)</b>	<b>ShapiroWilk</b>
Lead, total (mg/L)	MW-1603I	No	n/a	NP	8	0.0000645	0.00005606	x^(1/3)	ShapiroWilk
Lead, total (mg/L)	MW-1603S	No	n/a	NP	8	0.000077	0.0000556	ln(x)	ShapiroWilk
Lead, total (mg/L)	MW-1604D	No	n/a	NP	8	0.00003675	0.00002965	ln(x)	ShapiroWilk
Lead, total (mg/L)	MW-1604I	No	n/a	NP	8	0.00003438	0.00002658	ln(x)	ShapiroWilk
Lead, total (mg/L)	MW-1604S	No	n/a	NP	8	0.0001865	0.000308	ln(x)	ShapiroWilk
Lead, total (mg/L)	MW-1605D	No	n/a	NP	8	0.00002875	0.00001931	normal	ShapiroWilk
Lead, total (mg/L)	MW-1605I	No	n/a	NP	8	0.00008125	0.0000527	x^(1/3)	ShapiroWilk
Lead, total (mg/L)	MW-1605S	No	n/a	NP	8	0.0000635	0.00007205	ln(x)	ShapiroWilk
Lead, total (mg/L)	MW-1606D	No	n/a	NP (nrm)	8	0.00005162	0.0000698	unknown	ShapiroWilk
Lead, total (mg/L)	MW-1606I	No	n/a	NP	8	0.00005137	0.00004929	ln(x)	ShapiroWilk
Lead, total (mg/L)	MW-1606S	No	n/a	NP	8	0.0002964	0.0004429	ln(x)	ShapiroWilk
Lithium, total (mg/L)	MW-1002	No	n/a	NP	8	0.007375	0.004596	x^(1/3)	ShapiroWilk
Lithium, total (mg/L)	MW-1602D	No	n/a	NP	8	0.007625	0.006675	x^(1/3)	ShapiroWilk
Lithium, total (mg/L)	MW-1602I	No	n/a	NP	8	0.007625	0.003998	sqrt(x)	ShapiroWilk
Lithium, total (mg/L)	MW-1603D	No	n/a	NP	8	0.00775	0.002816	normal	ShapiroWilk
Lithium, total (mg/L)	MW-1603I	No	n/a	NP	8	0.009625	0.004307	x^2	ShapiroWilk
Lithium, total (mg/L)	MW-1603S	No	n/a	NP	8	0.00675	0.004432	sqrt(x)	ShapiroWilk
Lithium, total (mg/L)	MW-1604D	No	n/a	NP	8	0.004375	0.003335	ln(x)	ShapiroWilk
Lithium, total (mg/L)	MW-1604I	No	n/a	NP	8	0.009	0.004106	normal	ShapiroWilk
Lithium, total (mg/L)	MW-1604S	No	n/a	NP	8	0.01213	0.003758	normal	ShapiroWilk
Lithium, total (mg/L)	MW-1605D	No	n/a	NP	8	0.004875	0.001126	normal	ShapiroWilk
Lithium, total (mg/L)	MW-1605I	No	n/a	NP	8	0.008125	0.004324	ln(x)	ShapiroWilk
Lithium, total (mg/L)	MW-1605S	No	n/a	NP	8	0.01563	0.00256	ln(x)	ShapiroWilk
Lithium, total (mg/L)	MW-1606D	No	n/a	NP	8	0.00425	0.002816	x^(1/3)	ShapiroWilk
Lithium, total (mg/L)	MW-1606I	No	n/a	NP	8	0.00775	0.002712	x^(1/3)	ShapiroWilk
Lithium, total (mg/L)	MW-1606S	No	n/a	NP	8	0.01113	0.003137	sqrt(x)	ShapiroWilk
Mercury, total (mg/L)	MW-1002	No	n/a	NP (nrm)	8	0.000005	4.5e-14	unknown	ShapiroWilk
Mercury, total (mg/L)	MW-1602D	No	n/a	NP (nrm)	8	0.000005	4.5e-14	unknown	ShapiroWilk
Mercury, total (mg/L)	MW-1602I	No	n/a	NP (nrm)	8	0.000005	4.5e-14	unknown	ShapiroWilk
Mercury, total (mg/L)	MW-1603D	No	n/a	NP (nrm)	8	0.000005	4.5e-14	unknown	ShapiroWilk
Mercury, total (mg/L)	MW-1603I	No	n/a	NP (nrm)	8	0.000005	4.5e-14	unknown	ShapiroWilk
Mercury, total (mg/L)	MW-1603S	No	n/a	NP (nrm)	8	0.000005	4.5e-14	unknown	ShapiroWilk
Mercury, total (mg/L)	MW-1604D	No	n/a	NP (nrm)	8	0.000004625	0.0000106	unknown	ShapiroWilk
Mercury, total (mg/L)	MW-1604I	No	n/a	NP (nrm)	8	0.000005	4.5e-14	unknown	ShapiroWilk
Mercury, total (mg/L)	MW-1604S	No	n/a	NP (nrm)	8	0.000005	4.5e-14	unknown	ShapiroWilk
Mercury, total (mg/L)	MW-1605D	No	n/a	NP (nrm)	8	0.000005	4.5e-14	unknown	ShapiroWilk

# Outlier Analysis - All Downgradient Wells

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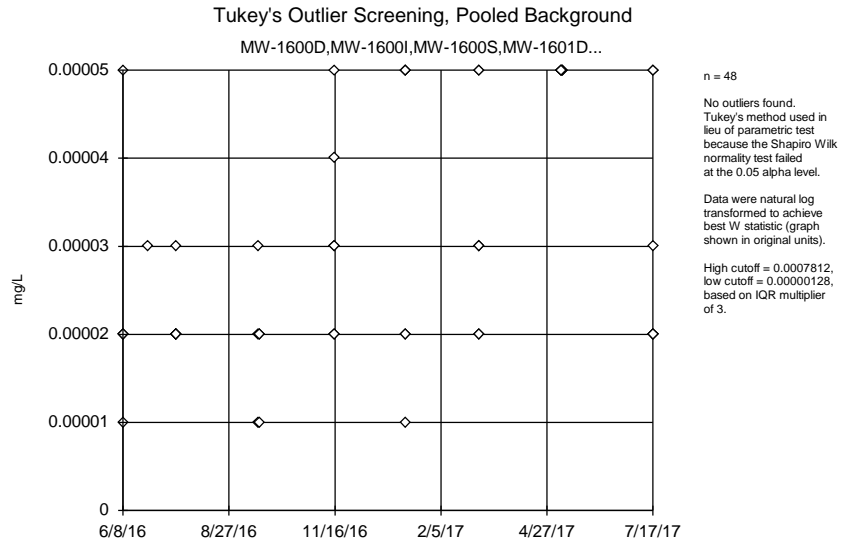
Constituent	Well	Outlier	Value(s)	Method	N	Mean	Std. Dev.	Distribution	Normality Test
Mercury, total (mg/L)	MW-1605I	No	n/a	NP (nrm)	8	0.000005	4.5e-14	unknown	ShapiroWilk
Mercury, total (mg/L)	MW-1605S	No	n/a	NP (nrm)	8	0.000005	4.5e-14	unknown	ShapiroWilk
Mercury, total (mg/L)	MW-1606D	No	n/a	NP (nrm)	8	0.000005	4.5e-14	unknown	ShapiroWilk
Mercury, total (mg/L)	MW-1606I	No	n/a	NP (nrm)	8	0.000005	4.5e-14	unknown	ShapiroWilk
Mercury, total (mg/L)	MW-1606S	No	n/a	NP (nrm)	8	0.000005	4.5e-14	unknown	ShapiroWilk
Molybdenum, total (mg/L)	MW-1002	No	n/a	NP	8	0.002738	0.0004586	x^2	ShapiroWilk
Molybdenum, total (mg/L)	MW-1602D	No	n/a	NP	8	0.003746	0.0004651	ln(x)	ShapiroWilk
Molybdenum, total (mg/L)	MW-1602I	No	n/a	NP	8	0.002283	0.0002428	ln(x)	ShapiroWilk
Molybdenum, total (mg/L)	MW-1603D	No	n/a	NP (nrm)	8	0.00556	0.0009094	unknown	ShapiroWilk
Molybdenum, total (mg/L)	MW-1603I	No	n/a	NP	8	0.009134	0.0005396	normal	ShapiroWilk
Molybdenum, total (mg/L)	MW-1603S	No	n/a	NP	8	0.000505	0.0003956	ln(x)	ShapiroWilk
Molybdenum, total (mg/L)	MW-1604D	No	n/a	NP	8	0.003083	0.0004229	ln(x)	ShapiroWilk
Molybdenum, total (mg/L)	MW-1604I	No	n/a	NP	8	0.002765	0.0002295	x^3	ShapiroWilk
<b>Molybdenum, total (mg/L)</b>	<b>MW-1604S</b>	<b>Yes</b>	<b>0.00479</b>	<b>NP</b>	<b>8</b>	<b>0.00268</b>	<b>0.0008895</b>	<b>ln(x)</b>	<b>ShapiroWilk</b>
<b>Molybdenum, total (mg/L)</b>	<b>MW-1605D</b>	<b>Yes</b>	<b>0.00765</b>	<b>NP</b>	<b>8</b>	<b>0.00306</b>	<b>0.001896</b>	<b>ln(x)</b>	<b>ShapiroWilk</b>
Molybdenum, total (mg/L)	MW-1605I	No	n/a	NP	8	0.001276	0.000135	sqrt(x)	ShapiroWilk
Molybdenum, total (mg/L)	MW-1605S	No	n/a	NP	8	0.001968	0.000269	ln(x)	ShapiroWilk
<b>Molybdenum, total (mg/L)</b>	<b>MW-1606D</b>	<b>Yes</b>	<b>0.00382</b>	<b>NP</b>	<b>8</b>	<b>0.002314</b>	<b>0.0006345</b>	<b>ln(x)</b>	<b>ShapiroWilk</b>
Molybdenum, total (mg/L)	MW-1606I	No	n/a	NP	8	0.001603	0.0003201	normal	ShapiroWilk
Molybdenum, total (mg/L)	MW-1606S	No	n/a	NP	8	0.001265	0.0003294	ln(x)	ShapiroWilk
pH, field (SU)	MW-1002	No	n/a	NP	8	6.678	0.2616	x^2	ShapiroWilk
pH, field (SU)	MW-1602D	No	n/a	NP	8	7.106	0.9093	x^5	ShapiroWilk
pH, field (SU)	MW-1602I	No	n/a	NP	8	7.165	0.187	x^6	ShapiroWilk
pH, field (SU)	MW-1603D	No	n/a	NP	8	7.095	0.181	x^6	ShapiroWilk
<b>pH, field (SU)</b>	<b>MW-1603I</b>	<b>Yes</b>	<b>9.78</b>	<b>NP</b>	<b>8</b>	<b>7.596</b>	<b>0.8932</b>	<b>ln(x)</b>	<b>ShapiroWilk</b>
<b>pH, field (SU)</b>	<b>MW-1603S</b>	<b>Yes</b>	<b>9.63</b>	<b>NP</b>	<b>8</b>	<b>7.295</b>	<b>1.002</b>	<b>ln(x)</b>	<b>ShapiroWilk</b>
pH, field (SU)	MW-1604D	No	n/a	NP	8	7.17	0.1292	x^6	ShapiroWilk
pH, field (SU)	MW-1604I	No	n/a	NP	8	7.376	0.1483	x^6	ShapiroWilk
pH, field (SU)	MW-1604S	No	n/a	NP	8	7.378	0.1209	ln(x)	ShapiroWilk
<b>pH, field (SU)</b>	<b>MW-1605D</b>	<b>Yes</b>	<b>9.51</b>	<b>NP</b>	<b>8</b>	<b>7.418</b>	<b>0.8534</b>	<b>ln(x)</b>	<b>ShapiroWilk</b>
pH, field (SU)	MW-1605I	No	n/a	NP	8	7.151	0.1535	x^6	ShapiroWilk
pH, field (SU)	MW-1605S	No	n/a	NP	8	7.165	0.06887	x^6	ShapiroWilk
<b>pH, field (SU)</b>	<b>MW-1606D</b>	<b>Yes</b>	<b>5.85,8.37</b>	<b>NP</b>	<b>8</b>	<b>7.144</b>	<b>0.6851</b>	<b>normal</b>	<b>ShapiroWilk</b>
pH, field (SU)	MW-1606I	No	n/a	NP	8	6.919	0.8149	x^6	ShapiroWilk
pH, field (SU)	MW-1606S	No	n/a	NP	8	6.961	0.1457	x^6	ShapiroWilk
Selenium, total (mg/L)	MW-1002	No	n/a	NP	8	0.00008625	0.00001598	ln(x)	ShapiroWilk
Selenium, total (mg/L)	MW-1602D	No	n/a	NP (nrm)	8	0.00007	0.00003295	unknown	ShapiroWilk
Selenium, total (mg/L)	MW-1602I	No	n/a	NP	8	0.0000725	0.00003059	ln(x)	ShapiroWilk
Selenium, total (mg/L)	MW-1603D	No	n/a	NP (nrm)	8	0.00011	0.00008142	unknown	ShapiroWilk
Selenium, total (mg/L)	MW-1603I	No	n/a	NP (nrm)	8	0.00008625	0.0000256	unknown	ShapiroWilk
Selenium, total (mg/L)	MW-1603S	No	n/a	NP	8	0.000195	0.0002153	ln(x)	ShapiroWilk
Selenium, total (mg/L)	MW-1604D	No	n/a	NP (nrm)	8	0.00007875	0.00003044	unknown	ShapiroWilk
Selenium, total (mg/L)	MW-1604I	No	n/a	NP (nrm)	8	0.00008125	0.000028	unknown	ShapiroWilk
Selenium, total (mg/L)	MW-1604S	No	n/a	NP	8	0.00008125	0.00005194	ln(x)	ShapiroWilk
Selenium, total (mg/L)	MW-1605D	No	n/a	NP (nrm)	8	0.0000825	0.0000324	unknown	ShapiroWilk
Selenium, total (mg/L)	MW-1605I	No	n/a	NP (nrm)	8	0.0000725	0.00003151	unknown	ShapiroWilk
Selenium, total (mg/L)	MW-1605S	No	n/a	NP	8	0.001013	0.0002416	x^3	ShapiroWilk
Selenium, total (mg/L)	MW-1606D	No	n/a	NP (nrm)	8	0.00008125	0.00002642	unknown	ShapiroWilk
Selenium, total (mg/L)	MW-1606I	No	n/a	NP (nrm)	8	0.000085	0.00002828	unknown	ShapiroWilk
Selenium, total (mg/L)	MW-1606S	No	n/a	NP	8	0.004438	0.001031	ln(x)	ShapiroWilk
Sulfate, total (mg/L)	MW-1002	No	n/a	NP	8	182.8	27.98	ln(x)	ShapiroWilk
Sulfate, total (mg/L)	MW-1602D	No	n/a	NP	8	16.1	3.016	x^2	ShapiroWilk
Sulfate, total (mg/L)	MW-1602I	No	n/a	NP	8	80.83	4.78	ln(x)	ShapiroWilk
Sulfate, total (mg/L)	MW-1603D	No	n/a	NP	8	50.31	4.584	ln(x)	ShapiroWilk
Sulfate, total (mg/L)	MW-1603I	No	n/a	NP	8	81.2	13.51	ln(x)	ShapiroWilk

# Outlier Analysis - All Downgradient Wells

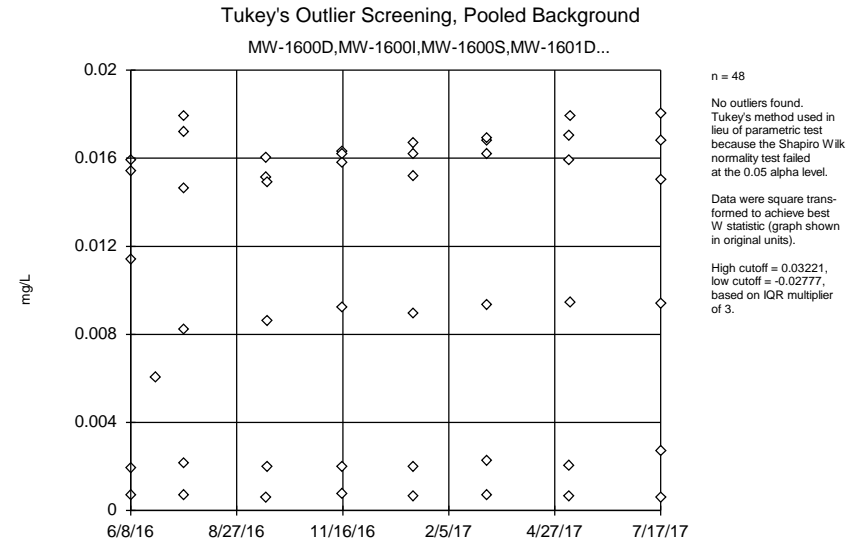
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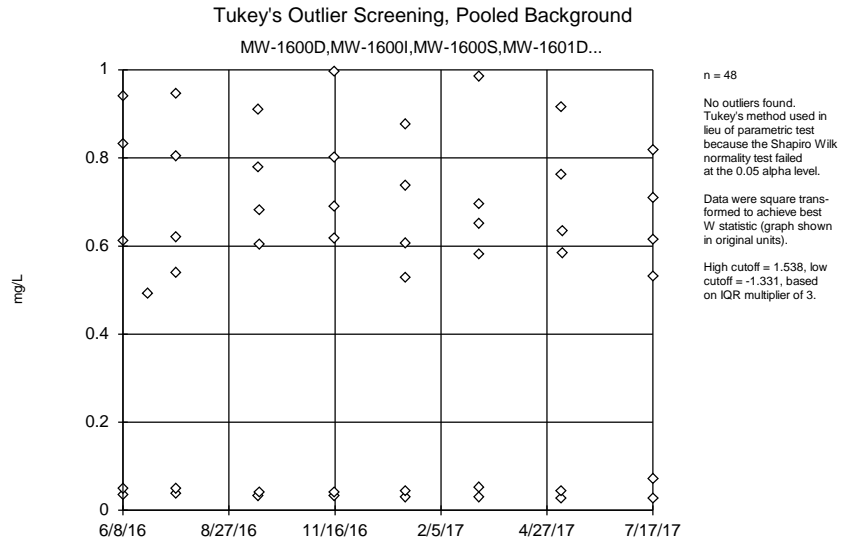
Constituent	Well	Outlier	Value(s)	Method	N	Mean	Std. Dev.	Distribution	Normality Test
Sulfate, total (mg/L)	MW-1603S	No	n/a	NP	8	209.9	26.07	ln(x)	ShapiroWilk
Sulfate, total (mg/L)	MW-1604D	No	n/a	NP	8	32.81	4.222	ln(x)	ShapiroWilk
Sulfate, total (mg/L)	MW-1604I	No	n/a	NP	8	127.7	18.35	x^4	ShapiroWilk
Sulfate, total (mg/L)	MW-1604S	No	n/a	NP	8	188.4	36.6	ln(x)	ShapiroWilk
Sulfate, total (mg/L)	MW-1605D	No	n/a	NP	8	57.84	2.511	x^4	ShapiroWilk
Sulfate, total (mg/L)	MW-1605I	No	n/a	NP	8	126.3	11.21	normal	ShapiroWilk
Sulfate, total (mg/L)	MW-1605S	No	n/a	NP	8	176.8	6.182	x^5	ShapiroWilk
Sulfate, total (mg/L)	MW-1606D	No	n/a	NP	8	13.21	2.166	x^3	ShapiroWilk
Sulfate, total (mg/L)	MW-1606I	No	n/a	NP	8	39.44	2.746	ln(x)	ShapiroWilk
Sulfate, total (mg/L)	MW-1606S	No	n/a	NP	8	36.94	5.432	ln(x)	ShapiroWilk
Thallium, total (mg/L)	MW-1002	No	n/a	NP	8	0.00003375	0.00001061	normal	ShapiroWilk
Thallium, total (mg/L)	MW-1602D	No	n/a	NP (nrm)	8	0.0000445	0.0000161	unknown	ShapiroWilk
Thallium, total (mg/L)	MW-1602I	No	n/a	NP	8	0.00002875	0.00001642	sqrt(x)	ShapiroWilk
<b>Thallium, total (mg/L)</b>	<b>MW-1603D</b>	<b>Yes</b>	<b>0.000068,0.00002</b>	<b>NP (nrm)</b>	<b>8</b>	<b>0.00004725</b>	<b>0.00001344</b>	<b>unknown</b>	<b>ShapiroWilk</b>
Thallium, total (mg/L)	MW-1603I	No	n/a	NP	8	0.0000375	0.00001165	x^(1/3)	ShapiroWilk
Thallium, total (mg/L)	MW-1603S	No	n/a	NP (nrm)	8	0.00003513	0.00002539	unknown	ShapiroWilk
Thallium, total (mg/L)	MW-1604D	No	n/a	NP (nrm)	8	0.00005187	0.00002034	unknown	ShapiroWilk
Thallium, total (mg/L)	MW-1604I	No	n/a	NP	8	0.0000285	0.00002356	ln(x)	ShapiroWilk
Thallium, total (mg/L)	MW-1604S	No	n/a	NP	8	0.00004538	0.00002477	ln(x)	ShapiroWilk
Thallium, total (mg/L)	MW-1605D	No	n/a	NP (nrm)	8	0.0000425	0.00001488	unknown	ShapiroWilk
<b>Thallium, total (mg/L)</b>	<b>MW-1605I</b>	<b>Yes</b>	<b>0.000183</b>	<b>NP</b>	<b>8</b>	<b>0.00004913</b>	<b>0.00005488</b>	<b>ln(x)</b>	<b>ShapiroWilk</b>
Thallium, total (mg/L)	MW-1605S	No	n/a	NP	8	0.00003375	0.00001408	ln(x)	ShapiroWilk
Thallium, total (mg/L)	MW-1606D	No	n/a	NP (nrm)	8	0.00005925	0.00002616	unknown	ShapiroWilk
Thallium, total (mg/L)	MW-1606I	No	n/a	NP	8	0.00003875	0.000008345	normal	ShapiroWilk
Thallium, total (mg/L)	MW-1606S	No	n/a	NP	8	0.00002625	0.00001598	ln(x)	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-1002	No	n/a	NP	8	431.3	46.68	ln(x)	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-1602D	No	n/a	NP	8	556.9	45.35	x^6	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-1602I	No	n/a	NP	8	425.5	21.9	normal	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-1603D	No	n/a	NP	8	409.8	15.21	ln(x)	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-1603I	No	n/a	NP	8	473.4	20.38	ln(x)	ShapiroWilk
<b>Total Dissolved Solids [TDS] (mg/L)</b>	<b>MW-1603S</b>	<b>Yes</b>	<b>581</b>	<b>NP</b>	<b>8</b>	<b>485.6</b>	<b>40.54</b>	<b>ln(x)</b>	<b>ShapiroWilk</b>
Total Dissolved Solids [TDS] (mg/L)	MW-1604D	No	n/a	NP	8	307.8	18.99	x^5	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-1604I	No	n/a	NP	8	509.4	38.17	x^6	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-1604S	No	n/a	NP	8	554.9	72.58	ln(x)	ShapiroWilk
<b>Total Dissolved Solids [TDS] (mg/L)</b>	<b>MW-1605D</b>	<b>Yes</b>	<b>794</b>	<b>NP</b>	<b>8</b>	<b>447.5</b>	<b>140.7</b>	<b>ln(x)</b>	<b>ShapiroWilk</b>
Total Dissolved Solids [TDS] (mg/L)	MW-1605I	No	n/a	NP	8	523.1	31.57	x^5	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-1605S	No	n/a	NP	8	586.4	13.29	x^5	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-1606D	No	n/a	NP	8	300.4	13.08	ln(x)	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-1606I	No	n/a	NP	8	319.3	15.41	ln(x)	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-1606S	No	n/a	NP	8	362	30.1	normal	ShapiroWilk



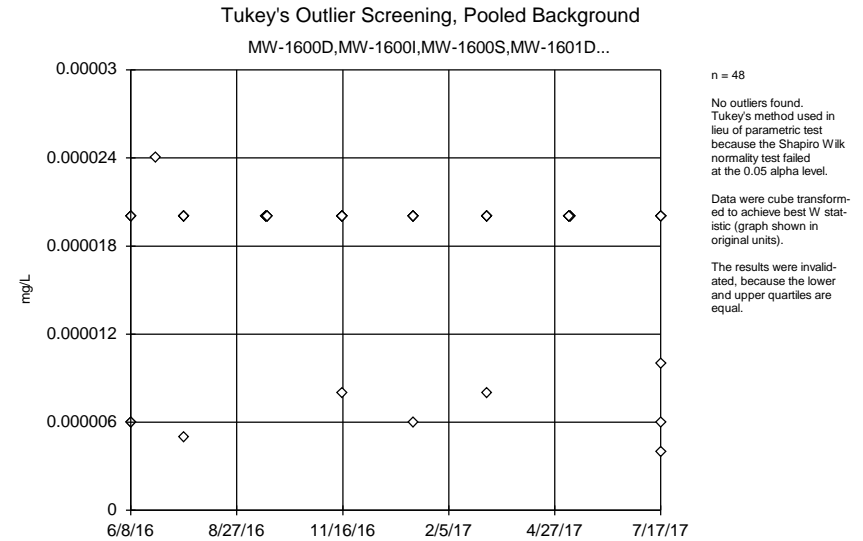
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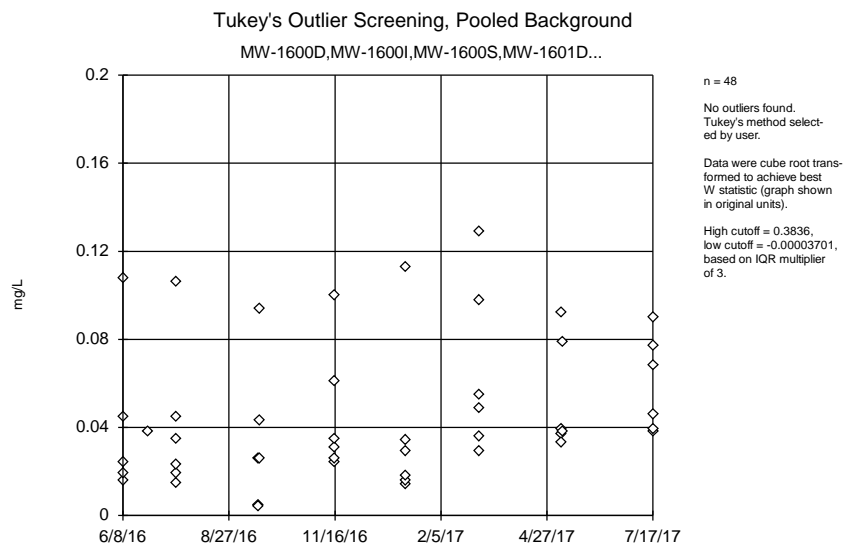
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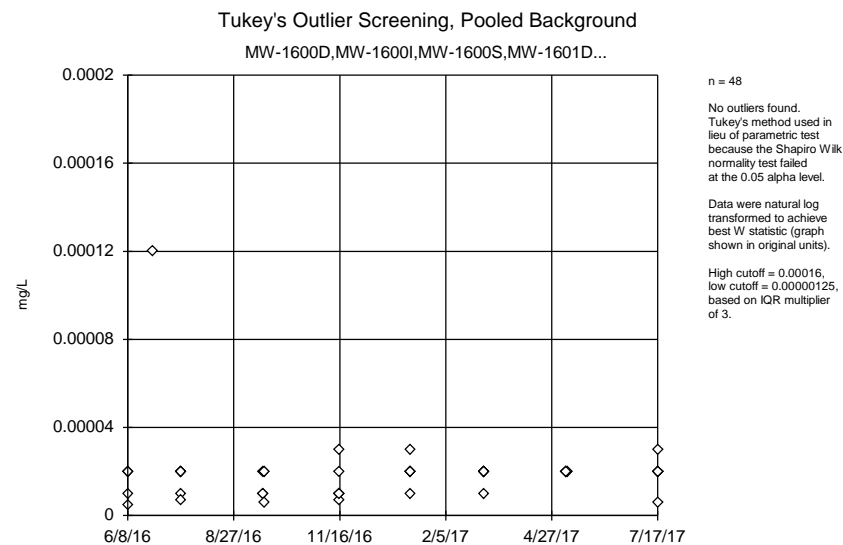
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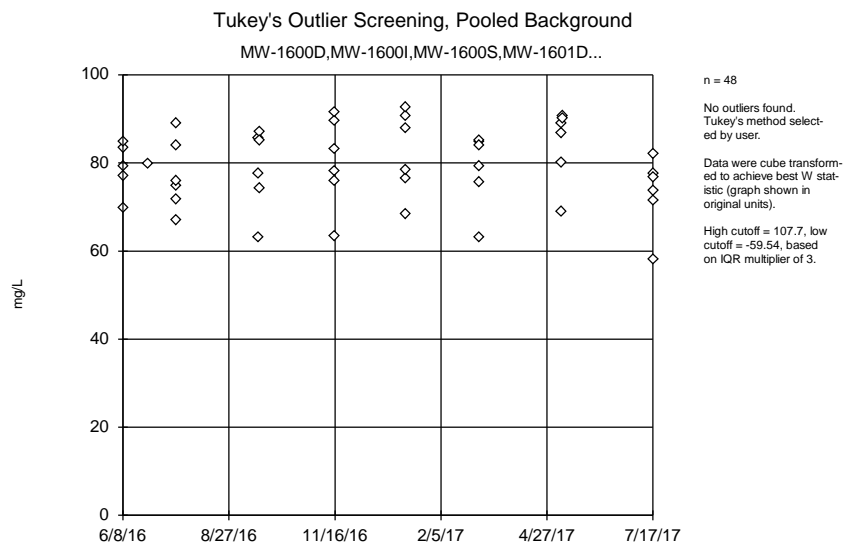
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



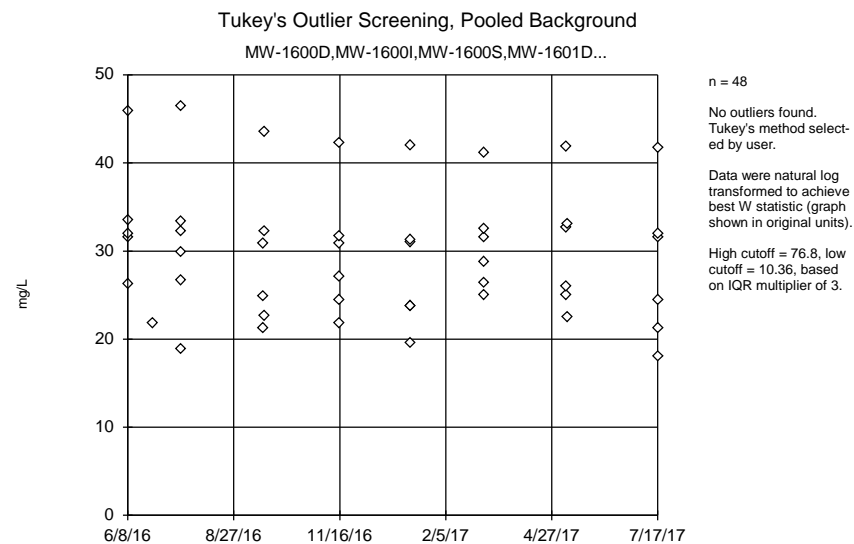
Constituent: Boron, total Analysis Run 12/11/2017 10:01 PM View: Tukey's Upgradient Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



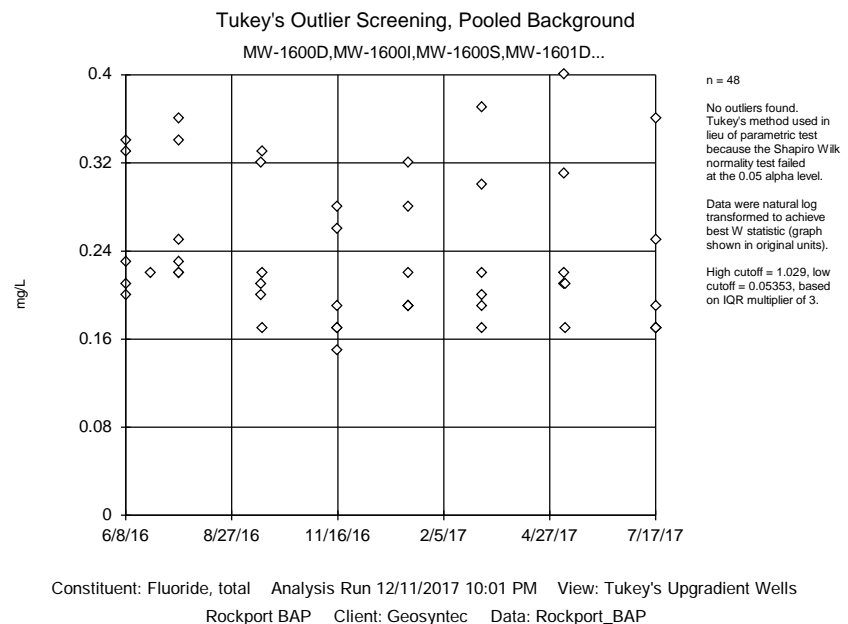
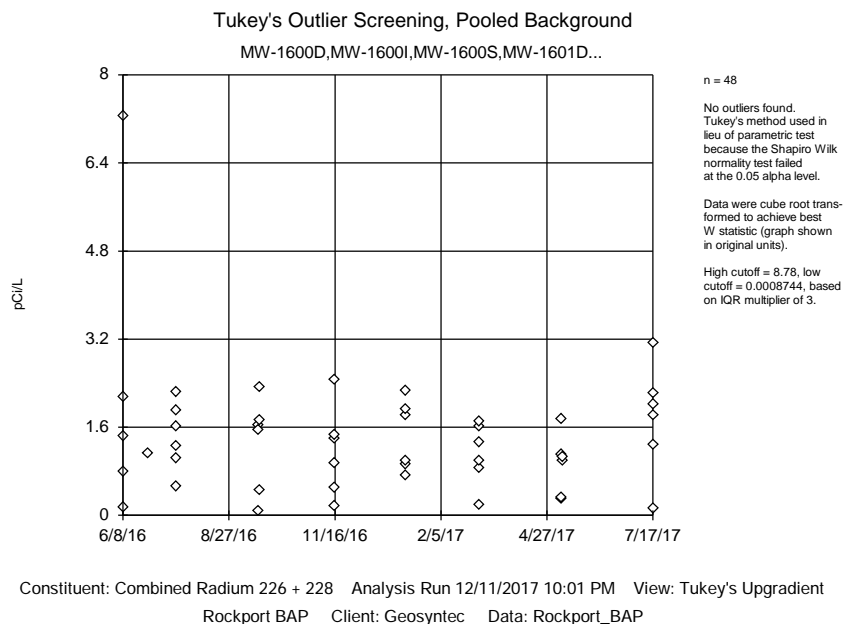
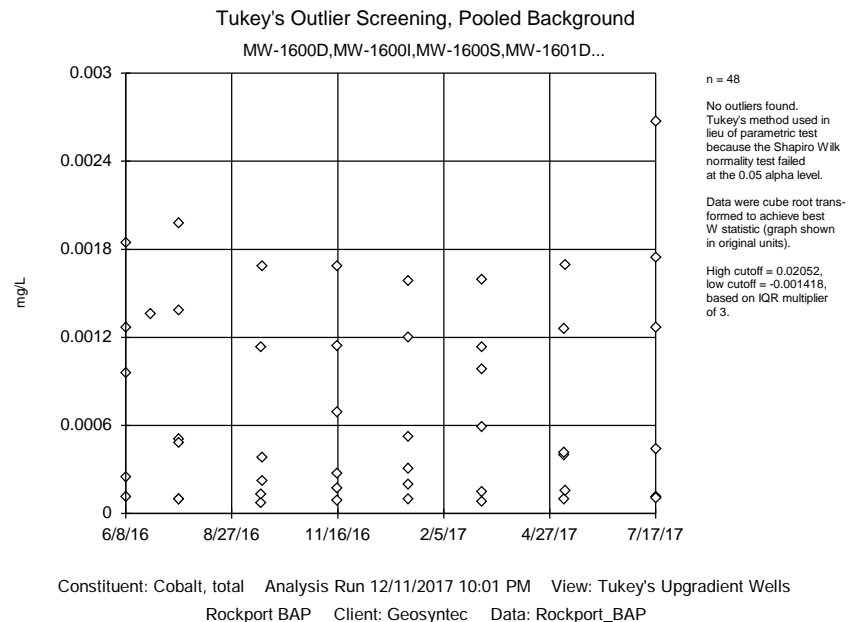
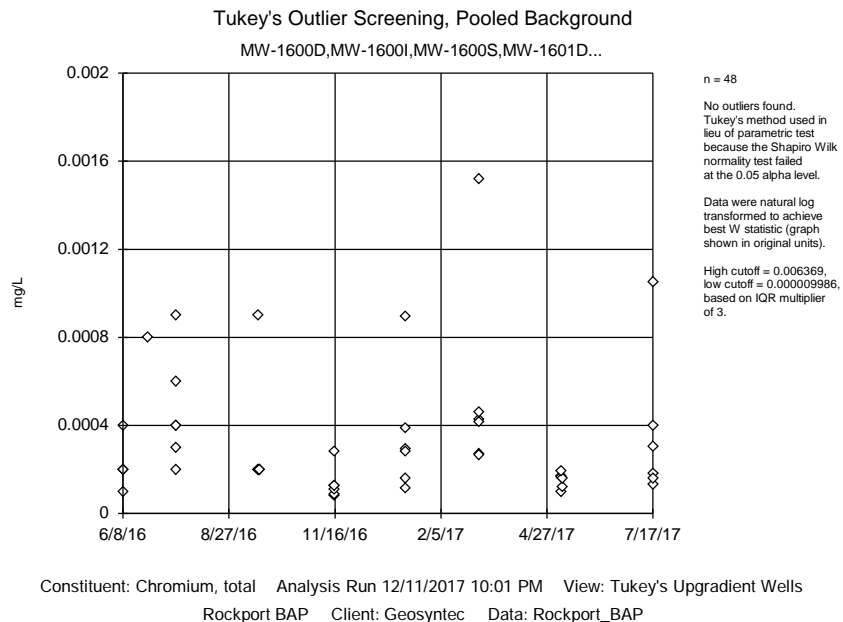
Constituent: Cadmium, total Analysis Run 12/11/2017 10:01 PM View: Tukey's Upgradient Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

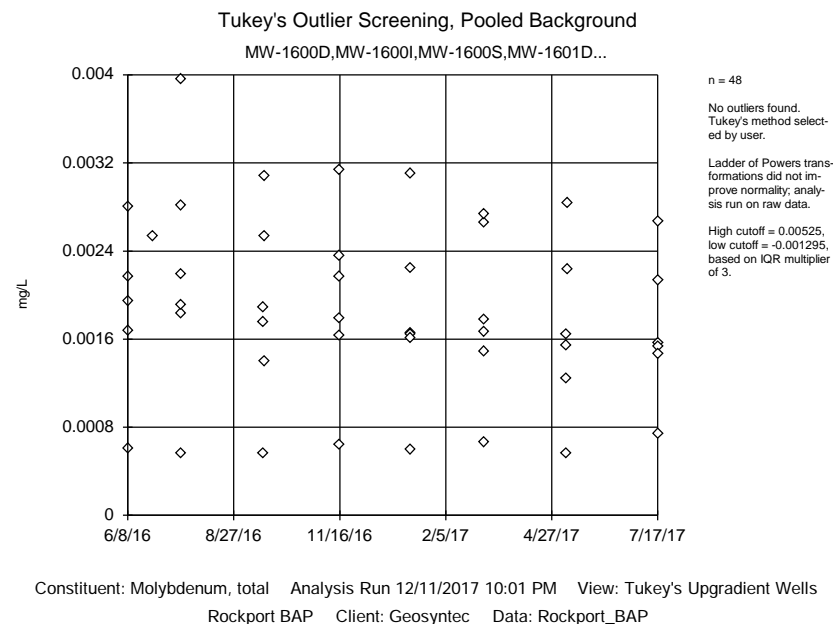
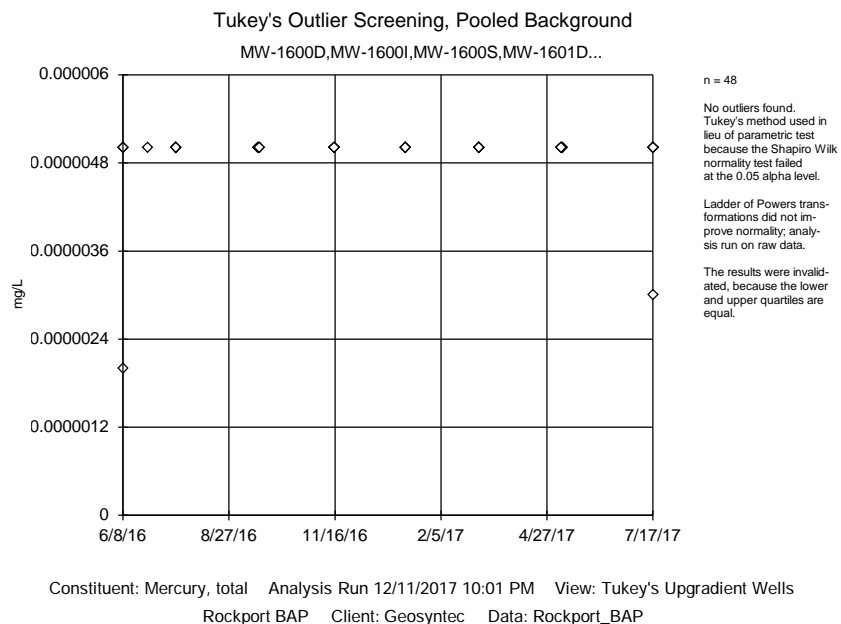
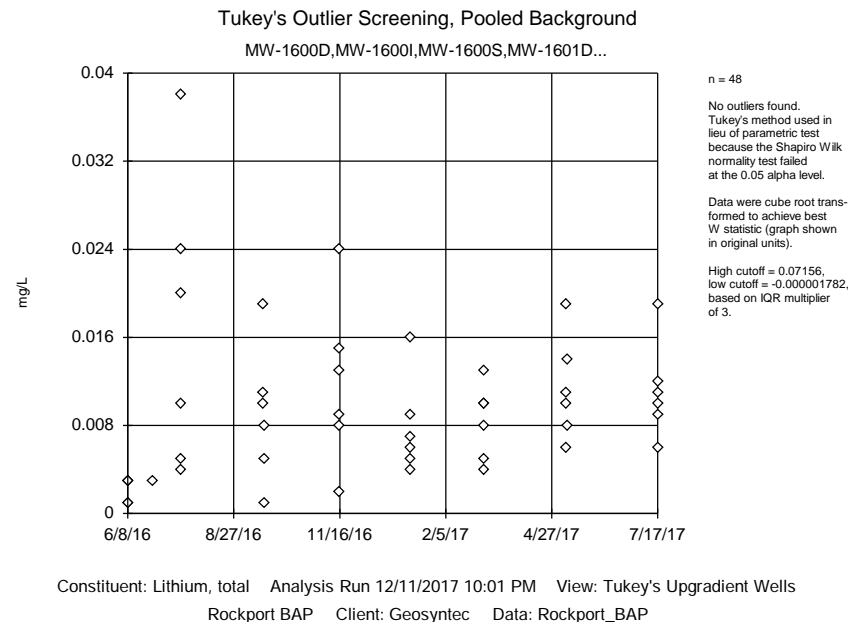
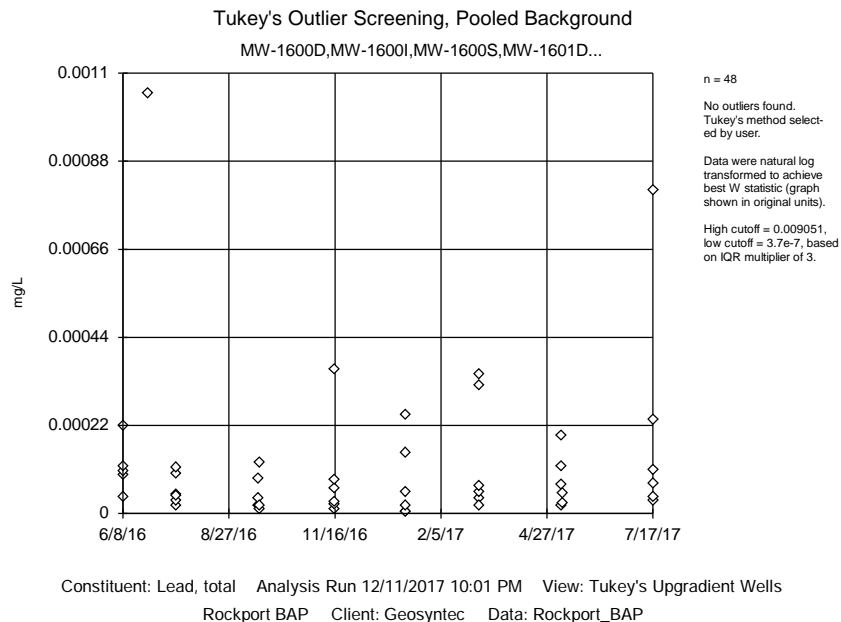


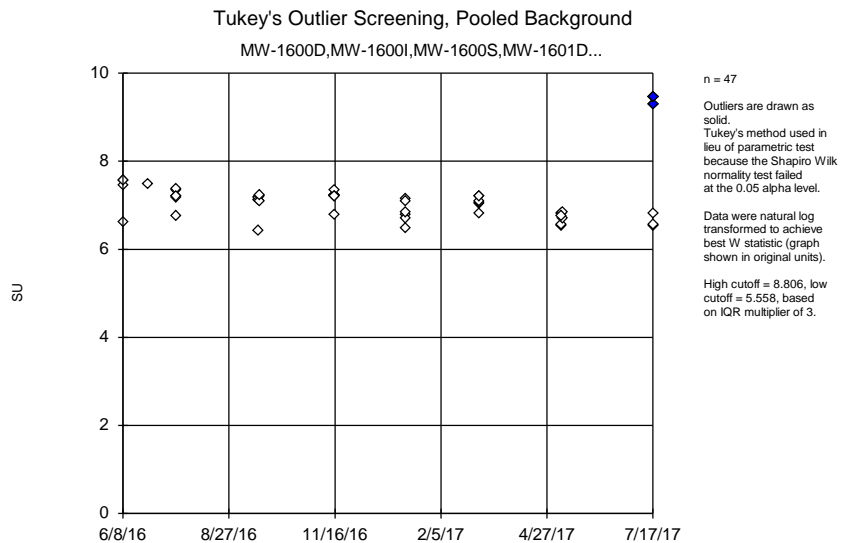
Constituent: Calcium, total Analysis Run 12/11/2017 10:01 PM View: Tukey's Upgradient Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



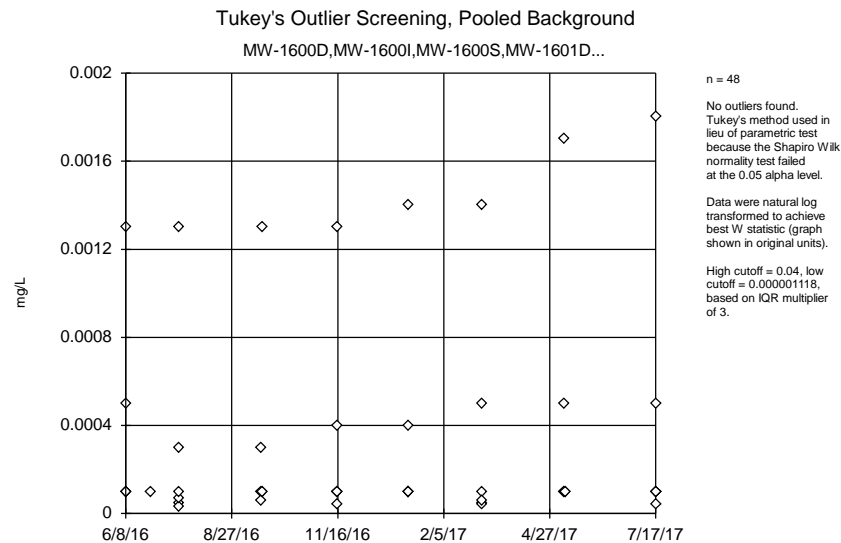
Constituent: Chloride, total Analysis Run 12/11/2017 10:01 PM View: Tukey's Upgradient Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



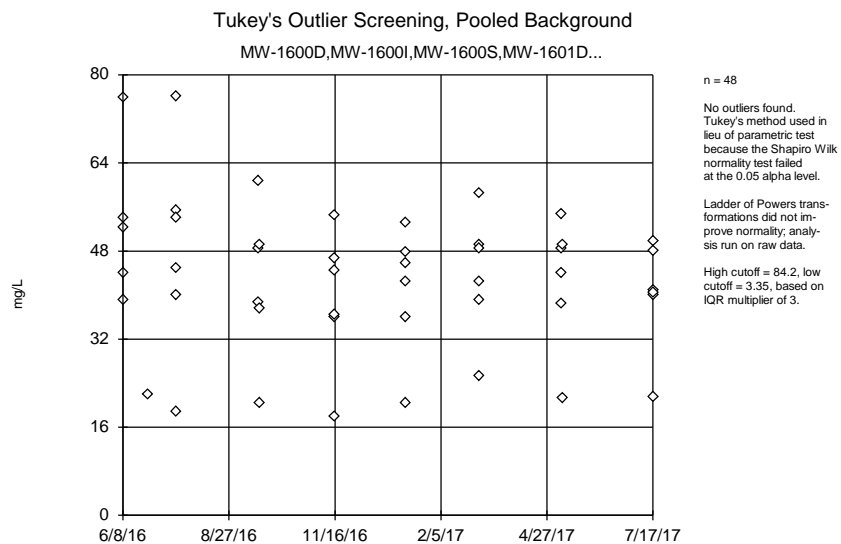




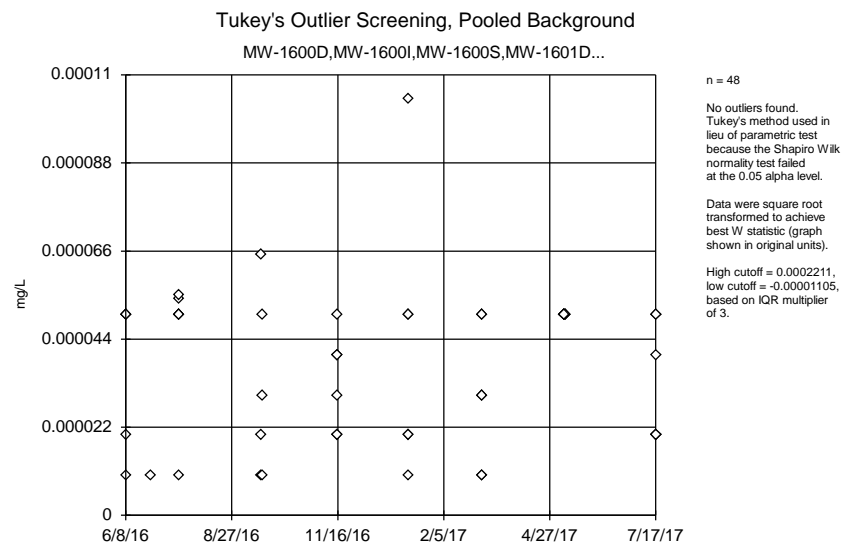
Constituent: pH, field Analysis Run 12/11/2017 10:01 PM View: Tukey's Upgradient Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



Constituent: Selenium, total Analysis Run 12/11/2017 10:01 PM View: Tukey's Upgradient Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

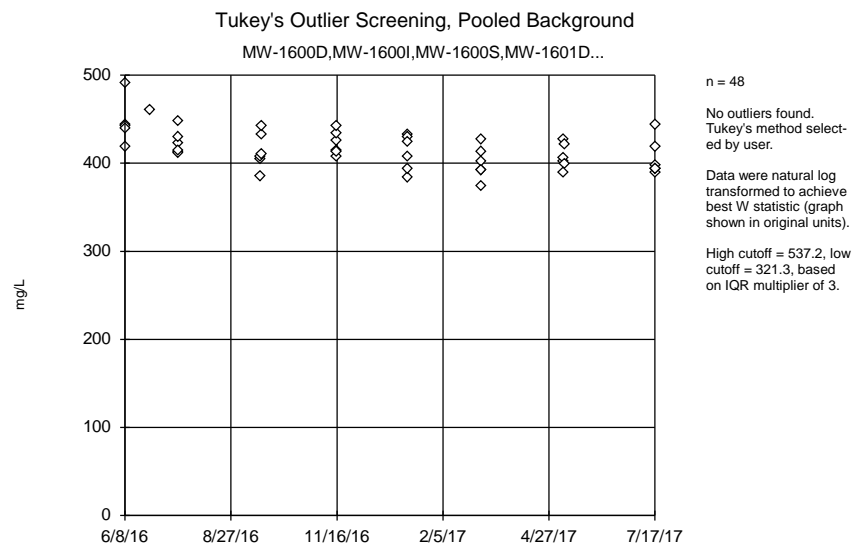


Constituent: Sulfate, total Analysis Run 12/11/2017 10:01 PM View: Tukey's Upgradient Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

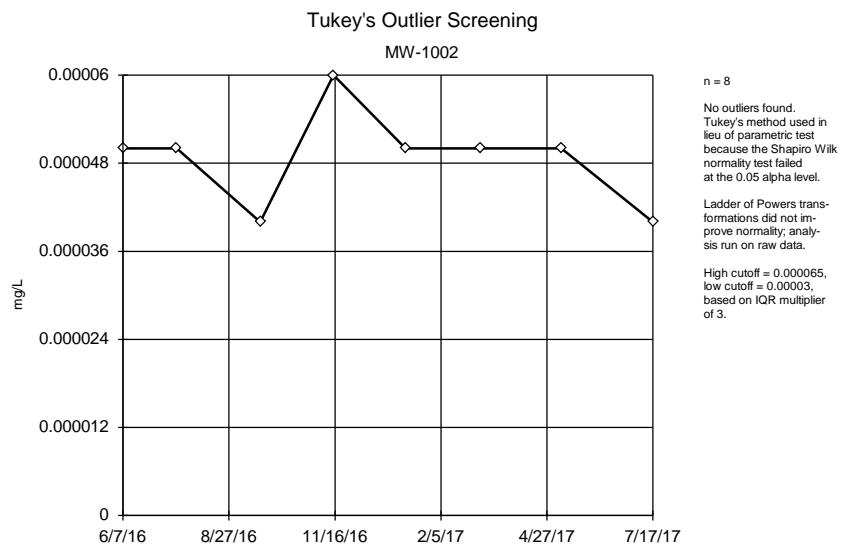


Constituent: Thallium, total Analysis Run 12/11/2017 10:01 PM View: Tukey's Upgradient Wells  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

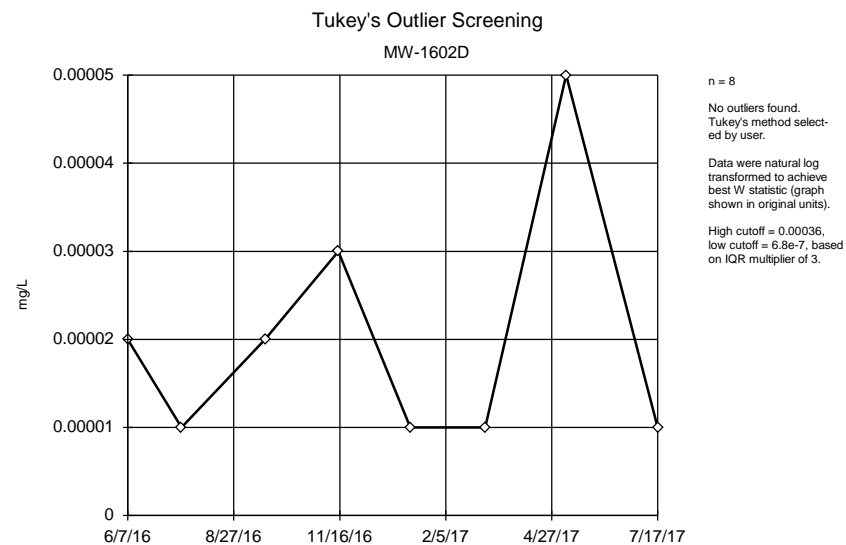




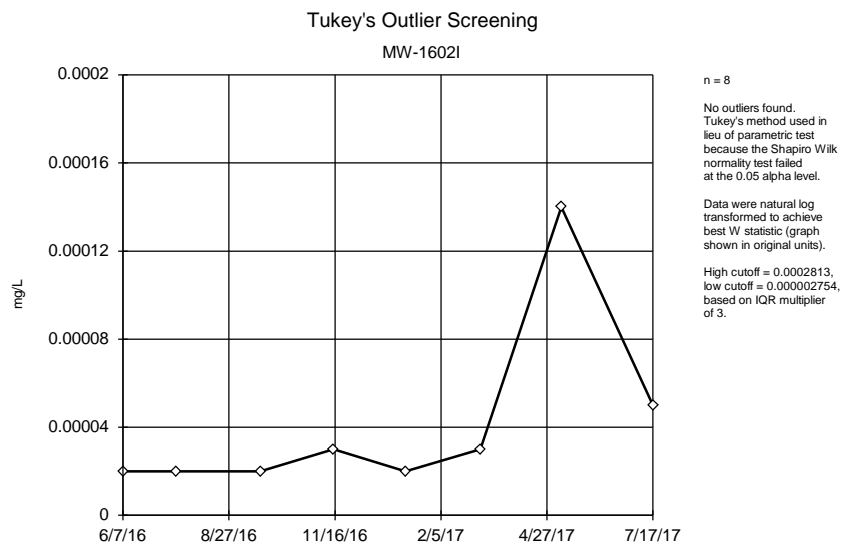
Constituent: Total Dissolved Solids [TDS]    Analysis Run 12/11/2017 10:01 PM    View: Tukey's Upgradient W  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP



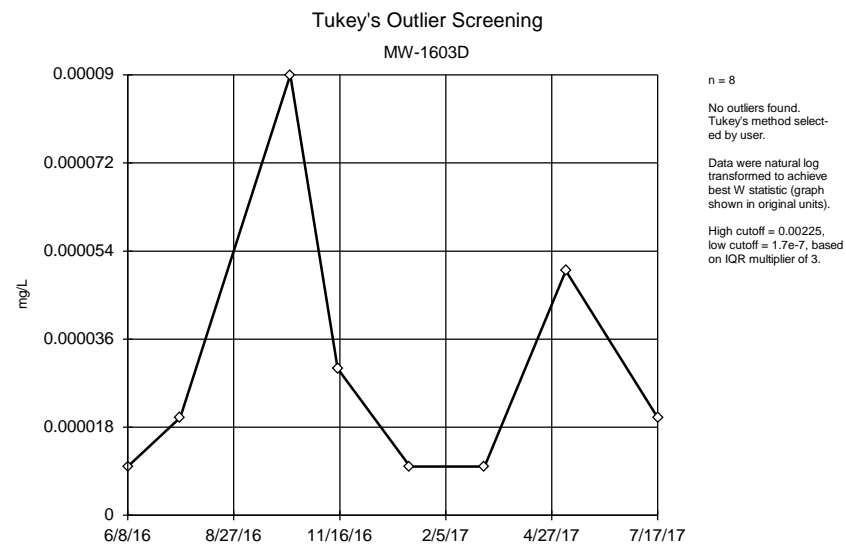
Constituent: Antimony, total Analysis Run 12/11/2017 10:03 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



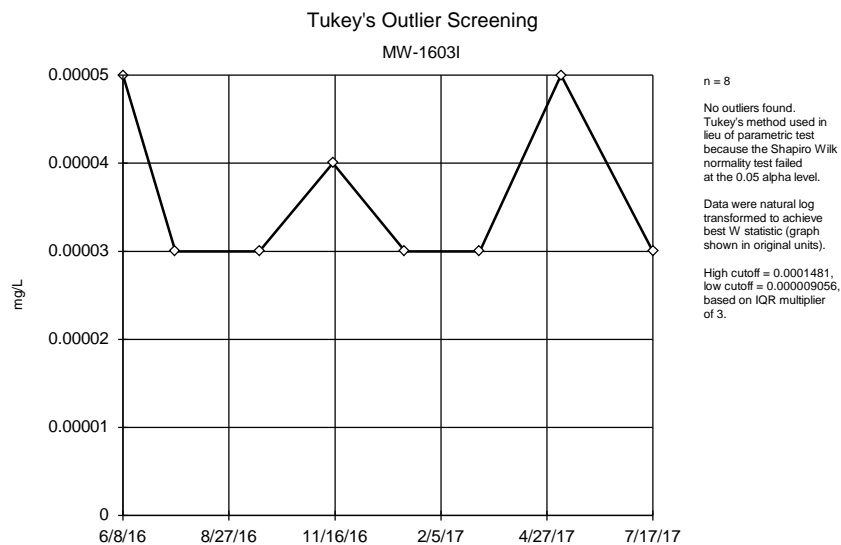
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



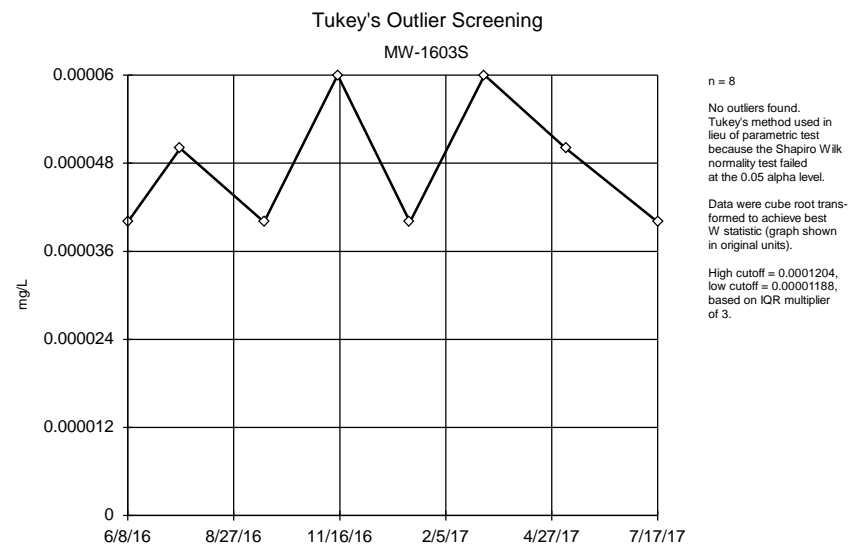
Constituent: Antimony, total Analysis Run 12/11/2017 10:03 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



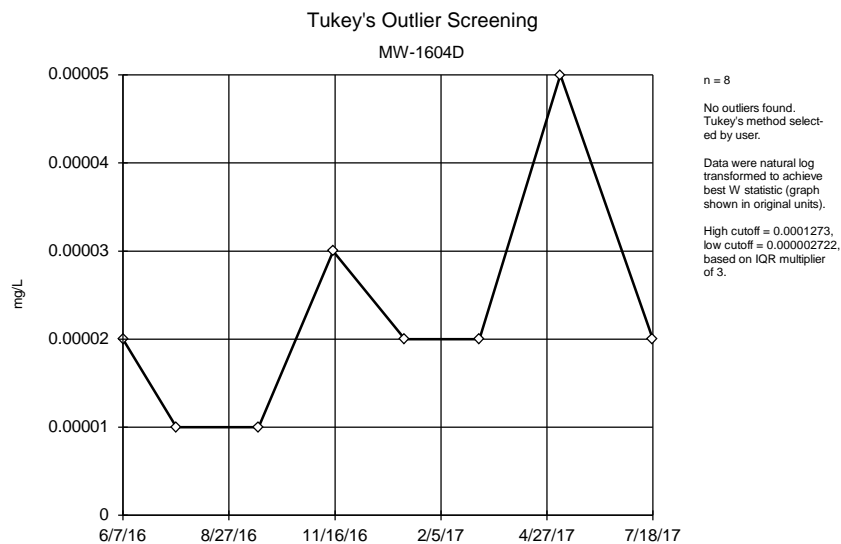
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



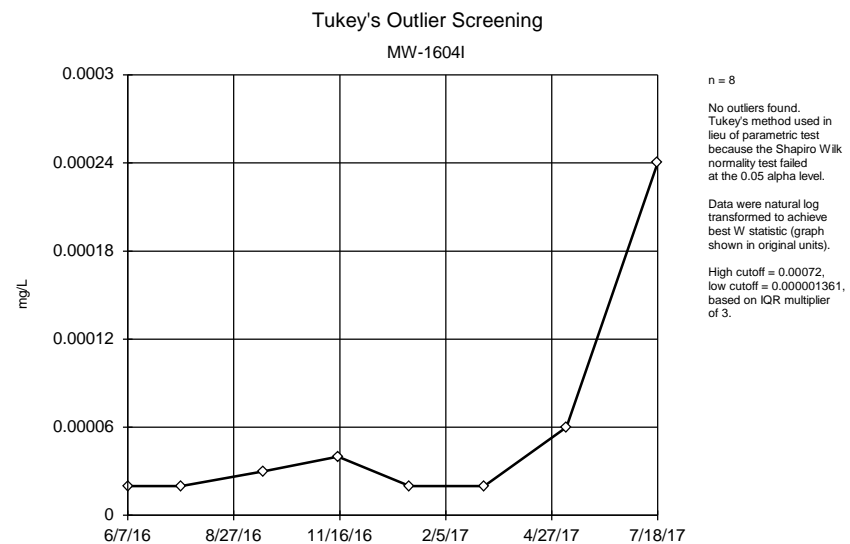
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Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP



Constituent: Antimony, total    Analysis Run 12/11/2017 10:03 PM    View: Tukey's - Downgradient  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP



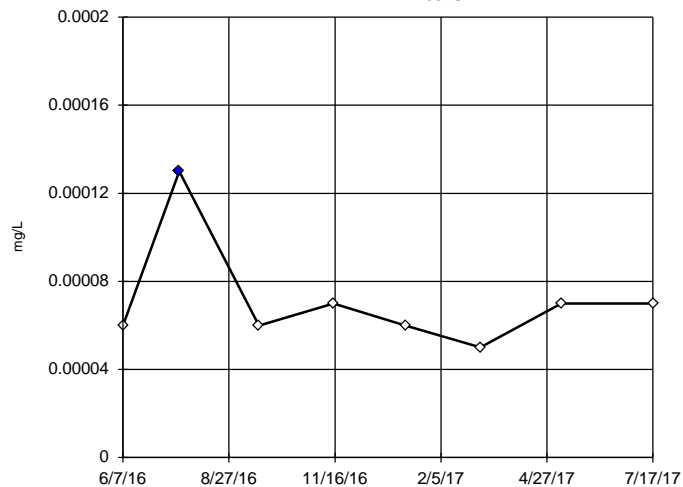
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Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP



Constituent: Antimony, total    Analysis Run 12/11/2017 10:03 PM    View: Tukey's - Downgradient  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP

## Tukey's Outlier Screening

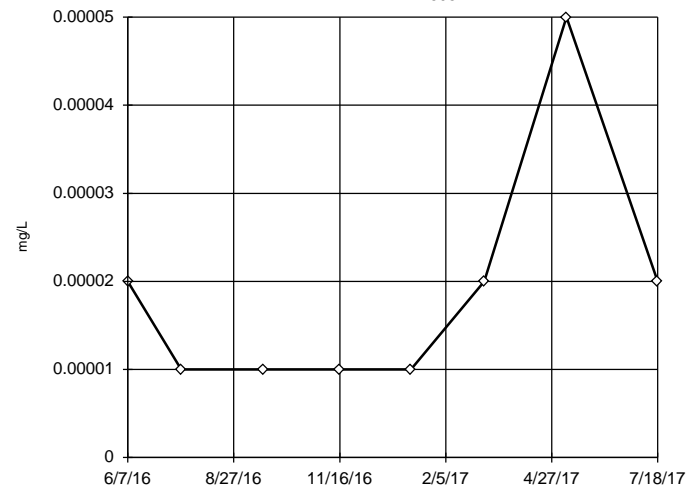
MW-1604S



Constituent: Antimony, total Analysis Run 12/11/2017 10:03 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

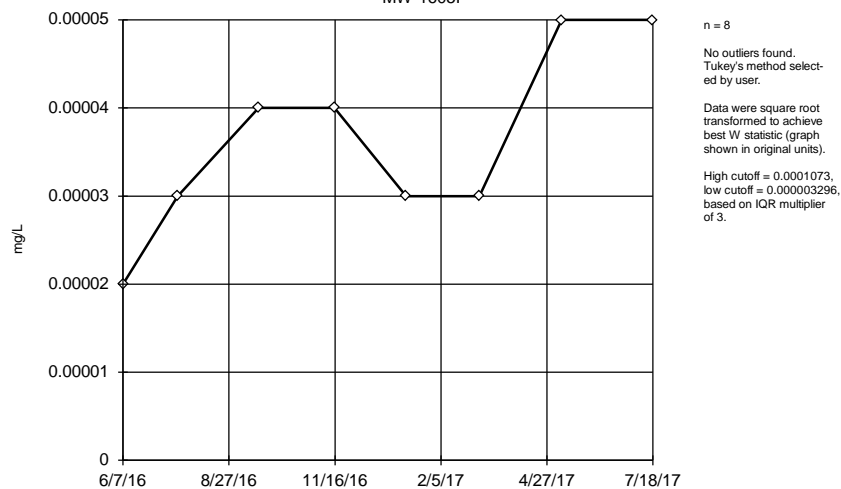
MW-1605D



Constituent: Antimony, total Analysis Run 12/11/2017 10:03 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

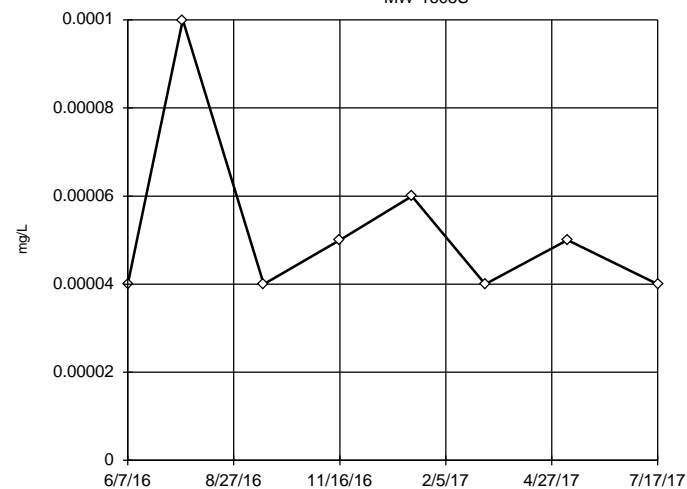
MW-1605I



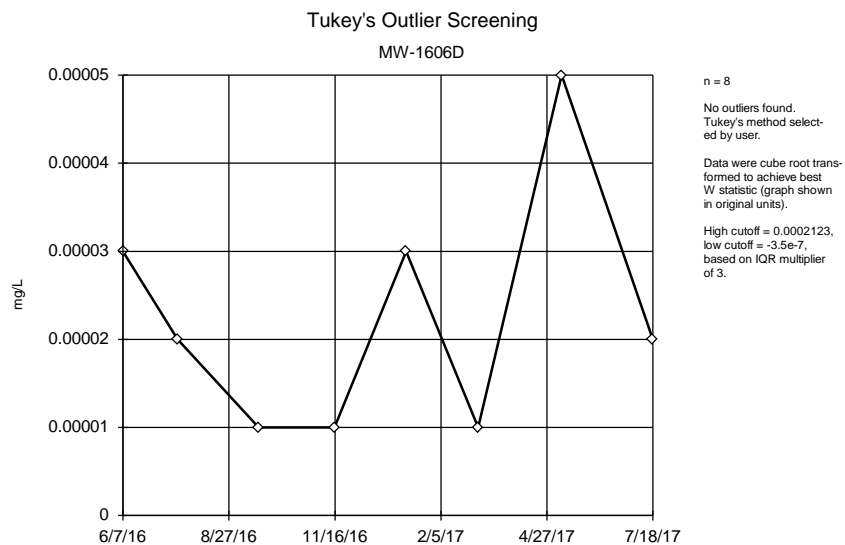
Constituent: Antimony, total Analysis Run 12/11/2017 10:03 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

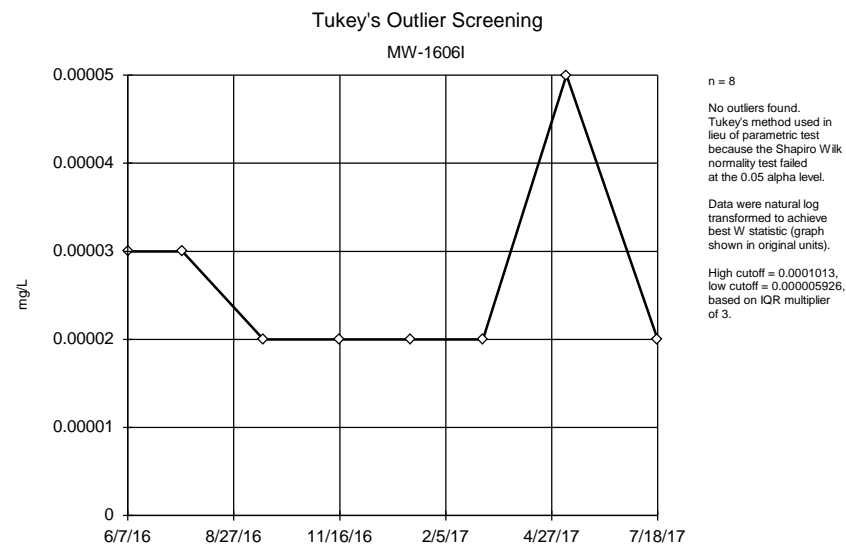
MW-1605S



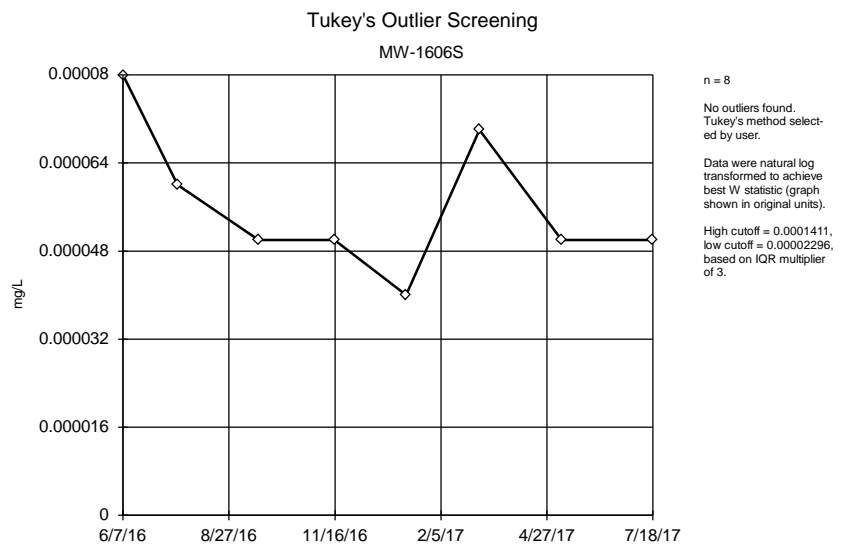
Constituent: Antimony, total Analysis Run 12/11/2017 10:03 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



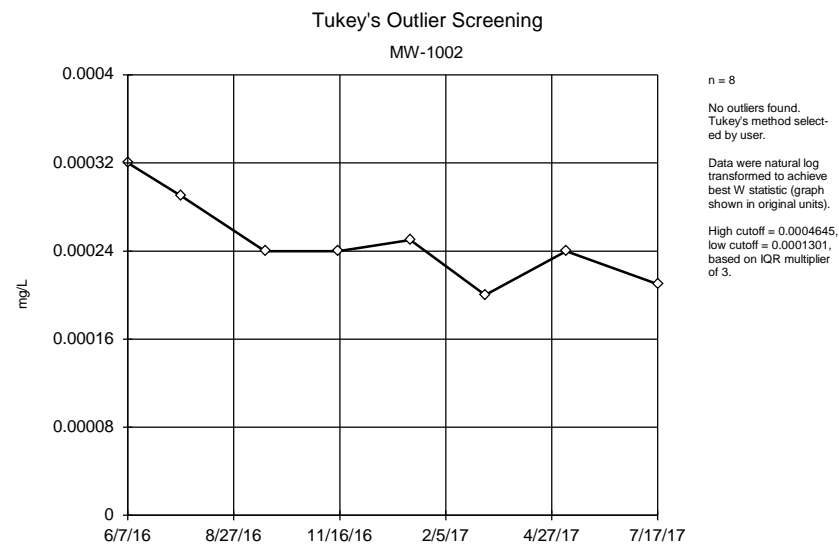
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



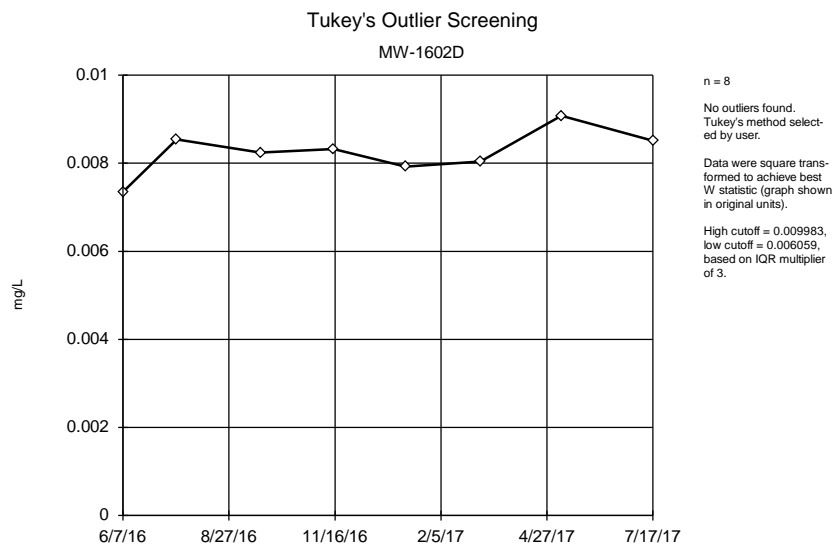
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



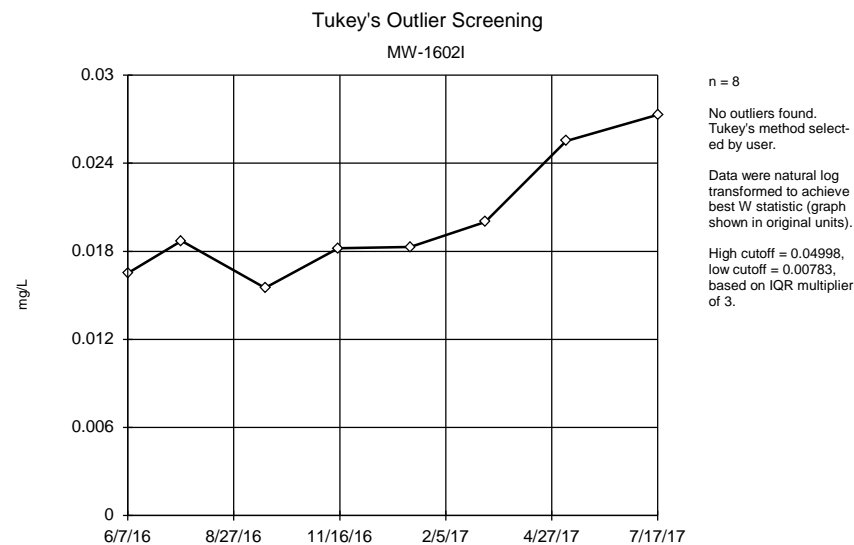
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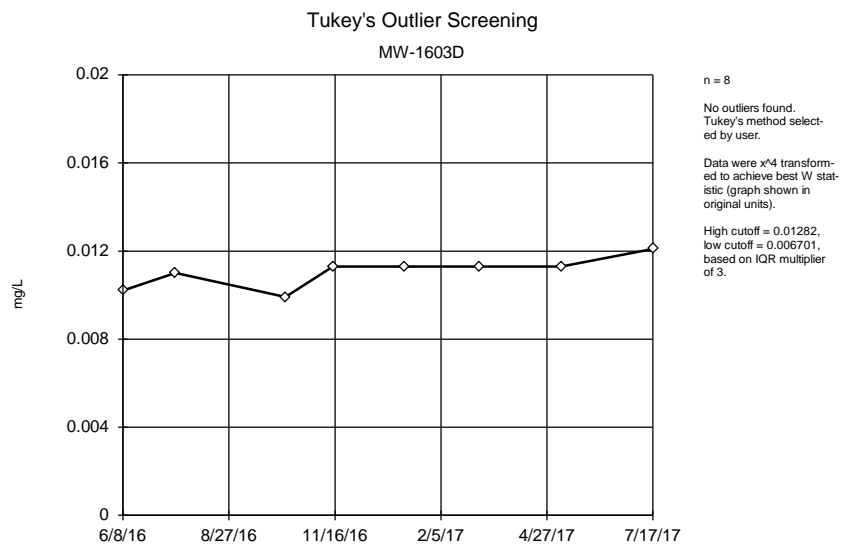
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



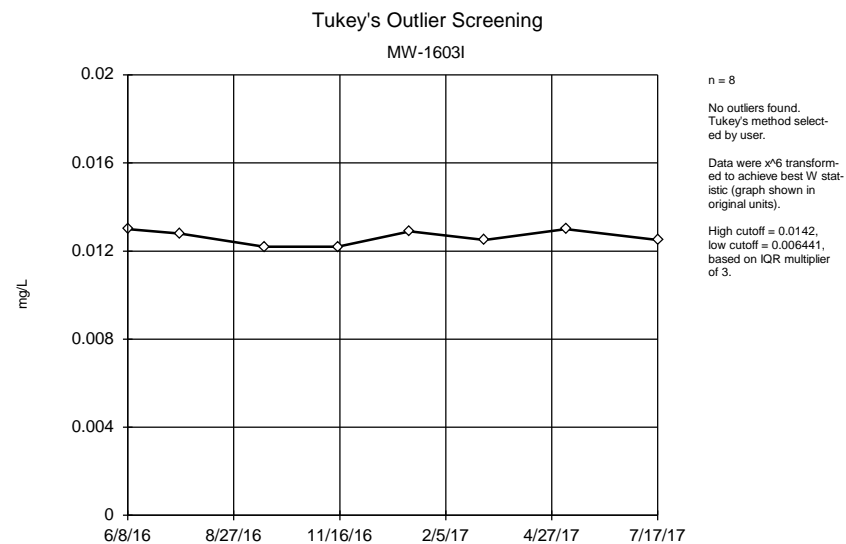
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



Constituent: Arsenic, total Analysis Run 12/11/2017 10:03 PM View: Tukey's - Downgradient  
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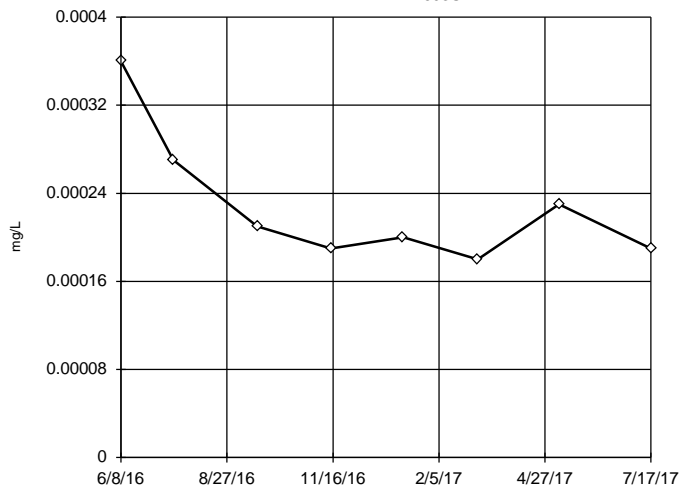
Constituent: Arsenic, total Analysis Run 12/11/2017 10:03 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



Constituent: Arsenic, total Analysis Run 12/11/2017 10:03 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1603S



n = 8

No outliers found.  
Tukey's method selected by user.

