



*Prepared for*  
**Crisp County Power Commission**  
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**SEMI-ANNUAL GROUNDWATER  
MONITORING REPORT  
CRISP COUNTY POWER COMMISSION  
PLANT CRISP ASH POND  
Warwick, Georgia**

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July 2019

### CERTIFICATION BY QUALIFIED GROUNDWATER SCIENTIST

I certify that this Semi-Annual Groundwater Monitoring Report was prepared by me or under my direct supervision and meets the requirements of Section 40 CFR §257 of the Federal Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule (40 CFR §257) and the Georgia EPD Solid Waste Management Rule for Coal Combustion Residuals (391-3-4-.10). The Semi-Annual Groundwater Monitoring Report includes statistical methods and narrative description appropriate for evaluating the groundwater monitoring data for the CCR management area.

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## LIST OF ACRONYMS

CCPC	Crisp County Power Commission
CCR	Coal Combustion Residual
CFR	Code of Federal Regulations
DNR	Department of Natural Resources
DO	Dissolved Oxygen
GA EPD	Georgia Environmental Protection Division
GWPS	Groundwater Protection Standard
MCL	Maximum Contaminant Level
MW	Megawatt
ORP	Oxidation Reduction Potential
RSL	Regional Screening Levels
SESD	Science and Ecosystem Support Division
SOP	Standard Operating Procedure
SSI	Statistically Significant Increase
SSL	Statistically Significant Level
USEPA	United States Environmental Protection Agency
UTL	Upper Tolerance Limit

## 1.0 INTRODUCTION

### 1.1 Overview and Summary

Geosyntec Consultants (Geosyntec) of Kennesaw, Georgia, at the request of Crisp County Power Commission (CCPC), prepared this Semi-Annual Groundwater Monitoring Report for the ash pond located at CCPC's Plant Crisp. Plant Crisp is located in Warwick, Georgia on the southern end of Lake Blackshear. A site location map is provided in **Figure 1**. CCPC installed a groundwater monitoring well network in February 2017 in compliance with the requirements of the 40 Code of Federal Regulations (CFR) §257.91 and Section 391-3-4-.10(6) of the Georgia Environmental Protection Division (GA EPD) Coal Combustion Residual (CCR) Rule.

A groundwater detection monitoring program was conducted between February and September 2017 in compliance with the requirements of the 40 CFR §257.94. The first Annual Groundwater Monitoring Report summarizing the results of detection groundwater monitoring activities was prepared in January 2018. In compliance with 40 CFR §257.95(a), CCPC initiated an assessment monitoring program for the ash pond. The initial assessment monitoring was performed in March 2018. In compliance with 40 CFR §257.95(d)(1), semi-annual assessment monitoring events were performed in June 2018, November 2018, and April 2019. A Semi-annual groundwater monitoring report summarizing the June 2018 monitoring results was prepared in October 2018. The November 2018 semi-annual monitoring results were included in the January 2019 Annual Groundwater Monitoring Report<sup>1</sup>.

The purpose of this report is to present a summary of the April 2019 assessment monitoring activities and associated laboratory and statistical analysis results. The report has been prepared to meet the semi-annual reporting requirements of GA EPD CCR Rule 391-3-4-.10(6)(c).

In summary, the April 2019 sampling event detected concentrations of 40 CFR §257, Appendix IV constituents but all concentrations were below their respective USEPA's

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<sup>1</sup> The semi-annual groundwater monitoring report is a state requirement under DNR Rule 391-3-4.10(6)(c): The owner or operator of a CCR unit must submit a semi-annual report to the Division to coincide with the semi-annual sampling event. A qualified groundwater scientist must certify the report. As per discussions with GA EPD, inclusion of the semi-annual report in the annual report which is prepared pursuant to 40 C.F.R. § 257.90(e) is acceptable for those June-December semi-annual assessments.

maximum contaminant levels (MCLs) for those parameters with an established MCL (Appendix I to 40 CFR §257)<sup>2</sup> or below USEPA's health-based level as Groundwater Protection Standard (40 CFR §257.95 (h)(2)) for those constituents without an established MCL.

## 1.2 Site History

Plant Crisp is a dual-fuel (coal and natural gas) electrical generation facility, with a 12.5-megawatt (MW) capacity coal-fired unit and 5 MW capacity natural gas combustion turbine. The byproducts of power generation from the combustion of coal (commonly referred to as CCR) at Plant Crisp included mainly fly ash and bottom ash. The CCR was disposed into a 6.5-acre ash pond located within the plant property using wet sluicing method. The ash pond was constructed in the mid-1970s, as an unlined pond [CDM Smith, 2014] and started to receive sluiced ash in 1976. The coal burning and resulting ash disposal was conducted until August 2015. The coal burn unit was briefly re-activated in in December 2016 to eliminate an existing small coal supply. The last burning of coal took place on March 22, 2017. In October 2016, CCPC submitted notification of closure by removal in accordance with 40 CFR §257. The original schedule for closure would have removed CCR by February 2018, however, Georgia DNR CCR management regulations were issued in November 2016, DNR Rule 391-3-4-.07(5), after the initial closure plan. DNR Rule 391-3-4-.07(5) required GA EPD's approval of CCR management plans for the receiving landfill. GA EPD approved the CCR management plan for the receiving landfill on March 28, 2019. On 19 November 2018, CCPC submitted a CCR permit application for the existing impoundment and closure of the ash pond by removal in accordance with 40 CFR §257.102(c) and the GA EPD rule 391-3-4-.10 and other GA EPD regulations as applicable.

The electrical generation facility, ash pond, and hydroelectric dam are located on approximately 100 acres of CCPC property near Lake Blackshear and the Flint River (**Figure 1**). The ash pond has embankments on the western and partially southern and northern sides. The maximum embankment height is on the west end and is approximately 22 feet [Rizzo Associates, 2015]. The ash pond was classified as a low hazard unit during the United States Environmental Protection Agency's (USEPA) coal

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<sup>2</sup> MCLs are the maximum contaminant levels for potable drinking water which are established setting a lifetime consumption risk or acute level and would be applied to municipal or other drinking water sources.

combustion residuals impoundment assessment, dated February 2014 and conducted by CDM Smith [CDM Smith, 2014].

### **1.3 Background**

In compliance with the detection monitoring program of the CCR rule 40 CFR §257.94, CCPC collected eight independent groundwater samples from each background and downgradient well from the Plant Crisp ash pond monitoring well network between February and September 2017. The groundwater monitoring well network includes one monitoring well (MW-U1) located upgradient of the ash pond, representing background groundwater conditions, and three monitoring wells (MW-D1, MW-D2, and MW-D3) located downgradient of the ash pond. The locations of the monitoring wells are shown on **Figure 1**. The monitoring wells are screened in the uppermost aquifer underlying the ash pond, which occurs in the alluvium and some upper portions of the residuum. The groundwater monitoring system was designed and constructed to meet the requirements of the groundwater monitoring system 40 CFR §257.91. A groundwater monitoring system certification was prepared in June 2017 and well construction diagrams of the monitoring wells were included in the January 2018 Annual Groundwater Monitoring Report. GA EPD requested additional detail in conjunction with the November 2018 application for permit for the existing CCR impoundment pursuant to EPD rule 391-3-4-.10, which is being provided by separate submittal.

Section 2 of this report presents a discussion of the April 2019 semi-annual groundwater assessment monitoring event and laboratory analysis results. A summary of statistical data analysis methods and statistical data analysis results are discussed in Section 3 and Section 4, respectively. Future monitoring program is discussed in Section 5. The groundwater monitoring and statistical analysis were performed consistent with the Groundwater Monitoring and Statistical Analysis Plan prepared for the Plant Crisp ash pond in October 2017.



## 2.0 GROUNDWATER SAMPLING AND LABORATORY ANALYSIS RESULTS

### 2.1 Groundwater Sampling and Laboratory Analysis

The most recent groundwater assessment monitoring event was conducted on April 29, 2019. The groundwater samples were collected in accordance with the USEPA Science and Ecosystem Support Division (SESD), Standard Operating Procedure (SOP No. SESDPROC-301-R4) [USEPA, Athens, Georgia, 2017]. Prior to sampling, depth to groundwater and total well depth were measured for each monitoring well using an electrical water level indicator. **Figure 2** presents a potentiometric surface map generated using the April 29, 2019 groundwater elevation data. Based on the groundwater elevation, groundwater flow direction is from southeast towards northwest and the hydraulic gradient is approximately 0.014 ft/ft.

Groundwater sampling was performed using a low-flow sampling method. To assess that the samples collected are representative of the groundwater in the aquifer, field water quality parameters were measured during purging using a Horiba U-53 water quality meter. These parameters include temperature, pH, conductivity, oxidation-reduction potential (ORP), and dissolved oxygen (DO). Measurements were taken within an enclosed flow-through cell to minimize effects of contact with air. Turbidity was measured using Hach 2100P turbidimeter. Purging was considered complete when groundwater pH, conductivity, and turbidity measurements equilibrated (as defined by USEPA SESD SOP No. SESDPROC-301-R4) Field groundwater sampling forms are provided in **Appendix A**.

The groundwater samples were collected in laboratory provided containers. Following sampling, the bottles were sealed, labeled, packed in ice, and shipped under chain-of-custody protocol to Test America Laboratories in Pensacola, FL, a certified laboratory pursuant to the Georgia State Program. The groundwater samples were analyzed for Appendix III to Part 257 (referred herein as Appendix III constituents) and Appendix IV to Part 257 (referred herein as Appendix IV constituents). The metal constituents were analyzed as total recoverable as the samples were not field filtered.

## 2.2 Groundwater Monitoring Results

Laboratory analytical results for Appendix III constituents from the April 2019 monitoring event are summarized in **Table 1**. Laboratory analytical reports are provided as **Appendix B**. All Appendix III constituents (boron, calcium, chloride, fluoride, sulfate, and total dissolved solids (TDS)) were detected in the downgradient monitoring well locations. Similarly, all Appendix III constituents except boron, fluoride, and sulfate were detected in the upgradient monitoring well.

Laboratory analytical results for Appendix IV constituents are summarized in **Table 2**. Due to a delay in laboratory analysis of Radium 226 and 228, this report does not include the Combined Radium results. The April 2019 radium results will be included in the next semi-annual monitoring report. The following Appendix IV constituents were detected at the downgradient monitoring well locations:

- Arsenic in MW-D3 (at a concentration below the laboratory reporting limit);
- Barium in MW-D1, MW-D2, and MW-D3;
- Cobalt in MW-D3 (at a concentration below the laboratory reporting limit);
- Fluoride in MW-D1, MW-D2, and MW-D3 (fluoride concentrations in MW-D1 and MW-D2 were below the laboratory reporting limit);
- Lithium in MW-D2 and MW-D3 (at concentrations below the laboratory reporting limit); and
- Thallium in MW-D3 (at a concentration below the laboratory reporting limit).

In addition, barium and chromium were detected in the background/upgradient monitoring well at concentrations below their laboratory reporting limits. The detected concentrations of Appendix IV constituents are below their respective USEPA's maximum contaminant levels (MCLs) for those parameters with an established MCL (Appendix I to 40 CFR §257) or below USEPA's health-based level as Groundwater Protection Standard (40 CFR §257.95 (h)(2)) for those constituents without an established MCL. Low level Appendix IV constituents detected during the April 2019 monitoring event can be naturally occurring as some of them were detected at low concentrations in the background well.

Laboratory reports for Appendix III and Appendix IV constituents are included in **Appendix B**. Groundwater data collected during the April 2019 assessment monitoring were statistically evaluated in accordance with 40 CFR §257.93(g) as discussed in Section 3 below.

### **3.0 ASSESSMENT MONITORING STATISTICAL DATA ANALYSIS PROCEDURES**

Statistical analysis of the groundwater data collected during the assessment monitoring event was performed in accordance with the methods listed in the Groundwater Monitoring and Statistical Analysis Plan prepared in October 2017. The statistical methods meet the requirements of the methods specified in 40 CFR §257.93(f) (1) through (5) and the performance standards specified in 40 CFR §257.93(g). Statistical analysis was performed using Sanitas™ v.9.6.05 software for Appendix IV constituents.

The primary objectives of the statistical data analysis conducted during this reporting period are:

- (i) To calculate statistically derived background concentration for each Appendix IV constituent. The statistically derived background concentration is used as Groundwater Protection Standard (GWPS) when the statistically derived background concentration is higher than the MCL (if an MCL has been established under 40 CFR §161.62 and 40 CFR §141.66) or the standard listed under 40 CFR §257.95 (h)(2) for those constituents without an established MCL.
- (ii) To construct a lower confidence interval for each constituent at each downgradient well and compare the lower confidence interval to an established GWPS and determine whether a statistically significant level (SSL) is present at any of the downgradient monitoring wells.

#### **3.1 GWPS for Appendix IV Constituents**

As a first step in developing the GWPS, groundwater data from the background well was screened for potential outlier (anomalous) data. In addition to visual inspection using time-series plots, statistical methods, such as the USEPA 1989 Outlier Screening method, were used to identify outliers in the background well data (when the data was normally distributed). Tukey's Outlier Screening method was used when background well data was not normally distributed. Although outliers were detected, they were not removed from the statistical analysis due to: (i) a large number of non-detects in the data set; and (ii) the USEPA Unified Guidance recommends removing data only if the source of the outlier is known. Data distribution was checked using Shapiro Wilk method at 99%

confidence level. This method is appropriate for a sample size of less than 50. For statistical data analysis, non-detect laboratory results were replaced with their reporting limit in accordance with the USEPA Unified Guidance recommendation [USEPA, 2009].

The USEPA Unified Guidance recommends utilizing upper tolerance limits (UTL) from the background well to establish background concentrations. In addition, the CCR Rule lists the UTL method, calculated using data from background well, as one of the methods acceptable for CCR data analysis [40 CFR §257.93(f)(3)]. As a result, the GWPS for this site were developed utilizing the UTL method and generally consisted of the following procedures:

- Parametric tolerance limits (95% coverage and 95% confidence) were constructed when the background data followed a normal or transformed-normal distribution.
- Non-parametric tolerance limits were calculated for data sets with greater than 50% non-detect values, and for data sets which do not follow a normal or transformed-normal distribution.
- The UTL was computed for each constituent using background well data collected during the eight detection monitoring events and the assessment monitoring events. As described in 40 CFR §257.95(h), the GWPS is:
  - (1) The maximum contaminant level (MCL) established under 40 CFR §141.62 and §141.66.
  - (2) Where an MCL has not been established:
    - (i) Cobalt 0.006 mg/L;
    - (ii) Lead 0.015 mg/L;
    - (iii) Lithium 0.040 mg/L; and
    - (iv) Molybdenum 0.100 mg/L.
  - (3) the UTL computed from background well data for constituents where the UTL is higher than the MCL or rule-specified GWPS.

- USEPA's updated GWPS have not yet been incorporated under GA EPD's CCR Rule<sup>3</sup>. The GWPS based on the GA EPD CCR Rule is:
  - (1) The federally established MCL for Appendix IV constituents.
  - (2) Where an MCL has not been established, the background concentration for Appendix IV constituents.
  - (3) Background levels for constituents where the background level is higher than the MCL for Appendix IV constituents.

### **3.2 Evaluation of SSLs for Appendix IV Constituents**

The USEPA Unified Guidance [USEPA, 2009] recommends utilizing the lower confidence interval from a downgradient well along with the double quantification rule to evaluate SSLs. A 99% lower confidence interval was constructed for each constituent at each downgradient well and the double quantification rule was used to evaluate SSLs. Under this rule, an SSL can be concluded if the lower confidence level is higher than the GWPS.

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<sup>3</sup> GA EPD has adopted Federal CCR Rule as provided in 80 Fed. Reg. 21468 (April 17, 2015); as amended at 80 Fed. Reg. 37988 (July 2, 2015) and 81 Fed. Reg. 51807 (August 5, 2016). Portions of these federal rules have since been repealed. See, e.g. 83 Fed. Reg. 36,435 (July 30, 2018).

#### 4.0 STATISTICAL ANALYSIS RESULTS

The statistical analysis results are summarized in **Table 3**, which shows the (i) ratio of non-detects to total number of samples; (ii) basic statistics for each constituent in a monitoring well such as minimums and maximums; (iii) UTL of each constituent constructed based on the background well data; (iv) an MCL value for the constituent (if available) established under 40 CFR §161.62 and 40 CFR §141.66 or the standard listed under 40 CFR §257.95(h)(2); and (v) the selected GWPS for each constituent.

**Table 4** shows the lower confidence limit constructed for each constituent at each downgradient well and the results of comparison between the lower confidence limit and the selected GWPS to evaluate if there are any SSLs. Comparison of the lower confidence limit to the selected GWPS revealed no SSLs during the April 2019 sampling event. The Sanitas<sup>™</sup> statistical calculations and time-series graphs for each constituent are provided in **Appendix C**.

## **5.0 FUTURE GROUNDWATER MONITORING PROGRAM**

Data collected during the assessment monitoring events indicated that Appendix IV constituents detected in the downgradient monitoring wells were below their respective GWPS. Pursuant to the CCR Rule 40 CFR §257.95(d)(1) and GA EPD's CCR Rules, groundwater samples will be collected semi-annually for Appendix III constituents and Appendix IV constituents that were detected during the April 2019 monitoring event. The next semi-annual assessment monitoring will be performed in October 2019 and a semi-annual monitoring report summarizing the October 2019 results, as well as the April 2019 radium results, will be submitted to GA EPD by 31 January 2020.



## 6.0 REFERENCES

- CDM Smith. (2014). “Assessment of Dam Safety of Coal Combustion Surface Impoundments – Final Report: Crisp County Power Commission Plant Crisp Warwick, Georgia.” Prepared for U.S. Environmental Protection Agency Washington, D.C., Rev. 1, February 2014.
- Federal Register (2018) Vol. 83 No. 146, 36435, July 30, 2018. Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Amendments to the National Minimum Criteria (Phase One. Part One). <https://www.gpo.gov/fdsys/pkg/FR-2018-07-30/pdf/2018-16262.pdf>
- Rizzo Associates. (2015). “Dam Safety Assessment Report Plant Crisp Coal Combustion Waste Impoundment.” Submitted to Crisp County Power Commission, 14-5232, Rev. 0, January 2015.
- USEPA (2009). Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance.
- USEPA (2017). Science and Ecosystem Support Division (SESD, Athens, Georgia) Standard Operating Procedure (SOP) (SESDPROC-301-R4).

# TABLES

**Table 1. Appendix III Analytical Data Summary - Semi-Annual Groundwater Assessment Monitoring Event  
 Sampling Performed on April 29, 2019  
 Crisp County Power Commission  
 Plant Crisp Ash Pond**

**Appendix III to 40 CFR Part 257 - Constituents for Detection Monitoring**

Constituent	Unit	MCL <sup>(1,2)</sup>	MDL <sup>(3)</sup>	Upgradient Well ID		Downgradient Well ID		
				MW-U1	MW-D1	MW-D2	MW-D3	
							MW-D3	DUP-12
<b>Boron</b>	mg/L	N/A	0.021	ND	0.17	0.15	0.25	0.24
<b>Calcium</b>	mg/L	N/A	0.13 <sup>(4)</sup>	34	28	2	110	110
<b>Chloride</b>	mg/L	N/A	1.4	<2 (1.4 J)	2.1	4.8	4	4.3
<b>Fluoride</b>	mg/L	4	0.032	ND	<0.1 (0.060 J)	<0.1 (0.060 J)	0.11	0.11
<b>Sulfate</b>	mg/L	N/A	1.4	ND	28	19	29	29
<b>pH</b>	mg/L	N/A	--	7.84	6.49	7.19	8.27	8.27
<b>Total Dissolved Solids</b>	mg/L	N/A	3.4	120	120	360	370	380

**Notes:**

J - result is less than the reporting level but greater than or equal to the MDL and the concentration is an approximate value.

1. MCLs indicate USEPA maximum contaminant levels. MCLs are established under 40 CFR §141.62 and 40 CFR §141.66.
  2. N/A indicates constituent does not have an MCL.
  3. MDL indicates minimum detection limit, which is the minimum concentration of analyte that can be measured and reported.
  4. Value shown represents MDL for MW-D1, MW-D3, and MW-U1. Due to dilution of the sample, the MDL for calcium in MW-D2 is 0.25 mg/L.
- There is no MDL for pH. Groundwater pH was measured in the field using a Horiba U-53 water quality meter.

**Table 2. Appendix IV Analytical Data Summary - Semi-Annual Groundwater Assessment Monitoring Event  
Sampling Performed on April 29, 2019  
Crisp County Power Commission  
Plant Crisp Ash Pond**

**Appendix IV to 40 CFR Part 257 - Constituents for Assessment Monitoring**

Constituent	Unit	MCL <sup>(1)</sup>	MDL <sup>(3)</sup>	Upgradient Well ID	Downgradient Well ID			
				MW-U1	MW-D1	MW-D2	MW-D3	
							MW-D3	DUP-12
<b>Antimony</b>	mg/L	0.006	0.0010	ND	ND	ND	ND	ND
<b>Arsenic</b>	mg/L	0.01	0.00046	ND	ND	ND	<0.0013 (0.00048 J)	ND
<b>Barium</b>	mg/L	2	0.00049	<0.0025 (0.0018 J)	0.015	0.16	0.10	0.10
<b>Beryllium</b>	mg/L	0.004	0.00034	ND	ND	ND	ND	ND
<b>Cadmium</b>	mg/L	0.005	0.00034	ND	ND	ND	ND	ND
<b>Chromium</b>	mg/L	0.1 <sup>(4)</sup>	0.0011	<0.0025 (0.0011 J)	ND	ND	ND	ND
<b>Cobalt</b>	mg/L	0.006 <sup>(2)</sup>	0.00040	ND	ND	ND	<0.0025 (0.0013 J)	<0.0025 (0.00092 J)
<b>Fluoride</b>	mg/L	4	0.032	ND	<0.10 (0.06 J)	<0.10 (0.06 J)	0.11	0.11
<b>Lead</b>	mg/L	0.015 <sup>(5)</sup>	0.00035	ND	ND	ND	ND	ND
<b>Lithium</b>	mg/L	0.04 <sup>(2)</sup>	0.0011	ND	ND	<0.0025 (0.0011 J)	<0.0025 (0.0013 J)	<0.0025 (0.0013 J)
<b>Mercury</b>	mg/L	0.002 <sup>(6)</sup>	0.00007	ND	ND	ND	ND	ND
<b>Molybdenum</b>	mg/L	0.1 <sup>(2)</sup>	0.002	ND	ND	ND	ND	ND
<b>Selenium</b>	mg/L	0.05	0.00071	ND	ND	ND	ND	ND
<b>Thallium</b>	mg/L	0.002	0.000085	ND	ND	ND	<0.0005 (0.00011 J)	<0.0005 (0.00011 J)

**Notes:**

ND - the substance was not detected above the analytical method detection limit (MDL).

J - concentration is less than the reporting level but greater than or equal to the MDL and the concentration is an approximate value.

- MCLs indicate USEPA maximum contaminant levels. MCLs are established under 40 CFR §141.62 and 40 CFR§141.66.
- USEPA's health-based level as Groundwater Protection Standard (40 CFR §257.95 (h)(2)).
- MDL indicates minimum detection limit, which is the minimum concentration of analyte that can be measured and reported.
- MCL value for total chromium.
- Lead Treatment Technology Action Level is 0.0015 mg/L.
- Value for inorganic mercury.
- Due to delay in laboratory analysis of Radium 226 and 228, this report does not include the combined radium results. They will be included in the next semi-annual report.

**Table 3. Summary of Basic Groundwater Statistics and GWPS for Appendix IV Constituents  
Crisp County Power Commission  
Plant Crisp Ash Pond**

Appendix IV to Part 257 - Constituents for Assessment Monitoring	Well ID	Number of Samples	Number of Non-detects	% Non-detects	Minimum	Maximum	Upper Tolerance Limit	Maximum Contaminant Level (MCL established under 40 CFR §161.62 and 40 CFR §141.66) or Groundwater Protection Standard (GWPS listed under 40 CFR §257.95(h)(2))	Selected Groundwater Protection Standard (GWPS) for the Site
Antimony [mg/L]	MW-U1	10	10	100%	<0.0025	<0.0025	0.0025	0.006	0.006
	MW-D1	10	10	100%	<0.0025	<0.0025			
	MW-D2	10	10	100%	<0.0025	<0.0025			
	MW-D3	10	10	100%	<0.0025	<0.0025			
Arsenic [mg/L]	MW-U1	12	11	92%	0.00046 (J)	<0.0013	0.0013	0.01	0.01
	MW-D1	12	12	100%	<0.0013	<0.0013			
	MW-D2	12	9	75%	0.00048 (J)	<0.0013			
	MW-D3	12	2	17%	0.00048 (J)	0.0016			
Barium [mg/L]	MW-U1	12	0	0%	0.002	0.0034	0.0038	2	2
	MW-D1	12	0	0%	0.0095	0.015			
	MW-D2	12	0	0%	0.087	0.190			
	MW-D3	12	0	0%	0.100	0.230			
Beryllium [mg/L]	MW-U1	10	10	100%	<0.002	<0.0025	0.0025	0.004	0.004
	MW-D1	10	10	100%	<0.002	<0.0025			
	MW-D2	10	10	100%	<0.002	<0.0025			
	MW-D3	10	10	100%	<0.002	<0.0025			
Cadmium [mg/L]	MW-U1	10	10	100%	<0.001	<0.0025	0.0025	0.005	0.005
	MW-D1	10	10	100%	<0.001	<0.0025			
	MW-D2	10	10	100%	<0.001	<0.0025			
	MW-D3	10	10	100%	<0.001	<0.0025			
Chromium [mg/L]	MW-U1	11	0	0%	0.0011	0.0051	0.0051	0.1	0.1
	MW-D1	11	10	91%	<0.0025	0.0034			
	MW-D2	11	10	91%	<0.00125	0.0038			
	MW-D3	11	10	91%	<0.00125	0.0029			
Cobalt [mg/L]	MW-U1	12	12	100%	<0.0005	<0.0025	0.0025	0.006	0.006 <sup>a</sup> /0.0025 <sup>b</sup>
	MW-D1	12	12	100%	<0.0025	<0.0025			
	MW-D2	12	11	92%	0.00047 (J)	<0.0025			
	MW-D3	12	0	0%	0.00079 (J)	0.0017 (J)			
Fluoride [mg/L]	MW-U1	12	0	0%	0.040	0.100	0.086	4	4
	MW-D1	12	0	0%	0.040	0.110			
	MW-D2	12	0	0%	0.040	0.070			
	MW-D3	12	1	8%	0.060	0.130			
Lead [mg/L]	MW-U1	10	9	90%	0.00065 (J)	<0.0013	0.0013	0.015	0.015 <sup>a</sup> /0.0013 <sup>b</sup>
	MW-D1	10	9	90%	0.0008 (J)	<0.0013			
	MW-D2	10	8	80%	0.00037 (J)	<0.0013			
	MW-D3	10	10	100%	<0.0013	<0.0013			
Lithium [mg/L]	MW-U1	11	10	91%	0.00034 (J)	<0.0025	0.0025	0.04	0.04 <sup>a</sup> /0.0025 <sup>b</sup>
	MW-D1	11	11	100%	<0.0025	<0.005			
	MW-D2	11	10	91%	<0.0025	<0.005			
	MW-D3	11	10	91%	<0.0025	<0.005			
Mercury [mg/L]	MW-U1	10	9	90%	0.000099 (J)	<0.0002	0.0002	0.002	0.002
	MW-D1	10	9	90%	0.000077 (J)	<0.0002			
	MW-D2	10	8	80%	0.00011 (J)	<0.0002			
	MW-D3	10	9	90%	0.00011 (J)	<0.0002			
Molybdenum [mg/L]	MW-U1	12	12	100%	<0.003	<0.01	0.01	0.10	0.1 <sup>a</sup> /0.01 <sup>b</sup>
	MW-D1	12	12	100%	<0.01	<0.015			
	MW-D2	12	9	75%	<0.01	<0.01			
	MW-D3	12	2	17%	<0.01	<0.01			
Selenium [mg/L]	MW-U1	11	5	45%	0.00039	<0.0013	0.001	0.05	0.05
	MW-D1	11	19	173%	0.00033 (J)	<0.0013			
	MW-D2	11	8	73%	0.00033 (J)	<0.0013			
	MW-D3	11	8	73%	<0.00025	0.0028			
Thallium [mg/L]	MW-U1	12	12	100%	<0.0005	<0.0005	0.0005	0.002	0.002
	MW-D1	12	12	100%	<0.0005	<0.0005			
	MW-D2	12	4	33%	0.000085 (J)	<0.0005			
	MW-D3	12	0	0%	0.000095 (J)	0.00013 (J)			

**Notes:**

mg/L = milligrams per liter

pCi/L = picocuries per liter

ND = Not Detected

NA = Not Available

Highlighted cells show the background well (MW-U1).

J - result is less than the reporting level but greater than or equal to the method detection limit (MDL) and the concentration is an approximate value.

<sup>a</sup> Federal GWPS selected as the higher of MCL or background level.

<sup>b</sup> Selected State GWPS because USEPA's updated GWPS have not yet been incorporated under Georgia EPD's CCR Rule.

Due to delay in laboratory analysis of Radium 226 and 228, this report does not include the combined radium results. They will be included in the next semi-annual report.

**Table 4. Evaluation of SSLs for Appendix IV Constituents  
Crisp County Power Commission  
Plant Crisp Ash Pond**

Appendix IV to Part 257 - Constituents for Assessment Monitoring	Well ID	Selected Groundwater Protection Standard (GWPS) for the Site (From Table 3)	Lower Confidence Limit if Detected During the April 2019 Monitoring Period	Concentrations in Downgradient Well Show Statistically Significant Level (SSL) Above GWPS?
Antimony [mg/L]	MW-U1	0.006	Background Well	
	MW-D1		ND	No
	MW-D2		ND	No
	MW-D3		ND	No
Arsenic [mg/L]	MW-U1	0.01	Background Well	
	MW-D1		ND	No
	MW-D2		ND	No
	MW-D3		0.0005	No
Barium [mg/L]	MW-U1	2	Background Well	
	MW-D1		0.010	No
	MW-D2		0.116	No
	MW-D3		0.151	No
Beryllium [mg/L]	MW-U1	0.004	Background Well	
	MW-D1		ND	No
	MW-D2		ND	No
	MW-D3		ND	No
Cadmium [mg/L]	MW-U1	0.005	Background Well	
	MW-D1		ND	No
	MW-D2		ND	No
	MW-D3		ND	No
Chromium [mg/L]	MW-U1	0.1	Background Well	
	MW-D1		ND	No
	MW-D2		ND	No
	MW-D3		ND	No
Cobalt [mg/L]	MW-U1	0.006 <sup>a</sup> /0.0025 <sup>b</sup>	Background Well	
	MW-D1		ND	No
	MW-D2		ND	No
	MW-D3		0.001	No
Fluoride [mg/L]	MW-U1	4	Background Well	
	MW-D1		0.055	No
	MW-D2		0.050	No
	MW-D3		0.102	No
Lead [mg/L]	MW-U1	0.015 <sup>a</sup> /0.0013 <sup>b</sup>	Background Well	
	MW-D1		ND	No
	MW-D2		ND	No
	MW-D3		ND	No
Lithium [mg/L]	MW-U1	0.04 <sup>a</sup> /0.0025 <sup>b</sup>	Background Well	
	MW-D1		ND	No
	MW-D2		0.001	No
	MW-D3		0.001	No
Mercury [mg/L]	MW-U1	0.002	Background Well	
	MW-D1		ND	No
	MW-D2		ND	No
	MW-D3		ND	No
Molybdenum [mg/L]	MW-U1	0.1 <sup>a</sup> /0.01 <sup>b</sup>	Background Well	
	MW-D1		ND	No
	MW-D2		ND	No
	MW-D3		ND	No
Selenium [mg/L]	MW-U1	0.05	Background Well	
	MW-D1		ND	No
	MW-D2		ND	No
	MW-D3		ND	No
Thallium [mg/L]	MW-U1	0.002	Background Well	
	MW-D1		ND	No
	MW-D2		ND	No
	MW-D3		0.0001	No

**Notes:**

mg/L = milligrams per liter

pCi/L = picocuries per liter

ND = Not Detected

Highlighted cells show the background well (MW-U1).

<sup>a</sup>: Federal GWPS selected as the higher of MCL or background level.

<sup>b</sup>: Selected State GWPS because USEPA's updated GWPS have not yet been incorporated under Georgia EPD's CCR Rule.

Due to delay in laboratory analysis of Radium 226 and 228, this report does not include the combined radium results. They will be included in the next semi-annual report.

# FIGURES

N:\Crisp County\GIS\IMXD2019\July 2019 Report to GAC\GW Monitoring Well Location Map.mxd 7/19/2019 5:11:26 PM AK



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Aerial Photograph from June 2016.



**Legend**

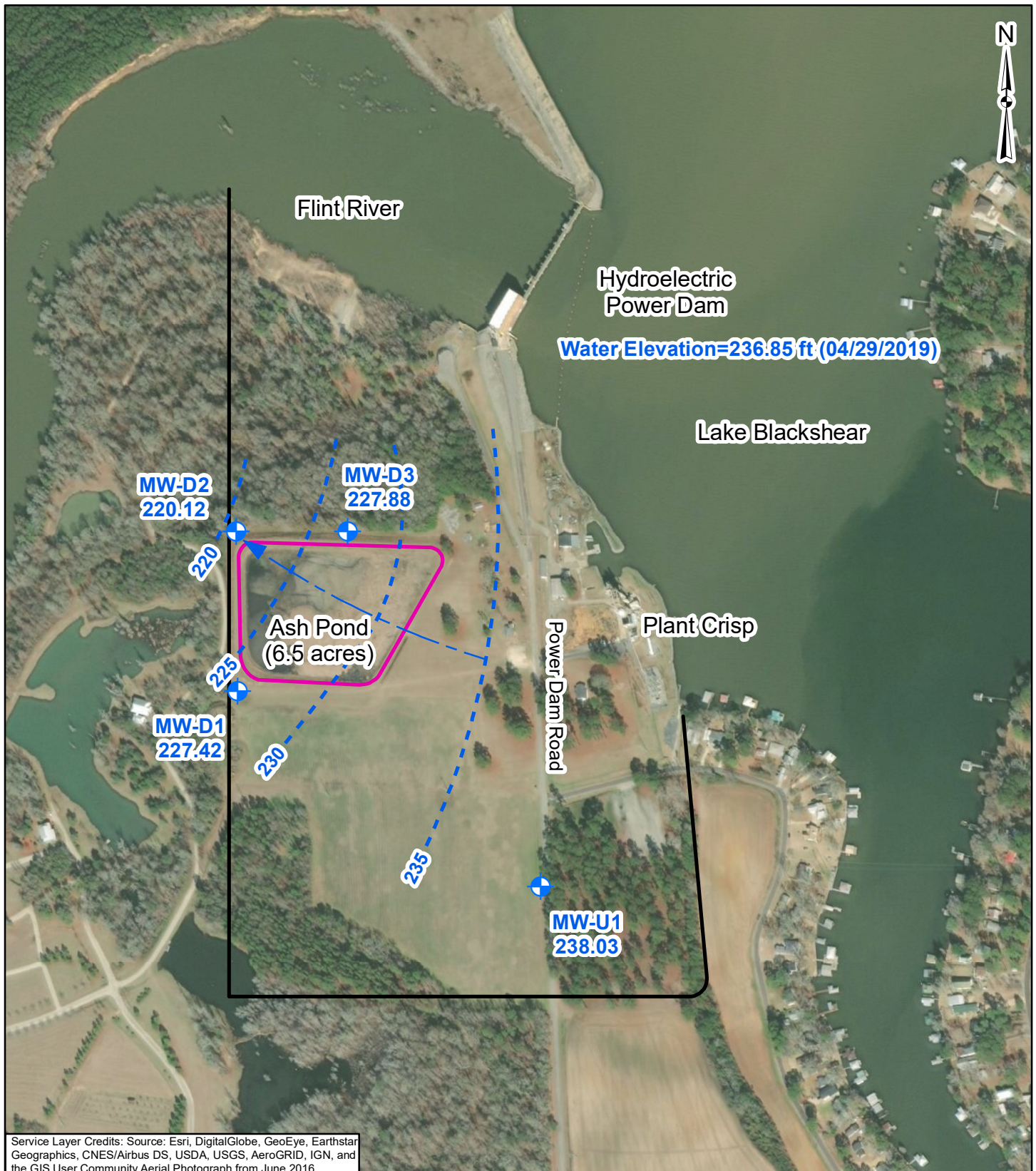
- Groundwater Monitoring Well
- Ash Pond Limits
- CCPC Property Boundary

0 250 500 1,000 Feet

<b>Groundwater Monitoring Well Location Map</b>	
Crisp County Power Commission Warwick, Georgia	
	DATE: JULY 2019
	PROJECT NO. GW6152
	DOCUMENT NO. GA 190323
	FILE NO. GW MONITORING WELL LOCATION MAP.MXD
KENNESAW, GA	FIGURE NO. 1



N:\Crisp County\GIS\IMXD2019\July 2019 Report to GAA\April 2019 Potentiometric Surface Map.mxd 7/19/2019 5:10:14 PM AK



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Aerial Photograph from June 2016.



**Legend**

- Groundwater Monitoring Well
- Groundwater Flow Direction
- Groundwater Elevation Contour - 29 April 2019 (ft)
- Ash Pond Limits
- CCPC Property Boundary

0 250 500 1,000 Feet

<b>Potentiometric Surface Map</b>	
Crisp County Power Commission Warwick, Georgia	
<b>Geosyntec</b> consultants	DATE: JULY 2019
	PROJECT NO. GW6152
KENNESAW, GA	DOCUMENT NO. GA 190323
	FILE NO. APRIL 2019 POTENTIOMETRIC SURFACE MAP.MXD
	FIGURE NO. 2

# APPENDIX A

## Field Groundwater Sampling Forms

### WATER LEVEL MEASUREMENTS

Site Name: <u>CRISP CO. POWER</u>	Sampling Personnel: <u>S. RANDALL</u>
Location: <u>WARWICK, GA</u>	Field Conditions: _____
Date: <u>4/29/19</u>	

Well ID	Time	TOC Elevation	Depth to Water (ft)	Well Depth (ft)	GW Elevation	Field Observations
MW-D3	0825		5.92	22.52		
MW-D2	0830		12.68	22.4		
MW-D1	0835		14.38	22.6		
MW-U1	0840		11.47	37.15		
		END OF DAY CHECKS				
MW-D3	1443		6.06	22.52		
MW-D2	1448		12.74	22.4		
MW-D1	1453		14.37	22.6		
MW-U1	1458		11.47	37.15		

**DEP Form FD 9000-24: GROUNDWATER SAMPLING LOG**

SITE NAME: <b>Crisp County Power Commision</b>	SITE LOCATION: <b>961 Power Dam Rd Warwick, GA 31796</b>
WELL NO: <b>MW-D1</b>	SAMPLE ID: <b>MW-D1-2019 0429</b>
DATE: <b>4/29/19</b>	

**PURGING DATA**

WELL DIAMETER (inches): <b>2</b>	TUBING DIAMETER (inches): <b>0.25</b>	WELL SCREEN INTERVAL DEPTH: <b>12.6</b> feet to <b>22.6</b> feet	STATIC DEPTH TO WATER (feet): <b>14.38</b>	PURGE PUMP TYPE OR BAILER: <b>PP</b>							
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = ( <b>22.6</b> feet - <b>14.38</b> feet ) X <b>0.16</b> gallons/foot = <b>1.32</b> gallons											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): <b>17'</b>	FINAL PUMP OR TUBING DEPTH IN WELL (feet): <b>17'</b>	PURGING INITIATED AT: <b>1145</b>	PURGING ENDED AT: <b>1215</b>	TOTAL VOLUME PURGED (gallons): <b>1.98</b>							
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) $\mu\text{mhos/cm}$ or $\mu\text{S/cm}$	DISSOLVED OXYGEN (circle units) $\text{mg/L}$ or % saturation	TURBIDITY (NTUs)	ORP (mV)	COLOR/ODOR (describe)
<b>1145</b>	<b>0.0</b>	<b>0.0</b>	<b>0.066</b>	<b>14.6</b>	<b>6.49</b>	<b>22.07</b>	<b>212</b>	<b>5.20</b>	<b>19</b>	<b>144</b>	
<b>1205</b>	<b>0.33</b>	<b>1.32</b>	<b>0.066</b>	<b>14.55</b>	<b>6.21</b>	<b>21.09</b>	<b>217</b>	<b>2.32</b>	<b>33</b>	<b>182</b>	
<b>1210</b>	<b>0.33</b>	<b>1.65</b>	<b>0.066</b>	<b>14.55</b>	<b>6.18</b>	<b>21.77</b>	<b>216</b>	<b>2.23</b>	<b>1</b>	<b>187</b>	
<b>1215</b>	<b>0.33</b>	<b>1.98</b>	<b>0.066</b>	<b>14.55</b>	<b>6.15</b>	<b>21.85</b>	<b>215</b>	<b>2.08</b>	<b>1</b>	<b>192</b>	
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016											
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)											

**SAMPLING DATA**

SAMPLED BY (PRINT) / AFFILIATION: <b>Stephen Randall/Geosyntec</b>			SAMPLER(S) SIGNATURE(S): <i>Stephen W. Randall</i>			SAMPLING INITIATED AT: <b>1220</b>		SAMPLING ENDED AT: <b>1235</b>		
PUMP OR TUBING DEPTH IN WELL (feet): <b>17'</b>			TUBING MATERIAL CODE: <b>LDPE</b>			FIELD-FILTERED: Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		FILTER SIZE: _____ $\mu\text{m}$		
FIELD DECONTAMINATION: PUMP Y <input checked="" type="checkbox"/> N <input type="checkbox"/>			TUBING Y <input checked="" type="checkbox"/> N (replaced) <input type="checkbox"/>			DUPLICATE: Y <input checked="" type="checkbox"/> N <input type="checkbox"/>				
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH				
	<b>1</b>	<b>HDPE</b>	<b>1.9 L</b>	<b>HNO3</b>	<b>---</b>	<b>---</b>	<b>9315, 9320, Ra226_Ra228</b>		<b>APP</b>	<b>250</b>
	<b>1</b>	<b>HDPE</b>	<b>1 L</b>	<b>---</b>	<b>---</b>	<b>---</b>	<b>SM 4500</b>		<b>APP</b>	<b>250</b>
	<b>1</b>	<b>HDPE</b>	<b>0.25 L</b>	<b>HNO3</b>	<b>---</b>	<b>---</b>	<b>6020, 7470A</b>		<b>APP</b>	<b>250</b>
REMARKS:										
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)										
SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPF = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)										

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.  
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)  
pH:  $\pm 0.2$  units Temperature:  $\pm 0.2$  °C Specific Conductance:  $\pm 5\%$  Dissolved Oxygen: all readings  $\leq 20\%$  saturation (see Table FS 2200-2); optionally,  $\pm 0.2$  mg/L or  $\pm 10\%$  (whichever is greater) Turbidity: all readings  $\leq 20$  NTU; optionally  $\pm 5$  NTU or  $\pm 10\%$  (whichever is greater)

DEP Form FD 9000-24: GROUNDWATER SAMPLING LOG

SITE NAME: <b>Crisp County Power Commision</b>	SITE LOCATION: <b>961 Power Dam Rd Warwick, GA 31796</b>
WELL NO: <b>MW-DZ</b>	SAMPLE ID: <b>MW-DZ-20190429</b> DATE: <b>4/29/19</b>

**PURGING DATA**

WELL DIAMETER (inches): <b>2</b>	TUBING DIAMETER (inches): <b>0.25</b>	WELL SCREEN INTERVAL DEPTH: <b>12.4</b> feet to <b>22.4</b> feet	STATIC DEPTH TO WATER (feet): <b>12.68</b>	PURGE PUMP TYPE OR BAILER: <b>PP</b>							
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = ( <b>22.4</b> feet - <b>12.68</b> feet ) X <b>9.72</b> gallons/foot = <b>1.55</b> gallons											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) =                      gallons + (                      gallons/foot X                      feet ) +                      gallons =                      gallons											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): <b>17'</b>	FINAL PUMP OR TUBING DEPTH IN WELL (feet): <b>17'</b>	PURGING INITIATED AT: <b>0905</b>	PURGING ENDED AT: <b>0935</b>	TOTAL VOLUME PURGED (gallons): <b>2.16</b>							
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) $\mu$ mhos/cm or $\mu$ S/cm	DISSOLVED OXYGEN (circle units) mg/L % saturation	TURBIDITY (NTUs)	ORP (mV)	COLOR/ODOR (describe)
0905	0.0	0.0	0.066	12.9	7.19	17.49	653	2.72	3	50	
0925	0.33	1.5	0.066	13.56	6.84	18.23	666	0.23	2	63	
0930	0.33	1.83	0.066	13.9	6.87	18.29	663	0.21	2	69	
0935	0.33	2.16	0.066	14.1	6.89	18.32	663	0.19	2	72	
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016											
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)											

**SAMPLING DATA**

SAMPLED BY (PRINT) / AFFILIATION: <b>Stephen Randall/Geosyntec</b>			SAMPLER(S) SIGNATURE(S): <i>Stephen W. Randall</i>			SAMPLING INITIATED AT: <b>0940</b>		SAMPLING ENDED AT: <b>0956</b>	
PUMP OR TUBING DEPTH IN WELL (feet): <b>17'</b>			TUBING MATERIAL CODE: <b>LDPE</b>			FIELD-FILTERED: Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		FILTER SIZE: _____ $\mu$ m	
FIELD DECONTAMINATION: PUMP Y <input checked="" type="checkbox"/> N <input type="checkbox"/>			TUBING Y <input checked="" type="checkbox"/> N (replaced) <input type="checkbox"/>			DUPLICATE: <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			
	1	HDPE	1.9 L	HNO3	---	---	9315, 9320, R#226_R#228	APP	250
	1	HDPE	1 L	---	---	---	SM 4500	APP	250
	1	HDPE	0.25 L	HNO3	---	---	6020, 7470A	APP	250
REMARKS:									
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)									
SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)									

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.  
 2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)  
 pH:  $\pm$  0.2 units    Temperature:  $\pm$  0.2 °C    Specific Conductance:  $\pm$  5%    Dissolved Oxygen: all readings  $\leq$  20% saturation (see Table FS 2200-2); optionally,  $\pm$  0.2 mg/L or  $\pm$  10% (whichever is greater)    Turbidity: all readings  $\leq$  20 NTU; optionally  $\pm$  5 NTU or  $\pm$  10% (whichever is greater)

DEP Form FD 9000-24: GROUNDWATER SAMPLING LOG

SITE NAME: Crisp County Power Commission		SITE LOCATION: 961 Power Dam Rd Warwick, GA 31796	
WELL NO: MW-03	SAMPLE ID: MW-03-2019 0429	DATE: 4/29/19	

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 0.25	WELL SCREEN INTERVAL DEPTH: 12.5 feet to 22.5 feet	STATIC DEPTH TO WATER (feet): 5.92	PURGE PUMP TYPE OR BAILER: PP
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = ( 22.5 feet - 5.92 feet ) X 0.16 gallons/foot = 2.65 gallons				
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) = gallons + ( gallons/foot X feet ) + gallons = gallons				

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 17'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 17'	PURGING INITIATED AT: 1007	PURGING ENDED AT: 1047	TOTAL VOLUME PURGED (gallons): 3.31
--	--	----------------------------	------------------------	-------------------------------------

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) μmhos/cm or μS/cm	DISSOLVED OXYGEN (circle units) mg/L % saturation	TURBIDITY (NTUs)	ORP (mV)	COLOR/ODOR (describe)
1007	0.0	0.0	0.066	6.55	7.22	19.29	628	2.00	8	127	
1037	0.33	2.65	0.066	8.14	7.15	20.55	617	0.00	7	88	
1042	0.33	2.98	0.066	8.35	7.14	21.06	610	0.00	6	84	
1047	0.33	3.31	0.066	8.27	7.14	21.51	601	0.00	6	82	

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88  
 TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016  
 PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Stephen Randall/Geosyntec	SAMPLER(S) SIGNATURE(S): <i>Stephen W. Randall</i>	SAMPLING INITIATED AT: 1055	SAMPLING ENDED AT: 1126
PUMP OR TUBING DEPTH IN WELL (feet): 17'	TUBING MATERIAL CODE: LDPE	FIELD-FILTERED: Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	FILTER SIZE: _____ μm
FIELD DECONTAMINATION: PUMP Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	TUBING Y <input checked="" type="checkbox"/> N (replaced) <input type="checkbox"/>	DUPLICATE: Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			
	1	HDPE	1.9 L	HNO3	---	---	9315, 9320, Ra226, Ra228	APP	250
	1	HDPE	1 L	---	---	---	SM 4500	APP	250
	1	HDPE	0.25 L	HNO3	---	---	6020, 7470A	APP	250
DUP-12-20190429	1	HDPE	1.9 L	HNO3	---	---	9315, 9320, Ra226, Ra228	APP	250
	1	HDPE	1 L	---	---	---	SM 4500	APP	250
	1	HDPE	0.25 L	HNO3	---	---	6020, 7470A	APP	250

REMARKS: DUP-12 TIME ON COC 15 0800 DUP-12-20190429

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.  
 2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)  
 pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

DEP Form FD 9000-24: GROUNDWATER SAMPLING LOG

SITE NAME: <b>Crisp County Power Commision</b>	SITE LOCATION: <b>961 Power Dam Rd Warwick, GA 31796</b>
WELL NO: <b>MW-01</b>	SAMPLE ID: <b>MW-01-20181129</b>
DATE: <b>4/29/19</b>	

PURGING DATA

WELL DIAMETER (inches): <b>2</b>	TUBING DIAMETER (inches): <b>0.25</b>	WELL SCREEN INTERVAL DEPTH: <b>37.1</b> feet to feet	STATIC DEPTH TO WATER (feet): <b>11.47</b>	PURGE PUMP TYPE OR BAILER: <b>PP</b>
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)				
= ( <b>37.1</b> feet - <b>11.47</b> feet ) X <b>0.16</b> gallons/foot = <b>4.10</b> gallons				
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)				
= gallons + ( gallons/foot X feet ) + gallons = gallons				
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): <b>32.1</b>	FINAL PUMP OR TUBING DEPTH IN WELL (feet): <b>32.1</b>	PURGING INITIATED AT: <b>1252</b>	PURGING ENDED AT: <b>1405</b>	TOTAL VOLUME PURGED (gallons): <b>4.76</b>

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) μmhos/cm or μS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	ORP (mV)	COLOR/ODOR (describe)
1252	0.0	0.0	0.066	11.74	7.84	22.86	190	7.24	3	159	
1355	0.33	4.10	0.066	12.00	7.97	24.14	188	7.45	1	158	
1400	0.33	4.43	0.066	12.01	7.98	24.22	187	7.47	1	158	
1405	0.33	4.76	0.066	12.01	7.98	24.36	187	7.43	1	159	

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88  
 TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016  
 PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: <b>Stephen Randall/Geosyntec</b>	SAMPLER(S) SIGNATURE(S): <i>Stephen W. Randall</i>	SAMPLING INITIATED AT: <b>1410</b>	SAMPLING ENDED AT: <b>1430</b>
PUMP OR TUBING DEPTH IN WELL (feet): <b>32.1</b>	TUBING MATERIAL CODE: <b>LDPE</b>	FIELD-FILTERED: Y <b>N</b>	FILTER SIZE: _____ μm
FIELD DECONTAMINATION: PUMP Y <b>N</b>	TUBING Y <b>N (replaced)</b>	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			
	1	HDPE	1.9 L	HNO3	---	---	9315, 9320, Ra226_Ra228	APP	250
	1	HDPE	1 L	---	---	---	SM 4500	APP	250
	1	HDPE	0.25 L	HNO3	---	---	6020, 7470A	APP	250

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

- NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.  
 2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)  
 pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

## APPENDIX B

### Laboratory Analytical Report



## ANALYTICAL REPORT

Eurofins TestAmerica, Pensacola  
3355 McLemore Drive  
Pensacola, FL 32514  
Tel: (850)474-1001

Laboratory Job ID: 400-169546-1  
Laboratory SDG: Crisp County Power Cooperative  
Client Project/Site: CCR App.III/IV GW Monitoring

For:  
Geosyntec Consultants, Inc.  
1255 Roberts Blvd, NW  
Suite 200  
Kennesaw, Georgia 30144

Attn: Dawit Yifru



Authorized for release by:  
5/20/2019 3:55:00 PM

Cheyenne Whitmire, Project Manager II  
(850)471-6222  
[cheyenne.whitmire@testamericainc.com](mailto:cheyenne.whitmire@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



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[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: Geosyntec Consultants, Inc.  
Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
SDG: Crisp County Power Cooperative

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**Job ID: 400-169546-1**

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**Laboratory: Eurofins TestAmerica, Pensacola**

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**Narrative**

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**Job Narrative  
400-169546-1**

**Metals**

Method(s) 6020: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 440793 and analytical batch 440957 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 6020: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-D2-20190429 (400-169546-2). Elevated reporting limits (RLs) are provided.

Method(s) 7470A: The matrix spike duplicate (MSD) recoveries for preparation batch 440417 and analytical batch 440709 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.