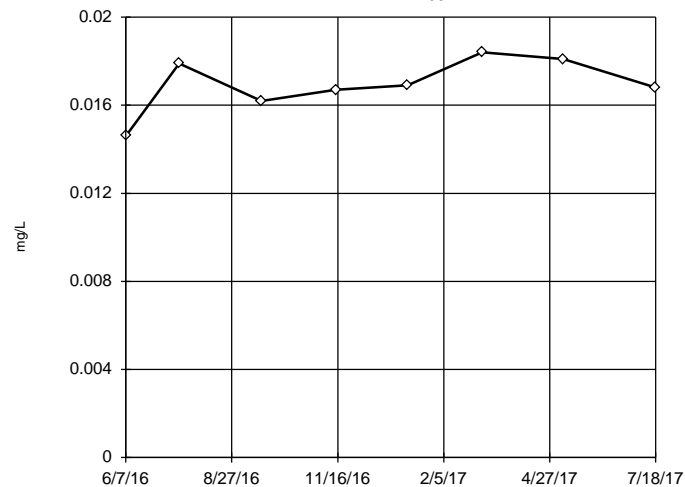
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.0005622,  
low cutoff = 0.00008421,  
based on IQR multiplier of 3.

Constituent: Arsenic, total Analysis Run 12/11/2017 10:03 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1604D



n = 8

No outliers found.  
Tukey's method selected by user.

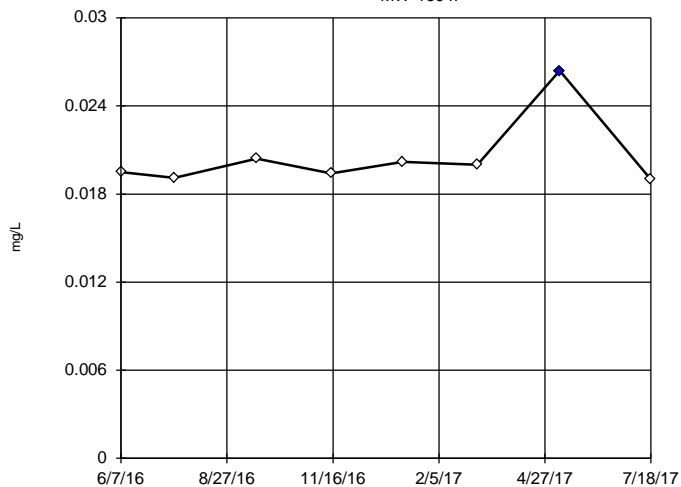
Data were x\*6 transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.0206,  
low cutoff = -0.01681,  
based on IQR multiplier of 3.

Constituent: Arsenic, total Analysis Run 12/11/2017 10:03 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1604I



n = 8

Outlier is drawn as solid.  
Tukey's method selected by user.

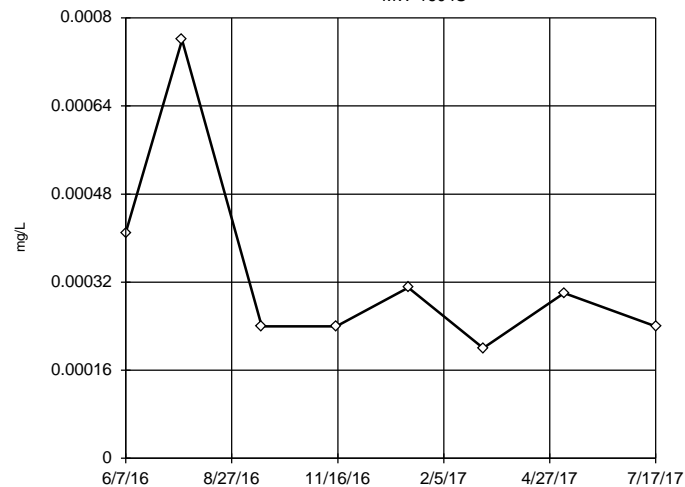
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.02381,  
low cutoff = 0.01641,  
based on IQR multiplier of 3.

Constituent: Arsenic, total Analysis Run 12/11/2017 10:03 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1604S



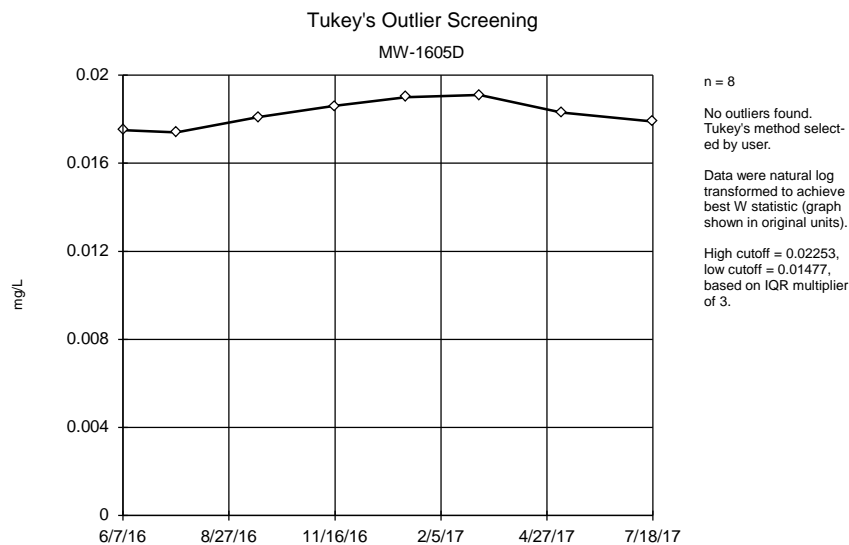
n = 8

No outliers found.  
Tukey's method selected by user.

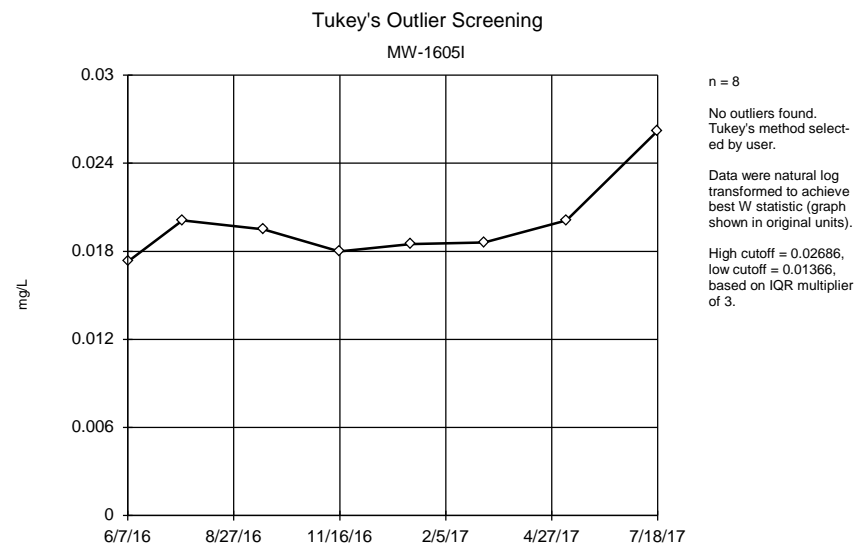
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.001169,  
low cutoff = 0.00007322,  
based on IQR multiplier of 3.

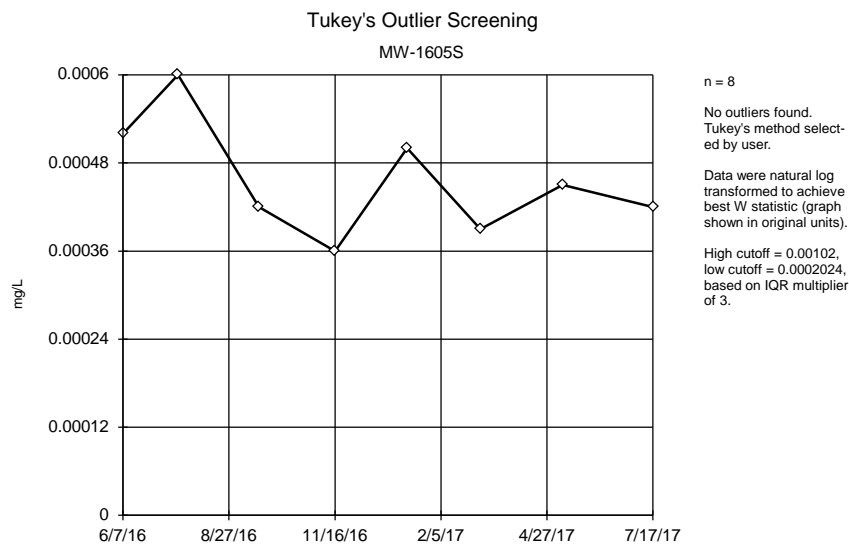
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



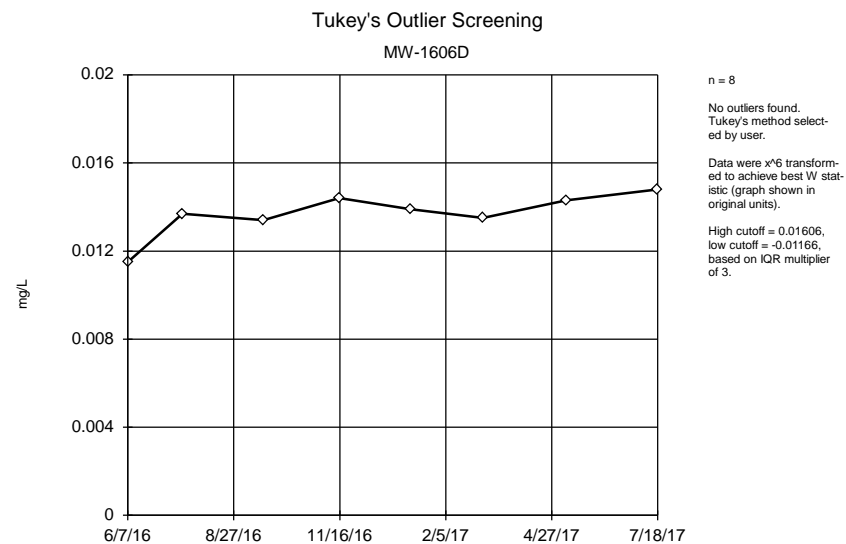
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



Constituent: Arsenic, total Analysis Run 12/11/2017 10:03 PM View: Tukey's - Downgradient  
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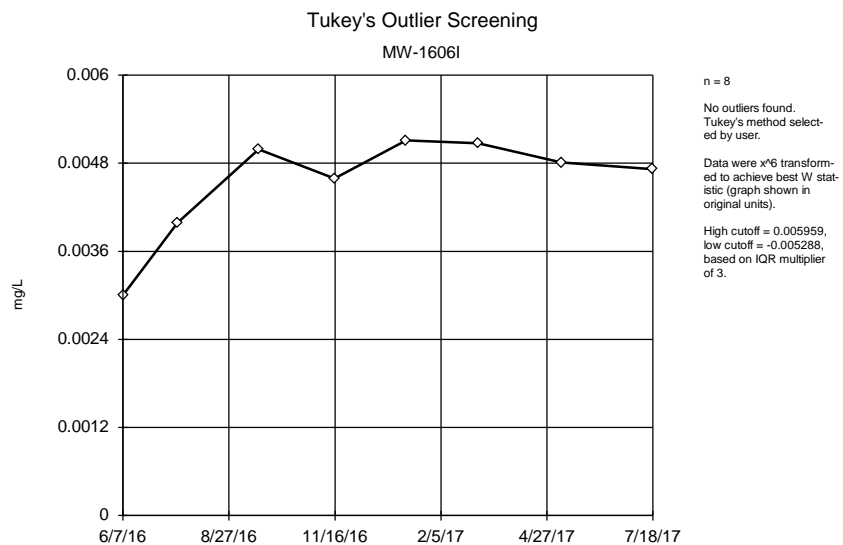


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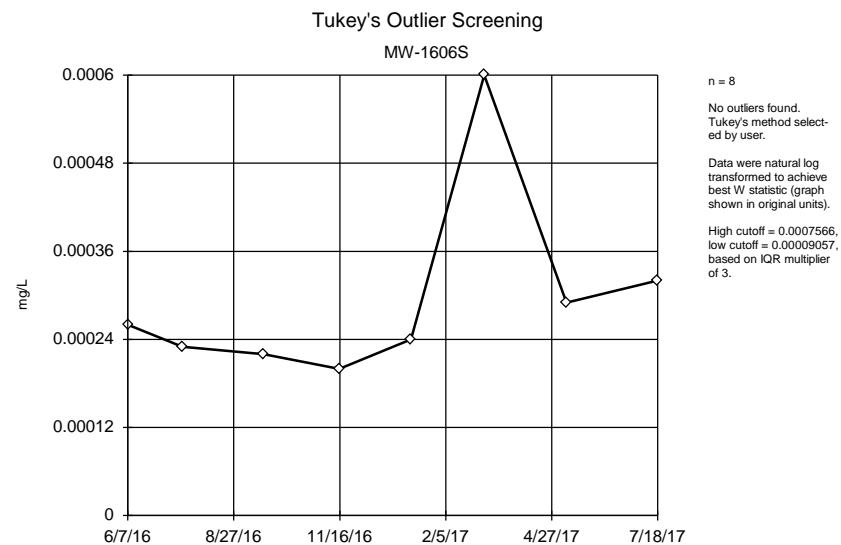


Constituent: Arsenic, total Analysis Run 12/11/2017 10:03 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

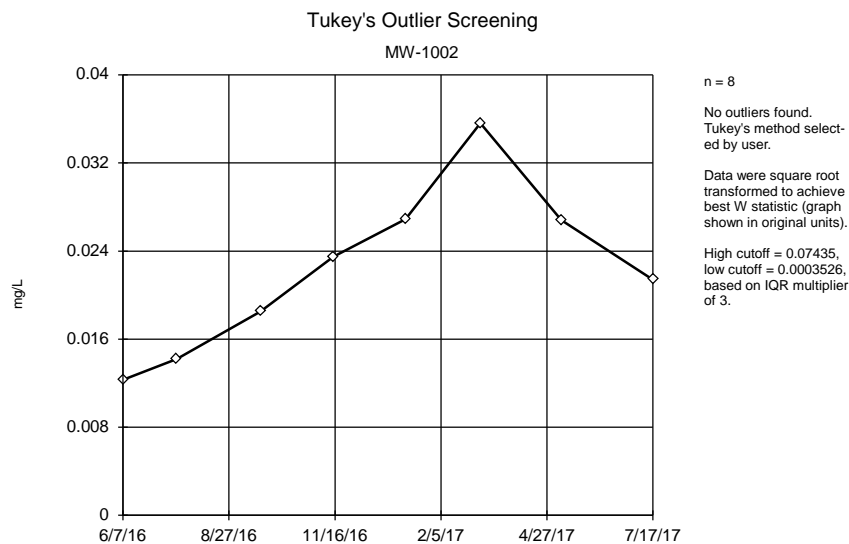




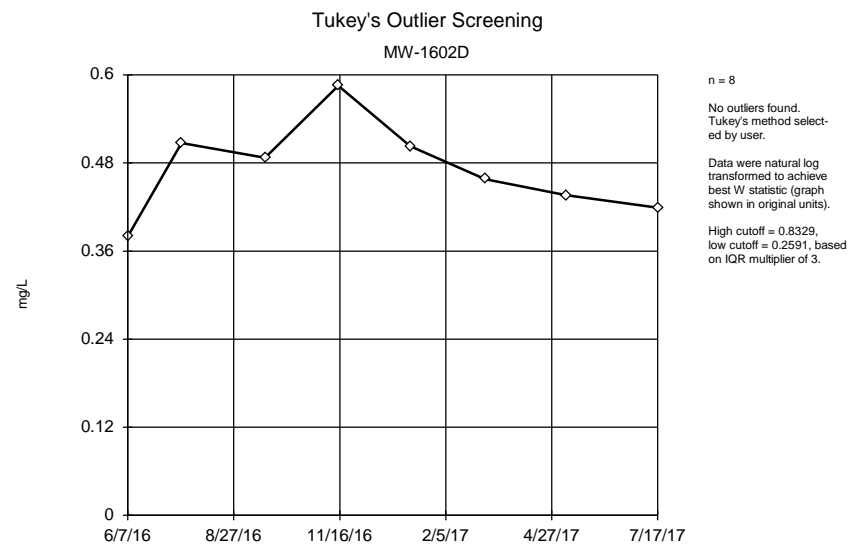
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



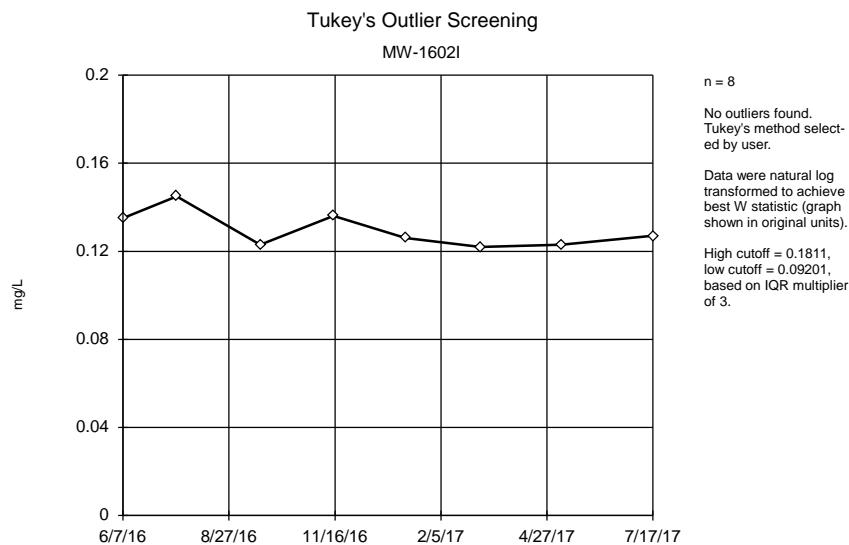
Constituent: Arsenic, total Analysis Run 12/11/2017 10:04 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



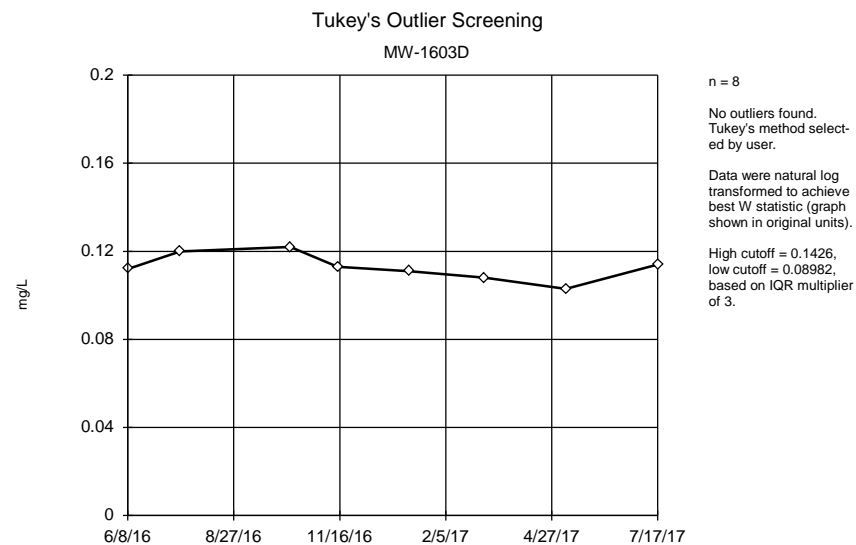
Constituent: Barium, total Analysis Run 12/11/2017 10:04 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



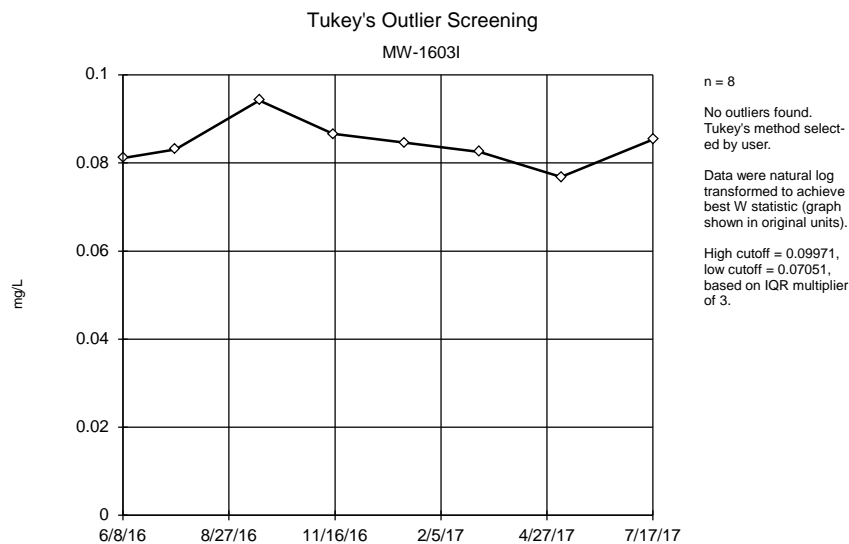
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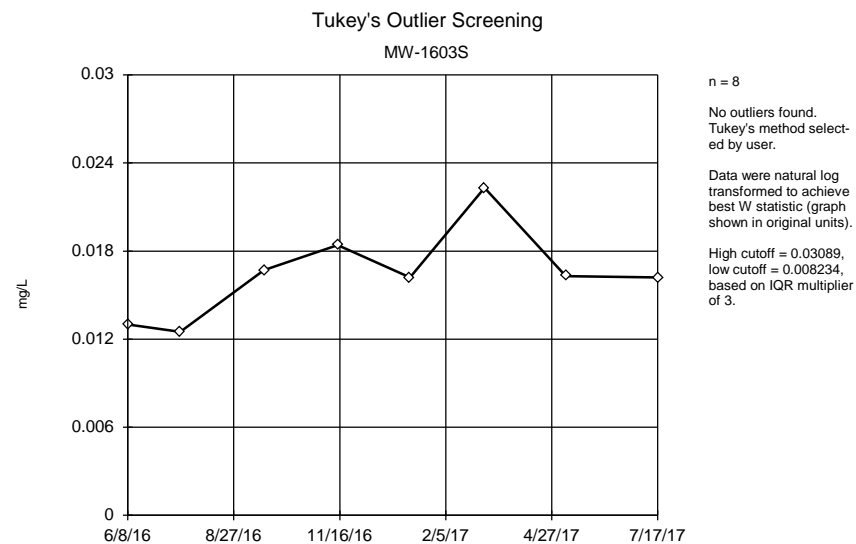
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



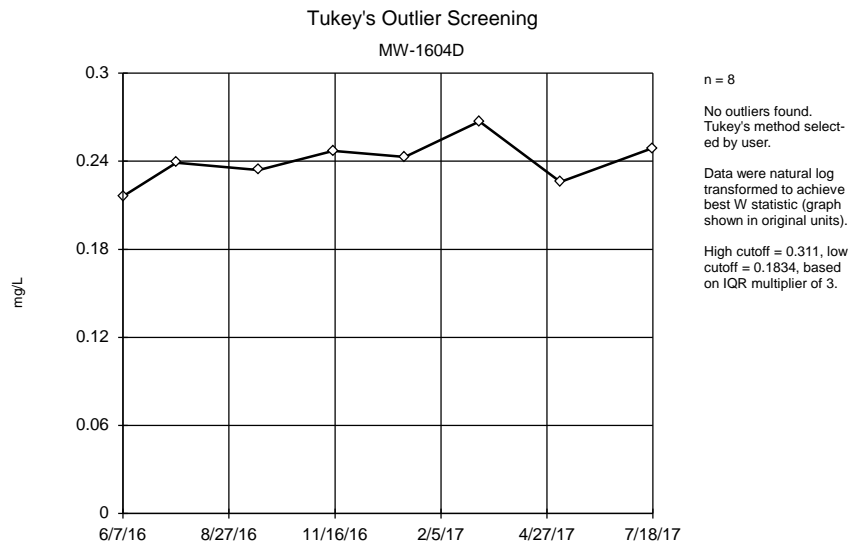
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



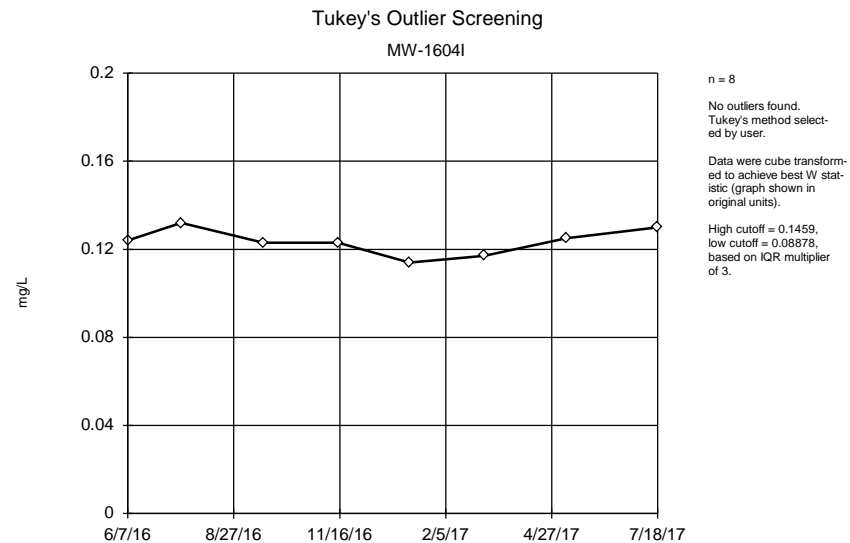
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



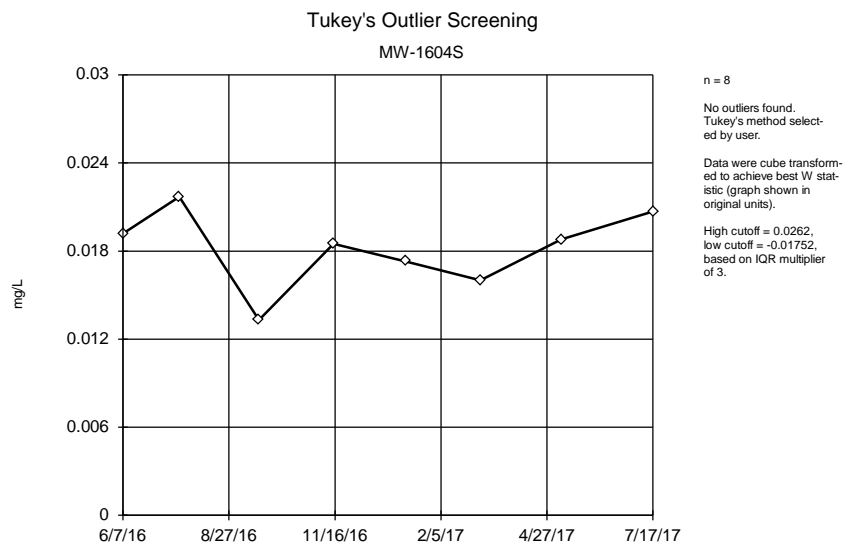
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



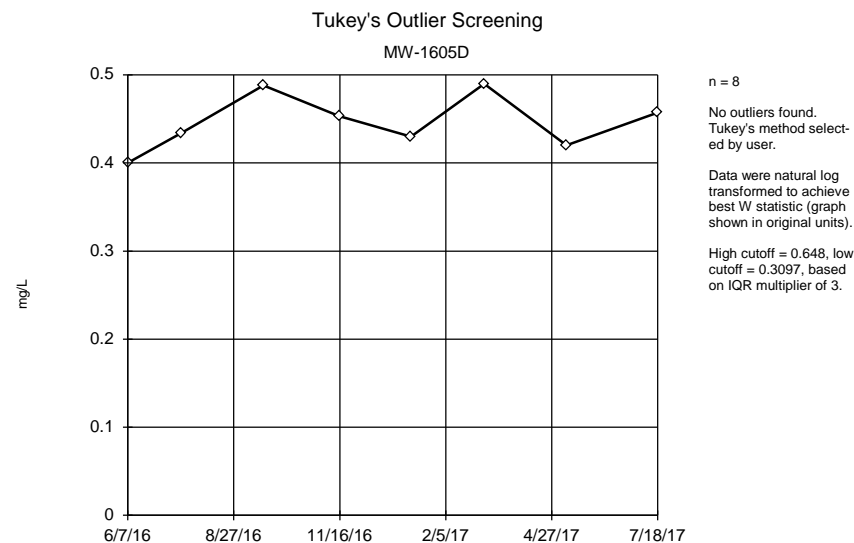
Constituent: Barium, total Analysis Run 12/11/2017 10:04 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



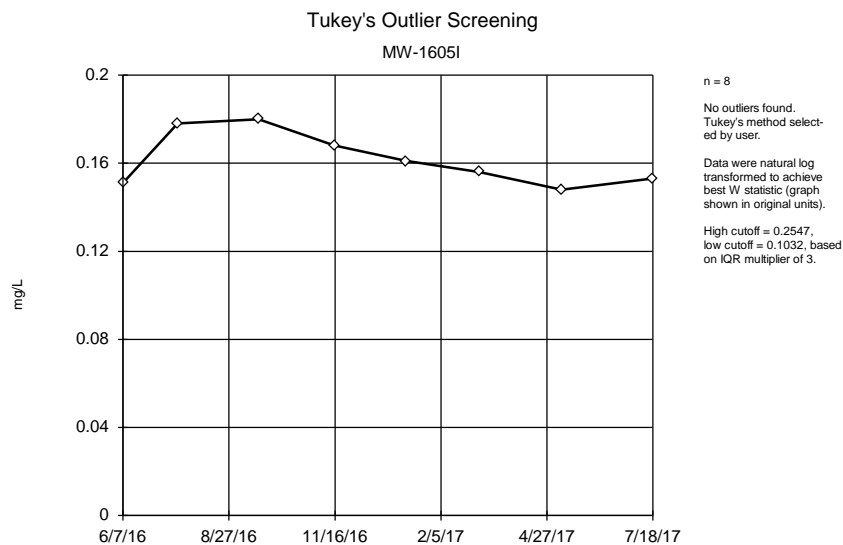
Constituent: Barium, total Analysis Run 12/11/2017 10:04 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



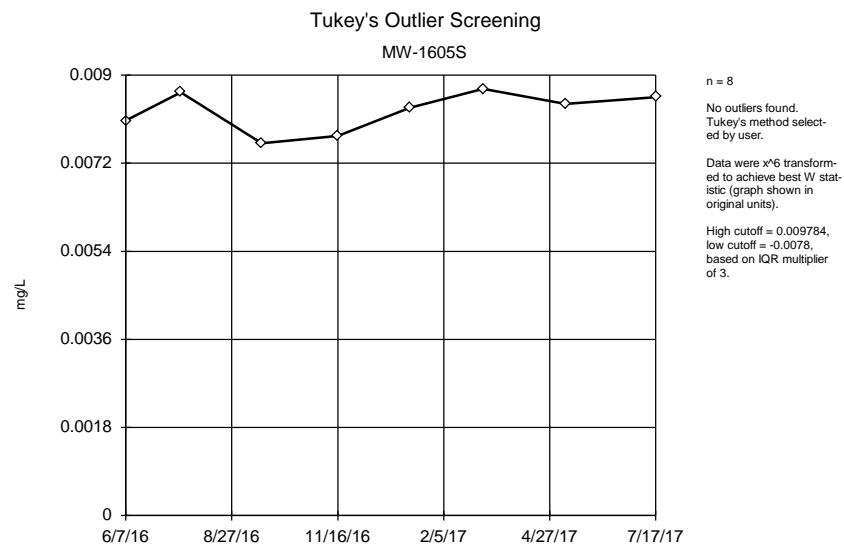
Constituent: Barium, total Analysis Run 12/11/2017 10:04 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



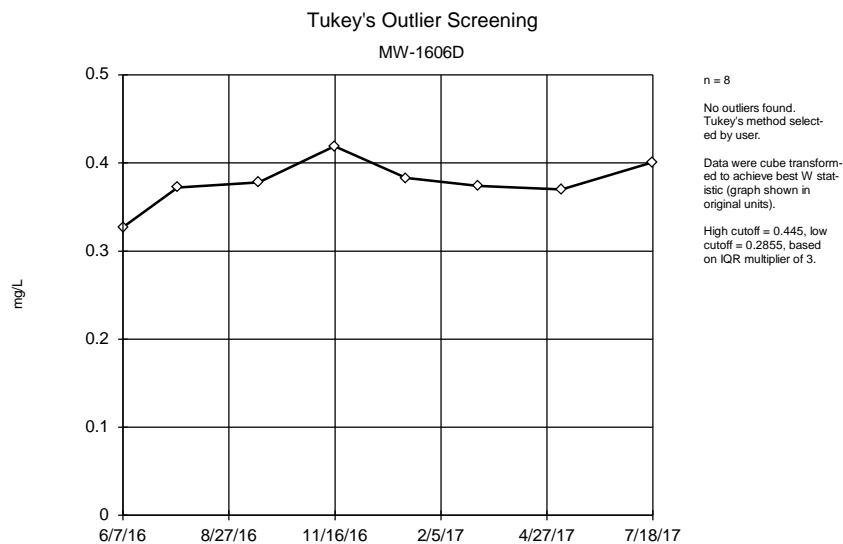
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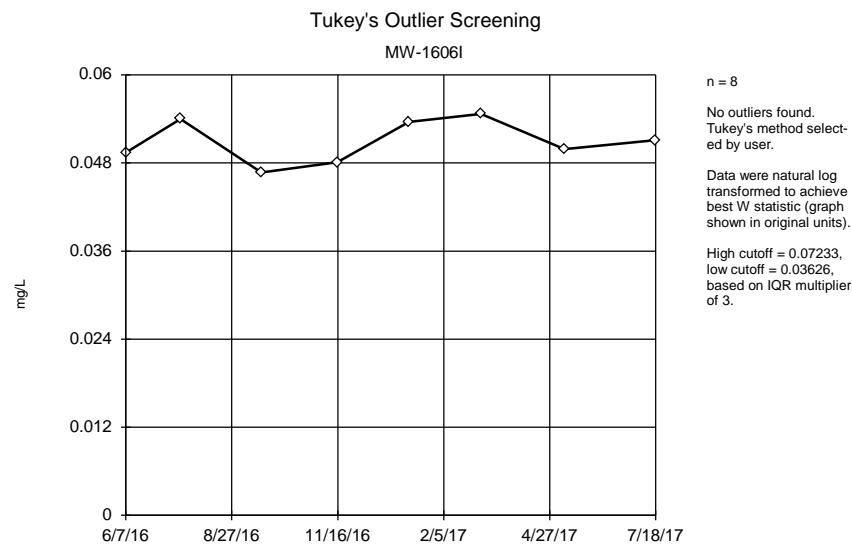
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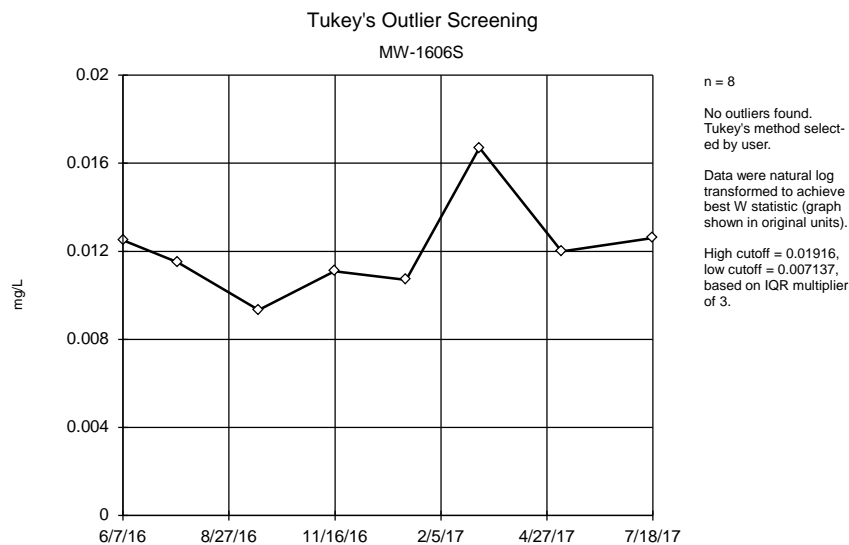
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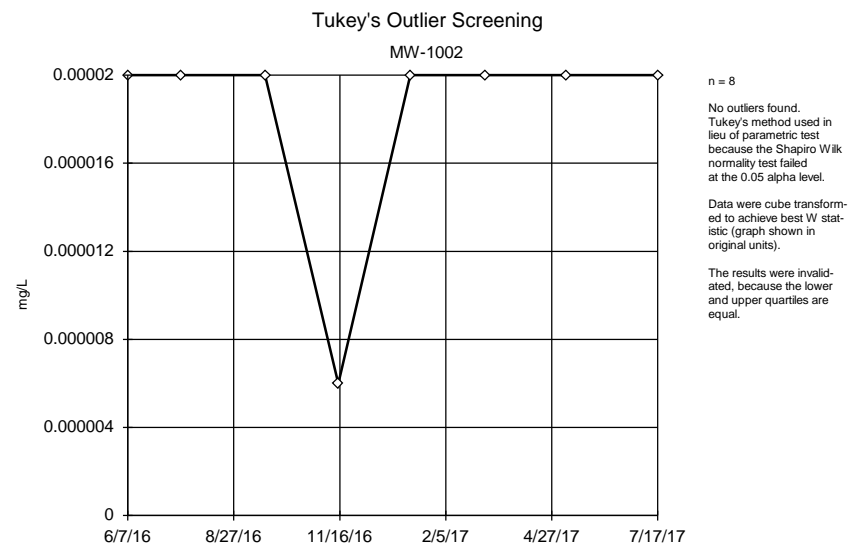
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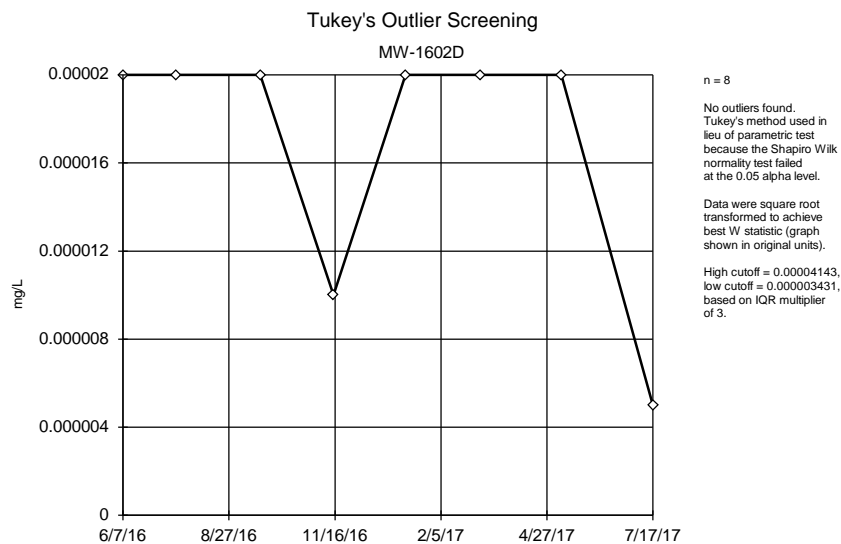
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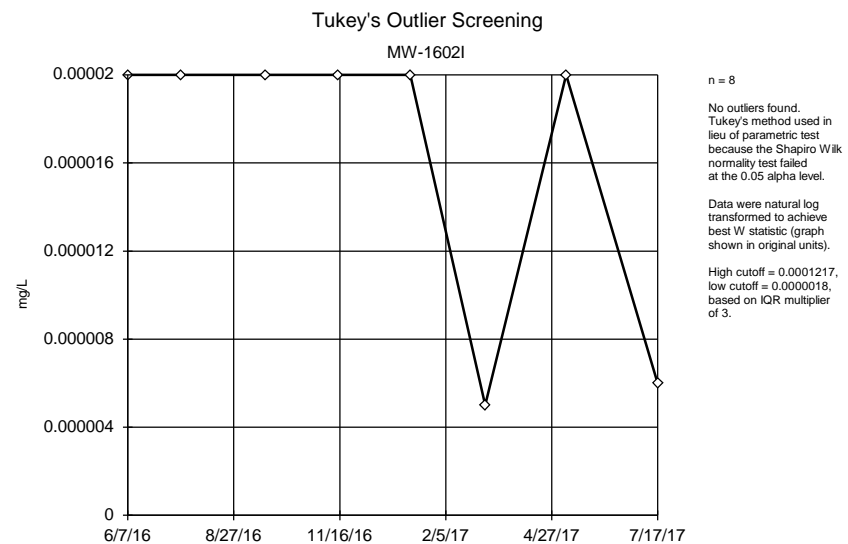
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



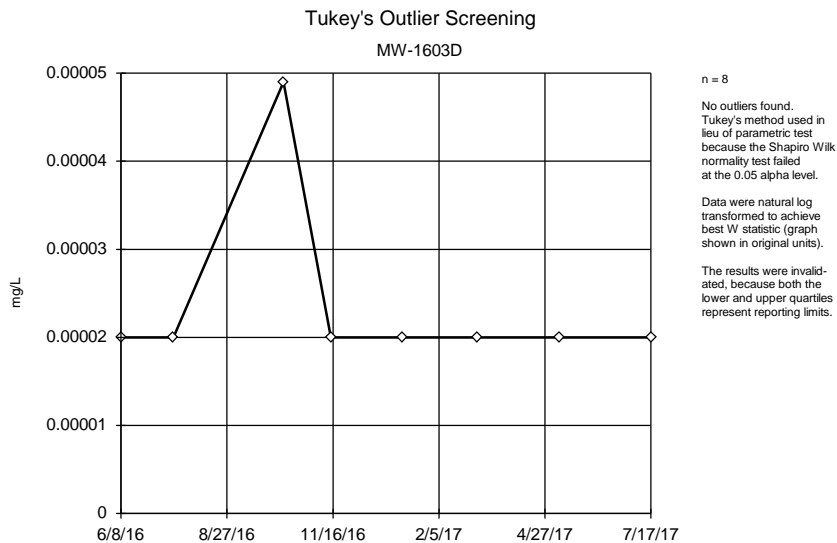
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



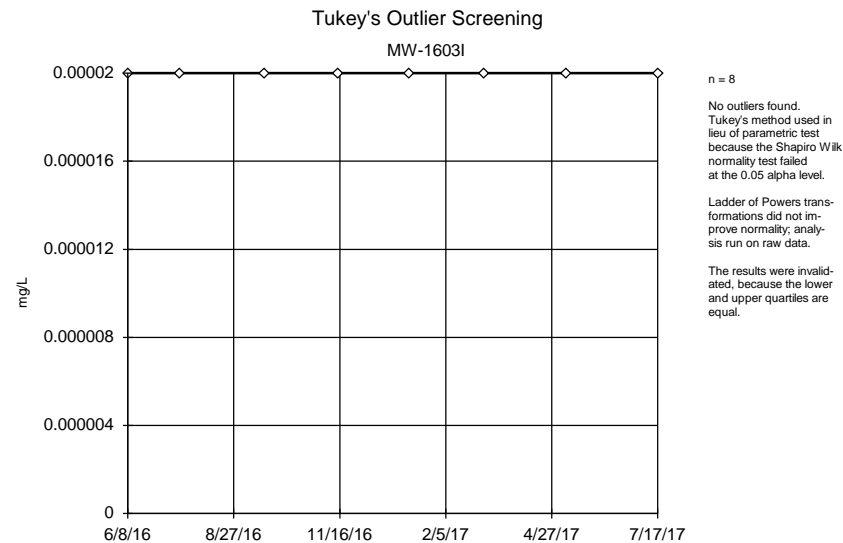
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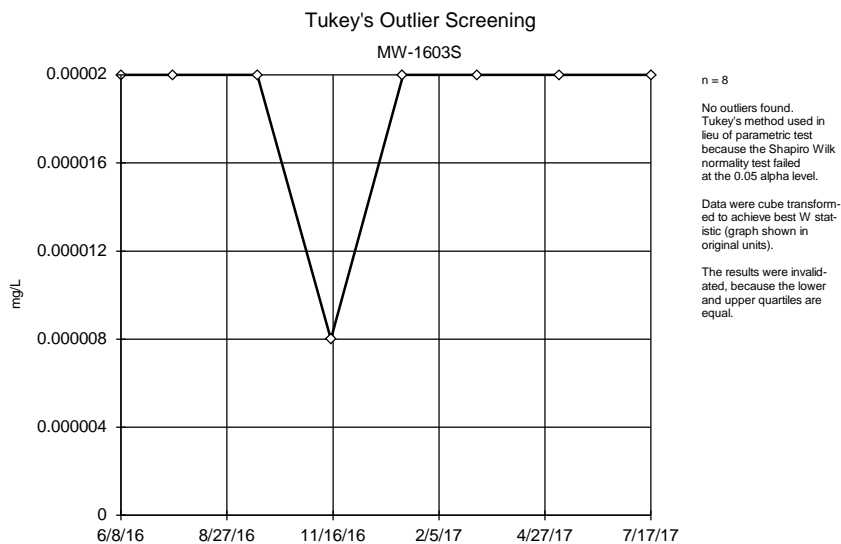
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



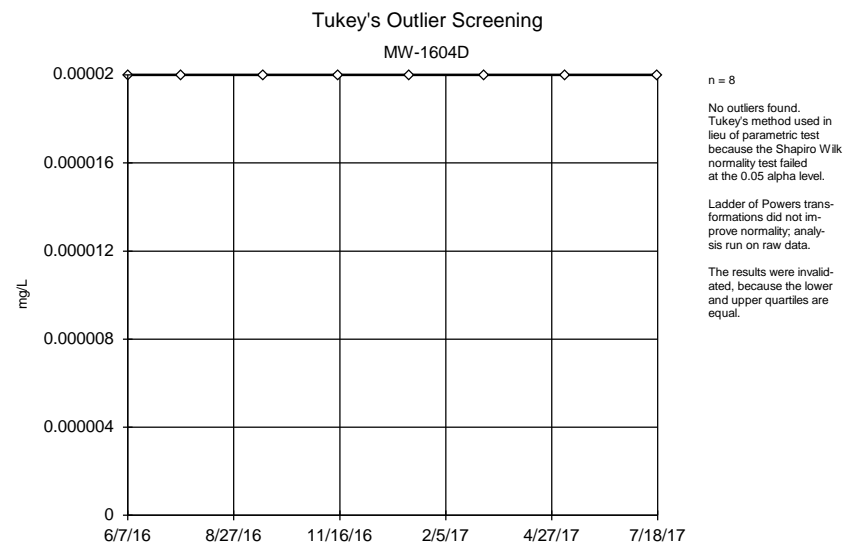
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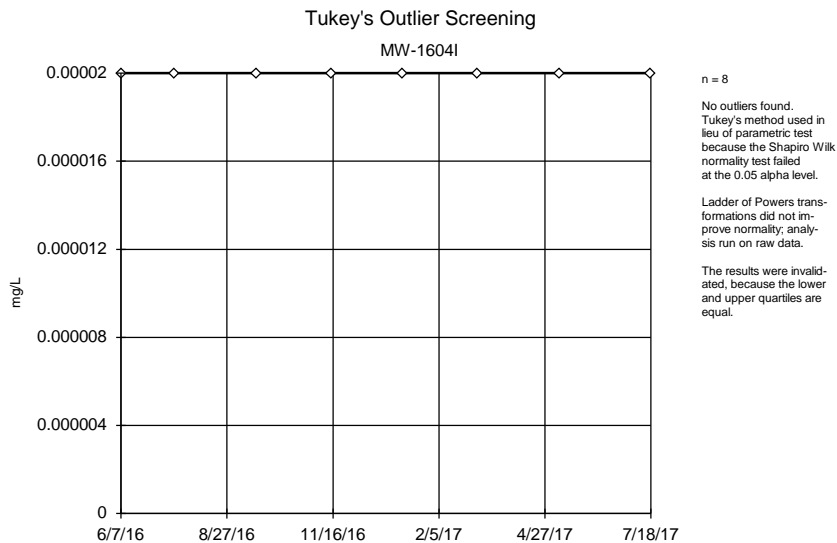
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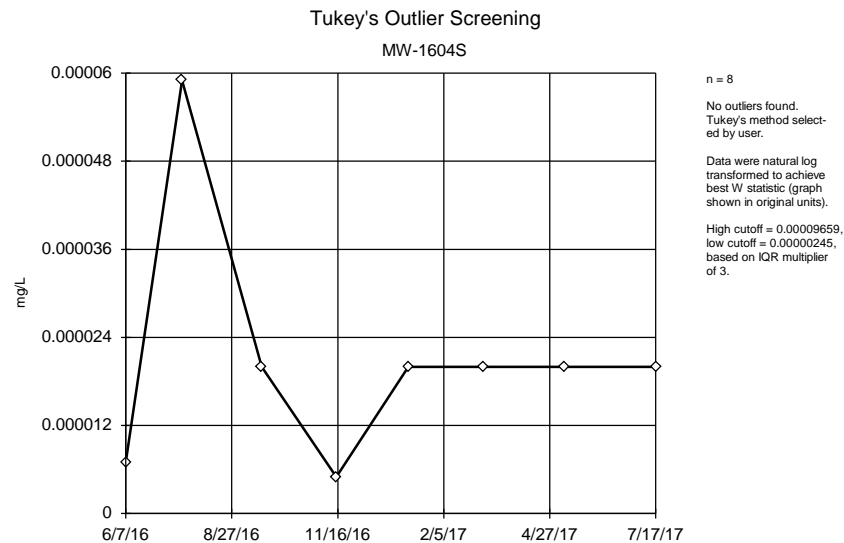
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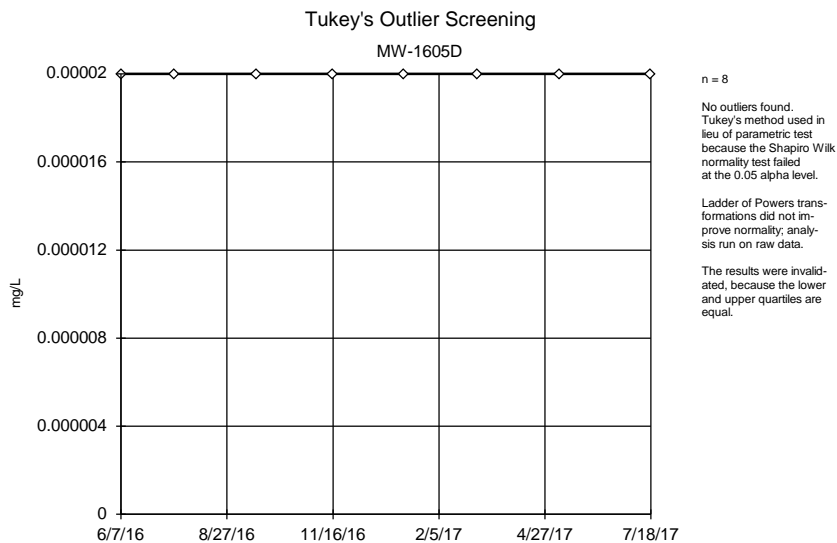
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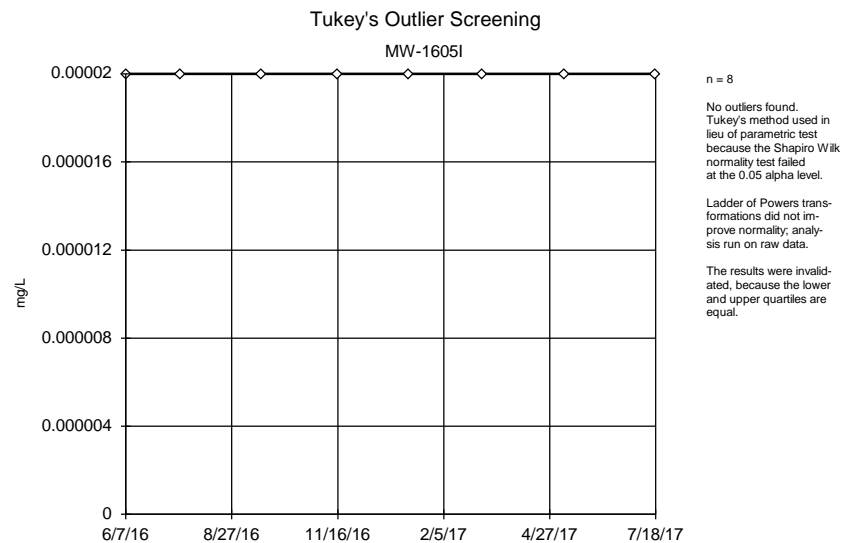
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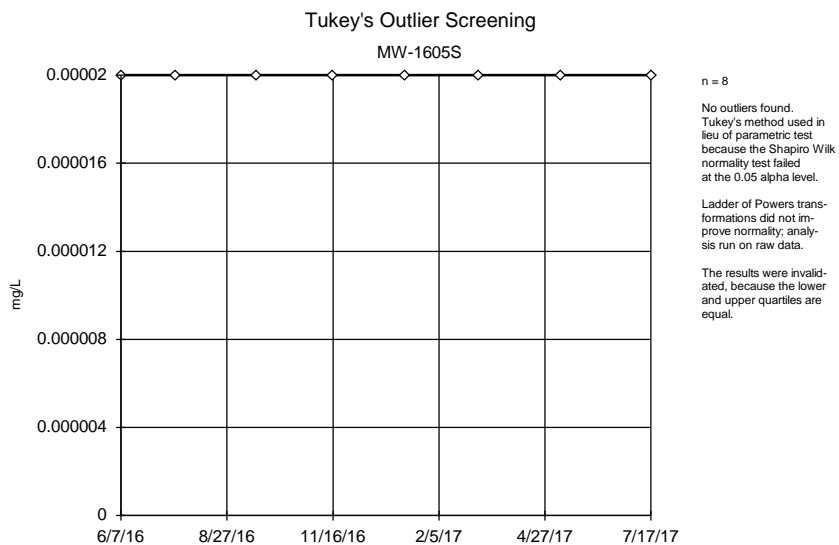
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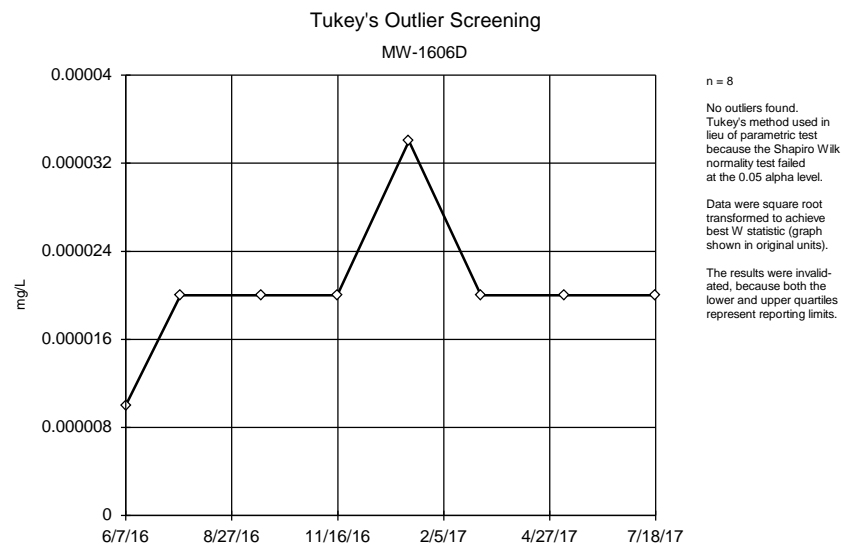
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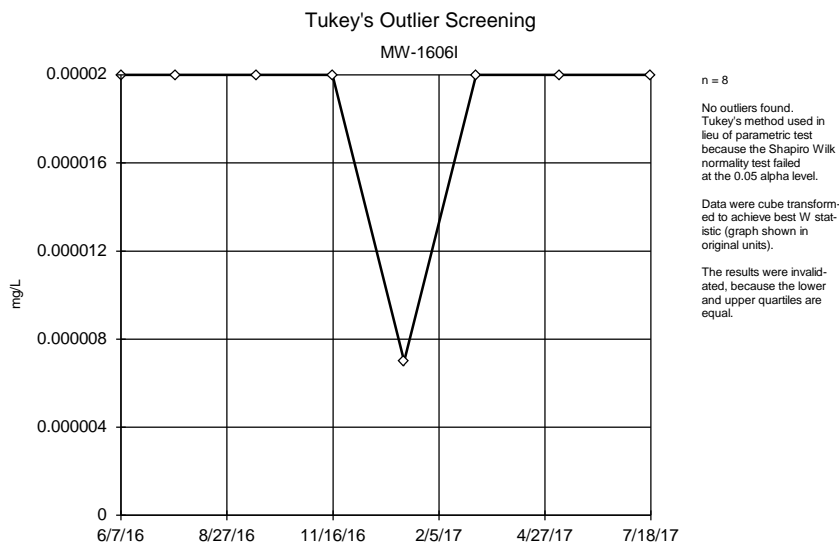
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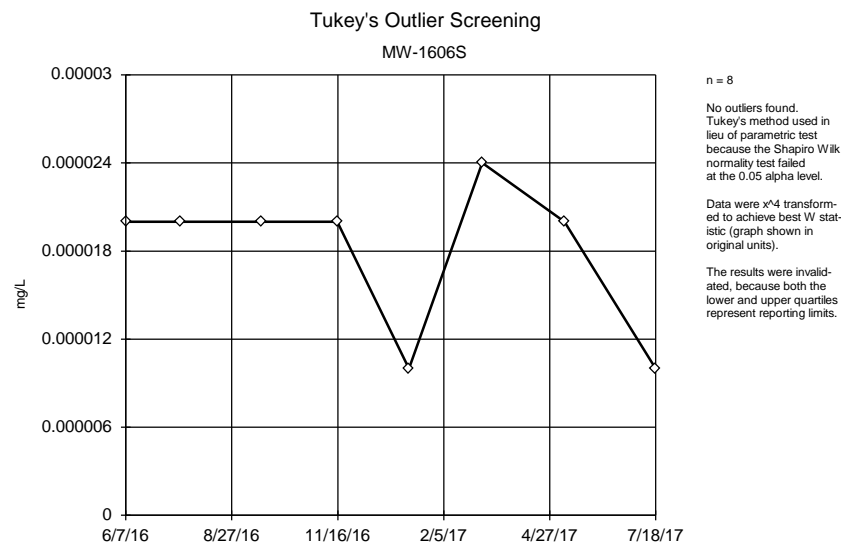
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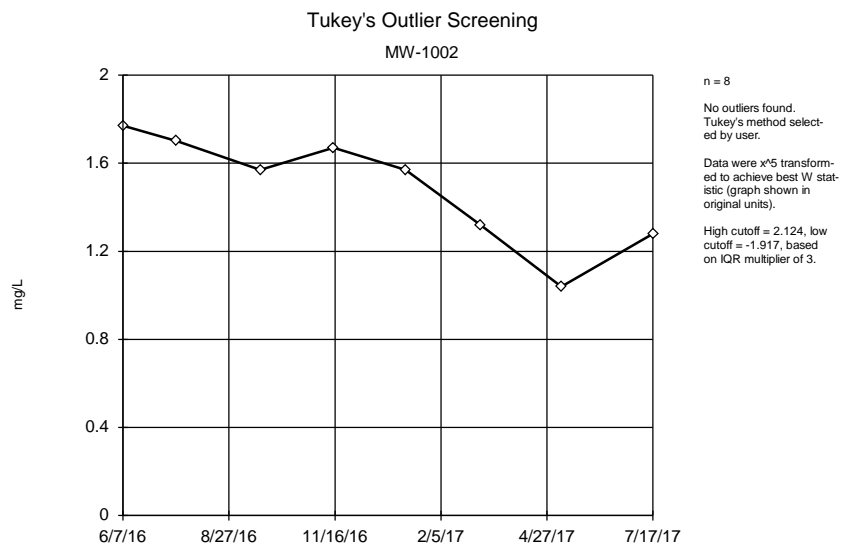


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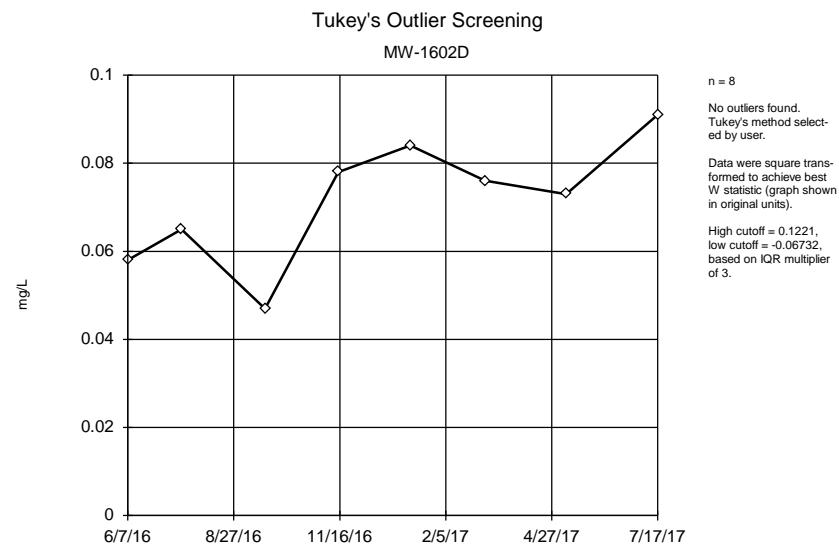


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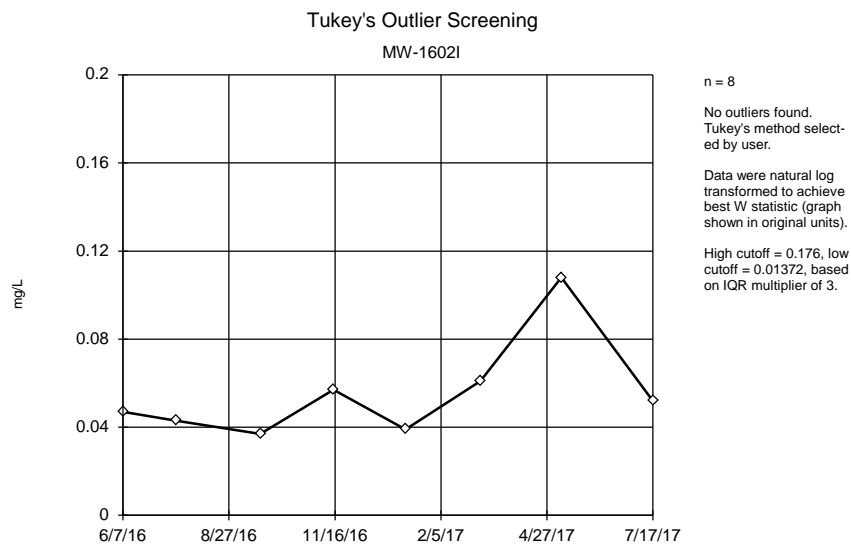




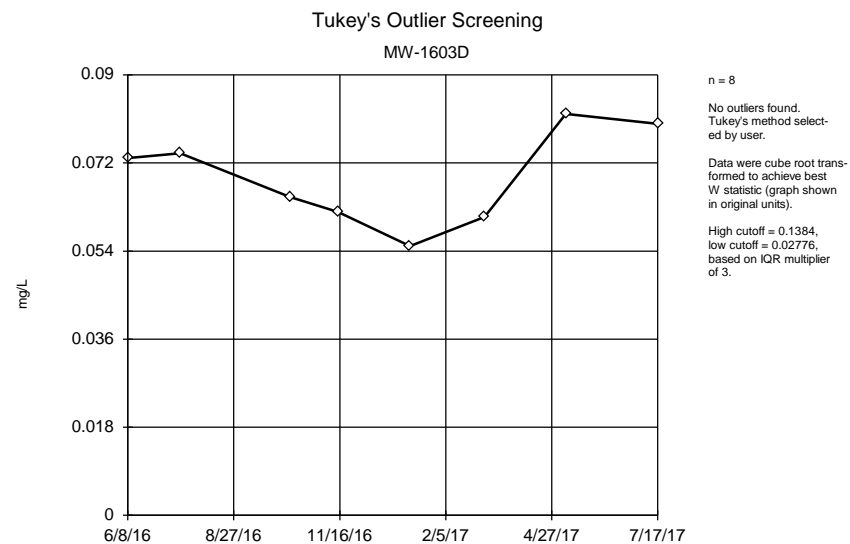
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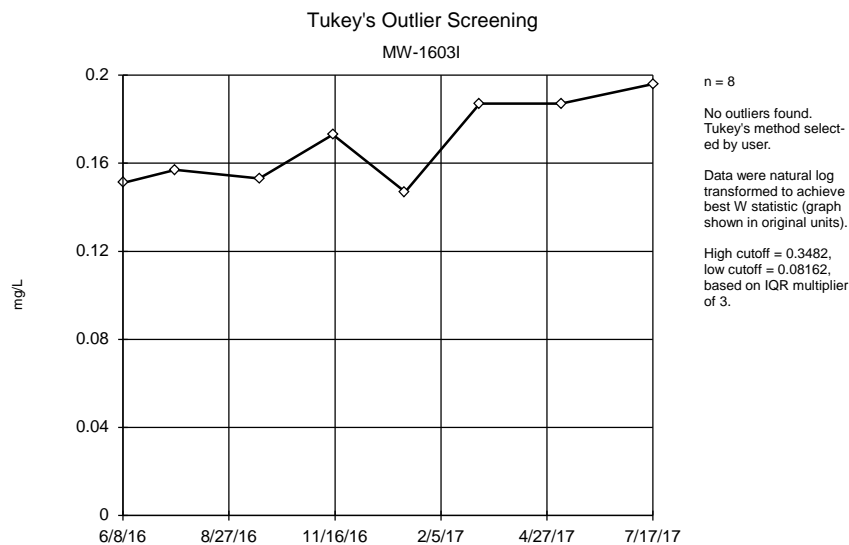
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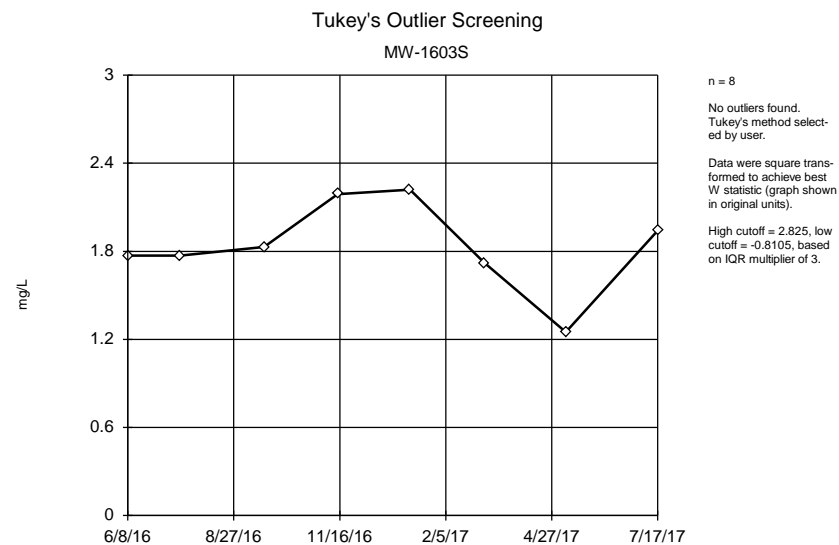
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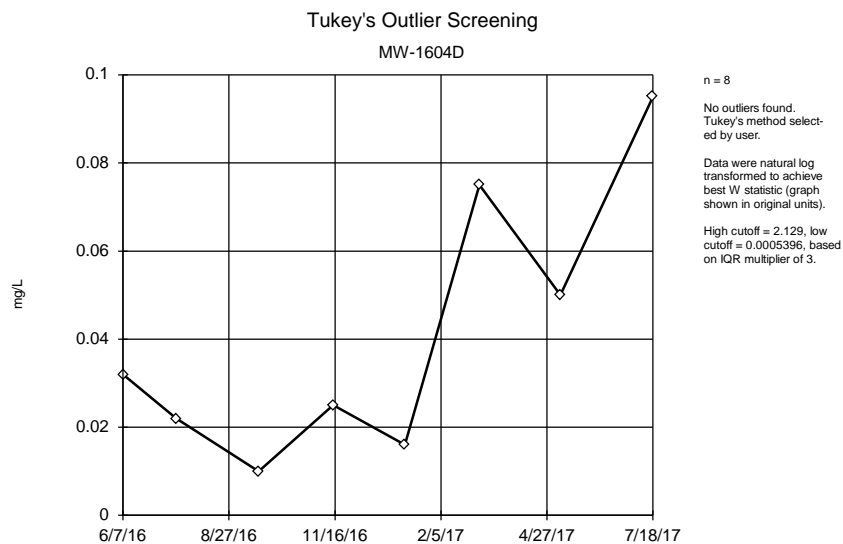
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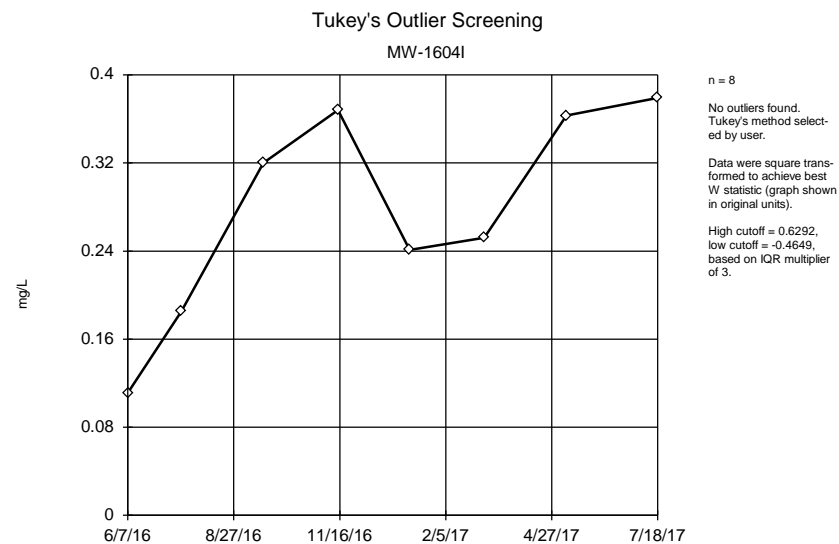
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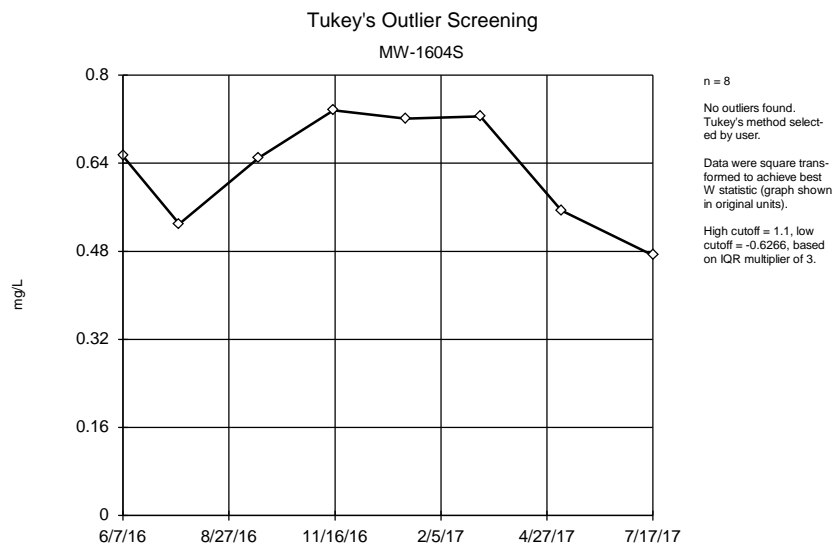
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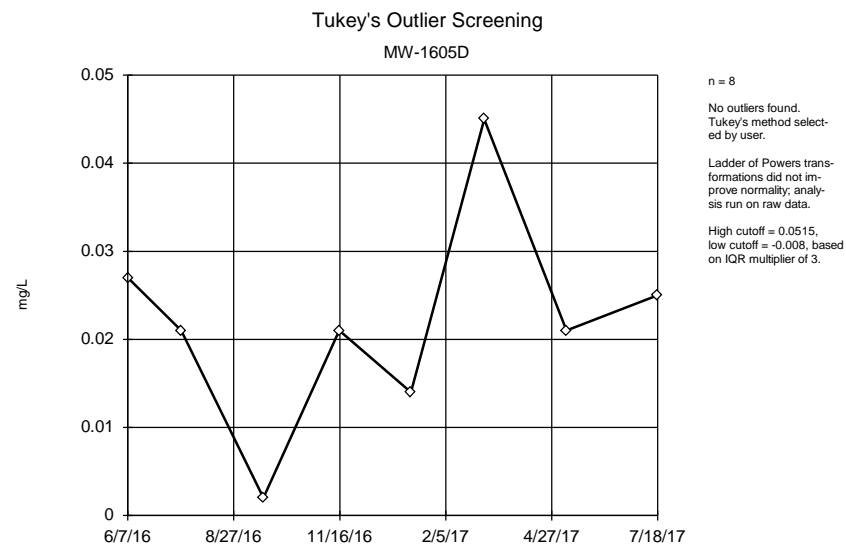
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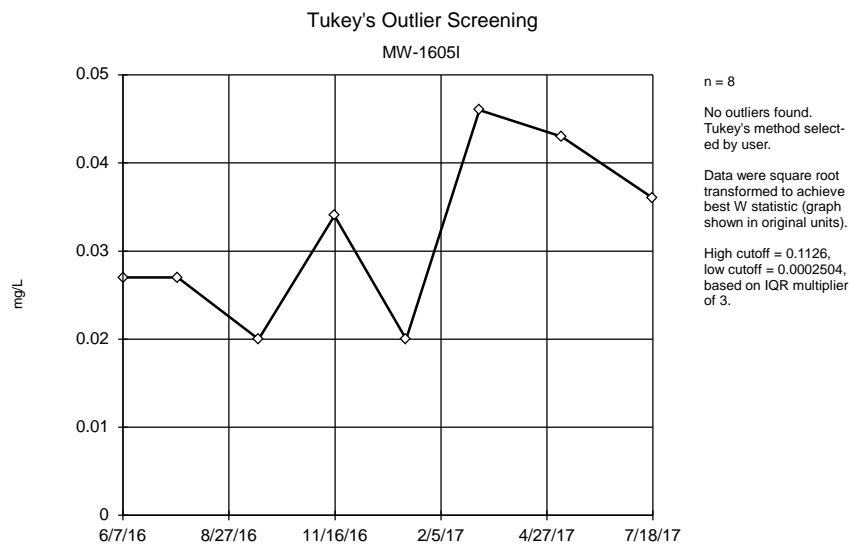
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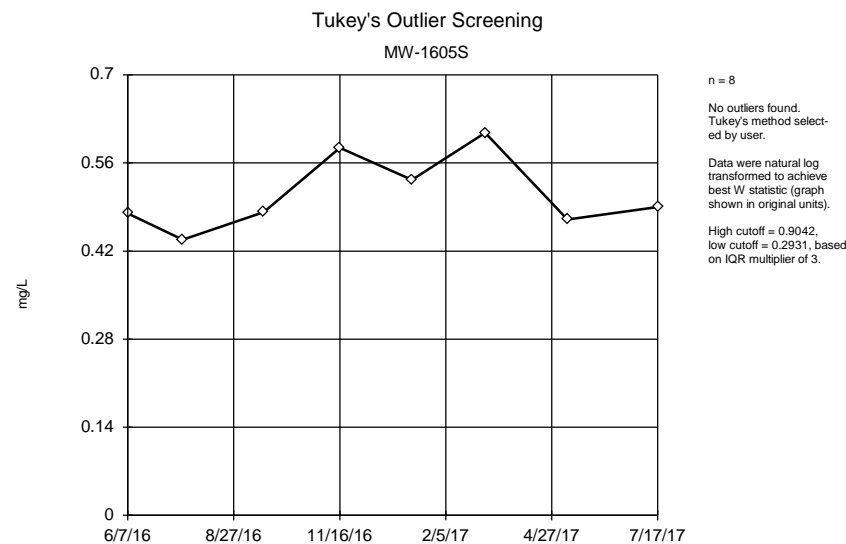
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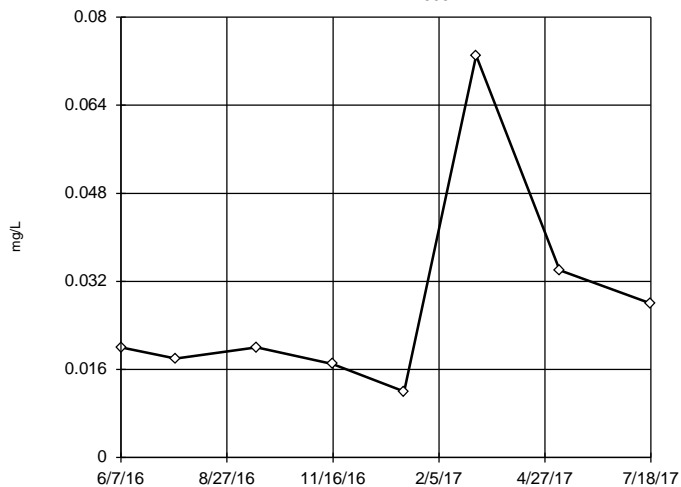
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Constituent: Boron, total Analysis Run 12/11/2017 10:04 PM View: Tukey's - Downgradient  
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## Tukey's Outlier Screening

MW-1606D



n = 8

No outliers found.  
Tukey's method selected by user.