# Detection Summary

Client: Geosyntec Consultants, Inc.  
Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
SDG: Crisp County Power Cooperative

**Client Sample ID: DUP-12-20190429**

**Lab Sample ID: 400-169546-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.10		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.24		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	110		0.25	0.13	mg/L	5		6020	Total Recoverable
Cobalt	0.00092	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0013	J	0.0025	0.0011	mg/L	5		6020	Total Recoverable
Thallium	0.00011	J	0.00050	0.000085	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	380		5.0	3.4	mg/L	1		SM 2540C	Total/NA
Chloride	4.3		2.0	1.4	mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.11		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	29		5.0	1.4	mg/L	1		SM 4500 SO4 E	Total/NA
Field pH	6.55				SU	1		Field Sampling	Total/NA

**Client Sample ID: MW-D2-20190429**

**Lab Sample ID: 400-169546-2**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.16		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.15		0.050	0.021	mg/L	5		6020	Total Recoverable
Lithium	0.0011	J	0.0025	0.0011	mg/L	5		6020	Total Recoverable
Calcium - DL	2.0		0.50	0.25	mg/L	10		6020	Total Recoverable
Total Dissolved Solids	360		5.0	3.4	mg/L	1		SM 2540C	Total/NA
Chloride	4.8		2.0	1.4	mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.060	J	0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	19		5.0	1.4	mg/L	1		SM 4500 SO4 E	Total/NA
Field pH	7.19				SU	1		Field Sampling	Total/NA

**Client Sample ID: MW-D3-20190429**

**Lab Sample ID: 400-169546-3**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00048	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.10		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.25		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	110		0.25	0.13	mg/L	5		6020	Total Recoverable
Cobalt	0.0013	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0013	J	0.0025	0.0011	mg/L	5		6020	Total Recoverable
Thallium	0.00011	J	0.00050	0.000085	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	370		5.0	3.4	mg/L	1		SM 2540C	Total/NA
Chloride	4.0		2.0	1.4	mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.11		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	29		5.0	1.4	mg/L	1		SM 4500 SO4 E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Pensacola

# Detection Summary

Client: Geosyntec Consultants, Inc.  
 Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
 SDG: Crisp County Power Cooperative

## Client Sample ID: MW-D3-20190429 (Continued)

## Lab Sample ID: 400-169546-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Field pH	8.27				SU	1		Field Sampling	Total/NA

## Client Sample ID: MW-D1-20190429

## Lab Sample ID: 400-169546-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.015		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.17		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	28		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	120		5.0	3.4	mg/L	1		SM 2540C	Total/NA
Chloride	2.1		2.0	1.4	mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.060	J	0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	28		5.0	1.4	mg/L	1		SM 4500 SO4 E	Total/NA
Field pH	6.49				SU	1		Field Sampling	Total/NA

## Client Sample ID: MW-U1-20190429

## Lab Sample ID: 400-169546-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0018	J	0.0025	0.00049	mg/L	5		6020	Total Recoverable
Calcium	34		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0011	J	0.0025	0.0011	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	120		5.0	3.4	mg/L	1		SM 2540C	Total/NA
Chloride	1.4	J	2.0	1.4	mg/L	1		SM 4500 Cl- E	Total/NA
Field pH	7.84				SU	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Pensacola

# Method Summary

Client: Geosyntec Consultants, Inc.  
Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
SDG: Crisp County Power Cooperative

Method	Method Description	Protocol	Laboratory
6020	Metals (ICP/MS)	SW846	TAL PEN
7470A	Mercury (CVAA)	SW846	TAL PEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PEN
SM 4500 Cl- E	Chloride, Total	SM	TAL PEN
SM 4500 F C	Fluoride	SM	TAL PEN
SM 4500 SO4 E	Sulfate, Total	SM	TAL PEN
Field Sampling	Field Sampling	EPA	TAL PEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PEN
7470A	Preparation, Mercury	SW846	TAL PEN

#### Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# Sample Summary

Client: Geosyntec Consultants, Inc.  
Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
SDG: Crisp County Power Cooperative

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-169546-1	DUP-12-20190429	Water	04/29/19 08:00	05/01/19 08:52
400-169546-2	MW-D2-20190429	Water	04/29/19 09:40	05/01/19 08:52
400-169546-3	MW-D3-20190429	Water	04/29/19 10:55	05/01/19 08:52
400-169546-4	MW-D1-20190429	Water	04/29/19 12:20	05/01/19 08:52
400-169546-5	MW-U1-20190429	Water	04/29/19 14:10	05/01/19 08:52

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

# Client Sample Results

Client: Geosyntec Consultants, Inc.  
 Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
 SDG: Crisp County Power Cooperative

**Client Sample ID: DUP-12-20190429**

**Lab Sample ID: 400-169546-1**

Date Collected: 04/29/19 08:00

Matrix: Water

Date Received: 05/01/19 08:52

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0025	0.0010	mg/L		05/14/19 12:20	05/14/19 20:09	5
Arsenic	ND		0.0013	0.00046	mg/L		05/14/19 12:20	05/14/19 20:09	5
<b>Barium</b>	<b>0.10</b>		0.0025	0.00049	mg/L		05/14/19 12:20	05/14/19 20:09	5
Beryllium	ND		0.0020	0.00034	mg/L		05/14/19 12:20	05/14/19 20:09	5
<b>Boron</b>	<b>0.24</b>		0.050	0.021	mg/L		05/14/19 12:20	05/14/19 20:09	5
Cadmium	ND		0.0010	0.00034	mg/L		05/14/19 12:20	05/14/19 20:09	5
<b>Calcium</b>	<b>110</b>		0.25	0.13	mg/L		05/14/19 12:20	05/14/19 20:09	5
Chromium	ND		0.0025	0.0011	mg/L		05/14/19 12:20	05/14/19 20:09	5
<b>Cobalt</b>	<b>0.00092</b>	<b>J</b>	0.0025	0.00040	mg/L		05/14/19 12:20	05/14/19 20:09	5
Lead	ND		0.0013	0.00035	mg/L		05/14/19 12:20	05/14/19 20:09	5
<b>Lithium</b>	<b>0.0013</b>	<b>J</b>	0.0025	0.0011	mg/L		05/14/19 12:20	05/14/19 20:09	5
Molybdenum	ND		0.010	0.0020	mg/L		05/14/19 12:20	05/14/19 20:09	5
Selenium	ND		0.0013	0.00071	mg/L		05/14/19 12:20	05/14/19 20:09	5
<b>Thallium</b>	<b>0.00011</b>	<b>J</b>	0.00050	0.000085	mg/L		05/14/19 12:20	05/14/19 20:09	5

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000070	mg/L		05/10/19 11:41	05/13/19 15:12	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>380</b>		5.0	3.4	mg/L			05/02/19 12:56	1
<b>Chloride</b>	<b>4.3</b>		2.0	1.4	mg/L			05/07/19 15:02	1
<b>Fluoride</b>	<b>0.11</b>		0.10	0.032	mg/L			05/14/19 13:44	1
<b>Sulfate</b>	<b>29</b>		5.0	1.4	mg/L			05/09/19 14:40	1

**Method: Field Sampling - Field Sampling**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Field pH</b>	<b>6.55</b>				SU			04/29/19 07:00	1



# Client Sample Results

Client: Geosyntec Consultants, Inc.  
Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
SDG: Crisp County Power Cooperative

**Client Sample ID: MW-D2-20190429**

**Lab Sample ID: 400-169546-2**

Date Collected: 04/29/19 09:40

Matrix: Water

Date Received: 05/01/19 08:52

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0025	0.0010	mg/L		05/14/19 12:20	05/14/19 20:13	5
Arsenic	ND		0.0013	0.00046	mg/L		05/14/19 12:20	05/14/19 20:13	5
<b>Barium</b>	<b>0.16</b>		0.0025	0.00049	mg/L		05/14/19 12:20	05/14/19 20:13	5
Beryllium	ND		0.0020	0.00034	mg/L		05/14/19 12:20	05/14/19 20:13	5
<b>Boron</b>	<b>0.15</b>		0.050	0.021	mg/L		05/14/19 12:20	05/14/19 20:13	5
Cadmium	ND		0.0010	0.00034	mg/L		05/14/19 12:20	05/14/19 20:13	5
Chromium	ND		0.0025	0.0011	mg/L		05/14/19 12:20	05/14/19 20:13	5
Cobalt	ND		0.0025	0.00040	mg/L		05/14/19 12:20	05/14/19 20:13	5
Lead	ND		0.0013	0.00035	mg/L		05/14/19 12:20	05/14/19 20:13	5
<b>Lithium</b>	<b>0.0011</b>	<b>J</b>	0.0025	0.0011	mg/L		05/14/19 12:20	05/14/19 20:13	5
Molybdenum	ND		0.010	0.0020	mg/L		05/14/19 12:20	05/14/19 20:13	5
Selenium	ND		0.0013	0.00071	mg/L		05/14/19 12:20	05/14/19 20:13	5
Thallium	ND		0.00050	0.000085	mg/L		05/14/19 12:20	05/14/19 20:13	5

**Method: 6020 - Metals (ICP/MS) - Total Recoverable - DL**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Calcium</b>	<b>2.0</b>		0.50	0.25	mg/L		05/14/19 12:20	05/15/19 09:13	10

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000070	mg/L		05/10/19 11:41	05/13/19 15:16	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>360</b>		5.0	3.4	mg/L			05/02/19 12:56	1
<b>Chloride</b>	<b>4.8</b>		2.0	1.4	mg/L			05/09/19 11:27	1
<b>Fluoride</b>	<b>0.060</b>	<b>J</b>	0.10	0.032	mg/L			05/08/19 13:26	1
<b>Sulfate</b>	<b>19</b>		5.0	1.4	mg/L			05/09/19 14:40	1

**Method: Field Sampling - Field Sampling**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Field pH</b>	<b>7.19</b>				SU			04/29/19 08:40	1

# Client Sample Results

Client: Geosyntec Consultants, Inc.  
 Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
 SDG: Crisp County Power Cooperative

**Client Sample ID: MW-D3-20190429**

**Lab Sample ID: 400-169546-3**

Date Collected: 04/29/19 10:55

Matrix: Water

Date Received: 05/01/19 08:52

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0025	0.0010	mg/L		05/14/19 12:20	05/14/19 20:17	5
<b>Arsenic</b>	<b>0.00048</b>	<b>J</b>	0.0013	0.00046	mg/L		05/14/19 12:20	05/14/19 20:17	5
<b>Barium</b>	<b>0.10</b>		0.0025	0.00049	mg/L		05/14/19 12:20	05/14/19 20:17	5
Beryllium	ND		0.0020	0.00034	mg/L		05/14/19 12:20	05/14/19 20:17	5
<b>Boron</b>	<b>0.25</b>		0.050	0.021	mg/L		05/14/19 12:20	05/14/19 20:17	5
Cadmium	ND		0.0010	0.00034	mg/L		05/14/19 12:20	05/14/19 20:17	5
<b>Calcium</b>	<b>110</b>		0.25	0.13	mg/L		05/14/19 12:20	05/14/19 20:17	5
Chromium	ND		0.0025	0.0011	mg/L		05/14/19 12:20	05/14/19 20:17	5
<b>Cobalt</b>	<b>0.0013</b>	<b>J</b>	0.0025	0.00040	mg/L		05/14/19 12:20	05/14/19 20:17	5
Lead	ND		0.0013	0.00035	mg/L		05/14/19 12:20	05/14/19 20:17	5
<b>Lithium</b>	<b>0.0013</b>	<b>J</b>	0.0025	0.0011	mg/L		05/14/19 12:20	05/14/19 20:17	5
Molybdenum	ND		0.010	0.0020	mg/L		05/14/19 12:20	05/14/19 20:17	5
Selenium	ND		0.0013	0.00071	mg/L		05/14/19 12:20	05/14/19 20:17	5
<b>Thallium</b>	<b>0.00011</b>	<b>J</b>	0.00050	0.000085	mg/L		05/14/19 12:20	05/14/19 20:17	5

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000070	mg/L		05/10/19 11:41	05/13/19 15:17	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>370</b>		5.0	3.4	mg/L			05/02/19 12:56	1
<b>Chloride</b>	<b>4.0</b>		2.0	1.4	mg/L			05/09/19 11:27	1
<b>Fluoride</b>	<b>0.11</b>		0.10	0.032	mg/L			05/08/19 13:30	1
<b>Sulfate</b>	<b>29</b>		5.0	1.4	mg/L			05/09/19 14:40	1

**Method: Field Sampling - Field Sampling**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Field pH</b>	<b>8.27</b>				SU			04/29/19 09:55	1

# Client Sample Results

Client: Geosyntec Consultants, Inc.  
 Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
 SDG: Crisp County Power Cooperative

**Client Sample ID: MW-D1-20190429**

**Lab Sample ID: 400-169546-4**

Date Collected: 04/29/19 12:20

Matrix: Water

Date Received: 05/01/19 08:52

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0025	0.0010	mg/L		05/14/19 12:20	05/14/19 20:21	5
Arsenic	ND		0.0013	0.00046	mg/L		05/14/19 12:20	05/14/19 20:21	5
<b>Barium</b>	<b>0.015</b>		0.0025	0.00049	mg/L		05/14/19 12:20	05/14/19 20:21	5
Beryllium	ND		0.0020	0.00034	mg/L		05/14/19 12:20	05/14/19 20:21	5
<b>Boron</b>	<b>0.17</b>		0.050	0.021	mg/L		05/14/19 12:20	05/14/19 20:21	5
Cadmium	ND		0.0010	0.00034	mg/L		05/14/19 12:20	05/14/19 20:21	5
<b>Calcium</b>	<b>28</b>		0.25	0.13	mg/L		05/14/19 12:20	05/14/19 20:21	5
Chromium	ND		0.0025	0.0011	mg/L		05/14/19 12:20	05/14/19 20:21	5
Cobalt	ND		0.0025	0.00040	mg/L		05/14/19 12:20	05/14/19 20:21	5
Lead	ND		0.0013	0.00035	mg/L		05/14/19 12:20	05/14/19 20:21	5
Lithium	ND		0.0025	0.0011	mg/L		05/14/19 12:20	05/14/19 20:21	5
Molybdenum	ND		0.010	0.0020	mg/L		05/14/19 12:20	05/14/19 20:21	5
Selenium	ND		0.0013	0.00071	mg/L		05/14/19 12:20	05/14/19 20:21	5
Thallium	ND		0.00050	0.000085	mg/L		05/14/19 12:20	05/14/19 20:21	5

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000070	mg/L		05/10/19 11:41	05/13/19 15:19	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>120</b>		5.0	3.4	mg/L			05/02/19 12:56	1
<b>Chloride</b>	<b>2.1</b>		2.0	1.4	mg/L			05/09/19 11:27	1
<b>Fluoride</b>	<b>0.060</b>	<b>J</b>	0.10	0.032	mg/L			05/08/19 13:34	1
<b>Sulfate</b>	<b>28</b>		5.0	1.4	mg/L			05/09/19 14:40	1

**Method: Field Sampling - Field Sampling**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Field pH</b>	<b>6.49</b>				SU			04/29/19 11:20	1

# Client Sample Results

Client: Geosyntec Consultants, Inc.  
 Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
 SDG: Crisp County Power Cooperative

**Client Sample ID: MW-U1-20190429**

**Lab Sample ID: 400-169546-5**

Date Collected: 04/29/19 14:10

Matrix: Water

Date Received: 05/01/19 08:52

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0025	0.0010	mg/L		05/14/19 12:20	05/14/19 20:25	5
Arsenic	ND		0.0013	0.00046	mg/L		05/14/19 12:20	05/14/19 20:25	5
<b>Barium</b>	<b>0.0018</b>	<b>J</b>	0.0025	0.00049	mg/L		05/14/19 12:20	05/14/19 20:25	5
Beryllium	ND		0.0020	0.00034	mg/L		05/14/19 12:20	05/14/19 20:25	5
Boron	ND		0.050	0.021	mg/L		05/14/19 12:20	05/14/19 20:25	5
Cadmium	ND		0.0010	0.00034	mg/L		05/14/19 12:20	05/14/19 20:25	5
<b>Calcium</b>	<b>34</b>		0.25	0.13	mg/L		05/14/19 12:20	05/14/19 20:25	5
<b>Chromium</b>	<b>0.0011</b>	<b>J</b>	0.0025	0.0011	mg/L		05/14/19 12:20	05/14/19 20:25	5
Cobalt	ND		0.0025	0.00040	mg/L		05/14/19 12:20	05/14/19 20:25	5
Lead	ND		0.0013	0.00035	mg/L		05/14/19 12:20	05/14/19 20:25	5
Lithium	ND		0.0025	0.0011	mg/L		05/14/19 12:20	05/14/19 20:25	5
Molybdenum	ND		0.010	0.0020	mg/L		05/14/19 12:20	05/14/19 20:25	5
Selenium	ND		0.0013	0.00071	mg/L		05/14/19 12:20	05/14/19 20:25	5
Thallium	ND		0.00050	0.000085	mg/L		05/14/19 12:20	05/14/19 20:25	5

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000070	mg/L		05/10/19 11:41	05/13/19 15:21	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>120</b>		5.0	3.4	mg/L			05/02/19 12:56	1
<b>Chloride</b>	<b>1.4</b>	<b>J</b>	2.0	1.4	mg/L			05/09/19 11:27	1
Fluoride	ND		0.10	0.032	mg/L			05/08/19 13:36	1
Sulfate	ND		5.0	1.4	mg/L			05/09/19 14:40	1

**Method: Field Sampling - Field Sampling**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Field pH</b>	<b>7.84</b>				SU			04/29/19 13:10	1

# Definitions/Glossary

Client: Geosyntec Consultants, Inc.  
Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
SDG: Crisp County Power Cooperative

## Qualifiers

### Metals

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Lab Chronicle

Client: Geosyntec Consultants, Inc.  
 Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
 SDG: Crisp County Power Cooperative

**Client Sample ID: DUP-12-20190429**

**Lab Sample ID: 400-169546-1**

**Date Collected: 04/29/19 08:00**

**Matrix: Water**

**Date Received: 05/01/19 08:52**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			440793	05/14/19 12:20	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	440957	05/14/19 20:09	DRE	TAL PEN
Total/NA	Prep	7470A			440417	05/10/19 11:41	JAP	TAL PEN
Total/NA	Analysis	7470A		1	440709	05/13/19 15:12	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	439402	05/02/19 12:56	CLB	TAL PEN
Total/NA	Analysis	SM 4500 CI- E		1	440002	05/07/19 15:02	CLB	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	440828	05/14/19 13:44	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	440319	05/09/19 14:40	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	441520	04/29/19 07:00	AW	TAL PEN

**Client Sample ID: MW-D2-20190429**

**Lab Sample ID: 400-169546-2**

**Date Collected: 04/29/19 09:40**

**Matrix: Water**

**Date Received: 05/01/19 08:52**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			440793	05/14/19 12:20	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	440957	05/14/19 20:13	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		440793	05/14/19 12:20	DRE	TAL PEN
Total Recoverable	Analysis	6020	DL	10	440957	05/15/19 09:13	DRE	TAL PEN
Total/NA	Prep	7470A			440417	05/10/19 11:41	JAP	TAL PEN
Total/NA	Analysis	7470A		1	440709	05/13/19 15:16	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	439402	05/02/19 12:56	CLB	TAL PEN
Total/NA	Analysis	SM 4500 CI- E		1	440287	05/09/19 11:27	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	440132	05/08/19 13:26	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	440319	05/09/19 14:40	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	441520	04/29/19 08:40	AW	TAL PEN

**Client Sample ID: MW-D3-20190429**

**Lab Sample ID: 400-169546-3**

**Date Collected: 04/29/19 10:55**

**Matrix: Water**

**Date Received: 05/01/19 08:52**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			440793	05/14/19 12:20	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	440957	05/14/19 20:17	DRE	TAL PEN
Total/NA	Prep	7470A			440417	05/10/19 11:41	JAP	TAL PEN
Total/NA	Analysis	7470A		1	440709	05/13/19 15:17	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	439402	05/02/19 12:56	CLB	TAL PEN
Total/NA	Analysis	SM 4500 CI- E		1	440287	05/09/19 11:27	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	440132	05/08/19 13:30	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	440319	05/09/19 14:40	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	441520	04/29/19 09:55	AW	TAL PEN

# Lab Chronicle

Client: Geosyntec Consultants, Inc.  
 Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
 SDG: Crisp County Power Cooperative

**Client Sample ID: MW-D1-20190429**

**Lab Sample ID: 400-169546-4**

**Date Collected: 04/29/19 12:20**

**Matrix: Water**

**Date Received: 05/01/19 08:52**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			440793	05/14/19 12:20	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	440957	05/14/19 20:21	DRE	TAL PEN
Total/NA	Prep	7470A			440417	05/10/19 11:41	JAP	TAL PEN
Total/NA	Analysis	7470A		1	440709	05/13/19 15:19	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	439402	05/02/19 12:56	CLB	TAL PEN
Total/NA	Analysis	SM 4500 CI- E		1	440287	05/09/19 11:27	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	440132	05/08/19 13:34	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	440319	05/09/19 14:40	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	441520	04/29/19 11:20	AW	TAL PEN

**Client Sample ID: MW-U1-20190429**

**Lab Sample ID: 400-169546-5**

**Date Collected: 04/29/19 14:10**

**Matrix: Water**

**Date Received: 05/01/19 08:52**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			440793	05/14/19 12:20	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	440957	05/14/19 20:25	DRE	TAL PEN
Total/NA	Prep	7470A			440417	05/10/19 11:41	JAP	TAL PEN
Total/NA	Analysis	7470A		1	440709	05/13/19 15:21	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	439402	05/02/19 12:56	CLB	TAL PEN
Total/NA	Analysis	SM 4500 CI- E		1	440287	05/09/19 11:27	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	440132	05/08/19 13:36	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	440319	05/09/19 14:40	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	441520	04/29/19 13:10	AW	TAL PEN

**Laboratory References:**

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# QC Association Summary

Client: Geosyntec Consultants, Inc.  
Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
SDG: Crisp County Power Cooperative

## Metals

### Prep Batch: 440417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169546-1	DUP-12-20190429	Total/NA	Water	7470A	
400-169546-2	MW-D2-20190429	Total/NA	Water	7470A	
400-169546-3	MW-D3-20190429	Total/NA	Water	7470A	
400-169546-4	MW-D1-20190429	Total/NA	Water	7470A	
400-169546-5	MW-U1-20190429	Total/NA	Water	7470A	
MB 400-440417/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-440417/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-169723-A-3-B MS	Matrix Spike	Total/NA	Water	7470A	
400-169723-A-3-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

### Analysis Batch: 440709

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169546-1	DUP-12-20190429	Total/NA	Water	7470A	440417
400-169546-2	MW-D2-20190429	Total/NA	Water	7470A	440417
400-169546-3	MW-D3-20190429	Total/NA	Water	7470A	440417
400-169546-4	MW-D1-20190429	Total/NA	Water	7470A	440417
400-169546-5	MW-U1-20190429	Total/NA	Water	7470A	440417
MB 400-440417/14-A	Method Blank	Total/NA	Water	7470A	440417
LCS 400-440417/15-A	Lab Control Sample	Total/NA	Water	7470A	440417
400-169723-A-3-B MS	Matrix Spike	Total/NA	Water	7470A	440417
400-169723-A-3-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	440417

### Prep Batch: 440793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169546-1	DUP-12-20190429	Total Recoverable	Water	3005A	
400-169546-2	MW-D2-20190429	Total Recoverable	Water	3005A	
400-169546-2 - DL	MW-D2-20190429	Total Recoverable	Water	3005A	
400-169546-3	MW-D3-20190429	Total Recoverable	Water	3005A	
400-169546-4	MW-D1-20190429	Total Recoverable	Water	3005A	
400-169546-5	MW-U1-20190429	Total Recoverable	Water	3005A	
MB 400-440793/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-440793/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-169685-B-1-B MS ^5	Matrix Spike	Total Recoverable	Water	3005A	
400-169685-B-1-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

### Analysis Batch: 440957

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169546-1	DUP-12-20190429	Total Recoverable	Water	6020	440793
400-169546-2	MW-D2-20190429	Total Recoverable	Water	6020	440793
400-169546-2 - DL	MW-D2-20190429	Total Recoverable	Water	6020	440793
400-169546-3	MW-D3-20190429	Total Recoverable	Water	6020	440793
400-169546-4	MW-D1-20190429	Total Recoverable	Water	6020	440793
400-169546-5	MW-U1-20190429	Total Recoverable	Water	6020	440793
MB 400-440793/1-A ^5	Method Blank	Total Recoverable	Water	6020	440793
LCS 400-440793/2-A	Lab Control Sample	Total Recoverable	Water	6020	440793
400-169685-B-1-B MS ^5	Matrix Spike	Total Recoverable	Water	6020	440793
400-169685-B-1-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	6020	440793



# QC Association Summary

Client: Geosyntec Consultants, Inc.  
Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
SDG: Crisp County Power Cooperative

## General Chemistry

### Analysis Batch: 439402

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169546-1	DUP-12-20190429	Total/NA	Water	SM 2540C	
400-169546-2	MW-D2-20190429	Total/NA	Water	SM 2540C	
400-169546-3	MW-D3-20190429	Total/NA	Water	SM 2540C	
400-169546-4	MW-D1-20190429	Total/NA	Water	SM 2540C	
400-169546-5	MW-U1-20190429	Total/NA	Water	SM 2540C	
MB 400-439402/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-439402/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-169546-3 DU	MW-D3-20190429	Total/NA	Water	SM 2540C	

### Analysis Batch: 440002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169546-1	DUP-12-20190429	Total/NA	Water	SM 4500 Cl- E	
MB 400-440002/6	Method Blank	Total/NA	Water	SM 4500 Cl- E	
LCS 400-440002/7	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
MRL 400-440002/3	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
400-169469-C-1 MS	Matrix Spike	Total/NA	Water	SM 4500 Cl- E	
400-169469-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 Cl- E	

### Analysis Batch: 440132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169546-2	MW-D2-20190429	Total/NA	Water	SM 4500 F C	
400-169546-3	MW-D3-20190429	Total/NA	Water	SM 4500 F C	
400-169546-4	MW-D1-20190429	Total/NA	Water	SM 4500 F C	
400-169546-5	MW-U1-20190429	Total/NA	Water	SM 4500 F C	
MB 400-440132/3	Method Blank	Total/NA	Water	SM 4500 F C	
LCS 400-440132/4	Lab Control Sample	Total/NA	Water	SM 4500 F C	
400-169698-G-4 MS	Matrix Spike	Total/NA	Water	SM 4500 F C	
400-169698-G-4 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 F C	

### Analysis Batch: 440287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169546-2	MW-D2-20190429	Total/NA	Water	SM 4500 Cl- E	
400-169546-3	MW-D3-20190429	Total/NA	Water	SM 4500 Cl- E	
400-169546-4	MW-D1-20190429	Total/NA	Water	SM 4500 Cl- E	
400-169546-5	MW-U1-20190429	Total/NA	Water	SM 4500 Cl- E	
MB 400-440287/6	Method Blank	Total/NA	Water	SM 4500 Cl- E	
LCS 400-440287/7	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
MRL 400-440287/3	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
400-169640-A-1 MS	Matrix Spike	Total/NA	Water	SM 4500 Cl- E	
400-169640-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 Cl- E	

### Analysis Batch: 440319

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169546-1	DUP-12-20190429	Total/NA	Water	SM 4500 SO4 E	
400-169546-2	MW-D2-20190429	Total/NA	Water	SM 4500 SO4 E	
400-169546-3	MW-D3-20190429	Total/NA	Water	SM 4500 SO4 E	
400-169546-4	MW-D1-20190429	Total/NA	Water	SM 4500 SO4 E	
400-169546-5	MW-U1-20190429	Total/NA	Water	SM 4500 SO4 E	
MB 400-440319/6	Method Blank	Total/NA	Water	SM 4500 SO4 E	
LCS 400-440319/7	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MRL 400-440319/3	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	

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# QC Association Summary

Client: Geosyntec Consultants, Inc.  
Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
SDG: Crisp County Power Cooperative

## General Chemistry (Continued)

### Analysis Batch: 440319 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169628-J-3 MS	Matrix Spike	Total/NA	Water	SM 4500 SO4 E	
400-169628-J-3 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 SO4 E	

### Analysis Batch: 440828

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169546-1	DUP-12-20190429	Total/NA	Water	SM 4500 F C	
MB 400-440828/4	Method Blank	Total/NA	Water	SM 4500 F C	
LCS 400-440828/5	Lab Control Sample	Total/NA	Water	SM 4500 F C	
240-112114-B-3 MS	Matrix Spike	Total/NA	Water	SM 4500 F C	
240-112114-B-3 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 F C	
400-169995-O-2 DU	Duplicate	Total/NA	Water	SM 4500 F C	

## Field Service / Mobile Lab

### Analysis Batch: 441520

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169546-1	DUP-12-20190429	Total/NA	Water	Field Sampling	
400-169546-2	MW-D2-20190429	Total/NA	Water	Field Sampling	
400-169546-3	MW-D3-20190429	Total/NA	Water	Field Sampling	
400-169546-4	MW-D1-20190429	Total/NA	Water	Field Sampling	
400-169546-5	MW-U1-20190429	Total/NA	Water	Field Sampling	

# QC Sample Results

Client: Geosyntec Consultants, Inc.  
Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
SDG: Crisp County Power Cooperative

## Method: 6020 - Metals (ICP/MS)

**Lab Sample ID: MB 400-440793/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 440957**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 440793**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0025	0.0010	mg/L		05/14/19 12:20	05/14/19 18:17	5
Arsenic	ND		0.0013	0.00046	mg/L		05/14/19 12:20	05/14/19 18:17	5
Barium	ND		0.0025	0.00049	mg/L		05/14/19 12:20	05/14/19 18:17	5
Beryllium	ND		0.0020	0.00034	mg/L		05/14/19 12:20	05/14/19 18:17	5
Boron	ND		0.050	0.021	mg/L		05/14/19 12:20	05/14/19 18:17	5
Cadmium	ND		0.0010	0.00034	mg/L		05/14/19 12:20	05/14/19 18:17	5
Calcium	ND		0.25	0.13	mg/L		05/14/19 12:20	05/14/19 18:17	5
Chromium	ND		0.0025	0.0011	mg/L		05/14/19 12:20	05/14/19 18:17	5
Cobalt	ND		0.0025	0.00040	mg/L		05/14/19 12:20	05/14/19 18:17	5
Lead	ND		0.0013	0.00035	mg/L		05/14/19 12:20	05/14/19 18:17	5
Lithium	ND		0.0025	0.0011	mg/L		05/14/19 12:20	05/14/19 18:17	5
Molybdenum	ND		0.010	0.0020	mg/L		05/14/19 12:20	05/14/19 18:17	5
Selenium	ND		0.0013	0.00071	mg/L		05/14/19 12:20	05/14/19 18:17	5
Thallium	ND		0.00050	0.000085	mg/L		05/14/19 12:20	05/14/19 18:17	5

**Lab Sample ID: LCS 400-440793/2-A**  
**Matrix: Water**  
**Analysis Batch: 440957**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 440793**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Antimony	0.0500	0.0472		mg/L		94	80 - 120
Arsenic	0.0500	0.0477		mg/L		95	80 - 120
Barium	0.0500	0.0459		mg/L		92	80 - 120
Beryllium	0.0500	0.0498		mg/L		100	80 - 120
Boron	0.100	0.104		mg/L		104	80 - 120
Cadmium	0.0500	0.0478		mg/L		96	80 - 120
Calcium	5.00	4.83		mg/L		97	80 - 120
Chromium	0.0500	0.0483		mg/L		97	80 - 120
Cobalt	0.0500	0.0496		mg/L		99	80 - 120
Lead	0.0500	0.0462		mg/L		92	80 - 120
Lithium	0.0500	0.0488		mg/L		98	80 - 120
Molybdenum	0.0500	0.0468		mg/L		94	80 - 120
Selenium	0.0500	0.0464		mg/L		93	80 - 120
Thallium	0.0100	0.00912		mg/L		91	80 - 120

**Lab Sample ID: 400-169685-B-1-B MS ^5**  
**Matrix: Water**  
**Analysis Batch: 440957**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total Recoverable**  
**Prep Batch: 440793**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Antimony	ND		0.0500	0.0502		mg/L		100	75 - 125
Arsenic	ND		0.0500	0.0483		mg/L		97	75 - 125
Barium	0.0093		0.0500	0.0545		mg/L		90	75 - 125
Beryllium	ND		0.0500	0.0509		mg/L		102	75 - 125
Boron	ND	F1	0.100	0.131	F1	mg/L		131	75 - 125
Cadmium	ND		0.0500	0.0477		mg/L		95	75 - 125
Calcium	1.5		5.00	6.19		mg/L		95	75 - 125
Chromium	ND		0.0500	0.0485		mg/L		97	75 - 125
Cobalt	ND		0.0500	0.0507		mg/L		101	75 - 125

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# QC Sample Results

Client: Geosyntec Consultants, Inc.  
 Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
 SDG: Crisp County Power Cooperative

## Method: 6020 - Metals (ICP/MS) (Continued)

**Lab Sample ID: 400-169685-B-1-B MS ^5**  
**Matrix: Water**  
**Analysis Batch: 440957**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total Recoverable**  
**Prep Batch: 440793**

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	%Rec.	
	Result	Qualifier		Result	Qualifier				Limits	
Lead	ND		0.0500	0.0457		mg/L		91	75 - 125	
Lithium	0.0015	J	0.0500	0.0515		mg/L		100	75 - 125	
Molybdenum	ND		0.0500	0.0463		mg/L		93	75 - 125	
Selenium	0.0011	J	0.0500	0.0476		mg/L		93	75 - 125	
Thallium	ND		0.0100	0.00931		mg/L		93	75 - 125	

**Lab Sample ID: 400-169685-B-1-C MSD ^5**  
**Matrix: Water**  
**Analysis Batch: 440957**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total Recoverable**  
**Prep Batch: 440793**

Analyte	Sample	Sample	Spike	MSD		Unit	D	%Rec	%Rec.		RPD	
	Result	Qualifier		Result	Qualifier				Limits	RPD	Limit	
Antimony	ND		0.0500	0.0478		mg/L		96	75 - 125	5	20	
Arsenic	ND		0.0500	0.0477		mg/L		95	75 - 125	1	20	
Barium	0.0093		0.0500	0.0554		mg/L		92	75 - 125	2	20	
Beryllium	ND		0.0500	0.0495		mg/L		99	75 - 125	3	20	
Boron	ND	F1	0.100	0.114		mg/L		114	75 - 125	13	20	
Cadmium	ND		0.0500	0.0477		mg/L		95	75 - 125	0	20	
Calcium	1.5		5.00	6.26		mg/L		96	75 - 125	1	20	
Chromium	ND		0.0500	0.0491		mg/L		98	75 - 125	1	20	
Cobalt	ND		0.0500	0.0508		mg/L		102	75 - 125	0	20	
Lead	ND		0.0500	0.0464		mg/L		93	75 - 125	2	20	
Lithium	0.0015	J	0.0500	0.0494		mg/L		96	75 - 125	4	20	
Molybdenum	ND		0.0500	0.0460		mg/L		92	75 - 125	1	20	
Selenium	0.0011	J	0.0500	0.0470		mg/L		92	75 - 125	1	20	
Thallium	ND		0.0100	0.00935		mg/L		93	75 - 125	0	20	

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 400-440417/14-A**  
**Matrix: Water**  
**Analysis Batch: 440709**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 440417**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil	Fac
	Result	Qualifier								
Mercury	ND		0.00020	0.000070	mg/L		05/10/19 10:11	05/13/19 14:19		1

**Lab Sample ID: LCS 400-440417/15-A**  
**Matrix: Water**  
**Analysis Batch: 440709**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 440417**

Analyte	Spike	LCS		Unit	D	%Rec	%Rec.	
		Result	Qualifier				Limits	
Mercury	0.00101	0.00105		mg/L		104	80 - 120	

**Lab Sample ID: 400-169723-A-3-B MS**  
**Matrix: Water**  
**Analysis Batch: 440709**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 440417**

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	%Rec.	
	Result	Qualifier		Result	Qualifier				Limits	
Mercury	ND	F1	0.00201	0.00169		mg/L		84	80 - 120	

# QC Sample Results

Client: Geosyntec Consultants, Inc.  
 Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
 SDG: Crisp County Power Cooperative

## Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 400-169723-A-3-C MSD  
 Matrix: Water  
 Analysis Batch: 440709

Client Sample ID: Matrix Spike Duplicate  
 Prep Type: Total/NA  
 Prep Batch: 440417

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND	F1	0.00201	0.00155	F1	mg/L		77	80 - 120	8	20

## Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 400-439402/1  
 Matrix: Water  
 Analysis Batch: 439402

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		5.0	3.4	mg/L			05/02/19 12:56	1

Lab Sample ID: LCS 400-439402/2  
 Matrix: Water  
 Analysis Batch: 439402

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	274		mg/L		94	78 - 122

Lab Sample ID: 400-169546-3 DU  
 Matrix: Water  
 Analysis Batch: 439402

Client Sample ID: MW-D3-20190429  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	370		376		mg/L		1	5

## Method: SM 4500 Cl- E - Chloride, Total

Lab Sample ID: MB 400-440002/6  
 Matrix: Water  
 Analysis Batch: 440002

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		2.0	1.4	mg/L			05/07/19 14:52	1

Lab Sample ID: LCS 400-440002/7  
 Matrix: Water  
 Analysis Batch: 440002

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	30.0	32.2		mg/L		107	90 - 110

Lab Sample ID: MRL 400-440002/3  
 Matrix: Water  
 Analysis Batch: 440002

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.00	1.32	J	mg/L		66	50 - 150

# QC Sample Results

Client: Geosyntec Consultants, Inc.  
 Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
 SDG: Crisp County Power Cooperative

## Method: SM 4500 Cl- E - Chloride, Total (Continued)

**Lab Sample ID: 400-169469-C-1 MS**  
**Matrix: Water**  
**Analysis Batch: 440002**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	4.5		10.0	16.0		mg/L		114	73 - 120

**Lab Sample ID: 400-169469-C-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 440002**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	4.5		10.0	15.6		mg/L		111	73 - 120	2	8

**Lab Sample ID: MB 400-440287/6**  
**Matrix: Water**  
**Analysis Batch: 440287**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		2.0	1.4	mg/L			05/09/19 11:17	1

**Lab Sample ID: LCS 400-440287/7**  
**Matrix: Water**  
**Analysis Batch: 440287**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	30.0	31.4		mg/L		105	90 - 110

**Lab Sample ID: MRL 400-440287/3**  
**Matrix: Water**  
**Analysis Batch: 440287**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.00	1.84	J	mg/L		92	50 - 150

**Lab Sample ID: 400-169640-A-1 MS**  
**Matrix: Water**  
**Analysis Batch: 440287**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	21		10.0	30.2		mg/L		90	73 - 120

**Lab Sample ID: 400-169640-A-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 440287**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	21		10.0	29.8		mg/L		86	73 - 120	1	8

# QC Sample Results

Client: Geosyntec Consultants, Inc.  
 Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
 SDG: Crisp County Power Cooperative

## Method: SM 4500 F C - Fluoride

**Lab Sample ID: MB 400-440132/3**  
**Matrix: Water**  
**Analysis Batch: 440132**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.10	0.032	mg/L			05/08/19 12:46	1

**Lab Sample ID: LCS 400-440132/4**  
**Matrix: Water**  
**Analysis Batch: 440132**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	4.00	3.61		mg/L		90	90 - 110

**Lab Sample ID: 400-169698-G-4 MS**  
**Matrix: Water**  
**Analysis Batch: 440132**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.79		1.00	1.74		mg/L		95	75 - 125

**Lab Sample ID: 400-169698-G-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 440132**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.79		1.00	1.81		mg/L		102	75 - 125	4	4

**Lab Sample ID: MB 400-440828/4**  
**Matrix: Water**  
**Analysis Batch: 440828**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.10	0.032	mg/L			05/14/19 12:54	1

**Lab Sample ID: LCS 400-440828/5**  
**Matrix: Water**  
**Analysis Batch: 440828**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	4.00	3.61		mg/L		90	90 - 110

**Lab Sample ID: 240-112114-B-3 MS**  
**Matrix: Water**  
**Analysis Batch: 440828**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.16		1.00	1.14		mg/L		98	75 - 125

**Lab Sample ID: 240-112114-B-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 440828**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.16		1.00	1.12		mg/L		96	75 - 125	2	4

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# QC Sample Results

Client: Geosyntec Consultants, Inc.  
 Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
 SDG: Crisp County Power Cooperative

## Method: SM 4500 F C - Fluoride

Lab Sample ID: 400-169995-O-2 DU  
 Matrix: Water  
 Analysis Batch: 440828

Client Sample ID: Duplicate  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Fluoride	0.16		0.160		mg/L		0	4

## Method: SM 4500 SO4 E - Sulfate, Total

Lab Sample ID: MB 400-440319/6  
 Matrix: Water  
 Analysis Batch: 440319

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0	1.4	mg/L			05/09/19 14:28	1

Lab Sample ID: LCS 400-440319/7  
 Matrix: Water  
 Analysis Batch: 440319

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	15.0	14.5		mg/L		96	90 - 110

Lab Sample ID: MRL 400-440319/3  
 Matrix: Water  
 Analysis Batch: 440319

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	5.00	4.46	J	mg/L		89	50 - 150

Lab Sample ID: 400-169628-J-3 MS  
 Matrix: Water  
 Analysis Batch: 440319

Client Sample ID: Matrix Spike  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	3.8	J	10.0	15.4		mg/L		116	77 - 128

Lab Sample ID: 400-169628-J-3 MSD  
 Matrix: Water  
 Analysis Batch: 440319

Client Sample ID: Matrix Spike Duplicate  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	3.8	J	10.0	15.6		mg/L		118	77 - 128	1	5



<b>Client Information</b> Client Contact: <b>STEPHEN W. RANDALL</b> Phone: <b>478-328-6181</b> E-Mail: <b>cheyenne.whitmire@testamericainc.com</b>		Lab PM: <b>Whitmire, Cheyenne R</b> E-Mail: <b>cheyenne.whitmire@testamericainc.com</b>		Carrier Tracking No(s): 400-83511-29334.1 Page 1 of 1 Job #	
Due Date Requested: TAT Requested (days): <b>STANDARD</b> PO # Purchase Order not required WO # Project # 40007960 SSO#		Analysis Reque: 6020-Sb,As,Ba,Bi,Cd,Cr,Cu,Pb,Mo,Se,Tl,7470A-Hg 915_Ra226, 9320_Ra228, Rad226Ra228_GFP SM4500 Cl-E-Chloride, SM4500_S04_E-Sulfate, 2540C-Total Dissolved Solids, 4500_F-C-Fluoride Field Filtration - Field pH Field Filtration - Field pH			
Address: 1255 Roberts Blvd, NW Suite 200 City: Kennesaw State, Zip: GA, 30144 Phone: Email: <b>dyifru@geosyntec.com</b> Project Name: <b>CCR App.III/IV GW Monitoring</b> Site: <b>Crisp County Power Cooperative</b>		Preservation Codes: M - Hexane N - None O - AshNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify) Other:			
<b>Sample Identification</b> Sample Date Sample Time Sample Type (C=Comp, G=grab) Matrix (W=water, S=solid, O=wateroil, BT=Tissue, A=Air)		Total Number of containers Special Instructions/Note: PH: 6.55 PH: 7.19 PH: 8.27 PH: 6.49 PH: 7.84			
DUp-12-2019 0429 MW-D3-2019 0429 MW-D1-2019 0429 MW-U1-2019 0429		Field Filtered Sample (Yes or No) X D N I Matrix Water Sample Type G Sample Time 0800 Sample Date 4/29/19 Matrix Water Sample Type G Sample Time 0940 Sample Date 4/29/19 Matrix Water Sample Type G Sample Time 1055 Sample Date 4/29/19 Matrix Water Sample Type G Sample Time 1220 Sample Date 4/29/19 Matrix Water Sample Type G Sample Time 1410 Sample Date 4/29/19			
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					
Deliverable Requested: I, II, III, IV, Other (specify) <b>LEVEL II</b>					
Empty Kit Relinquished by:					
Relinquished by: <b>Stephen W. Randall</b> Date/Time: <b>4/30/19 1700</b> Company: <b>GEOSYNTEC</b>		Received by: <b>Shelley</b> Date/Time: <b>5-1-19 0852</b> Company: <b>TA-PEN</b>			
Relinquished by:		Received by:			
Relinquished by:		Received by:			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks: <b>23.8°C (44°F) 0.4°C IR-8</b>			
Custody Seal No.:		Method of Shipment:			
Date:		Time:			
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					

## Login Sample Receipt Checklist

Client: Geosyntec Consultants, Inc.

Job Number: 400-169546-1

SDG Number: Crisp County Power Cooperative

**Login Number: 169546**

**List Number: 1**

**Creator: Conrady, Hank W**

**List Source: Eurofins TestAmerica, Pensacola**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.38°C (RADS) 0.4°C IR-8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# Accreditation/Certification Summary

Client: Geosyntec Consultants, Inc.  
 Project/Site: CCR App.III/IV GW Monitoring

Job ID: 400-169546-1  
 SDG: Crisp County Power Cooperative

## Laboratory: Eurofins TestAmerica, Pensacola

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-19
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-20
Arkansas DEQ	State Program	6	88-0689	09-01-19
California	State Program	9	2510	06-30-19
Florida	NELAP	4	E81010	06-30-19
Georgia	State Program	4	E81010 (FL)	06-30-19
Illinois	NELAP	5	200041	10-09-19
Iowa	State Program	7	367	08-01-20
Kansas	NELAP	7	E-10253	10-31-19
Kentucky (UST)	State Program	4	53	06-30-19
Kentucky (WW)	State Program	4	98030	12-31-19
Louisiana	NELAP	6	30976	06-30-19
Louisiana (DW)	NELAP	6	LA017	12-31-19
Maryland	State Program	3	233	09-30-19
Massachusetts	State Program	1	M-FL094	06-30-19
Michigan	State Program	5	9912	06-30-19
New Jersey	NELAP	2	FL006	06-30-19
North Carolina (WW/SW)	State Program	4	314	12-31-19
Oklahoma	State Program	6	9810	08-31-19
Pennsylvania	NELAP	3	68-00467	01-31-20
Rhode Island	State Program	1	LAO00307	12-30-19
South Carolina	State Program	4	96026	06-30-19
Tennessee	State Program	4	TN02907	06-30-19
Texas	NELAP	6	T104704286-18-15	09-30-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-18-00148	05-17-21
Virginia	NELAP	3	460166	06-14-19
Washington	State Program	10	C915	05-15-20
West Virginia DEP	State Program	3	136	07-31-19

## APPENDIX C

### Statistical Calculations and Time-series Graphs

# Summary Report

Constituent: Antimony Analysis Run 6/2/2019 7:15 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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For observations made between 2/28/2017 and 4/29/2019, a summary of the selected data set:

Observations = 40  
ND/Trace = 40  
Wells = 4  
Minimum Value = 0.0025  
Maximum Value = 0.0025  
Mean Value = 0.0025  
Median Value = 0.0025  
Standard Deviation = 0  
Coefficient of Variation = 0  
Skewness = NaN

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-D1	10	10	0.0025	0.0025	0.0025	0.0025	0	0	NaN
MW-D2	10	10	0.0025	0.0025	0.0025	0.0025	0	0	NaN
MW-D3	10	10	0.0025	0.0025	0.0025	0.0025	0	0	NaN
MW-U1 (bg)	10	10	0.0025	0.0025	0.0025	0.0025	0	0	NaN

# Summary Report

Constituent: Arsenic Analysis Run 6/2/2019 7:15 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
 CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

For observations made between 2/28/2017 and 4/29/2019, a summary of the selected data set:

Observations = 48  
 ND/Trace = 34  
 Wells = 4  
 Minimum Value = 0.00046  
 Maximum Value = 0.0016  
 Mean Value = 0.001155  
 Median Value = 0.0013  
 Standard Deviation = 0.0002989  
 Coefficient of Variation = 0.2587  
 Skewness = -1.353

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-D1	12	12	0.0013	0.0013	0.0013	0.0013	0	0	NaN
MW-D2	12	9	0.00048	0.0013	0.001163	0.0013	0.0002683	0.2306	-1.686
MW-D3	12	2	0.00048	0.0016	0.0009275	0.000855	0.0004066	0.4384	0.4147
MW-U1 (bg)	12	11	0.00046	0.0013	0.00123	0.0013	0.0002425	0.1971	-3.015

# Summary Report

Constituent: Barium Analysis Run 6/2/2019 7:15 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
 CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

For observations made between 2/28/2017 and 4/29/2019, a summary of the selected data set:

Observations = 48  
 ND/Trace = 0  
 Wells = 4  
 Minimum Value = 0.0018  
 Maximum Value = 0.23  
 Mean Value = 0.08345  
 Median Value = 0.051  
 Standard Deviation = 0.08212  
 Coefficient of Variation = 0.9841  
 Skewness = 0.3166

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-D1	12	0	0.0095	0.015	0.01178	0.0115	0.00187	0.1588	0.3769
MW-D2	12	0	0.087	0.19	0.1381	0.145	0.02807	0.2033	-0.07717
MW-D3	12	0	0.1	0.23	0.1817	0.19	0.0381	0.2097	-0.7416
MW-U1 (bg)	12	0	0.0018	0.0034	0.002275	0.00215	0.0004413	0.194	1.341

# Summary Report

Constituent: Beryllium Analysis Run 6/2/2019 7:15 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

For observations made between 2/28/2017 and 4/29/2019, a summary of the selected data set:

Observations = 40  
ND/Trace = 40  
Wells = 4  
Minimum Value = 0.002  
Maximum Value = 0.002  
Mean Value = 0.002  
Median Value = 0.002  
Standard Deviation = 0  
Coefficient of Variation = 0  
Skewness = NaN

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-D1	10	10	0.002	0.002	0.002	0.002	0	0	NaN
MW-D2	10	10	0.002	0.002	0.002	0.002	0	0	NaN
MW-D3	10	10	0.002	0.002	0.002	0.002	0	0	NaN
MW-U1 (bg)	10	10	0.002	0.002	0.002	0.002	0	0	NaN



# Summary Report

Constituent: Cadmium Analysis Run 6/2/2019 7:16 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

For observations made between 2/28/2017 and 4/29/2019, a summary of the selected data set:

Observations = 40  
ND/Trace = 40  
Wells = 4  
Minimum Value = 0.001  
Maximum Value = 0.001  
Mean Value = 0.001  
Median Value = 0.001  
Standard Deviation = 0  
Coefficient of Variation = 0  
Skewness = NaN

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-D1	10	10	0.001	0.001	0.001	0.001	0	0	NaN
MW-D2	10	10	0.001	0.001	0.001	0.001	0	0	NaN
MW-D3	10	10	0.001	0.001	0.001	0.001	0	0	NaN
MW-U1 (bg)	10	10	0.001	0.001	0.001	0.001	0	0	NaN

# Summary Report

Constituent: Chromium Analysis Run 6/2/2019 7:16 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
 CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

For observations made between 2/28/2017 and 4/29/2019, a summary of the selected data set:

Observations = 44  
 ND/Trace = 30  
 Wells = 4  
 Minimum Value = 0.0011  
 Maximum Value = 0.0051  
 Mean Value = 0.002364  
 Median Value = 0.0025  
 Standard Deviation = 0.0007061  
 Coefficient of Variation = 0.2988  
 Skewness = 0.9631

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-D1	11	10	0.0025	0.0034	0.002582	0.0025	0.0002714	0.1051	2.846
MW-D2	11	10	0.0025	0.0038	0.002618	0.0025	0.000392	0.1497	2.846
MW-D3	11	10	0.0025	0.0029	0.002536	0.0025	0.0001206	0.04755	2.846
MW-U1 (bg)	11	0	0.0011	0.0051	0.001718	0.0014	0.001135	0.6604	2.728

# Summary Report

Constituent: Cobalt Analysis Run 6/2/2019 7:16 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

For observations made between 2/28/2017 and 4/29/2019, a summary of the selected data set:

Observations = 48  
ND/Trace = 35  
Wells = 4  
Minimum Value = 0.00047  
Maximum Value = 0.0025  
Mean Value = 0.002149  
Median Value = 0.0025  
Standard Deviation = 0.0006062  
Coefficient of Variation = 0.2821  
Skewness = -1.307

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-D1	12	12	0.0025	0.0025	0.0025	0.0025	0	0	NaN
MW-D2	12	11	0.00047	0.0025	0.002331	0.0025	0.000586	0.2514	-3.015
MW-D3	12	0	0.00079	0.0017	0.001264	0.0013	0.0002606	0.2062	-0.2068
MW-U1 (bg)	12	12	0.0025	0.0025	0.0025	0.0025	0	0	NaN

# Summary Report

Constituent: Combined Radium 226 + 228 Analysis Run 6/2/2019 7:16 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

For observations made between 2/28/2017 and 11/29/2018, a summary of the selected data set:

Observations = 44  
ND/Trace = 0  
Wells = 4  
Minimum Value = -0.0586  
Maximum Value = 1.28  
Mean Value = 0.4056  
Median Value = 0.3635  
Standard Deviation = 0.3272  
Coefficient of Variation = 0.8068  
Skewness = 0.9938

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-D1	11	0	0.0994	0.816	0.3434	0.212	0.251	0.731	0.8053
MW-D2	11	0	0.0139	1.28	0.5102	0.453	0.3323	0.6514	0.8969
MW-D3	11	0	0.0501	1.28	0.6091	0.557	0.3544	0.5819	0.6515
MW-U1 (bg)	11	0	-0.0586	0.614	0.1597	0.133	0.1819	1.139	1.356

# Summary Report

Constituent: Fluoride Analysis Run 6/2/2019 7:16 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
 CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

For observations made between 2/28/2017 and 4/29/2019, a summary of the selected data set:

Observations = 48  
 ND/Trace = 1  
 Wells = 4  
 Minimum Value = 0.04  
 Maximum Value = 0.13  
 Mean Value = 0.07488  
 Median Value = 0.0605  
 Standard Deviation = 0.02593  
 Coefficient of Variation = 0.3464  
 Skewness = 0.7382

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-D1	12	0	0.04	0.11	0.06958	0.07	0.01738	0.2498	0.6019
MW-D2	12	0	0.04	0.07	0.05925	0.06	0.007944	0.1341	-1.029
MW-D3	12	0	0.06	0.13	0.1108	0.115	0.01782	0.1607	-2.044
MW-U1 (bg)	12	1	0.04	0.1	0.05983	0.06	0.01538	0.2571	1.285

# Summary Report

Constituent: Lead Analysis Run 6/2/2019 7:16 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
 CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

For observations made between 2/28/2017 and 4/29/2019, a summary of the selected data set:

Observations = 40  
 ND/Trace = 36  
 Wells = 4  
 Minimum Value = 0.00037  
 Maximum Value = 0.0013  
 Mean Value = 0.001228  
 Median Value = 0.0013  
 Standard Deviation = 0.0002248  
 Coefficient of Variation = 0.183  
 Skewness = -2.917

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-D1	10	9	0.0008	0.0013	0.00125	0.0013	0.0001581	0.1265	-2.667
MW-D2	10	8	0.00037	0.0013	0.001127	0.0013	0.000366	0.3248	-1.526
MW-D3	10	10	0.0013	0.0013	0.0013	0.0013	0	0	NaN
MW-U1 (bg)	10	9	0.00065	0.0013	0.001235	0.0013	0.0002055	0.1664	-2.667

# Summary Report

Constituent: Lithium Analysis Run 6/2/2019 7:16 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
 CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

For observations made between 2/28/2017 and 4/29/2019, a summary of the selected data set:

Observations = 44  
 ND/Trace = 41  
 Wells = 4  
 Minimum Value = 0.00034  
 Maximum Value = 0.0025  
 Mean Value = 0.002392  
 Median Value = 0.0025  
 Standard Deviation = 0.000419  
 Coefficient of Variation = 0.1752  
 Skewness = -3.85

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-D1	11	11	0.0025	0.0025	0.0025	0.0025	0	0	NaN
MW-D2	11	10	0.0011	0.0025	0.002373	0.0025	0.0004221	0.1779	-2.846
MW-D3	11	10	0.0013	0.0025	0.002391	0.0025	0.0003618	0.1513	-2.846
MW-U1 (bg)	11	10	0.00034	0.0025	0.002304	0.0025	0.0006513	0.2827	-2.846

# Summary Report

Constituent: Mercury Analysis Run 6/2/2019 7:16 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
 CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

For observations made between 2/28/2017 and 4/29/2019, a summary of the selected data set:

Observations = 40  
 ND/Trace = 35  
 Wells = 4  
 Minimum Value = 0.000077  
 Maximum Value = 0.0002  
 Mean Value = 0.0001894  
 Median Value = 0.0002  
 Standard Deviation = 0.00003098  
 Coefficient of Variation = 0.1636  
 Skewness = -2.724