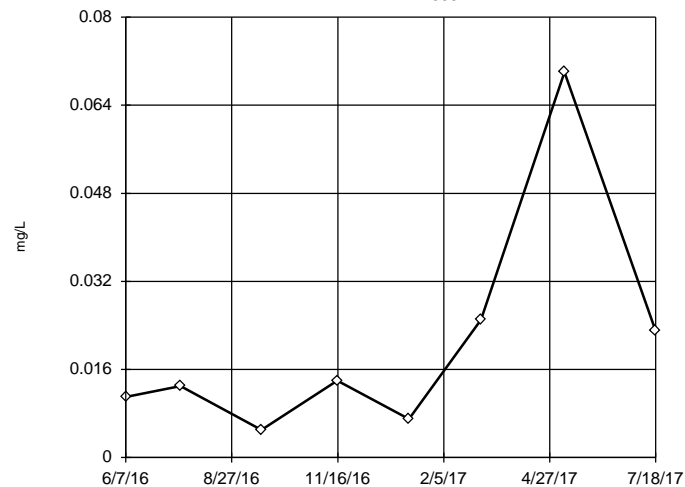
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.1693,  
low cutoff = 0.003188,  
based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 12/11/2017 10:04 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1606I



n = 8

No outliers found.  
Tukey's method selected by user.

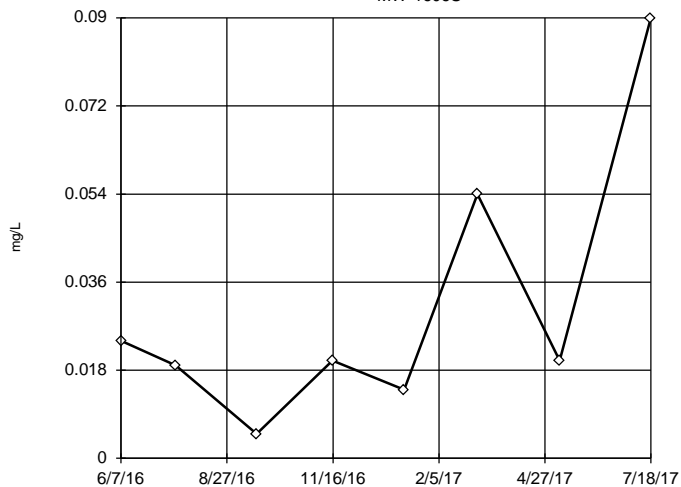
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.4893,  
low cutoff = 0.00043,  
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Constituent: Boron, total Analysis Run 12/11/2017 10:04 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1606S



n = 8

No outliers found.  
Tukey's method selected by user.

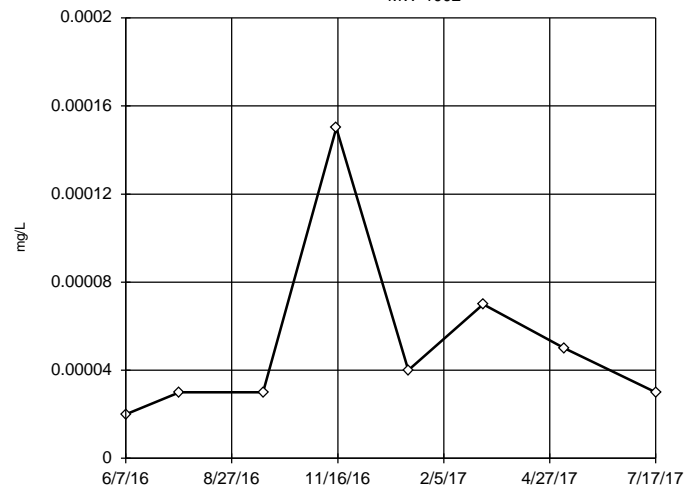
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.3872,  
low cutoff = 0.001517,  
based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 12/11/2017 10:04 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1002



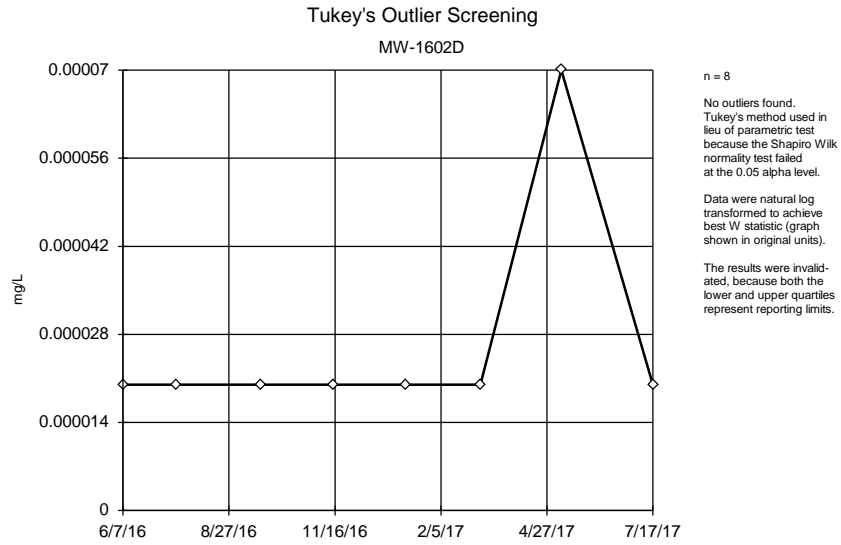
n = 8

No outliers found.  
Tukey's method selected by user.

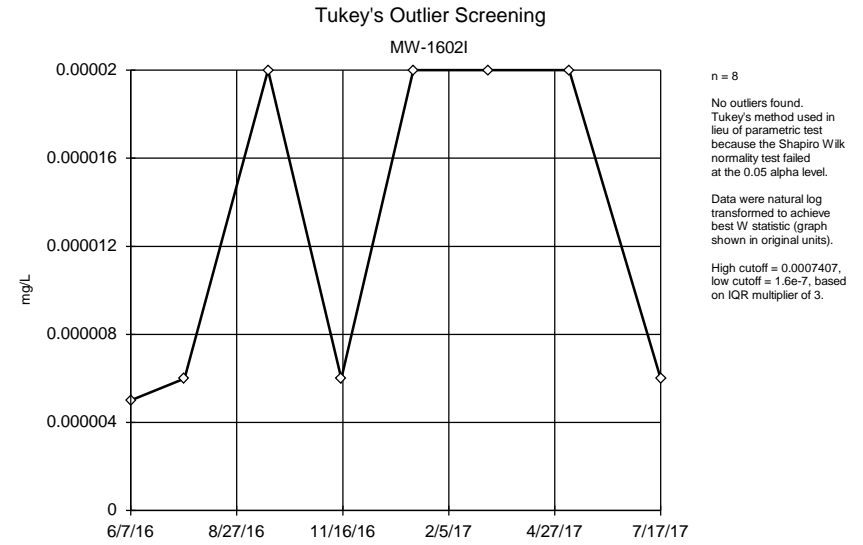
Data were natural log transformed to achieve best W statistic (graph shown in original units).

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based on IQR multiplier of 3.

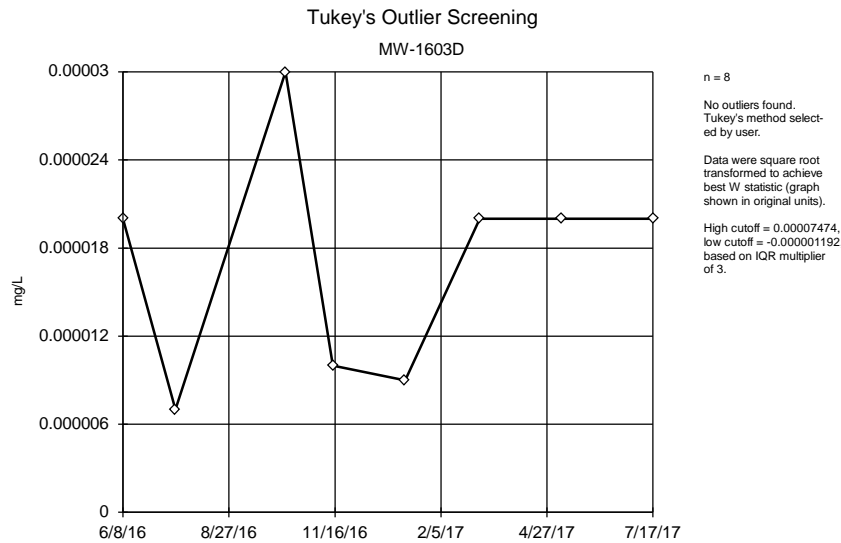
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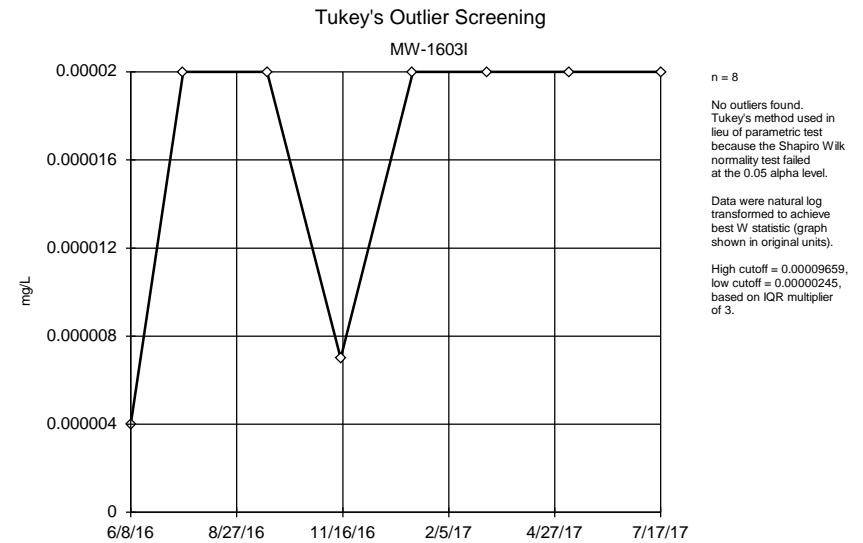
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



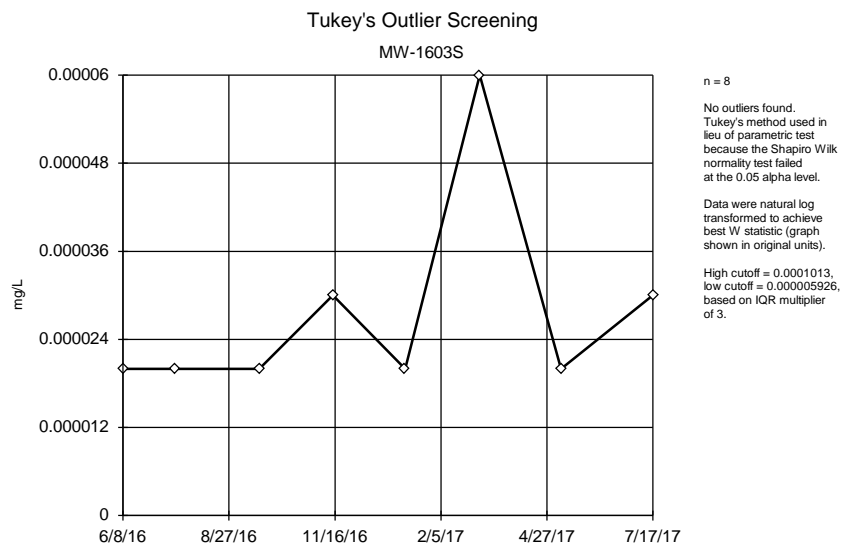
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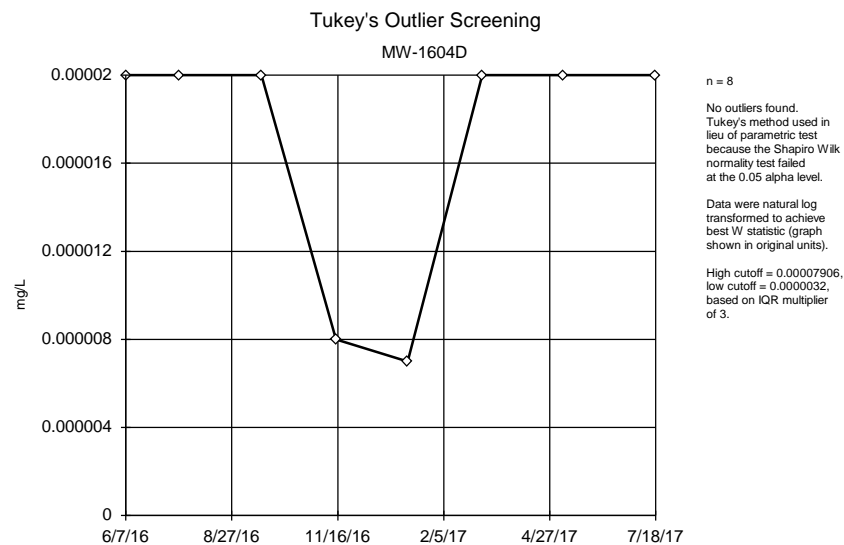
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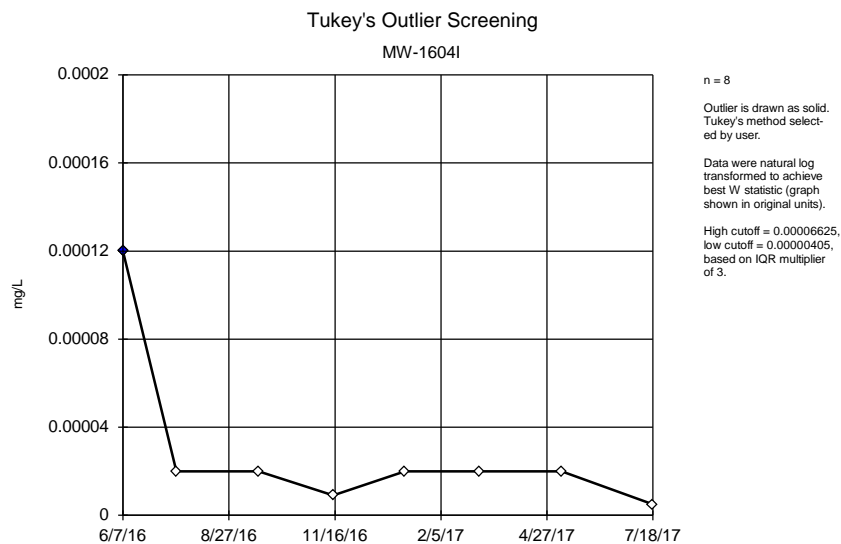
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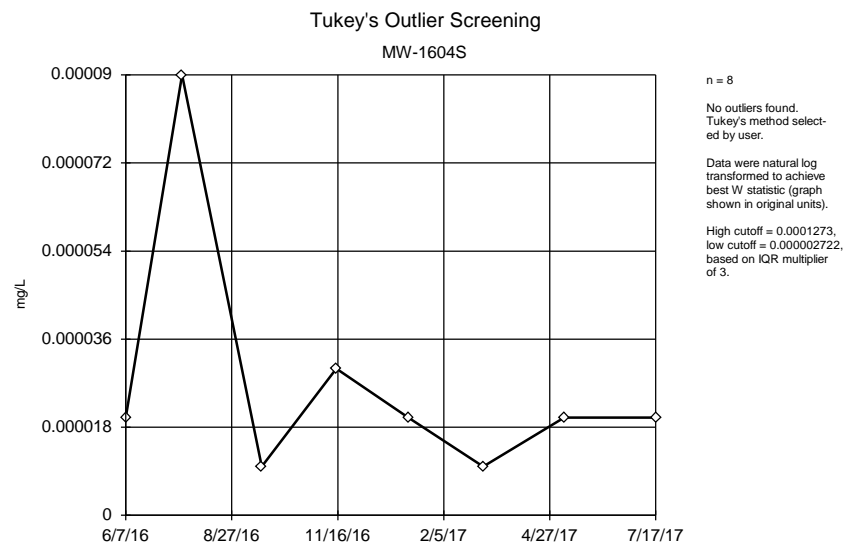
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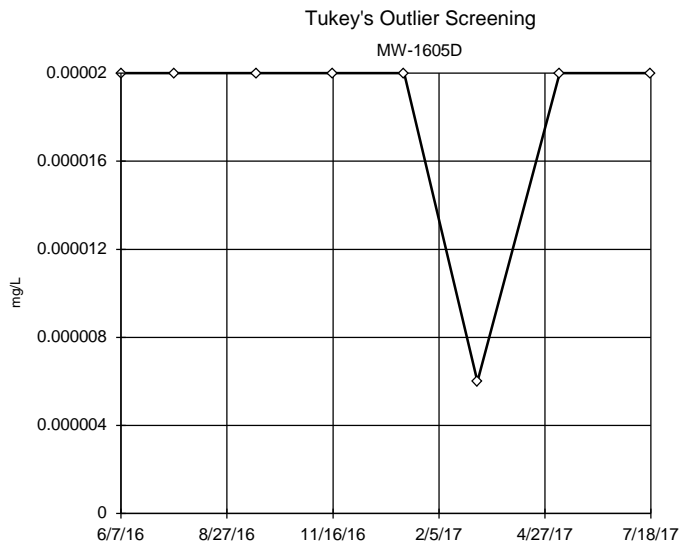
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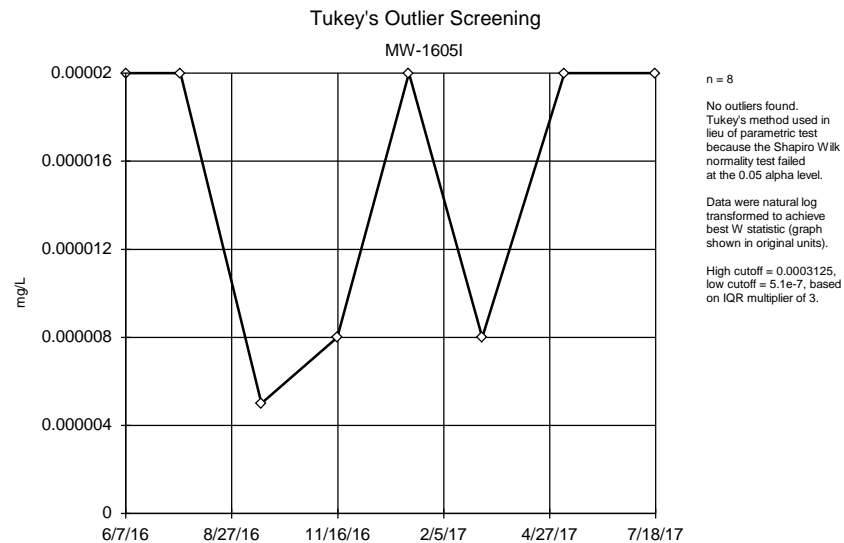
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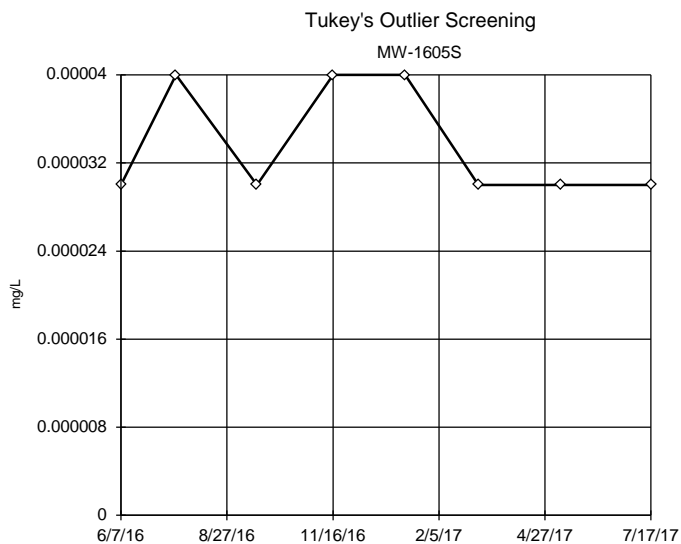
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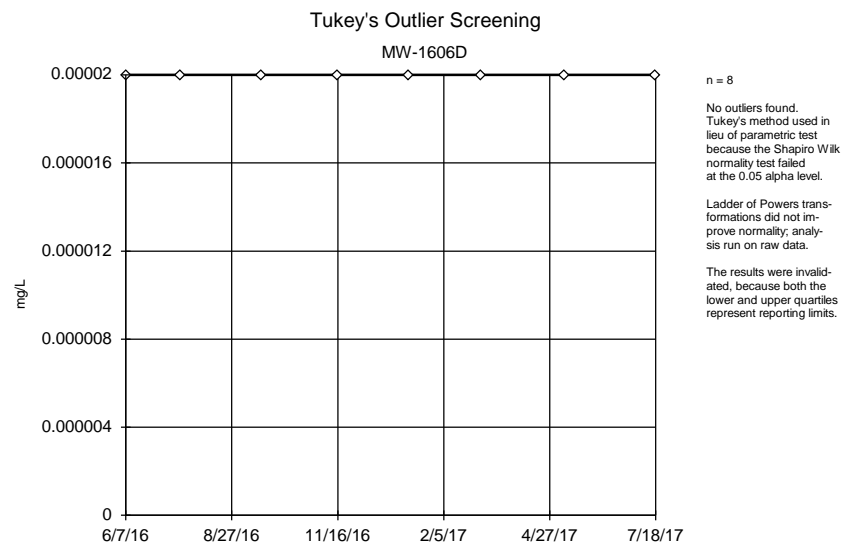
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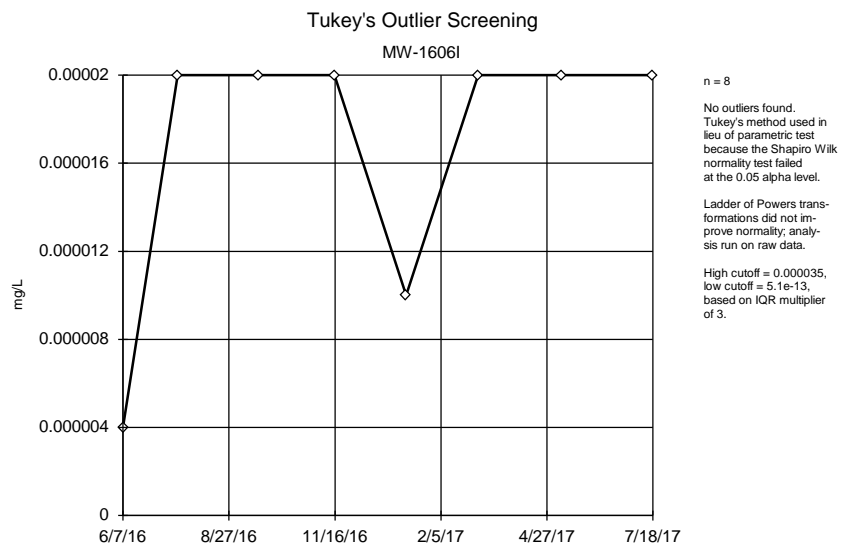
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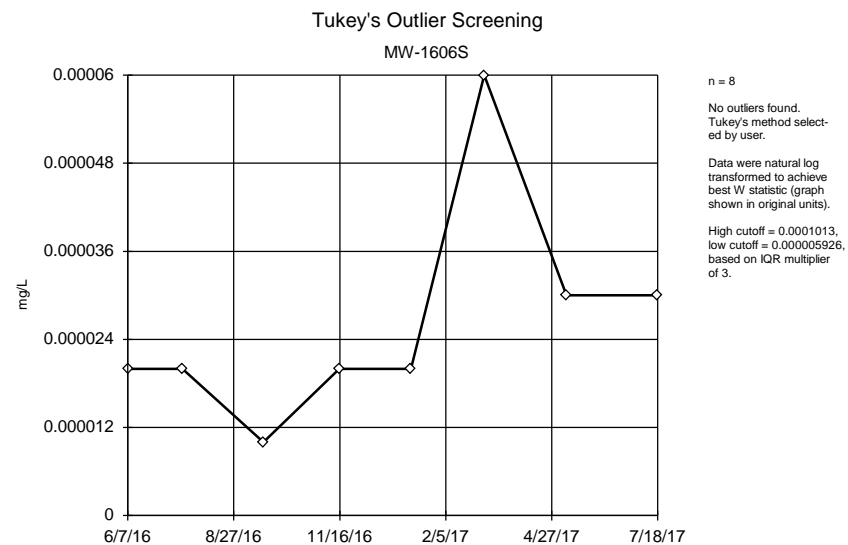
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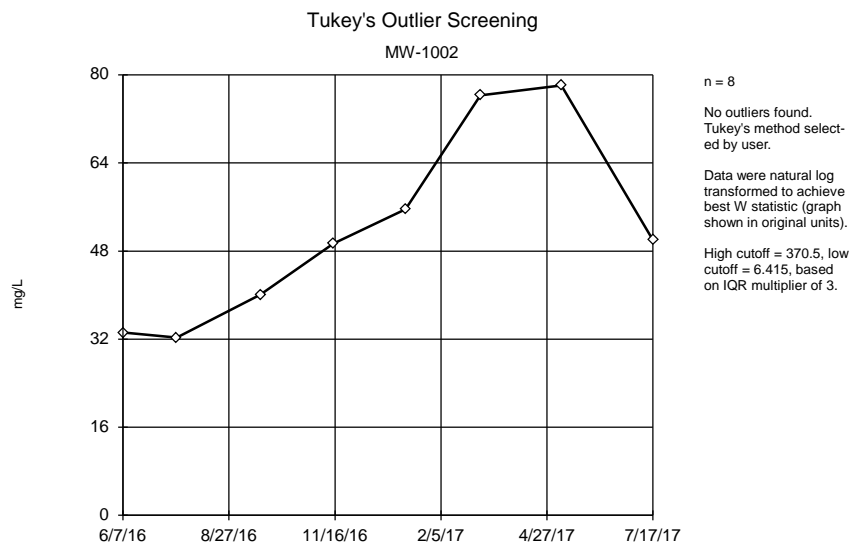
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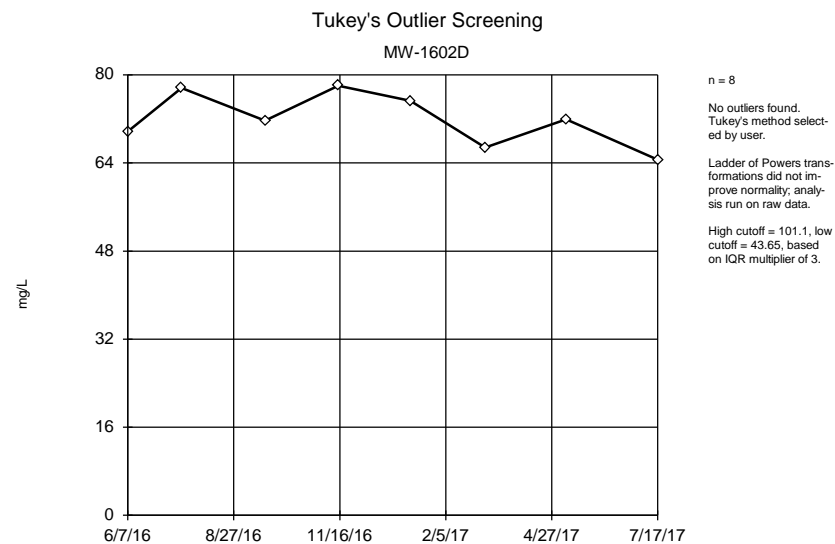
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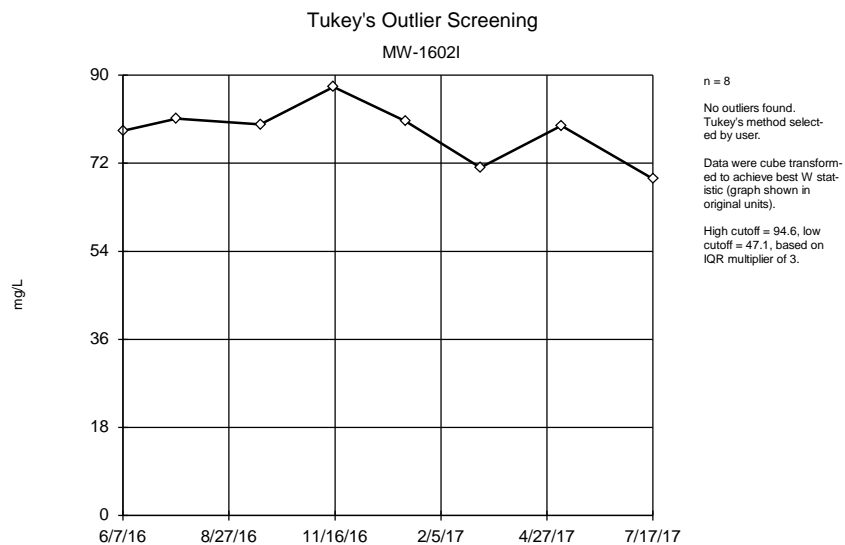


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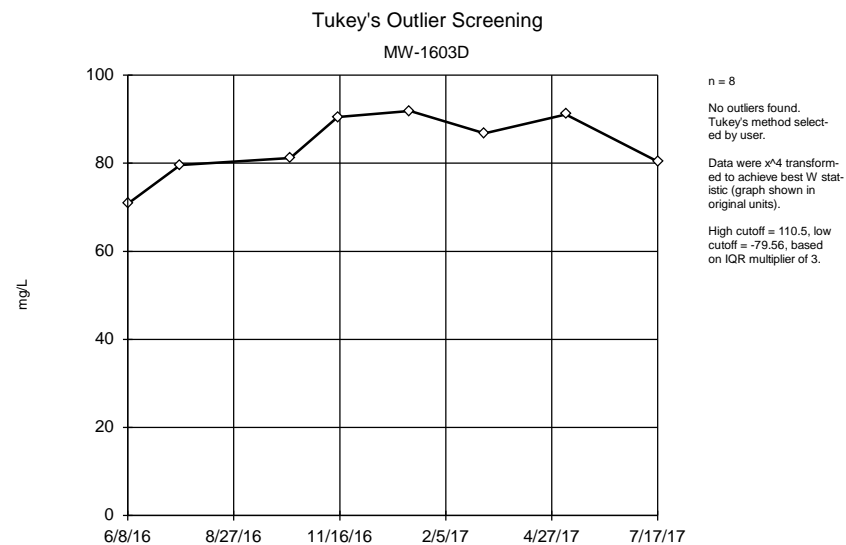


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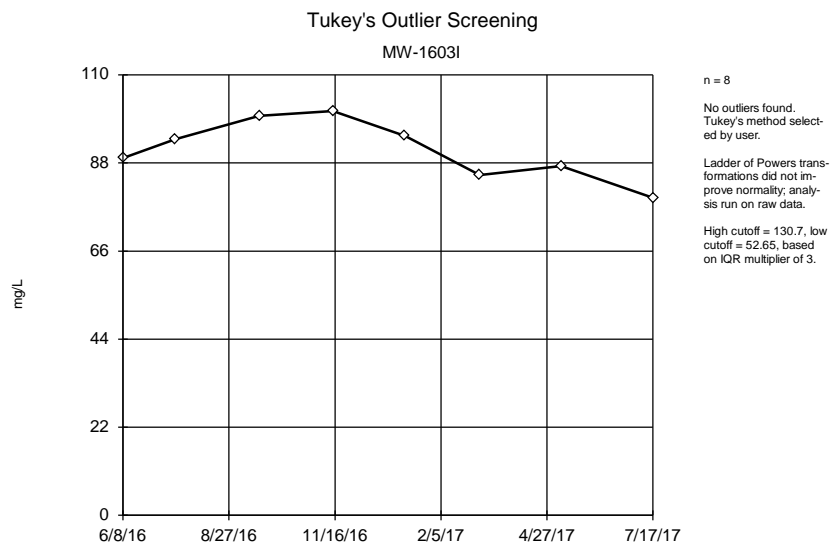




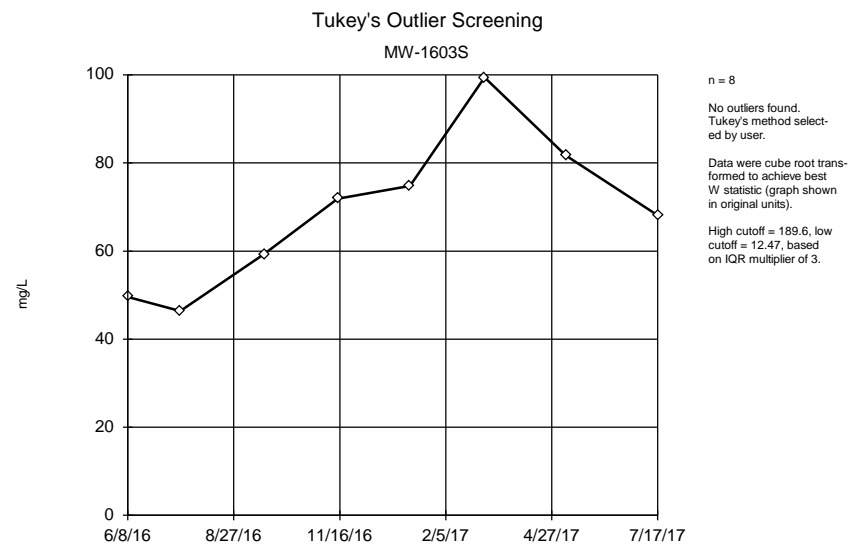
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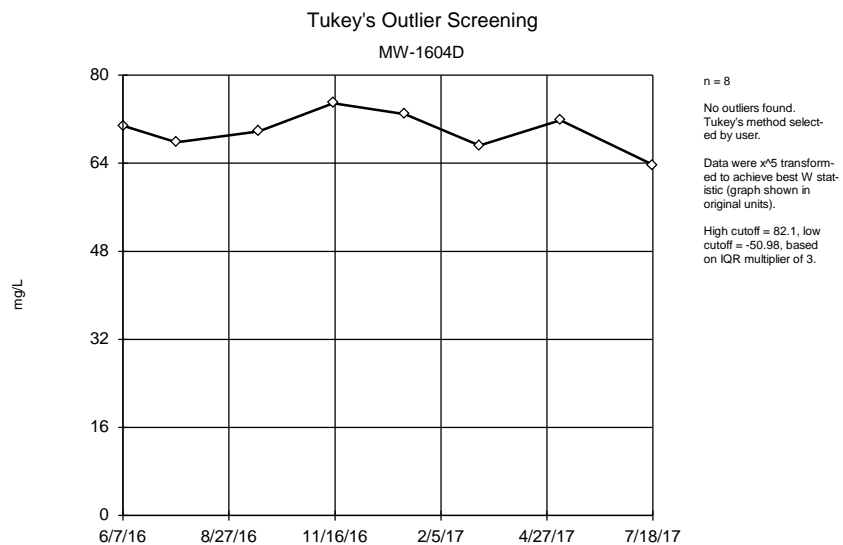
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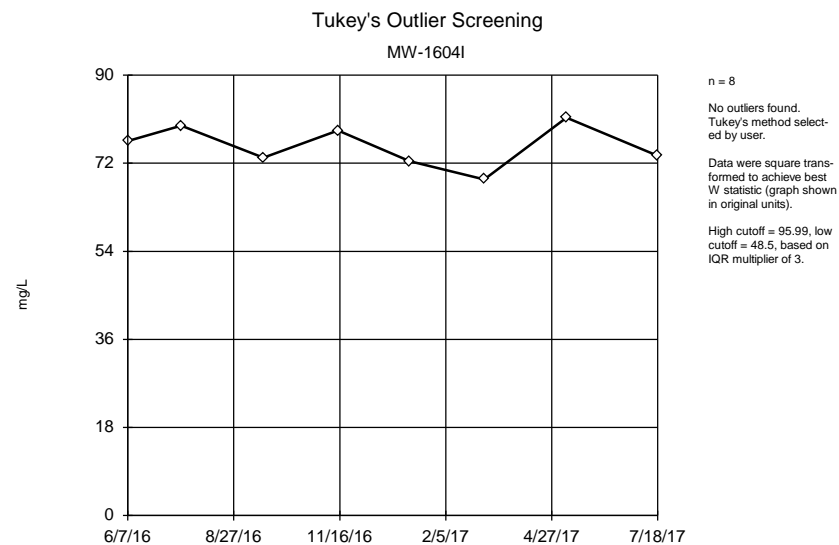
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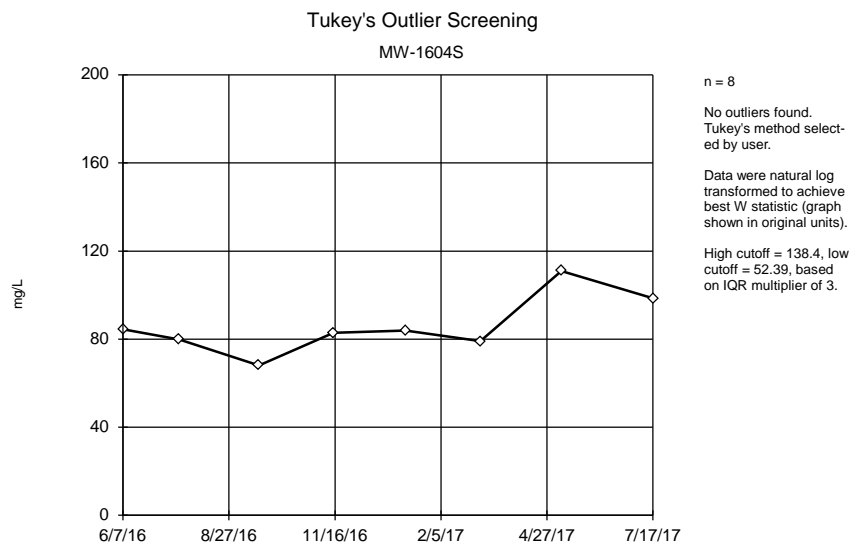
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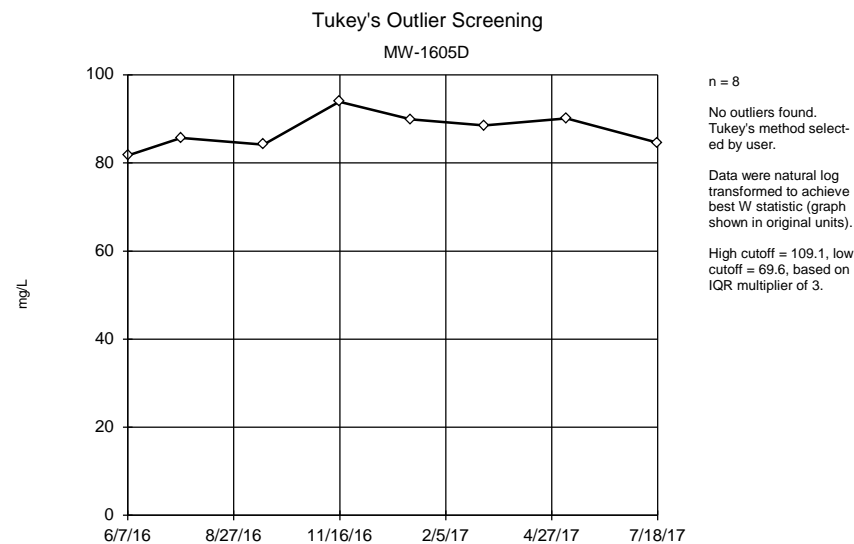
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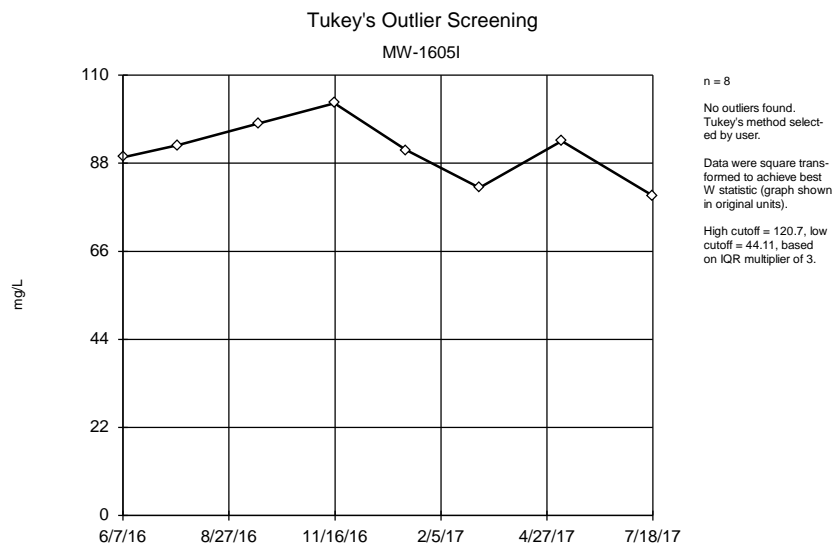
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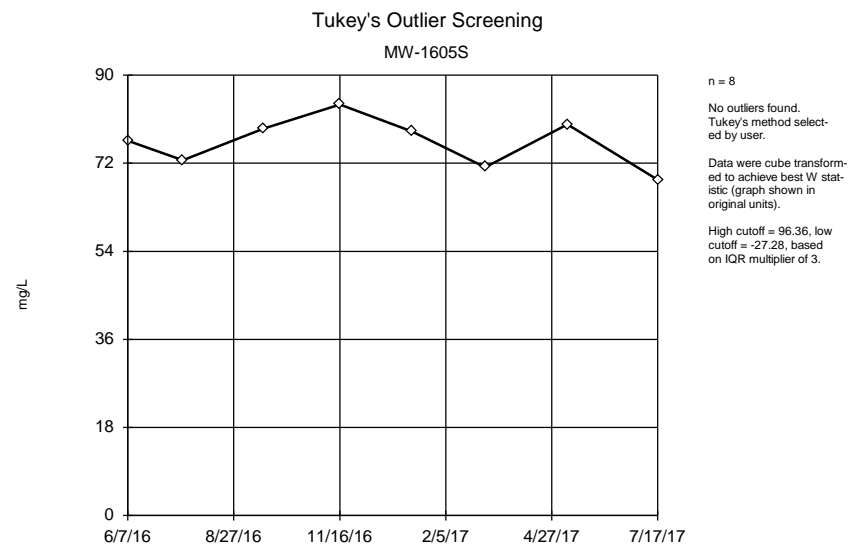
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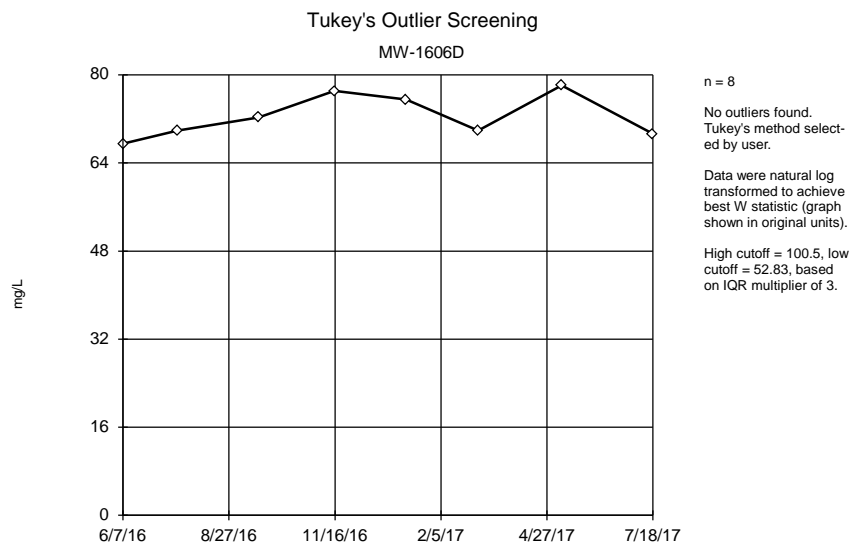
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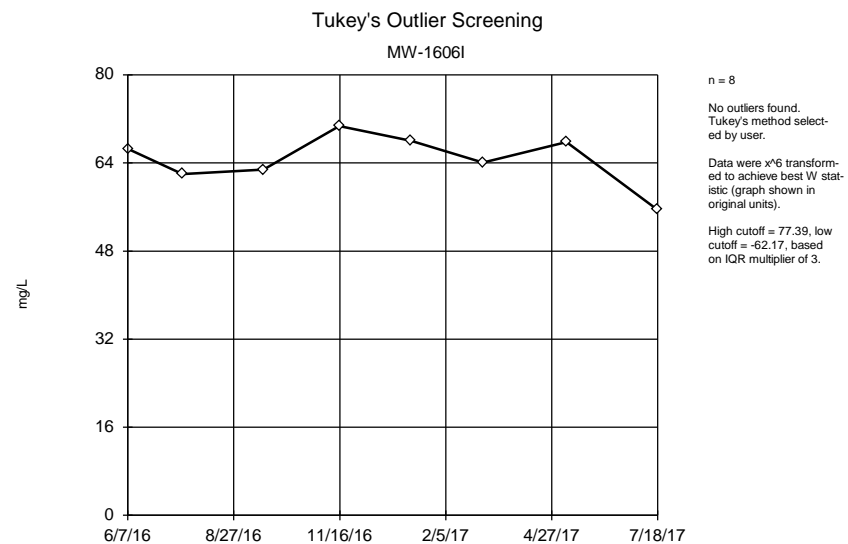
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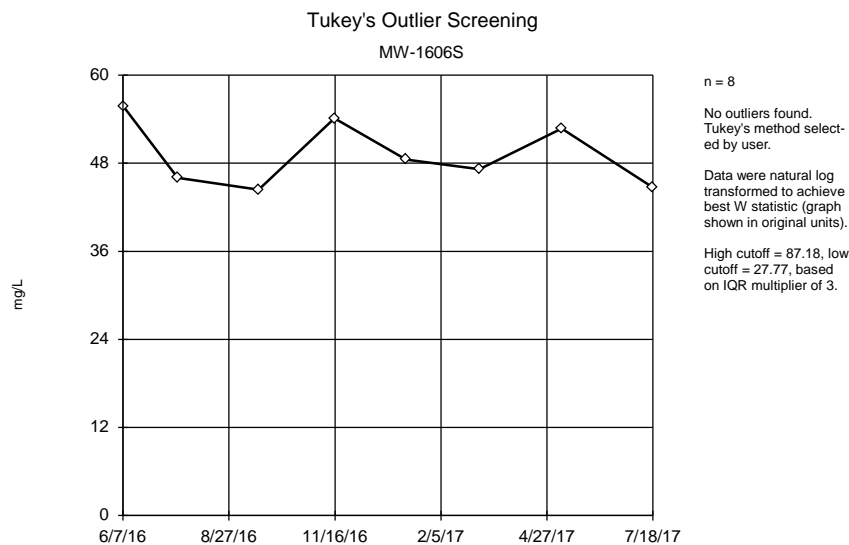
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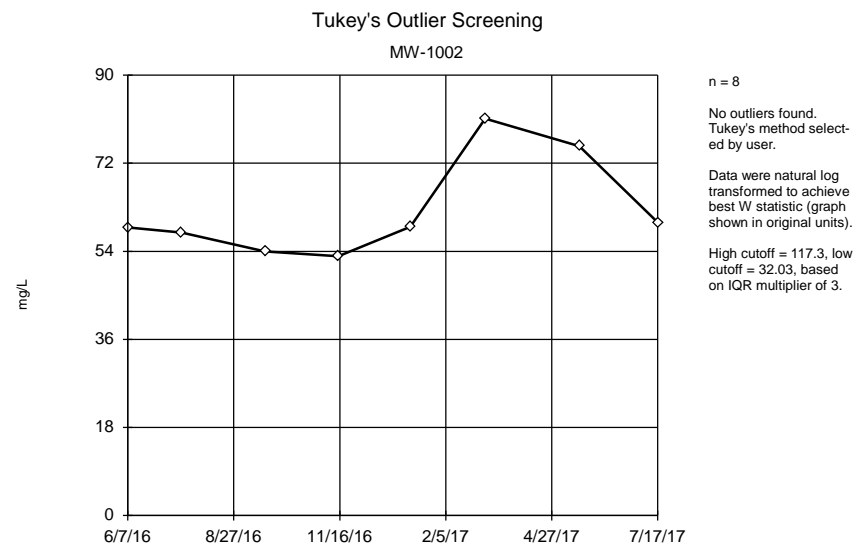
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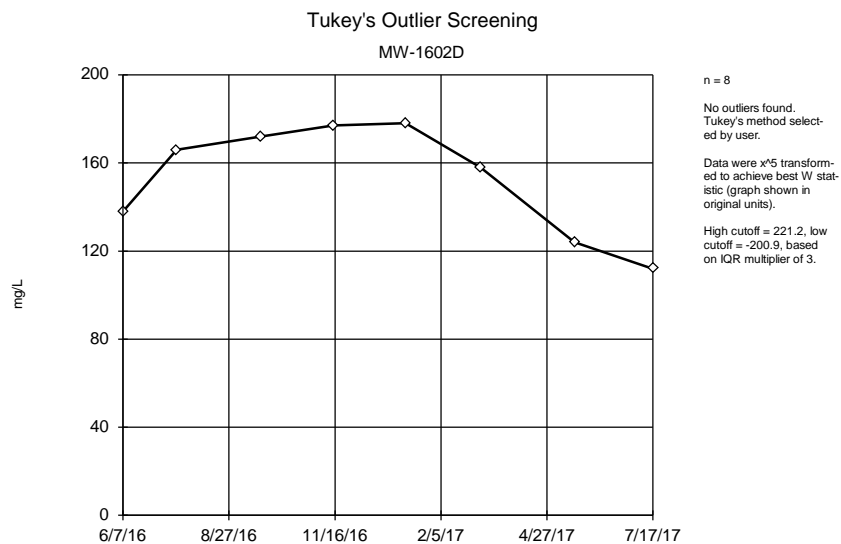
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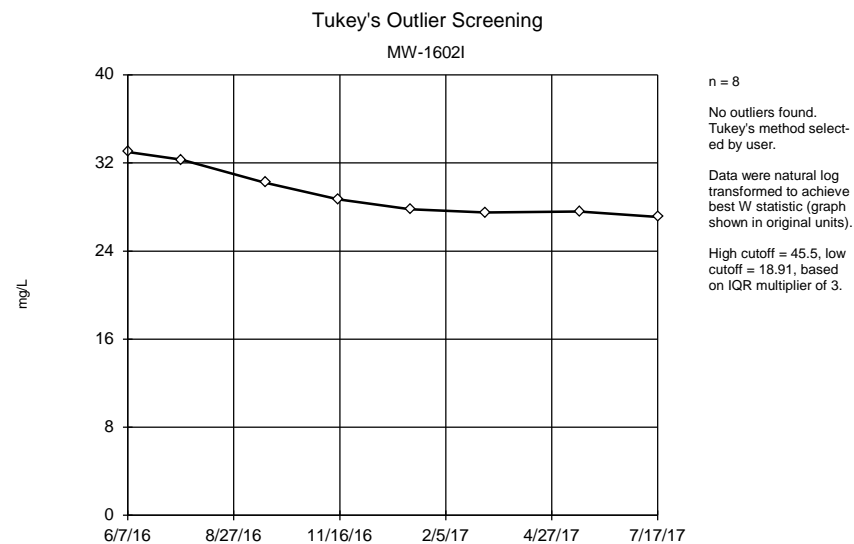
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



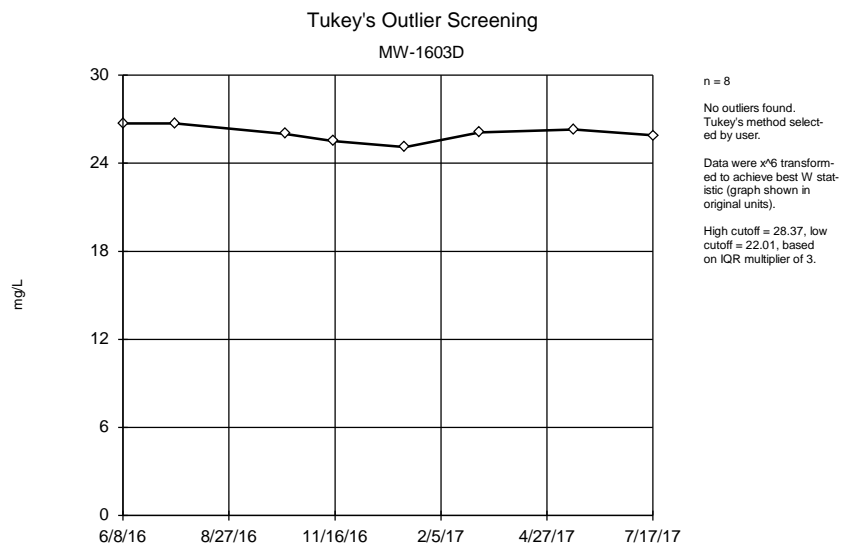
Constituent: Chloride, total Analysis Run 12/11/2017 10:04 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



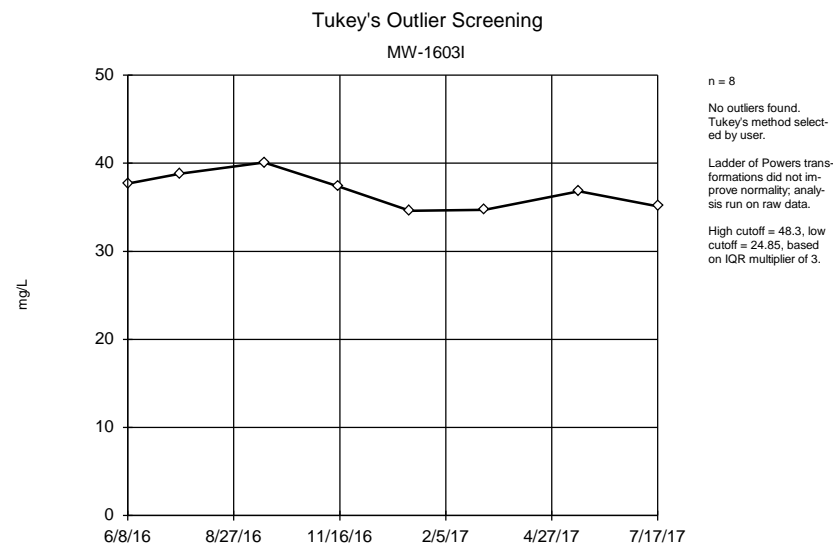
Constituent: Chloride, total Analysis Run 12/11/2017 10:04 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



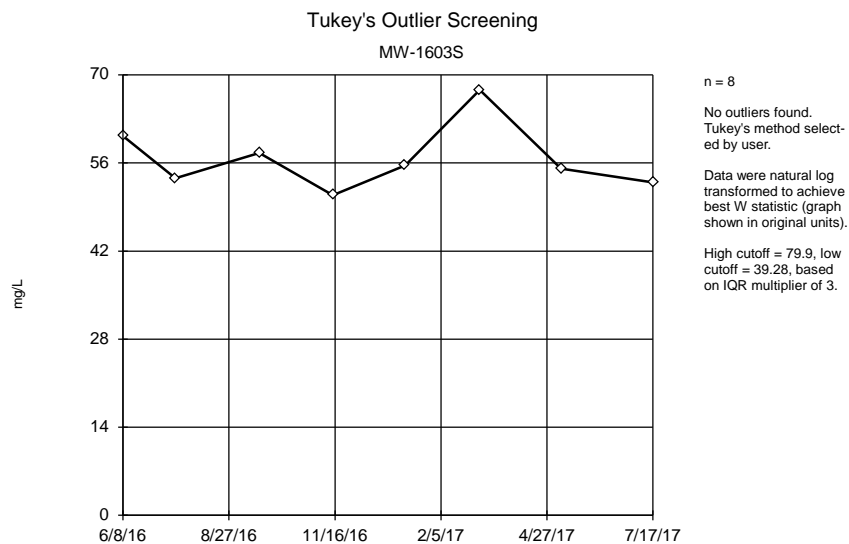
Constituent: Chloride, total Analysis Run 12/11/2017 10:04 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



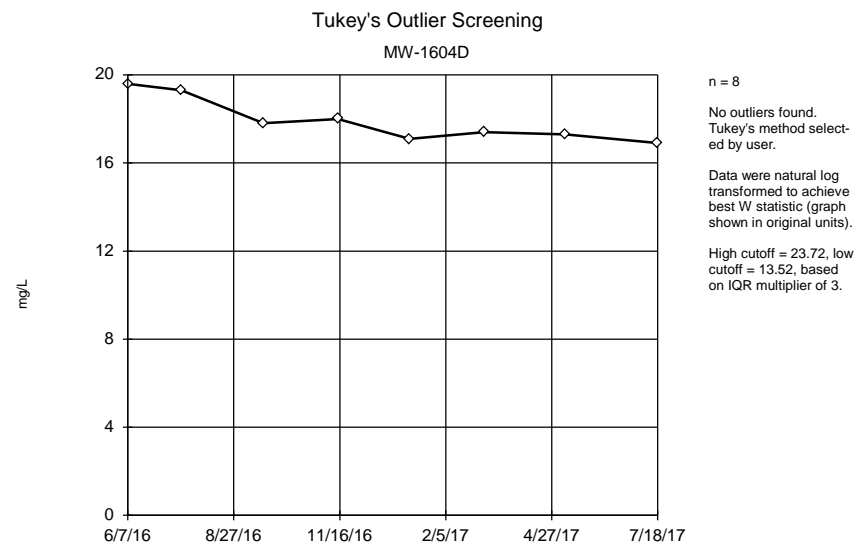
Constituent: Chloride, total Analysis Run 12/11/2017 10:04 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



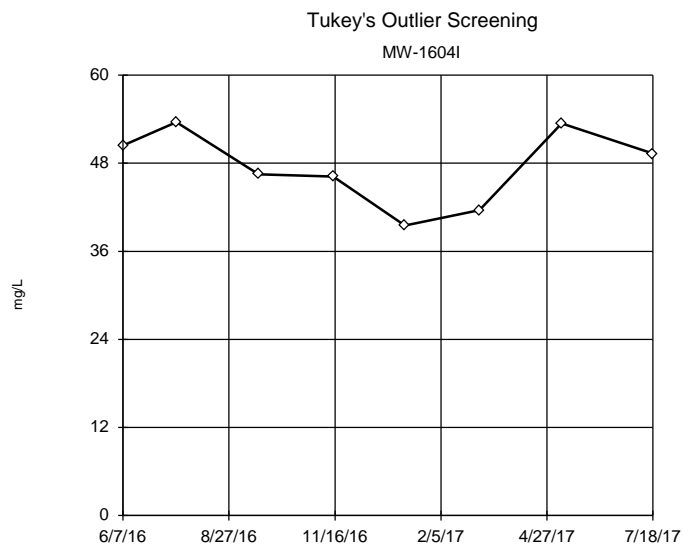
Constituent: Chloride, total Analysis Run 12/11/2017 10:04 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



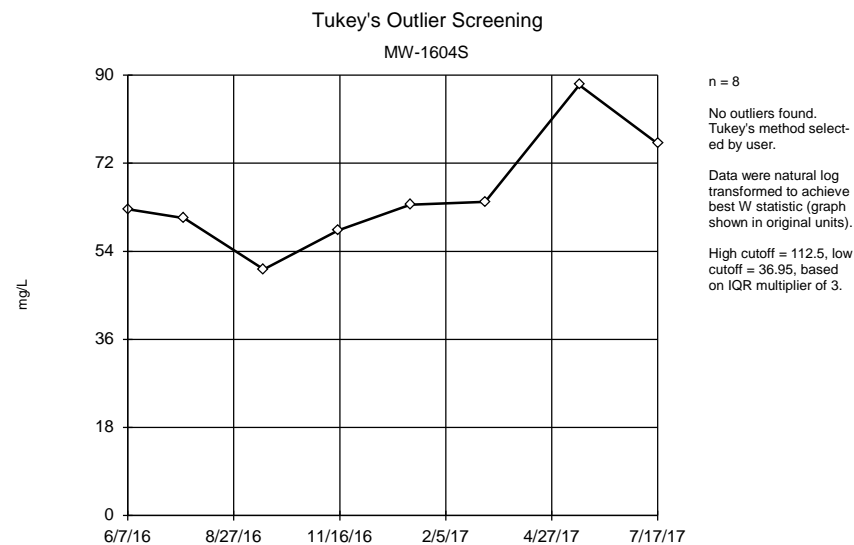
Constituent: Chloride, total Analysis Run 12/11/2017 10:04 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



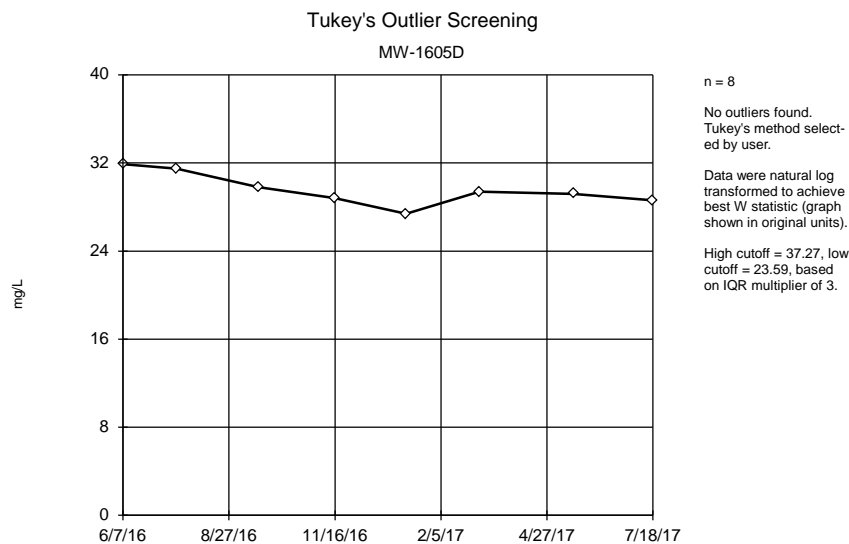
Constituent: Chloride, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



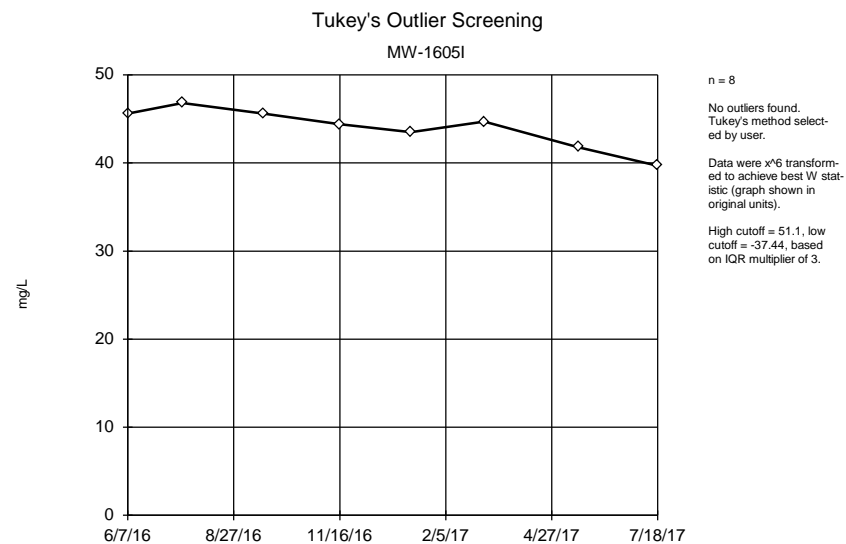
Constituent: Chloride, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



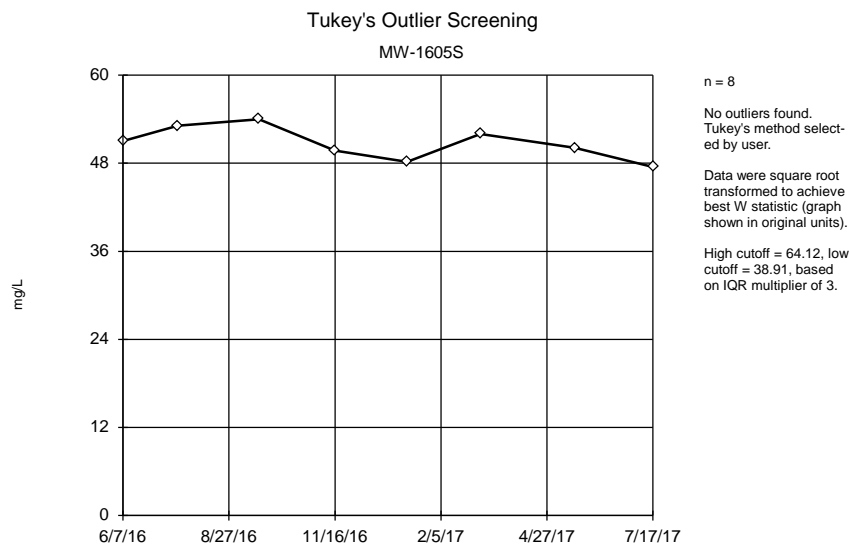
Constituent: Chloride, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



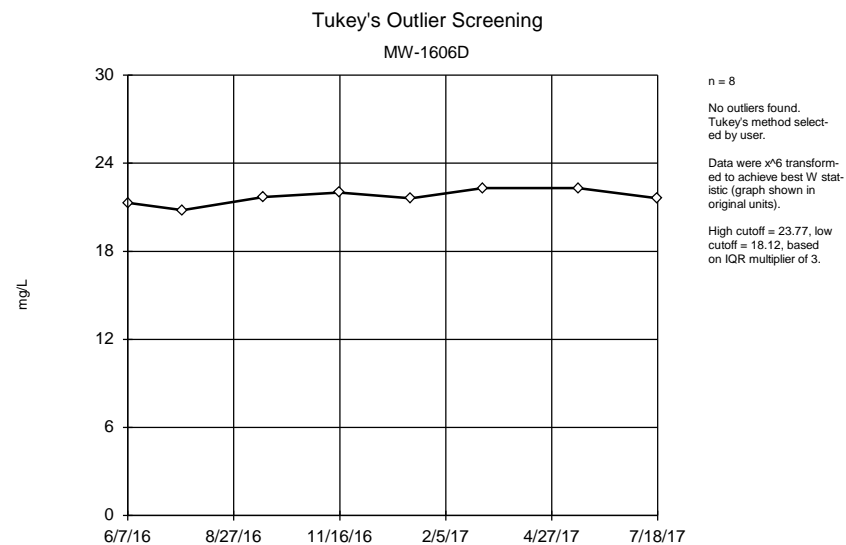
Constituent: Chloride, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



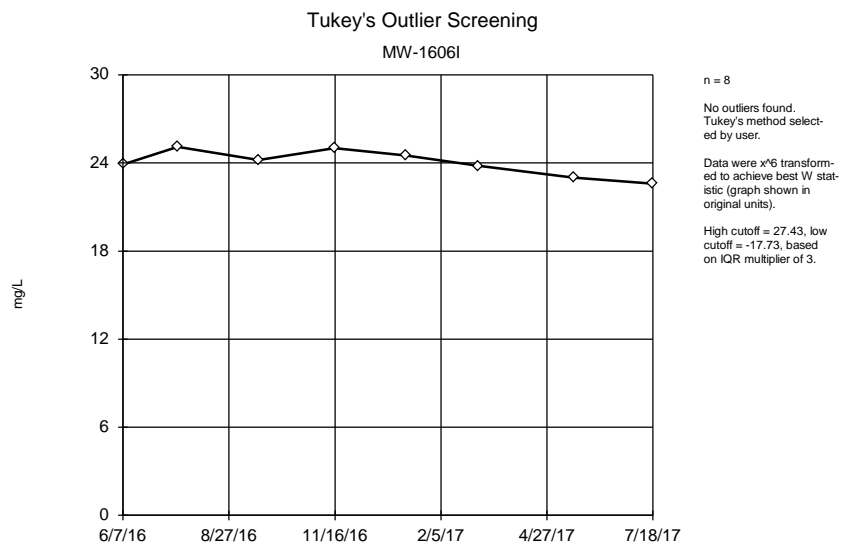
Constituent: Chloride, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



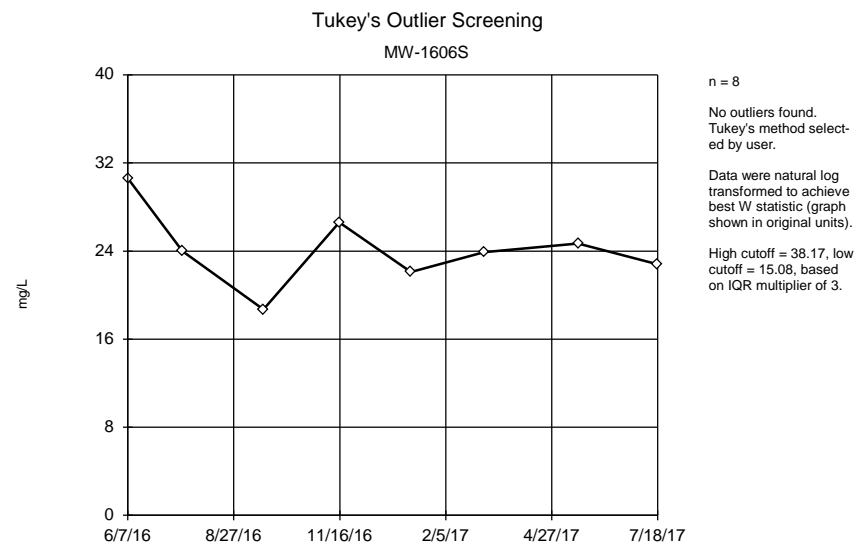
Constituent: Chloride, total    Analysis Run 12/11/2017 10:05 PM    View: Tukey's - Downgradient  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP



Constituent: Chloride, total    Analysis Run 12/11/2017 10:05 PM    View: Tukey's - Downgradient  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP



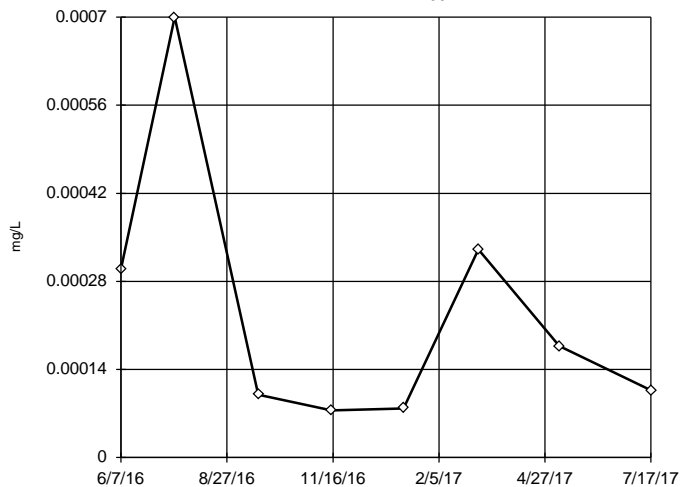
Constituent: Chloride, total    Analysis Run 12/11/2017 10:05 PM    View: Tukey's - Downgradient  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP



Constituent: Chloride, total    Analysis Run 12/11/2017 10:05 PM    View: Tukey's - Downgradient  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1002



n = 8

No outliers found.  
Tukey's method selected by user.

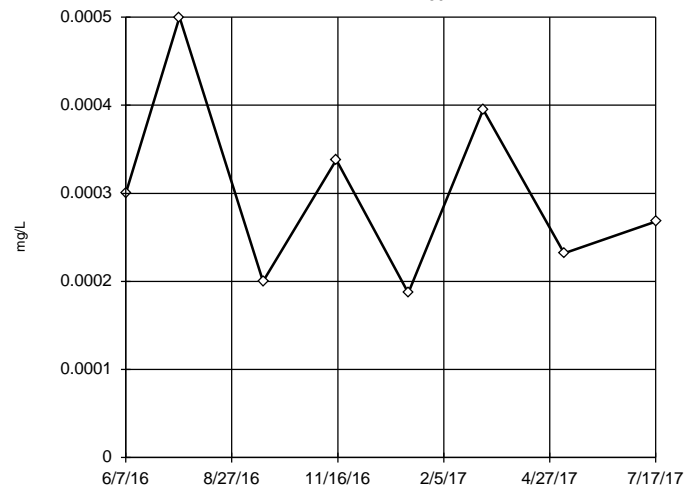
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.01431,  
low cutoff = 0.00001944,  
based on IQR multiplier of 3.

Constituent: Chromium, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1602D



n = 8

No outliers found.  
Tukey's method selected by user.

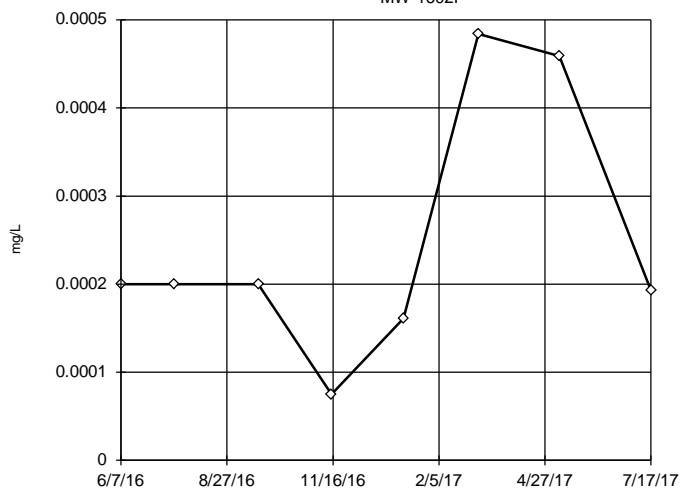
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.001783,  
low cutoff = 0.00004413,  
based on IQR multiplier of 3.

Constituent: Chromium, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1602I



n = 8

No outliers found.  
Tukey's method selected by user.

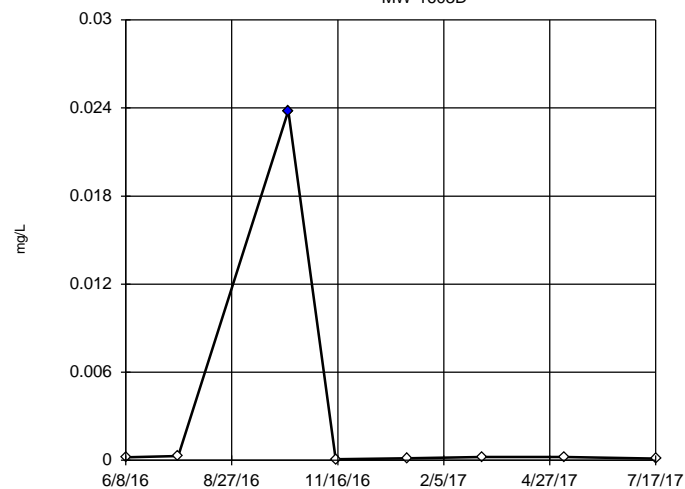
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.001539,  
low cutoff = 0.00003471,  
based on IQR multiplier of 3.