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-D1	10	9	0.000077	0.0002	0.0001877	0.0002	0.0000389	0.2072	-2.667
MW-D2	10	8	0.00011	0.0002	0.000189	0.0002	0.00002846	0.1506	-2.455
MW-D3	10	9	0.00011	0.0002	0.000191	0.0002	0.00002846	0.149	-2.667
MW-U1 (bg)	10	9	0.000099	0.0002	0.0001899	0.0002	0.00003194	0.1682	-2.667



# Summary Report

Constituent: Molybdenum Analysis Run 6/2/2019 7:16 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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For observations made between 2/28/2017 and 4/29/2019, a summary of the selected data set:

Observations = 48  
ND/Trace = 35  
Wells = 4  
Minimum Value = 0.0012  
Maximum Value = 0.01  
Mean Value = 0.008052  
Median Value = 0.01  
Standard Deviation = 0.003378  
Coefficient of Variation = 0.4196  
Skewness = -1.189

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-D1	12	12	0.01	0.01	0.01	0.01	0	0	NaN
MW-D2	12	9	0.0012	0.01	0.007942	0.01	0.003734	0.4702	-1.174
MW-D3	12	2	0.0017	0.01	0.004267	0.0025	0.003301	0.7737	1.048
MW-U1 (bg)	12	12	0.01	0.01	0.01	0.01	0	0	NaN

# Summary Report

Constituent: Selenium Analysis Run 6/2/2019 7:16 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

For observations made between 2/28/2017 and 4/29/2019, a summary of the selected data set:

Observations = 44  
ND/Trace = 31  
Wells = 4  
Minimum Value = 0.00033  
Maximum Value = 0.0028  
Mean Value = 0.00114  
Median Value = 0.0013  
Standard Deviation = 0.0004263  
Coefficient of Variation = 0.3738  
Skewness = 0.5261

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-D1	11	10	0.00033	0.0013	0.001212	0.0013	0.0002925	0.2413	-2.846
MW-D2	11	8	0.00033	0.0013	0.00112	0.0013	0.0003433	0.3065	-1.547
MW-D3	11	8	0.00037	0.0028	0.001325	0.0013	0.0005655	0.427	1.338
MW-U1 (bg)	11	5	0.00039	0.0013	0.0009055	0.00076	0.0003925	0.4334	-0.03638

# Summary Report

Constituent: Thallium Analysis Run 6/2/2019 7:16 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
 CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

For observations made between 2/28/2017 and 4/29/2019, a summary of the selected data set:

Observations = 48  
 ND/Trace = 28  
 Wells = 4  
 Minimum Value = 0.000085  
 Maximum Value = 0.0005  
 Mean Value = 0.0003378  
 Median Value = 0.0005  
 Standard Deviation = 0.0001941  
 Coefficient of Variation = 0.5746  
 Skewness = -0.3437

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-D1	12	12	0.0005	0.0005	0.0005	0.0005	0	0	NaN
MW-D2	12	4	0.000085	0.0005	0.0002383	0.000115	0.0001937	0.8125	0.6939
MW-D3	12	0	0.000095	0.00013	0.0001129	0.00011	0.00001137	0.1007	0.05658
MW-U1 (bg)	12	12	0.0005	0.0005	0.0005	0.0005	0	0	NaN

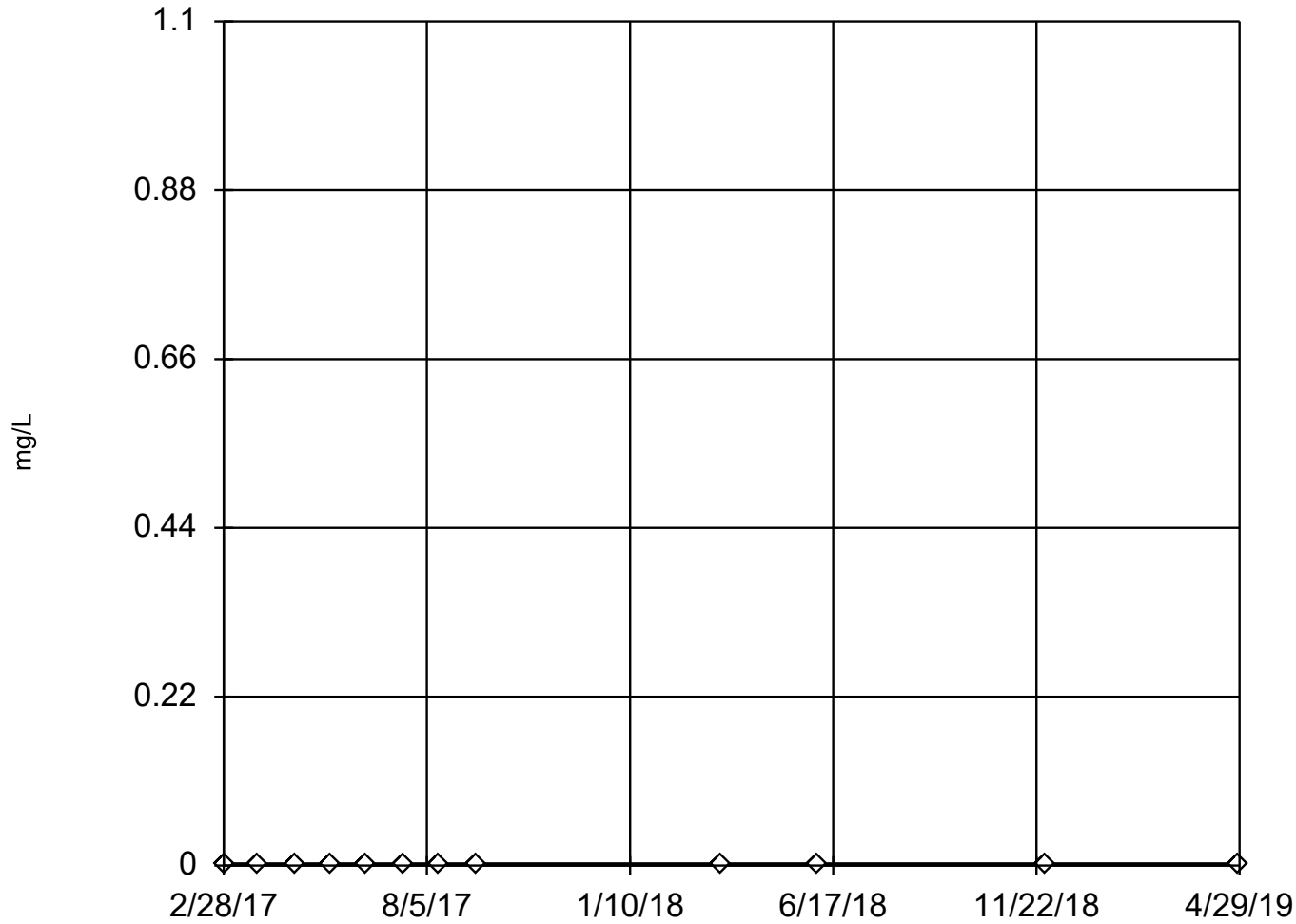
# Outlier Analysis

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10 Printed 6/2/2019, 7:06 PM

<u>Constituent</u>	<u>Well</u>	<u>Outlier</u>	<u>Value(s)</u>	<u>Date(s)</u>	<u>Method</u>	<u>Alpha</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Distribution</u>	<u>Normality Test</u>
Barium (mg/L)	MW-D3	Yes	0.1	4/29/2019	EPA 1989	0.05	12	0.1817	0.0381	normal	ShapiroWilk
Barium (mg/L)	MW-U1 (bg)	Yes	0.0034	2/28/2017	EPA 1989	0.05	12	0.002275	0.0004413	normal	ShapiroWilk
Combined Radium 226 + 228 (pCi/L)	MW-D2	Yes	0.0139	6/5/2018	EPA 1989	0.05	11	0.5102	0.3323	normal	ShapiroWilk
Combined Radium 226 + 228 (pCi/L)	MW-D3	Yes	0.0501	11/29/2018	EPA 1989	0.05	11	0.6091	0.3544	normal	ShapiroWilk
Fluoride (mg/L)	MW-D2	Yes	0.05,0.07...	3/27/2017...	NP (nrm)	NaN	12	0.05925	0.007944	unknown	ShapiroWilk
Fluoride (mg/L)	MW-D3	Yes	0.06	7/17/2017	EPA 1989	0.05	12	0.1108	0.01782	normal	ShapiroWilk

# Tukey's Outlier Screening

MW-D1



n = 12

No outliers found.  
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

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

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Arsenic Analysis Run 6/2/2019 7:01 PM View: Sanitas\_Statistics Sampling Events 1 through

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Tukey's Outlier Screening

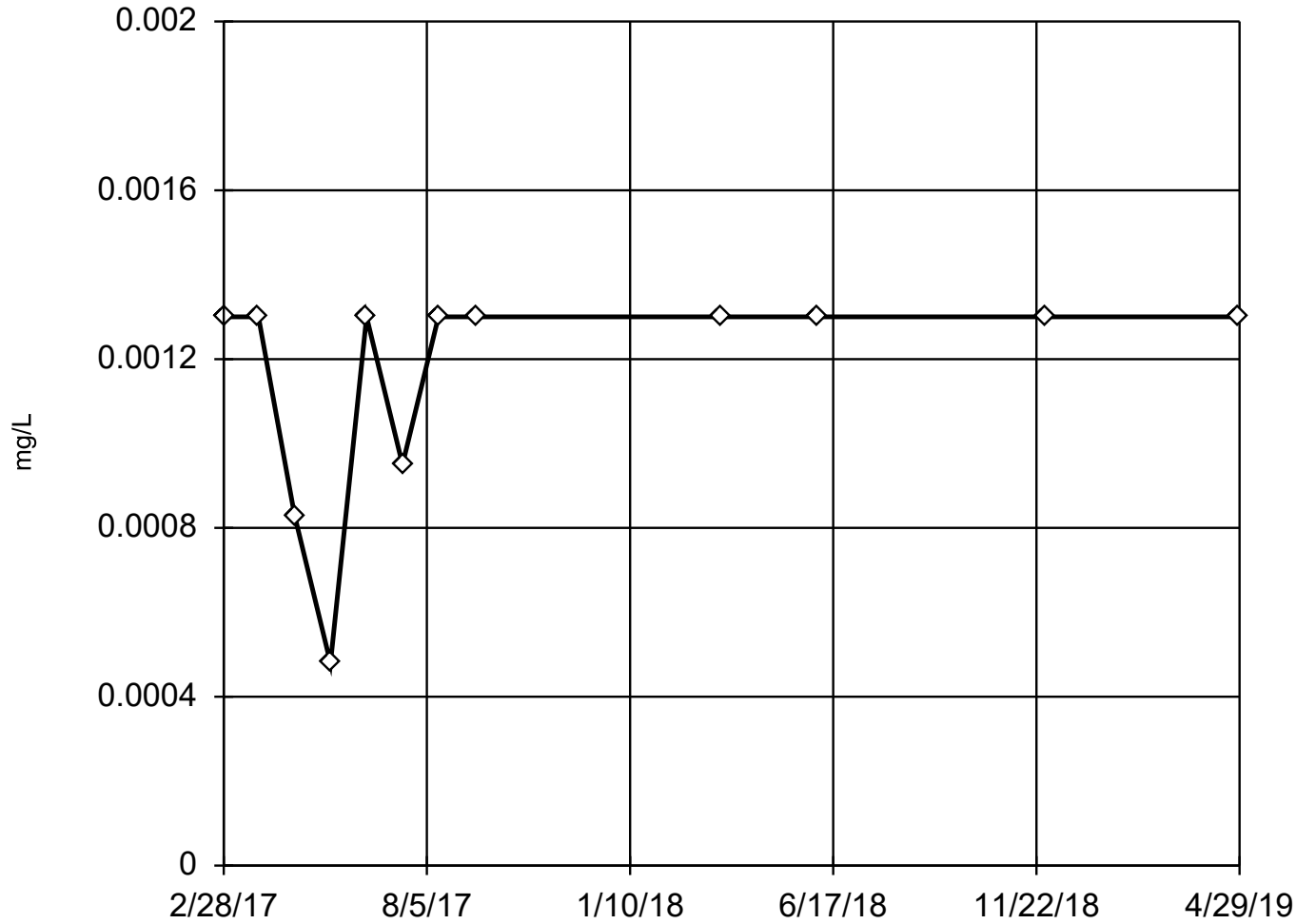
Constituent: Arsenic (mg/L) Analysis Run 6/2/2019 7:05 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D1
2/28/2017	<0.0013
3/27/2017	<0.0013
4/24/2017	<0.0013
5/22/2017	<0.0013
6/19/2017	<0.0013
7/17/2017	<0.0013
8/14/2017	<0.0013
9/13/2017	<0.0013
3/22/2018	<0.0013
6/5/2018	<0.0013
11/29/2018	<0.0013
4/29/2019	<0.0013

## Tukey's Outlier Screening

MW-D2



n = 12

No outliers found.  
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

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

High cutoff = 0.001694,  
low cutoff = 0.0003391,  
based on IQR multiplier of 3.

Constituent: Arsenic Analysis Run 6/2/2019 7:01 PM View: Sanitas\_Statistics Sampling Events 1 through

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Tukey's Outlier Screening

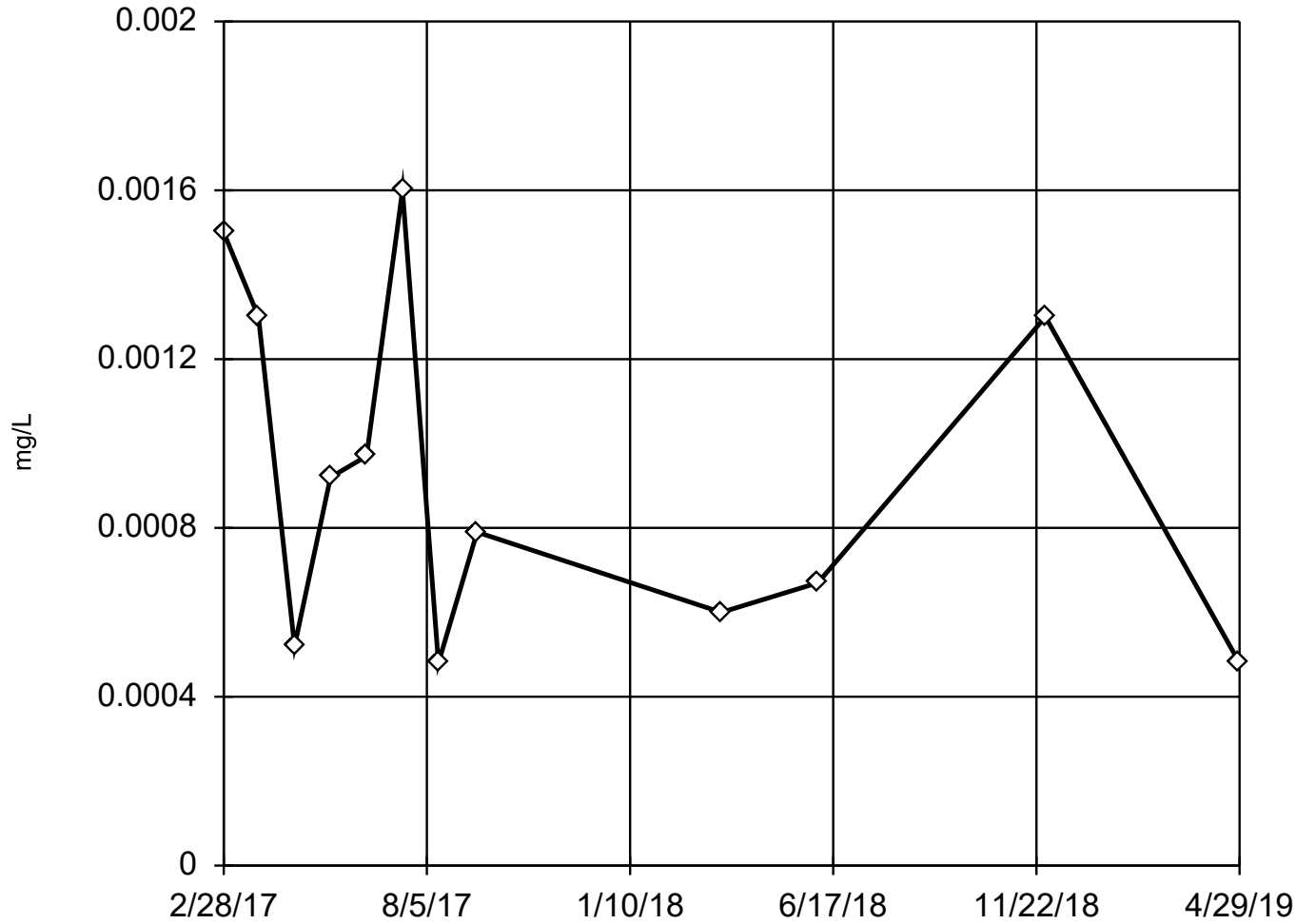
Constituent: Arsenic (mg/L) Analysis Run 6/2/2019 7:05 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D2
2/28/2017	<0.0013
3/27/2017	<0.0013
4/24/2017	0.00083 (J)
5/22/2017	0.00048 (J)
6/19/2017	<0.0013
7/17/2017	0.00095 (J)
8/14/2017	<0.0013
9/13/2017	<0.0013
3/22/2018	<0.0013
6/5/2018	<0.0013
11/29/2018	<0.0013
4/29/2019	<0.0013



### EPA 1989 Outlier Screening MW-D3



n = 12

No statistical outliers.  
Mean 0.0009275, std. dev.  
0.0004066, critical Tn  
2.285

Normality test used:  
Shapiro Wilk@alpha = 0.01  
Calculated = 0.8982  
Critical = 0.805  
The distribution was found  
to be normally distrib-  
uted.

Constituent: Arsenic Analysis Run 6/2/2019 7:02 PM View: Sanitas\_Statistics Sampling Events 1 through  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# EPA 1989 Outlier Screening

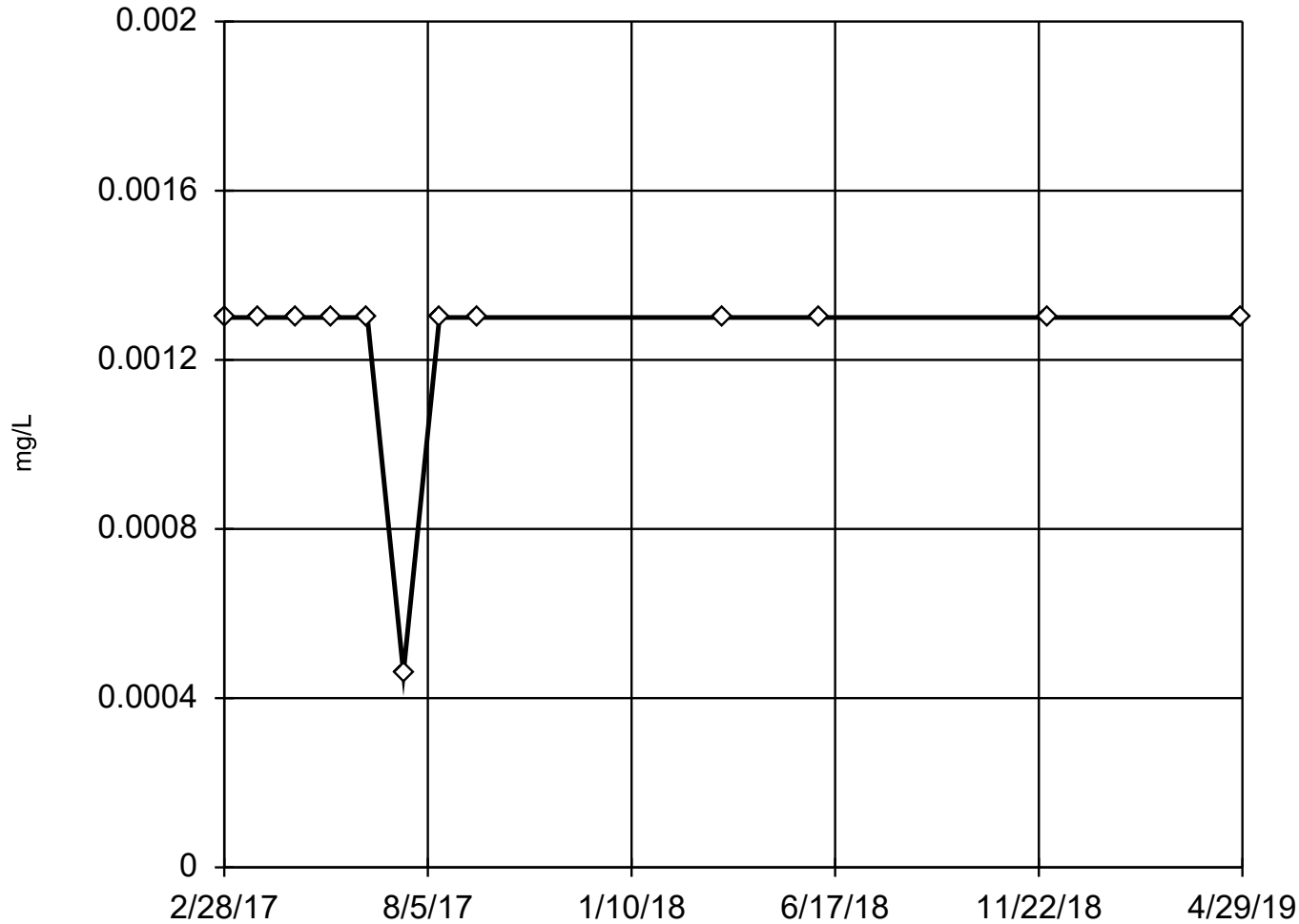
Constituent: Arsenic (mg/L) Analysis Run 6/2/2019 7:05 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D3	Tn
2/28/2017	0.0015	1.28
3/27/2017	<0.0013	0.9593
4/24/2017	0.00052 (J)	-1.096
5/22/2017	0.00092 (J)	0.1836
6/19/2017	0.00097 (J)	0.3023
7/17/2017	0.0016	1.425
8/14/2017	0.00048 (J)	-1.276
9/13/2017	0.00079 (J)	-0.1582
3/22/2018	0.0006 (J)	-0.7754
6/5/2018	0.00067 (J)	-0.5278
11/29/2018	<0.0013	0.9593
4/29/2019	0.00048 (J)	-1.276

## Tukey's Outlier Screening

MW-U1 (bg)



n = 12

No outliers found.  
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

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

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Arsenic Analysis Run 6/2/2019 7:02 PM View: Sanitas\_Statistics Sampling Events 1 through

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Tukey's Outlier Screening

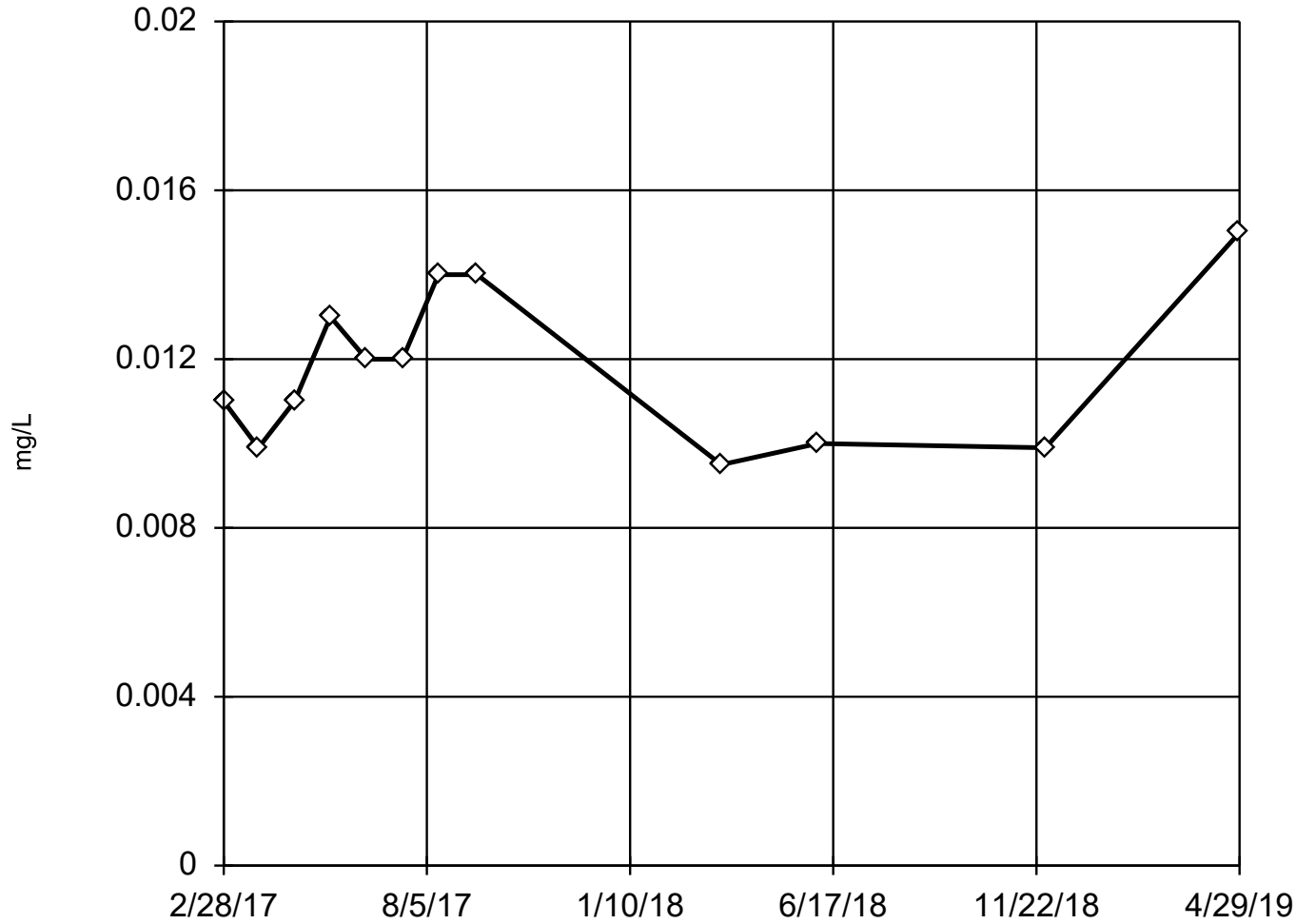
Constituent: Arsenic (mg/L) Analysis Run 6/2/2019 7:05 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-U1 (bg)
2/28/2017	<0.0013
3/27/2017	<0.0013
4/24/2017	<0.0013
5/22/2017	<0.0013
6/19/2017	<0.0013
7/17/2017	0.00046 (J)
8/14/2017	<0.0013
9/13/2017	<0.0013
3/22/2018	<0.0013
6/5/2018	<0.0013
11/29/2018	<0.0013
4/29/2019	<0.0013

# EPA 1989 Outlier Screening

MW-D1



n = 12

No statistical outliers.  
Mean 0.01178, std. dev.  
0.00187, critical Tn 2.285

Normality test used:  
Shapiro Wilk@alpha = 0.01  
Calculated = 0.9158  
Critical = 0.805  
The distribution was found  
to be normally distrib-  
uted.