Constituent: Chromium, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1603D



n = 8

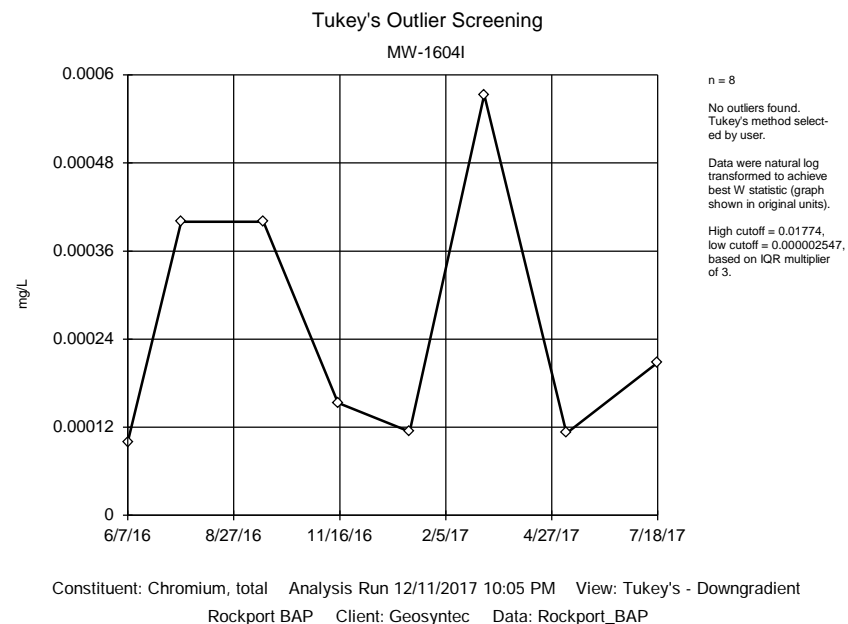
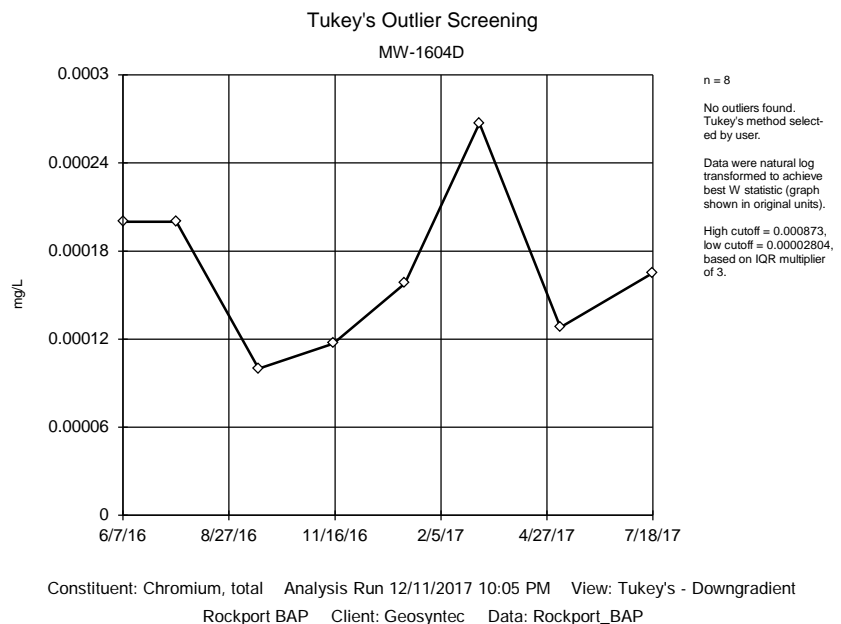
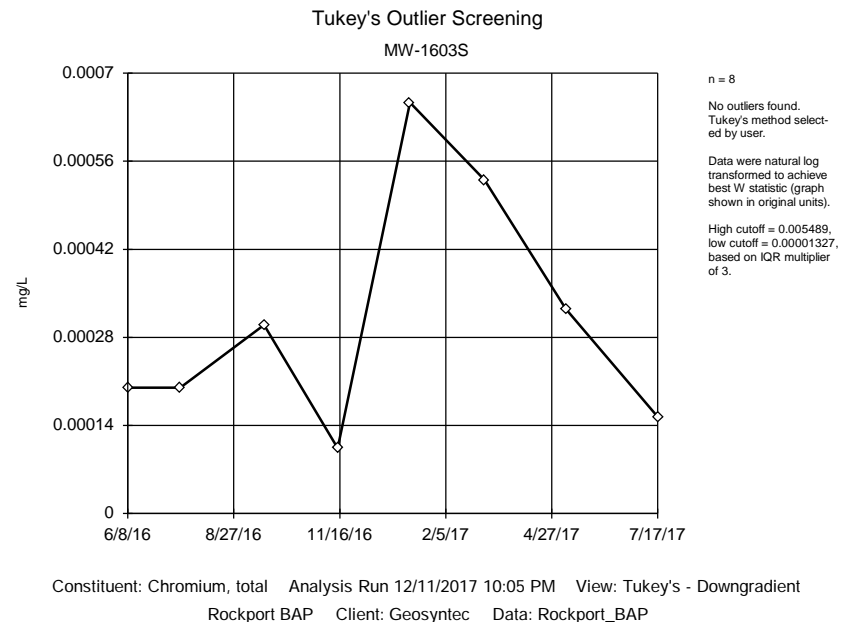
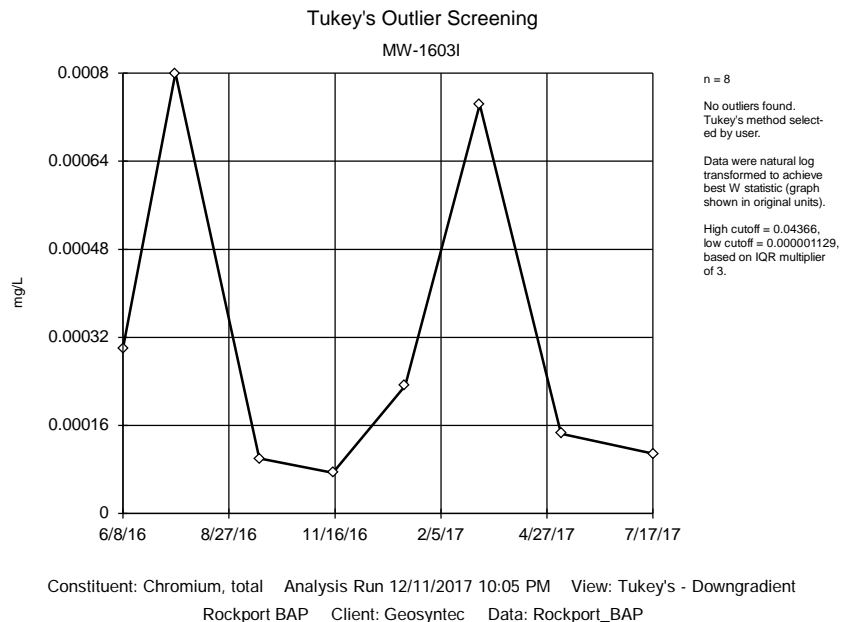
Outlier is drawn as solid.  
Tukey's method selected by user.

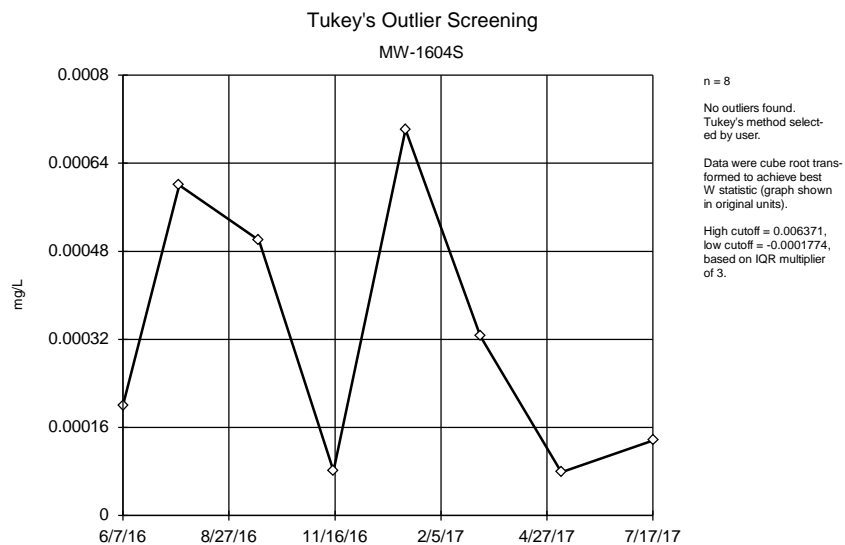
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.002515,  
low cutoff = 0.00001344,  
based on IQR multiplier of 3.

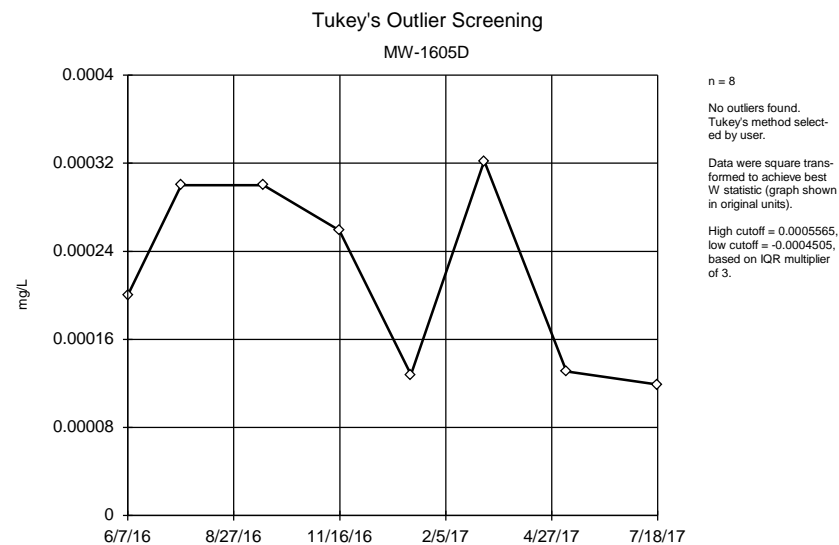
Constituent: Chromium, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



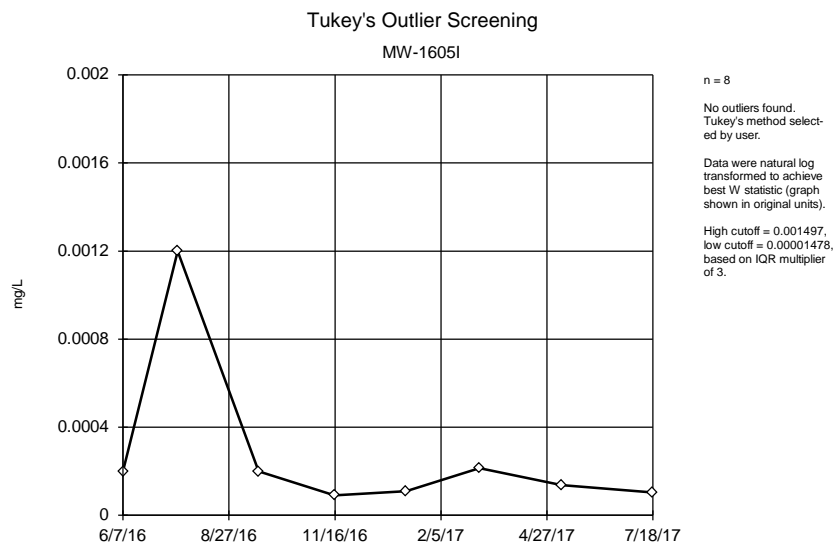




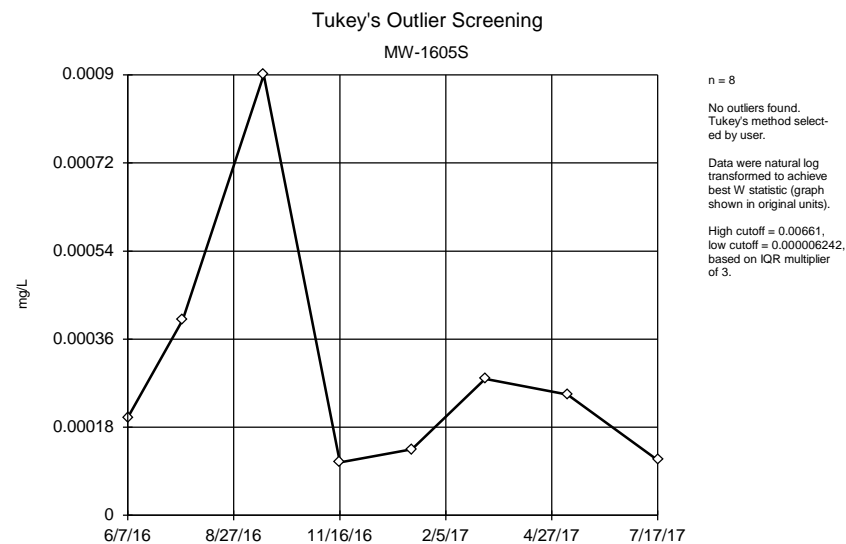
Constituent: Chromium, total    Analysis Run 12/11/2017 10:05 PM    View: Tukey's - Downgradient  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP



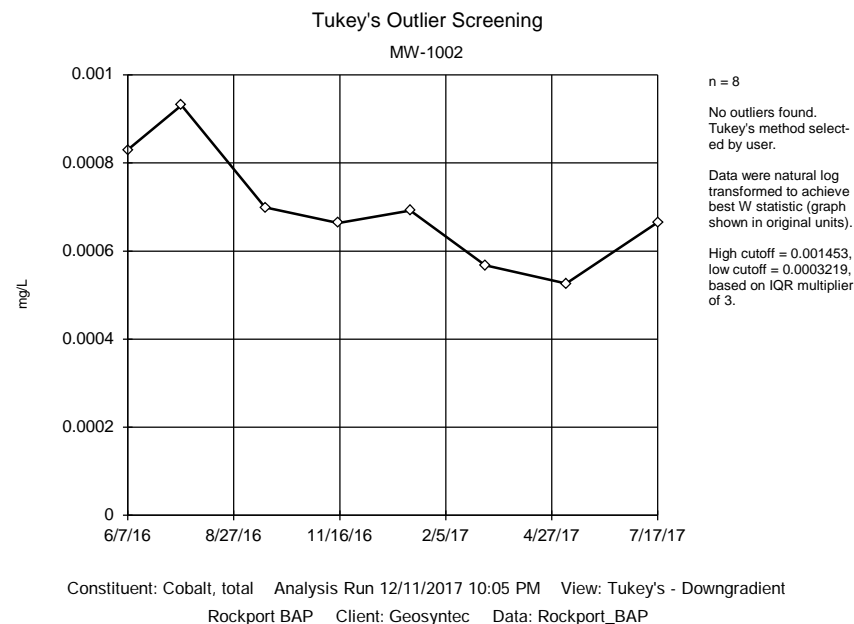
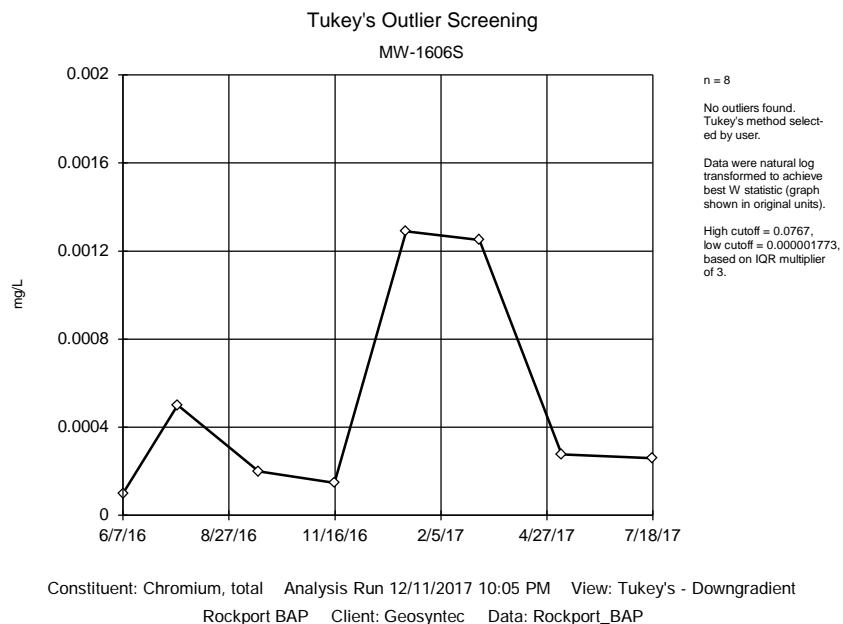
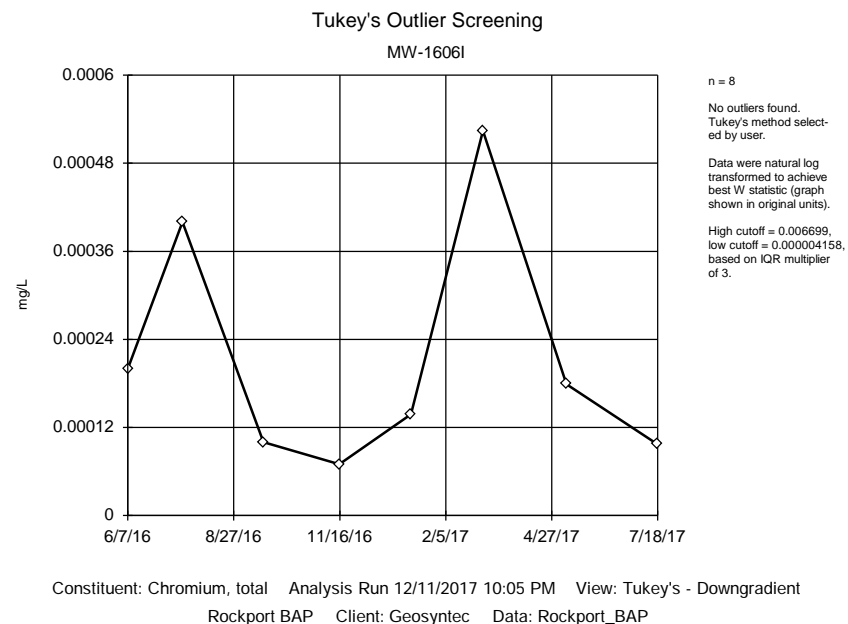
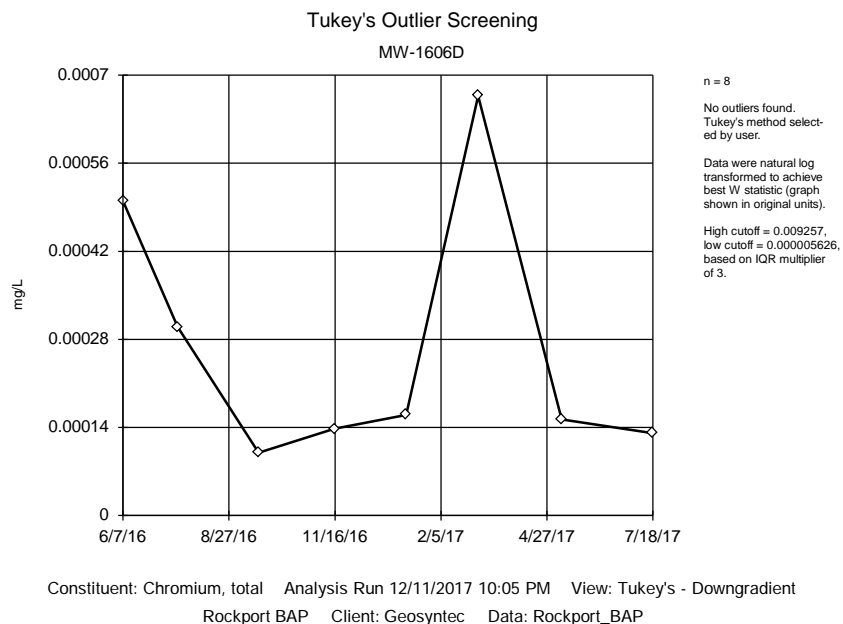
Constituent: Chromium, total    Analysis Run 12/11/2017 10:05 PM    View: Tukey's - Downgradient  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP

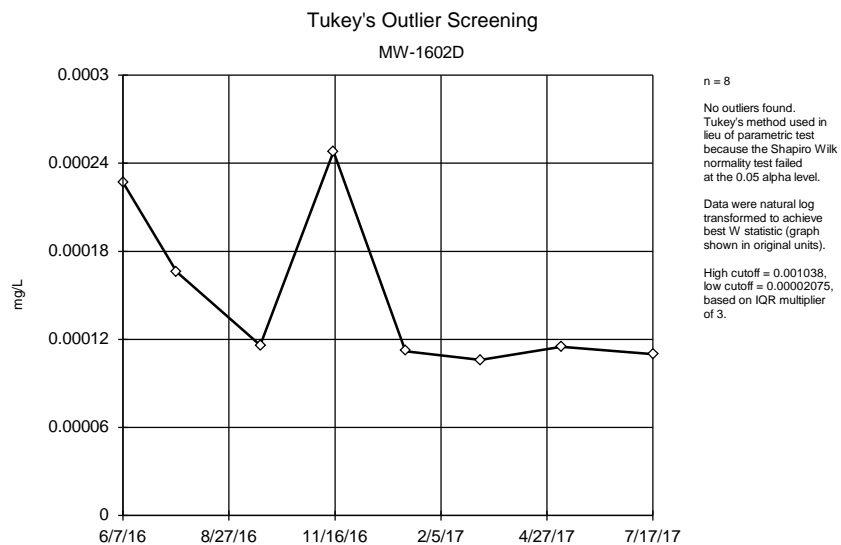


Constituent: Chromium, total    Analysis Run 12/11/2017 10:05 PM    View: Tukey's - Downgradient  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP

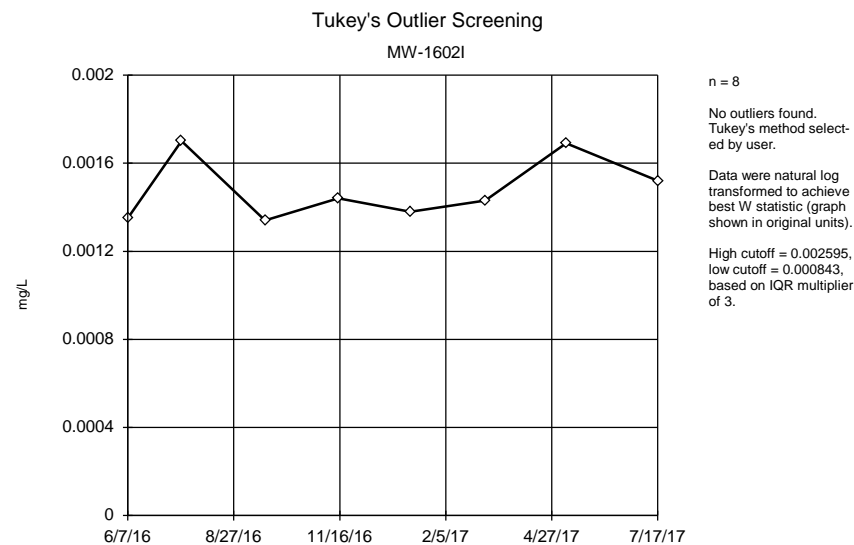


Constituent: Chromium, total    Analysis Run 12/11/2017 10:05 PM    View: Tukey's - Downgradient  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP

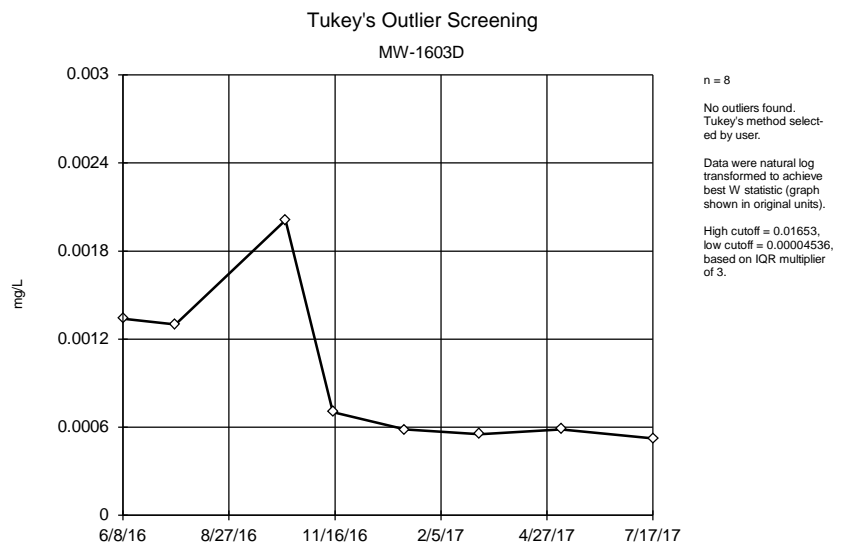




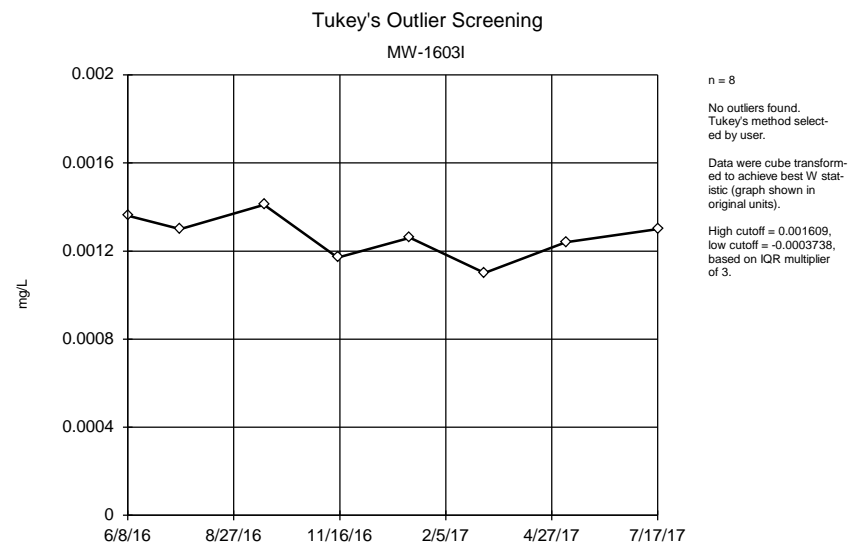
Constituent: Cobalt, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



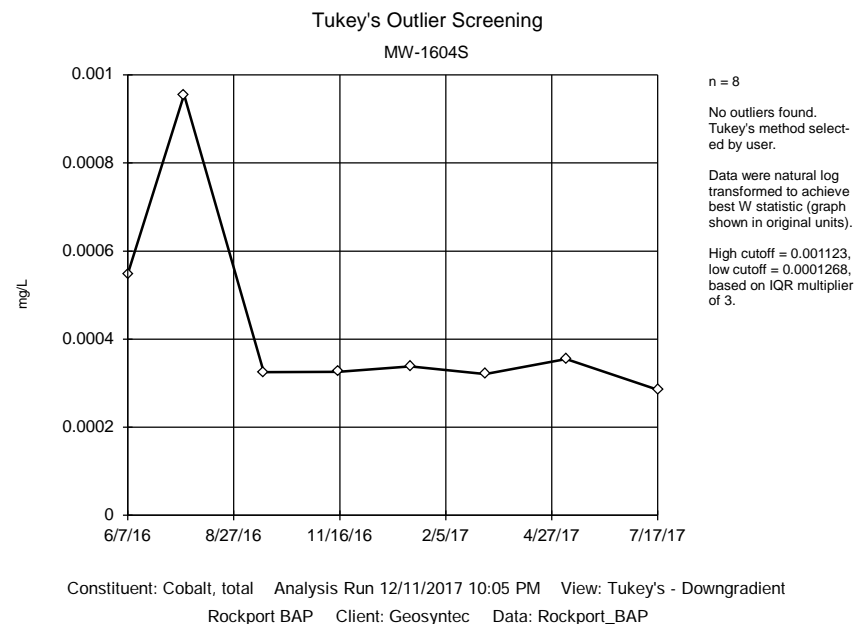
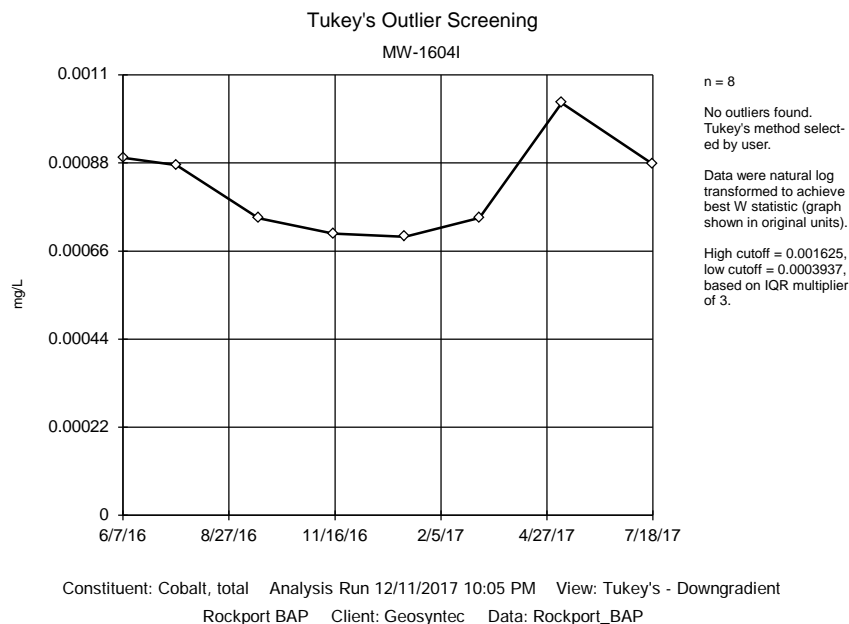
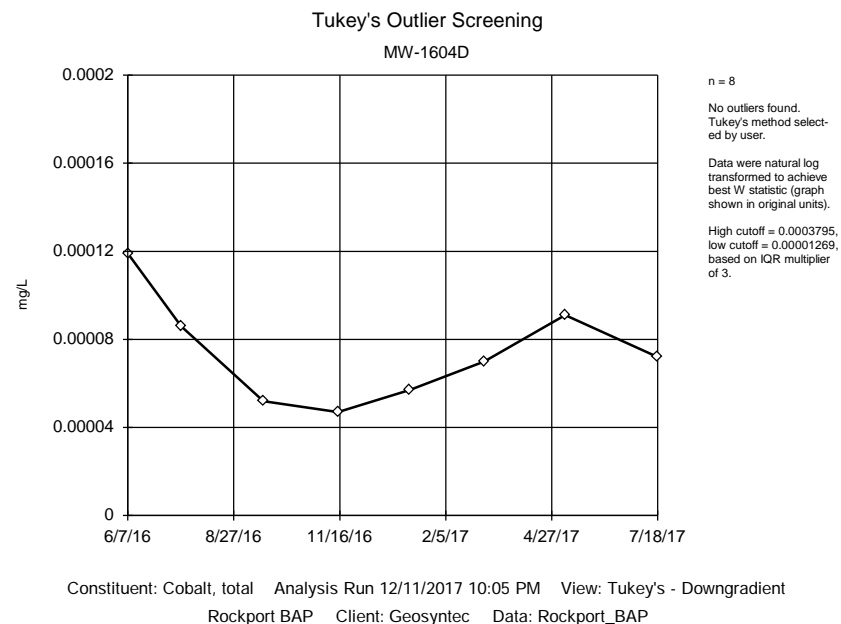
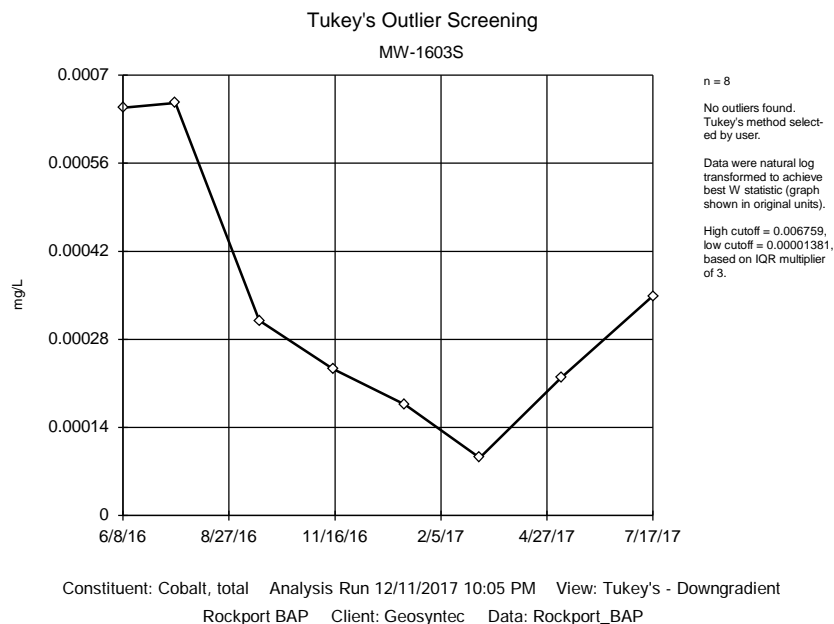
Constituent: Cobalt, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

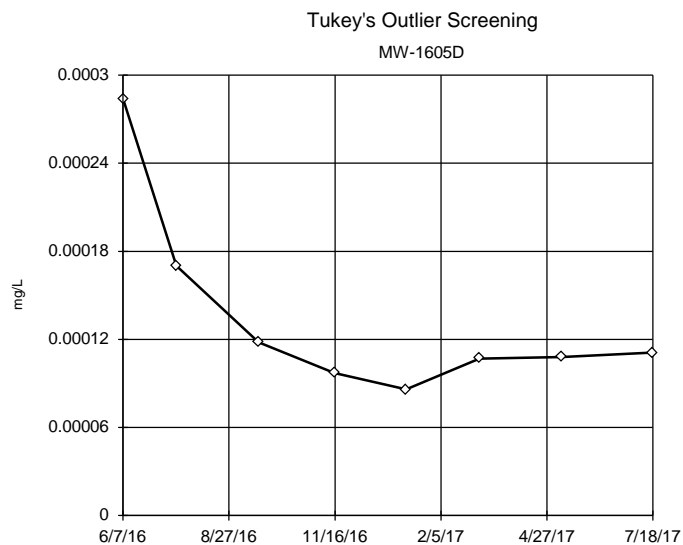


Constituent: Cobalt, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

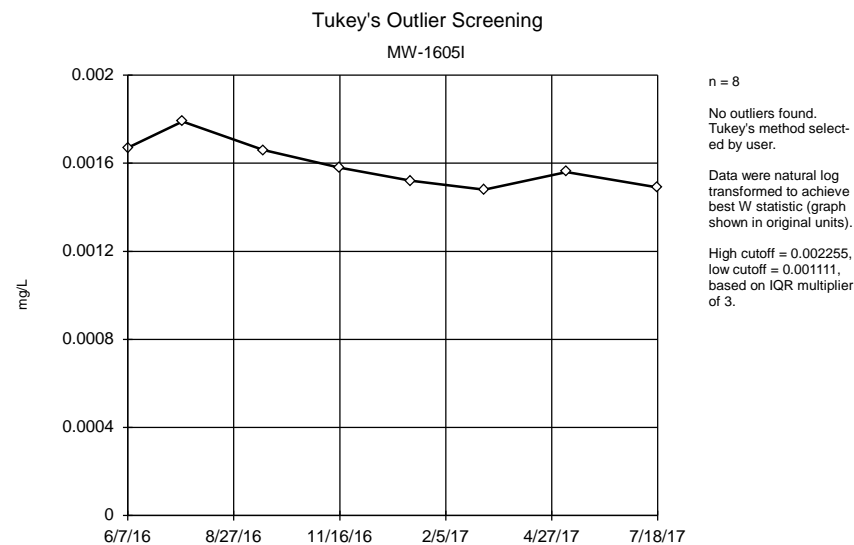


Constituent: Cobalt, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

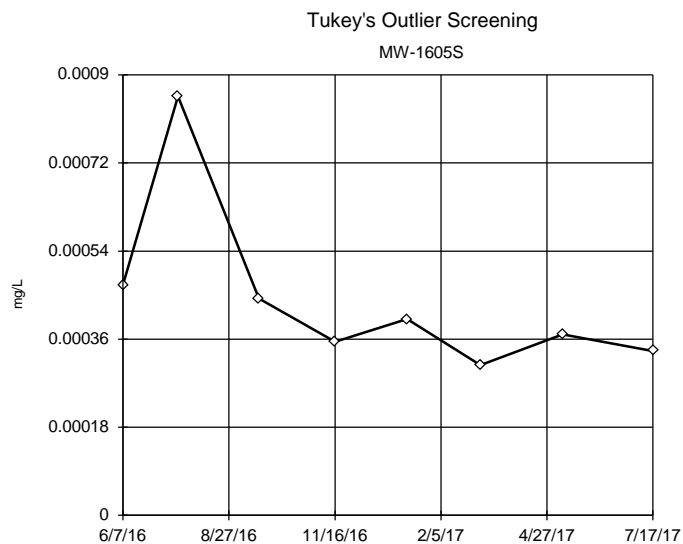




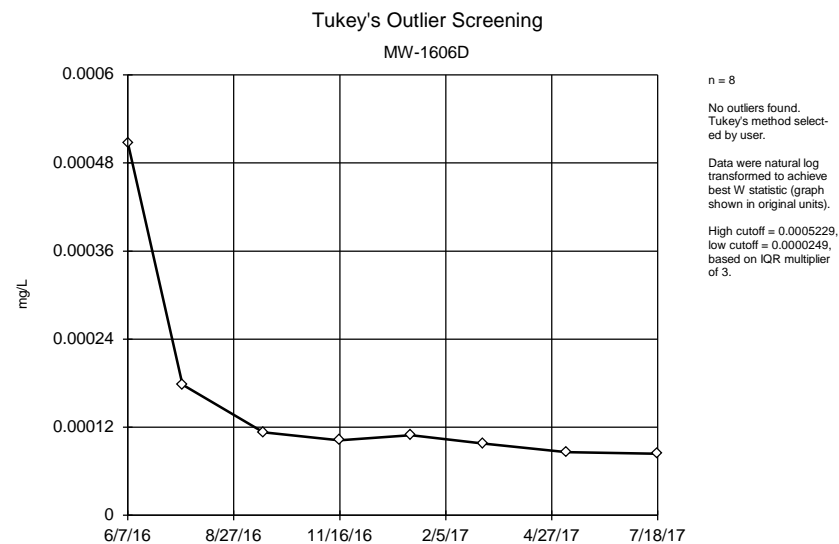
Constituent: Cobalt, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



Constituent: Cobalt, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



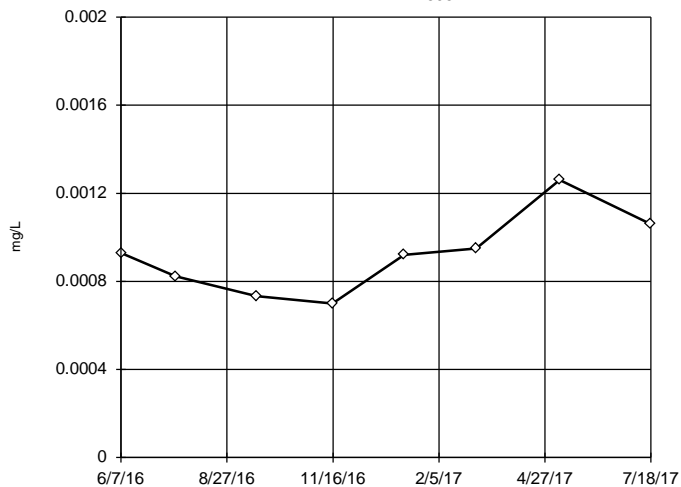
Constituent: Cobalt, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



Constituent: Cobalt, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1606I



n = 8

No outliers found.  
Tukey's method selected by user.

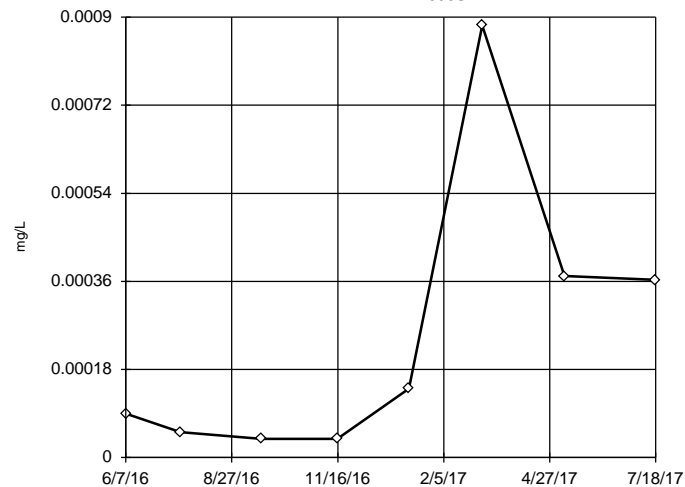
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.002164, low cutoff = 0.0003601, based on IQR multiplier of 3.

Constituent: Cobalt, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1606S



n = 8

No outliers found.  
Tukey's method selected by user.

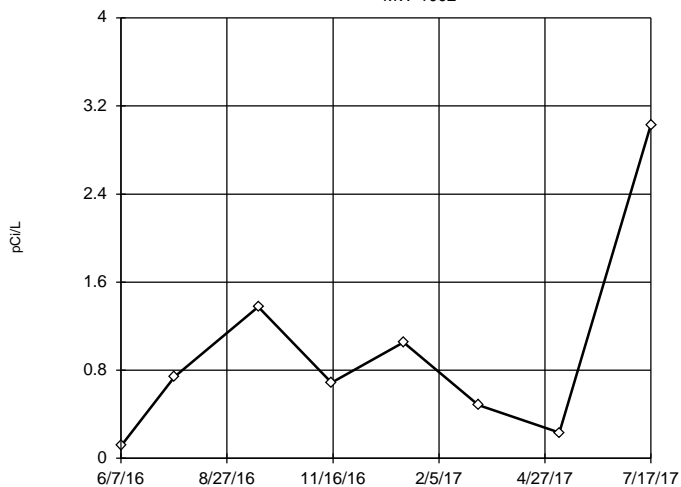
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.2065, low cutoff = 7.9e-8, based on IQR multiplier of 3.

Constituent: Cobalt, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1002



n = 8

No outliers found.  
Tukey's method selected by user.

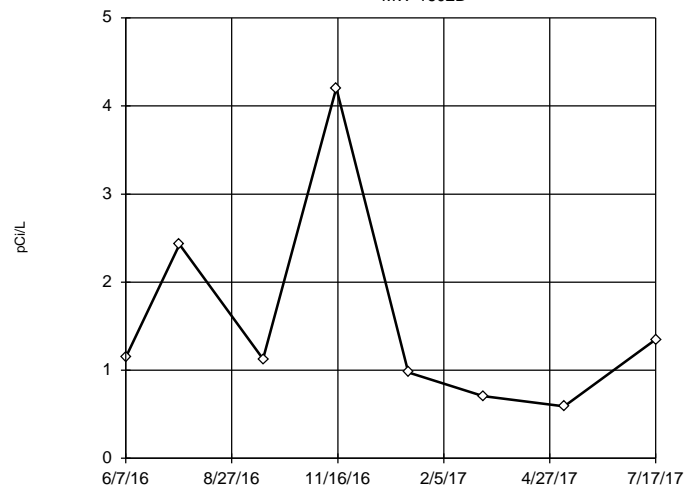
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 55.33, low cutoff = 0.007308, based on IQR multiplier of 3.

Constituent: Combined Radium 226 + 228 Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1602D



n = 8

No outliers found.  
Tukey's method selected by user.

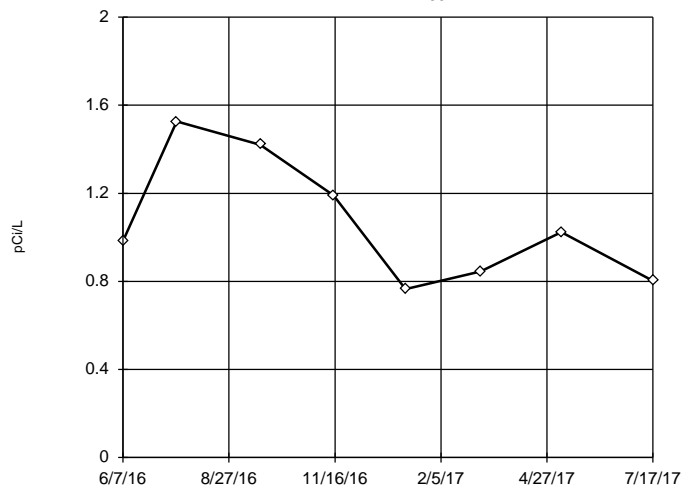
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 18.83, low cutoff = 0.07977, based on IQR multiplier of 3.

Constituent: Combined Radium 226 + 228 Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1602I



n = 8

No outliers found.  
Tukey's method selected by user.

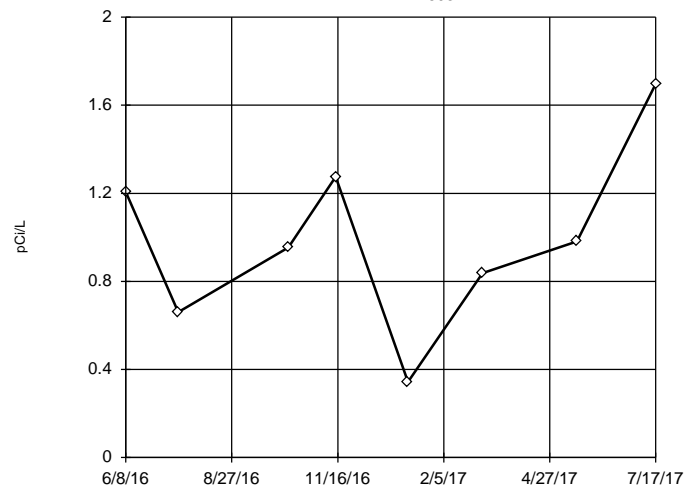
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 5.122, low cutoff = 0.2091, based on IQR multiplier of 3.

Constituent: Combined Radium 226 + 228 Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradi  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1603D



n = 8

No outliers found.  
Tukey's method selected by user.

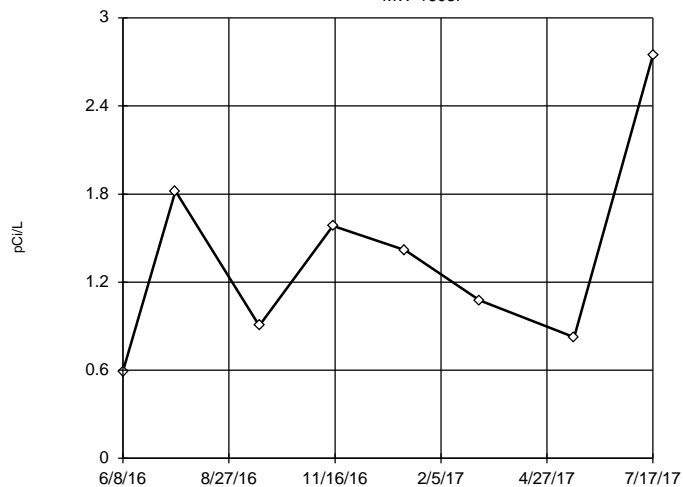
Ladder of Powers transformations did not improve normality; analysis run on raw data.

High cutoff = 2.715, low cutoff = -0.7255, based on IQR multiplier of 3.

Constituent: Combined Radium 226 + 228 Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradi  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1603I



n = 8

No outliers found.  
Tukey's method selected by user.

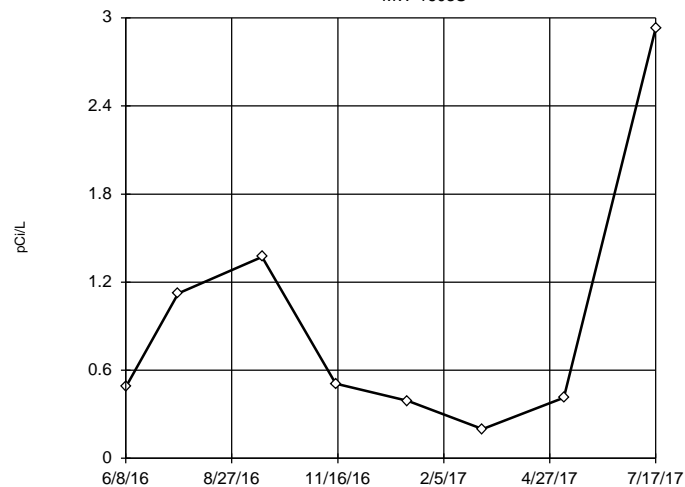
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 12.93, low cutoff = 0.1134, based on IQR multiplier of 3.

Constituent: Combined Radium 226 + 228 Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradi  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1603S



n = 8

No outliers found.  
Tukey's method selected by user.

Data were natural log transformed to achieve best W statistic (graph shown in original units).

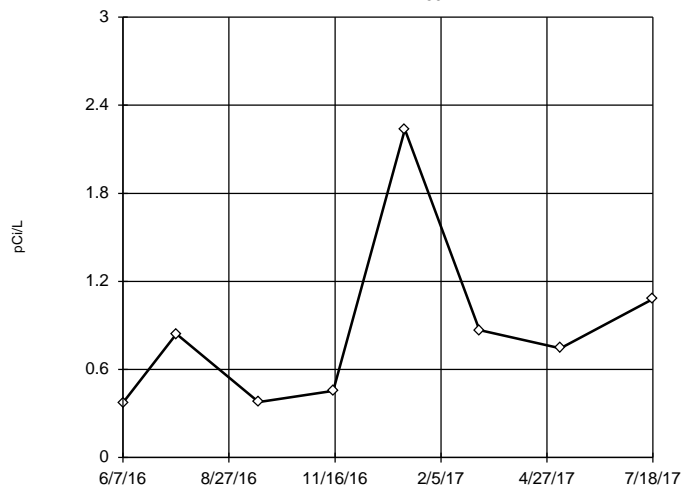
High cutoff = 36.56, low cutoff = 0.01366, based on IQR multiplier of 3.

Constituent: Combined Radium 226 + 228 Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradi  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



## Tukey's Outlier Screening

MW-1604D



n = 8

No outliers found.  
Tukey's method selected by user.

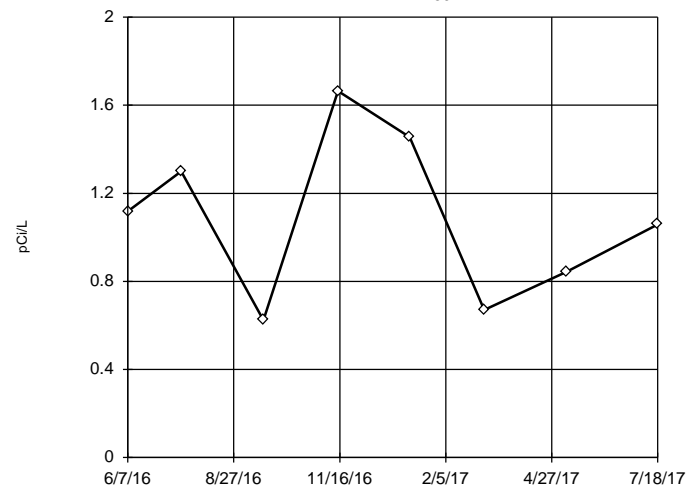
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 12.39, low cutoff = 0.03232, based on IQR multiplier of 3.

Constituent: Combined Radium 226 + 228 Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradi  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1604I



n = 8

No outliers found.  
Tukey's method selected by user.

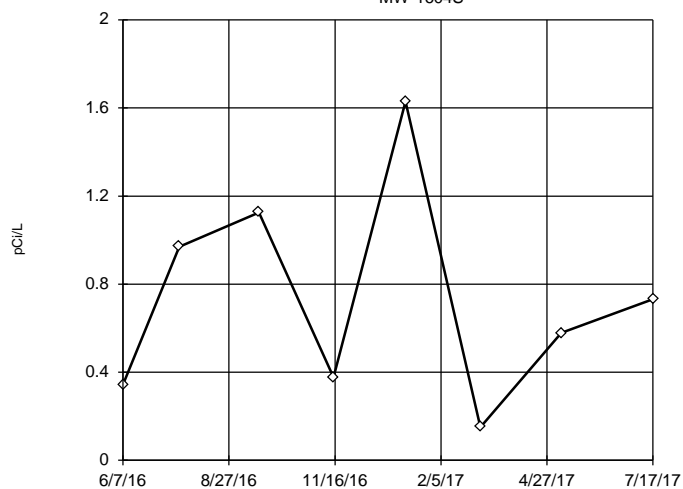
Ladder of Powers transformations did not improve normality; analysis run on raw data.

High cutoff = 3.236, low cutoff = -1.101, based on IQR multiplier of 3.

Constituent: Combined Radium 226 + 228 Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradi  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1604S



n = 8

No outliers found.  
Tukey's method selected by user.

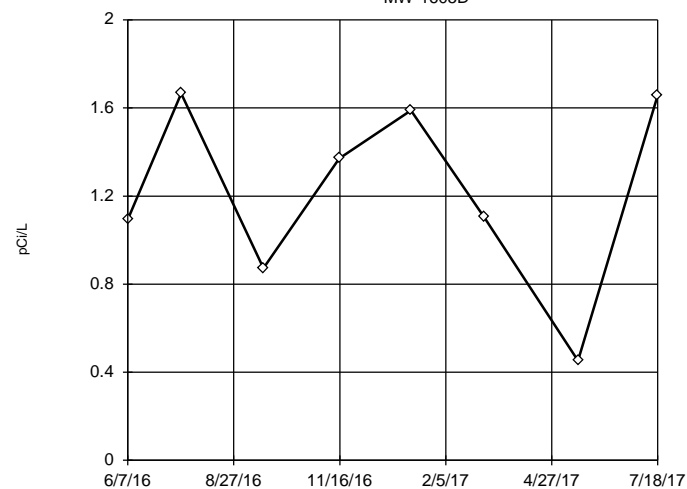
Data were cube root transformed to achieve best W statistic (graph shown in original units).

High cutoff = 7.143, low cutoff = -0.007923, based on IQR multiplier of 3.

Constituent: Combined Radium 226 + 228 Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradi  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1605D



n = 8

No outliers found.  
Tukey's method selected by user.

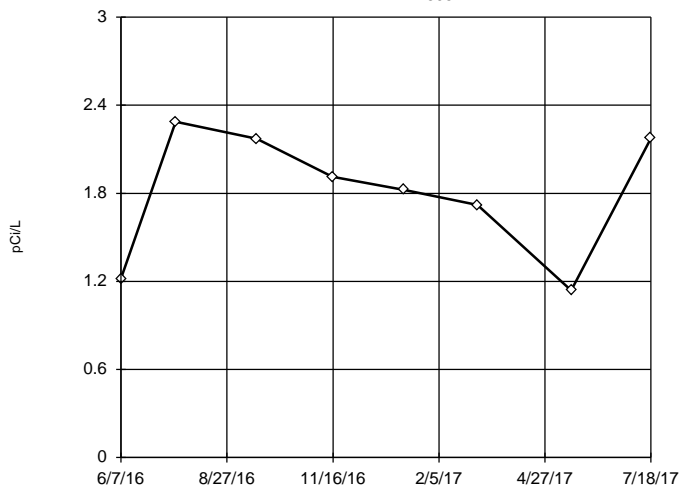
Data were square transformed to achieve best W statistic (graph shown in original units).

High cutoff = 2.757, low cutoff = -1.997, based on IQR multiplier of 3.

Constituent: Combined Radium 226 + 228 Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradi  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1605I



n = 8

No outliers found.  
Tukey's method selected by user.

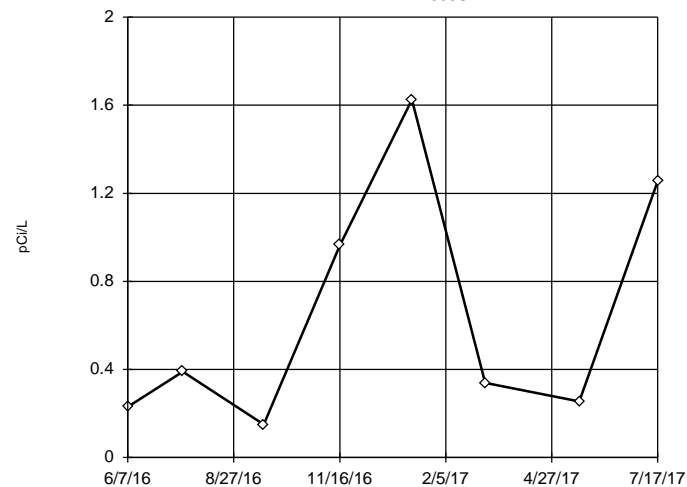
Data were cube transformed to achieve best W statistic (graph shown in original units).

High cutoff = 3.129, low cutoff = -2.567, based on IQR multiplier of 3.

Constituent: Combined Radium 226 + 228 Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradi  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1605S



n = 8

No outliers found.  
Tukey's method selected by user.

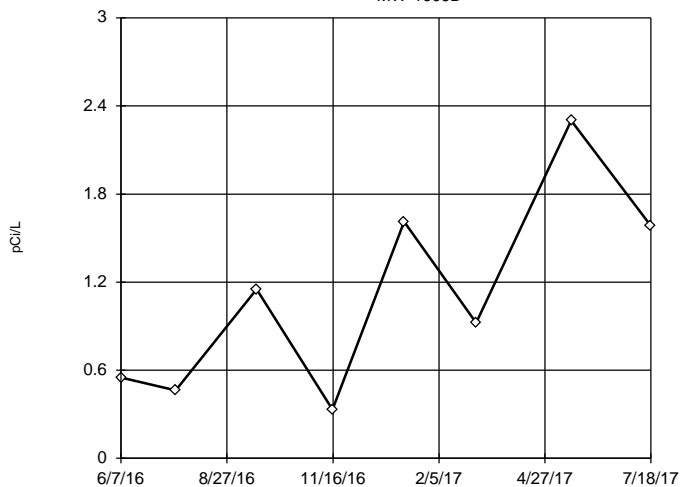
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 102.4, low cutoff = 0.002604, based on IQR multiplier of 3.

Constituent: Combined Radium 226 + 228 Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradi  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1606D



n = 8

No outliers found.  
Tukey's method selected by user.

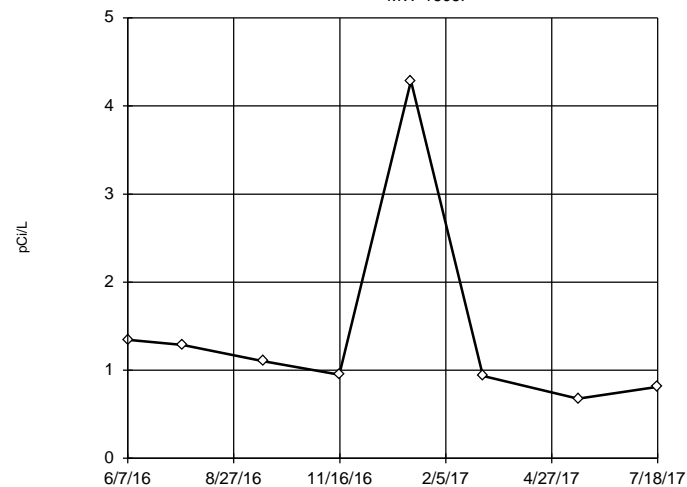
Data were cube root transformed to achieve best W statistic (graph shown in original units).

High cutoff = 11.94, low cutoff = -0.03257, based on IQR multiplier of 3.

Constituent: Combined Radium 226 + 228 Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradi  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1606I



n = 8

No outliers found.  
Tukey's method selected by user.

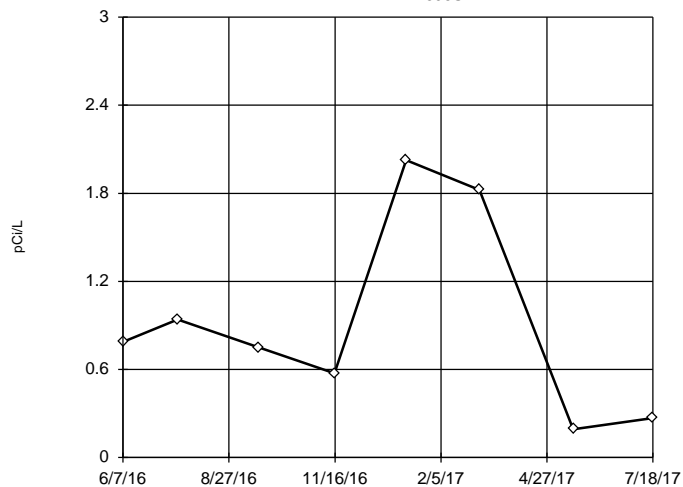
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 4.535, low cutoff = 0.2529, based on IQR multiplier of 3.

Constituent: Combined Radium 226 + 228 Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradi  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

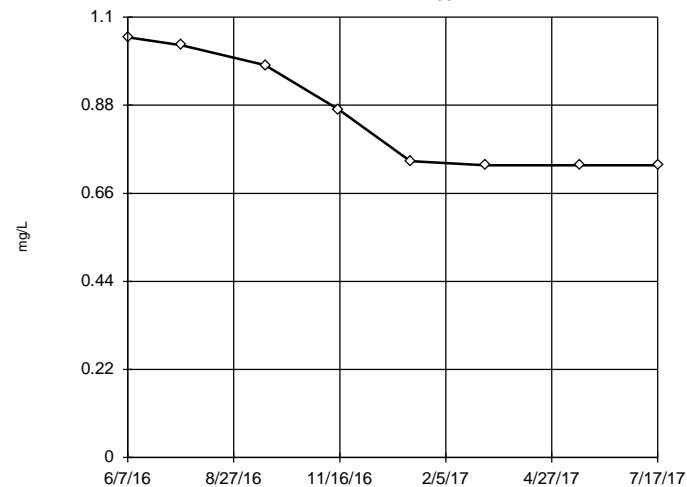
MW-1606S



Constituent: Combined Radium 226 + 228 Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

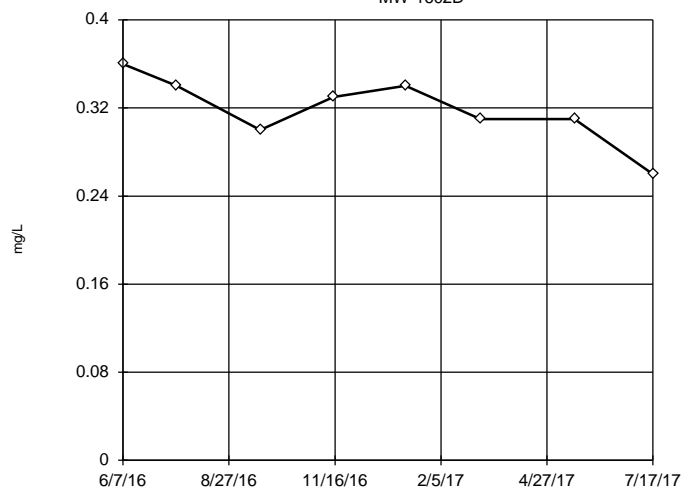
MW-1002



Constituent: Fluoride, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

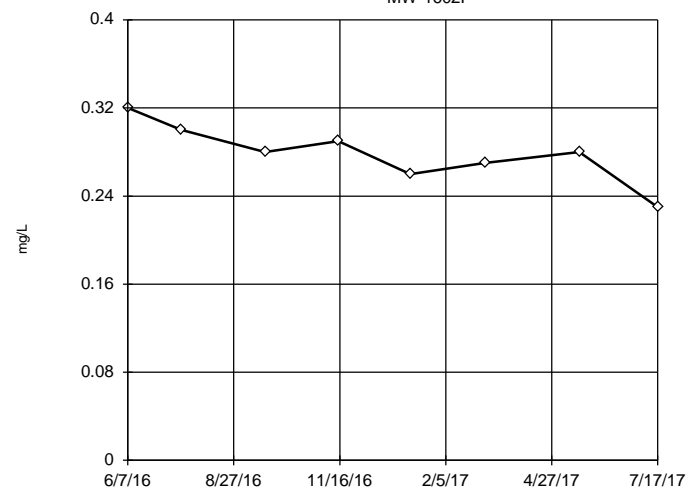
MW-1602D



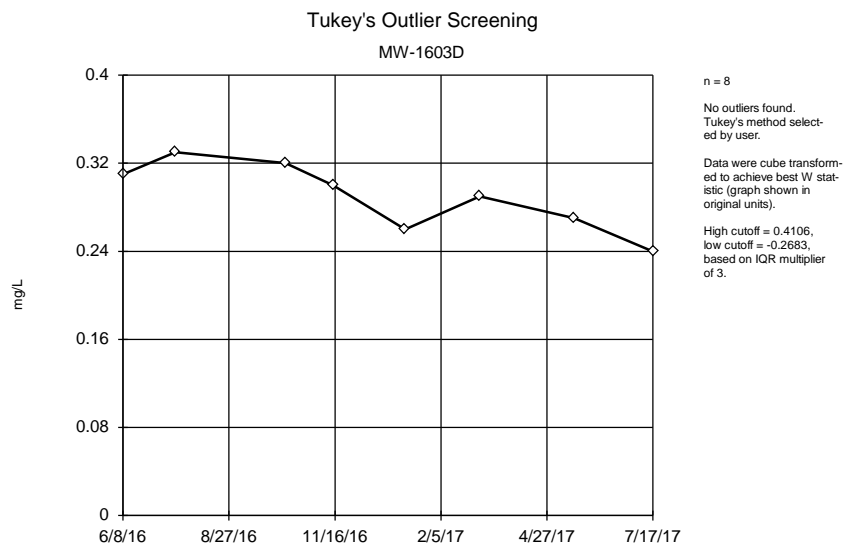
Constituent: Fluoride, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

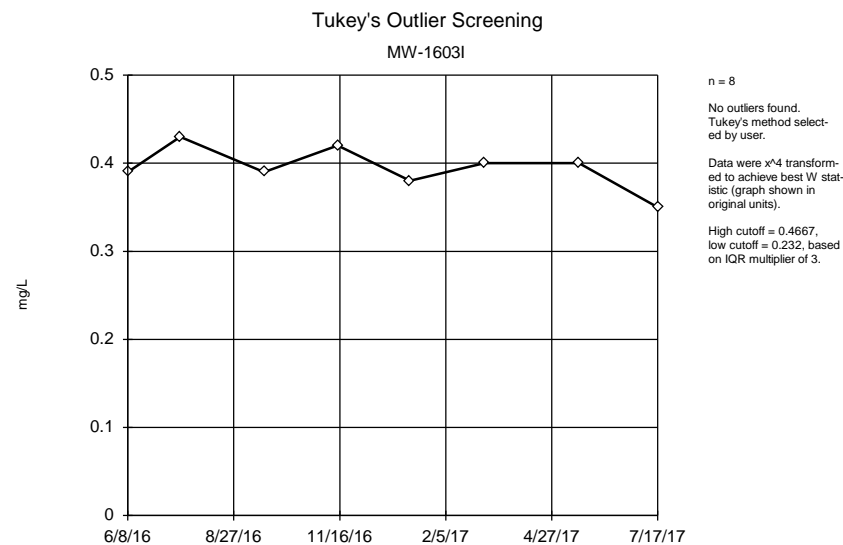
MW-1602I



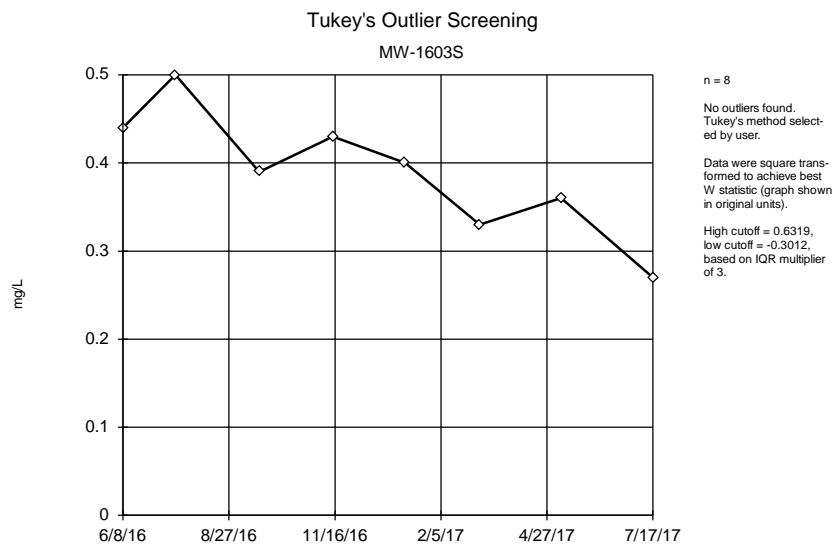
Constituent: Fluoride, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



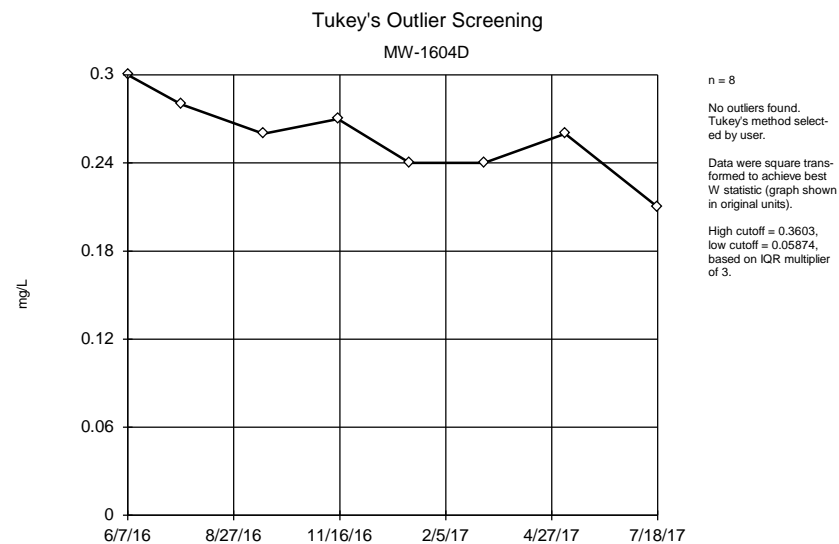
Constituent: Fluoride, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



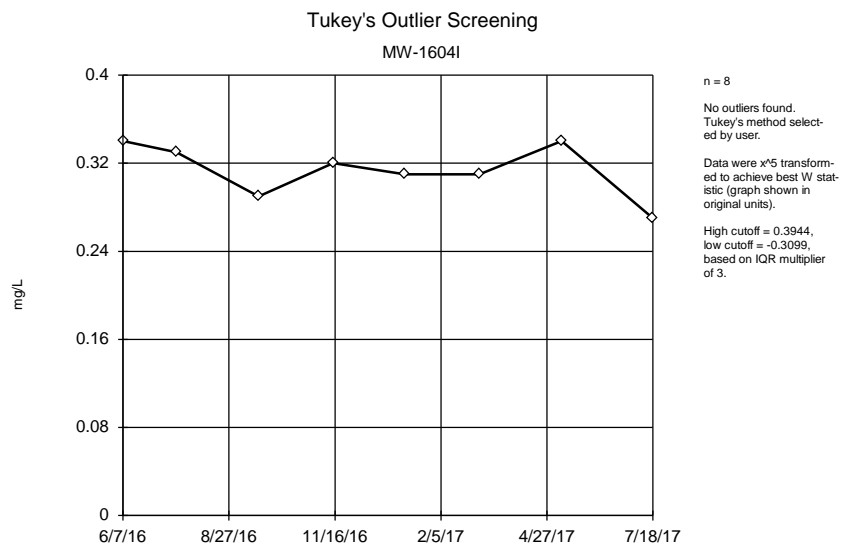
Constituent: Fluoride, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



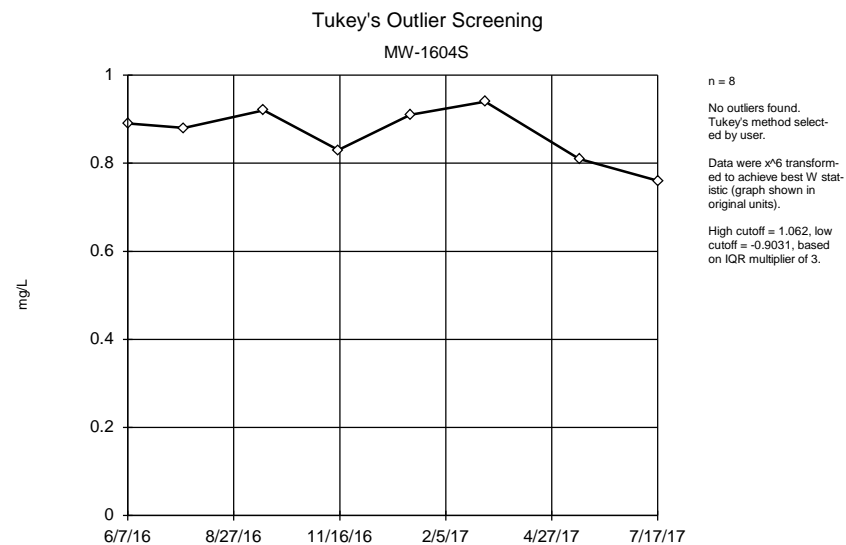
Constituent: Fluoride, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



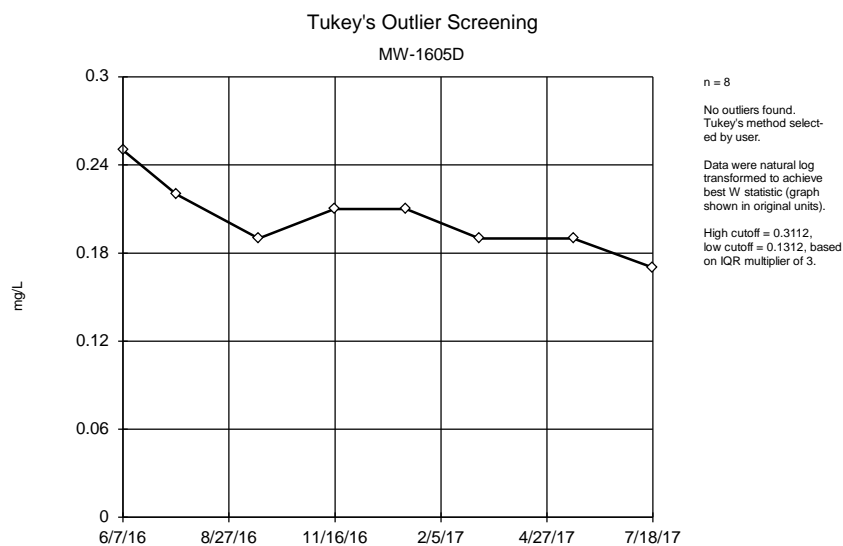
Constituent: Fluoride, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



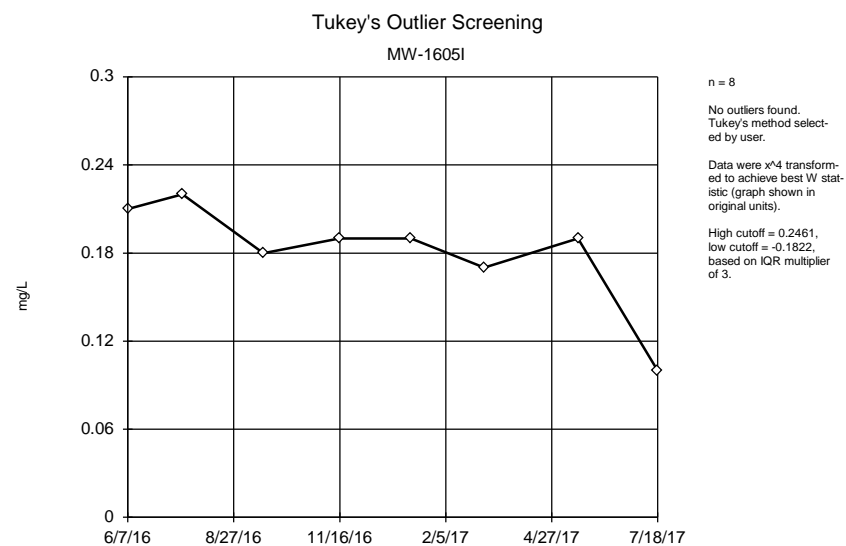
Constituent: Fluoride, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



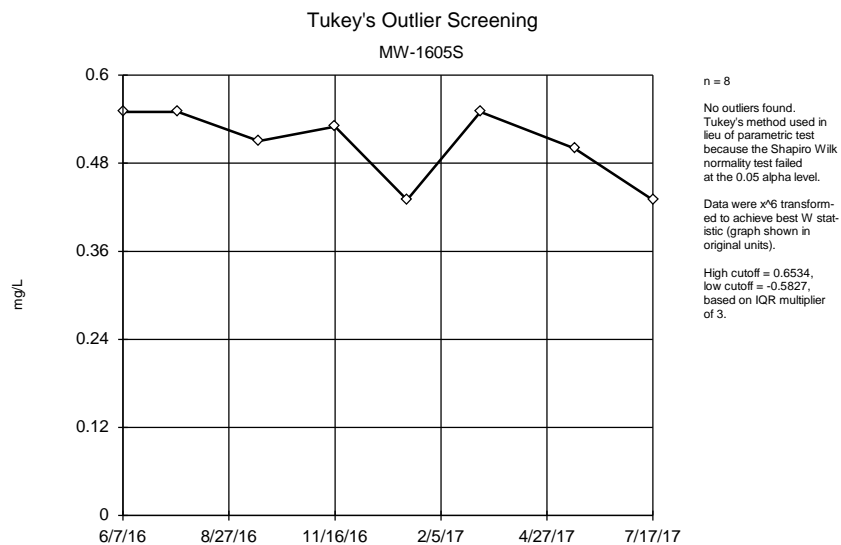
Constituent: Fluoride, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



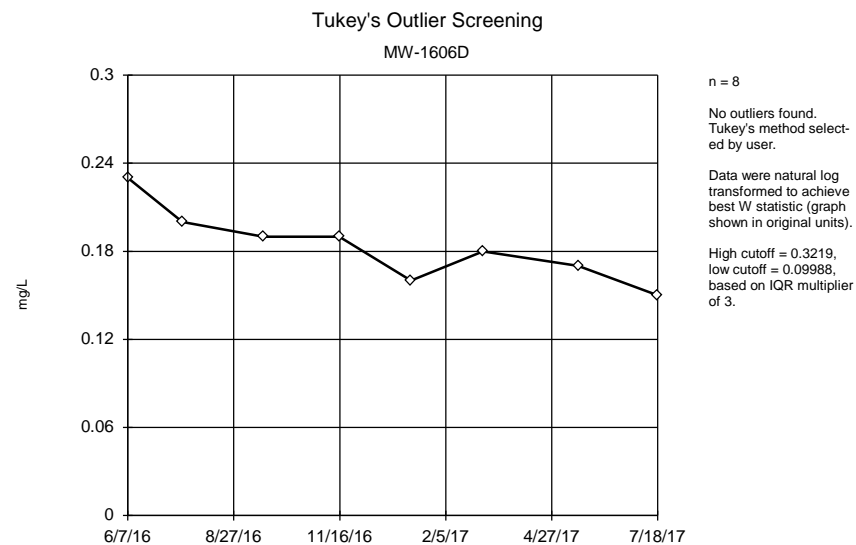
Constituent: Fluoride, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



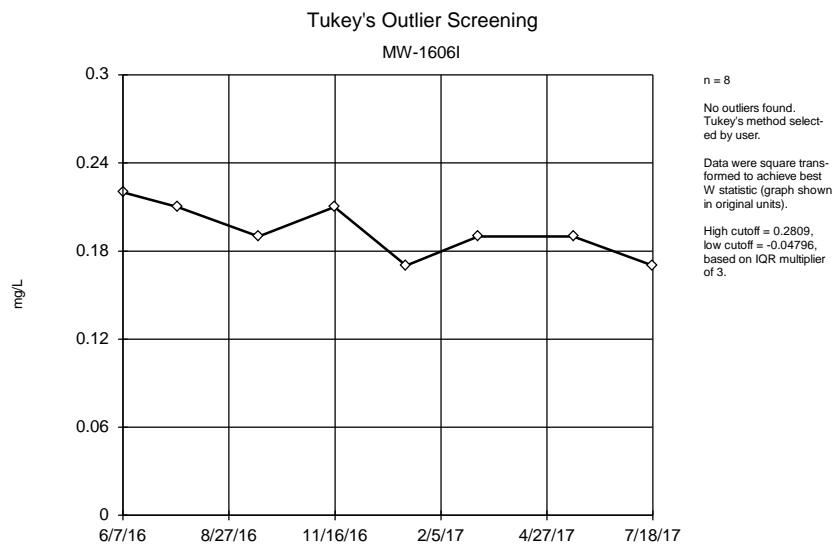
Constituent: Fluoride, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



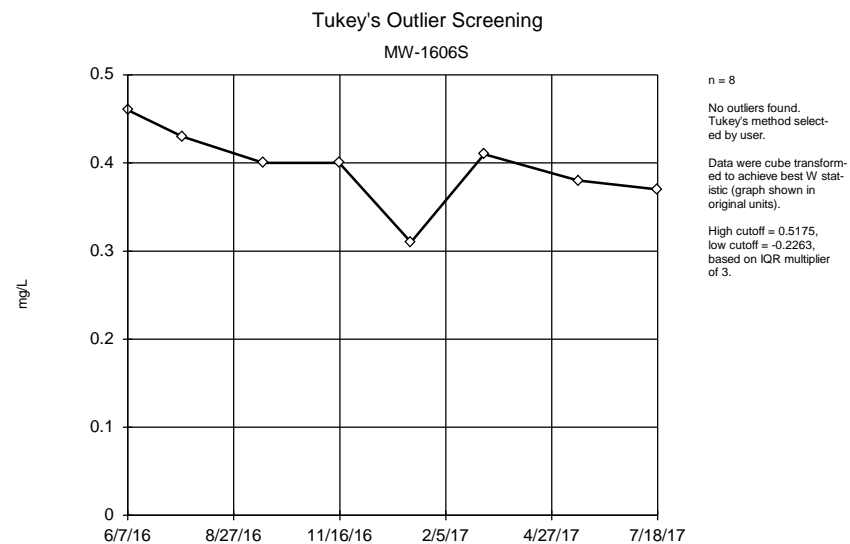
Constituent: Fluoride, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



Constituent: Fluoride, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



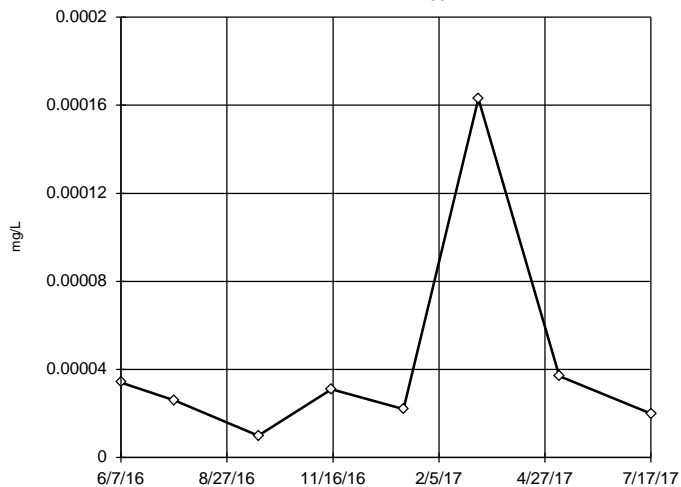
Constituent: Fluoride, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



Constituent: Fluoride, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1002



n = 8

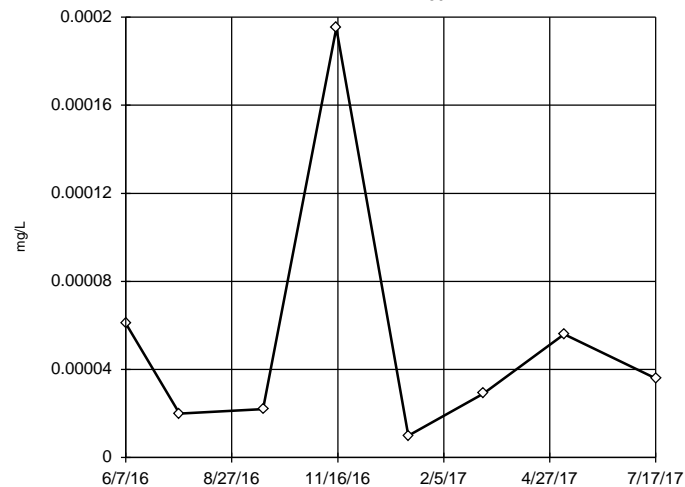
No outliers found.  
Tukey's method selected by user.

Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.0001715,  
low cutoff = 0.000004339,  
based on IQR multiplier of 3.Constituent: Lead, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1602D



n = 8

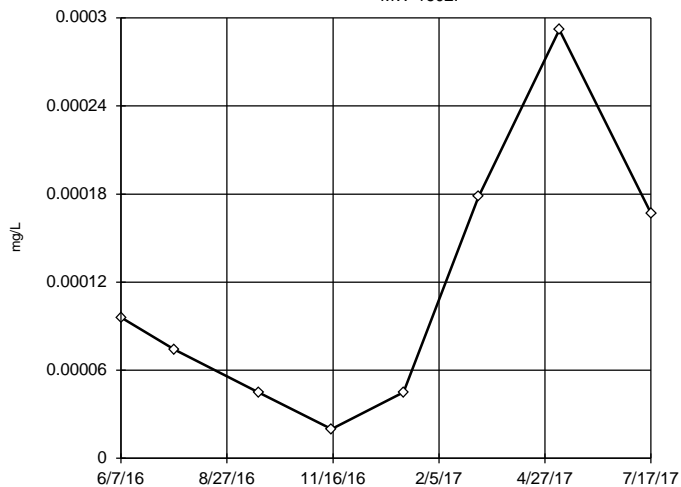
No outliers found.  
Tukey's method selected by user.

Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.001264,  
low cutoff = 9.7e-7, based  
on IQR multiplier of 3.Constituent: Lead, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1602I



n = 8

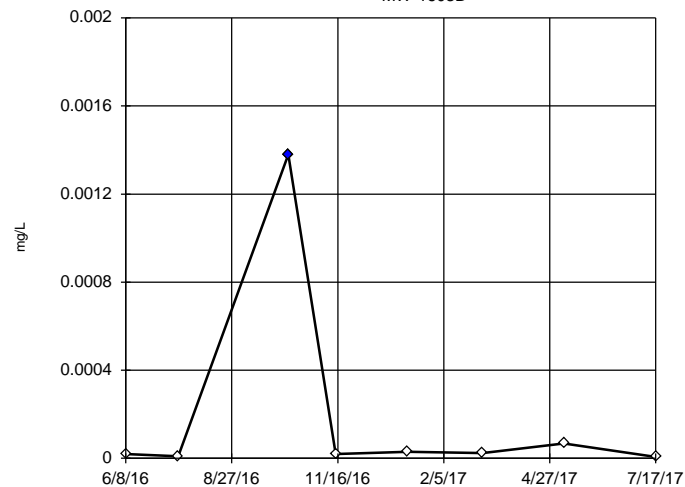
No outliers found.  
Tukey's method selected by user.

Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.009697,  
low cutoff = 8.0e-7, based  
on IQR multiplier of 3.Constituent: Lead, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1603D

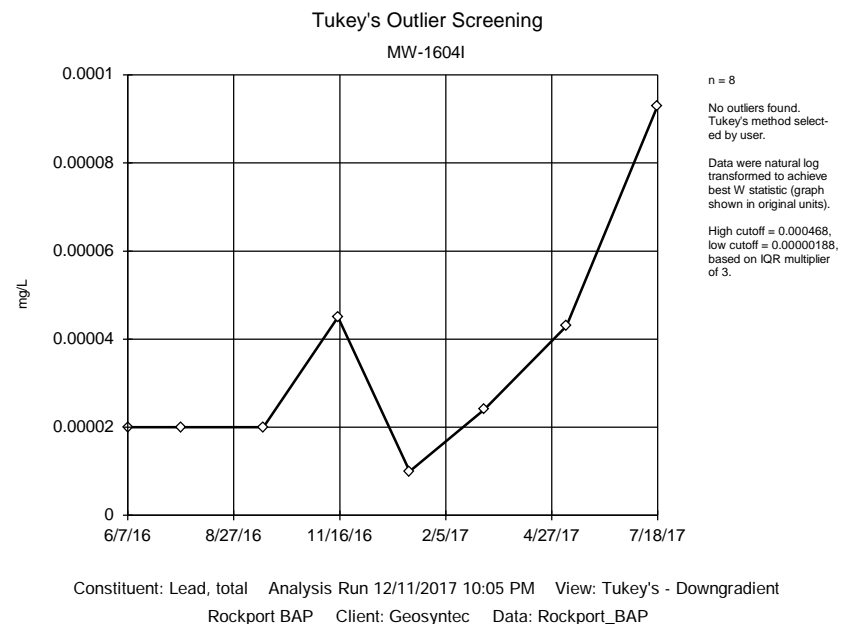
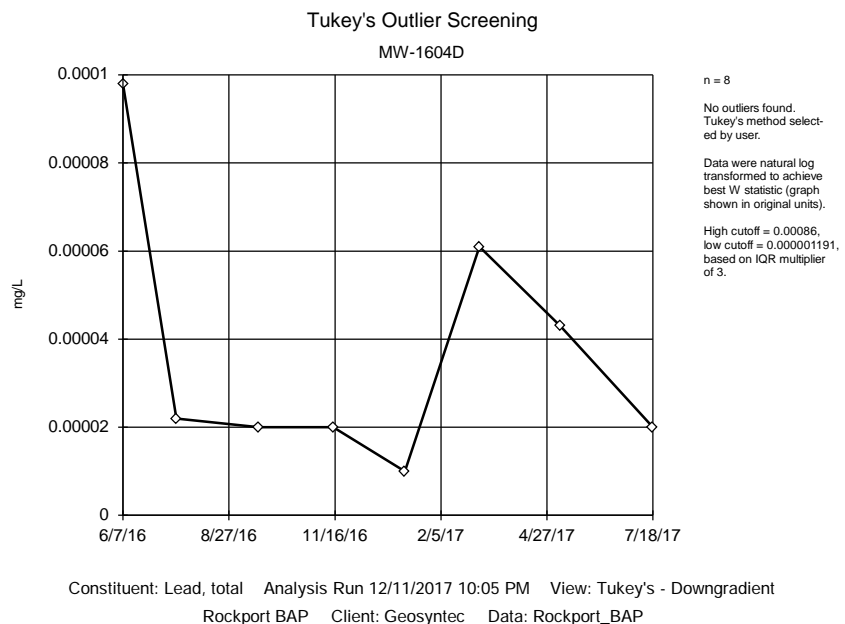
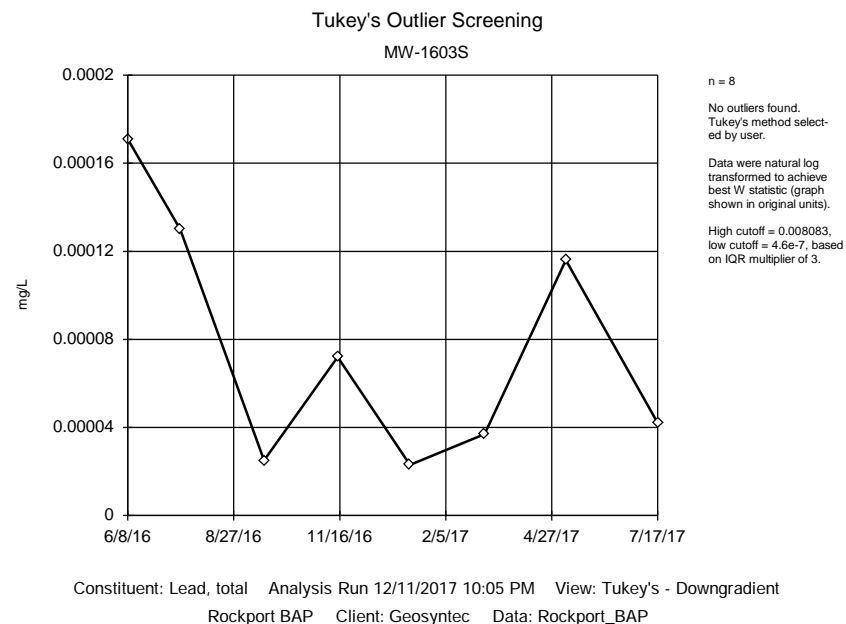
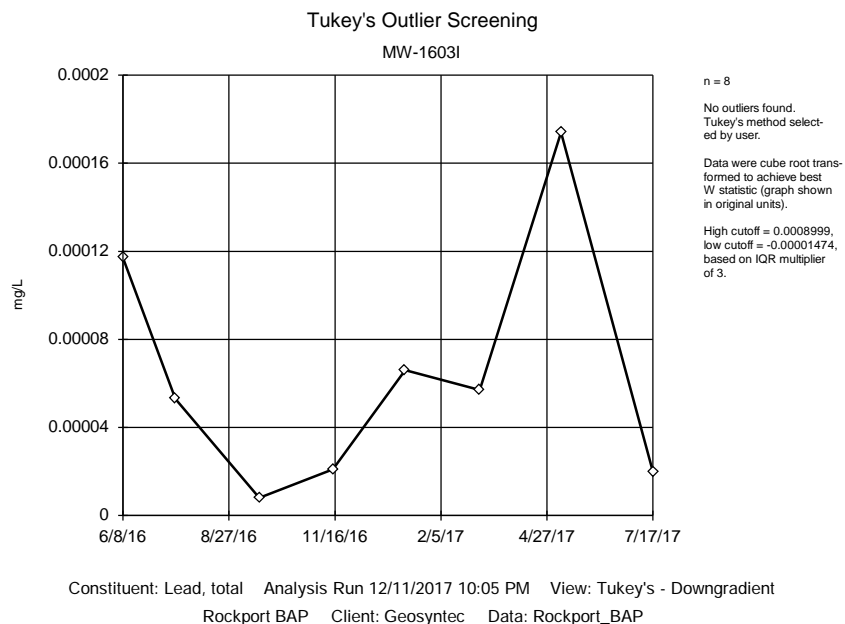


n = 8

Outlier is drawn as solid.  
Tukey's method selected by user.

Data were natural log transformed to achieve best W statistic (graph shown in original units).

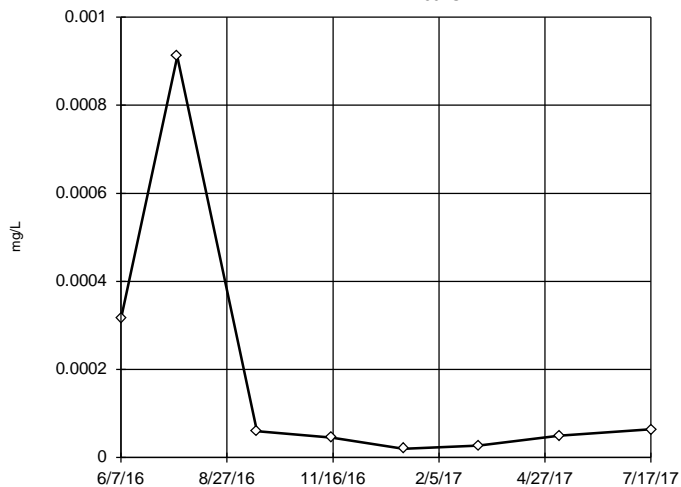
High cutoff = 0.001375,  
low cutoff = 4.6e-7, based  
on IQR multiplier of 3.Constituent: Lead, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP





## Tukey's Outlier Screening

MW-1604S



n = 8

No outliers found.  
Tukey's method selected by user.

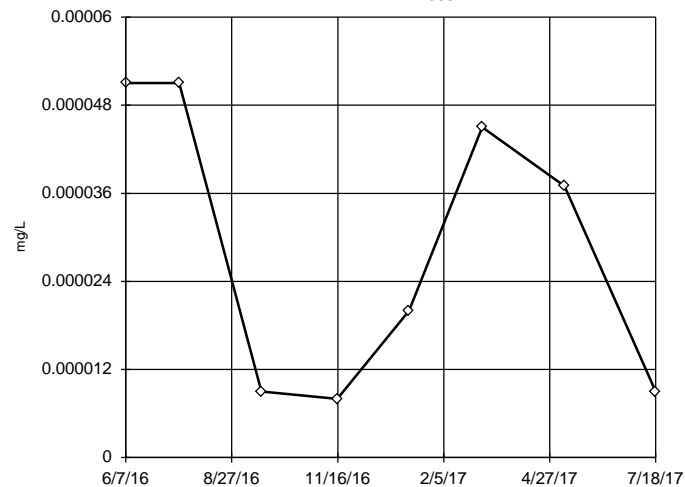
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.009597,  
low cutoff = 5.2e-7, based on IQR multiplier of 3.

Constituent: Lead, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1605D



n = 8

No outliers found.  
Tukey's method selected by user.

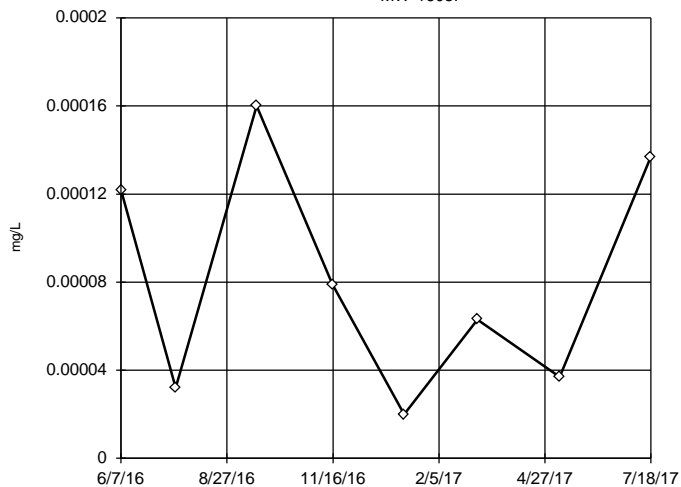
Ladder of Powers transformations did not improve normality; analysis run on raw data.

High cutoff = 0.000165,  
low cutoff = -0.000108, based on IQR multiplier of 3.

Constituent: Lead, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1605I



n = 8

No outliers found.  
Tukey's method selected by user.

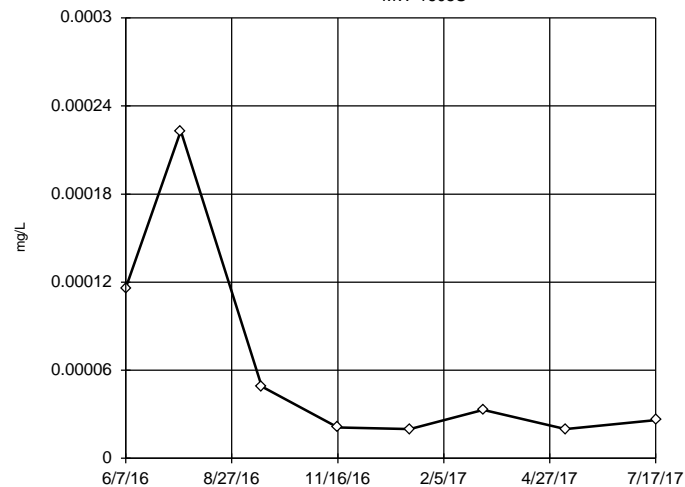
Data were cube root transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.001147,  
low cutoff = -0.00001005, based on IQR multiplier of 3.

Constituent: Lead, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1605S



n = 8

No outliers found.  
Tukey's method selected by user.

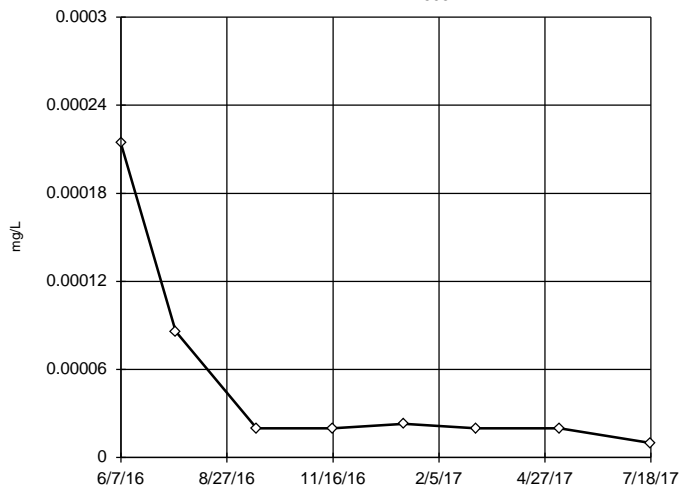
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.003753,  
low cutoff = 4.1e-7, based on IQR multiplier of 3.

Constituent: Lead, total Analysis Run 12/11/2017 10:05 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1606D



n = 8

No outliers found.  
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.

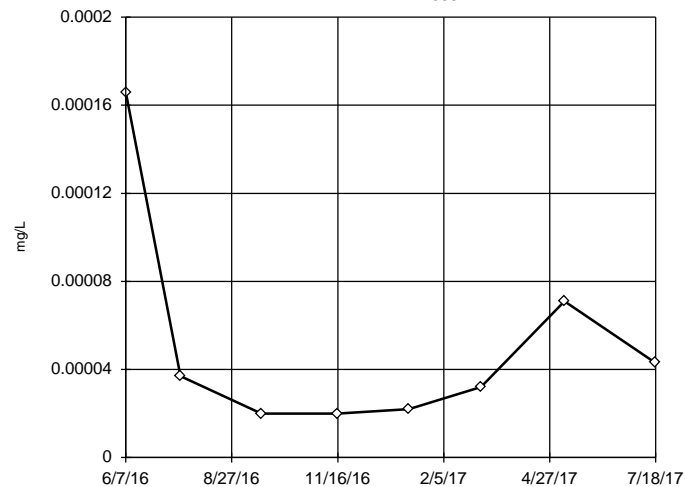
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.0004891,  
low cutoff = 0.00001819,  
based on IQR multiplier of 3.

Constituent: Lead, total Analysis Run 12/11/2017 10:06 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1606I



n = 8

No outliers found.  
Tukey's method selected by user.

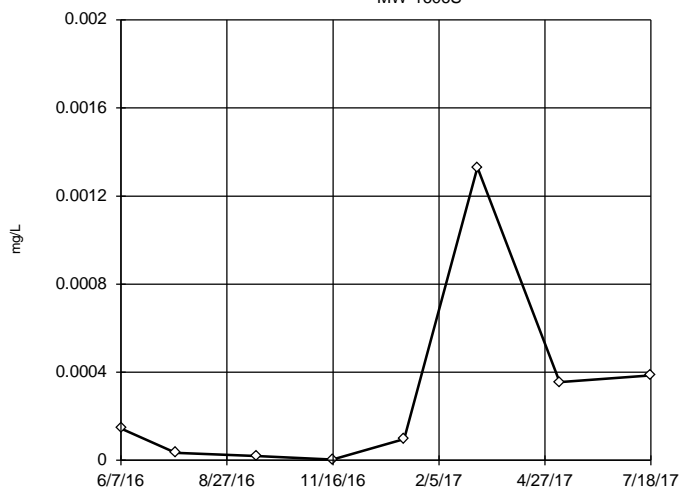
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.00101,  
low cutoff = 0.00001148,  
based on IQR multiplier of 3.

Constituent: Lead, total Analysis Run 12/11/2017 10:06 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1606S



n = 8

No outliers found.  
Tukey's method selected by user.

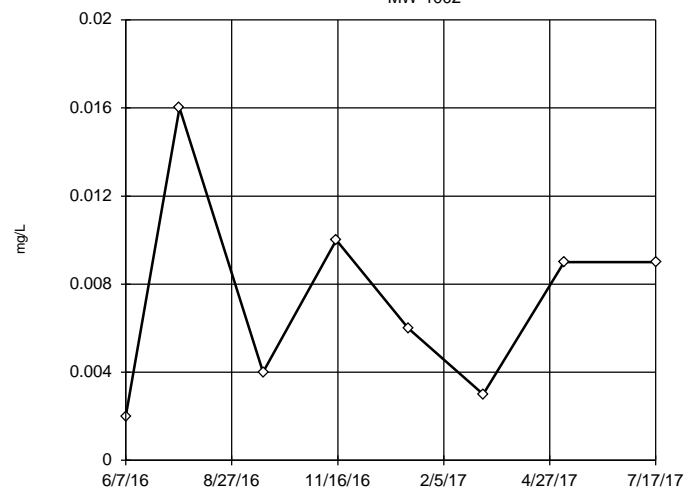
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 1.059,  
low cutoff = 9.1e-9,  
based on IQR multiplier of 3.

Constituent: Lead, total Analysis Run 12/11/2017 10:06 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1002



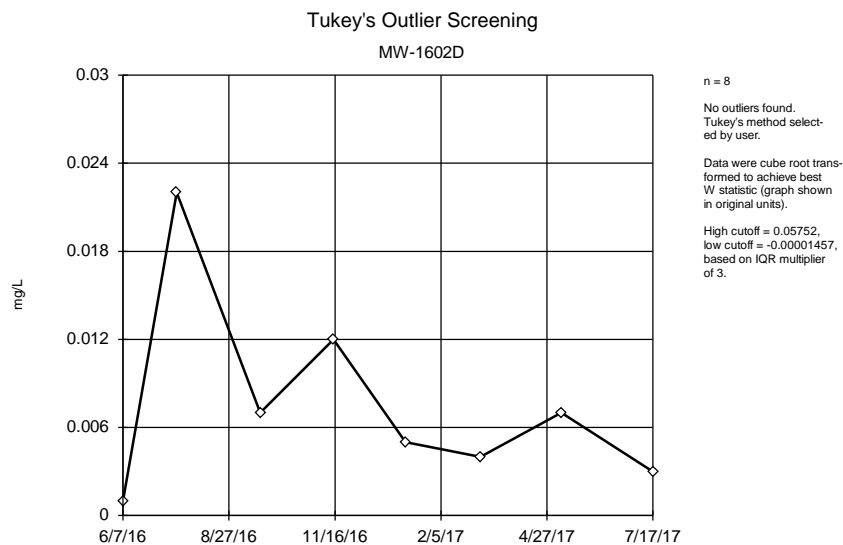
n = 8

No outliers found.  
Tukey's method selected by user.

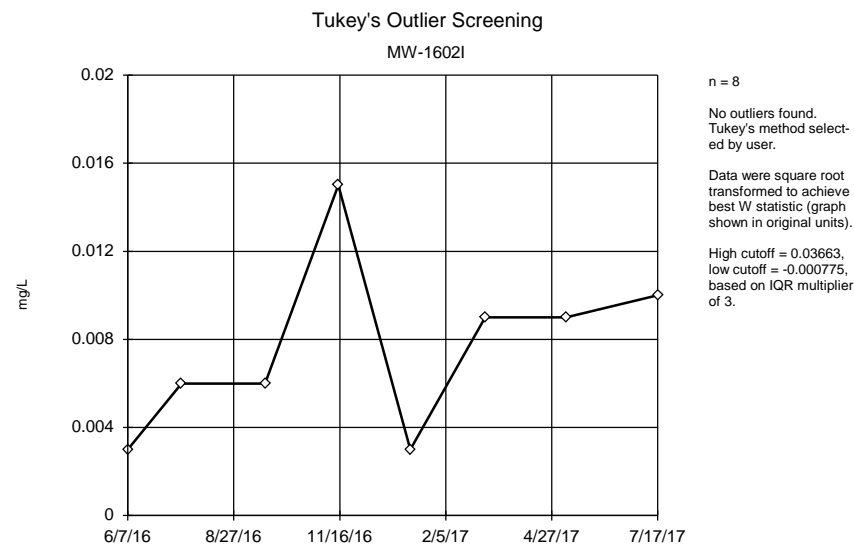
Data were cube root transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.06045,  
low cutoff = -0.00002502,  
based on IQR multiplier of 3.

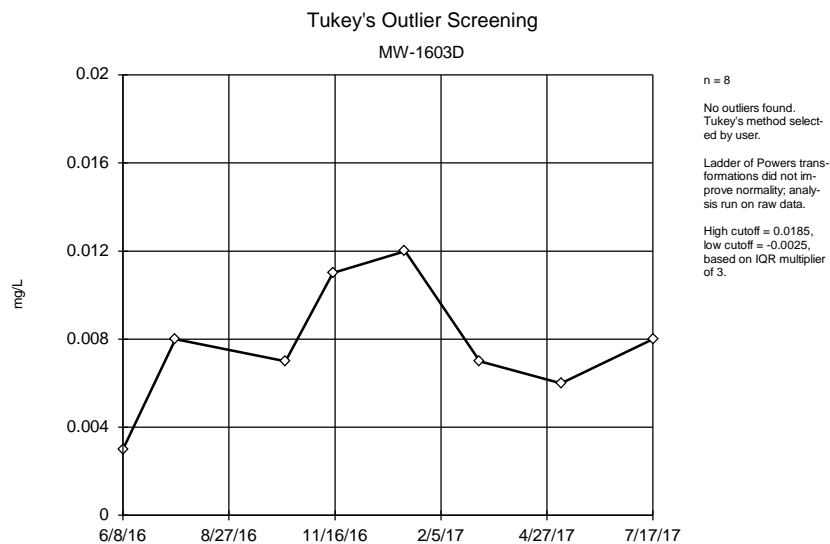
Constituent: Lithium, total Analysis Run 12/11/2017 10:06 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



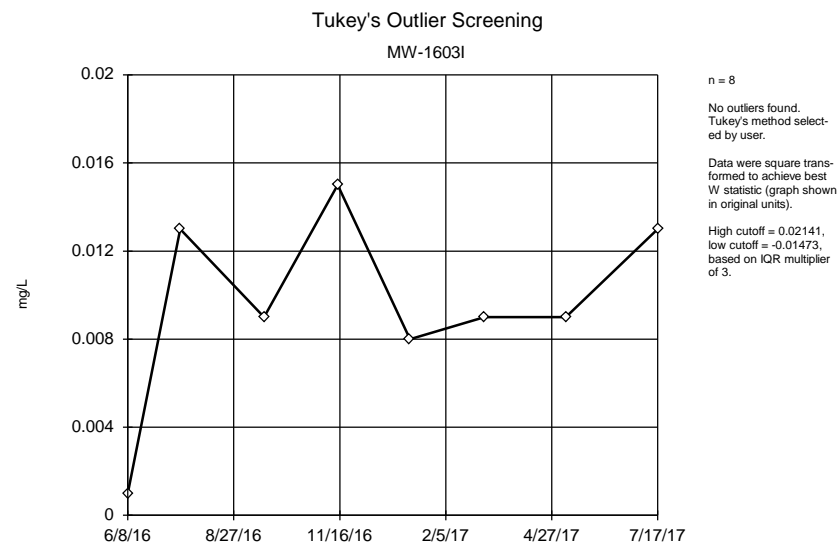
Constituent: Lithium, total Analysis Run 12/11/2017 10:06 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



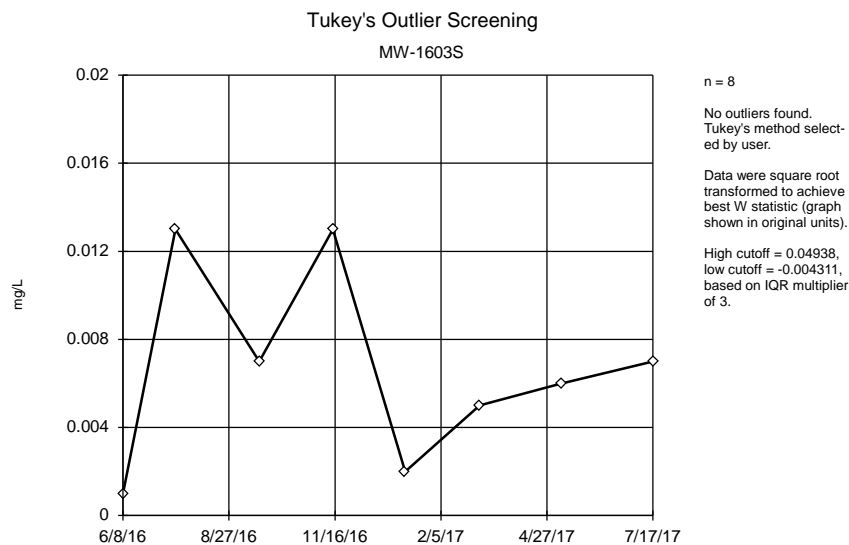
Constituent: Lithium, total Analysis Run 12/11/2017 10:06 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



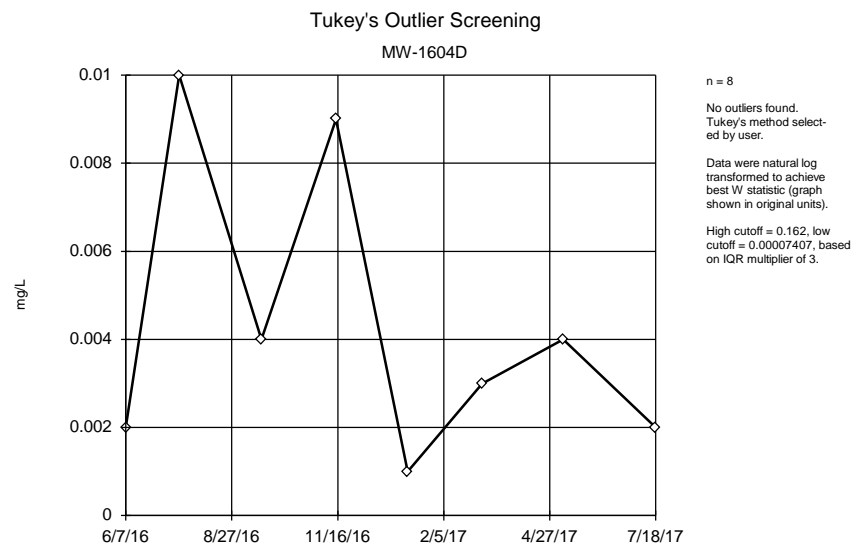
Constituent: Lithium, total Analysis Run 12/11/2017 10:06 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



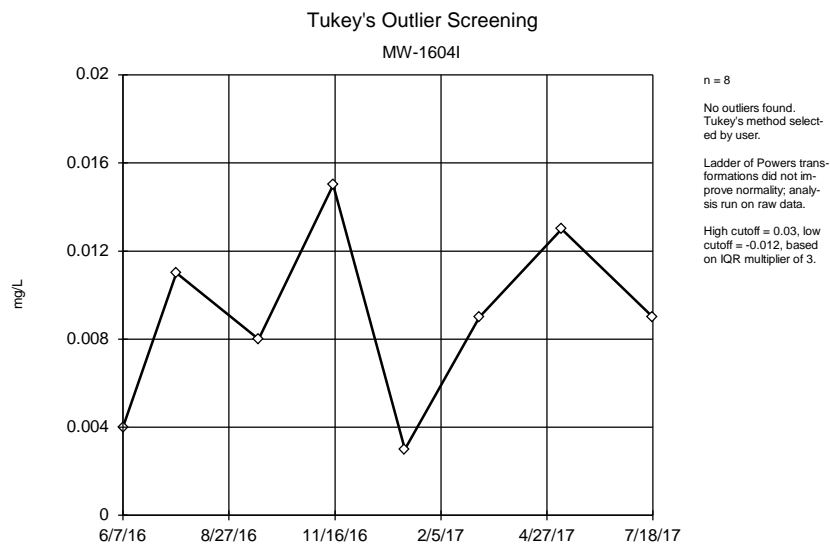
Constituent: Lithium, total Analysis Run 12/11/2017 10:06 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



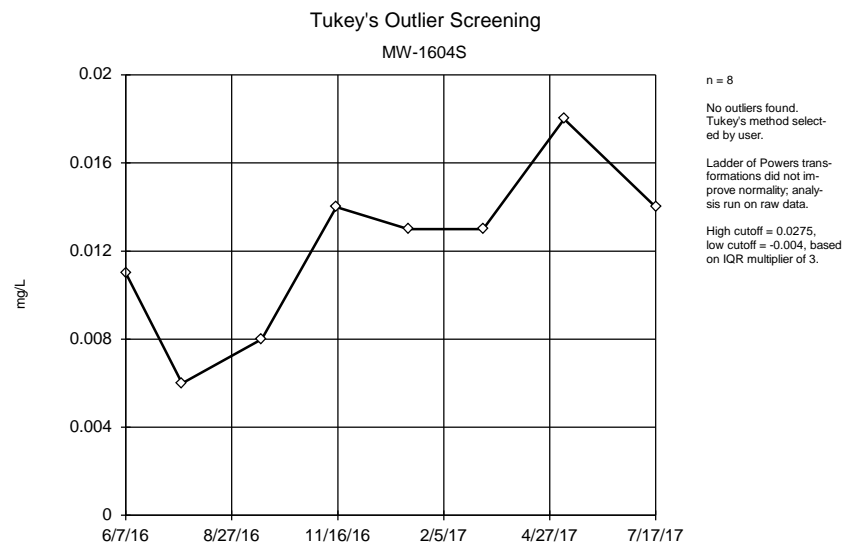
Constituent: Lithium, total    Analysis Run 12/11/2017 10:06 PM    View: Tukey's - Downgradient  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP



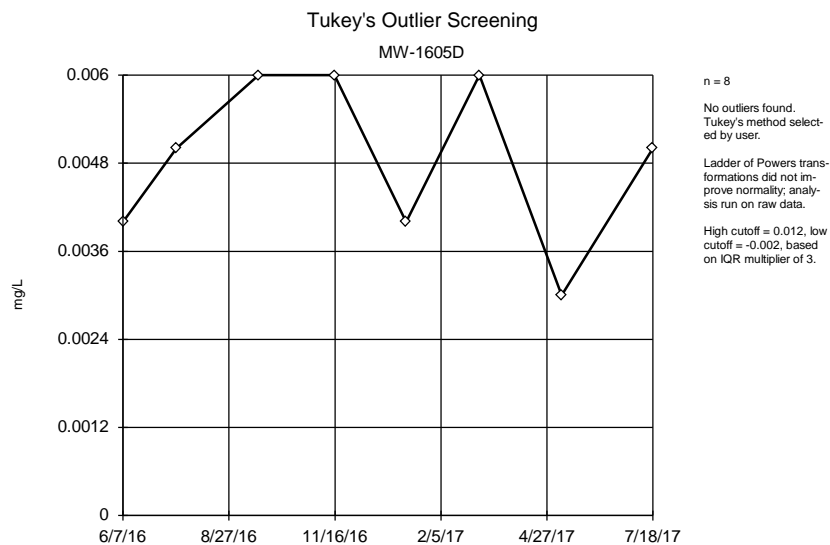
Constituent: Lithium, total    Analysis Run 12/11/2017 10:06 PM    View: Tukey's - Downgradient  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP



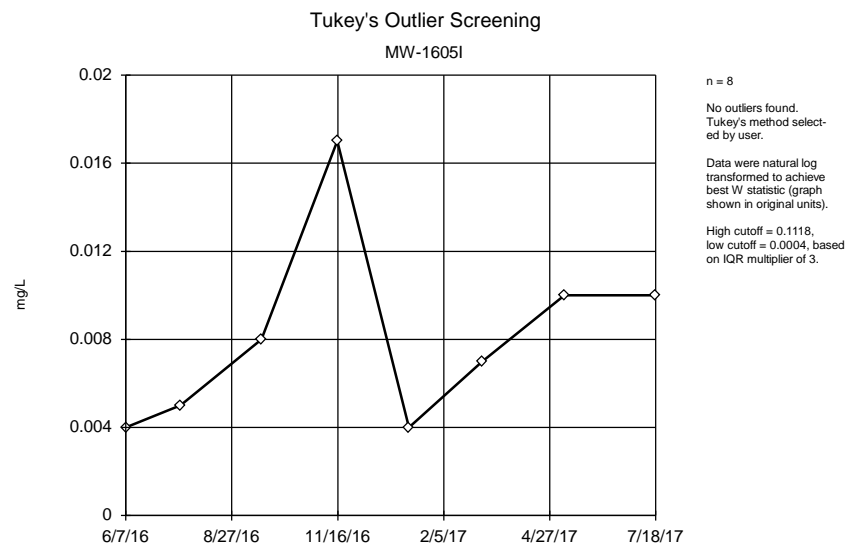
Constituent: Lithium, total    Analysis Run 12/11/2017 10:06 PM    View: Tukey's - Downgradient  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP



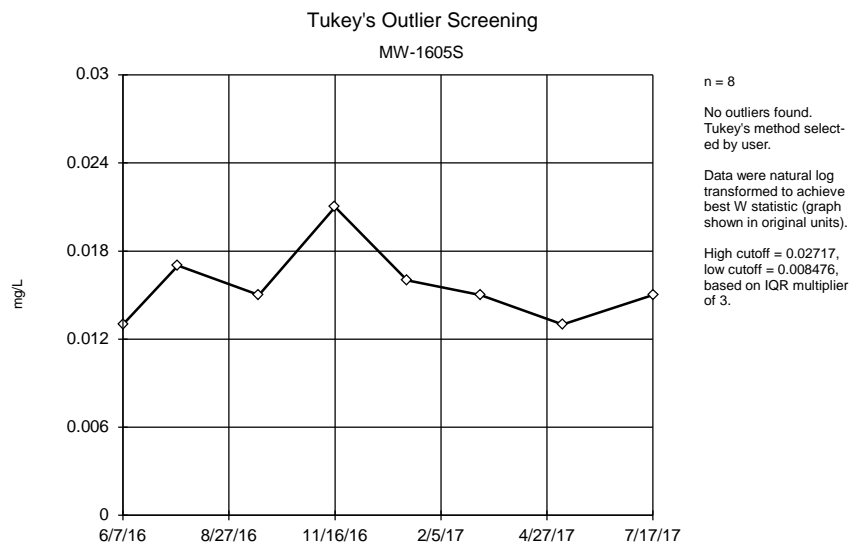
Constituent: Lithium, total    Analysis Run 12/11/2017 10:06 PM    View: Tukey's - Downgradient  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP



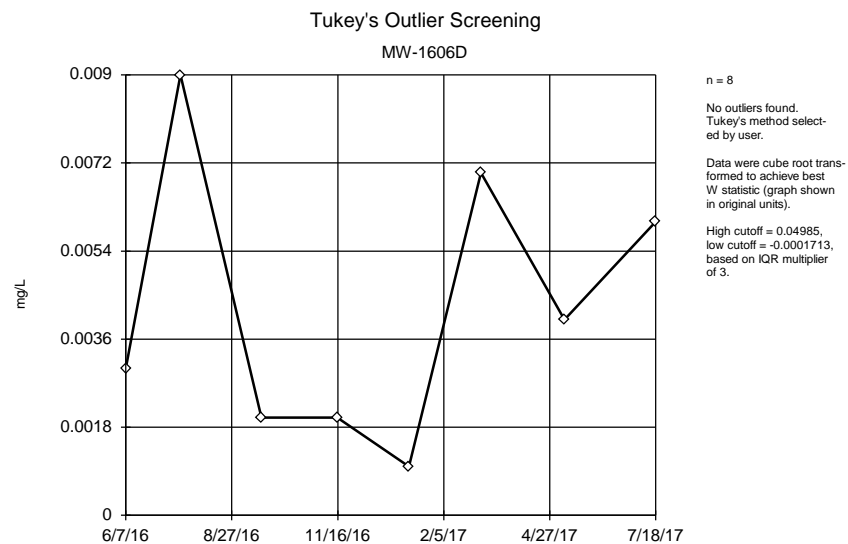
Constituent: Lithium, total Analysis Run 12/11/2017 10:06 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



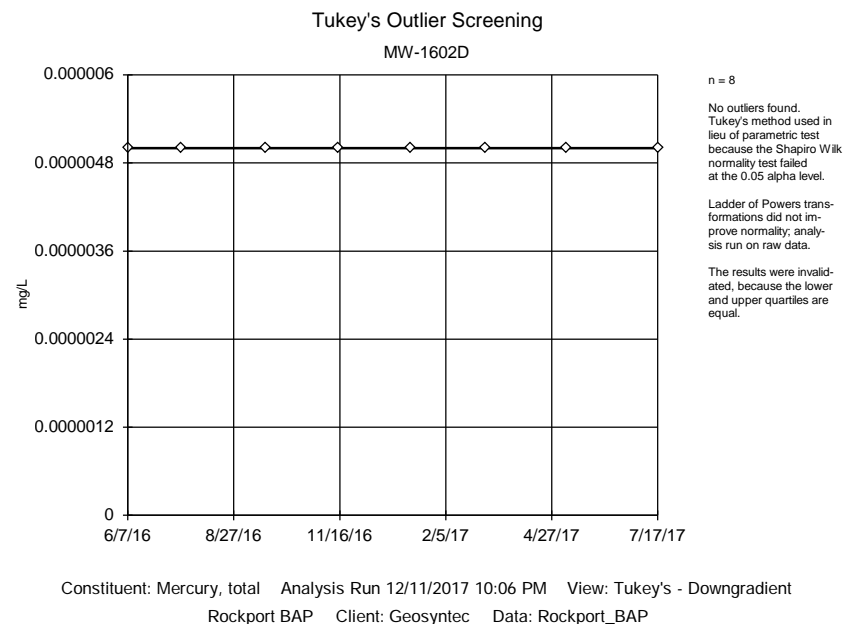
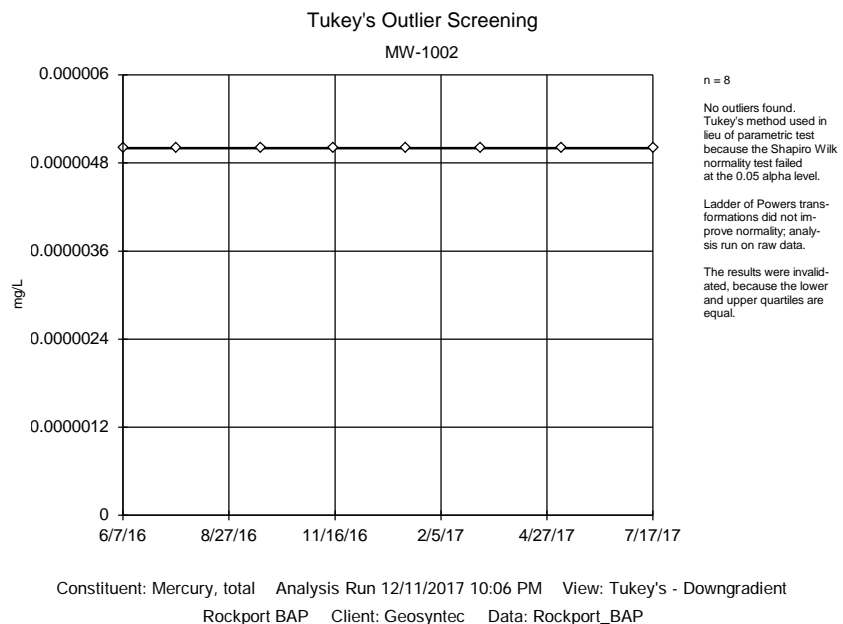
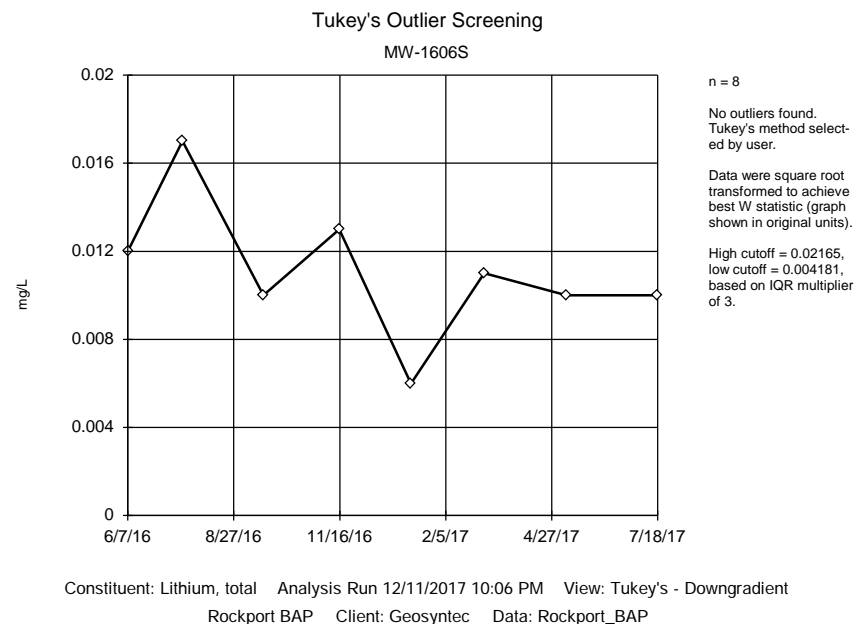
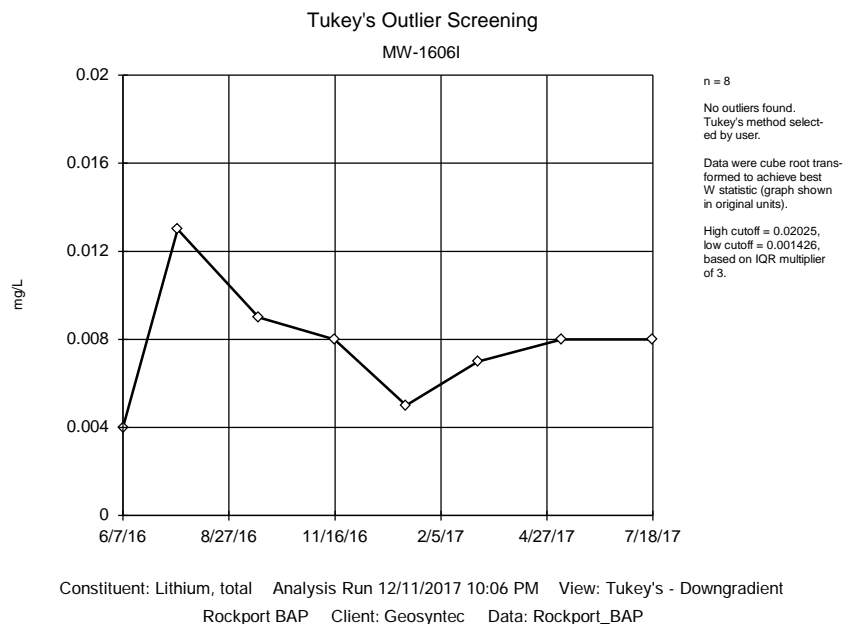
Constituent: Lithium, total Analysis Run 12/11/2017 10:06 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

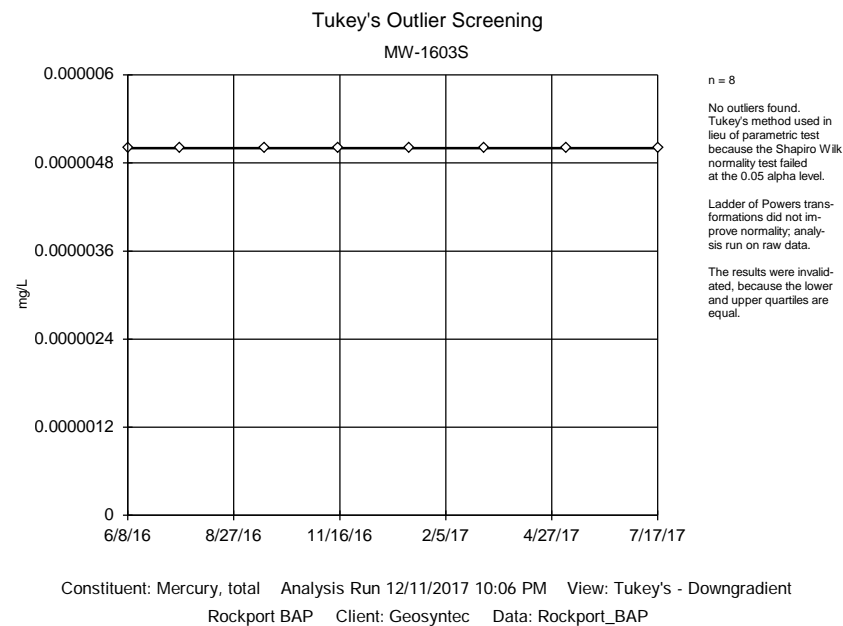
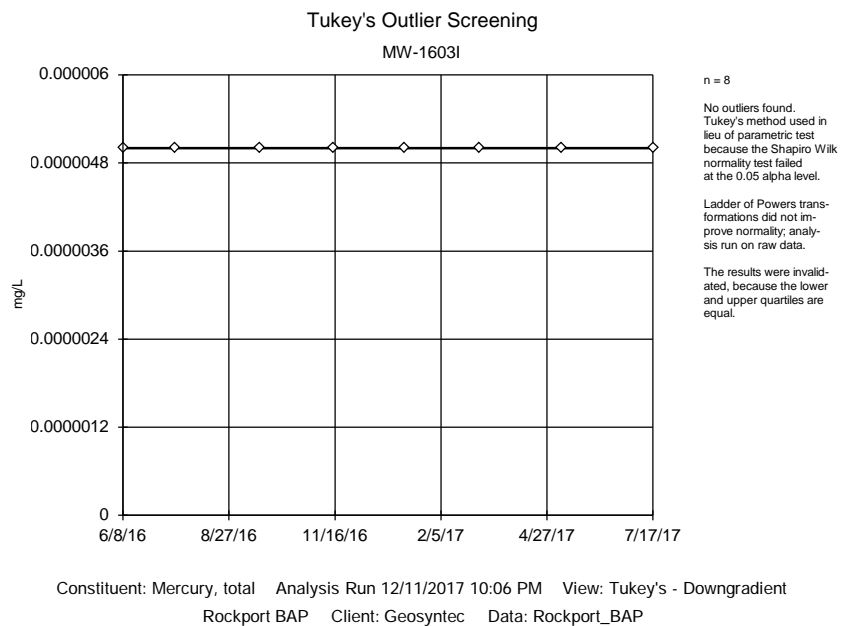
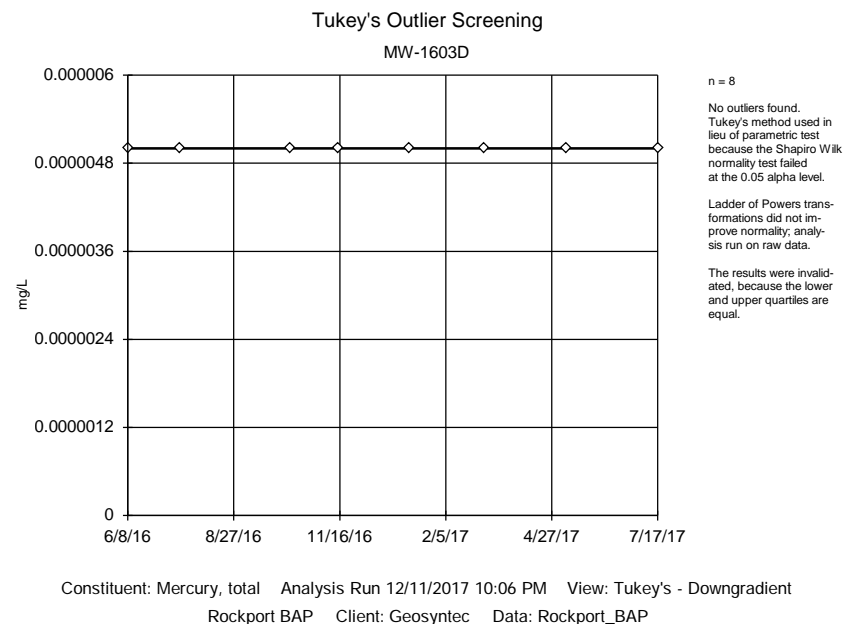
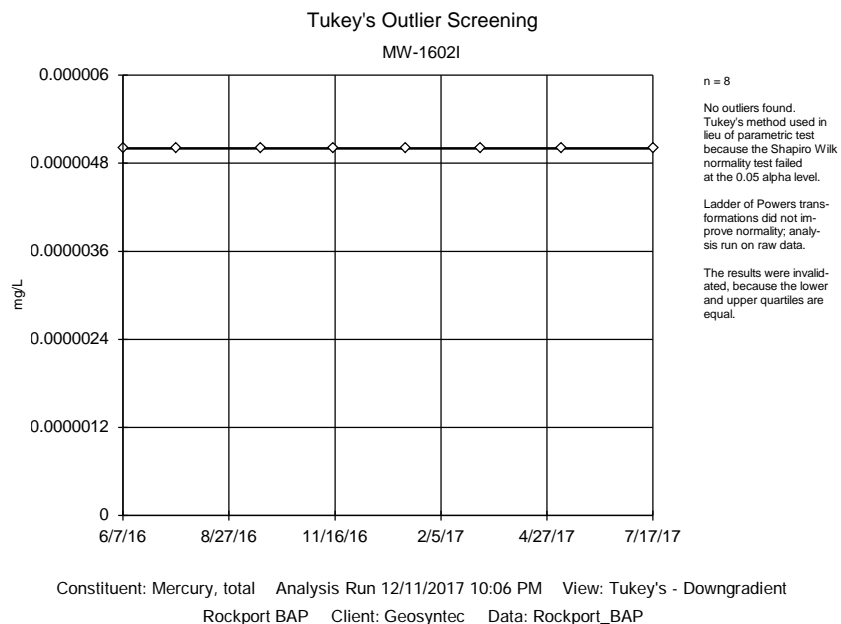


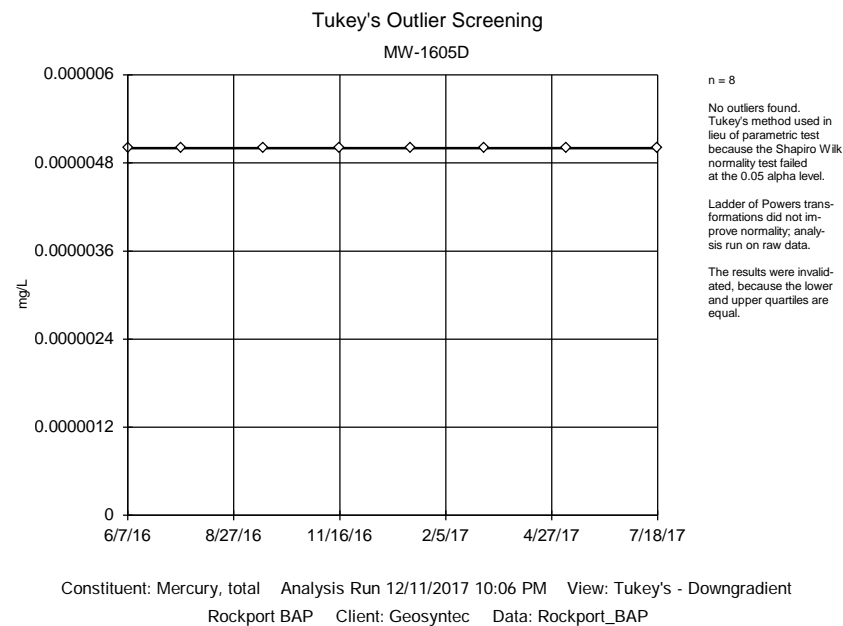
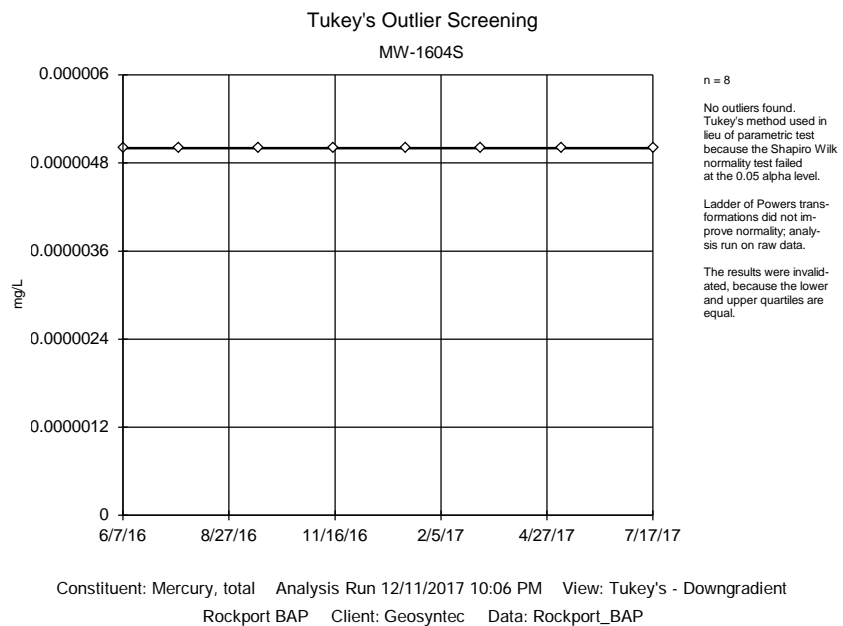
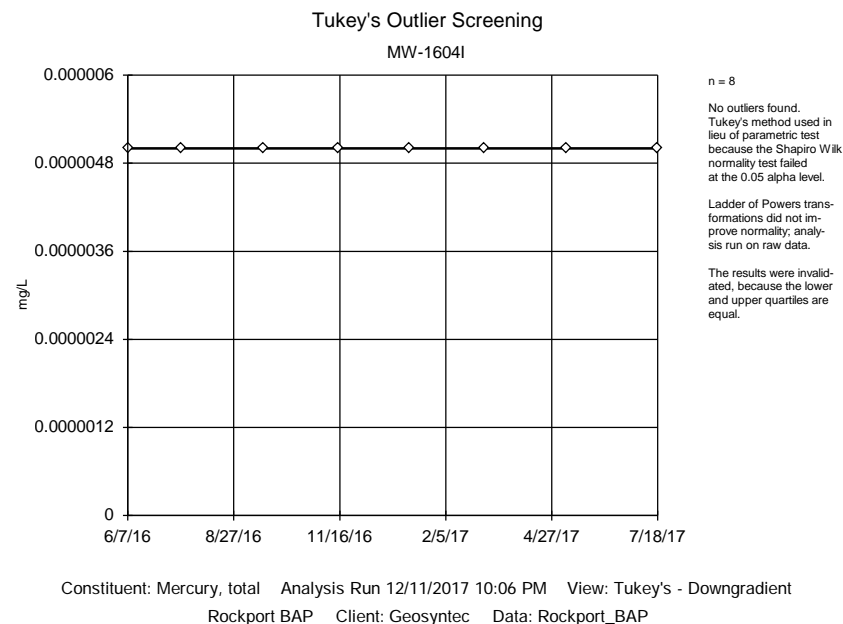
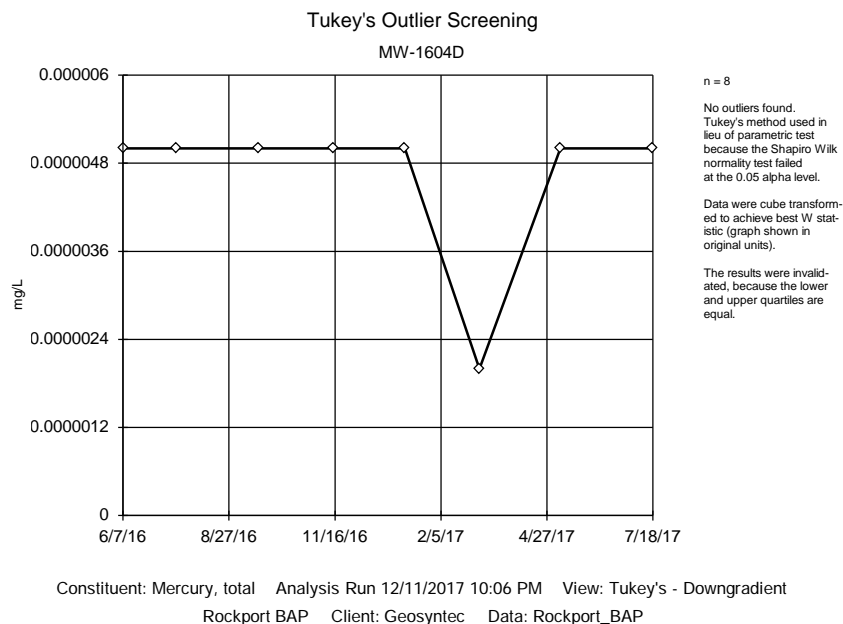
Constituent: Lithium, total Analysis Run 12/11/2017 10:06 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



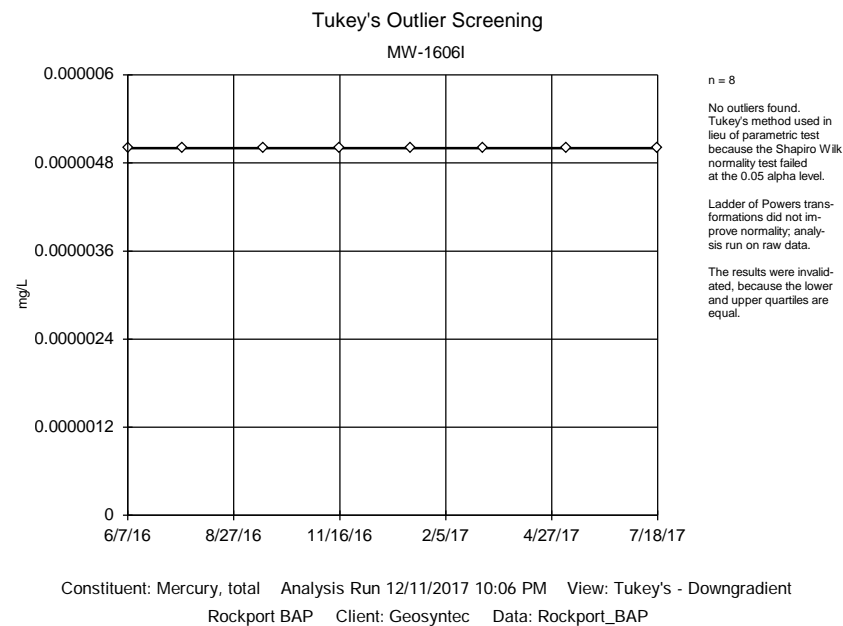
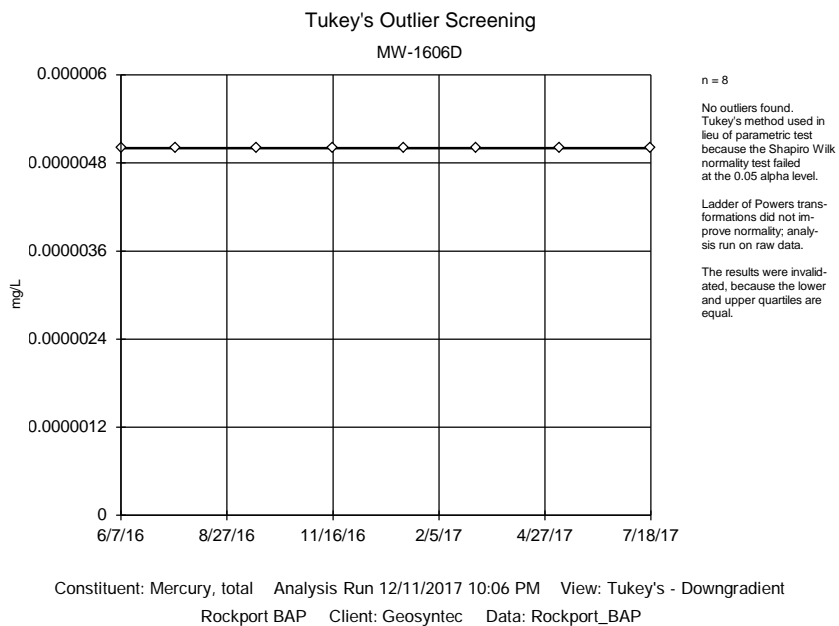
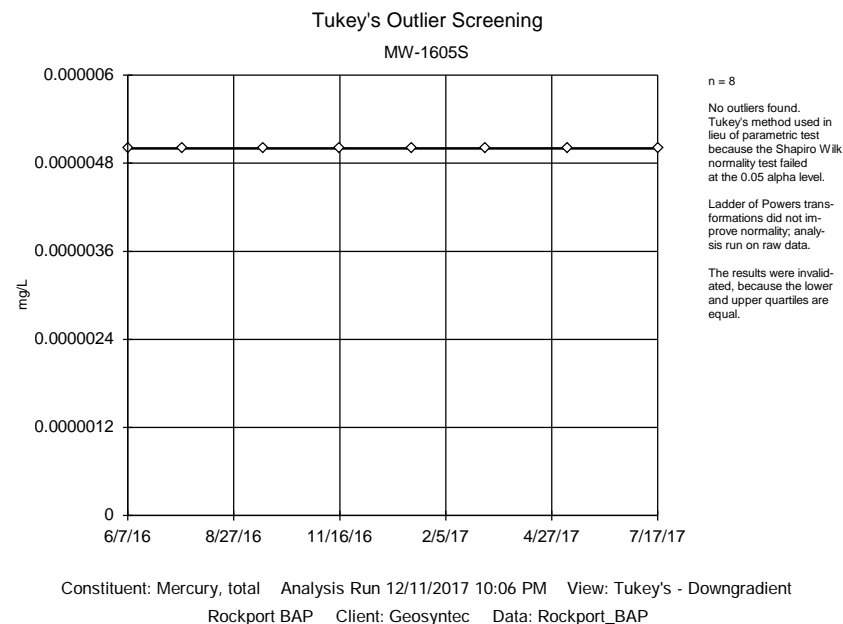
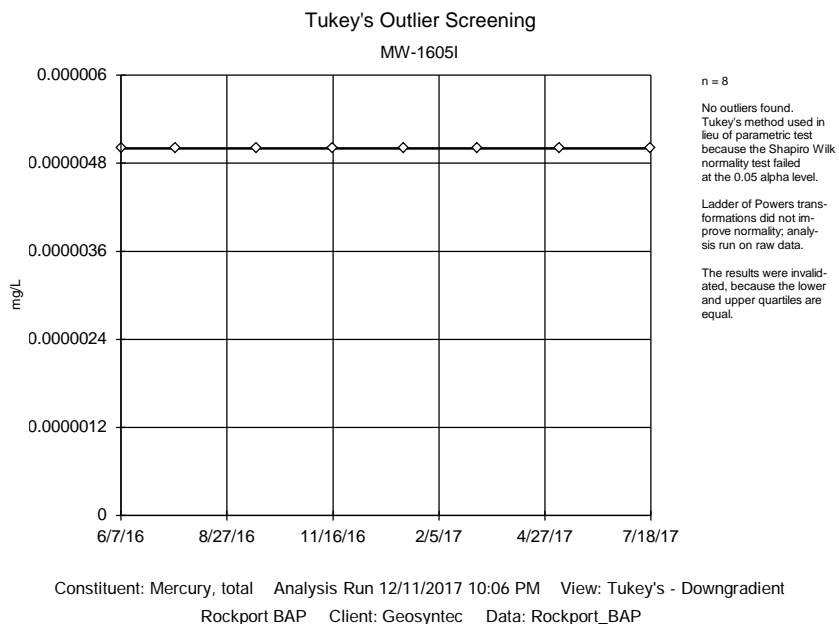
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP

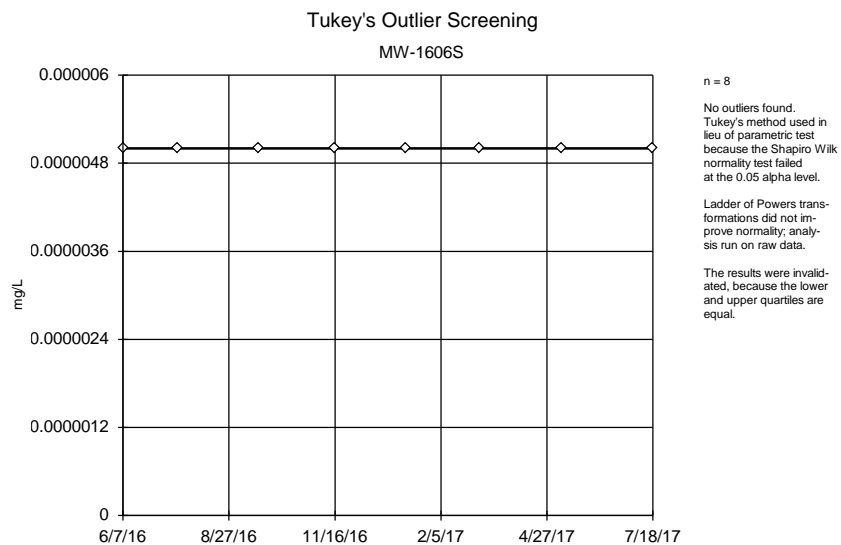




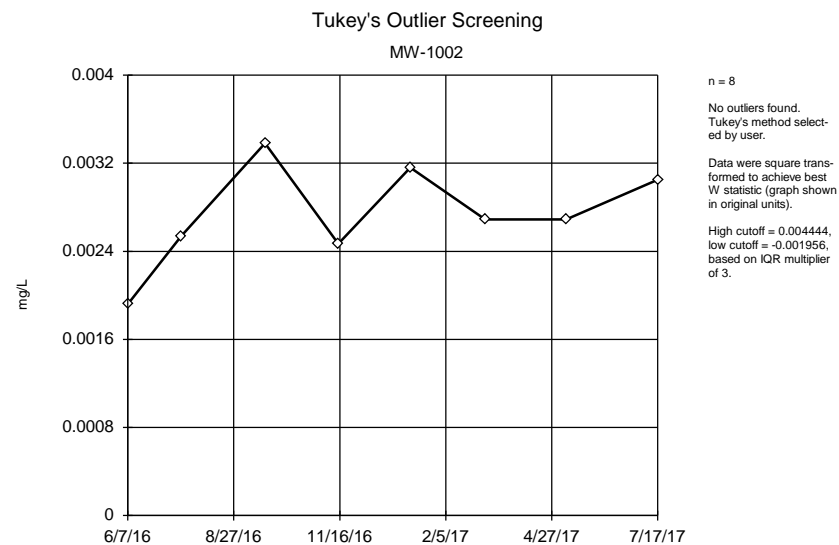




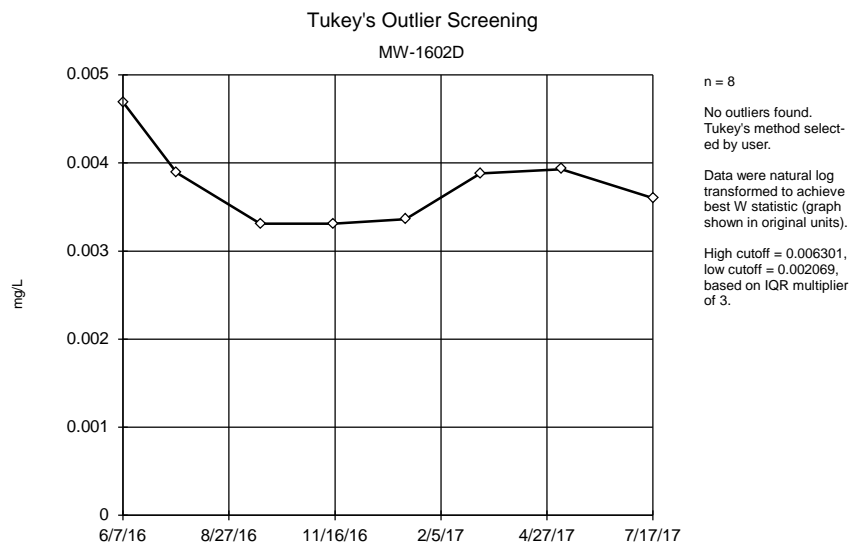




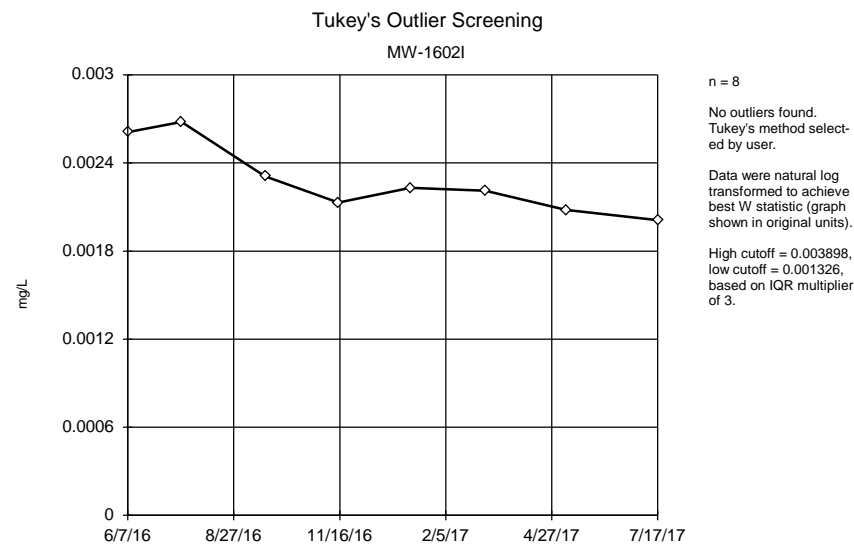
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



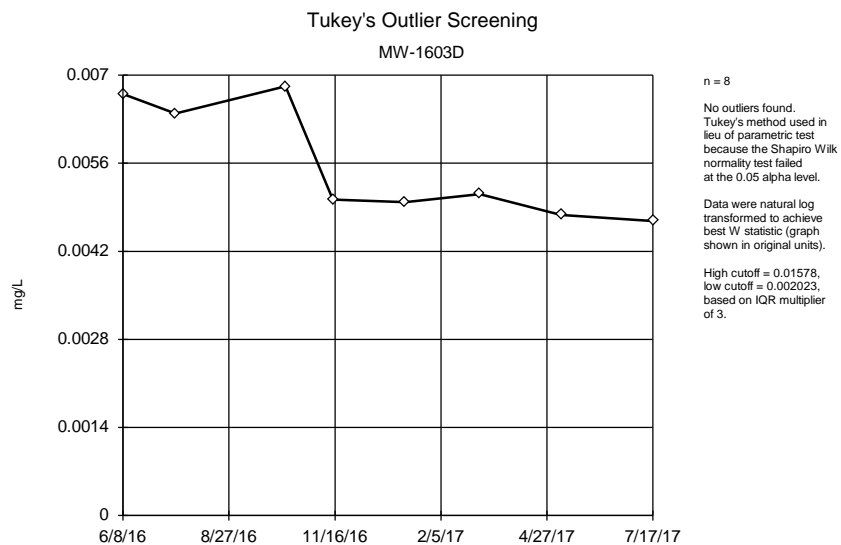
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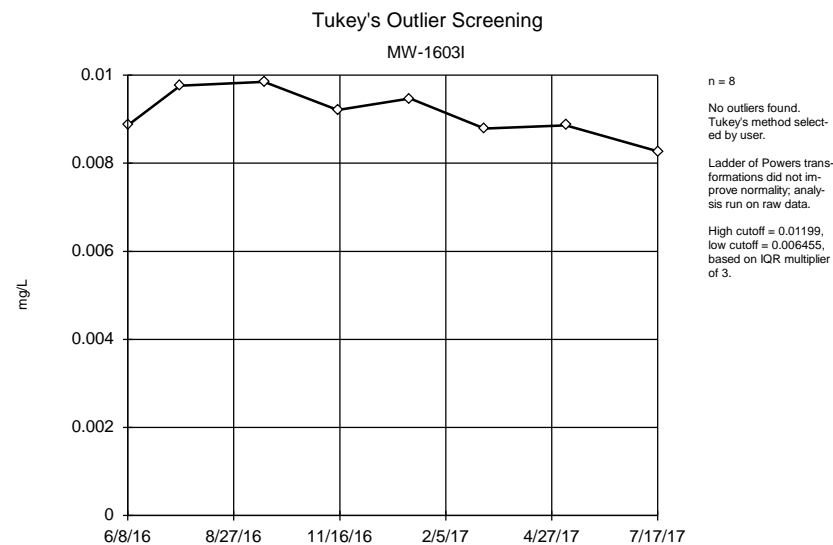
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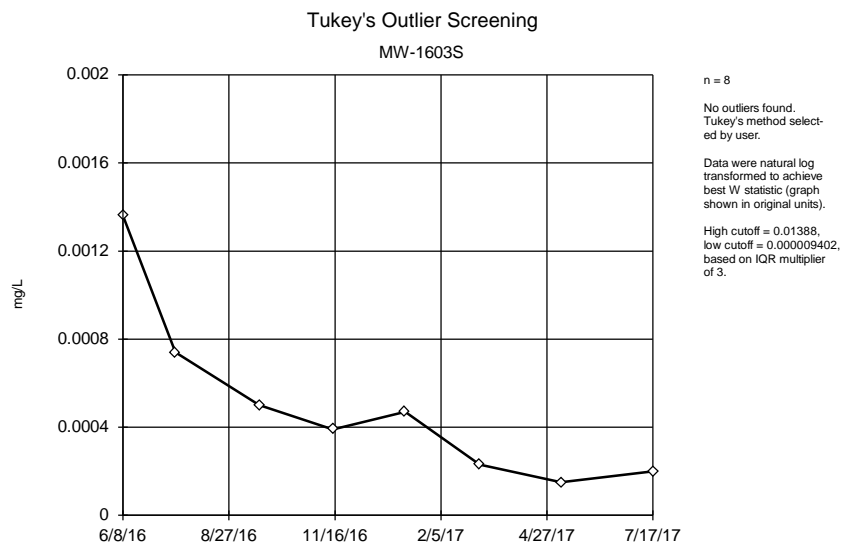
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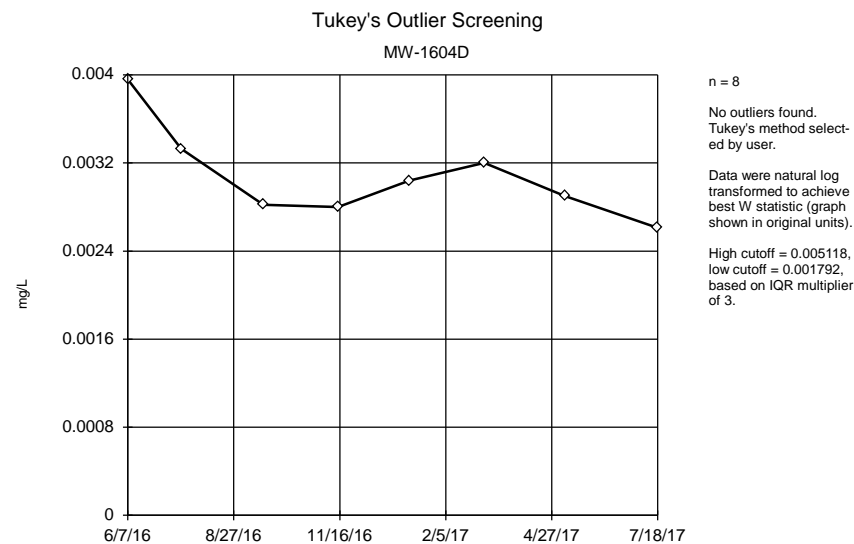
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



Constituent: Molybdenum, total Analysis Run 12/11/2017 10:06 PM View: Tukey's - Downgradient  
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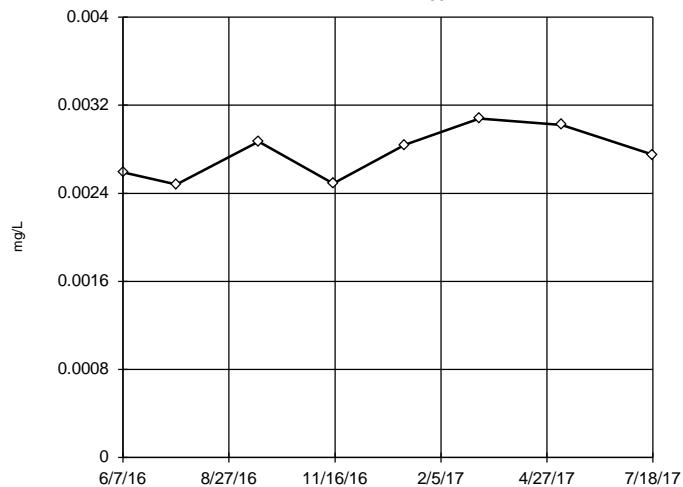
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



Constituent: Molybdenum, total Analysis Run 12/11/2017 10:06 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1604I



n = 8

No outliers found.  
Tukey's method selected by user.

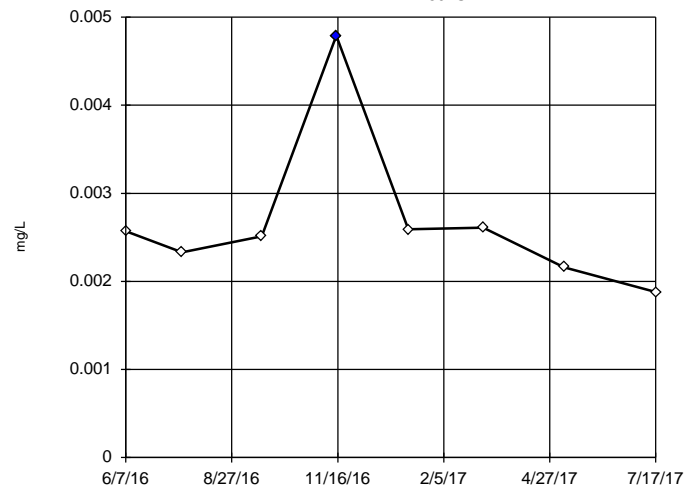
Data were cube transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.00376,  
low cutoff = -0.002234,  
based on IQR multiplier of 3.

Constituent: Molybdenum, total Analysis Run 12/11/2017 10:06 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1604S



n = 8

Outlier is drawn as solid.  
Tukey's method selected by user.

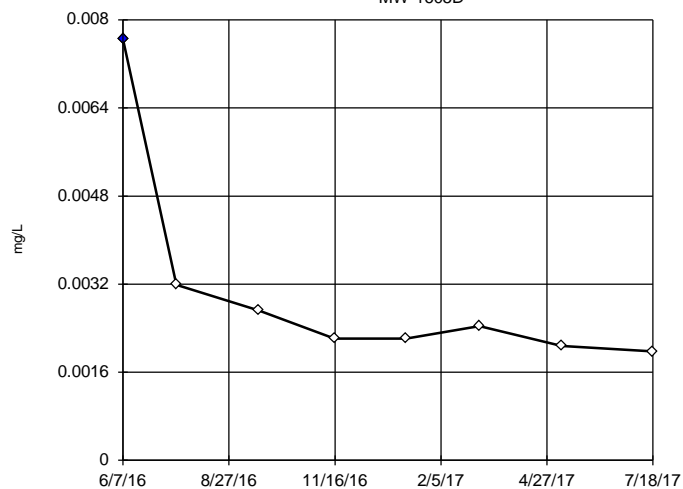
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.004047,  
low cutoff = 0.001441,  
based on IQR multiplier of 3.

Constituent: Molybdenum, total Analysis Run 12/11/2017 10:06 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1605D



n = 8

Outlier is drawn as solid.  
Tukey's method selected by user.

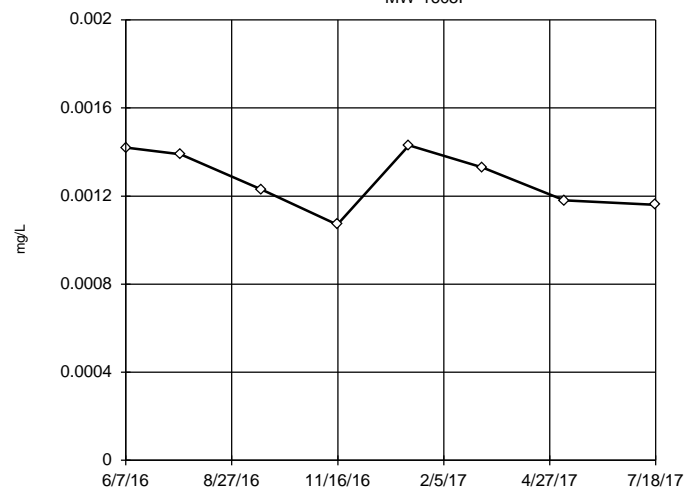
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.007639,  
low cutoff = 0.0008267,  
based on IQR multiplier of 3.

Constituent: Molybdenum, total Analysis Run 12/11/2017 10:06 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1605I



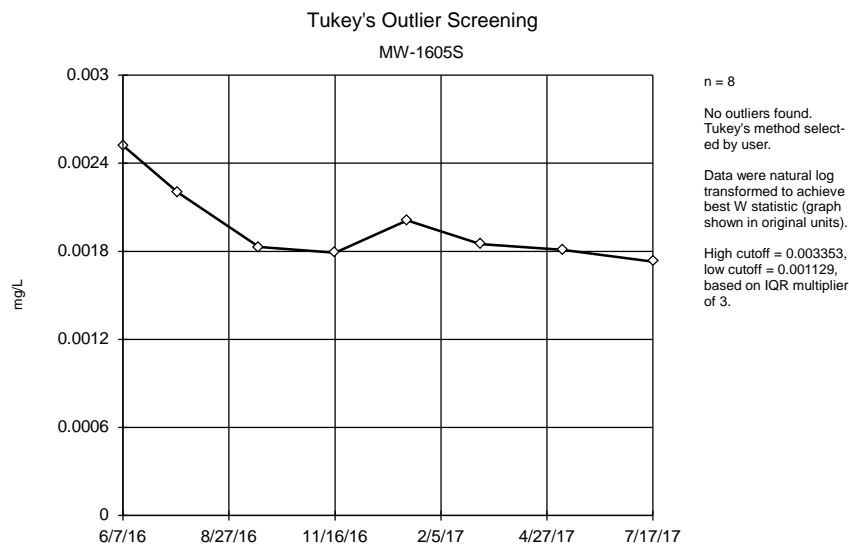
n = 8

No outliers found.  
Tukey's method selected by user.

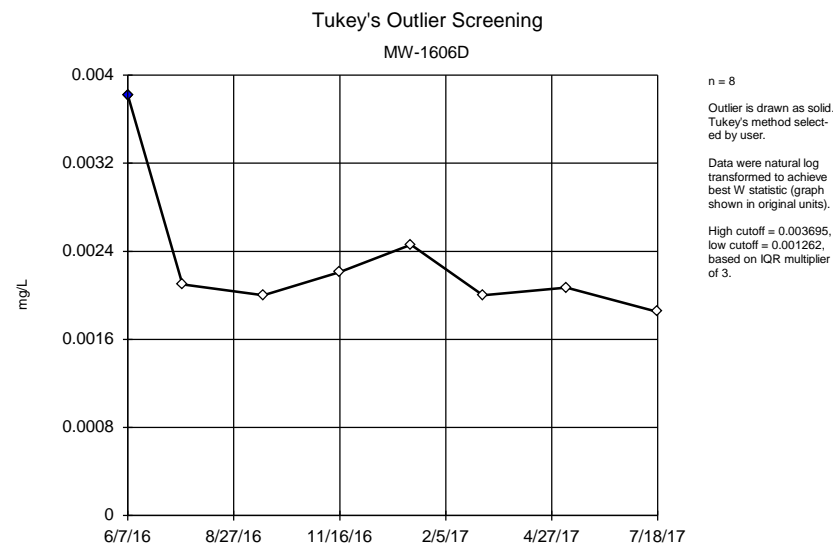
Data were square root transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.002239,  
low cutoff = 0.000594,  
based on IQR multiplier of 3.

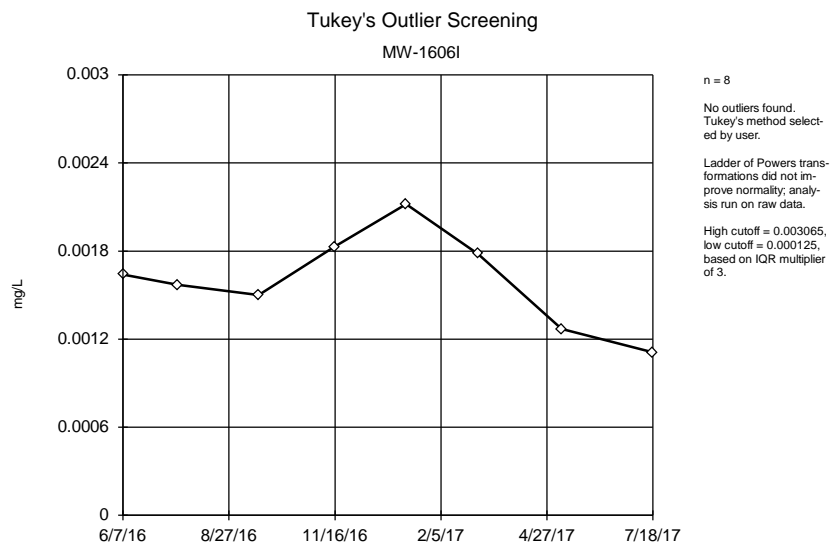
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



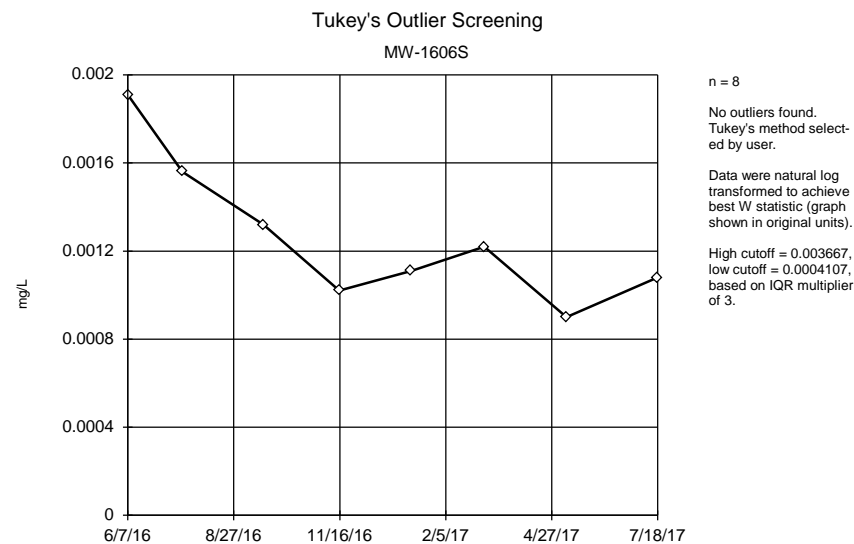
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Rockport BAP Client: Geosyntec Data: Rockport\_BAP



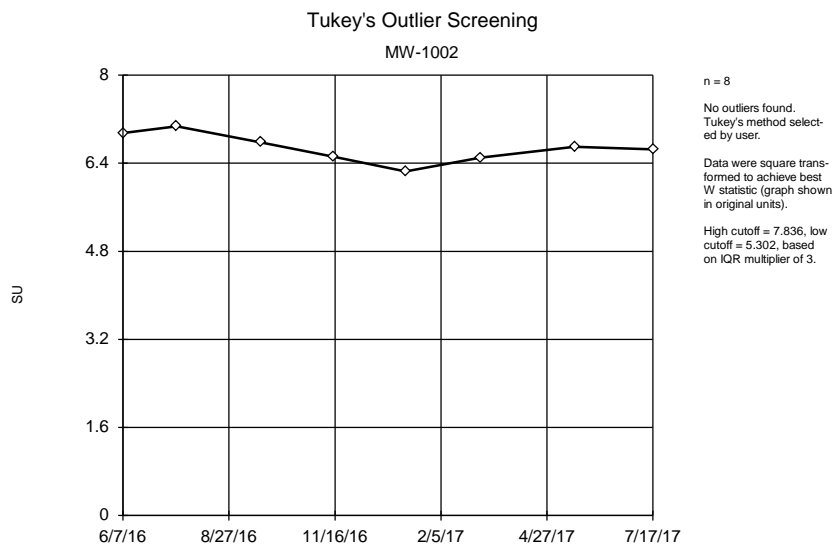
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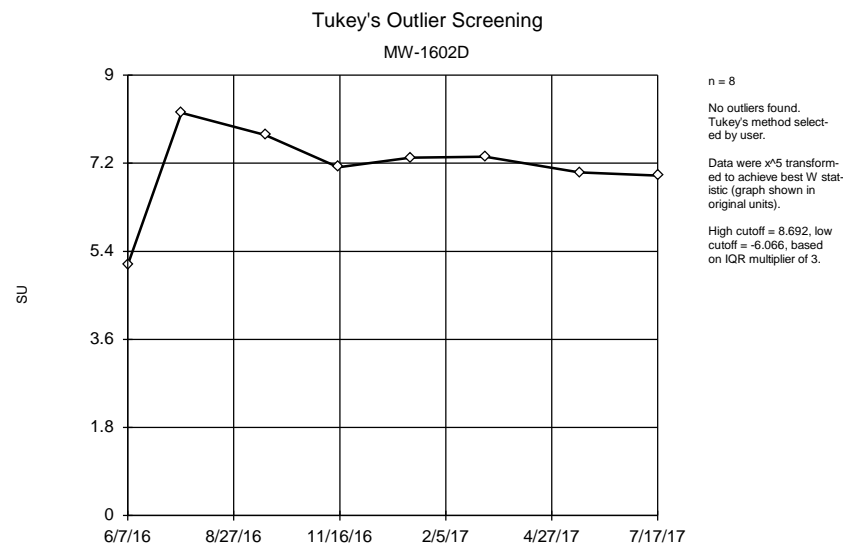
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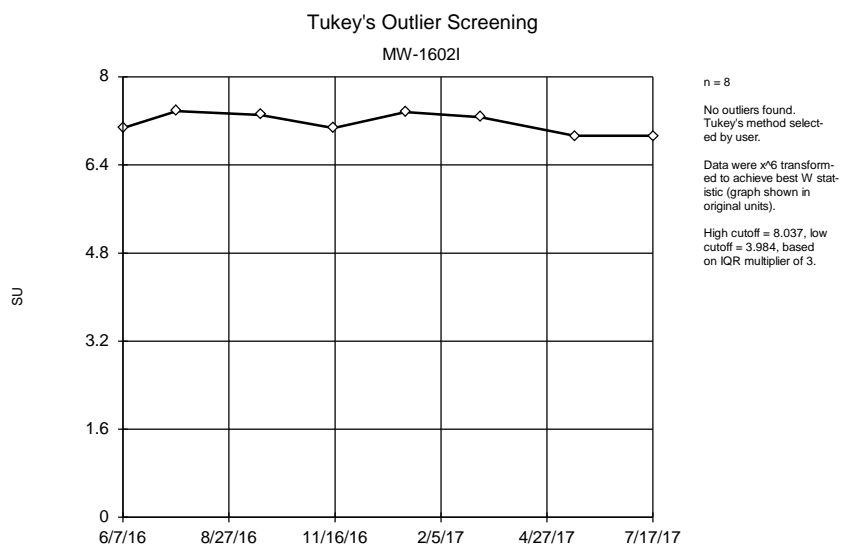
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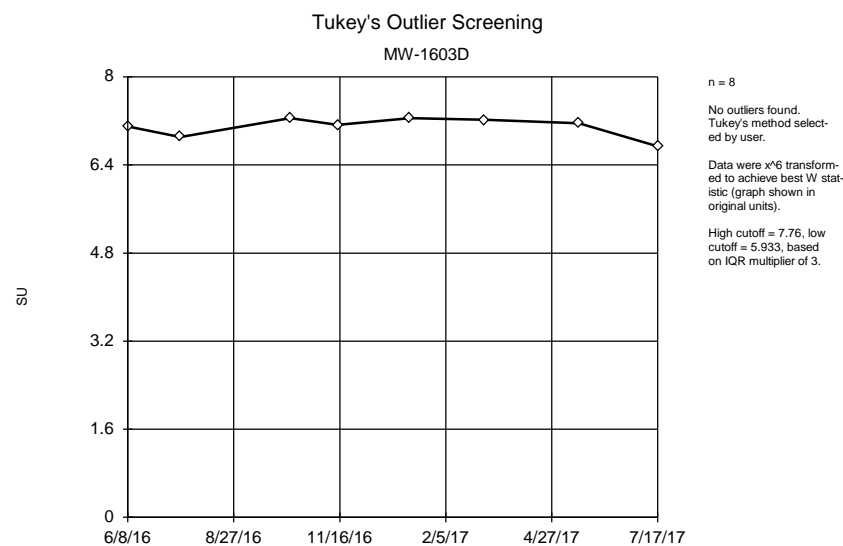
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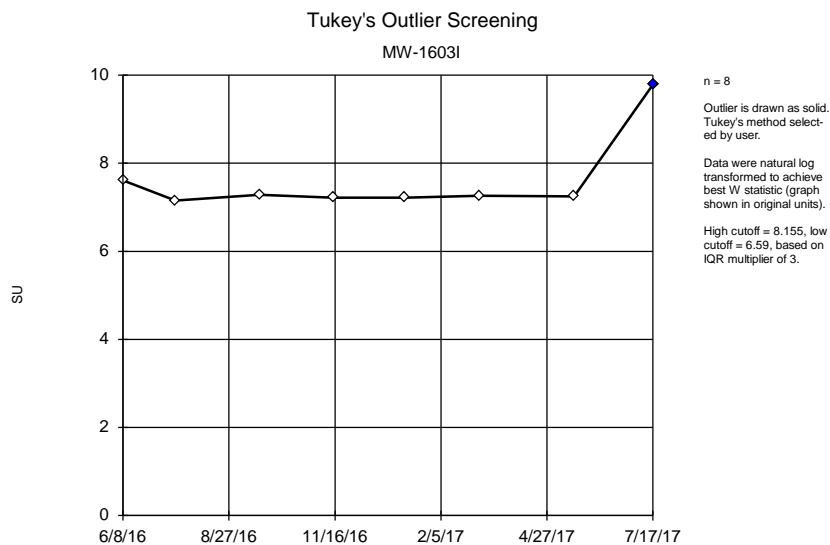
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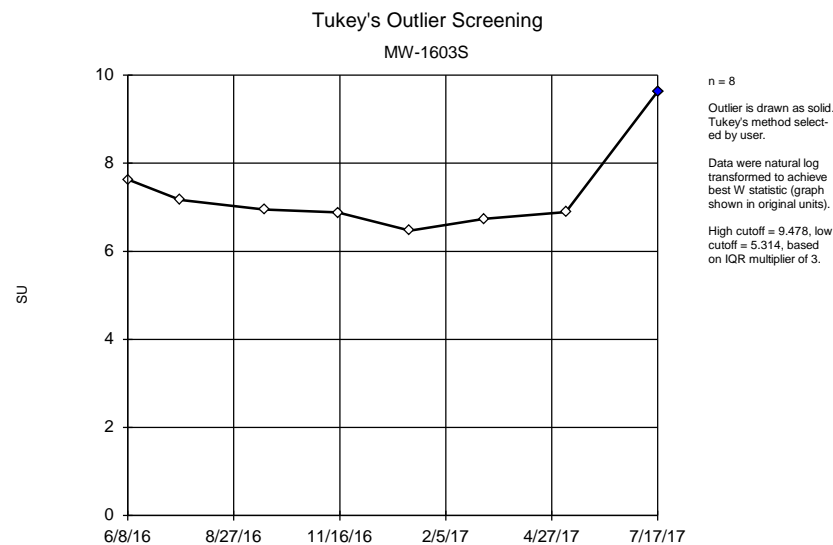
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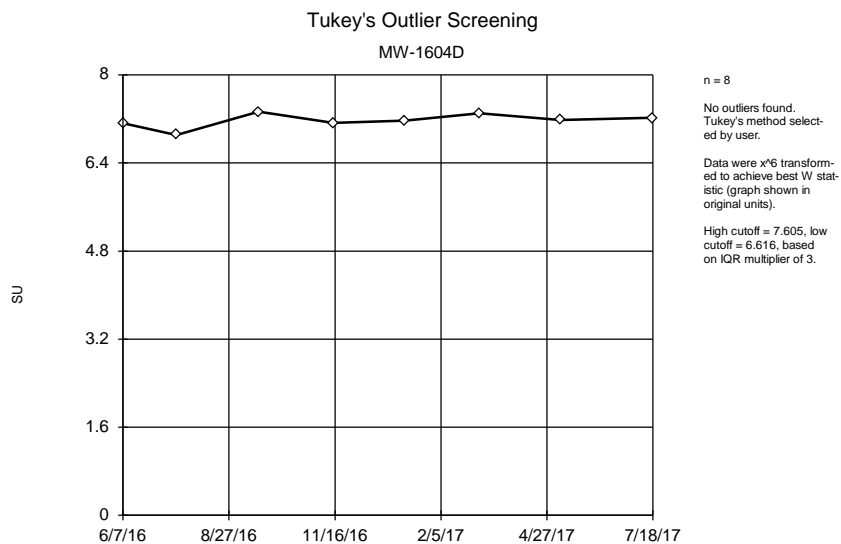
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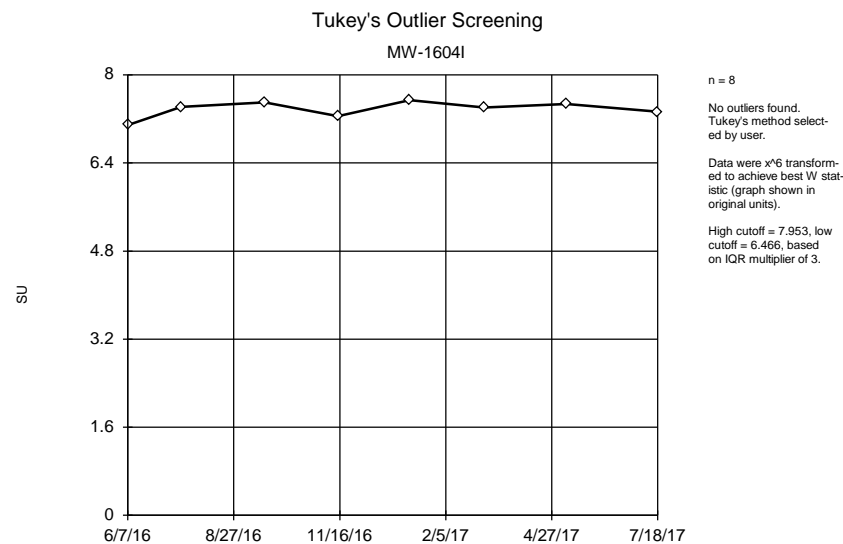
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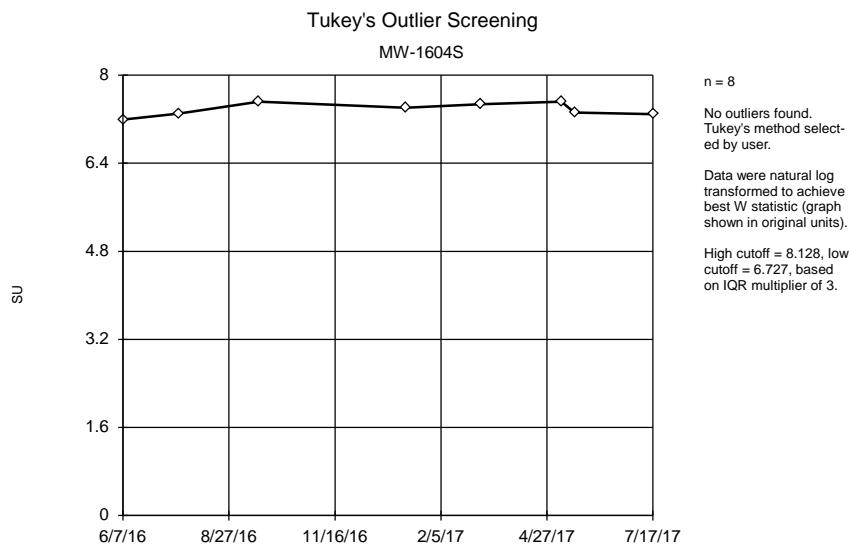
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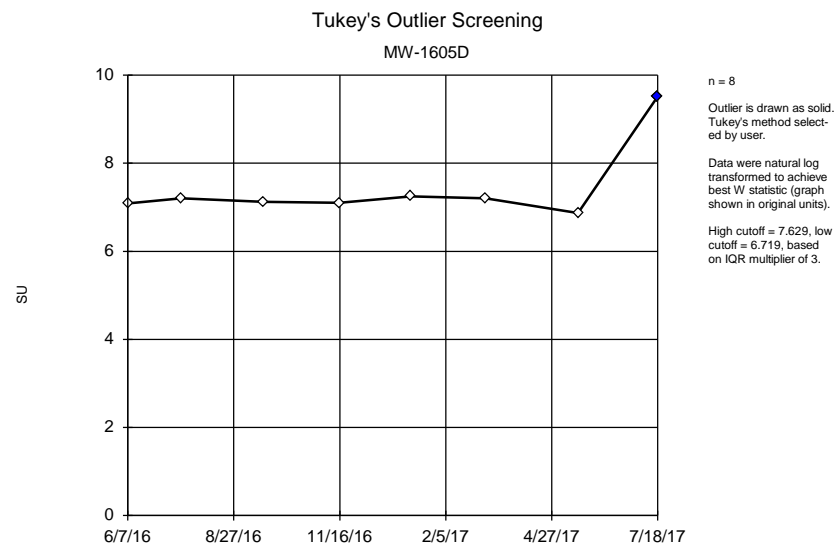
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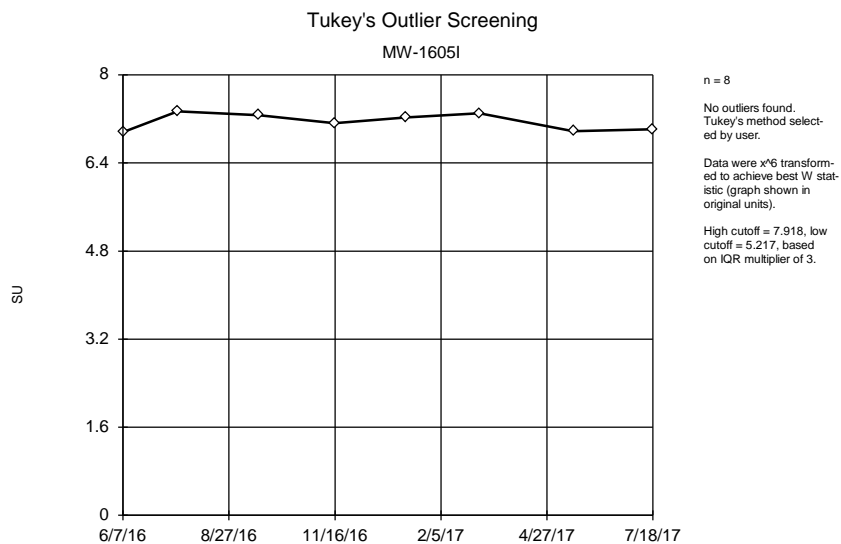
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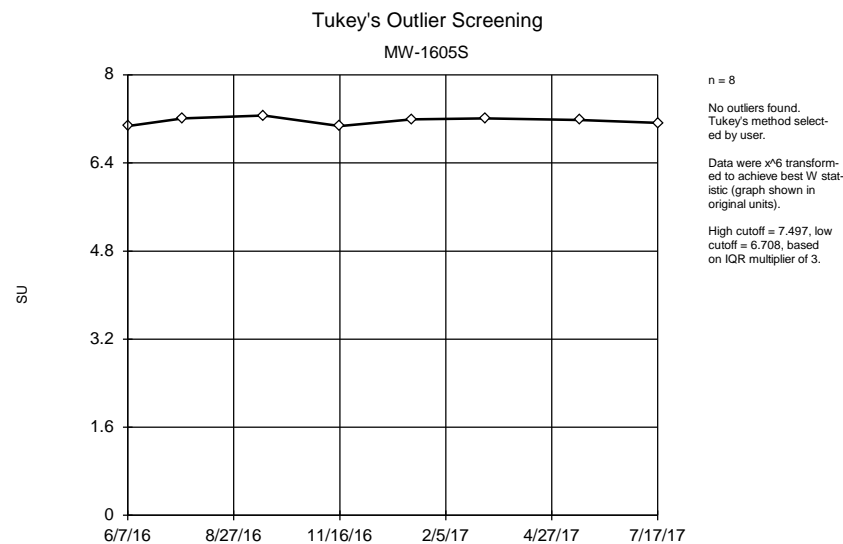
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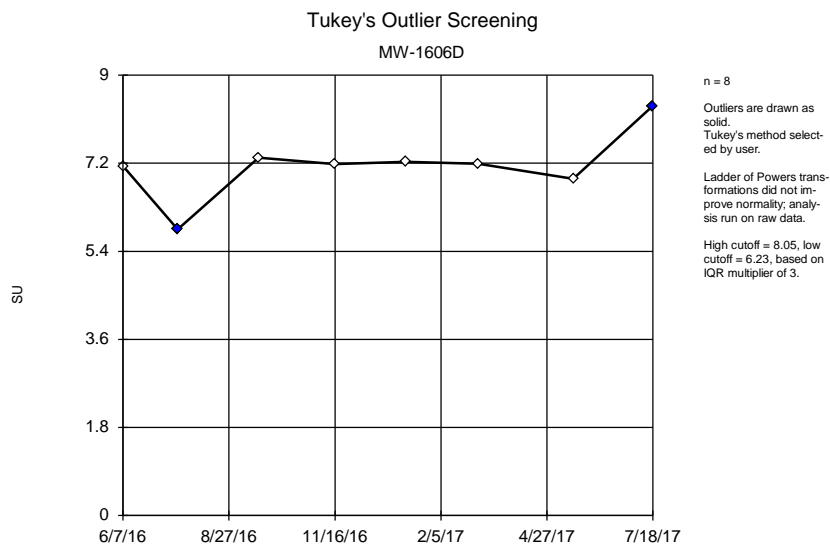


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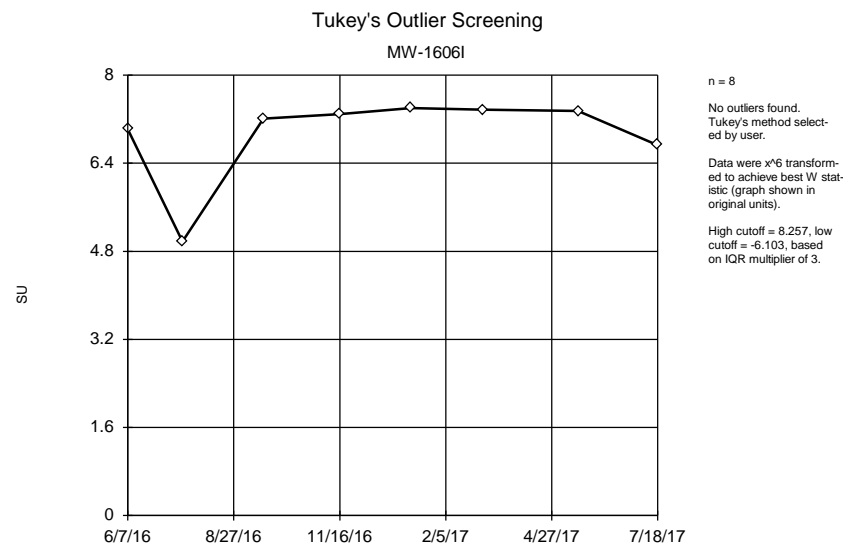


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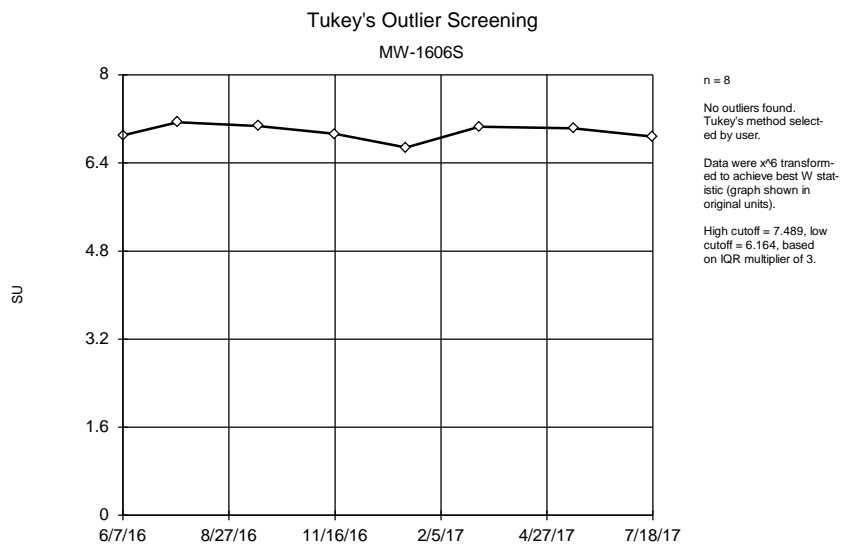




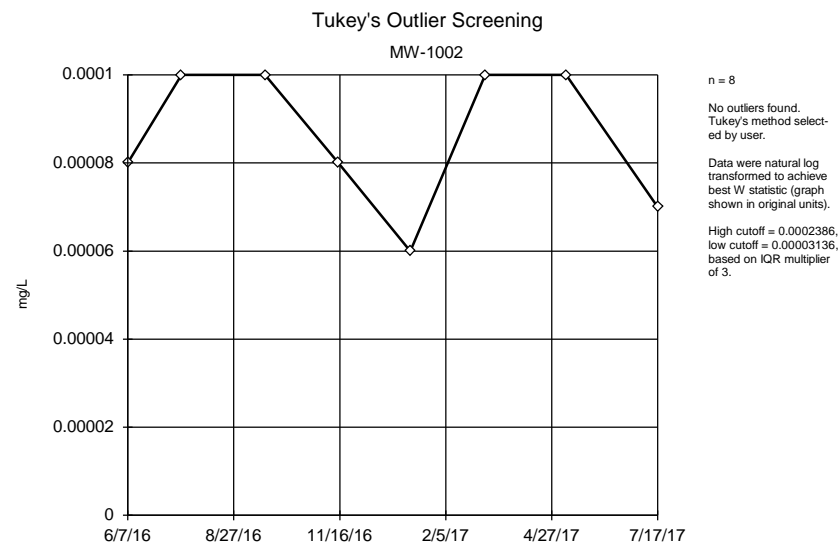
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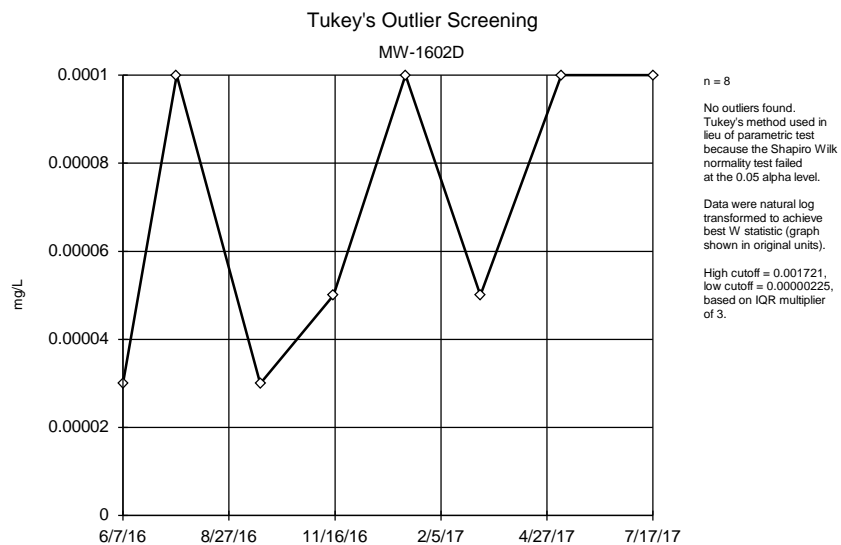
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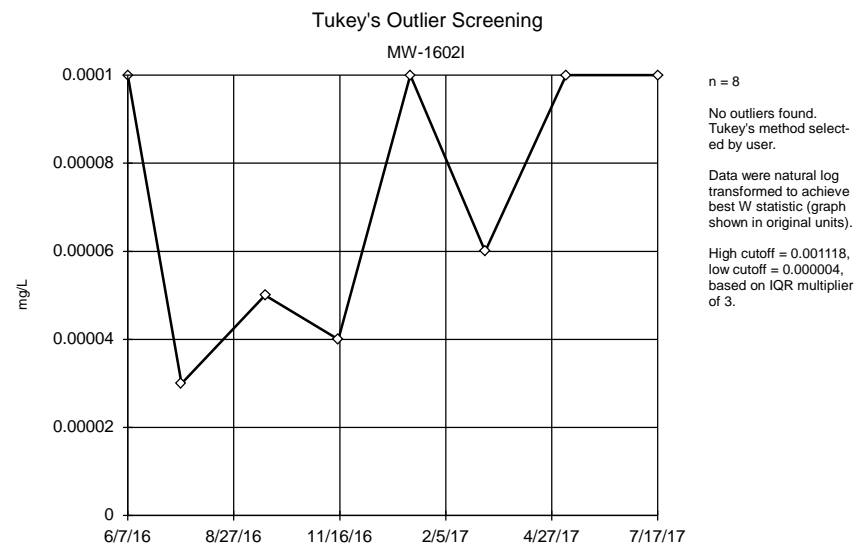
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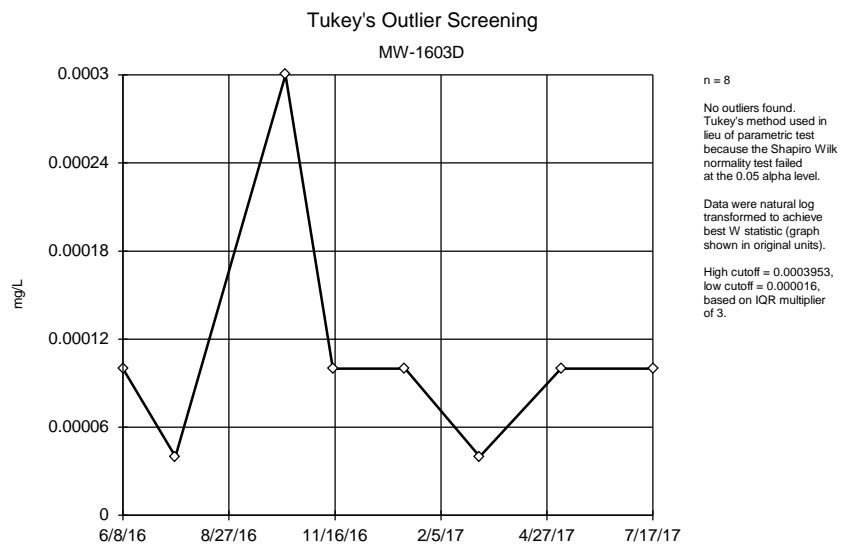
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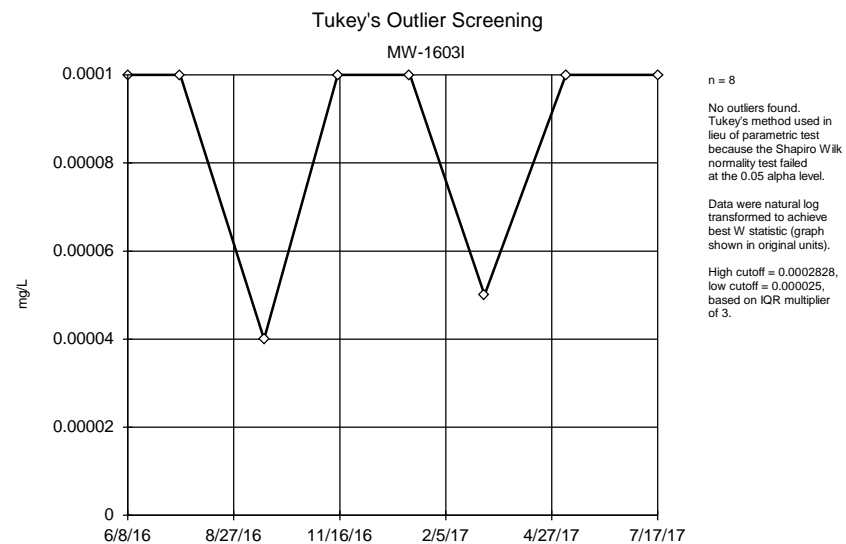
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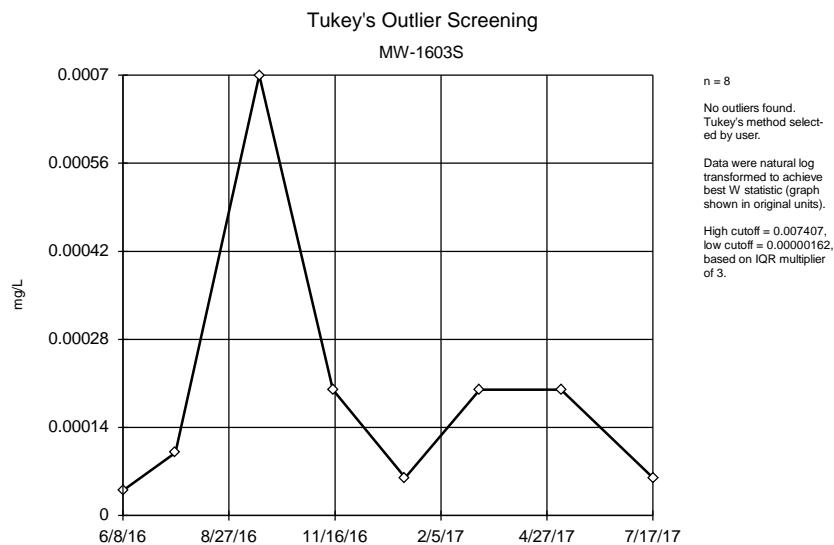
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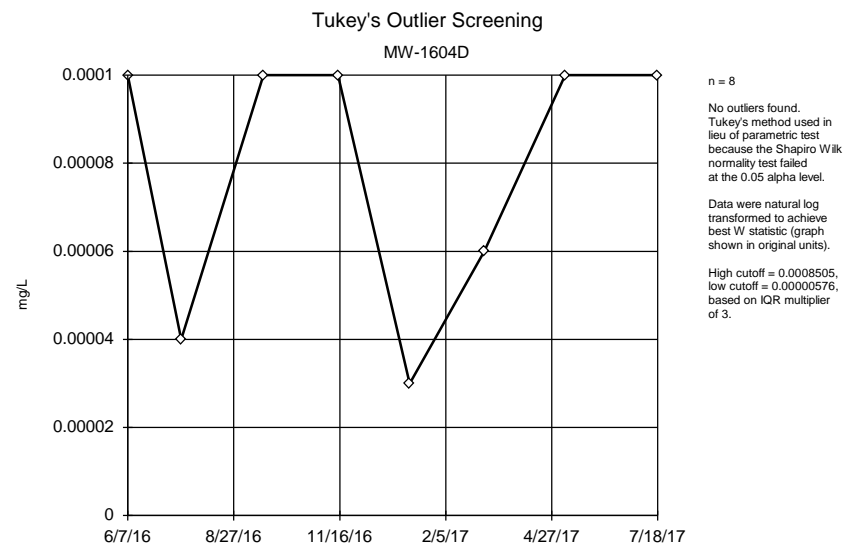
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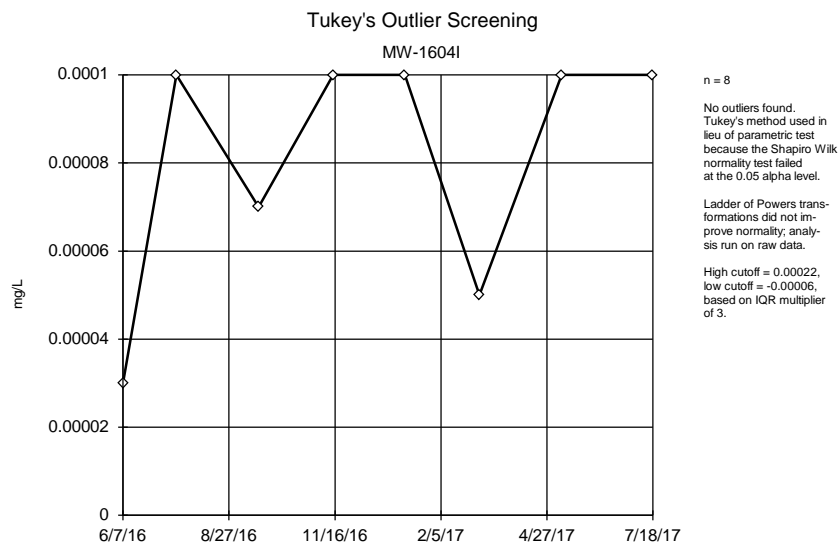
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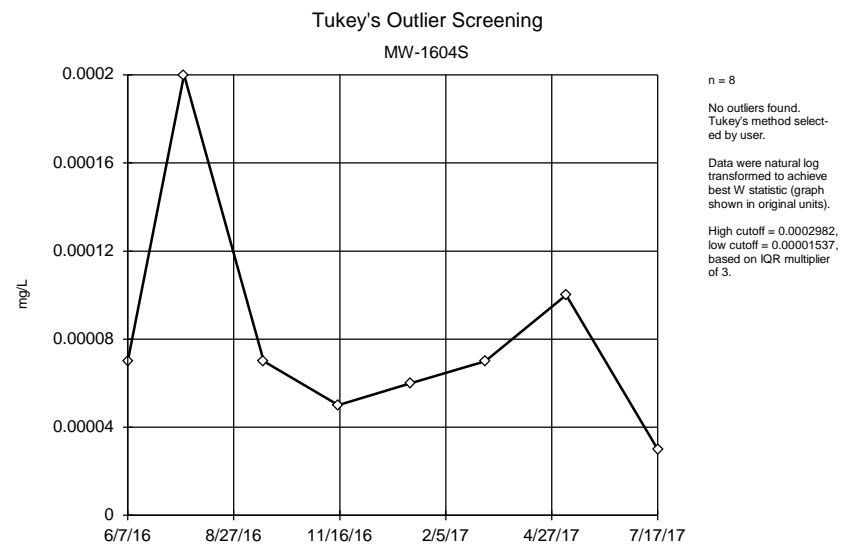
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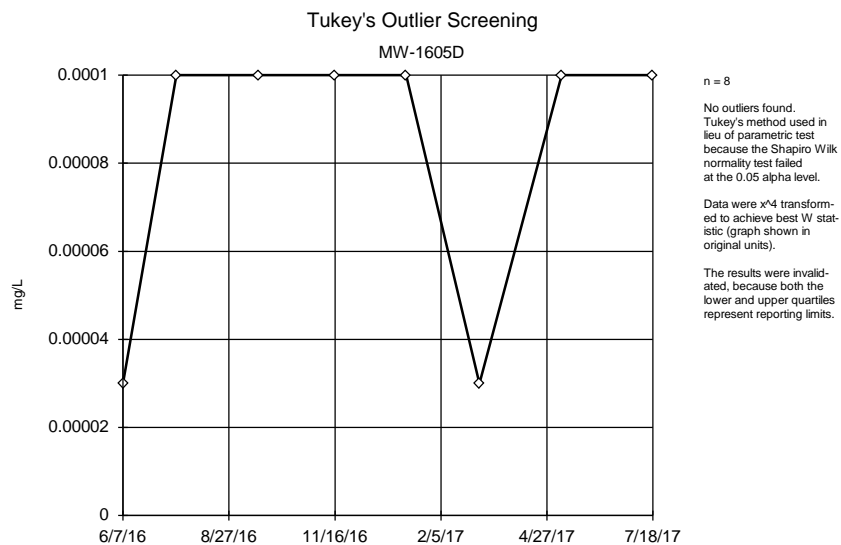
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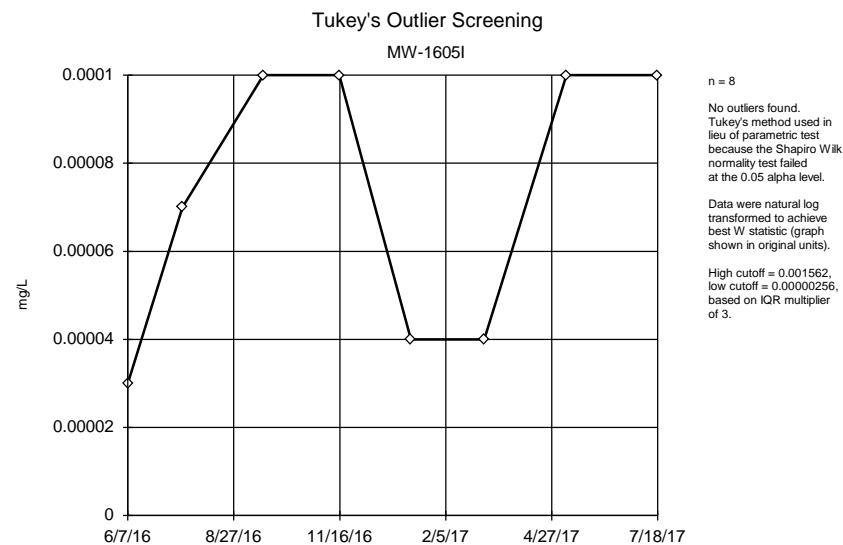
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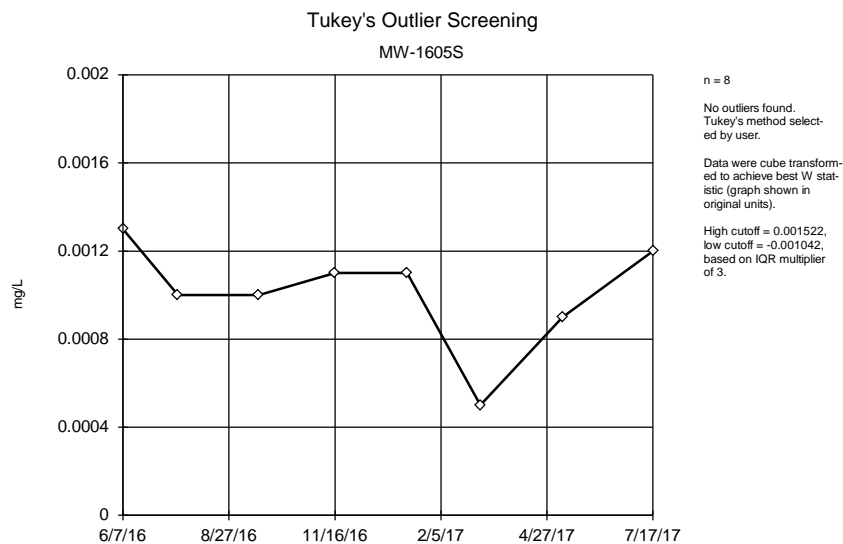
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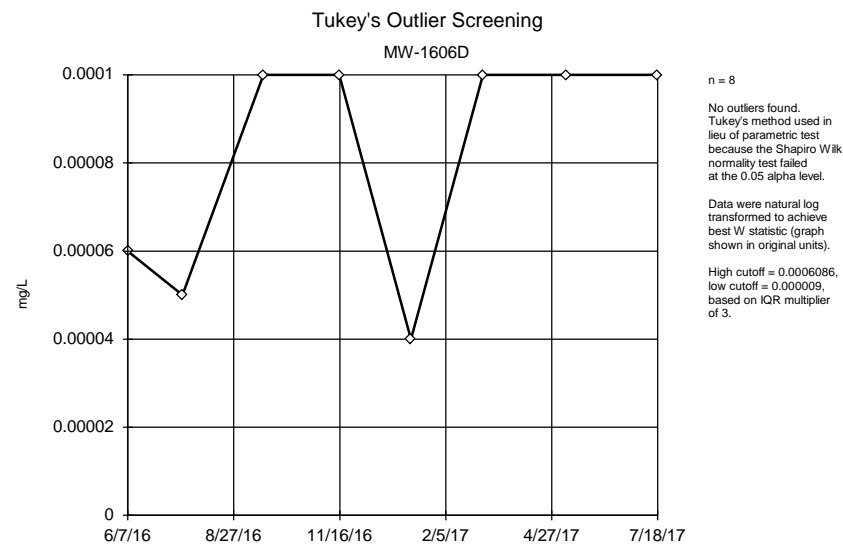
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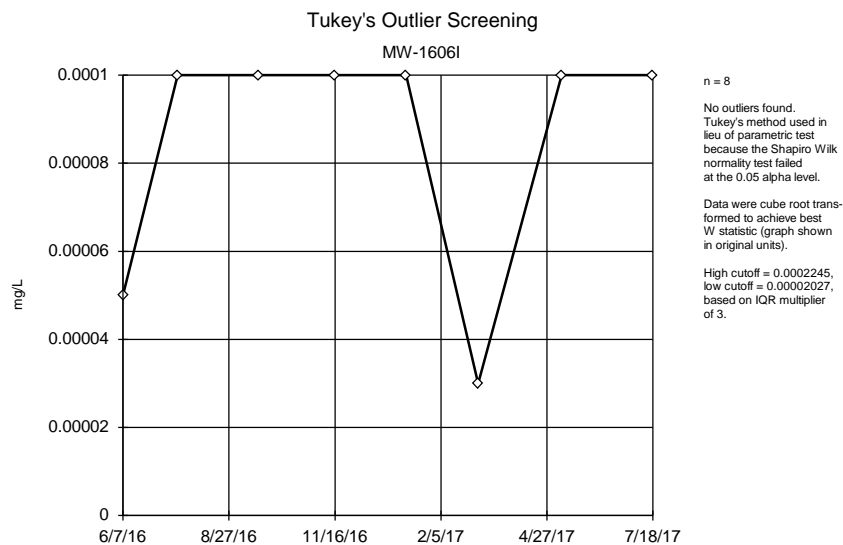
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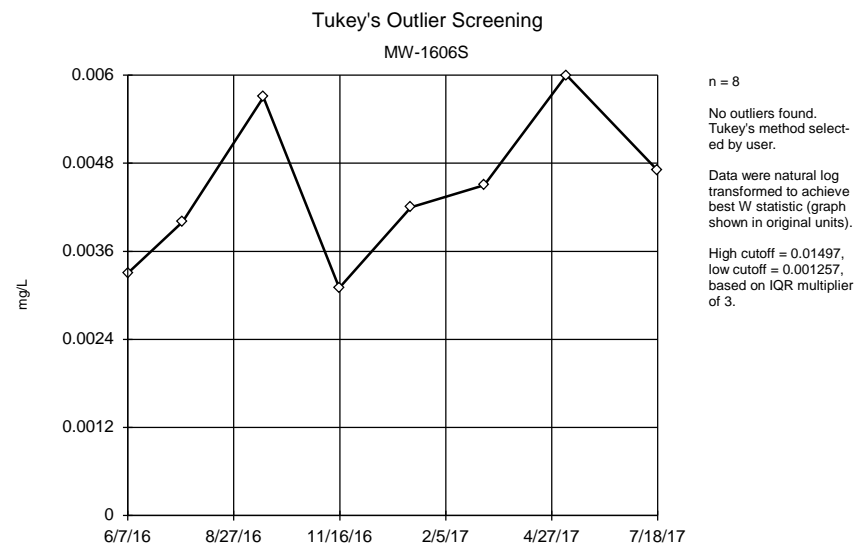
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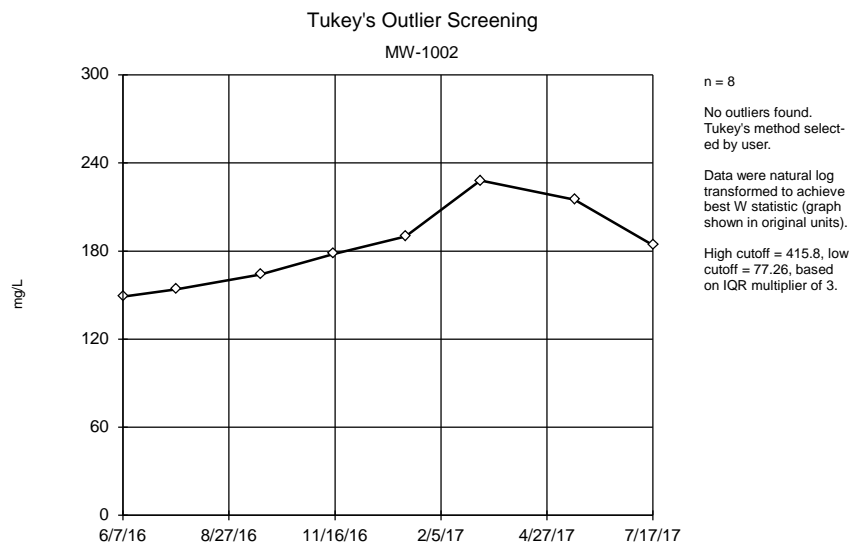
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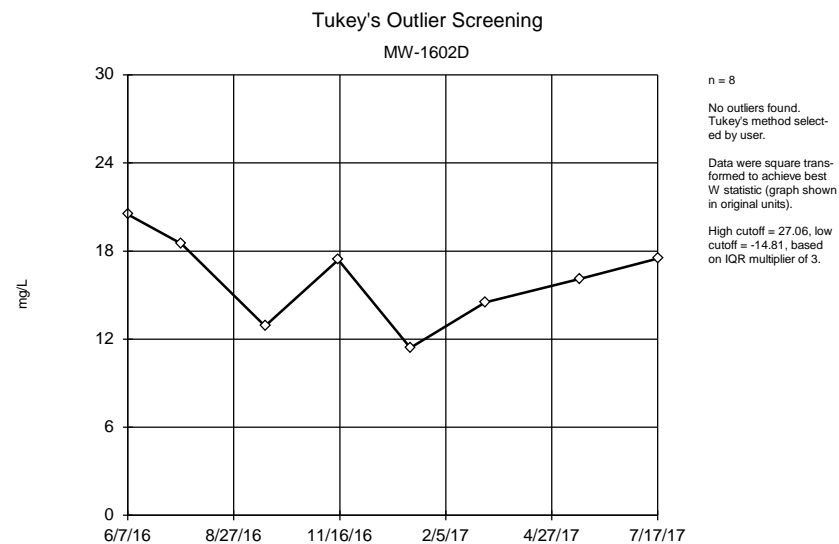
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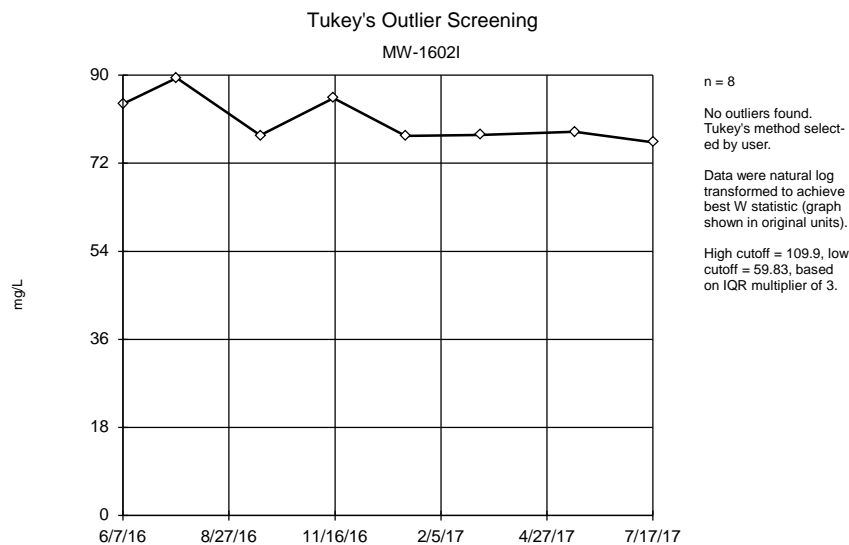
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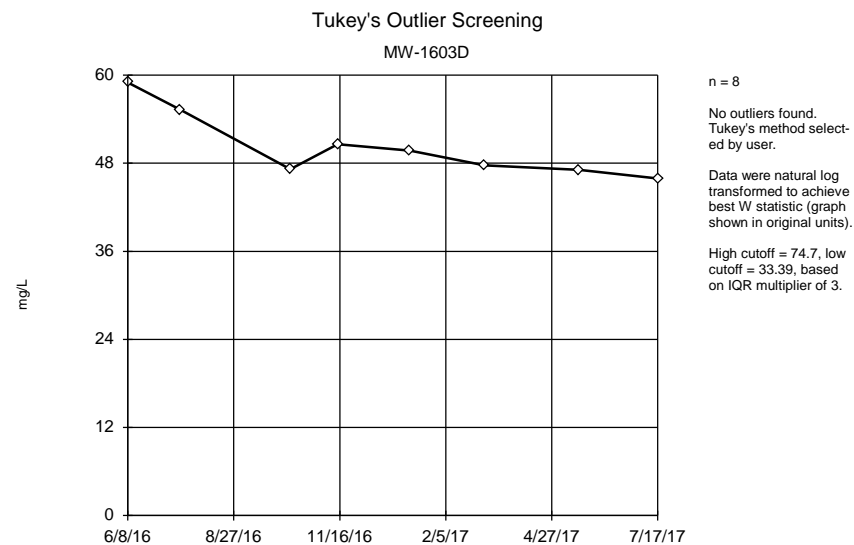
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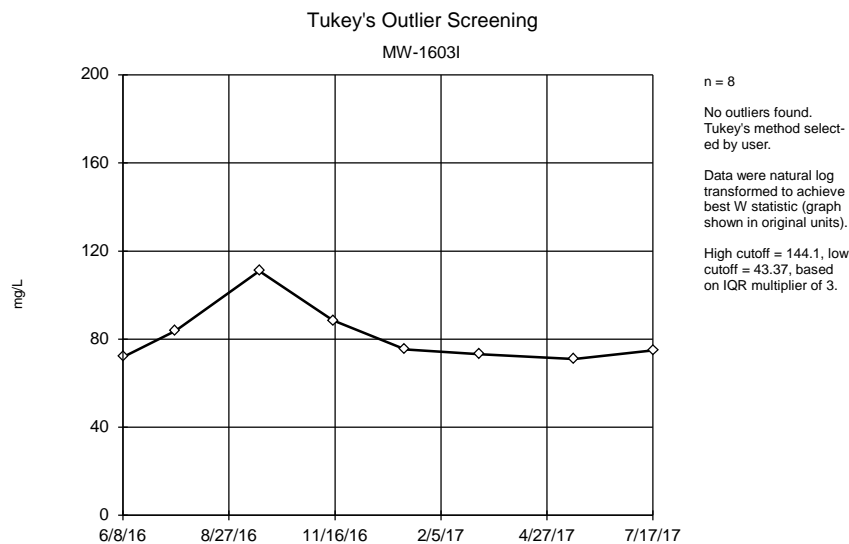
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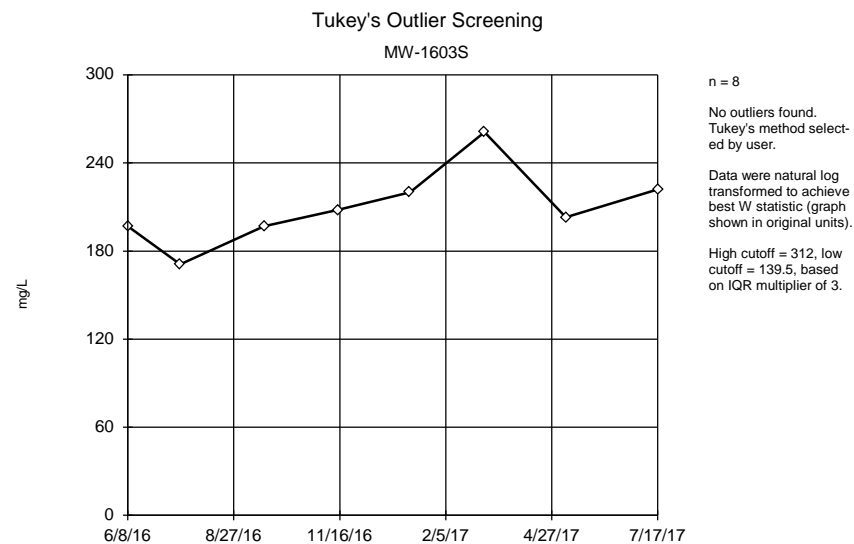
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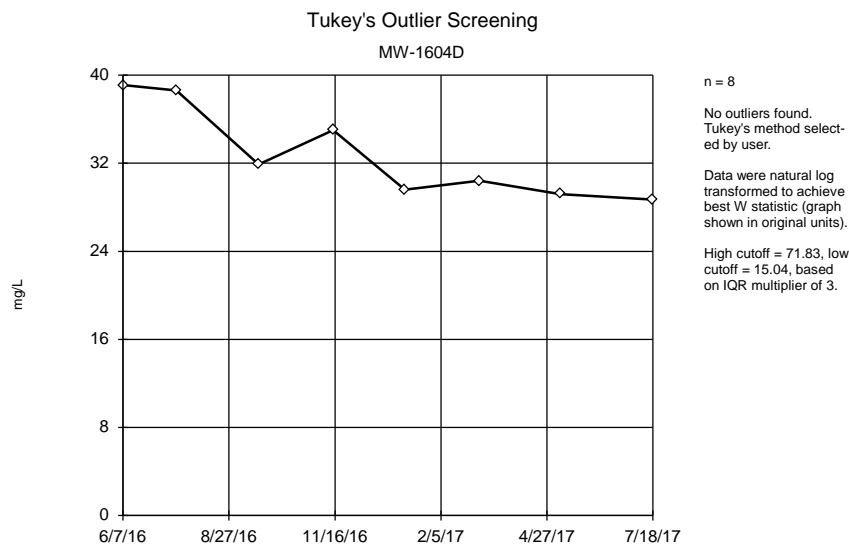
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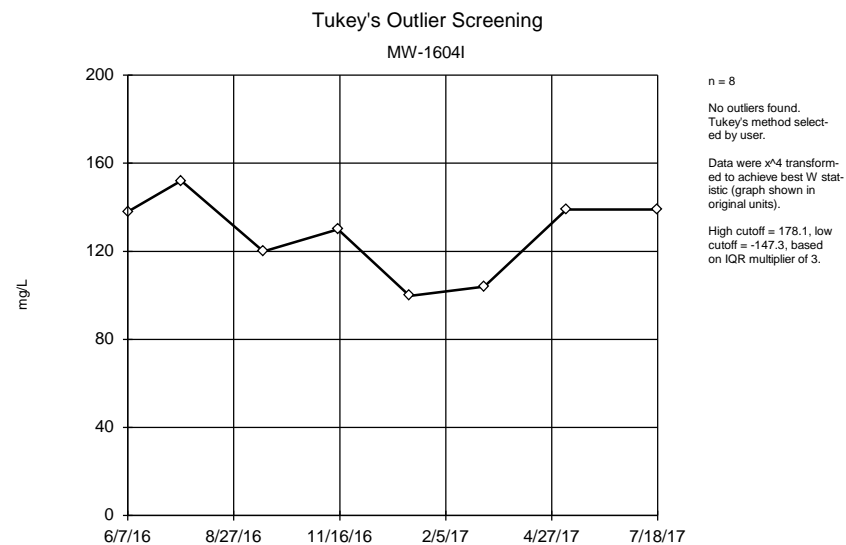
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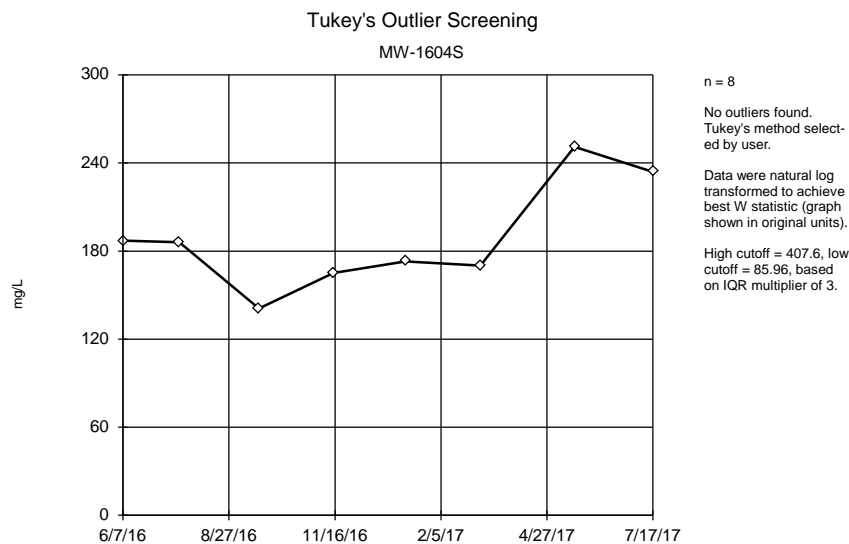
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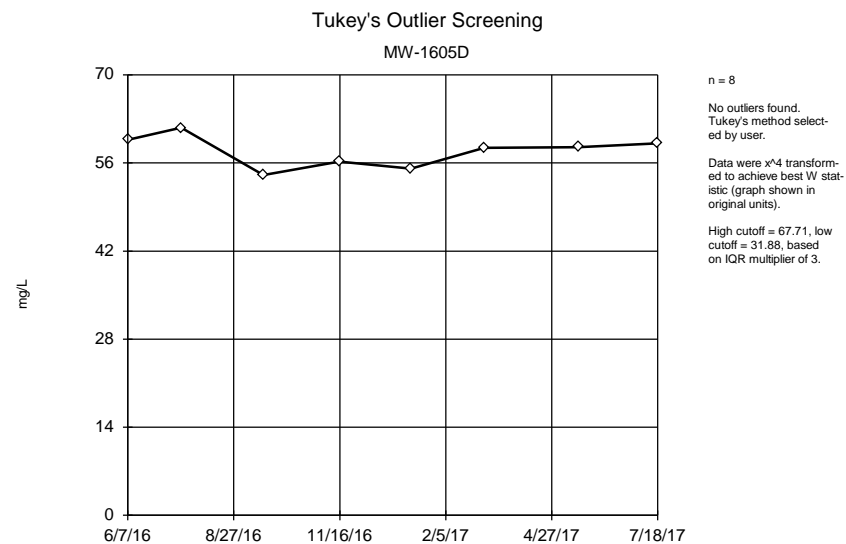
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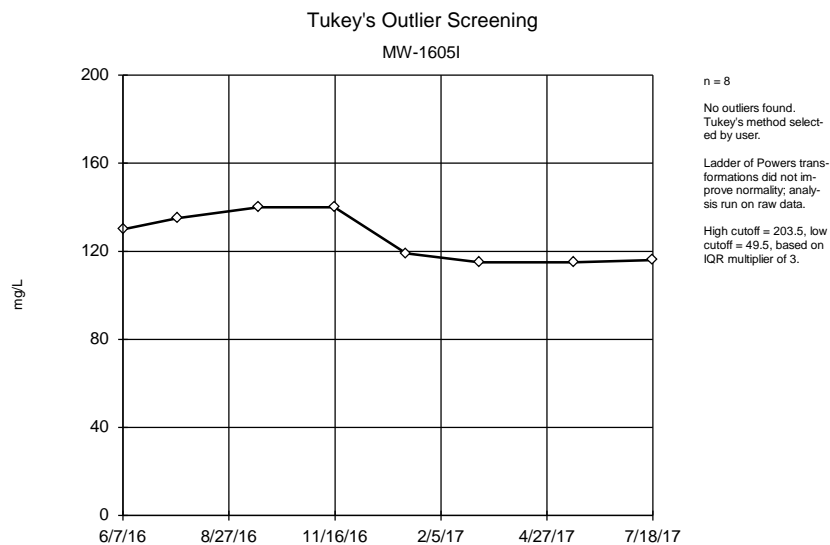
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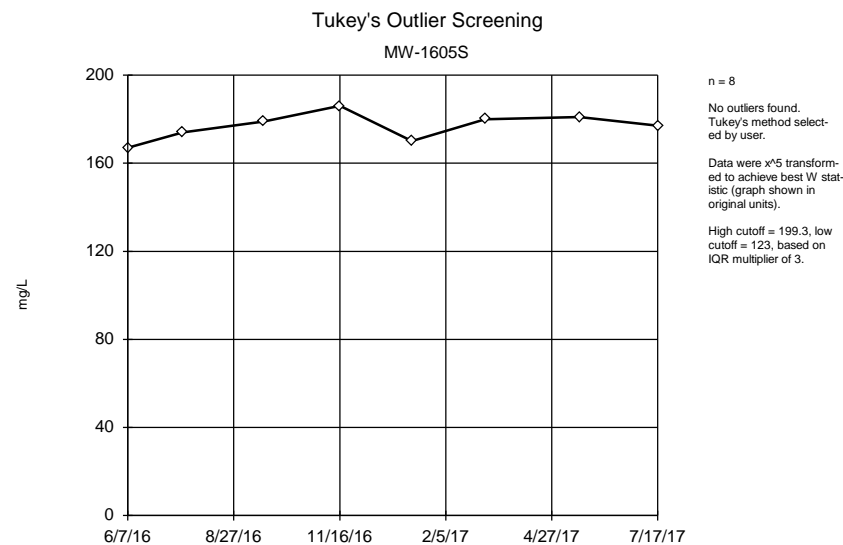
Constituent: Sulfate, total Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



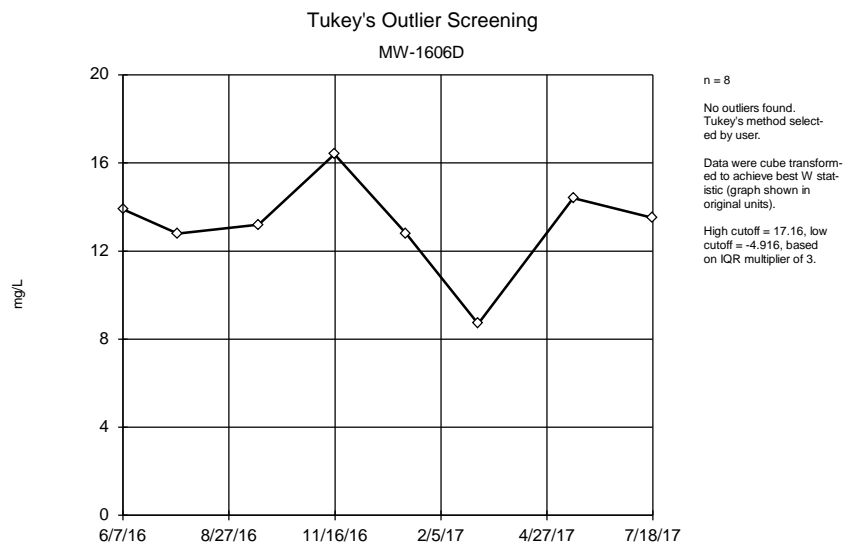
Constituent: Sulfate, total Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



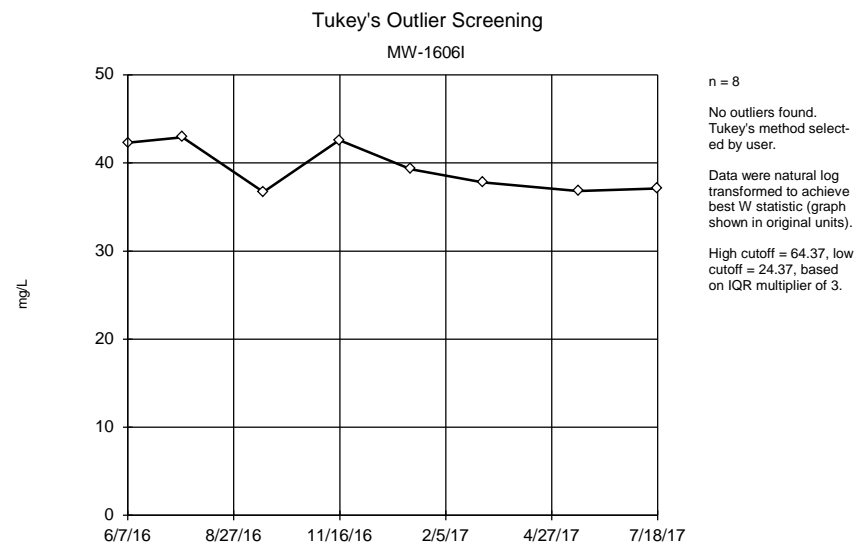
Constituent: Sulfate, total Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