Constituent: Barium Analysis Run 6/2/2019 7:02 PM View: Sanitas\_Statistics Sampling Events 1 through

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# EPA 1989 Outlier Screening

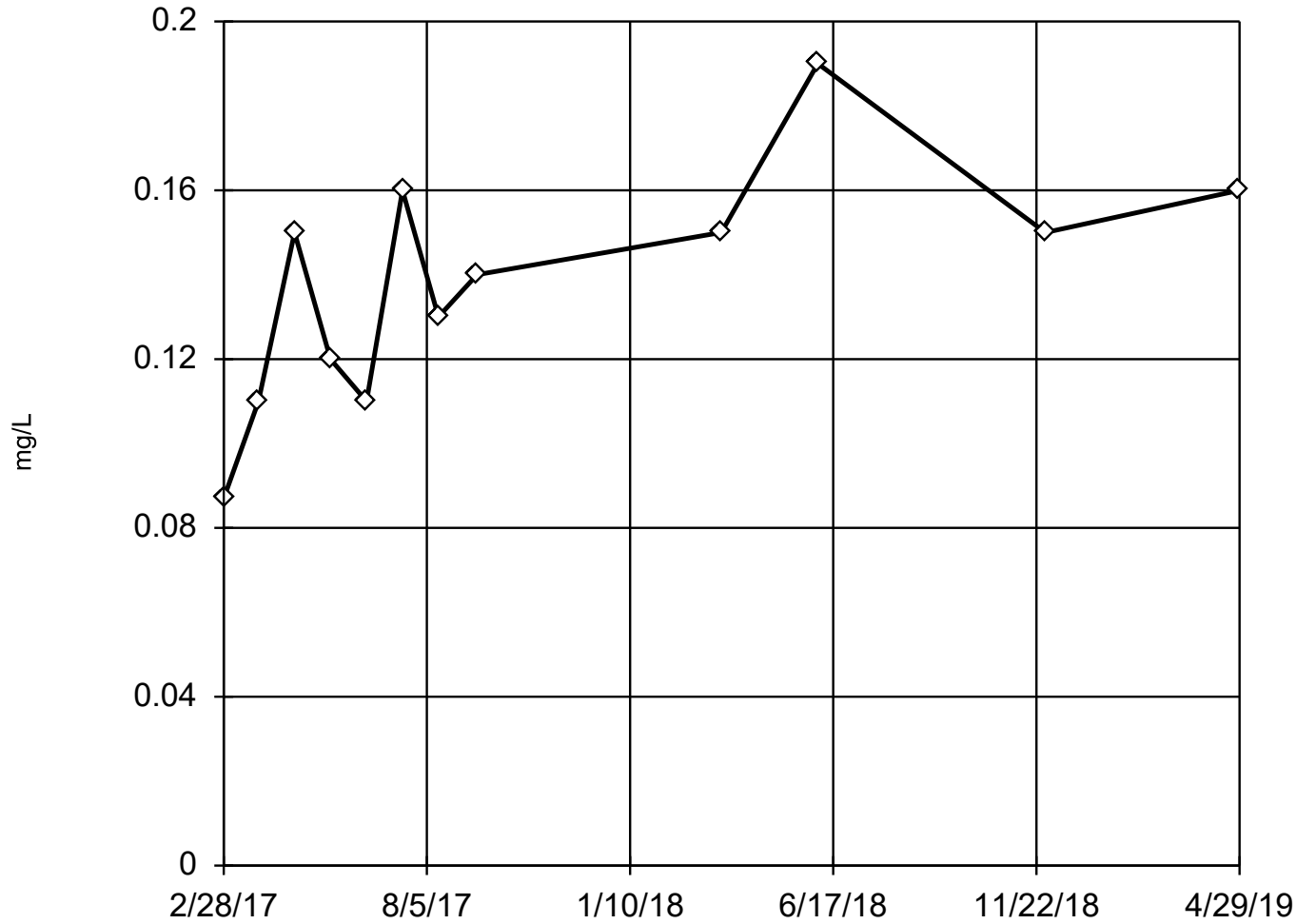
Constituent: Barium (mg/L) Analysis Run 6/2/2019 7:05 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D1	Tn
2/28/2017	0.011	-0.3624
3/27/2017	0.0099	-1.035
4/24/2017	0.011	-0.3624
5/22/2017	0.013	0.7045
6/19/2017	0.012	0.1933
7/17/2017	0.012	0.1933
8/14/2017	0.014	1.178
9/13/2017	0.014	1.178
3/22/2018	0.0095	-1.299
6/5/2018	0.01	-0.9711
11/29/2018	0.0099	-1.035
4/29/2019	0.015	1.618

# EPA 1989 Outlier Screening

MW-D2



n = 12

No statistical outliers.  
Mean 0.1381, std. dev.  
0.02807, critical Tn 2.285

Normality test used:  
Shapiro Wilk@alpha = 0.01  
Calculated = 0.9696  
Critical = 0.805  
The distribution was found  
to be normally distrib-  
uted.

Constituent: Barium Analysis Run 6/2/2019 7:02 PM View: Sanitas\_Statistics Sampling Events 1 through

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# EPA 1989 Outlier Screening

Constituent: Barium (mg/L) Analysis Run 6/2/2019 7:05 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D2	Tn
2/28/2017	0.087	-2.07
3/27/2017	0.11	-0.9708
4/24/2017	0.15	0.482
5/22/2017	0.12	-0.5633
6/19/2017	0.11	-0.9708
7/17/2017	0.16	0.7843
8/14/2017	0.13	-0.1883
9/13/2017	0.14	0.1588
3/22/2018	0.15	0.482
6/5/2018	0.19	1.589
11/29/2018	0.15	0.482
4/29/2019	0.16	0.7843



## EPA 1989 Outlier Screening

### MW-D3



n = 12

Statistical outlier is drawn as solid.  
Mean 0.1817, std. dev. 0.0381, critical Tn 2.285.  
After removing suspect data: mean 0.1891, std. dev. 0.02948, Tn 2.234.

Normality test used:  
Shapiro Wilk@alpha = 0.01  
Calculated = 0.9443  
Critical = 0.792  
The distribution, after removal of suspect value, was found to be normally distributed.

Constituent: Barium Analysis Run 6/2/2019 7:02 PM View: Sanitas\_Statistics Sampling Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# EPA 1989 Outlier Screening

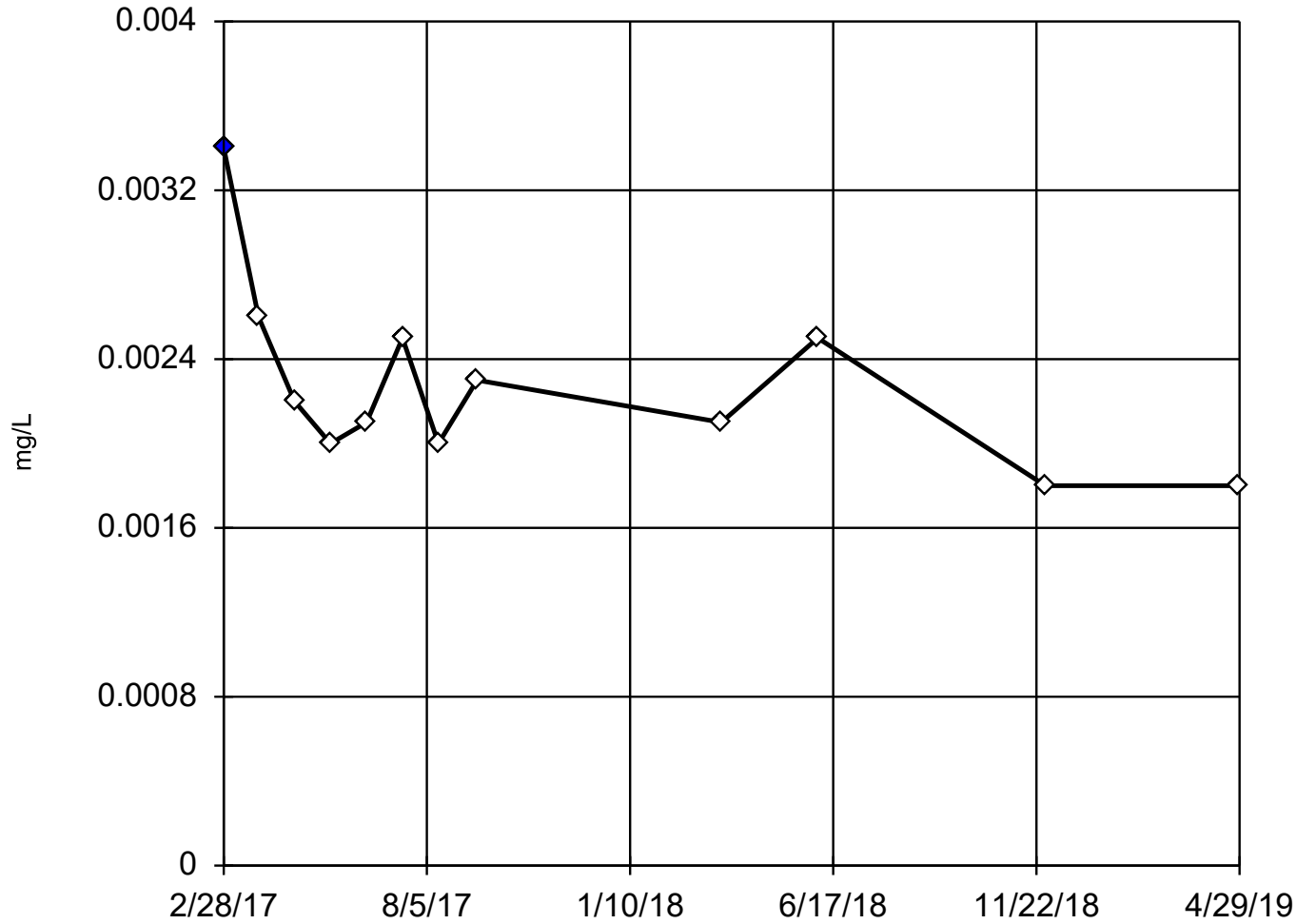
Constituent: Barium (mg/L) Analysis Run 6/2/2019 7:05 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D3	Tn	Tn
2/28/2017	0.22	0.904	1.002
3/27/2017	0.23	1.091	1.275
4/24/2017	0.2	0.5037	0.4165
5/22/2017	0.21	0.7086	0.7163
6/19/2017	0.21	0.7086	0.7163
7/17/2017	0.2	0.5037	0.4165
8/14/2017	0.18	0.06105	-0.2309
9/13/2017	0.18	0.06105	-0.2309
3/22/2018	0.16	-0.4337	-0.9547
6/5/2018	0.15	-0.7049	-1.351
11/29/2018	0.14	-0.9947	-1.775
4/29/2019	0.1 (O)	-2.408 (O)	

# EPA 1989 Outlier Screening

MW-U1 (bg)



n = 12

Statistical outlier is drawn as solid.  
Mean 0.002275, std. dev. 0.0004413, critical Tn 2.285. After removing suspect data: mean 0.002173, std. dev. 0.000276, Tn 2.234.

Normality test used:  
Shapiro Wilk@alpha = 0.01  
Calculated = 0.9327  
Critical = 0.792  
The distribution, after removal of suspect value, was found to be normally distributed.

Constituent: Barium Analysis Run 6/2/2019 7:02 PM View: Sanitas\_Statistics Sampling Events 1 through

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# EPA 1989 Outlier Screening

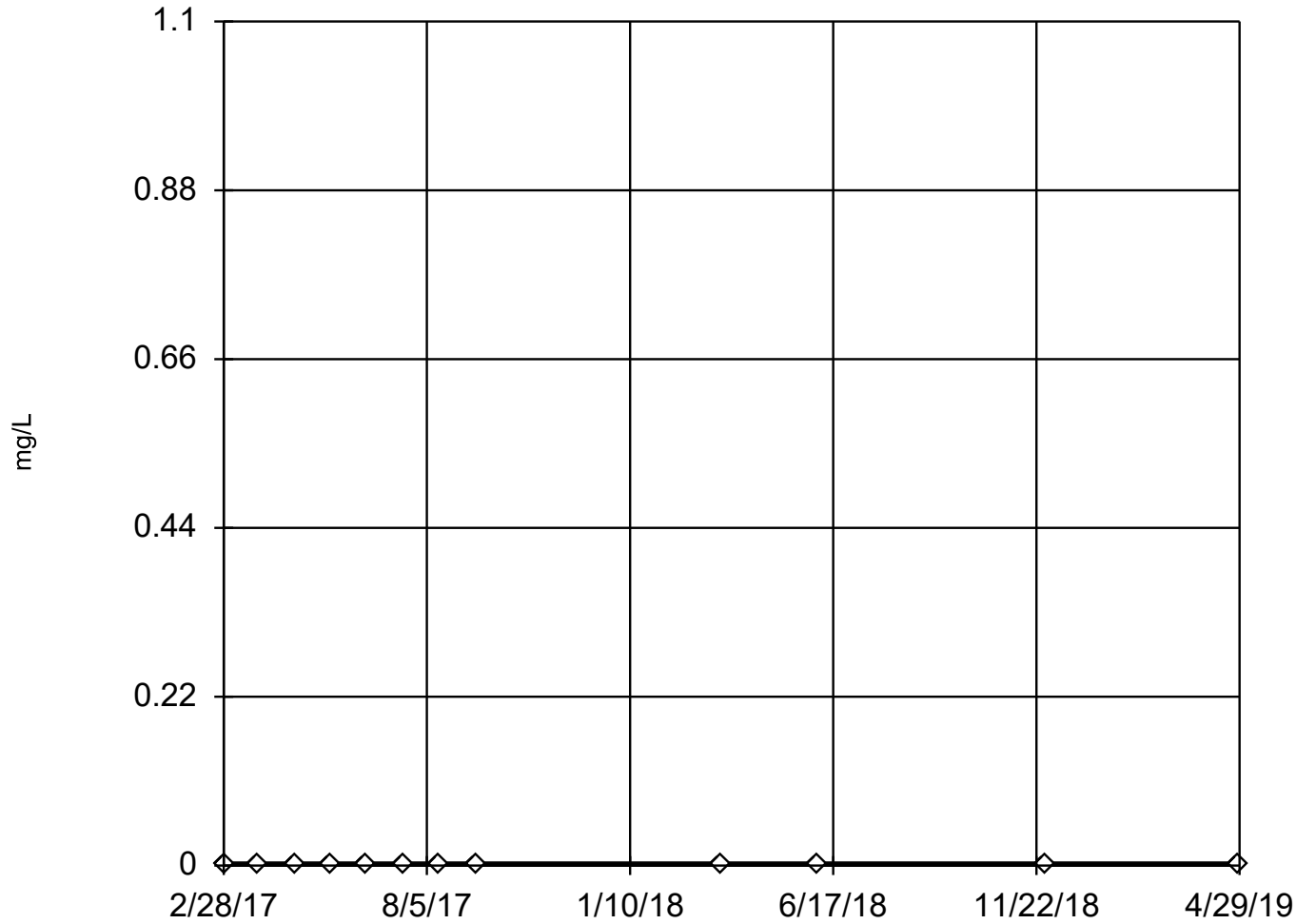
Constituent: Barium (mg/L) Analysis Run 6/2/2019 7:05 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-U1 (bg)	Tn	Tn
2/28/2017	0.0034 (O)	2.335 (O)	
3/27/2017	0.0026	0.8335	1.471
4/24/2017	0.0022 (J)	-0.1014	0.1559
5/22/2017	0.002 (J)	-0.6349	-0.5946
6/19/2017	0.0021 (J)	-0.3618	-0.2104
7/17/2017	0.0025	0.614	1.163
8/14/2017	0.002 (J)	-0.6349	-0.5946
9/13/2017	0.0023 (J)	0.1474	0.5059
3/22/2018	0.0021 (J)	-0.3618	-0.2104
6/5/2018	0.0025	0.614	1.163
11/29/2018	0.0018 (J)	-1.225	-1.424
4/29/2019	0.0018 (J)	-1.225	-1.424

# Tukey's Outlier Screening

MW-D1



n = 12

No outliers found.  
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

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

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Cobalt Analysis Run 6/2/2019 7:02 PM View: Sanitas\_Statistics Sampling Events 1 through 1

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Tukey's Outlier Screening

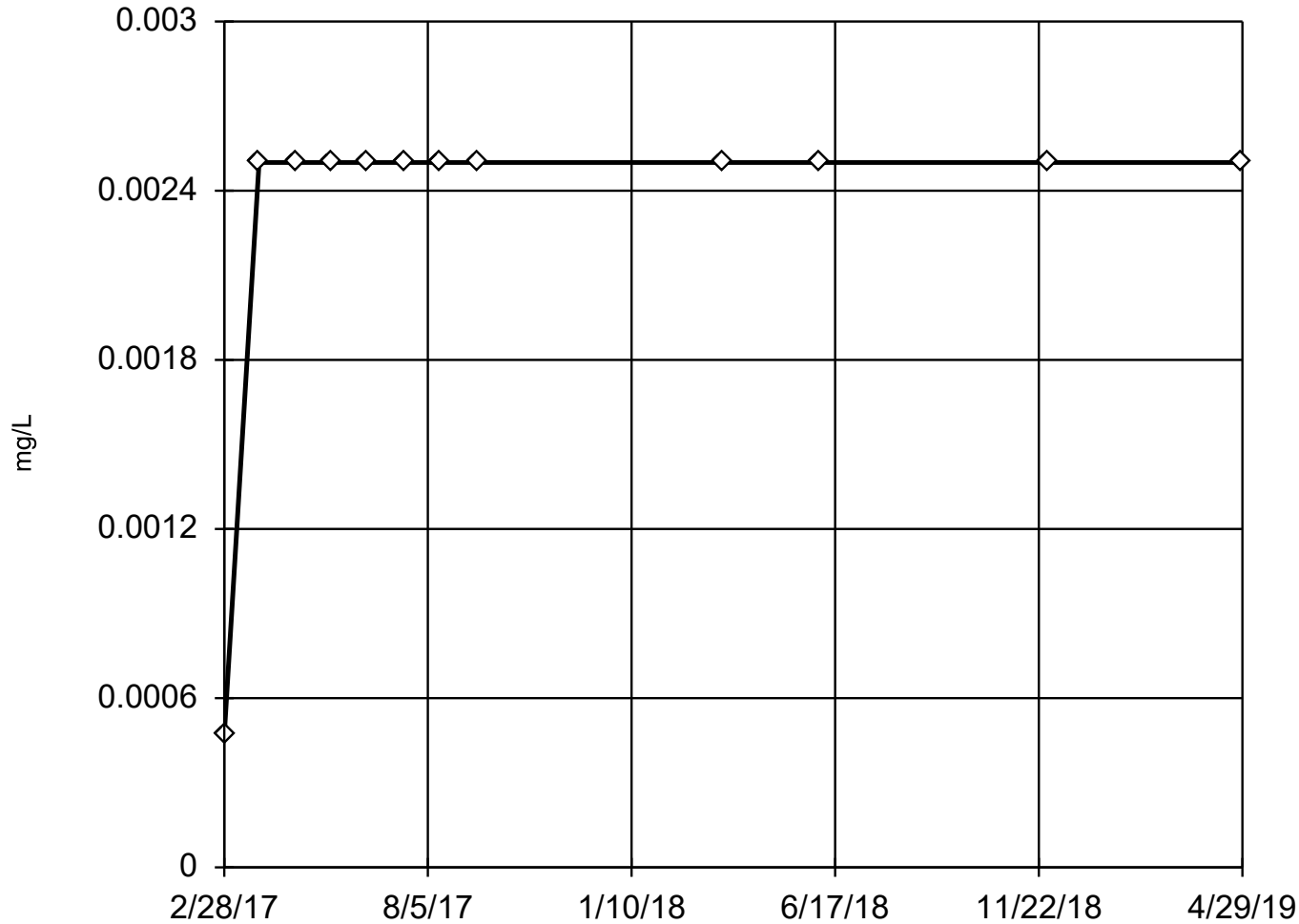
Constituent: Cobalt (mg/L) Analysis Run 6/2/2019 7:05 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	MW-D1
2/28/2017	<0.0025
3/27/2017	<0.0025
4/24/2017	<0.0025
5/22/2017	<0.0025
6/19/2017	<0.0025
7/17/2017	<0.0025
8/14/2017	<0.0025
9/13/2017	<0.0025
3/22/2018	<0.0025
6/5/2018	<0.0025
11/29/2018	<0.0025
4/29/2019	<0.0025

## Tukey's Outlier Screening

MW-D2



n = 12

No outliers found.  
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

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

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Cobalt Analysis Run 6/2/2019 7:02 PM View: Sanitas\_Statistics Sampling Events 1 through 1

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Tukey's Outlier Screening

Constituent: Cobalt (mg/L) Analysis Run 6/2/2019 7:05 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

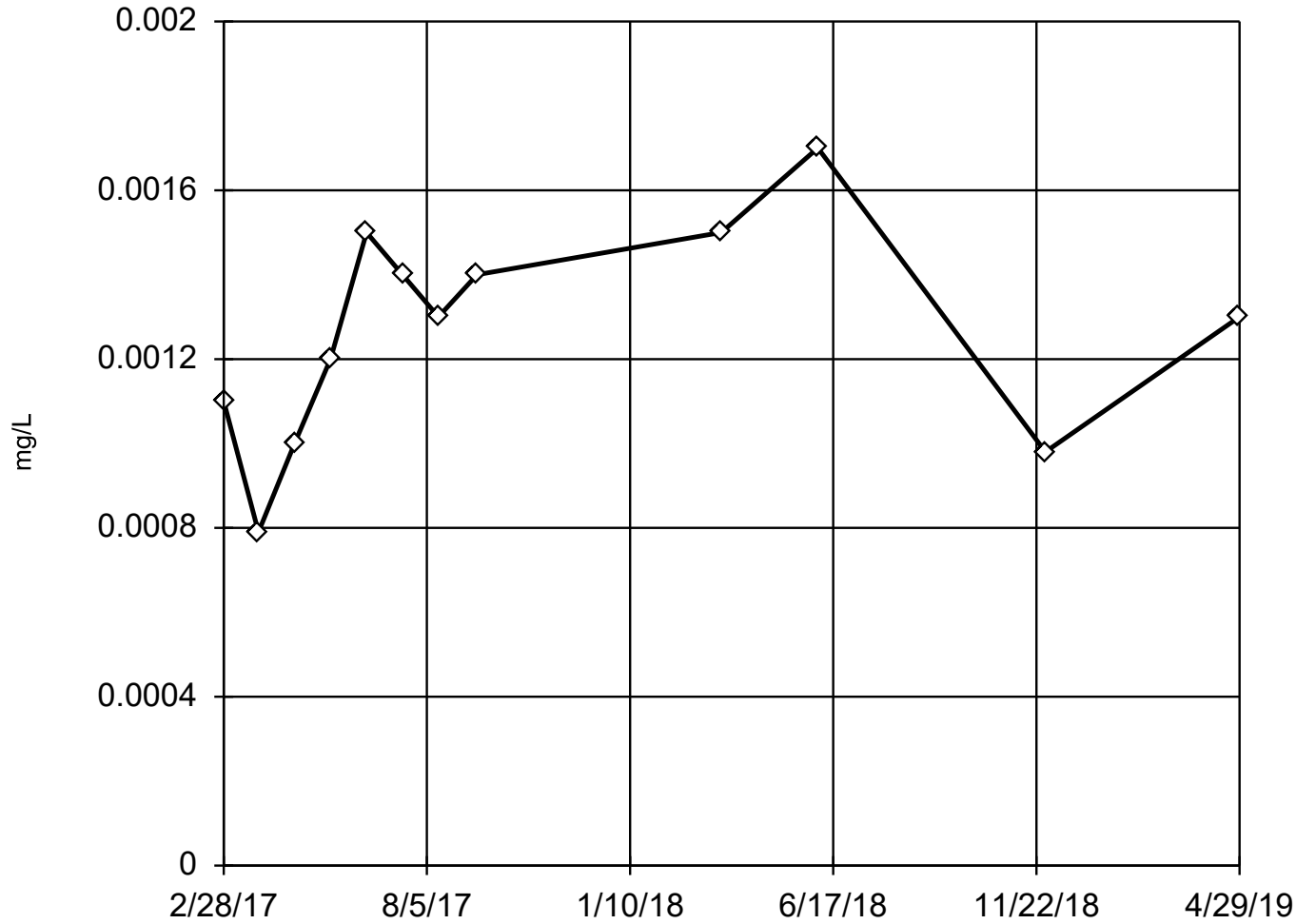
---

	MW-D2
2/28/2017	0.00047 (J)
3/27/2017	<0.0025
4/24/2017	<0.0025
5/22/2017	<0.0025
6/19/2017	<0.0025
7/17/2017	<0.0025
8/14/2017	<0.0025
9/13/2017	<0.0025
3/22/2018	<0.0025
6/5/2018	<0.0025
11/29/2018	<0.0025
4/29/2019	<0.0025



# EPA 1989 Outlier Screening

MW-D3



n = 12

No statistical outliers.  
Mean 0.001264, std. dev.  
0.0002606, critical Tn  
2.285

Normality test used:  
Shapiro Wilk@alpha = 0.01  
Calculated = 0.9773  
Critical = 0.805  
The distribution was found  
to be normally distrib-  
uted.

Constituent: Cobalt Analysis Run 6/2/2019 7:02 PM View: Sanitas\_Statistics Sampling Events 1 through 1

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# EPA 1989 Outlier Screening

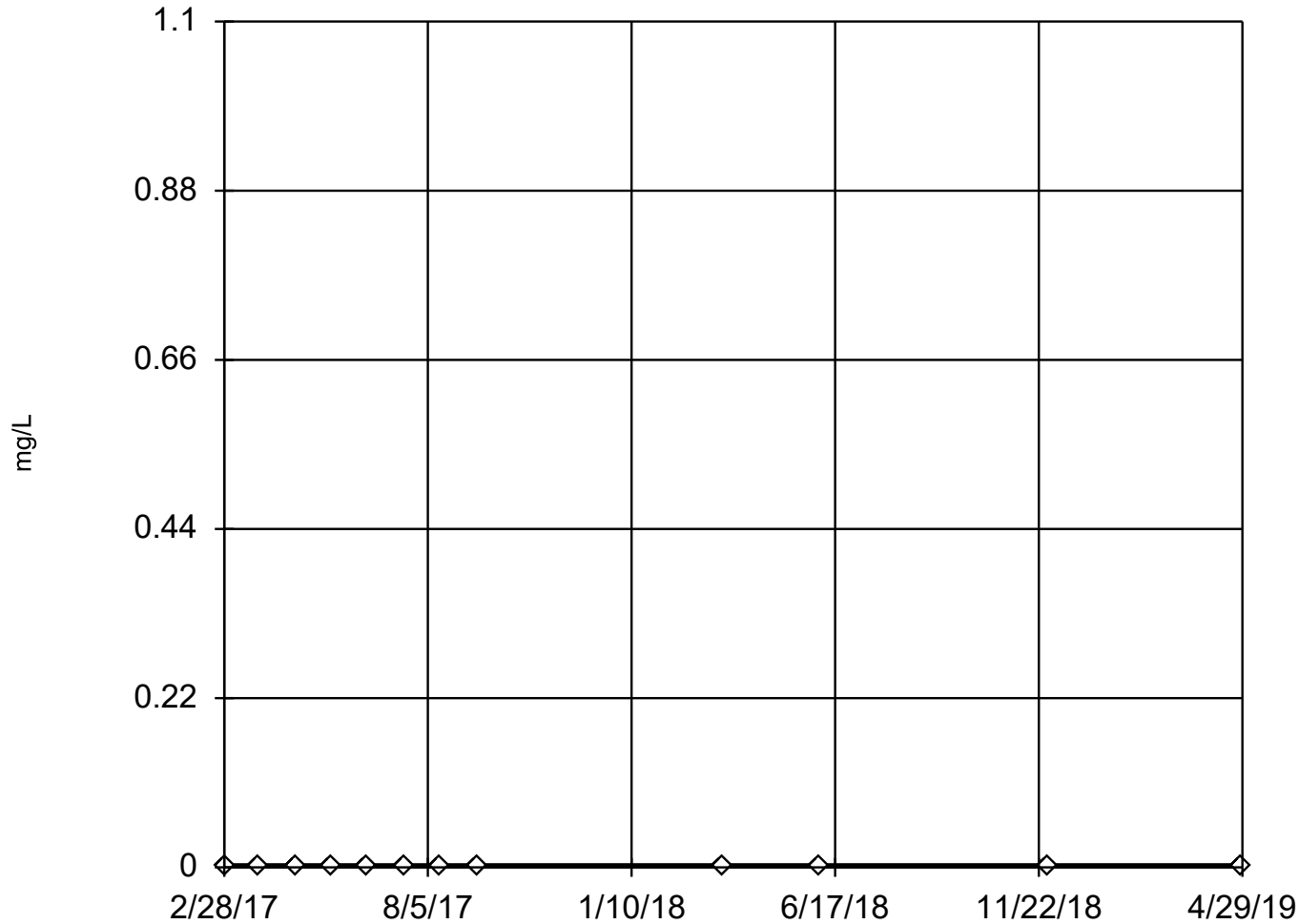
Constituent: Cobalt (mg/L) Analysis Run 6/2/2019 7:05 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	MW-D3	Tn
2/28/2017	0.0011 (J)	-0.54
3/27/2017	0.00079 (J)	-2.053
4/24/2017	0.001 (J)	-0.9757
5/22/2017	0.0012 (J)	-0.1421
6/19/2017	0.0015 (J)	0.8781
7/17/2017	0.0014 (J)	0.5626
8/14/2017	0.0013 (J)	0.2238
9/13/2017	0.0014 (J)	0.5626
3/22/2018	0.0015 (J)	0.8781
6/5/2018	0.0017 (J)	1.45
11/29/2018	0.00098 (J)	-1.068
4/29/2019	0.0013 (J)	0.2238

## Tukey's Outlier Screening

MW-U1 (bg)



n = 12

No outliers found.  
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

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

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Cobalt Analysis Run 6/2/2019 7:02 PM View: Sanitas\_Statistics Sampling Events 1 through 1

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

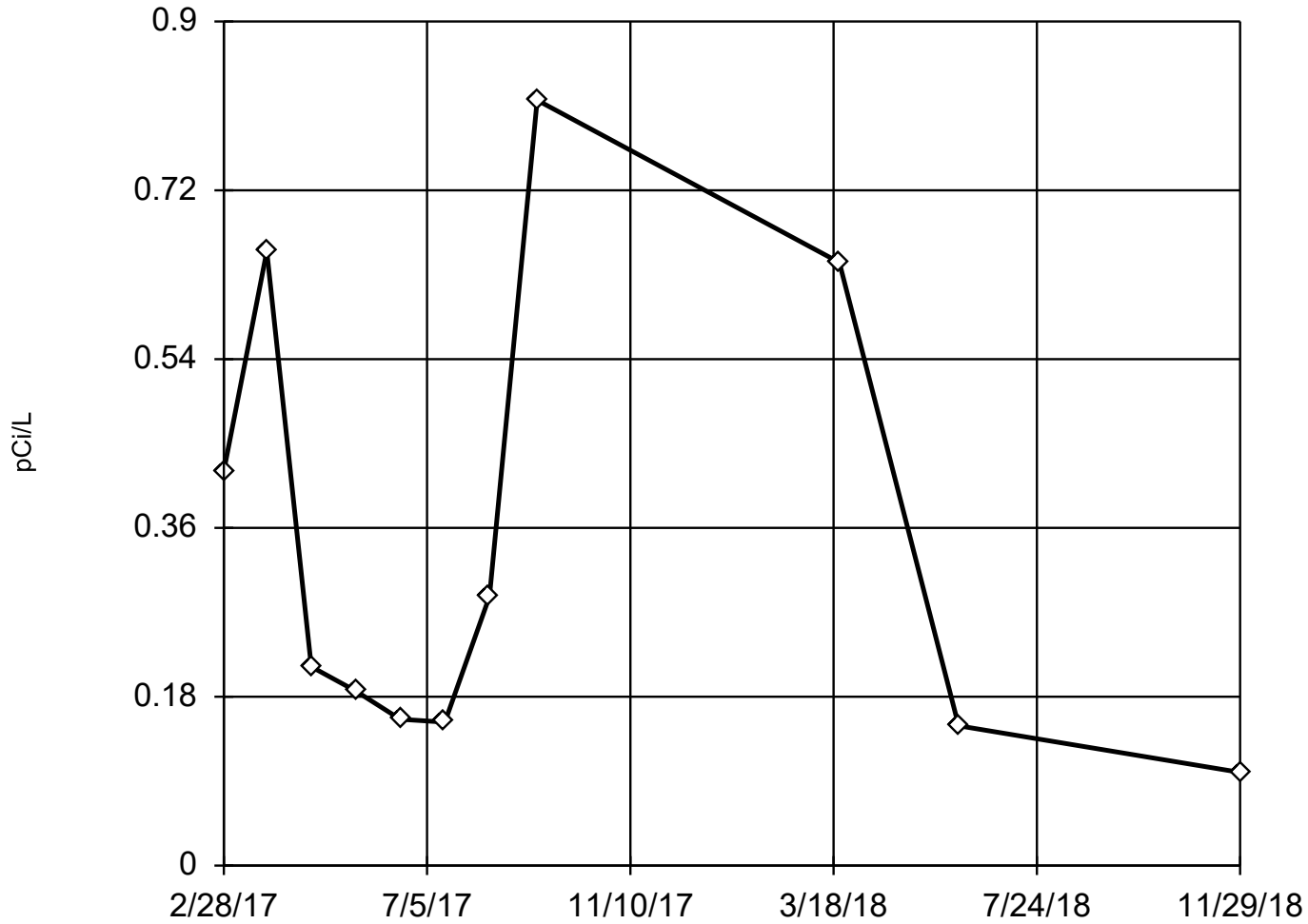
# Tukey's Outlier Screening

Constituent: Cobalt (mg/L) Analysis Run 6/2/2019 7:05 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	MW-U1 (bg)
2/28/2017	<0.0025
3/27/2017	<0.0025
4/24/2017	<0.0025
5/22/2017	<0.0025
6/19/2017	<0.0025
7/17/2017	<0.0025
8/14/2017	<0.0025
9/13/2017	<0.0025
3/22/2018	<0.0025
6/5/2018	<0.0025
11/29/2018	<0.0025
4/29/2019	<0.0025

### EPA 1989 Outlier Screening MW-D1



n = 11  
No statistical outliers.  
Mean 0.3434, std. dev.  
0.251, critical Tn 2.234  
  
Normality test used:  
Shapiro Wilk@alpha = 0.01  
Calculated = 0.8335  
Critical = 0.792  
The distribution was found  
to be normally distrib-  
uted.

Constituent: Combined Radium 226 + 228    Analysis Run 6/2/2019 7:02 PM    View: Sanitas\_Statistics Sampl  
CCPC Plant Crisp Ash Pond Site    Client: Geosyntec    Data: Sanitas\_Statistics Sampling Events 1 through 10

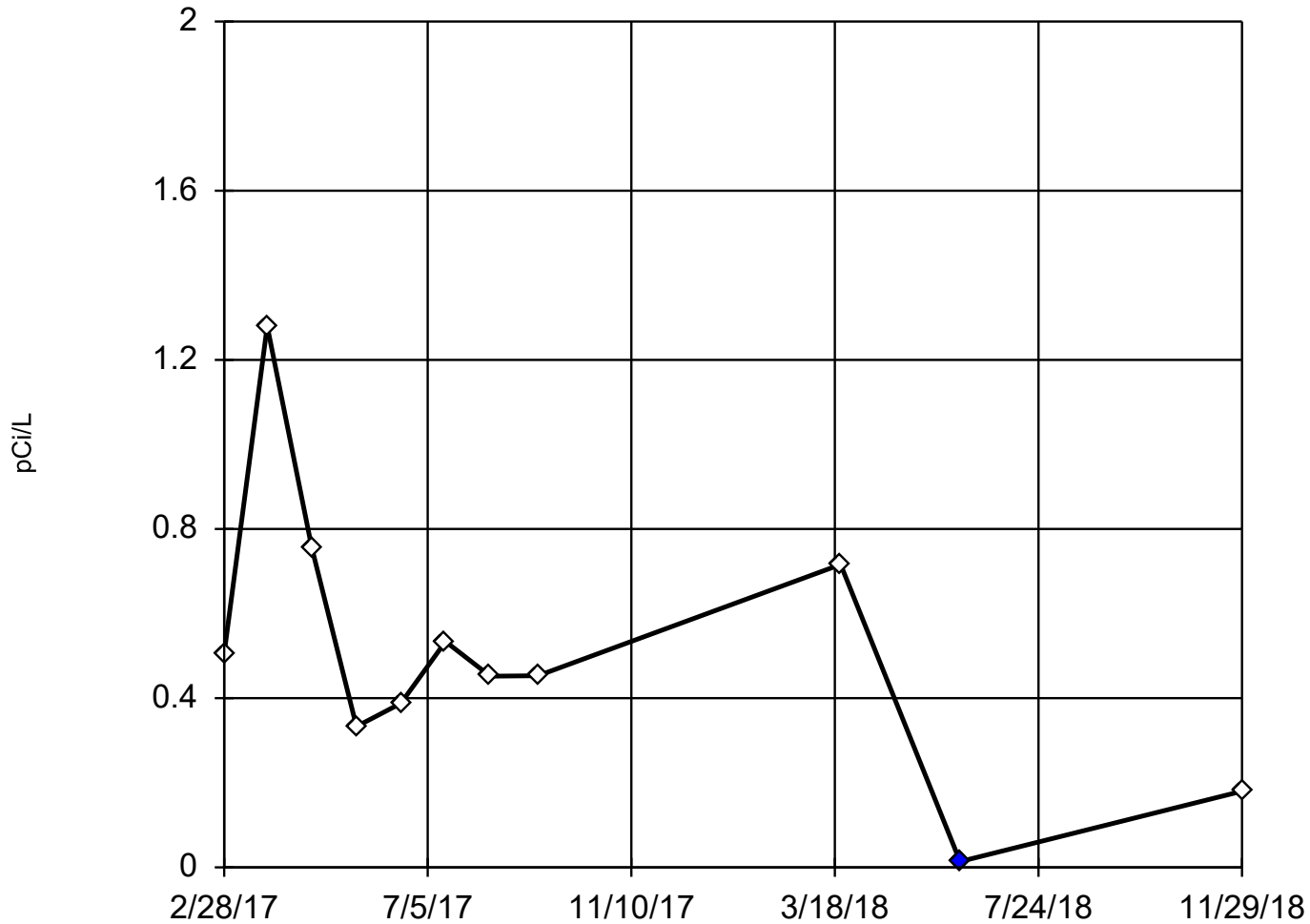
# EPA 1989 Outlier Screening

Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 6/2/2019 7:05 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D1	Tn
2/28/2017	0.421	0.6148
3/27/2017	0.655	1.232
4/24/2017	0.212	-0.3426
5/22/2017	0.186	-0.5252
6/19/2017	0.156	-0.7706
7/17/2017	0.153	-0.7977
8/14/2017	0.287	0.08008
9/13/2017	0.816	1.538
3/22/2018	0.643	1.206
6/5/2018	0.149	-0.8347
11/29/2018	0.0994	-1.4

## EPA 1989 Outlier Screening MW-D2



n = 11

Statistical outlier is drawn as solid.  
Mean 0.5102, std. dev. 0.3323, critical Tn 2.234.  
After removing suspect data: mean 0.5598, std. dev. 0.3043, Tn 2.176.

Normality test used:  
Shapiro Wilk@alpha = 0.01  
Calculated = 0.8728  
Critical = 0.781  
The distribution, after removal of suspect value, was found to be normally distributed.

Constituent: Combined Radium 226 + 228 Analysis Run 6/2/2019 7:02 PM View: Sanitas\_Statistics Sampl

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# EPA 1989 Outlier Screening

Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 6/2/2019 7:05 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D2	Tn	Tn
2/28/2017	0.506	0.2914	0.04008
3/27/2017	1.28	1.073	1.808
4/24/2017	0.756	0.6297	0.8049
5/22/2017	0.333	-0.06106	-0.7569
6/19/2017	0.388	0.06772	-0.4657
7/17/2017	0.534	0.3368	0.1427
8/14/2017	0.452	0.1963	-0.1749
9/13/2017	0.453	0.1982	-0.1707
3/22/2018	0.716	0.5839	0.7013
6/5/2018	0.0139 (O)	-2.737 (O)	
11/29/2018	0.18	-0.5793	-1.929



## EPA 1989 Outlier Screening MW-D3



n = 11

Statistical outlier is drawn as solid.  
Mean 0.6091, std. dev. 0.3544, critical Tn 2.234.  
After removing suspect data: mean 0.665, std. dev. 0.3184, Tn 2.176.

Normality test used:  
Shapiro Wilk@alpha = 0.01  
Calculated = 0.8219  
Critical = 0.781  
The distribution, after removal of suspect value, was found to be normally distributed.

Constituent: Combined Radium 226 + 228 Analysis Run 6/2/2019 7:02 PM View: Sanitas\_Statistics Sampl

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# EPA 1989 Outlier Screening

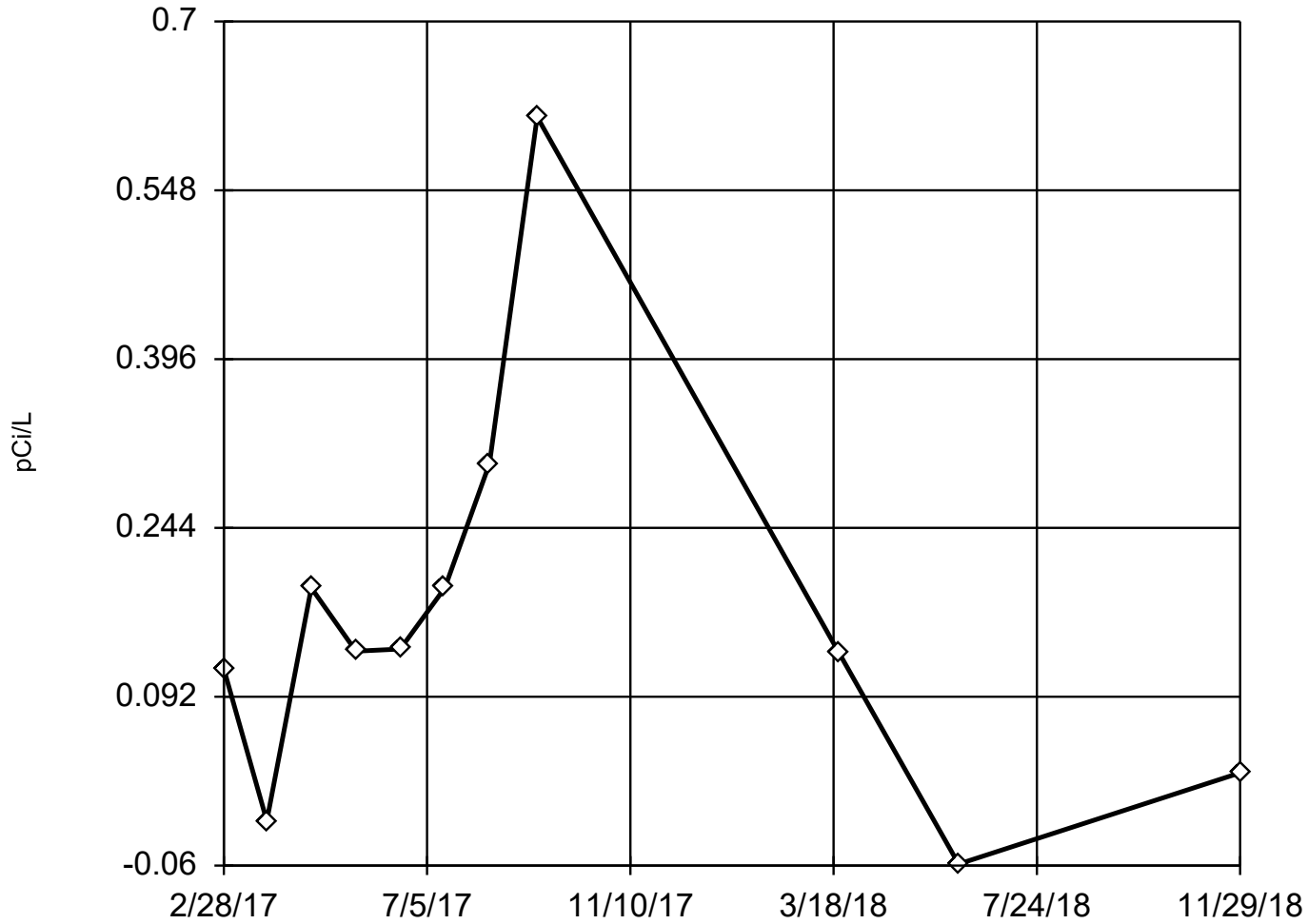
Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 6/2/2019 7:05 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D3	Tn	Tn
2/28/2017	0.522	0.0863	-0.3559
3/27/2017	0.557	0.1621	-0.205
4/24/2017	0.572	0.1931	-0.1432
5/22/2017	0.457	-0.06901	-0.6651
6/19/2017	0.78	0.5553	0.5779
7/17/2017	0.409	-0.1986	-0.9231
8/14/2017	0.339	-0.4178	-1.36
9/13/2017	1.28	1.134	1.729
3/22/2018	1.17	1.029	1.521
6/5/2018	0.564	0.1767	-0.176
11/29/2018	0.0501 (O)	-2.651 (O)	

# EPA 1989 Outlier Screening

MW-U1 (bg)



n = 11

No statistical outliers.  
Mean 0.1597, std. dev.  
0.1819, critical Tn 2.234

Normality test used:  
Shapiro Wilk@alpha = 0.01  
Calculated = 0.8546  
Critical = 0.792  
The distribution was found  
to be normally distrib-  
uted.

Constituent: Combined Radium 226 + 228 Analysis Run 6/2/2019 7:02 PM View: Sanitas\_Statistics Sampl

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# EPA 1989 Outlier Screening

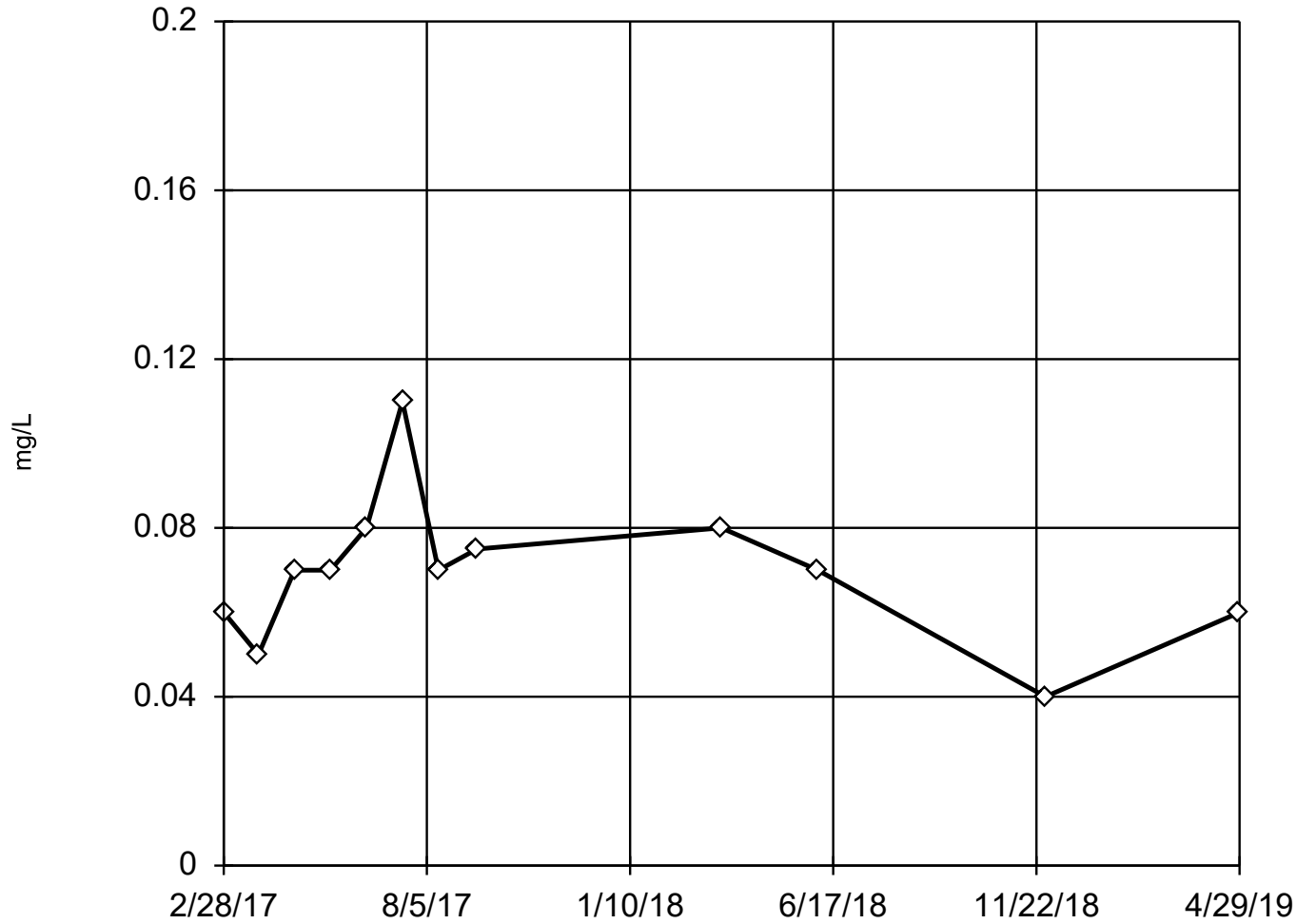
Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 6/2/2019 7:05 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-U1 (bg)	Tn
2/28/2017	0.117	0
3/27/2017	-0.0198	0
4/24/2017	0.19	0
5/22/2017	0.133	0
6/19/2017	0.135	0
7/17/2017	0.19	0
8/14/2017	0.302	0
9/13/2017	0.614	0
3/22/2018	0.131	0
6/5/2018	-0.0586	0
11/29/2018	0.0234	0

# EPA 1989 Outlier Screening

MW-D1



n = 12

No statistical outliers.  
Mean 0.06958, std. dev.  
0.01738, critical Tn 2.285

Normality test used:  
Shapiro Wilk@alpha = 0.01  
Calculated = 0.9227  
Critical = 0.805  
The distribution was found  
to be normally distrib-  
uted.

Constituent: Fluoride Analysis Run 6/2/2019 7:03 PM View: Sanitas\_Statistics Sampling Events 1 through

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# EPA 1989 Outlier Screening

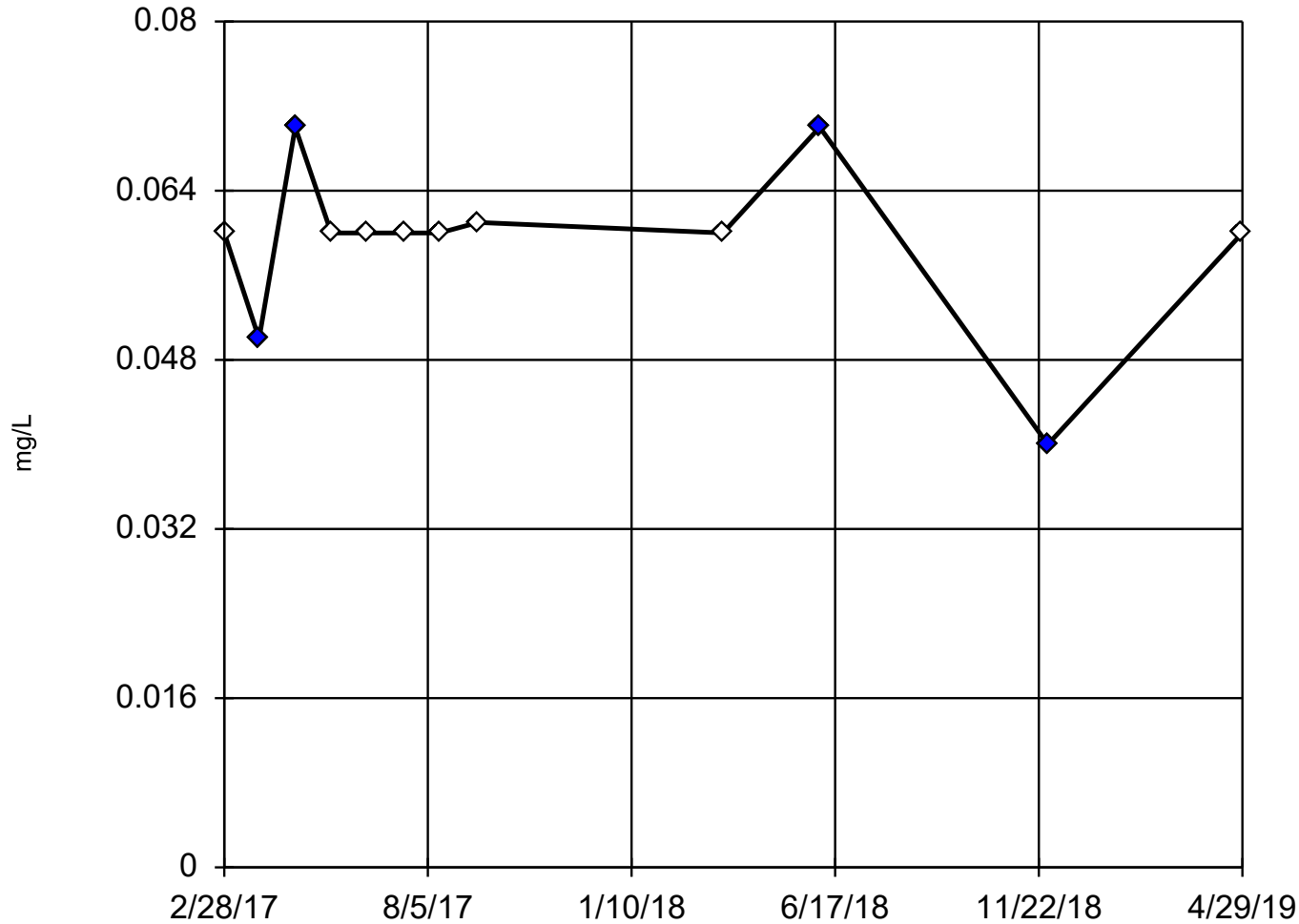
Constituent: Fluoride (mg/L) Analysis Run 6/2/2019 7:05 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D1	Tn
2/28/2017	0.06 (J)	-0.4721
3/27/2017	0.05 (J)	-1.193
4/24/2017	0.07 (J)	0.1371
5/22/2017	0.07 (J)	0.1371
6/19/2017	0.08 (J)	0.6649
7/17/2017	0.11	1.924
8/14/2017	0.07 (J)	0.1371
9/13/2017	0.075 (J)	0.4098
3/22/2018	0.08 (J)	0.6649
6/5/2018	0.07 (J)	0.1371
11/29/2018	0.04 (J)	-2.075
4/29/2019	0.06 (J)	-0.4721

## Tukey's Outlier Screening

MW-D2



n = 12

Outliers are drawn as solid.  
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

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

High cutoff = 0.06197,  
low cutoff = 0.05843,  
based on IQR multiplier of 3.