Constituent: Sulfate, total Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

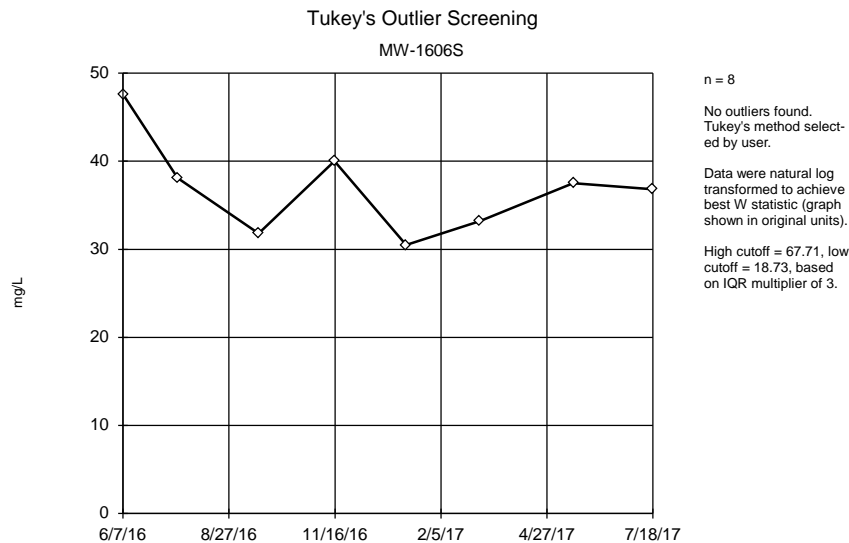


Constituent: Sulfate, total Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

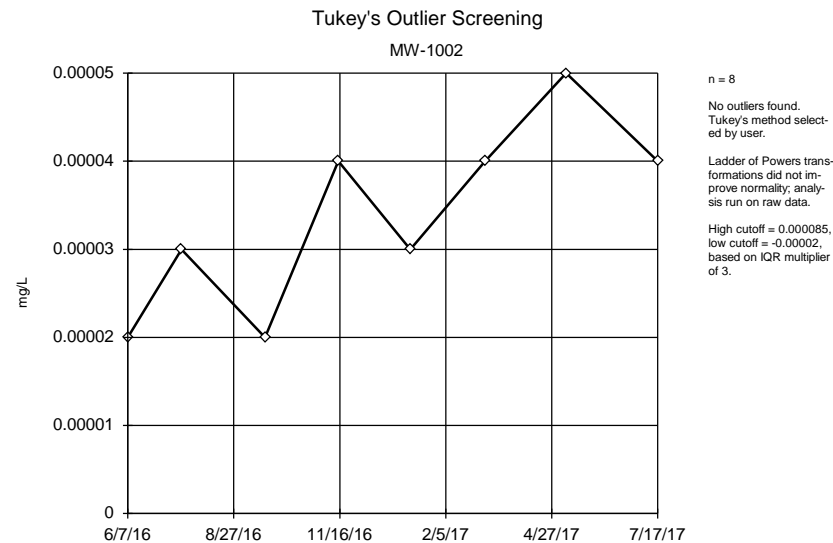


Constituent: Sulfate, total Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

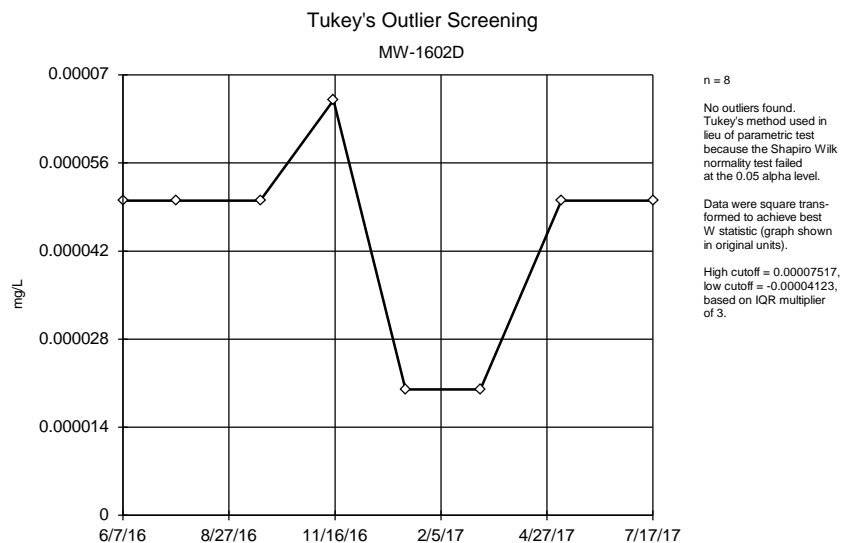




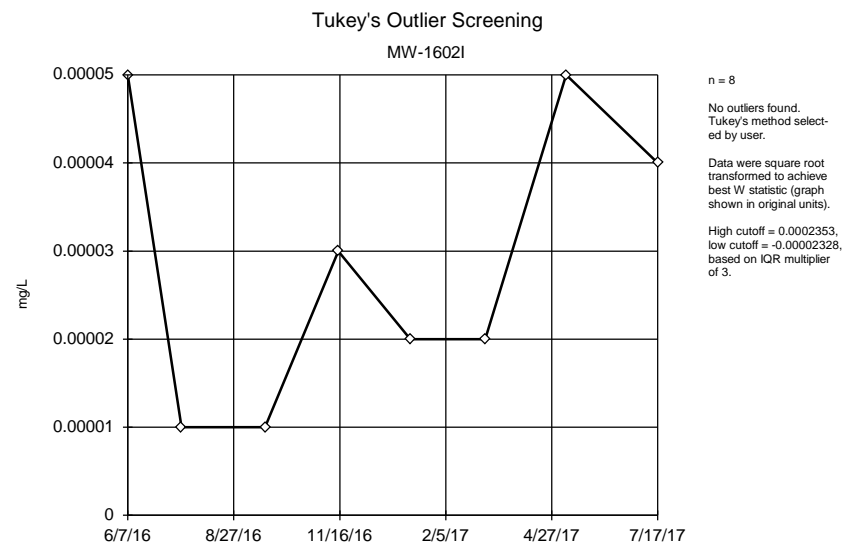
Constituent: Sulfate, total Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



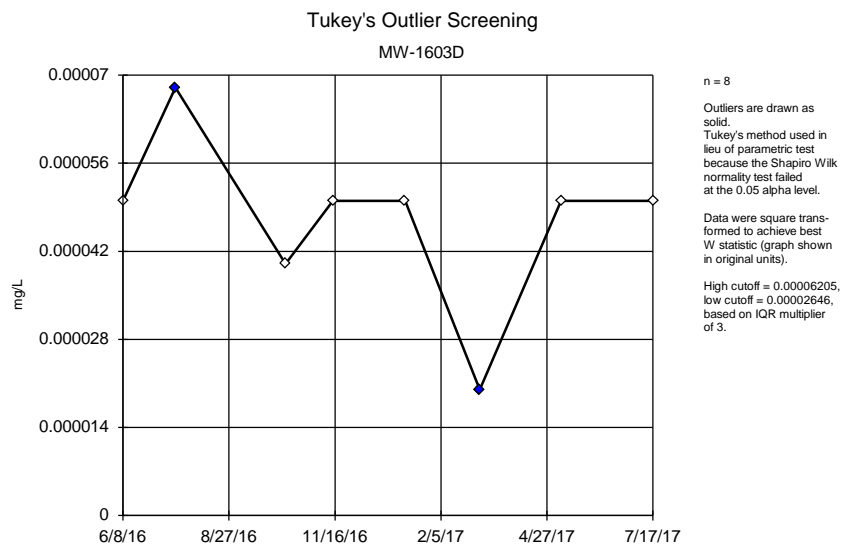
Constituent: Thallium, total Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



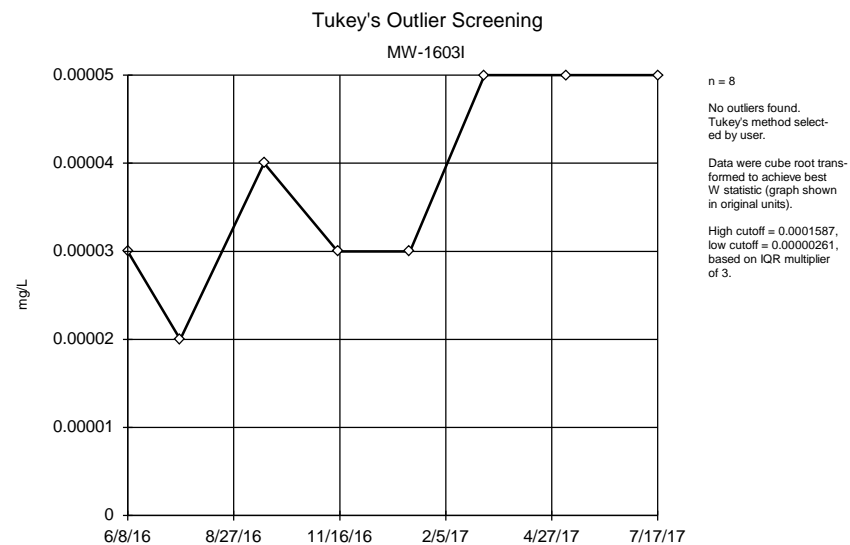
Constituent: Thallium, total Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



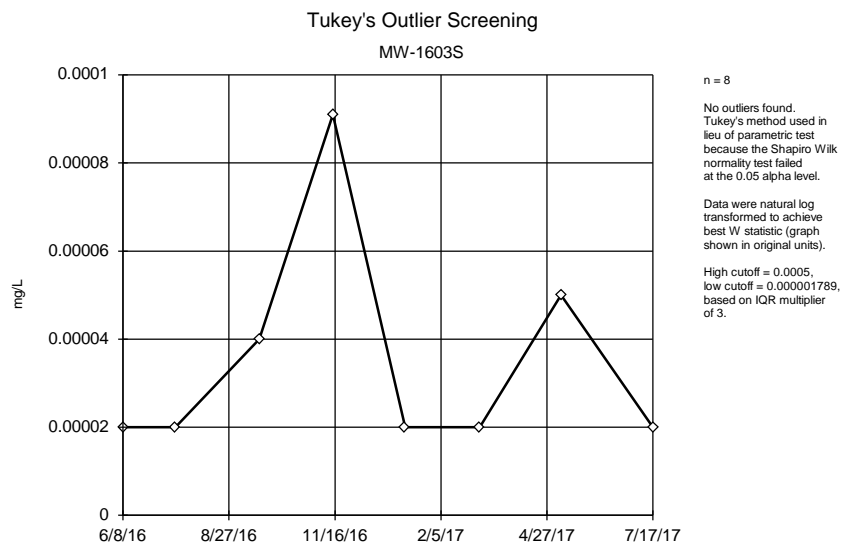
Constituent: Thallium, total Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



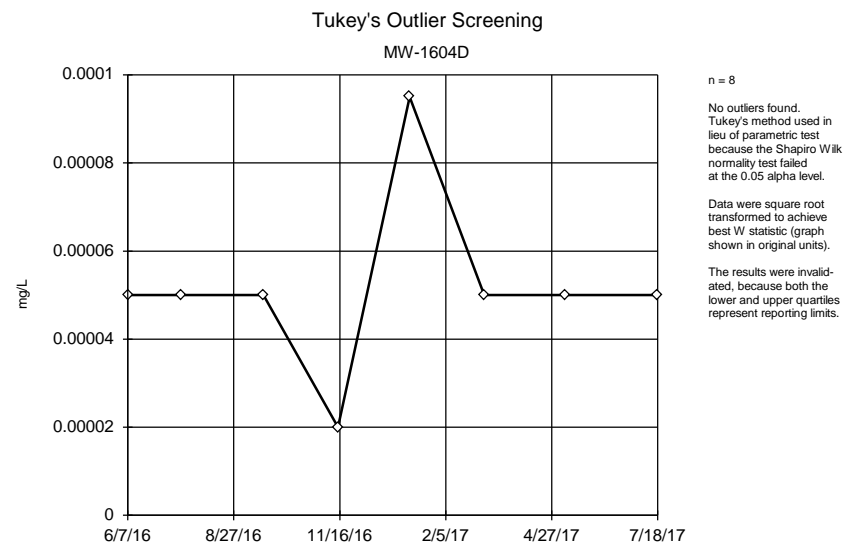
Constituent: Thallium, total Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



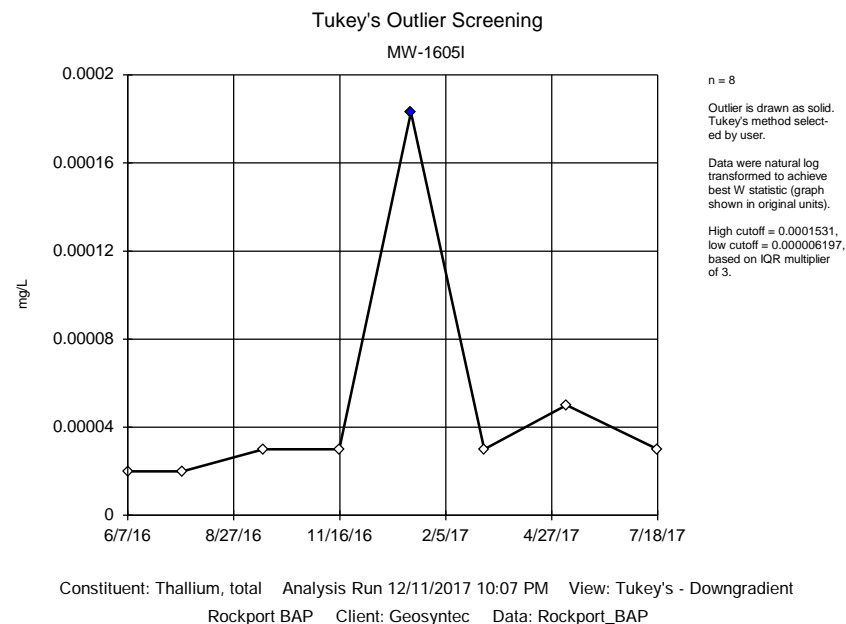
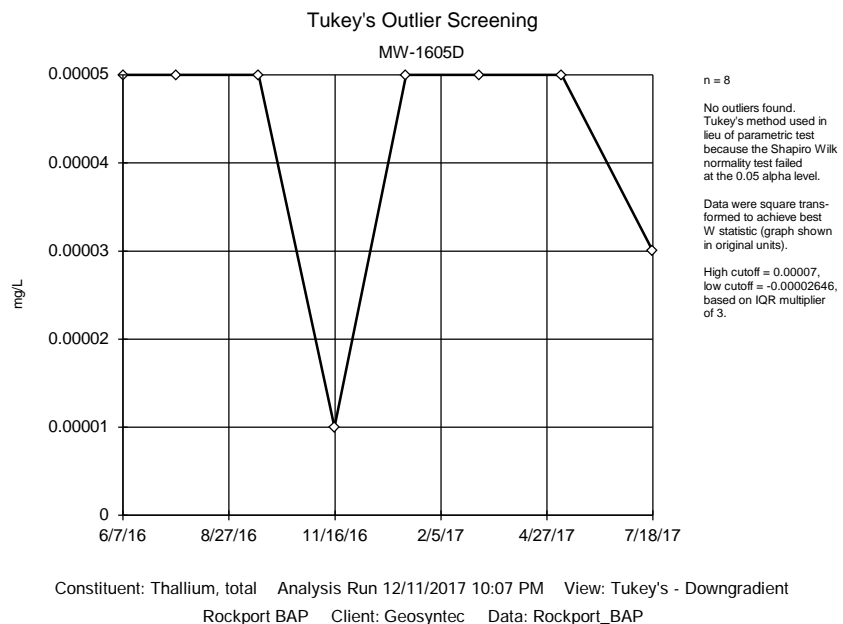
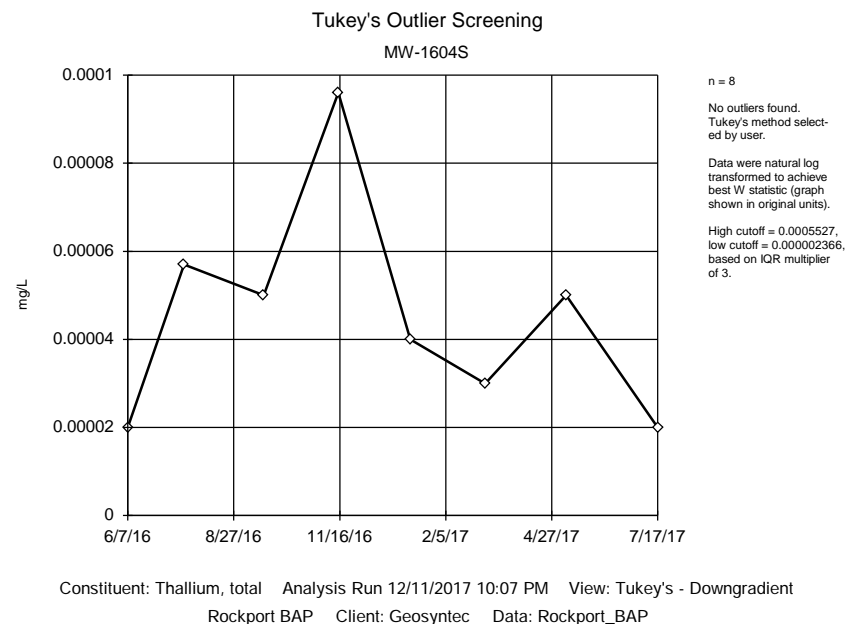
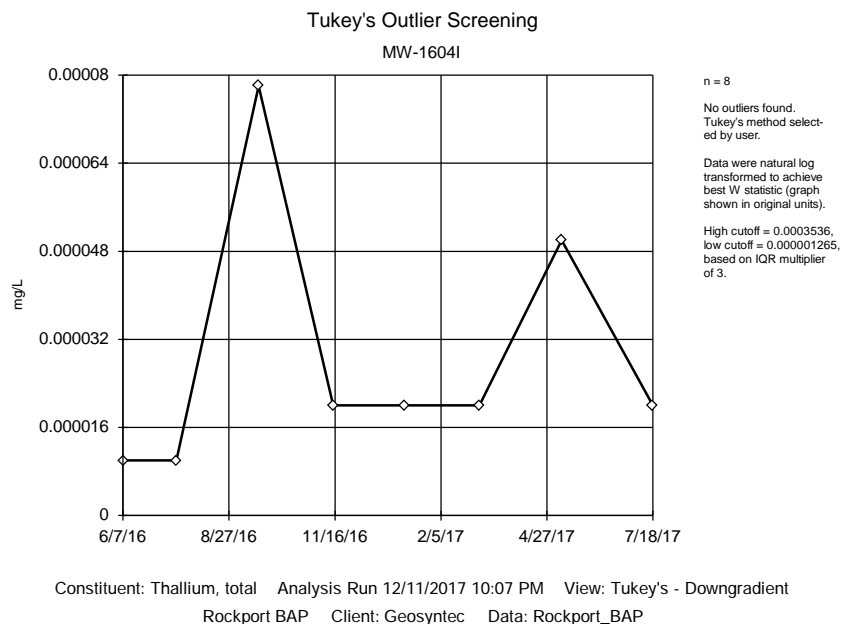
Constituent: Thallium, total Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

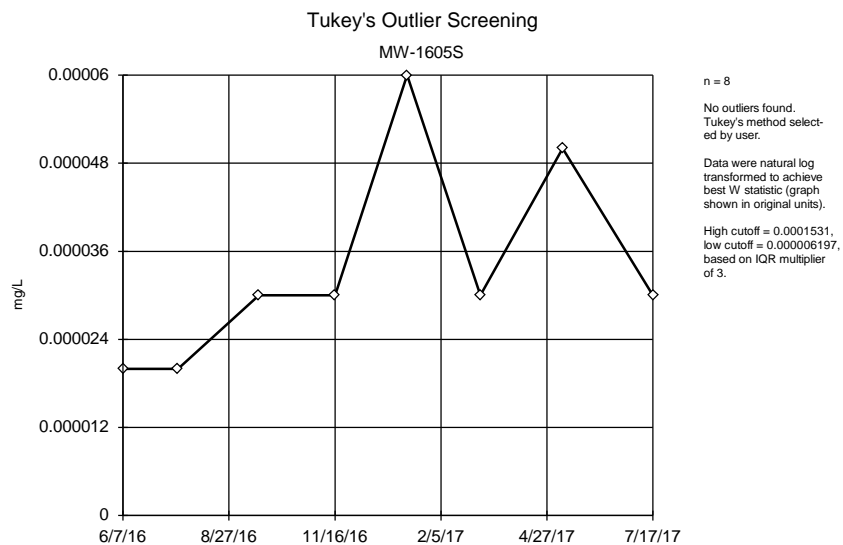


Constituent: Thallium, total Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

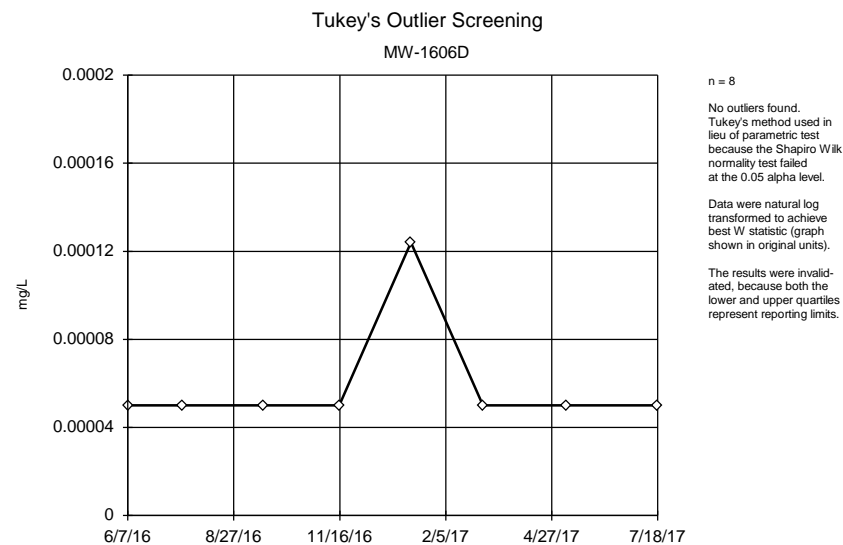


Constituent: Thallium, total Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

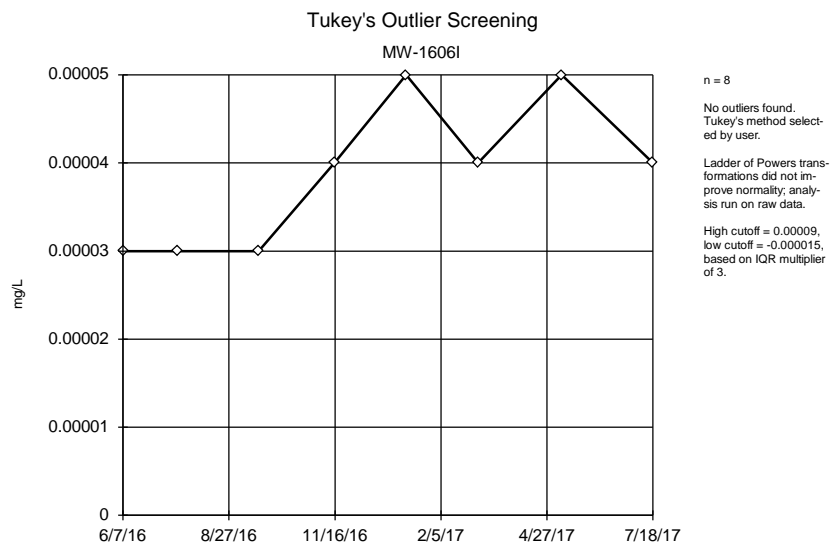




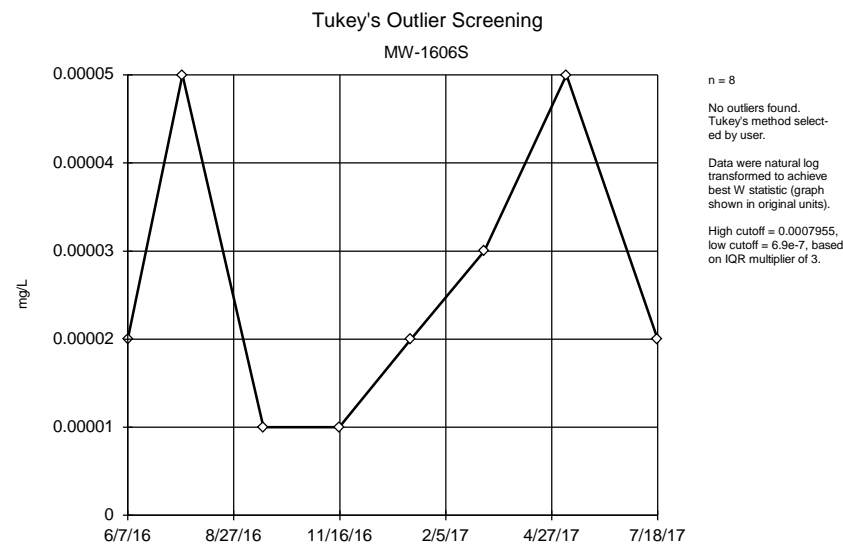
Constituent: Thallium, total Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



Constituent: Thallium, total Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



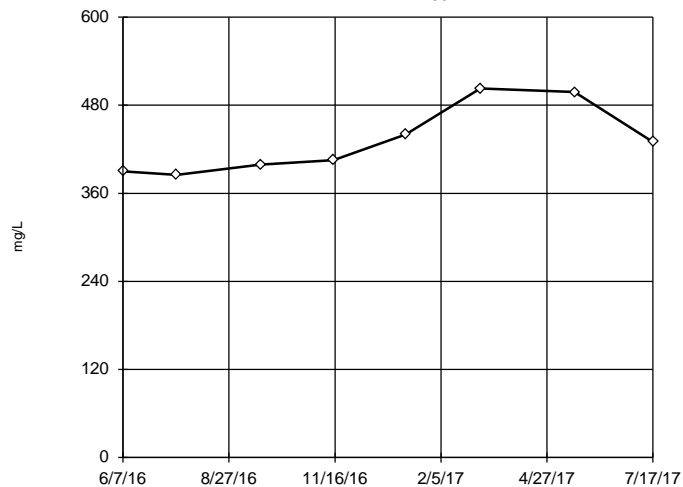
Constituent: Thallium, total Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



Constituent: Thallium, total Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradient  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1002



n = 8

No outliers found.  
Tukey's method selected by user.

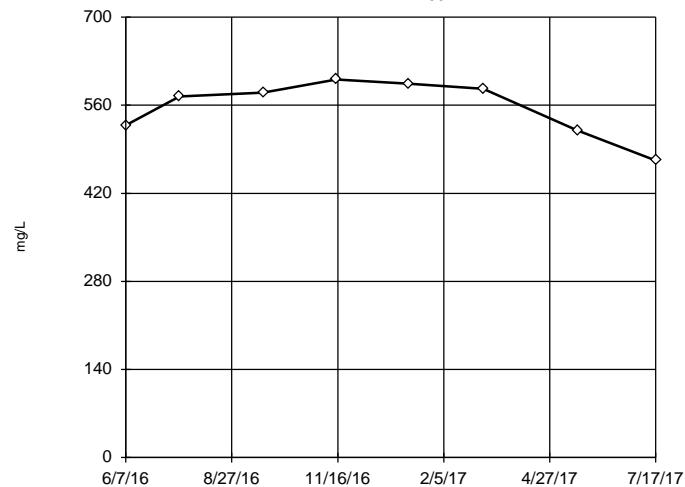
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 782.2, low cutoff = 236.1, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradie  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1602D



n = 8

No outliers found.  
Tukey's method selected by user.

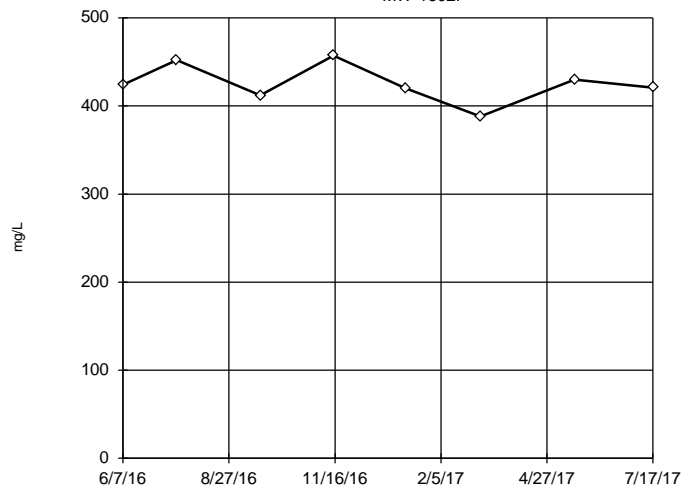
Data were x\*6 transformed to achieve best W statistic (graph shown in original units).

High cutoff = 688.7, low cutoff = -593.6, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradie  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1602I



n = 8

No outliers found.  
Tukey's method selected by user.

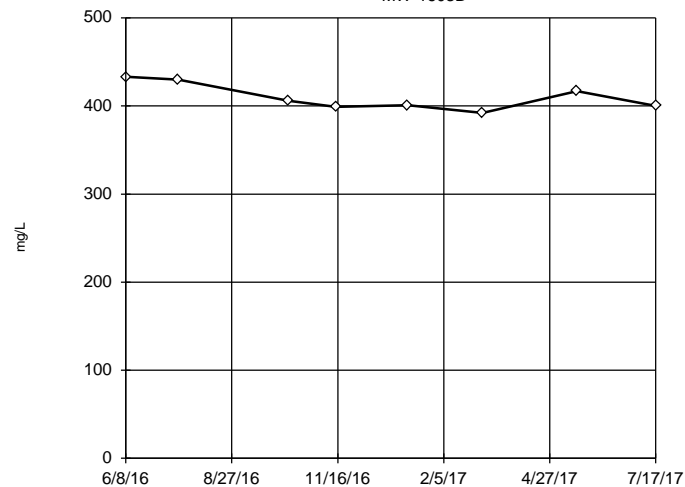
Ladder of Powers transformations did not improve normality; analysis run on raw data.

High cutoff = 516, low cutoff = 341, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradie  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1603D



n = 8

No outliers found.  
Tukey's method selected by user.

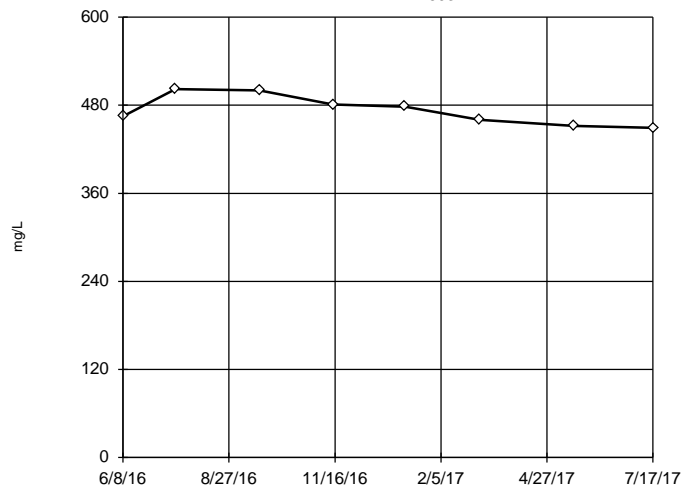
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 504.3, low cutoff = 335.5, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradie  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1603I



n = 8

No outliers found.  
Tukey's method selected by user.

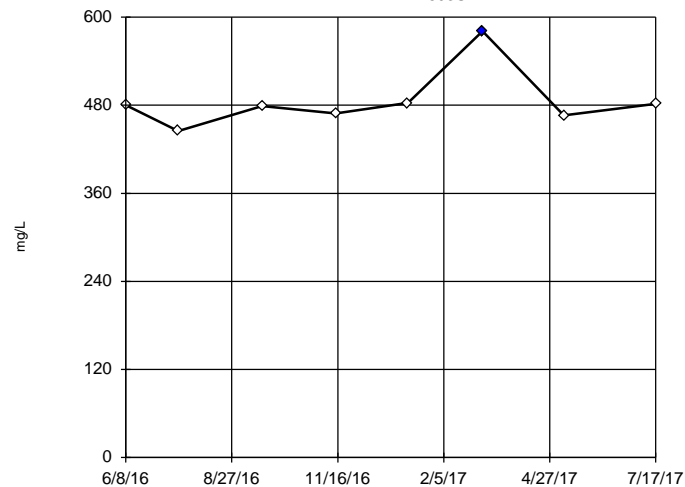
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 610.1, low cutoff = 366.5, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradie  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1603S



n = 8

Outlier is drawn as solid.  
Tukey's method selected by user.

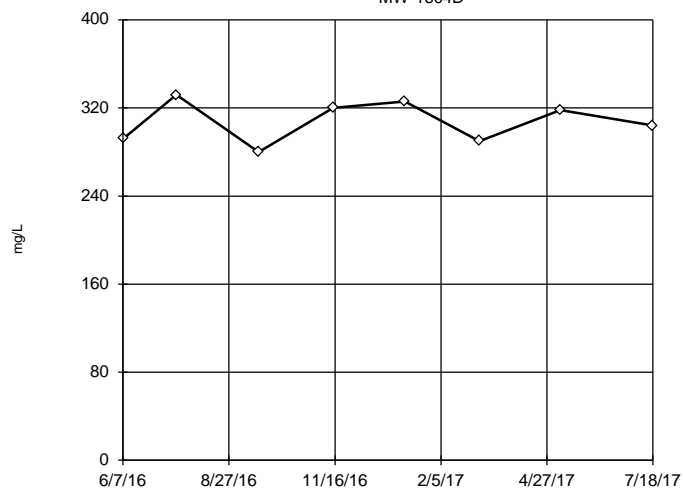
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 530.5, low cutoff = 425.2, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradie  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1604D



n = 8

No outliers found.  
Tukey's method selected by user.

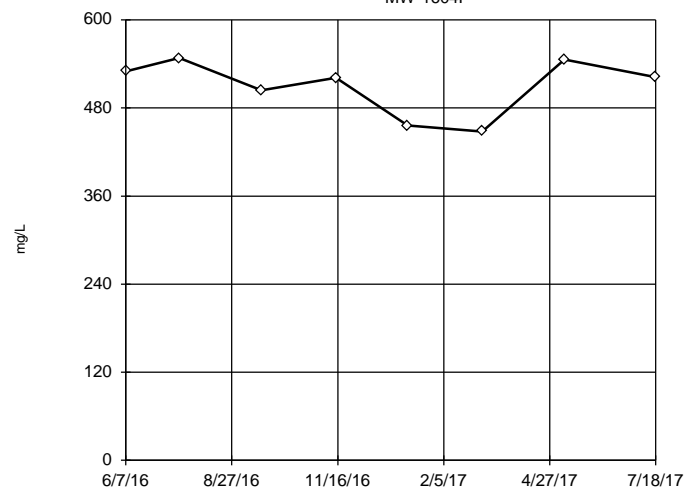
Data were x\*5 transformed to achieve best W statistic (graph shown in original units).

High cutoff = 378.9, low cutoff = 294.3, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradie  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Tukey's Outlier Screening

MW-1604I



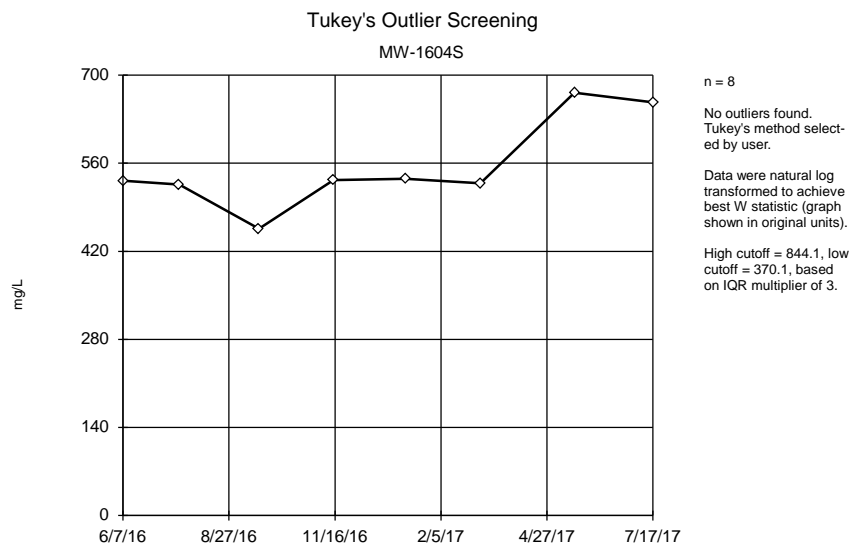
n = 8

No outliers found.  
Tukey's method selected by user.

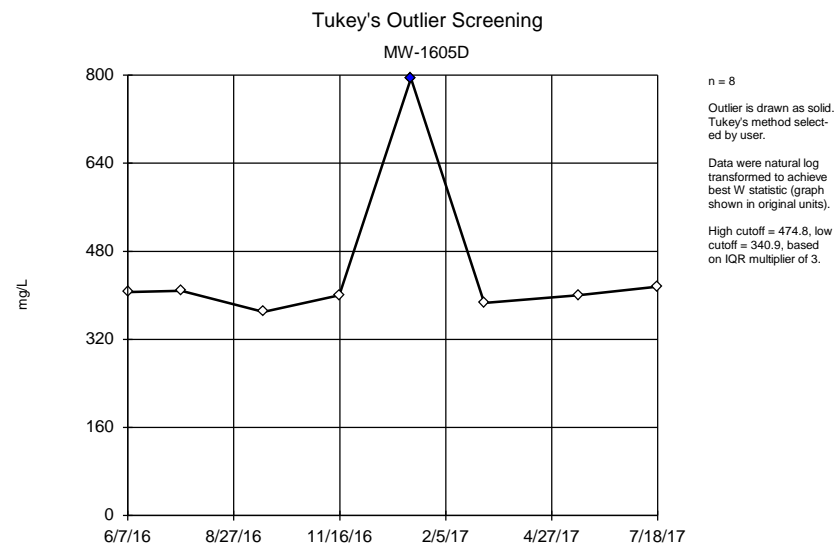
Data were x\*6 transformed to achieve best W statistic (graph shown in original units).

High cutoff = 624.4, low cutoff = 530.2, based on IQR multiplier of 3.

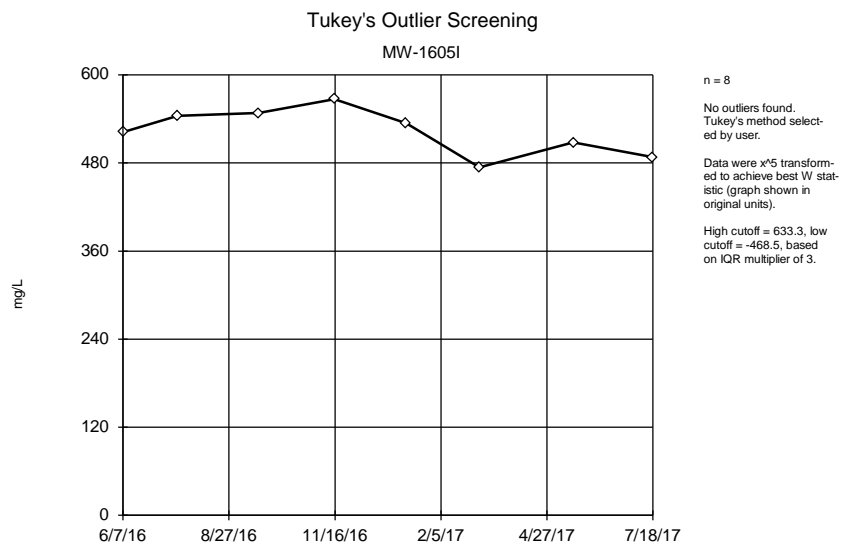
Constituent: Total Dissolved Solids [TDS] Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgradie  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



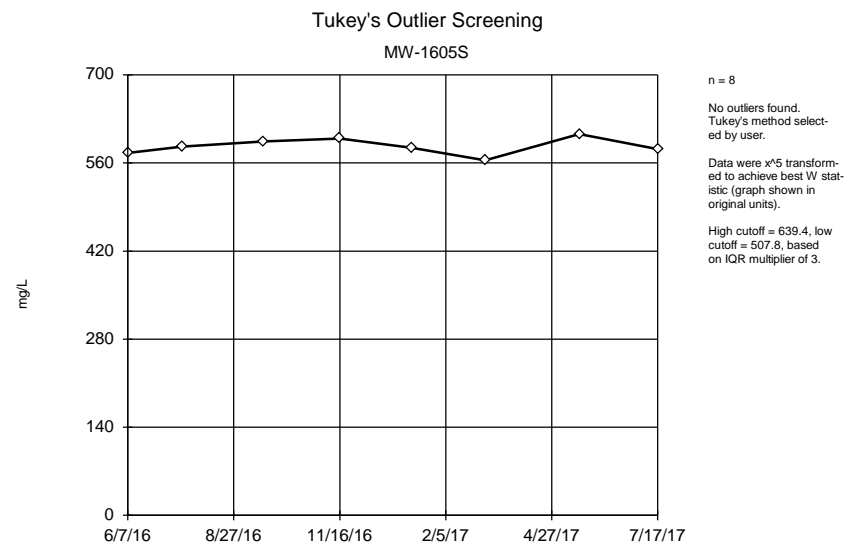
Constituent: Total Dissolved Solids [TDS] Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgrade  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



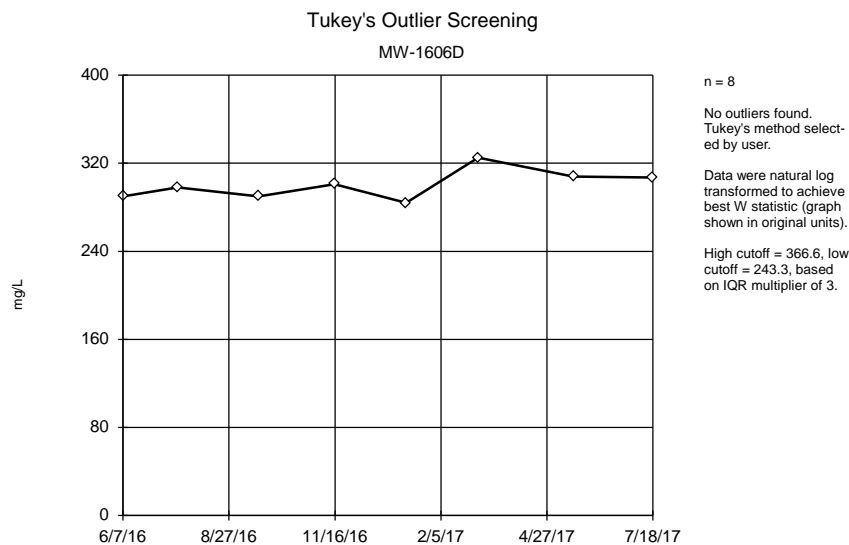
Constituent: Total Dissolved Solids [TDS] Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgrade  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



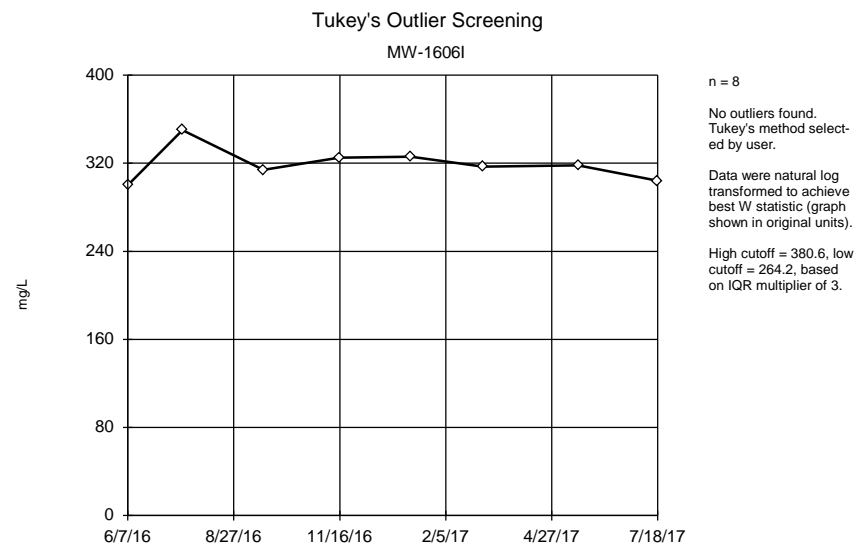
Constituent: Total Dissolved Solids [TDS] Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgrade  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



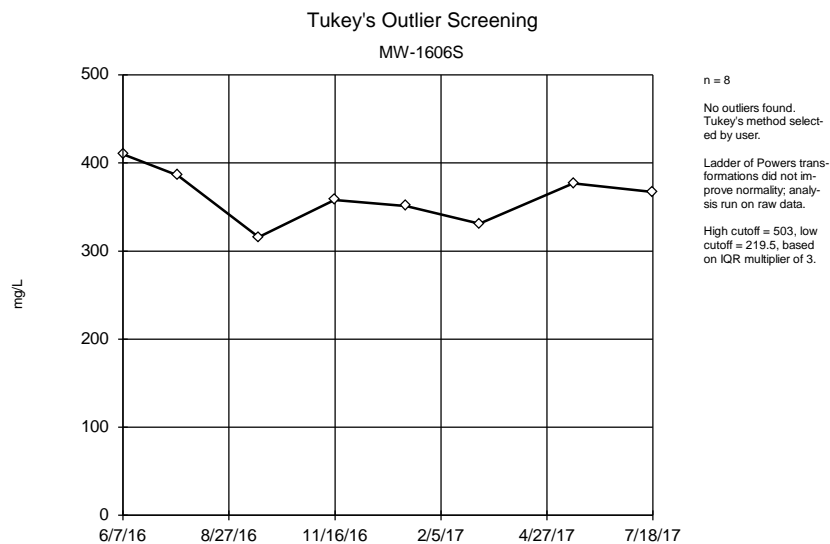
Constituent: Total Dissolved Solids [TDS] Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgrade  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



Constituent: Total Dissolved Solids [TDS] Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgrade  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



Constituent: Total Dissolved Solids [TDS] Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgrade  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



Constituent: Total Dissolved Solids [TDS] Analysis Run 12/11/2017 10:07 PM View: Tukey's - Downgrade  
Rockport BAP Client: Geosyntec Data: Rockport\_BAP



# Trend Tests Summary Table - Significant Results

Rockport BAP Client: Geosyntec Data: Rockport\_BAP Printed 12/12/2017, 5:37 AM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic, total (mg/L)	MW-1601D (bg)	0.001581	24	21	Yes	8	0	n/a	n/a	0.01	NP
Arsenic, total (mg/L)	MW-1601I (bg)	0.004291	27	21	Yes	8	0	n/a	n/a	0.01	NP
Barium, total (mg/L)	MW-1600S (bg)	-0.009544	-22	-21	Yes	8	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1002	-0.5906	-23	-21	Yes	8	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	MW-1601S (bg)	-4.549	-22	-21	Yes	8	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	MW-1602I	-5.678	-26	-21	Yes	8	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	MW-1604D	-2.341	-22	-21	Yes	8	0	n/a	n/a	0.01	NP
Cobalt, total (mg/L)	MW-1601D (bg)	-0.0003198	-24	-21	Yes	8	0	n/a	n/a	0.01	NP
Cobalt, total (mg/L)	MW-1606D	-0.00007177	-26	-21	Yes	8	0	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	MW-1002	-0.3214	-25	-21	Yes	8	0	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	MW-1606D	-0.0545	-23	-21	Yes	8	0	n/a	n/a	0.01	NP
Molybdenum, total (mg/L)	MW-1602I	-0.0005378	-22	-21	Yes	8	0	n/a	n/a	0.01	NP
Molybdenum, total (mg/L)	MW-1603S	-0.0006518	-24	-21	Yes	8	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	MW-1603D	-9.438	-22	-21	Yes	8	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	MW-1604D	-9.368	-24	-21	Yes	8	0	n/a	n/a	0.01	NP

# Trend Tests Summary Table - All Results

Rockport BAP Client: Geosyntec Data: Rockport\_BAP Printed 12/12/2017, 5:37 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Antimony, total (mg/L)	MW-1600D (bg)	0.00002116	11	21	No	8	37.5	n/a	n/a	0.01	NP
Antimony, total (mg/L)	MW-1600I (bg)	-0.00001357	-11	-21	No	8	0	n/a	n/a	0.01	NP
Antimony, total (mg/L)	MW-1600S (bg)	0	8	21	No	8	0	n/a	n/a	0.01	NP
Antimony, total (mg/L)	MW-1601D (bg)	0.00002951	13	21	No	8	37.5	n/a	n/a	0.01	NP
Antimony, total (mg/L)	MW-1601I (bg)	0	6	21	No	8	0	n/a	n/a	0.01	NP
Antimony, total (mg/L)	MW-1601S (bg)	0.0000301	15	21	No	8	0	n/a	n/a	0.01	NP
Antimony, total (mg/L)	MW-1002	0	-5	-21	No	8	0	n/a	n/a	0.01	NP
Antimony, total (mg/L)	MW-1602D	0	-1	-21	No	8	0	n/a	n/a	0.01	NP
Antimony, total (mg/L)	MW-1602I	0.00002848	17	21	No	8	0	n/a	n/a	0.01	NP
Antimony, total (mg/L)	MW-1603D	0	2	21	No	8	0	n/a	n/a	0.01	NP
Antimony, total (mg/L)	MW-1603I	0	-3	-21	No	8	0	n/a	n/a	0.01	NP
Antimony, total (mg/L)	MW-1603S	0	2	21	No	8	0	n/a	n/a	0.01	NP
Antimony, total (mg/L)	MW-1604D	0.00001104	9	21	No	8	0	n/a	n/a	0.01	NP
Antimony, total (mg/L)	MW-1604I	0.00004627	14	21	No	8	0	n/a	n/a	0.01	NP
Antimony, total (mg/L)	MW-1604S	0	5	18	No	7	0	n/a	n/a	0.01	NP
Antimony, total (mg/L)	MW-1605D	0.000005	9	21	No	8	0	n/a	n/a	0.01	NP
Antimony, total (mg/L)	MW-1605I	0.00001844	15	21	No	8	0	n/a	n/a	0.01	NP
Antimony, total (mg/L)	MW-1605S	0	-3	-21	No	8	0	n/a	n/a	0.01	NP
Antimony, total (mg/L)	MW-1606D	0	1	21	No	8	0	n/a	n/a	0.01	NP
Antimony, total (mg/L)	MW-1606I	0	-5	-21	No	8	0	n/a	n/a	0.01	NP
Antimony, total (mg/L)	MW-1606S	-0.00001289	-10	-21	No	8	0	n/a	n/a	0.01	NP
Arsenic, total (mg/L)	MW-1600D (bg)	-0.0003497	-4	-21	No	8	0	n/a	n/a	0.01	NP
Arsenic, total (mg/L)	MW-1600I (bg)	0.0009174	13	21	No	8	0	n/a	n/a	0.01	NP
Arsenic, total (mg/L)	MW-1600S (bg)	-0.00002936	-6	-21	No	8	0	n/a	n/a	0.01	NP
<b>Arsenic, total (mg/L)</b>	<b>MW-1601D (bg)</b>	<b>0.001581</b>	<b>24</b>	<b>21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.01</b>	<b>NP</b>
<b>Arsenic, total (mg/L)</b>	<b>MW-1601I (bg)</b>	<b>0.004291</b>	<b>27</b>	<b>21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.01</b>	<b>NP</b>
Arsenic, total (mg/L)	MW-1601S (bg)	0.0002161	17	21	No	8	0	n/a	n/a	0.01	NP
Arsenic, total (mg/L)	MW-1002	-0.00008517	-17	-21	No	8	0	n/a	n/a	0.01	NP
Arsenic, total (mg/L)	MW-1602D	0.0007194	8	21	No	8	0	n/a	n/a	0.01	NP
Arsenic, total (mg/L)	MW-1602I	0.00956	20	21	No	8	0	n/a	n/a	0.01	NP
Arsenic, total (mg/L)	MW-1603D	0.001199	18	21	No	8	0	n/a	n/a	0.01	NP
Arsenic, total (mg/L)	MW-1603I	0	-1	-21	No	8	0	n/a	n/a	0.01	NP
Arsenic, total (mg/L)	MW-1603S	-0.0001041	-15	-21	No	8	0	n/a	n/a	0.01	NP
Arsenic, total (mg/L)	MW-1604D	0.00213	12	21	No	8	0	n/a	n/a	0.01	NP
Arsenic, total (mg/L)	MW-1604I	-0.0002267	-3	-18	No	7	0	n/a	n/a	0.01	NP
Arsenic, total (mg/L)	MW-1604S	-0.0001328	-11	-21	No	8	0	n/a	n/a	0.01	NP
Arsenic, total (mg/L)	MW-1605D	0.0009913	10	21	No	8	0	n/a	n/a	0.01	NP
Arsenic, total (mg/L)	MW-1605I	0.00253	13	21	No	8	0	n/a	n/a	0.01	NP
Arsenic, total (mg/L)	MW-1605S	-0.0001217	-9	-21	No	8	0	n/a	n/a	0.01	NP
Arsenic, total (mg/L)	MW-1606D	0.001654	16	21	No	8	0	n/a	n/a	0.01	NP
Arsenic, total (mg/L)	MW-1606I	0.000875	10	21	No	8	0	n/a	n/a	0.01	NP
Arsenic, total (mg/L)	MW-1606S	0.00008237	10	21	No	8	0	n/a	n/a	0.01	NP
Barium, total (mg/L)	MW-1600D (bg)	-0.1064	-8	-21	No	8	0	n/a	n/a	0.01	NP
Barium, total (mg/L)	MW-1600I (bg)	-0.1229	-20	-21	No	8	0	n/a	n/a	0.01	NP
<b>Barium, total (mg/L)</b>	<b>MW-1600S (bg)</b>	<b>-0.009544</b>	<b>-22</b>	<b>-21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.01</b>	<b>NP</b>
Barium, total (mg/L)	MW-1601D (bg)	0.02429	4	21	No	8	0	n/a	n/a	0.01	NP
Barium, total (mg/L)	MW-1601I (bg)	-0.003068	0	21	No	8	0	n/a	n/a	0.01	NP
Barium, total (mg/L)	MW-1601S (bg)	0.003242	4	21	No	8	0	n/a	n/a	0.01	NP
Barium, total (mg/L)	MW-1002	0.01923	16	21	No	8	0	n/a	n/a	0.01	NP
Barium, total (mg/L)	MW-1602D	-0.08183	-8	-21	No	8	0	n/a	n/a	0.01	NP
Barium, total (mg/L)	MW-1602I	-0.01327	-9	-21	No	8	0	n/a	n/a	0.01	NP
Barium, total (mg/L)	MW-1603D	-0.01185	-10	-21	No	8	0	n/a	n/a	0.01	NP
Barium, total (mg/L)	MW-1603I	-0.001444	-2	-21	No	8	0	n/a	n/a	0.01	NP
Barium, total (mg/L)	MW-1603S	0.003658	7	21	No	8	0	n/a	n/a	0.01	NP
Barium, total (mg/L)	MW-1604D	0.02123	12	21	No	8	0	n/a	n/a	0.01	NP

# Trend Tests Summary Table - All Results

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Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Barium, total (mg/L)	MW-1604I	-0.001	-1	-21	No	8	0	n/a	n/a	0.01	NP
Barium, total (mg/L)	MW-1604S	0.00009674	0	21	No	8	0	n/a	n/a	0.01	NP
Barium, total (mg/L)	MW-1605D	0.02236	6	21	No	8	0	n/a	n/a	0.01	NP
Barium, total (mg/L)	MW-1605I	-0.0315	-12	-21	No	8	0	n/a	n/a	0.01	NP
Barium, total (mg/L)	MW-1605S	0.000435	10	21	No	8	0	n/a	n/a	0.01	NP
Barium, total (mg/L)	MW-1606D	0.02844	8	21	No	8	0	n/a	n/a	0.01	NP
Barium, total (mg/L)	MW-1606I	0.002652	6	21	No	8	0	n/a	n/a	0.01	NP
Barium, total (mg/L)	MW-1606S	0.001495	6	21	No	8	0	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1600D (bg)	4.0e-13	2	21	No	8	50	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1600I (bg)	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1600S (bg)	-0.000009089	-12	-21	No	8	37.5	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1601D (bg)	0	-7	-21	No	8	75	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1601I (bg)	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1601S (bg)	0	1	21	No	8	62.5	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1002	0	1	21	No	8	75	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1602D	0	-7	-21	No	8	62.5	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1602I	0	-9	-21	No	8	62.5	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1603D	0	-3	-21	No	8	75	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1603I	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1603S	0	1	21	No	8	75	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1604D	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1604I	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1604S	0	2	21	No	8	50	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1605D	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1605I	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1605S	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1606D	3.1e-13	7	21	No	8	62.5	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1606I	0	-1	-21	No	8	75	n/a	n/a	0.01	NP
Beryllium, total (mg/L)	MW-1606S	0	-5	-21	No	8	50	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1600D (bg)	0.02498	16	21	No	8	12.5	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1600I (bg)	0.02718	13	21	No	8	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1600S (bg)	0.02066	7	21	No	8	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1601D (bg)	0.02174	10	21	No	8	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1601I (bg)	0.01171	10	21	No	8	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1601S (bg)	-0.01797	-16	-21	No	8	0	n/a	n/a	0.01	NP
<b>Boron, total (mg/L)</b>	<b>MW-1002</b>	<b>-0.5906</b>	<b>-23</b>	<b>-21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.01</b>	<b>NP</b>
Boron, total (mg/L)	MW-1602D	0.02791	14	21	No	8	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1602I	0.01848	10	21	No	8	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1603D	0.001379	0	21	No	8	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1603I	0.04314	17	21	No	8	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1603S	0.06692	1	21	No	8	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1604D	0.05576	12	21	No	8	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1604I	0.2068	18	21	No	8	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1604S	-0.04666	-4	-21	No	8	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1605D	0.002	3	21	No	8	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1605I	0.01658	10	21	No	8	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1605S	0.04601	8	21	No	8	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1606D	0.009848	5	21	No	8	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1606I	0.01808	14	21	No	8	12.5	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1606S	0.02633	9	21	No	8	12.5	n/a	n/a	0.01	NP
Cadmium, total (mg/L)	MW-1600D (bg)	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Cadmium, total (mg/L)	MW-1600I (bg)	0.00001173	13	21	No	8	37.5	n/a	n/a	0.01	NP
Cadmium, total (mg/L)	MW-1600S (bg)	0	1	21	No	8	0	n/a	n/a	0.01	NP
Cadmium, total (mg/L)	MW-1601D (bg)	-0.000002011	-7	-21	No	8	37.5	n/a	n/a	0.01	NP
Cadmium, total (mg/L)	MW-1601I (bg)	0	1	21	No	8	75	n/a	n/a	0.01	NP

# Trend Tests Summary Table - All Results

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Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Cadmium, total (mg/L)	MW-1601S (bg)	0.00001713	14	21	No	8	0	n/a	n/a	0.01	NP
Cadmium, total (mg/L)	MW-1002	0.00002775	9	21	No	8	0	n/a	n/a	0.01	NP
Cadmium, total (mg/L)	MW-1602D	0	5	21	No	8	75	n/a	n/a	0.01	NP
Cadmium, total (mg/L)	MW-1602I	4.5e-7	9	21	No	8	37.5	n/a	n/a	0.01	NP
Cadmium, total (mg/L)	MW-1603D	1.8e-12	4	21	No	8	37.5	n/a	n/a	0.01	NP
Cadmium, total (mg/L)	MW-1603I	7.1e-13	9	21	No	8	62.5	n/a	n/a	0.01	NP
Cadmium, total (mg/L)	MW-1603S	0	9	21	No	8	0	n/a	n/a	0.01	NP
Cadmium, total (mg/L)	MW-1604D	0	-1	-21	No	8	62.5	n/a	n/a	0.01	NP
Cadmium, total (mg/L)	MW-1604I	0	-5	-18	No	7	57.14	n/a	n/a	0.01	NP
Cadmium, total (mg/L)	MW-1604S	0	-5	-21	No	8	0	n/a	n/a	0.01	NP
Cadmium, total (mg/L)	MW-1605D	0	-3	-21	No	8	75	n/a	n/a	0.01	NP
Cadmium, total (mg/L)	MW-1605I	0	3	21	No	8	50	n/a	n/a	0.01	NP
Cadmium, total (mg/L)	MW-1605S	0	-5	-21	No	8	0	n/a	n/a	0.01	NP
Cadmium, total (mg/L)	MW-1606D	0	0	21	No	8	75	n/a	n/a	0.01	NP
Cadmium, total (mg/L)	MW-1606I	3.1e-13	7	21	No	8	62.5	n/a	n/a	0.01	NP
Cadmium, total (mg/L)	MW-1606S	0.00001164	13	21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1600D (bg)	4.776	4	21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1600I (bg)	-4.53	-9	-21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1600S (bg)	-6.155	-9	-21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1601D (bg)	1.878	4	21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1601I (bg)	-0.6829	-2	-21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1601S (bg)	4.795	14	21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1002	46.54	20	21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1602D	-6.58	-8	-21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1602I	-6.602	-10	-21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1603D	12.57	12	21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1603I	-14.32	-10	-21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1603S	35.31	16	21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1604D	-3.805	-6	-21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1604I	-2.869	-4	-21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1604S	15.83	8	21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1605D	4.925	8	21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1605I	-7.776	-6	-21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1605S	-3.117	-4	-21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1606D	5.598	7	21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1606I	-1.984	-2	-21	No	8	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1606S	-3.599	-6	-21	No	8	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	MW-1600D (bg)	0.4107	8	21	No	8	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	MW-1600I (bg)	-3.502	-14	-21	No	8	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	MW-1600S (bg)	-8.955	-14	-21	No	8	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	MW-1601D (bg)	1.03	3	21	No	8	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	MW-1601I (bg)	0.8573	4	21	No	8	0	n/a	n/a	0.01	NP
<b>Chloride, total (mg/L)</b>	<b>MW-1601S (bg)</b>	<b>-4.549</b>	<b>-22</b>	<b>-21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.01</b>	<b>NP</b>
Chloride, total (mg/L)	MW-1002	4.841	10	21	No	8	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	MW-1602D	-26.92	-6	-21	No	8	0	n/a	n/a	0.01	NP
<b>Chloride, total (mg/L)</b>	<b>MW-1602I</b>	<b>-5.678</b>	<b>-26</b>	<b>-21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.01</b>	<b>NP</b>
Chloride, total (mg/L)	MW-1603D	-0.6379	-9	-21	No	8	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	MW-1603I	-3.575	-12	-21	No	8	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	MW-1603S	-4.591	-6	-21	No	8	0	n/a	n/a	0.01	NP
<b>Chloride, total (mg/L)</b>	<b>MW-1604D</b>	<b>-2.341</b>	<b>-22</b>	<b>-21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.01</b>	<b>NP</b>
Chloride, total (mg/L)	MW-1604I	-3.111	-6	-21	No	8	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	MW-1604S	21.52	16	21	No	8	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	MW-1605D	-2.933	-18	-21	No	8	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	MW-1605I	-5.864	-21	-21	No	8	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	MW-1605S	-3.459	-12	-21	No	8	0	n/a	n/a	0.01	NP

# Trend Tests Summary Table - All Results

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Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Chloride, total (mg/L)	MW-1606D	0.9521	12	21	No	8	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	MW-1606I	-1.998	-16	-21	No	8	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	MW-1606S	-3.404	-6	-21	No	8	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1600D (bg)	-0.00002645	-5	-21	No	8	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1600I (bg)	-0.0001508	-6	-21	No	8	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1600S (bg)	0.0000596	3	21	No	8	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1601D (bg)	-0.0003324	-10	-21	No	8	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1601I (bg)	-0.00001375	0	21	No	8	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1601S (bg)	0.0002015	5	21	No	8	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1002	-0.0001485	-4	-21	No	8	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1602D	-0.00005842	-4	-21	No	8	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1602I	0	1	21	No	8	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1603D	-0.00005987	-1	-18	No	7	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1603I	-0.0001694	-6	-21	No	8	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1603S	0.00005723	3	21	No	8	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1604D	0.000006724	1	21	No	8	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1604I	0.000006518	1	21	No	8	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1604S	-0.0003228	-8	-21	No	8	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1605D	-0.00009803	-9	-21	No	8	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1605I	-0.0001076	-9	-21	No	8	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1605S	-0.0001474	-6	-21	No	8	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1606D	-0.00008536	-6	-21	No	8	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1606I	-0.000051	-4	-21	No	8	0	n/a	n/a	0.01	NP
Chromium, total (mg/L)	MW-1606S	0.000132	6	21	No	8	0	n/a	n/a	0.01	NP
Cobalt, total (mg/L)	MW-1600D (bg)	0.000007612	4	21	No	8	0	n/a	n/a	0.01	NP
Cobalt, total (mg/L)	MW-1600I (bg)	0	0	21	No	8	0	n/a	n/a	0.01	NP
Cobalt, total (mg/L)	MW-1600S (bg)	0.0002733	12	21	No	8	0	n/a	n/a	0.01	NP
<b>Cobalt, total (mg/L)</b>	<b>MW-1601D (bg)</b>	<b>-0.0003198</b>	<b>-24</b>	<b>-21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.01</b>	<b>NP</b>
Cobalt, total (mg/L)	MW-1601I (bg)	-0.0001795	-5	-21	No	8	0	n/a	n/a	0.01	NP
Cobalt, total (mg/L)	MW-1601S (bg)	0.0001883	6	21	No	8	0	n/a	n/a	0.01	NP
Cobalt, total (mg/L)	MW-1002	-0.0002796	-18	-21	No	8	0	n/a	n/a	0.01	NP
Cobalt, total (mg/L)	MW-1602D	-0.00005974	-16	-21	No	8	0	n/a	n/a	0.01	NP
Cobalt, total (mg/L)	MW-1602I	0.0001424	8	21	No	8	0	n/a	n/a	0.01	NP
Cobalt, total (mg/L)	MW-1603D	-0.0007834	-20	-21	No	8	0	n/a	n/a	0.01	NP
Cobalt, total (mg/L)	MW-1603I	-0.0001073	-9	-21	No	8	0	n/a	n/a	0.01	NP
Cobalt, total (mg/L)	MW-1603S	-0.0004501	-12	-21	No	8	0	n/a	n/a	0.01	NP
Cobalt, total (mg/L)	MW-1604D	-0.000004256	0	21	No	8	0	n/a	n/a	0.01	NP
Cobalt, total (mg/L)	MW-1604I	-0.000006192	0	21	No	8	0	n/a	n/a	0.01	NP
Cobalt, total (mg/L)	MW-1604S	-0.0001056	-12	-21	No	8	0	n/a	n/a	0.01	NP
Cobalt, total (mg/L)	MW-1605D	-0.00007486	-10	-21	No	8	0	n/a	n/a	0.01	NP
Cobalt, total (mg/L)	MW-1605I	-0.0002532	-20	-21	No	8	0	n/a	n/a	0.01	NP
Cobalt, total (mg/L)	MW-1605S	-0.0001327	-18	-21	No	8	0	n/a	n/a	0.01	NP
<b>Cobalt, total (mg/L)</b>	<b>MW-1606D</b>	<b>-0.00007177</b>	<b>-26</b>	<b>-21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.01</b>	<b>NP</b>
Cobalt, total (mg/L)	MW-1606I	0.000253	12	21	No	8	0	n/a	n/a	0.01	NP
Cobalt, total (mg/L)	MW-1606S	0.0003223	11	21	No	8	0	n/a	n/a	0.01	NP
Combined Radium 226 + 228 (pCi/L)	MW-1600D (bg)	-0.5458	-6	-21	No	8	0	n/a	n/a	0.01	NP
Combined Radium 226 + 228 (pCi/L)	MW-1600I (bg)	-0.5659	-4	-21	No	8	0	n/a	n/a	0.01	NP
Combined Radium 226 + 228 (pCi/L)	MW-1600S (bg)	0.01313	0	21	No	8	0	n/a	n/a	0.01	NP
Combined Radium 226 + 228 (pCi/L)	MW-1601D (bg)	-0.038	0	21	No	8	0	n/a	n/a	0.01	NP
Combined Radium 226 + 228 (pCi/L)	MW-1601I (bg)	-0.1153	-6	-21	No	8	0	n/a	n/a	0.01	NP
Combined Radium 226 + 228 (pCi/L)	MW-1601S (bg)	-0.1765	-2	-21	No	8	0	n/a	n/a	0.01	NP
Combined Radium 226 + 228 (pCi/L)	MW-1002	0.5726	4	21	No	8	0	n/a	n/a	0.01	NP
Combined Radium 226 + 228 (pCi/L)	MW-1602D	-0.6475	-10	-21	No	8	0	n/a	n/a	0.01	NP
Combined Radium 226 + 228 (pCi/L)	MW-1602I	-0.5893	-12	-21	No	8	0	n/a	n/a	0.01	NP
Combined Radium 226 + 228 (pCi/L)	MW-1603D	0.3333	6	21	No	8	0	n/a	n/a	0.01	NP

# Trend Tests Summary Table - All Results

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Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Combined Radium 226 + 228 (pCi/L)	MW-1603I	0.5109	4	21	No	8	0	n/a	n/a	0.01	NP
Combined Radium 226 + 228 (pCi/L)	MW-1603S	-0.1188	-2	-21	No	8	0	n/a	n/a	0.01	NP
Combined Radium 226 + 228 (pCi/L)	MW-1604D	0.5795	14	21	No	8	0	n/a	n/a	0.01	NP
Combined Radium 226 + 228 (pCi/L)	MW-1604I	-0.1465	-2	-21	No	8	0	n/a	n/a	0.01	NP
Combined Radium 226 + 228 (pCi/L)	MW-1604S	0.1659	2	21	No	8	0	n/a	n/a	0.01	NP
Combined Radium 226 + 228 (pCi/L)	MW-1605D	0.002185	0	21	No	8	0	n/a	n/a	0.01	NP
Combined Radium 226 + 228 (pCi/L)	MW-1605I	-0.6093	-6	-21	No	8	0	n/a	n/a	0.01	NP
Combined Radium 226 + 228 (pCi/L)	MW-1605S	0.4219	8	21	No	8	0	n/a	n/a	0.01	NP
Combined Radium 226 + 228 (pCi/L)	MW-1606D	1.612	12	21	No	8	0	n/a	n/a	0.01	NP
Combined Radium 226 + 228 (pCi/L)	MW-1606I	-0.5504	-18	-21	No	8	0	n/a	n/a	0.01	NP
Combined Radium 226 + 228 (pCi/L)	MW-1606S	-0.5309	-8	-21	No	8	0	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	MW-1600D (bg)	-0.01751	-7	-21	No	8	0	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	MW-1600I (bg)	-0.04383	-12	-21	No	8	0	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	MW-1600S (bg)	0.05109	9	21	No	8	0	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	MW-1601D (bg)	-0.04884	-11	-21	No	8	0	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	MW-1601I (bg)	-0.02593	-9	-21	No	8	0	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	MW-1601S (bg)	-0.06373	-14	-21	No	8	0	n/a	n/a	0.01	NP
<b>Fluoride, total (mg/L)</b>	<b>MW-1002</b>	<b>-0.3214</b>	<b>-25</b>	<b>-21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.01</b>	<b>NP</b>
Fluoride, total (mg/L)	MW-1602D	-0.05904	-16	-21	No	8	0	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	MW-1602I	-0.06547	-19	-21	No	8	0	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	MW-1603D	-0.07301	-20	-21	No	8	0	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	MW-1603I	-0.03445	-8	-21	No	8	0	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	MW-1603S	-0.1597	-20	-21	No	8	0	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	MW-1604D	-0.0666	-20	-21	No	8	0	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	MW-1604I	-0.03635	-10	-21	No	8	0	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	MW-1604S	-0.08476	-8	-21	No	8	0	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	MW-1605D	-0.05596	-20	-21	No	8	0	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	MW-1605I	-0.05803	-15	-21	No	8	0	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	MW-1605S	-0.06053	-14	-21	No	8	0	n/a	n/a	0.01	NP
<b>Fluoride, total (mg/L)</b>	<b>MW-1606D</b>	<b>-0.0545</b>	<b>-23</b>	<b>-21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.01</b>	<b>NP</b>
Fluoride, total (mg/L)	MW-1606I	-0.04	-17	-21	No	8	0	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	MW-1606S	-0.06354	-17	-21	No	8	0	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1600D (bg)	0.00002292	6	21	No	8	0	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1600I (bg)	-0.00004898	-4	-21	No	8	0	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1600S (bg)	0.0001738	12	21	No	8	0	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1601D (bg)	-0.000004748	-3	-21	No	8	0	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1601I (bg)	0.000009793	4	21	No	8	0	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1601S (bg)	0.0002246	10	21	No	8	0	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1002	-3.0e-7	0	21	No	8	0	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1602D	0.00001278	2	21	No	8	0	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1602I	0.000129	7	21	No	8	0	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1603D	0.00001304	4	18	No	7	0	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1603I	0.000002399	0	21	No	8	0	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1603S	-0.00007417	-8	-21	No	8	0	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1604D	-0.000008835	-7	-21	No	8	0	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1604I	0.00003232	13	21	No	8	0	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1604S	-0.00005866	-3	-18	No	7	0	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1605D	-0.00001232	-8	-21	No	8	12.5	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1605I	-0.00002641	-2	-21	No	8	0	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1605S	-0.00007821	-15	-21	No	8	0	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1606D	-0.00003969	-18	-21	No	8	25	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1606I	0.000006238	3	21	No	8	12.5	n/a	n/a	0.01	NP
Lead, total (mg/L)	MW-1606S	0.0003008	10	21	No	8	0	n/a	n/a	0.01	NP
Lithium, total (mg/L)	MW-1600D (bg)	-0.003322	-4	-21	No	8	12.5	n/a	n/a	0.01	NP
Lithium, total (mg/L)	MW-1600I (bg)	0.001413	6	21	No	8	0	n/a	n/a	0.01	NP

# Trend Tests Summary Table - All Results

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Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Lithium, total (mg/L)	MW-1600S (bg)	0	-1	-21	No	8	0	n/a	n/a	0.01	NP
Lithium, total (mg/L)	MW-1601D (bg)	0.003284	9	21	No	8	12.5	n/a	n/a	0.01	NP
Lithium, total (mg/L)	MW-1601I (bg)	0.009148	18	21	No	8	0	n/a	n/a	0.01	NP
Lithium, total (mg/L)	MW-1601S (bg)	0.008192	13	21	No	8	12.5	n/a	n/a	0.01	NP
Lithium, total (mg/L)	MW-1002	0.003565	3	21	No	8	0	n/a	n/a	0.01	NP
Lithium, total (mg/L)	MW-1602D	-0.005635	-7	-21	No	8	0	n/a	n/a	0.01	NP
Lithium, total (mg/L)	MW-1602I	0.004814	13	21	No	8	0	n/a	n/a	0.01	NP
Lithium, total (mg/L)	MW-1603D	0.002034	4	21	No	8	0	n/a	n/a	0.01	NP
Lithium, total (mg/L)	MW-1603I	0.003967	6	21	No	8	12.5	n/a	n/a	0.01	NP
Lithium, total (mg/L)	MW-1603S	0.0008488	2	21	No	8	12.5	n/a	n/a	0.01	NP
Lithium, total (mg/L)	MW-1604D	-0.002288	-6	-21	No	8	12.5	n/a	n/a	0.01	NP
Lithium, total (mg/L)	MW-1604I	0.002317	5	21	No	8	0	n/a	n/a	0.01	NP
Lithium, total (mg/L)	MW-1604S	0.007451	16	21	No	8	0	n/a	n/a	0.01	NP
Lithium, total (mg/L)	MW-1605D	0	-1	-21	No	8	0	n/a	n/a	0.01	NP
Lithium, total (mg/L)	MW-1605I	0.005204	12	21	No	8	0	n/a	n/a	0.01	NP
Lithium, total (mg/L)	MW-1605S	-0.0009707	-4	-21	No	8	0	n/a	n/a	0.01	NP
Lithium, total (mg/L)	MW-1606D	0.0005432	1	21	No	8	12.5	n/a	n/a	0.01	NP
Lithium, total (mg/L)	MW-1606I	0	-1	-21	No	8	0	n/a	n/a	0.01	NP
Lithium, total (mg/L)	MW-1606S	-0.003616	-11	-21	No	8	0	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1600D (bg)	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1600I (bg)	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1600S (bg)	0	7	21	No	8	75	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1601D (bg)	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1601I (bg)	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1601S (bg)	0	-7	-21	No	8	75	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1002	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1602D	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1602I	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1603D	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1603I	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1603S	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1604D	0	-3	-21	No	8	75	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1604I	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1604S	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1605D	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1605I	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1605S	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1606D	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1606I	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Mercury, total (mg/L)	MW-1606S	0	0	21	No	8	87.5	n/a	n/a	0.01	NP
Molybdenum, total (mg/L)	MW-1600D (bg)	-0.0003417	-20	-21	No	8	0	n/a	n/a	0.01	NP
Molybdenum, total (mg/L)	MW-1600I (bg)	-0.0002017	-16	-21	No	8	0	n/a	n/a	0.01	NP
Molybdenum, total (mg/L)	MW-1600S (bg)	0.00007572	9	21	No	8	0	n/a	n/a	0.01	NP
Molybdenum, total (mg/L)	MW-1601D (bg)	-0.0005641	-6	-21	No	8	0	n/a	n/a	0.01	NP
Molybdenum, total (mg/L)	MW-1601I (bg)	-0.0006132	-20	-21	No	8	0	n/a	n/a	0.01	NP
Molybdenum, total (mg/L)	MW-1601S (bg)	-0.0007229	-15	-21	No	8	0	n/a	n/a	0.01	NP
Molybdenum, total (mg/L)	MW-1002	0.0006142	9	21	No	8	0	n/a	n/a	0.01	NP
Molybdenum, total (mg/L)	MW-1602D	-0.000007866	-1	-21	No	8	0	n/a	n/a	0.01	NP
<b>Molybdenum, total (mg/L)</b>	<b>MW-1602I</b>	<b>-0.0005378</b>	<b>-22</b>	<b>-21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.01</b>	<b>NP</b>
Molybdenum, total (mg/L)	MW-1603D	-0.001971	-20	-21	No	8	0	n/a	n/a	0.01	NP
Molybdenum, total (mg/L)	MW-1603I	-0.001309	-13	-21	No	8	0	n/a	n/a	0.01	NP
<b>Molybdenum, total (mg/L)</b>	<b>MW-1603S</b>	<b>-0.0006518</b>	<b>-24</b>	<b>-21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.01</b>	<b>NP</b>
Molybdenum, total (mg/L)	MW-1604D	-0.0006624	-14	-21	No	8	0	n/a	n/a	0.01	NP
Molybdenum, total (mg/L)	MW-1604I	0.0004049	10	21	No	8	0	n/a	n/a	0.01	NP
Molybdenum, total (mg/L)	MW-1604S	-0.0004467	-5	-18	No	7	0	n/a	n/a	0.01	NP

# Trend Tests Summary Table - All Results

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Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Molybdenum, total (mg/L)	MW-1605D	-0.001007	-16	-18	No	7	0	n/a	n/a	0.01	NP
Molybdenum, total (mg/L)	MW-1605I	-0.0002322	-12	-21	No	8	0	n/a	n/a	0.01	NP
Molybdenum, total (mg/L)	MW-1605S	-0.0004784	-18	-21	No	8	0	n/a	n/a	0.01	NP
Molybdenum, total (mg/L)	MW-1606D	-0.0001813	-6	-18	No	7	0	n/a	n/a	0.01	NP
Molybdenum, total (mg/L)	MW-1606I	-0.000407	-8	-21	No	8	0	n/a	n/a	0.01	NP
Molybdenum, total (mg/L)	MW-1606S	-0.0006695	-18	-21	No	8	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1600D (bg)	-0.7126	-21	-21	No	8	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1600I (bg)	-0.2054	-3	-18	No	7	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1600S (bg)	0.2156	10	21	No	8	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1601D (bg)	-0.7604	-20	-21	No	8	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1601I (bg)	-0.4106	-6	-21	No	8	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1601S (bg)	-0.7583	-21	-21	No	8	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1002	-0.3627	-12	-21	No	8	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1602D	-0.772	-8	-21	No	8	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1602I	-0.1912	-12	-21	No	8	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1603D	-0.03699	-1	-21	No	8	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1603I	0.1025	5	21	No	8	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1603S	-0.4562	-6	-21	No	8	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1604D	0.1005	12	21	No	8	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1604I	0.1254	4	21	No	8	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1604S	0.05715	3	21	No	8	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1605D	0.1259	7	21	No	8	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1605I	-0.1469	-4	-21	No	8	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1605S	-0.01426	-2	-21	No	8	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1606D	0.2416	8	21	No	8	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1606I	0.3484	8	21	No	8	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1606S	-0.1006	-8	-21	No	8	0	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1600D (bg)	0	-6	-21	No	8	37.5	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1600I (bg)	4.0e-12	6	21	No	8	50	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1600S (bg)	0.0001976	12	21	No	8	0	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1601D (bg)	0	5	21	No	8	62.5	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1601I (bg)	0	-3	-21	No	8	75	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1601S (bg)	0.000383	21	21	No	8	0	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1002	0	-3	-21	No	8	0	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1602D	0.0000444	12	21	No	8	37.5	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1602I	0.00003881	10	21	No	8	37.5	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1603D	0	-1	-21	No	8	50	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1603I	0	1	21	No	8	62.5	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1603S	0	2	21	No	8	12.5	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1604D	0	2	21	No	8	50	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1604I	6.5e-12	8	21	No	8	50	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1604S	-0.00003125	-7	-21	No	8	0	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1605D	0	4	21	No	8	62.5	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1605I	0.0000151	9	21	No	8	37.5	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1605S	-0.0001071	-4	-21	No	8	0	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1606D	9.9e-12	8	21	No	8	50	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1606I	0	3	21	No	8	62.5	n/a	n/a	0.01	NP
Selenium, total (mg/L)	MW-1606S	0.001386	14	21	No	8	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	MW-1600D (bg)	-4.685	-8	-21	No	8	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	MW-1600I (bg)	-3.91	-8	-21	No	8	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	MW-1600S (bg)	-24.44	-18	-21	No	8	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	MW-1601D (bg)	1.779	6	21	No	8	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	MW-1601I (bg)	-2.504	-4	-21	No	8	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	MW-1601S (bg)	3.66	6	21	No	8	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	MW-1002	70.28	20	21	No	8	0	n/a	n/a	0.01	NP



# Trend Tests Summary Table - All Results

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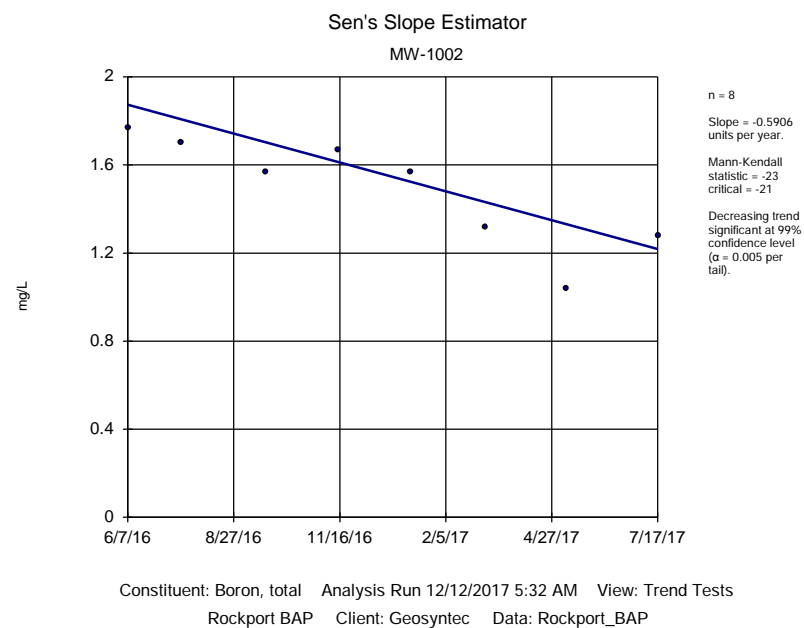
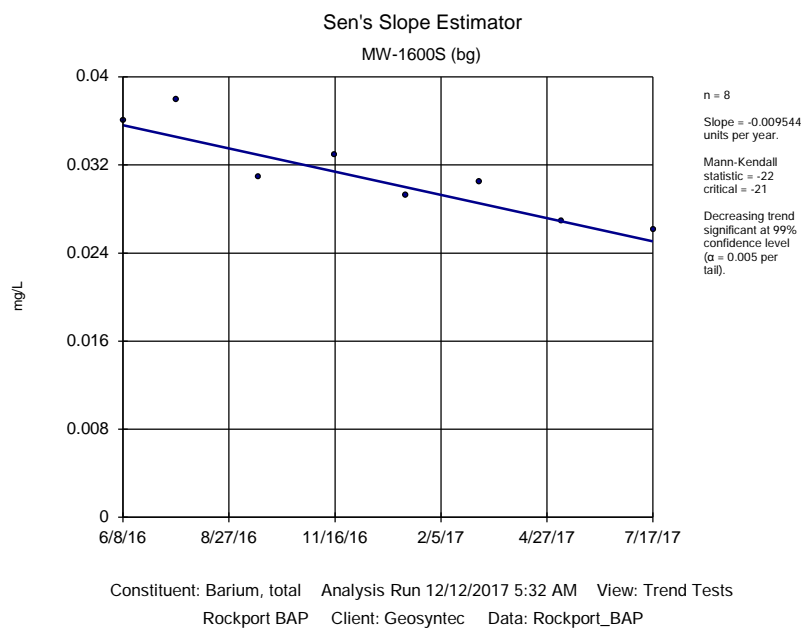
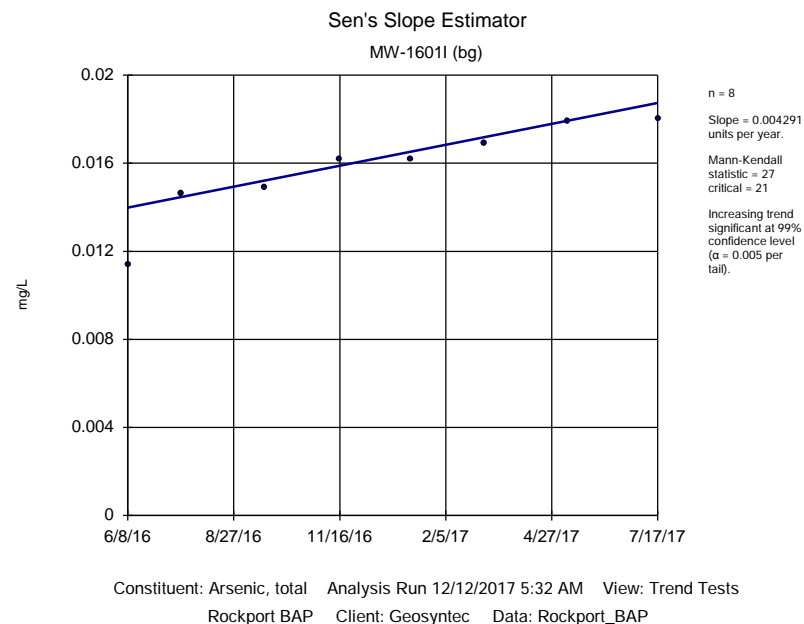
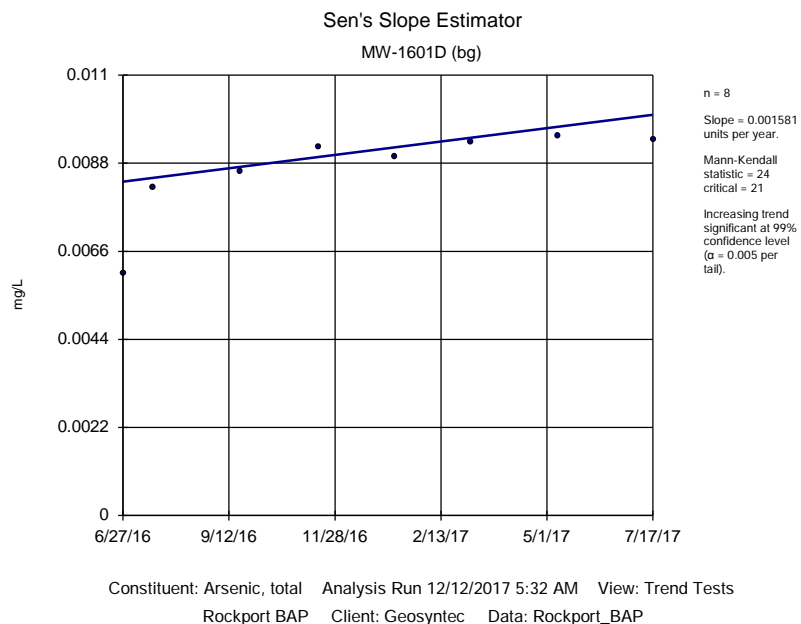
Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Sulfate, total (mg/L)	MW-1602D	-2.793	-6	-21	No	8	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	MW-1602I	-7.726	-12	-21	No	8	0	n/a	n/a	0.01	NP
<b>Sulfate, total (mg/L)</b>	<b>MW-1603D</b>	<b>-9.438</b>	<b>-22</b>	<b>-21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.01</b>	<b>NP</b>
Sulfate, total (mg/L)	MW-1603I	-11.66	-8	-21	No	8	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	MW-1603S	39.39	17	21	No	8	0	n/a	n/a	0.01	NP
<b>Sulfate, total (mg/L)</b>	<b>MW-1604D</b>	<b>-9.368</b>	<b>-24</b>	<b>-21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.01</b>	<b>NP</b>
Sulfate, total (mg/L)	MW-1604I	-6.5	-1	-21	No	8	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	MW-1604S	50.74	6	21	No	8	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	MW-1605D	1.214	2	21	No	8	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	MW-1605I	-18.78	-12	-21	No	8	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	MW-1605S	6.751	10	21	No	8	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	MW-1606D	-0.1798	-1	-21	No	8	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	MW-1606I	-5.431	-12	-21	No	8	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	MW-1606S	-4.493	-8	-21	No	8	0	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1600D (bg)	1.3e-12	5	21	No	8	50	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1600I (bg)	0	-1	-21	No	8	12.5	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1600S (bg)	0	-1	-21	No	8	12.5	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1601D (bg)	1.0e-12	4	21	No	8	50	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1601I (bg)	0	-2	-21	No	8	25	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1601S (bg)	-0.000004517	-4	-21	No	8	12.5	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1002	0.00002266	17	21	No	8	0	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1602D	0	-3	-21	No	8	50	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1602I	0.00001829	7	21	No	8	12.5	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1603D	0	-4	-21	No	8	50	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1603I	0.00002179	16	21	No	8	0	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1603S	0	2	21	No	8	0	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1604D	0	1	21	No	8	62.5	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1604I	0.000009495	9	21	No	8	0	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1604S	-0.00003012	-6	-21	No	8	0	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1605D	0	-5	-21	No	8	62.5	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1605I	0.00001337	12	18	No	7	0	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1605S	0.00001459	13	21	No	8	0	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1606D	0	1	21	No	8	75	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1606I	0.00001464	15	21	No	8	0	n/a	n/a	0.01	NP
Thallium, total (mg/L)	MW-1606S	0.000006043	5	21	No	8	12.5	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1600D (bg)	-42.48	-12	-21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1600I (bg)	-35.82	-16	-21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1600S (bg)	-61.11	-16	-21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1601D (bg)	-29.7	-20	-21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1601I (bg)	-10.4	-10	-21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1601S (bg)	-15.1	-3	-21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1002	82.17	18	21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1602D	-47.67	-4	-21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1602I	-16.59	-4	-21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1603D	-28.59	-14	-21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1603I	-51.6	-20	-21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1603S	3.65	3	18	No	7	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1604D	-3.435	-2	-21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1604I	-23.2	-6	-21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1604S	122.4	14	21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1605D	8	2	18	No	7	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1605I	-50.69	-10	-21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1605S	9.432	2	21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1606D	14.62	11	21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1606I	-13.02	-2	-21	No	8	0	n/a	n/a	0.01	NP

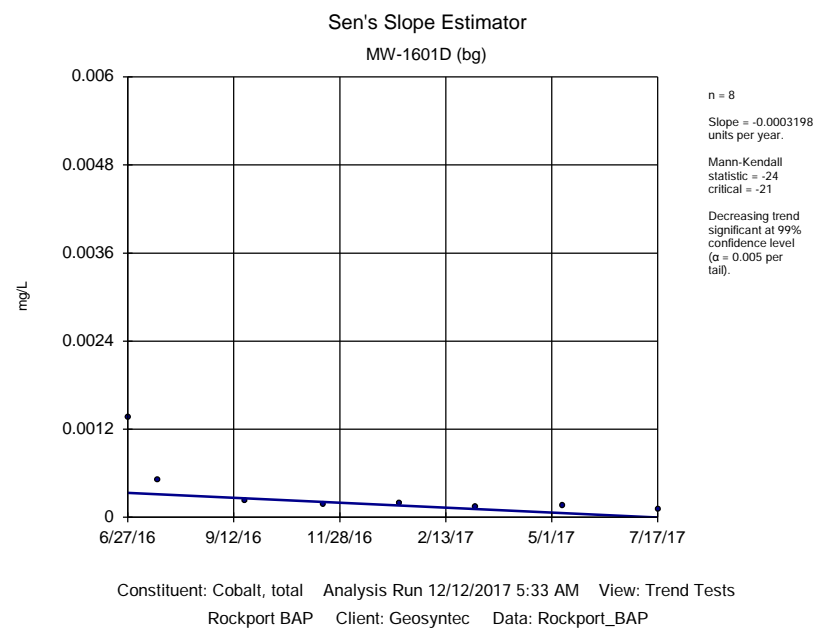
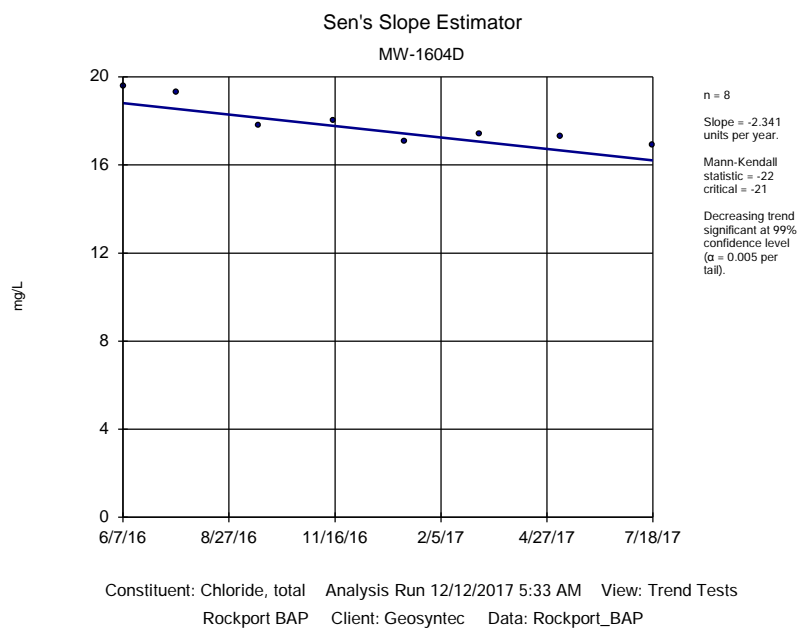
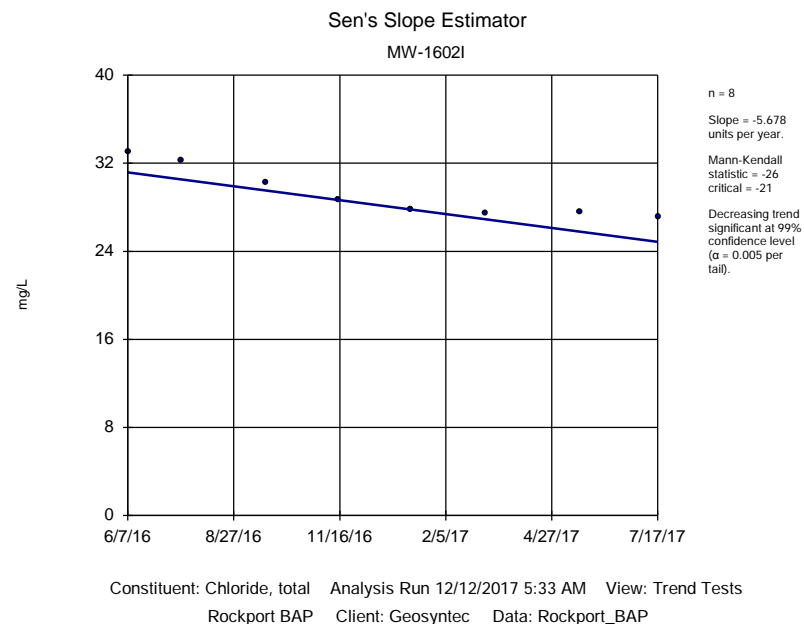
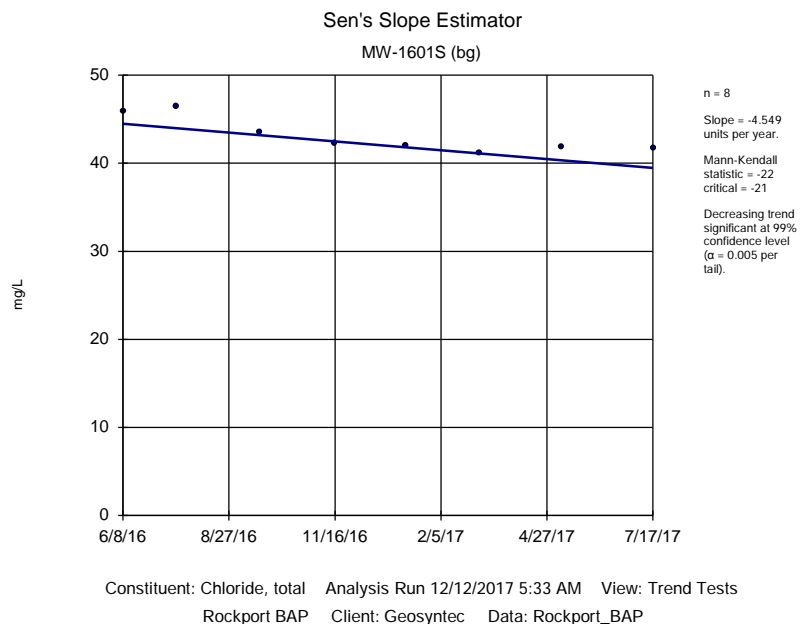
# Trend Tests Summary Table - All Results

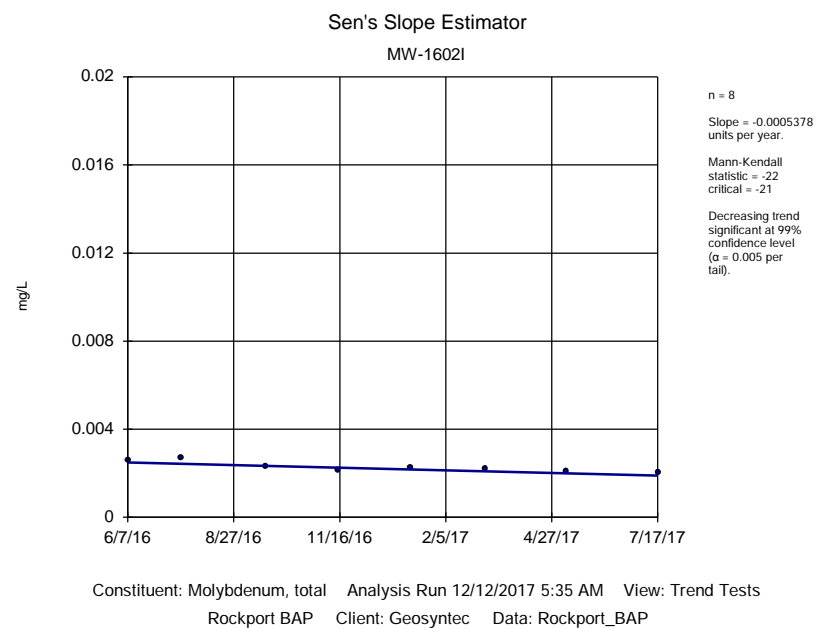
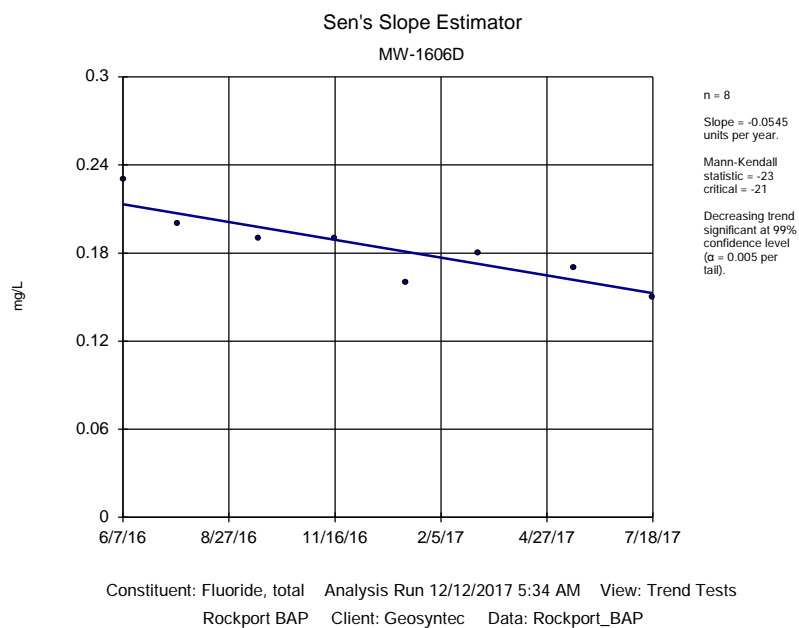
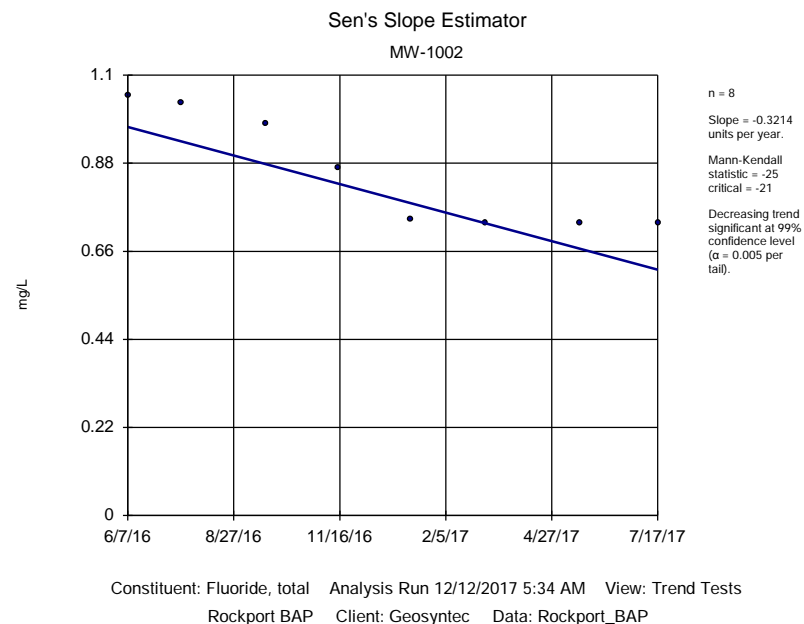
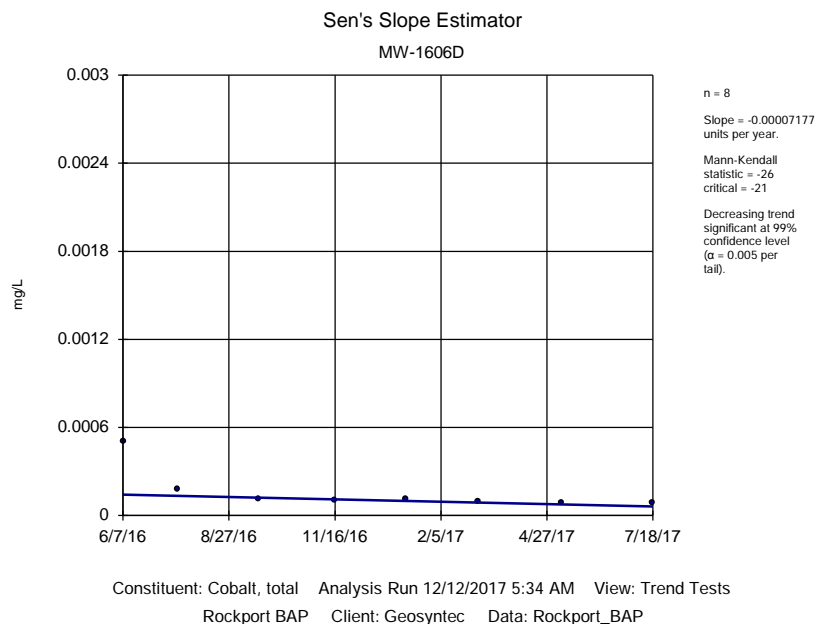
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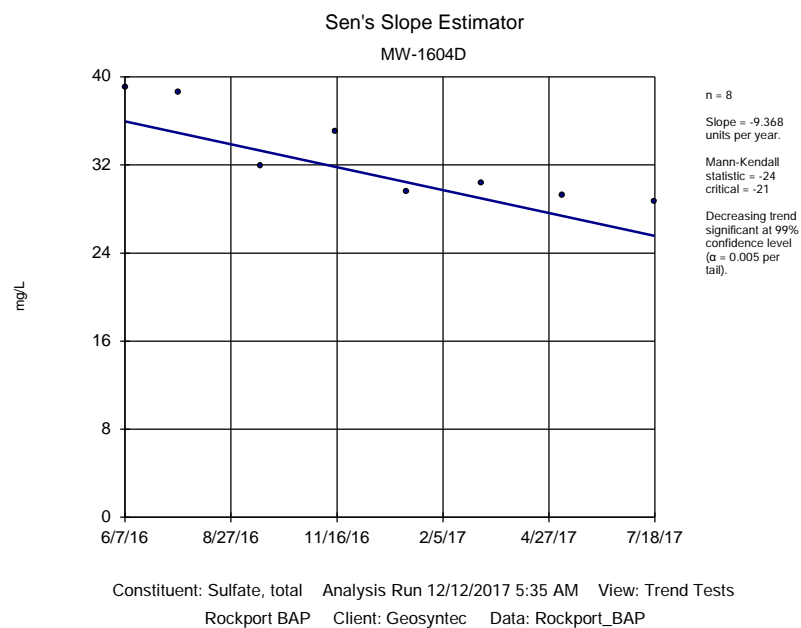
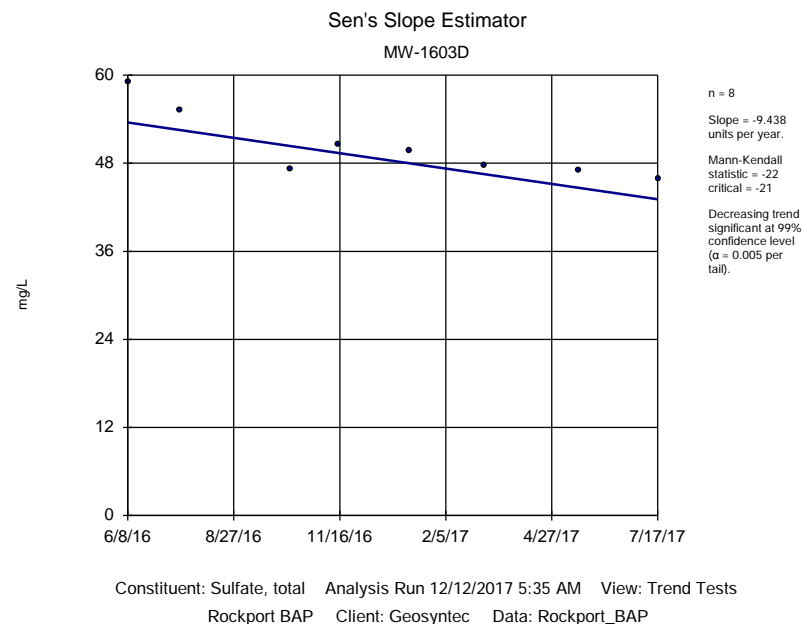
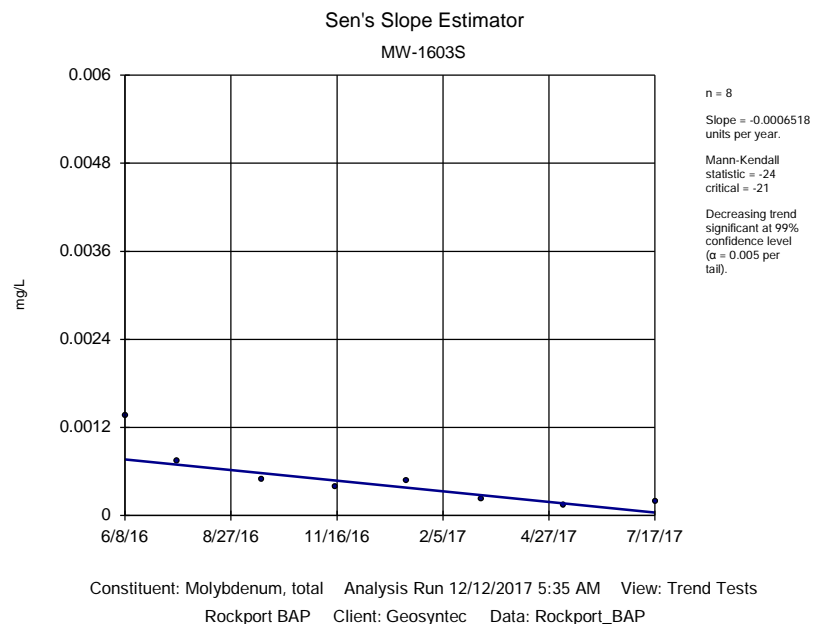
Rockport BAP Client: Geosyntec Data: Rockport\_BAP Printed 12/12/2017, 5:37 AM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Total Dissolved Solids [TDS] (mg/L)	MW-1606S	-36.79	-6	-21	No	8	0	n/a	n/a	0.01	NP









# Analysis of Variance

Rockport BAP Client: Geosyntec Data: Rockport\_BAP Printed 1/15/2018, 7:36 PM

<u>Constituent</u>	<u>Crit.</u>	<u>Sig.</u>	<u>Alpha</u>	<u>Transform</u>	<u>ANOVA Sig.</u>	<u>Calc.</u>	<u>Alpha</u>	<u>Method</u>
Boron, total (mg/L)	n/a	n/a	n/a	sqrt(x)	Yes	13.78	0.05	Param.
Calcium, total (mg/L)	n/a	n/a	n/a	No	Yes	26.91	0.05	Param.
Chloride, total (mg/L)	n/a	n/a	n/a	No	Yes	36.02	0.05	NP (normality)
Fluoride, total (mg/L)	n/a	n/a	n/a	No	Yes	41.92	0.05	Param.
pH, field (SU)	n/a	n/a	n/a	No	Yes	3.319	0.05	Param.
Sulfate, total (mg/L)	n/a	n/a	n/a	No	Yes	39.61	0.05	NP (normality)
Total Dissolved Solids [TDS] (mg/L)	n/a	n/a	n/a	ln(x)	Yes	2.588	0.05	Param.

## Parametric ANOVA

Constituent: Boron, total    Analysis Run 1/15/2018 7:35 PM    View: ANOVA  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP

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For observations made between 6/8/2016 and 7/17/2017 the parametric analysis of variance test (after square root transformation) indicates VARIATION at the 5% significance level. Because the calculated F statistic is greater than the tabulated F statistic, the hypothesis of a single homogeneous population is rejected.

Calculated F statistic = 13.78

Tabulated F statistic = 2.442 with 5 and 42 degrees of freedom at the 5% significance level.

ONE-WAY PARAMETRIC ANOVA TABLE

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F
Between Groups	0.1486	5	0.02972	13.78
Error Within Groups	0.09059	42	0.002157	
Total	0.2392	47		

The Shapiro Wilk normality test on the residuals passed after square root transformation. Alpha = 0.05, calculated = 0.9585, critical = 0.947. Levene's Equality of Variance test passed. Calculated = 1.311, tabulated = 2.442.



## Parametric ANOVA

Constituent: Calcium, total    Analysis Run 1/15/2018 7:35 PM    View: ANOVA  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP

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For observations made between 6/8/2016 and 7/17/2017 the parametric analysis of variance test indicates VARIATION at the 5% significance level. Because the calculated F statistic is greater than the tabulated F statistic, the hypothesis of a single homogeneous population is rejected.

Calculated F statistic = 26.91

Tabulated F statistic = 2.442 with 5 and 42 degrees of freedom at the 5% significance level.

ONE-WAY PARAMETRIC ANOVA TABLE

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F
Between Groups	2581	5	516.3	26.91
Error Within Groups	805.8	42	19.19	
Total	3387	47		

The Shapiro Wilk normality test on the residuals passed on the raw data. Alpha = 0.05, calculated = 0.9714, critical = 0.947. Levene's Equality of Variance test passed. Calculated = 1.004, tabulated = 2.442.

## Non-Parametric ANOVA

Constituent: Chloride, total    Analysis Run 1/15/2018 7:35 PM    View: ANOVA  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP

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For observations made between 6/8/2016 and 7/17/2017, the non-parametric analysis of variance test indicates a DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is greater than the Chi-squared value, we conclude that at least one group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 36.02

Tabulated Chi-Squared value = 11.07 with 5 degrees of freedom at the 5% significance level.

There were 7 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.

Kruskal-Wallis statistic (H) = 36.01

Adjusted Kruskal-Wallis statistic (H') = 36.02

## Parametric ANOVA

Constituent: Fluoride, total    Analysis Run 1/15/2018 7:35 PM    View: ANOVA  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP

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For observations made between 6/8/2016 and 7/17/2017 the parametric analysis of variance test indicates VARIATION at the 5% significance level. Because the calculated F statistic is greater than the tabulated F statistic, the hypothesis of a single homogeneous population is rejected.

Calculated F statistic = 41.92

Tabulated F statistic = 2.442 with 5 and 42 degrees of freedom at the 5% significance level.

ONE-WAY PARAMETRIC ANOVA TABLE

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F
Between Groups	0.1718	5	0.03437	41.92
Error Within Groups	0.03444	42	0.0008199	
Total	0.2063	47		

The Shapiro Wilk normality test on the residuals passed on the raw data. Alpha = 0.05, calculated = 0.9834, critical = 0.947. Levene's Equality of Variance test passed. Calculated = 1.385, tabulated = 2.442.

## Parametric ANOVA

Constituent: pH, field    Analysis Run 1/15/2018 7:36 PM    View: ANOVA  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP

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For observations made between 6/8/2016 and 7/17/2017 the parametric analysis of variance test indicates VARIATION at the 5% significance level. Because the calculated F statistic is greater than the tabulated F statistic, the hypothesis of a single homogeneous population is rejected.

Calculated F statistic = 3.319

Tabulated F statistic = 2.466 with 5 and 38 degrees of freedom at the 5% significance level.

ONE-WAY PARAMETRIC ANOVA TABLE

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F
Between Groups	1.242	5	0.2484	3.319
Error Within Groups	2.843	38	0.07482	
Total	4.085	43		

The Shapiro Wilk normality test on the residuals passed on the raw data. Alpha = 0.05, calculated = 0.9467, critical = 0.944. Levene's Equality of Variance test passed. Calculated = 1.357, tabulated = 2.466.

## Non-Parametric ANOVA

Constituent: Sulfate, total    Analysis Run 1/15/2018 7:36 PM    View: ANOVA  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP

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For observations made between 6/8/2016 and 7/17/2017, the non-parametric analysis of variance test indicates a DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is greater than the Chi-squared value, we conclude that at least one group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 39.61

Tabulated Chi-Squared value = 11.07 with 5 degrees of freedom at the 5% significance level.

There were 7 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.

Kruskal-Wallis statistic (H) = 39.59

Adjusted Kruskal-Wallis statistic (H') = 39.61

## Parametric ANOVA

Constituent: Total Dissolved Solids [TDS]    Analysis Run 1/15/2018 7:36 PM    View: ANOVA  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP

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For observations made between 6/8/2016 and 7/17/2017 the parametric analysis of variance test (after natural log transformation) indicates VARIATION at the 5% significance level. Because the calculated F statistic is greater than the tabulated F statistic, the hypothesis of a single homogeneous population is rejected.

Calculated F statistic = 2.588

Tabulated F statistic = 2.442 with 5 and 42 degrees of freedom at the 5% significance level.

ONE-WAY PARAMETRIC ANOVA TABLE

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F
Between Groups	0.03146	5	0.006292	2.588
Error Within Groups	0.1021	42	0.002431	
Total	0.1336	47		

The Shapiro Wilk normality test on the residuals passed after natural log transformation. Alpha = 0.05, calculated = 0.9479, critical = 0.947. Levene's Equality of Variance test passed. Calculated = 1.456, tabulated = 2.442.

# Tolerance Limits - Appendix III

Rockport BAP Client: Geosyntec Data: Rockport\_BAP Printed 12/26/2017, 7:49 PM

<u>Constituent</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Bg N</u>	<u>Bg Mean</u>	<u>Std. Dev.</u>	<u>%NDs</u>	<u>ND Adj.</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Boron, total (mg/L)	0.1367	n/a	48	0.2054	0.07134	2.083	None	sqrt(x)	0.01	Inter
Calcium, total (mg/L)	98.79	n/a	48	79.24	8.489	0	None	No	0.01	Inter
Chloride, total (mg/L)	48.39	n/a	48	5.436	0.6603	0	None	sqrt(x)	0.01	Inter
Fluoride, total (mg/L)	0.4	n/a	48	n/a	n/a	0	n/a	n/a	0.08526	NP Inter(normality)
pH, field (SU)	7.819	6.197	44	7.008	0.3082	0	None	No	0.01	Inter
Sulfate, total (mg/L)	73.38	n/a	48	43.18	13.12	0	None	No	0.01	Inter
Total Dissolved Solids [TDS] (mg/L)	468.7	n/a	48	416.8	22.53	0	None	No	0.01	Inter

# Confidence Interval Summary Table - Significant Results Appendix III

Rockport BAP Client: Geosyntec Data: Rockport\_BAP Printed 12/26/2017, 7:58 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig. N	Mean	Std. Dev.	%NDs	ND Adj	Transform	Alpha	Method
Boron, total (mg/L)	MW-1002	1.757	1.223	0.1367	Yes 8	1.49	0.2516	0	None	No	0.01	Param.
Boron, total (mg/L)	MW-1603I	0.1893	0.1484	0.1367	Yes 8	0.1689	0.01928	0	None	No	0.01	Param.
Boron, total (mg/L)	MW-1603S	2.159	1.513	0.1367	Yes 8	1.836	0.3045	0	None	No	0.01	Param.
Boron, total (mg/L)	MW-1604I	0.3802	0.1746	0.1367	Yes 8	0.2774	0.09701	0	None	No	0.01	Param.
Boron, total (mg/L)	MW-1604S	0.7362	0.5243	0.1367	Yes 8	0.6303	0.09993	0	None	No	0.01	Param.
Boron, total (mg/L)	MW-1605S	0.5733	0.448	0.1367	Yes 8	0.5106	0.05913	0	None	No	0.01	Param.
Chloride, total (mg/L)	MW-1002	81.1	53	48.39	Yes 8	62.4	10.22	0	None	No	0.004	NP (normality)
Chloride, total (mg/L)	MW-1602D	180	126.2	48.39	Yes 8	153.1	25.36	0	None	No	0.01	Param.
Chloride, total (mg/L)	MW-1603S	62.28	51.12	48.39	Yes 8	56.7	5.265	0	None	No	0.01	Param.
Chloride, total (mg/L)	MW-1604S	77.71	53.19	48.39	Yes 8	65.45	11.56	0	None	No	0.01	Param.
Fluoride, total (mg/L)	MW-1002	1.05	0.73	0.4	Yes 8	0.8575	0.1437	0	None	No	0.004	NP (normality)
Fluoride, total (mg/L)	MW-1604S	0.933	0.802	0.4	Yes 8	0.8675	0.06182	0	None	No	0.01	Param.
Fluoride, total (mg/L)	MW-1605S	0.5525	0.4587	0.4	Yes 8	0.5063	0.05069	0	None	x^6	0.01	Param.
Sulfate, total (mg/L)	MW-1002	212.4	153.1	73.38	Yes 8	182.8	27.98	0	None	No	0.01	Param.
Sulfate, total (mg/L)	MW-1602I	89.4	76.3	73.38	Yes 8	80.83	4.78	0	None	No	0.004	NP (normality)
Sulfate, total (mg/L)	MW-1603S	237.5	182.2	73.38	Yes 8	209.9	26.07	0	None	No	0.01	Param.
Sulfate, total (mg/L)	MW-1604I	147.2	108.3	73.38	Yes 8	127.7	18.35	0	None	No	0.01	Param.
Sulfate, total (mg/L)	MW-1604S	227.2	149.6	73.38	Yes 8	188.4	36.6	0	None	No	0.01	Param.
Sulfate, total (mg/L)	MW-1605I	140	115	73.38	Yes 8	126.3	11.21	0	None	No	0.004	NP (normality)
Sulfate, total (mg/L)	MW-1605S	183.3	170.2	73.38	Yes 8	176.8	6.182	0	None	No	0.01	Param.
Total Dissolved Solids [TDS] (mg/L)	MW-1602D	604.9	508.8	468.7	Yes 8	556.9	45.35	0	None	No	0.01	Param.
Total Dissolved Solids [TDS] (mg/L)	MW-1604I	549.8	468.9	468.7	Yes 8	509.4	38.17	0	None	No	0.01	Param.
Total Dissolved Solids [TDS] (mg/L)	MW-1605I	556.6	489.7	468.7	Yes 8	523.1	31.57	0	None	No	0.01	Param.
Total Dissolved Solids [TDS] (mg/L)	MW-1605S	600.5	572.3	468.7	Yes 8	586.4	13.29	0	None	No	0.01	Param.



# Confidence Interval Summary Table - All Results Appendix III

Rockport BAP Client: Geosyntec Data: Rockport\_BAP Printed 12/26/2017, 7:58 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig. N	Mean	Std. Dev.	%NDs	ND Adj	Transform	Alpha	Method
<b>Boron, total (mg/L)</b>	<b>MW-1002</b>	<b>1.757</b>	<b>1.223</b>	<b>0.1367</b>	<b>Yes 8</b>	<b>1.49</b>	<b>0.2516</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Boron, total (mg/L)	MW-1602D	0.08663	0.05637	0.1367	No 8	0.0715	0.01427	0	None	No	0.01	Param.
Boron, total (mg/L)	MW-1602I	0.07521	0.03653	0.1367	No 8	0.0555	0.02282	0	None	ln(x)	0.01	Param.
Boron, total (mg/L)	MW-1603D	0.07926	0.05874	0.1367	No 8	0.069	0.009681	0	None	No	0.01	Param.
<b>Boron, total (mg/L)</b>	<b>MW-1603I</b>	<b>0.1893</b>	<b>0.1484</b>	<b>0.1367</b>	<b>Yes 8</b>	<b>0.1689</b>	<b>0.01928</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
<b>Boron, total (mg/L)</b>	<b>MW-1603S</b>	<b>2.159</b>	<b>1.513</b>	<b>0.1367</b>	<b>Yes 8</b>	<b>1.836</b>	<b>0.3045</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Boron, total (mg/L)	MW-1604D	0.07276	0.008486	0.1367	No 8	0.04063	0.03032	0	None	No	0.01	Param.
<b>Boron, total (mg/L)</b>	<b>MW-1604I</b>	<b>0.3802</b>	<b>0.1746</b>	<b>0.1367</b>	<b>Yes 8</b>	<b>0.2774</b>	<b>0.09701</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
<b>Boron, total (mg/L)</b>	<b>MW-1604S</b>	<b>0.7362</b>	<b>0.5243</b>	<b>0.1367</b>	<b>Yes 8</b>	<b>0.6303</b>	<b>0.09993</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Boron, total (mg/L)	MW-1605D	0.03486	0.009143	0.1367	No 8	0.022	0.01213	0	None	No	0.01	Param.
Boron, total (mg/L)	MW-1605I	0.04202	0.02123	0.1367	No 8	0.03163	0.009812	0	None	No	0.01	Param.
<b>Boron, total (mg/L)</b>	<b>MW-1605S</b>	<b>0.5733</b>	<b>0.448</b>	<b>0.1367</b>	<b>Yes 8</b>	<b>0.5106</b>	<b>0.05913</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Boron, total (mg/L)	MW-1606D	0.04439	0.01218	0.1367	No 8	0.02775	0.01951	0	None	x^(1/3)	0.01	Param.
Boron, total (mg/L)	MW-1606I	0.03913	0.004717	0.1367	No 8	0.021	0.021	12.5	None	sqrt(x)	0.01	Param.
Boron, total (mg/L)	MW-1606S	0.05657	0.007467	0.1367	No 8	0.03075	0.0278	12.5	None	sqrt(x)	0.01	Param.
Calcium, total (mg/L)	MW-1002	70.57	33.18	98.79	No 8	51.88	17.64	0	None	No	0.01	Param.
Calcium, total (mg/L)	MW-1602D	77.1	66.8	98.79	No 8	71.95	4.861	0	None	No	0.01	Param.
Calcium, total (mg/L)	MW-1602I	84.71	72.14	98.79	No 8	78.43	5.93	0	None	No	0.01	Param.
Calcium, total (mg/L)	MW-1603D	91.82	76.26	98.79	No 8	84.04	7.342	0	None	No	0.01	Param.
Calcium, total (mg/L)	MW-1603I	99.17	83.36	98.79	No 8	91.26	7.46	0	None	No	0.01	Param.
Calcium, total (mg/L)	MW-1603S	87.3	50.5	98.79	No 8	68.9	17.36	0	None	No	0.01	Param.
Calcium, total (mg/L)	MW-1604D	73.63	66.09	98.79	No 8	69.86	3.557	0	None	No	0.01	Param.
Calcium, total (mg/L)	MW-1604I	80.02	70.95	98.79	No 8	75.49	4.278	0	None	No	0.01	Param.
Calcium, total (mg/L)	MW-1604S	99.9	72.07	98.79	No 8	85.99	13.13	0	None	No	0.01	Param.
Calcium, total (mg/L)	MW-1605D	91.53	83.12	98.79	No 8	87.33	3.972	0	None	No	0.01	Param.
Calcium, total (mg/L)	MW-1605I	99.28	83.09	98.79	No 8	91.19	7.636	0	None	No	0.01	Param.
Calcium, total (mg/L)	MW-1605S	81.75	70.88	98.79	No 8	76.31	5.127	0	None	No	0.01	Param.
Calcium, total (mg/L)	MW-1606D	76.66	68.24	98.79	No 8	72.45	3.97	0	None	No	0.01	Param.
Calcium, total (mg/L)	MW-1606I	69.69	59.68	98.79	No 8	64.69	4.721	0	None	No	0.01	Param.
Calcium, total (mg/L)	MW-1606S	53.88	44.47	98.79	No 8	49.18	4.437	0	None	No	0.01	Param.
<b>Chloride, total (mg/L)</b>	<b>MW-1002</b>	<b>81.1</b>	<b>53</b>	<b>48.39</b>	<b>Yes 8</b>	<b>62.4</b>	<b>10.22</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.004</b>	<b>NP (normality)</b>
<b>Chloride, total (mg/L)</b>	<b>MW-1602D</b>	<b>180</b>	<b>126.2</b>	<b>48.39</b>	<b>Yes 8</b>	<b>153.1</b>	<b>25.36</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Chloride, total (mg/L)	MW-1602I	31.68	26.91	48.39	No 8	29.28	2.301	0	None	ln(x)	0.01	Param.
Chloride, total (mg/L)	MW-1603D	26.62	25.45	48.39	No 8	26.04	0.5528	0	None	No	0.01	Param.
Chloride, total (mg/L)	MW-1603I	39.02	34.78	48.39	No 8	36.9	2.004	0	None	No	0.01	Param.
<b>Chloride, total (mg/L)</b>	<b>MW-1603S</b>	<b>62.28</b>	<b>51.12</b>	<b>48.39</b>	<b>Yes 8</b>	<b>56.7</b>	<b>5.265</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Chloride, total (mg/L)	MW-1604D	18.99	16.86	48.39	No 8	17.93	1.008	0	None	No	0.01	Param.
Chloride, total (mg/L)	MW-1604I	53.01	42.11	48.39	No 8	47.56	5.143	0	None	No	0.01	Param.
<b>Chloride, total (mg/L)</b>	<b>MW-1604S</b>	<b>77.71</b>	<b>53.19</b>	<b>48.39</b>	<b>Yes 8</b>	<b>65.45</b>	<b>11.56</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Chloride, total (mg/L)	MW-1605D	31.16	27.99	48.39	No 8	29.58	1.494	0	None	No	0.01	Param.
Chloride, total (mg/L)	MW-1605I	46.46	41.57	48.39	No 8	44.01	2.305	0	None	No	0.01	Param.
Chloride, total (mg/L)	MW-1605S	53.11	48.29	48.39	No 8	50.7	2.277	0	None	No	0.01	Param.
Chloride, total (mg/L)	MW-1606D	22.24	21.16	48.39	No 8	21.7	0.5071	0	None	No	0.01	Param.
Chloride, total (mg/L)	MW-1606I	24.95	23.07	48.39	No 8	24.01	0.8871	0	None	No	0.01	Param.
Chloride, total (mg/L)	MW-1606S	27.84	20.51	48.39	No 8	24.18	3.458	0	None	No	0.01	Param.
<b>Fluoride, total (mg/L)</b>	<b>MW-1002</b>	<b>1.05</b>	<b>0.73</b>	<b>0.4</b>	<b>Yes 8</b>	<b>0.8575</b>	<b>0.1437</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.004</b>	<b>NP (normality)</b>
Fluoride, total (mg/L)	MW-1602D	0.3515	0.286	0.4	No 8	0.3188	0.03091	0	None	No	0.01	Param.
Fluoride, total (mg/L)	MW-1602I	0.3073	0.2502	0.4	No 8	0.2788	0.02696	0	None	No	0.01	Param.
Fluoride, total (mg/L)	MW-1603D	0.323	0.257	0.4	No 8	0.29	0.03117	0	None	No	0.01	Param.
Fluoride, total (mg/L)	MW-1603I	0.421	0.369	0.4	No 8	0.395	0.02449	0	None	No	0.01	Param.
Fluoride, total (mg/L)	MW-1603S	0.4652	0.3148	0.4	No 8	0.39	0.07091	0	None	No	0.01	Param.
Fluoride, total (mg/L)	MW-1604D	0.2868	0.2282	0.4	No 8	0.2575	0.02765	0	None	No	0.01	Param.
Fluoride, total (mg/L)	MW-1604I	0.3397	0.2878	0.4	No 8	0.3138	0.02446	0	None	No	0.01	Param.
<b>Fluoride, total (mg/L)</b>	<b>MW-1604S</b>	<b>0.933</b>	<b>0.802</b>	<b>0.4</b>	<b>Yes 8</b>	<b>0.8675</b>	<b>0.06182</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Fluoride, total (mg/L)	MW-1605D	0.2297	0.1778	0.4	No 8	0.2038	0.02446	0	None	No	0.01	Param.

# Confidence Interval Summary Table - All Results Appendix III

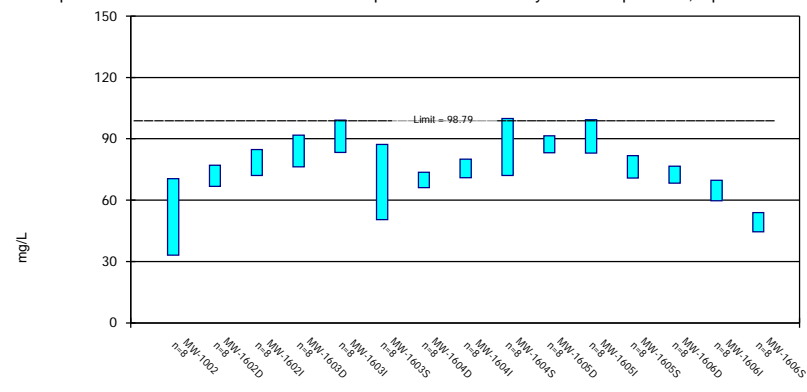
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Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig. N	Mean	Std. Dev.	%NDs	ND Adj	Transform	Alpha	Method
Fluoride, total (mg/L)	MW-1605I	0.215	0.1477	0.4	No 8	0.1813	0.03643	0	None	x^2	0.01	Param.
<b>Fluoride, total (mg/L)</b>	<b>MW-1605S</b>	<b>0.5525</b>	<b>0.4587</b>	<b>0.4</b>	<b>Yes 8</b>	<b>0.5063</b>	<b>0.05069</b>	<b>0</b>	<b>None</b>	<b>x^6</b>	<b>0.01</b>	<b>Param.</b>
Fluoride, total (mg/L)	MW-1606D	0.2103	0.1572	0.4	No 8	0.1838	0.02504	0	None	No	0.01	Param.
Fluoride, total (mg/L)	MW-1606I	0.2133	0.1742	0.4	No 8	0.1938	0.01847	0	None	No	0.01	Param.
Fluoride, total (mg/L)	MW-1606S	0.4421	0.3479	0.4	No 8	0.395	0.0444	0	None	No	0.01	Param.
pH, field (SU)	MW-1002	7.001	6.354	7.67	No 8	6.678	0.2616	0	None	No	0.005	Param.
pH, field (SU)	MW-1602D	8.129	6.031	7.67	No 8	7.106	0.9093	0	None	x^2	0.005	Param.
pH, field (SU)	MW-1602I	7.396	6.934	7.67	No 8	7.165	0.187	0	None	No	0.005	Param.
pH, field (SU)	MW-1603D	7.307	6.875	7.67	No 8	7.095	0.181	0	None	x^4	0.005	Param.
pH, field (SU)	MW-1603I	7.61	7.15	7.67	No 7	7.284	0.1495	0	None	No	0.008	NP (normality)
pH, field (SU)	MW-1603S	7.471	6.452	7.67	No 7	6.961	0.3635	0	None	No	0.005	Param.
pH, field (SU)	MW-1604D	7.33	7.01	7.67	No 8	7.17	0.1292	0	None	No	0.005	Param.
pH, field (SU)	MW-1604I	7.56	7.193	7.67	No 8	7.376	0.1483	0	None	No	0.005	Param.
pH, field (SU)	MW-1604S	7.527	7.228	7.67	No 8	7.378	0.1209	0	None	No	0.005	Param.
pH, field (SU)	MW-1605D	7.293	6.944	7.67	No 7	7.119	0.1248	0	None	No	0.005	Param.
pH, field (SU)	MW-1605I	7.341	6.961	7.67	No 8	7.151	0.1535	0	None	No	0.005	Param.
pH, field (SU)	MW-1605S	7.25	7.08	7.67	No 8	7.165	0.06887	0	None	No	0.005	Param.
pH, field (SU)	MW-1606D	7.31	5.85	7.67	No 7	6.969	0.5111	0	None	No	0.008	NP (normality)
pH, field (SU)	MW-1606I	7.4	4.98	7.67	No 8	6.919	0.8149	0	None	No	0.004	NP (normality)
pH, field (SU)	MW-1606S	7.142	6.781	7.67	No 8	6.961	0.1457	0	None	No	0.005	Param.
<b>Sulfate, total (mg/L)</b>	<b>MW-1002</b>	<b>212.4</b>	<b>153.1</b>	<b>73.38</b>	<b>Yes 8</b>	<b>182.8</b>	<b>27.98</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Sulfate, total (mg/L)	MW-1602D	19.3	12.9	73.38	No 8	16.1	3.016	0	None	No	0.01	Param.
<b>Sulfate, total (mg/L)</b>	<b>MW-1602I</b>	<b>89.4</b>	<b>76.3</b>	<b>73.38</b>	<b>Yes 8</b>	<b>80.83</b>	<b>4.78</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.004</b>	<b>NP (normality)</b>
Sulfate, total (mg/L)	MW-1603D	55.17	45.45	73.38	No 8	50.31	4.584	0	None	No	0.01	Param.
Sulfate, total (mg/L)	MW-1603I	111	71	73.38	No 8	81.2	13.51	0	None	No	0.004	NP (normality)
<b>Sulfate, total (mg/L)</b>	<b>MW-1603S</b>	<b>237.5</b>	<b>182.2</b>	<b>73.38</b>	<b>Yes 8</b>	<b>209.9</b>	<b>26.07</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Sulfate, total (mg/L)	MW-1604D	37.25	28.44	73.38	No 8	32.81	4.222	0	None	sqrt(x)	0.01	Param.
<b>Sulfate, total (mg/L)</b>	<b>MW-1604I</b>	<b>147.2</b>	<b>108.3</b>	<b>73.38</b>	<b>Yes 8</b>	<b>127.7</b>	<b>18.35</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
<b>Sulfate, total (mg/L)</b>	<b>MW-1604S</b>	<b>227.2</b>	<b>149.6</b>	<b>73.38</b>	<b>Yes 8</b>	<b>188.4</b>	<b>36.6</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Sulfate, total (mg/L)	MW-1605D	60.5	55.18	73.38	No 8	57.84	2.511	0	None	No	0.01	Param.
<b>Sulfate, total (mg/L)</b>	<b>MW-1605I</b>	<b>140</b>	<b>115</b>	<b>73.38</b>	<b>Yes 8</b>	<b>126.3</b>	<b>11.21</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.004</b>	<b>NP (normality)</b>
<b>Sulfate, total (mg/L)</b>	<b>MW-1605S</b>	<b>183.3</b>	<b>170.2</b>	<b>73.38</b>	<b>Yes 8</b>	<b>176.8</b>	<b>6.182</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Sulfate, total (mg/L)	MW-1606D	15.51	10.92	73.38	No 8	13.21	2.166	0	None	No	0.01	Param.
Sulfate, total (mg/L)	MW-1606I	42.9	36.7	73.38	No 8	39.44	2.746	0	None	No	0.004	NP (normality)
Sulfate, total (mg/L)	MW-1606S	42.7	31.18	73.38	No 8	36.94	5.432	0	None	No	0.01	Param.
Total Dissolved Solids [TDS] (mg/L)	MW-1002	480.7	381.8	468.7	No 8	431.3	46.68	0	None	No	0.01	Param.
<b>Total Dissolved Solids [TDS] (mg/L)</b>	<b>MW-1602D</b>	<b>604.9</b>	<b>508.8</b>	<b>468.7</b>	<b>Yes 8</b>	<b>556.9</b>	<b>45.35</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Total Dissolved Solids [TDS] (mg/L)	MW-1602I	448.7	402.3	468.7	No 8	425.5	21.9	0	None	No	0.01	Param.
Total Dissolved Solids [TDS] (mg/L)	MW-1603D	425.9	393.6	468.7	No 8	409.8	15.21	0	None	No	0.01	Param.
Total Dissolved Solids [TDS] (mg/L)	MW-1603I	495	451.8	468.7	No 8	473.4	20.38	0	None	No	0.01	Param.
Total Dissolved Solids [TDS] (mg/L)	MW-1603S	486.9	456.5	468.7	No 7	472	13.59	0	None	x^5	0.01	Param.
Total Dissolved Solids [TDS] (mg/L)	MW-1604D	327.9	287.6	468.7	No 8	307.8	18.99	0	None	No	0.01	Param.
<b>Total Dissolved Solids [TDS] (mg/L)</b>	<b>MW-1604I</b>	<b>549.8</b>	<b>468.9</b>	<b>468.7</b>	<b>Yes 8</b>	<b>509.4</b>	<b>38.17</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Total Dissolved Solids [TDS] (mg/L)	MW-1604S	672	456	468.7	No 8	554.9	72.58	0	None	No	0.004	NP (normality)
Total Dissolved Solids [TDS] (mg/L)	MW-1605D	416.3	379.7	468.7	No 7	398	15.41	0	None	No	0.01	Param.
<b>Total Dissolved Solids [TDS] (mg/L)</b>	<b>MW-1605I</b>	<b>556.6</b>	<b>489.7</b>	<b>468.7</b>	<b>Yes 8</b>	<b>523.1</b>	<b>31.57</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
<b>Total Dissolved Solids [TDS] (mg/L)</b>	<b>MW-1605S</b>	<b>600.5</b>	<b>572.3</b>	<b>468.7</b>	<b>Yes 8</b>	<b>586.4</b>	<b>13.29</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Total Dissolved Solids [TDS] (mg/L)	MW-1606D	314.2	286.5	468.7	No 8	300.4	13.08	0	None	No	0.01	Param.
Total Dissolved Solids [TDS] (mg/L)	MW-1606I	335.6	302.9	468.7	No 8	319.3	15.41	0	None	No	0.01	Param.
Total Dissolved Solids [TDS] (mg/L)	MW-1606S	393.9	330.1	468.7	No 8	362	30.1	0	None	No	0.01	Param.

### Parametric Confidence Interval

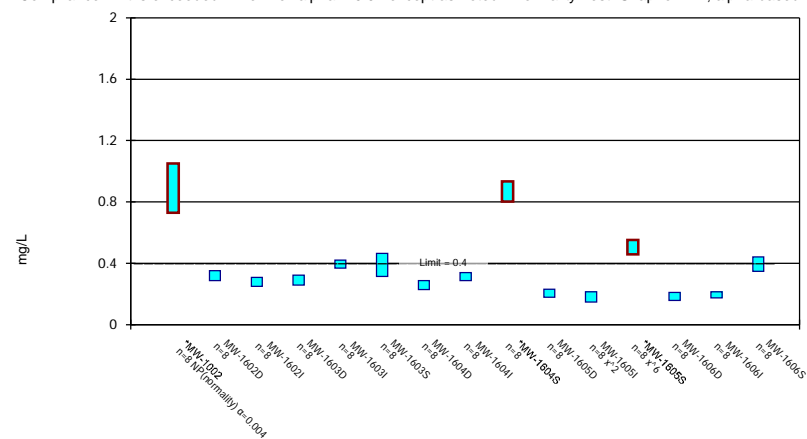
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Calcium, total    Analysis Run 12/26/2017 7:56 PM    View: Confidence Intervals - Appendix III  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP

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

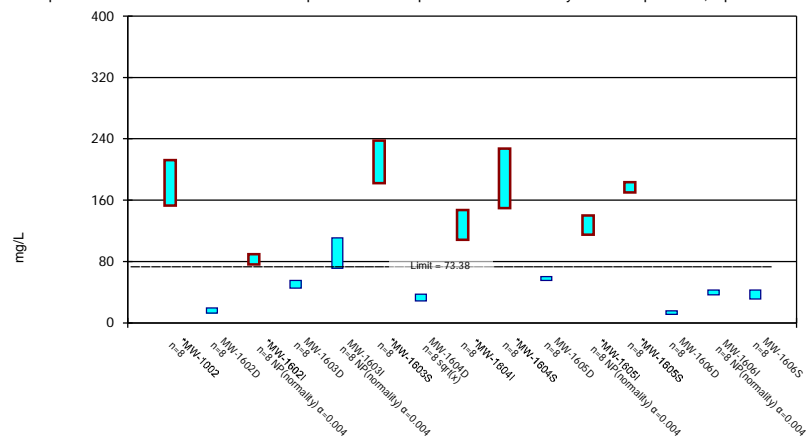
Compliance limit is exceeded.\* Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Fluoride, total    Analysis Run 12/26/2017 7:57 PM    View: Confidence Intervals - Appendix III  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP

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

Compliance limit is exceeded.\* Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Sulfate, total    Analysis Run 12/26/2017 7:57 PM    View: Confidence Intervals - Appendix III  
Rockport BAP    Client: Geosyntec    Data: Rockport\_BAP

# Intrawell Prediction Limit Summary Table

Rockport BAP Client: Geosyntec Data: Rockport\_BAP Printed 1/16/2018, 3:18 PM

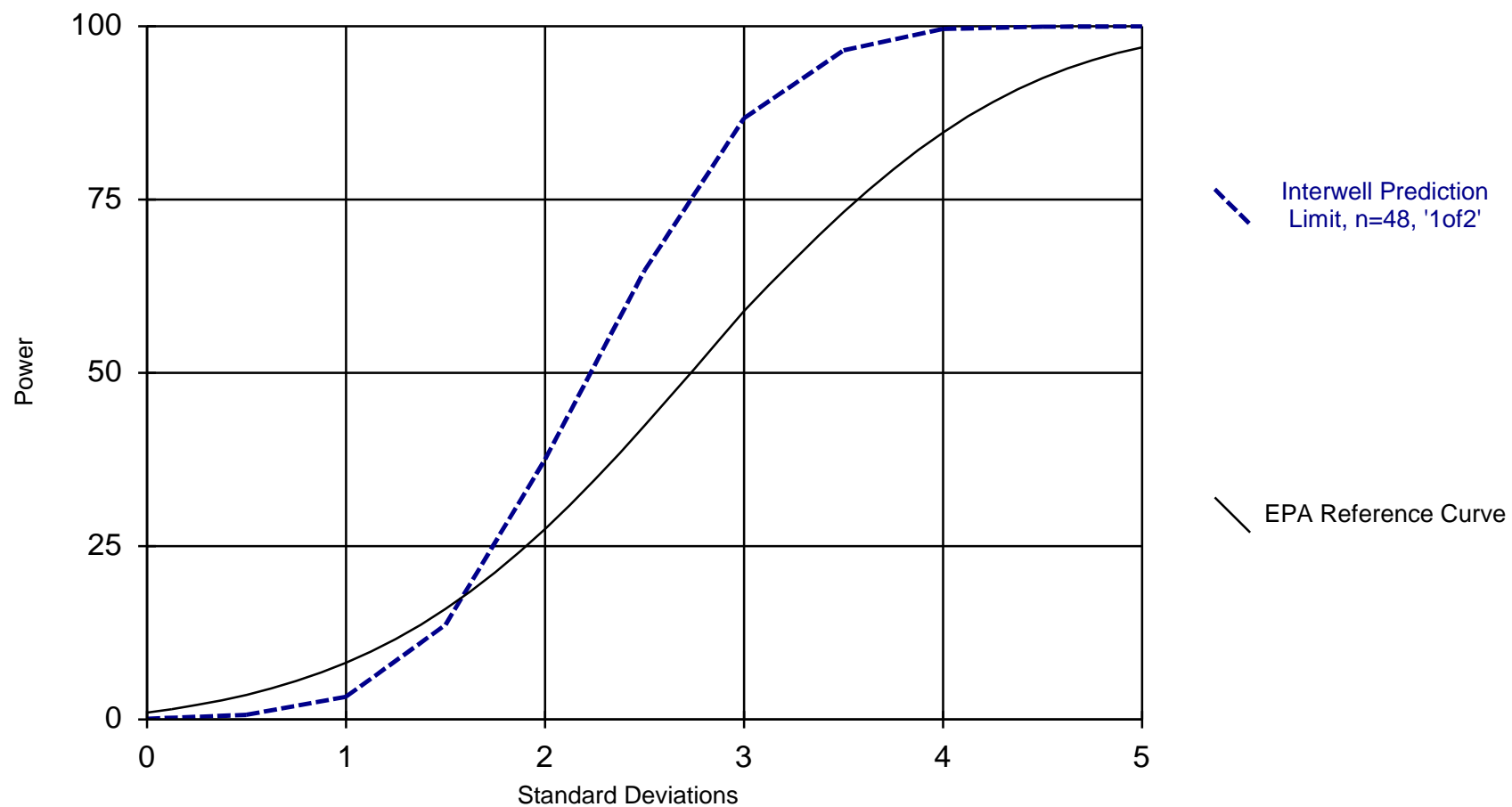
Constituent	Well	Upper Lim.	Lower Lim.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Calcium, total (mg/L)	MW-1600D	96.45	n/a	8	82.81	5.664	0	None	No	0.0005016	Param 1 of 3
Calcium, total (mg/L)	MW-1600I	82.91	n/a	8	76.56	2.637	0	None	No	0.0005016	Param 1 of 3
Calcium, total (mg/L)	MW-1600S	74.92	n/a	8	65.28	4.007	0	None	No	0.0005016	Param 1 of 3
Calcium, total (mg/L)	MW-1601D	98.28	n/a	8	86.2	5.018	0	None	No	0.0005016	Param 1 of 3
Calcium, total (mg/L)	MW-1601I	96.4	n/a	8	86.8	3.987	0	None	No	0.0005016	Param 1 of 3
Calcium, total (mg/L)	MW-1601S	88.26	n/a	8	77.79	4.352	0	None	No	0.0005016	Param 1 of 3
Calcium, total (mg/L)	MW-1002	94.34	n/a	8	51.88	17.64	0	None	No	0.0005016	Param 1 of 3
Calcium, total (mg/L)	MW-1602D	83.65	n/a	8	71.95	4.861	0	None	No	0.0005016	Param 1 of 3
Calcium, total (mg/L)	MW-1602I	92.7	n/a	8	78.43	5.93	0	None	No	0.0005016	Param 1 of 3
Calcium, total (mg/L)	MW-1603D	101.7	n/a	8	84.04	7.342	0	None	No	0.0005016	Param 1 of 3
Calcium, total (mg/L)	MW-1603I	109.2	n/a	8	91.26	7.46	0	None	No	0.0005016	Param 1 of 3
Calcium, total (mg/L)	MW-1603S	110.7	n/a	8	68.9	17.36	0	None	No	0.0005016	Param 1 of 3
Calcium, total (mg/L)	MW-1604D	78.42	n/a	8	69.86	3.557	0	None	No	0.0005016	Param 1 of 3
Calcium, total (mg/L)	MW-1604I	85.79	n/a	8	75.49	4.278	0	None	No	0.0005016	Param 1 of 3
Calcium, total (mg/L)	MW-1604S	117.6	n/a	8	85.99	13.13	0	None	No	0.0005016	Param 1 of 3
Calcium, total (mg/L)	MW-1605D	96.88	n/a	8	87.33	3.972	0	None	No	0.0005016	Param 1 of 3
Calcium, total (mg/L)	MW-1605I	109.6	n/a	8	91.19	7.636	0	None	No	0.0005016	Param 1 of 3
Calcium, total (mg/L)	MW-1605S	88.65	n/a	8	76.31	5.127	0	None	No	0.0005016	Param 1 of 3
Calcium, total (mg/L)	MW-1606D	82	n/a	8	72.45	3.97	0	None	No	0.0005016	Param 1 of 3
Calcium, total (mg/L)	MW-1606I	76.05	n/a	8	64.69	4.721	0	None	No	0.0005016	Param 1 of 3
Calcium, total (mg/L)	MW-1606S	59.86	n/a	8	49.18	4.437	0	None	No	0.0005016	Param 1 of 3
pH, field (SU)	MW-1600D	7.887	6.208	8	7.048	0.3486	0	None	No	0.0002508	Param 1 of 3
pH, field (SU)	MW-1600I	7.679	6.598	6	7.138	0.1789	0	None	No	0.0002508	Param 1 of 3
pH, field (SU)	MW-1600S	7.034	6.22	7	6.627	0.15	0	None	No	0.0002508	Param 1 of 3
pH, field (SU)	MW-1601D	7.811	6.369	8	7.09	0.2994	0	None	No	0.0002508	Param 1 of 3
pH, field (SU)	MW-1601I	7.736	6.418	7	7.077	0.2428	0	None	No	0.0002508	Param 1 of 3
pH, field (SU)	MW-1601S	7.834	6.294	8	7.064	0.3199	0	None	No	0.0002508	Param 1 of 3
pH, field (SU)	MW-1002	7.307	6.048	8	6.678	0.2616	0	None	No	0.0002508	Param 1 of 3
pH, field (SU)	MW-1602D	9.295	4.918	8	7.106	0.9093	0	None	No	0.0002508	Param 1 of 3
pH, field (SU)	MW-1602I	7.615	6.715	8	7.165	0.187	0	None	No	0.0002508	Param 1 of 3
pH, field (SU)	MW-1603D	7.531	6.659	8	7.095	0.181	0	None	No	0.0002508	Param 1 of 3
pH, field (SU)	MW-1603I	7.61	7.15	7	n/a	n/a	0	n/a	n/a	0.01734	NP (normality) 1 of 3
pH, field (SU)	MW-1603S	7.948	5.975	7	6.961	0.3635	0	None	No	0.0002508	Param 1 of 3
pH, field (SU)	MW-1604D	7.481	6.859	8	7.17	0.1292	0	None	No	0.0002508	Param 1 of 3
pH, field (SU)	MW-1604I	7.733	7.019	8	7.376	0.1483	0	None	No	0.0002508	Param 1 of 3
pH, field (SU)	MW-1604S	7.669	7.086	8	7.378	0.1209	0	None	No	0.0002508	Param 1 of 3
pH, field (SU)	MW-1605D	7.457	6.78	7	7.119	0.1248	0	None	No	0.0002508	Param 1 of 3
pH, field (SU)	MW-1605I	7.521	6.782	8	7.151	0.1535	0	None	No	0.0002508	Param 1 of 3
pH, field (SU)	MW-1605S	7.331	6.999	8	7.165	0.06887	0	None	No	0.0002508	Param 1 of 3
pH, field (SU)	MW-1606D	7.87	5.257	7	17107	4825	0	None	x^5	0.0002508	Param 1 of 3
pH, field (SU)	MW-1606I	8.009	4.524	8	17422	6451	0	None	x^5	0.0002508	Param 1 of 3
pH, field (SU)	MW-1606S	7.312	6.61	8	6.961	0.1457	0	None	No	0.0002508	Param 1 of 3

# Interwell Prediction Limit Summary Table

Rockport BAP Client: Geosyntec Data: Rockport\_BAP Printed 1/16/2018, 3:15 PM

<u>Constituent</u>	<u>Upper Lim.</u>	<u>Bg N</u>	<u>Bg Mean</u>	<u>Std. Dev.</u>	<u>%NDs</u>	<u>ND Adj.</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Boron, total (mg/L)	0.1285	48	0.2054	0.07134	2.083	None	sqrt(x)	0.0005016	Param Inter 1 of 2
Chloride, total (mg/L)	46.95	48	5.436	0.6603	0	None	sqrt(x)	0.0005016	Param Inter 1 of 2
Fluoride, total (mg/L)	0.4	48	n/a	n/a	0	n/a	n/a	0.000792	NP Inter (normality) 1 of 2
Sulfate, total (mg/L)	71.31	48	43.18	13.12	0	None	No	0.0005016	Param Inter 1 of 2
Total Dissolved Solids [TDS] (mg/L)	465.1	48	416.8	22.53	0	None	No	0.0005016	Param Inter 1 of 2

## Power Curve

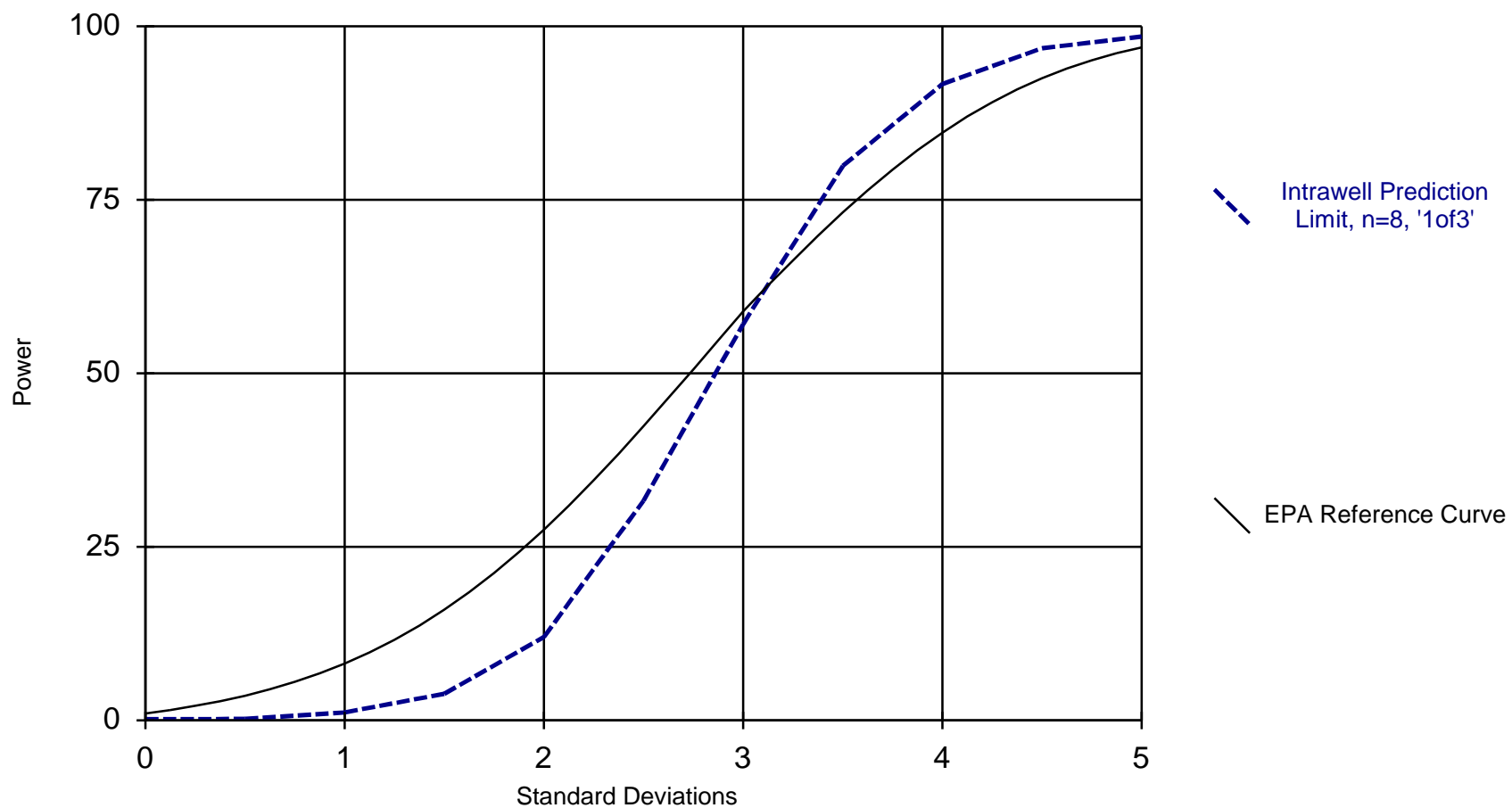


Kappa = 2.145, based on 15 compliance wells and 7 constituents, evaluated semi-annually (this report reflects annual total).

Analysis Run 11/3/2017 3:15 PM View: Time Series - All Wells

Rockport BAP Client: Geosyntec Data: Rockport\_BAP

## Power Curve



Kappa = 2.407, based on 15 compliance wells and 7 constituents, evaluated semi-annually (this report reflects annual total).

Analysis Run 11/3/2017 3:16 PM View: Time Series - All Wells

Rockport BAP Client: Geosyntec Data: Rockport\_BAP