Constituent: Fluoride Analysis Run 6/2/2019 7:03 PM View: Sanitas\_Statistics Sampling Events 1 through

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Tukey's Outlier Screening

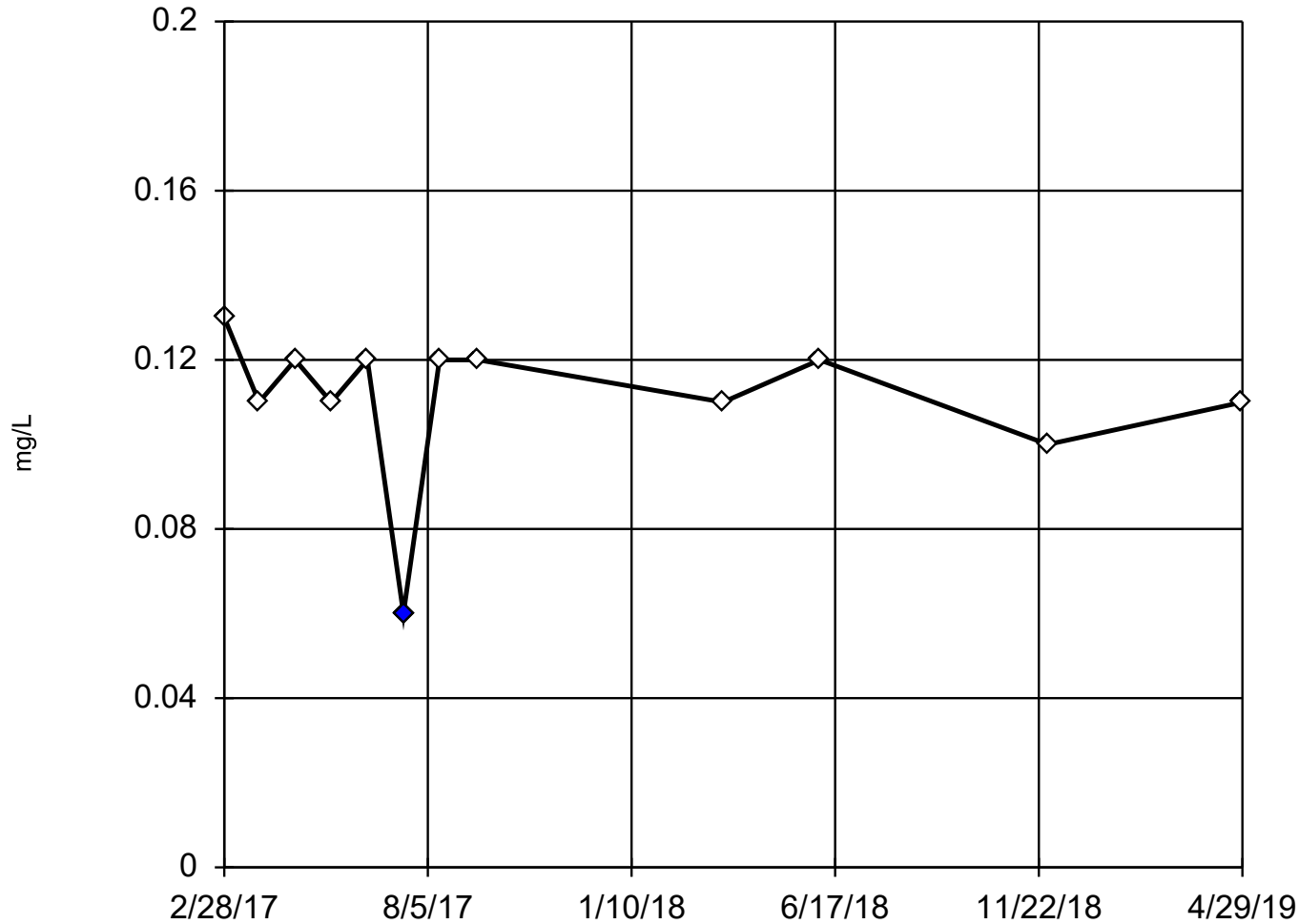
Constituent: Fluoride (mg/L) Analysis Run 6/2/2019 7:06 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D2
2/28/2017	0.06 (J)
3/27/2017	0.05 (JO)
4/24/2017	0.07 (JO)
5/22/2017	0.06 (J)
6/19/2017	0.06 (J)
7/17/2017	0.06 (J)
8/14/2017	0.06 (J)
9/13/2017	0.061 (J)
3/22/2018	0.06 (J)
6/5/2018	0.07 (JO)
11/29/2018	0.04 (JO)
4/29/2019	0.06 (J)



## EPA 1989 Outlier Screening MW-D3



n = 12

Statistical outlier is drawn as solid.  
Mean 0.1108, std. dev. 0.01782, critical Tn 2.285.  
After removing suspect data: mean 0.1155, std. dev. 0.008202, Tn 2.234.

Normality test used:  
Shapiro Wilk@alpha = 0.01  
Calculated = 0.8924  
Critical = 0.792  
The distribution, after removal of suspect value, was found to be normally distributed.

Constituent: Fluoride Analysis Run 6/2/2019 7:03 PM View: Sanitas\_Statistics Sampling Events 1 through  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# EPA 1989 Outlier Screening

Constituent: Fluoride (mg/L) Analysis Run 6/2/2019 7:06 PM View: Sanitas\_Statistics Sampling Events 1 through 12

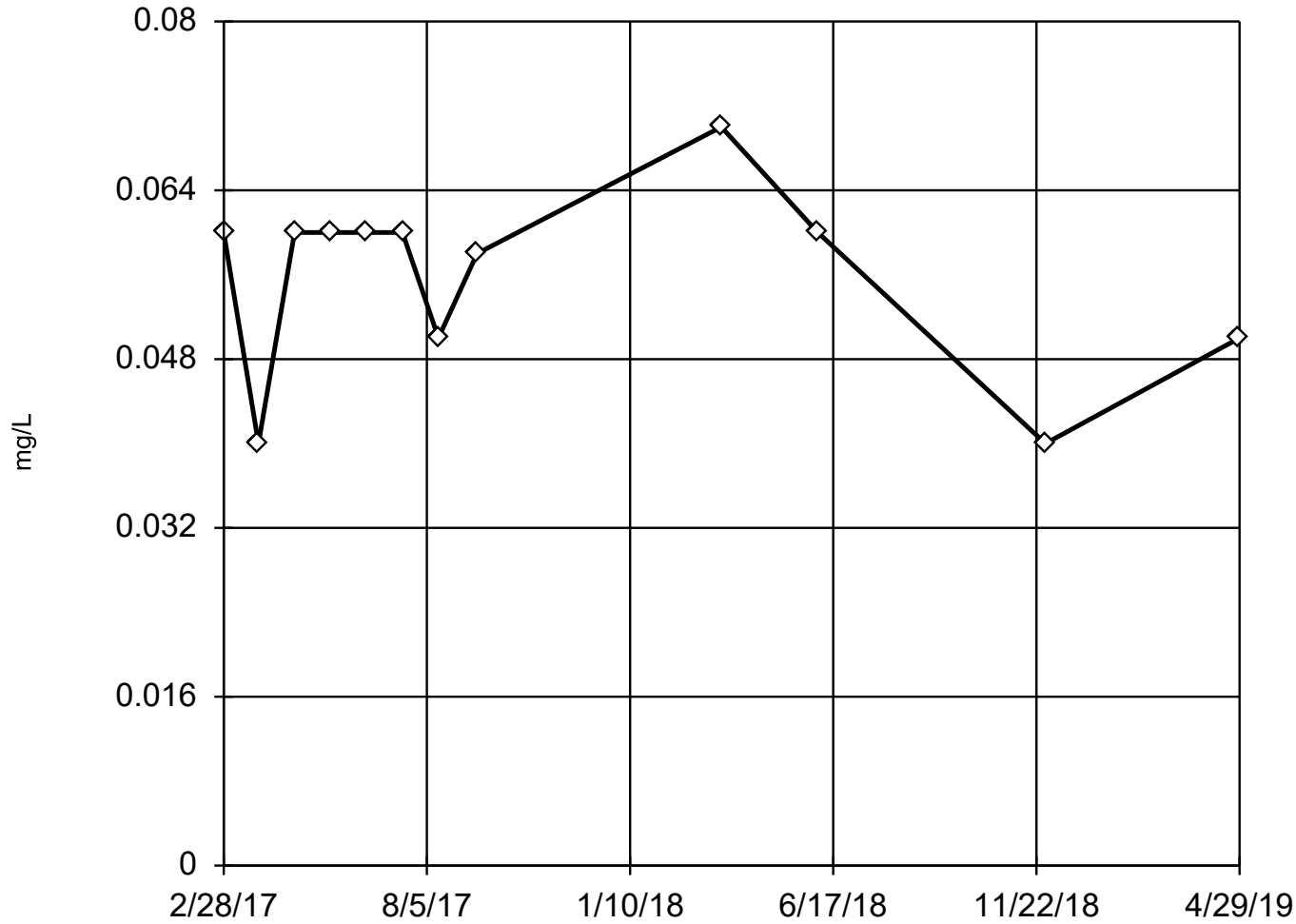
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D3	Tn	Tn
2/28/2017	0.13	0.8752	1.686
3/27/2017	0.11	0.04132	-0.642
4/24/2017	0.12	0.4757	0.5705
5/22/2017	0.11	0.04132	-0.642
6/19/2017	0.12	0.4757	0.5705
7/17/2017	0.06 (JO)	-2.984 (O)	
8/14/2017	0.12	0.4757	0.5705
9/13/2017	0.12	0.4757	0.5705
3/22/2018	0.11	0.04132	-0.642
6/5/2018	0.12	0.4757	0.5705
11/29/2018	0.1	-0.4345	-1.97
4/29/2019	0.11	0.04132	-0.642

### EPA 1989 Outlier Screening

MW-U1 (bg)



n = 12

No statistical outliers.  
Mean 0.05567, std. dev.  
0.008937, critical Tn  
2.285

Normality test used:  
Shapiro Wilk@alpha = 0.01  
Calculated = 0.8415  
Critical = 0.805  
The distribution was found  
to be normally distrib-  
uted.

Constituent: Fluoride Analysis Run 6/2/2019 7:03 PM View: Sanitas\_Statistics Sampling Events 1 through

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# EPA 1989 Outlier Screening

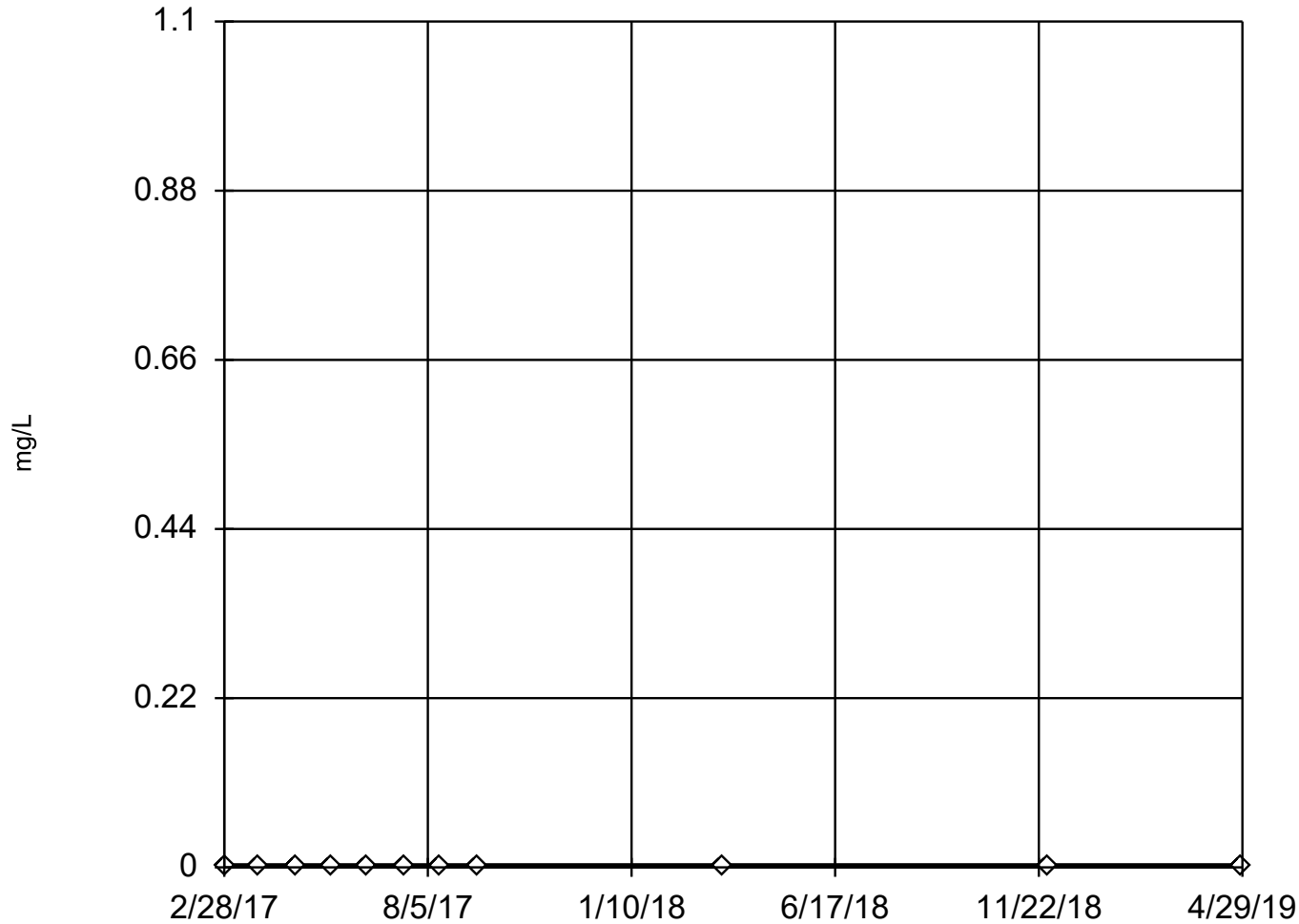
Constituent: Fluoride (mg/L) Analysis Run 6/2/2019 7:06 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-U1 (bg)	Tn
2/28/2017	0.06 (J)	0.5098
3/27/2017	0.04 (J)	-1.841
4/24/2017	0.06 (J)	0.5098
5/22/2017	0.06 (J)	0.5098
6/19/2017	0.06 (J)	0.5098
7/17/2017	0.06 (J)	0.5098
8/14/2017	0.05 (J)	-0.5471
9/13/2017	0.058 (J)	0.3133
3/22/2018	0.07 (J)	1.403
6/5/2018	0.06 (J)	0.5098
11/29/2018	0.04 (J)	-1.841
4/29/2019	<0.1	-0.5471

# Tukey's Outlier Screening

MW-D1



n = 11

No outliers found.  
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

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

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Lithium Analysis Run 6/2/2019 7:03 PM View: Sanitas\_Statistics Sampling Events 1 through

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Tukey's Outlier Screening

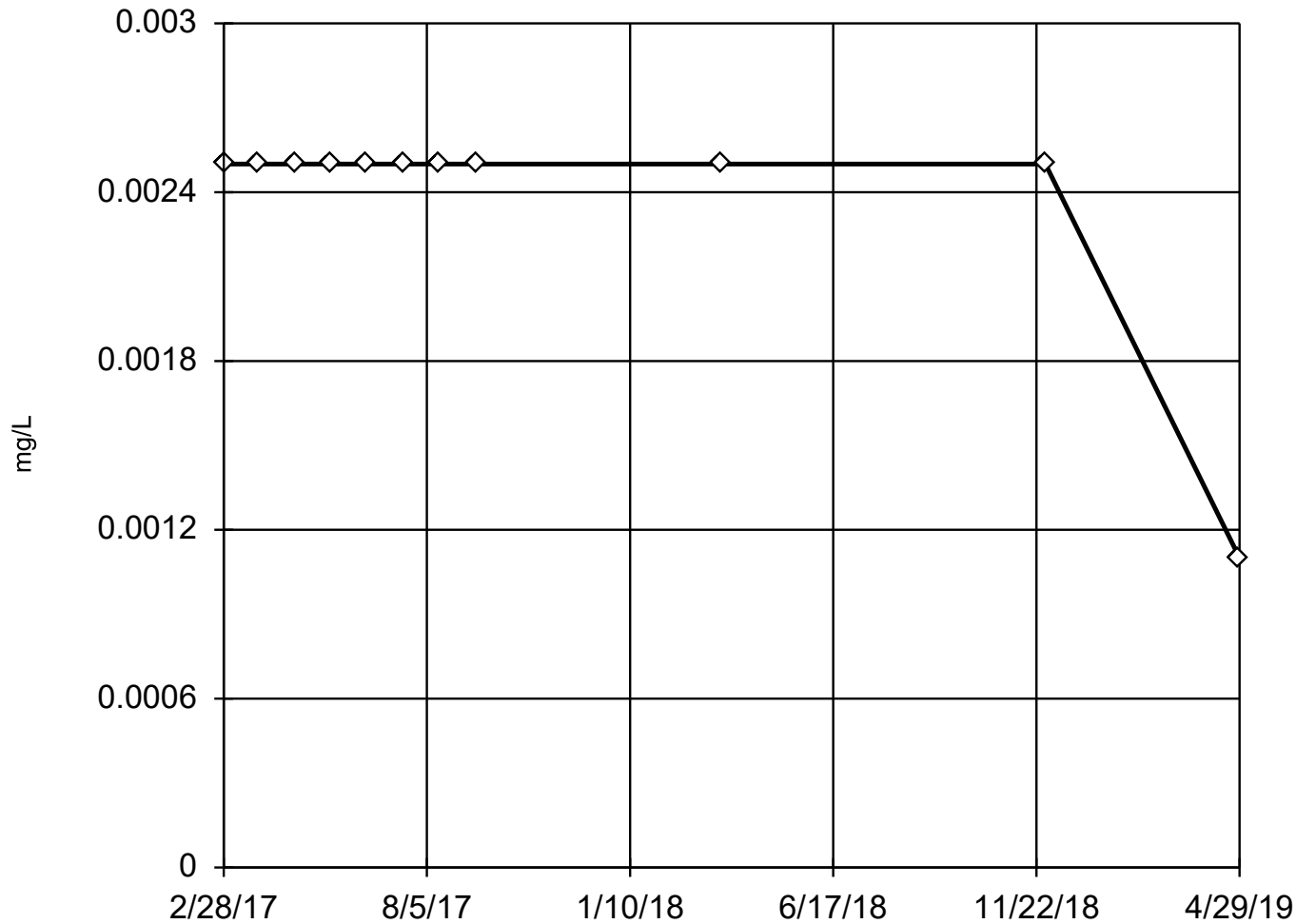
Constituent: Lithium (mg/L) Analysis Run 6/2/2019 7:06 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	MW-D1
2/28/2017	<0.0025
3/27/2017	<0.0025
4/24/2017	<0.0025
5/22/2017	<0.0025
6/19/2017	<0.0025
7/17/2017	<0.0025
8/14/2017	<0.0025
9/13/2017	<0.0025
3/22/2018	<0.0025
11/29/2018	<0.0025
4/29/2019	<0.0025

### Tukey's Outlier Screening

MW-D2



n = 11

No outliers found.  
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

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

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Lithium Analysis Run 6/2/2019 7:03 PM View: Sanitas\_Statistics Sampling Events 1 through

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Tukey's Outlier Screening

Constituent: Lithium (mg/L) Analysis Run 6/2/2019 7:06 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

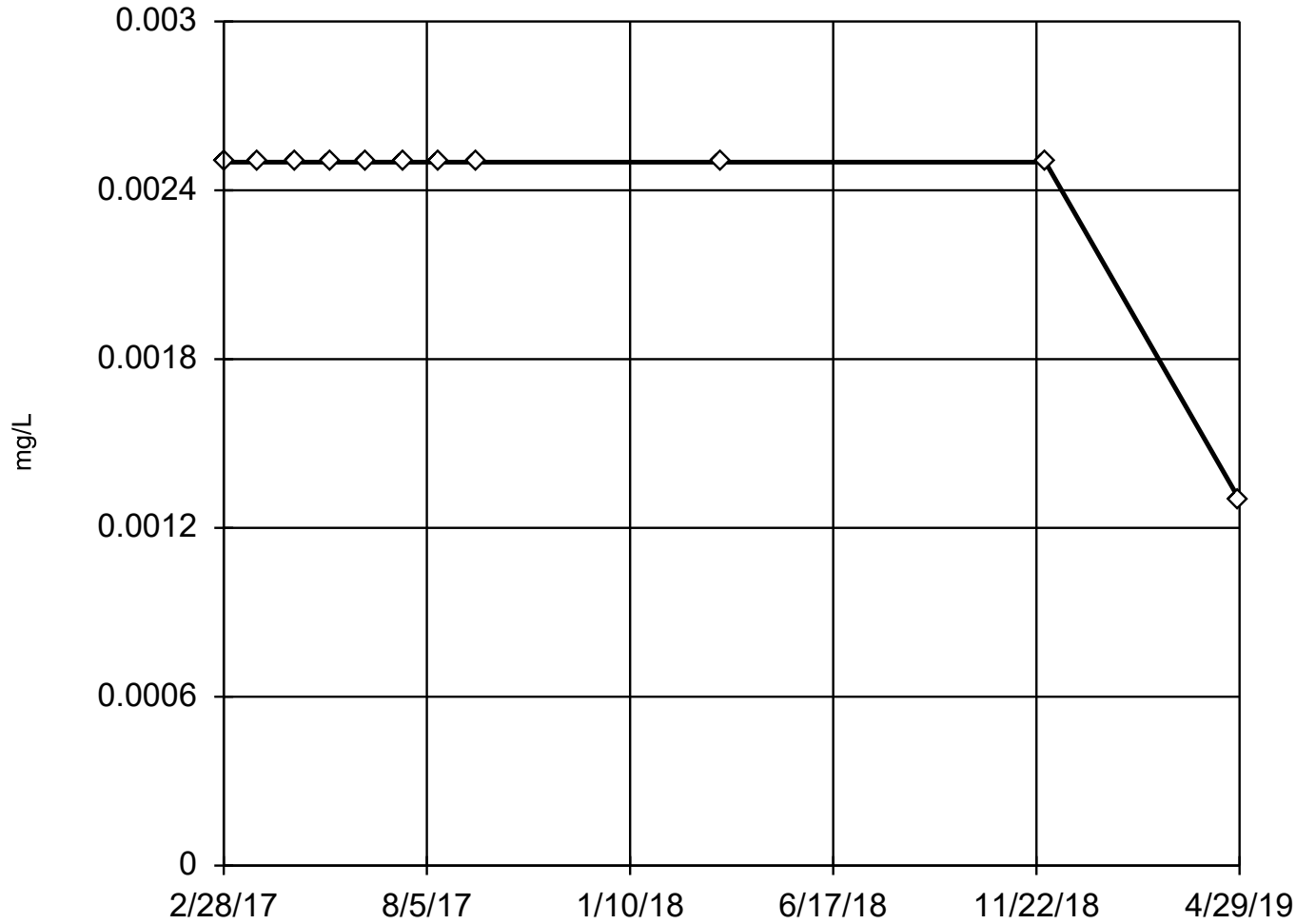
---

	MW-D2
2/28/2017	<0.0025
3/27/2017	<0.0025
4/24/2017	<0.0025
5/22/2017	<0.0025
6/19/2017	<0.0025
7/17/2017	<0.0025
8/14/2017	<0.0025
9/13/2017	<0.0025
3/22/2018	<0.0025
11/29/2018	<0.0025
4/29/2019	0.0011 (J)



# Tukey's Outlier Screening

MW-D3



n = 11

No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

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

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Lithium Analysis Run 6/2/2019 7:03 PM View: Sanitas\_Statistics Sampling Events 1 through

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Tukey's Outlier Screening

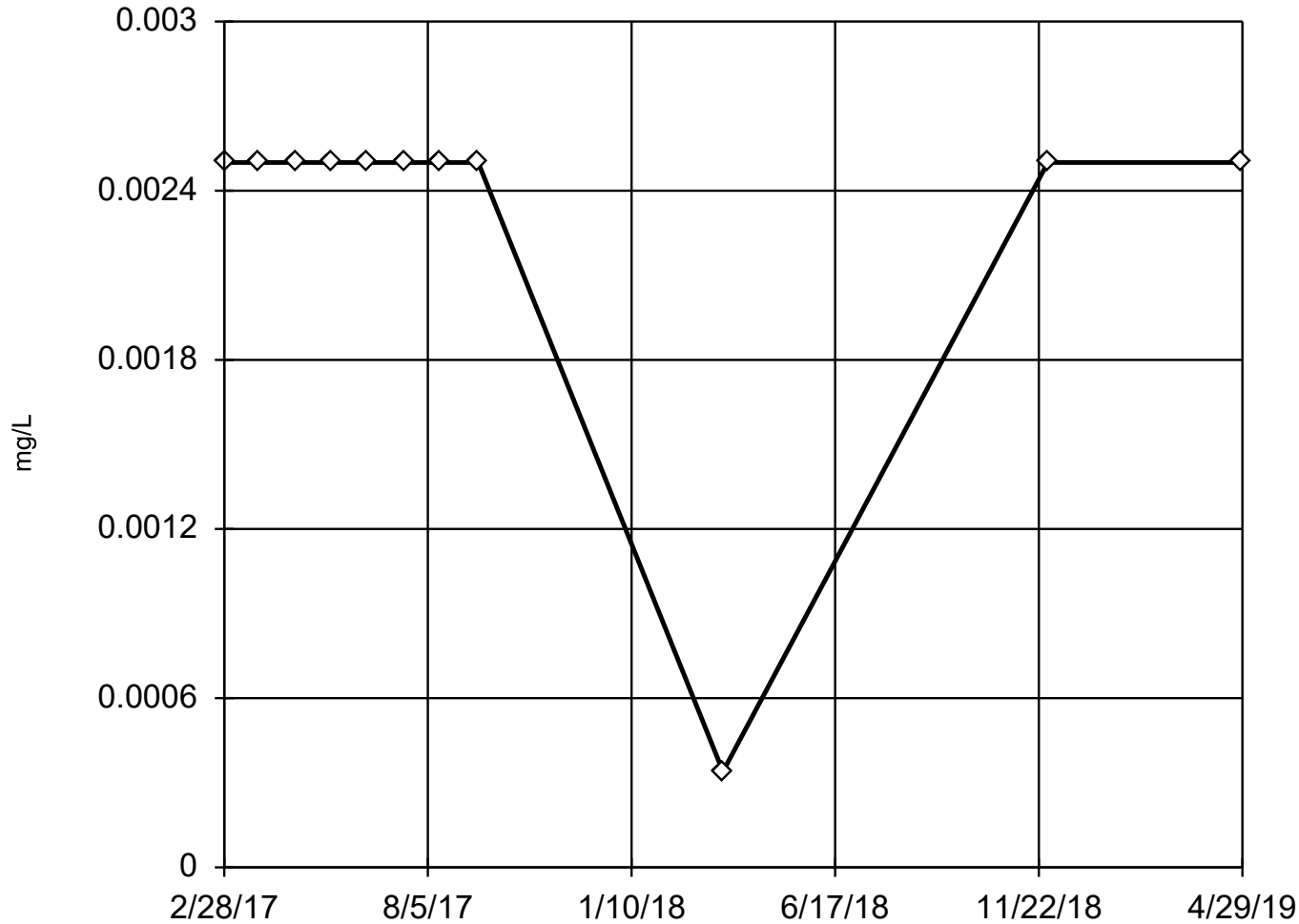
Constituent: Lithium (mg/L) Analysis Run 6/2/2019 7:06 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	MW-D3
2/28/2017	<0.0025
3/27/2017	<0.0025
4/24/2017	<0.0025
5/22/2017	<0.0025
6/19/2017	<0.0025
7/17/2017	<0.0025
8/14/2017	<0.0025
9/13/2017	<0.0025
3/22/2018	<0.0025
11/29/2018	<0.0025
4/29/2019	0.0013 (J)

## Tukey's Outlier Screening

MW-U1 (bg)



n = 11

No outliers found.  
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

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

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Lithium Analysis Run 6/2/2019 7:03 PM View: Sanitas\_Statistics Sampling Events 1 through

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Tukey's Outlier Screening

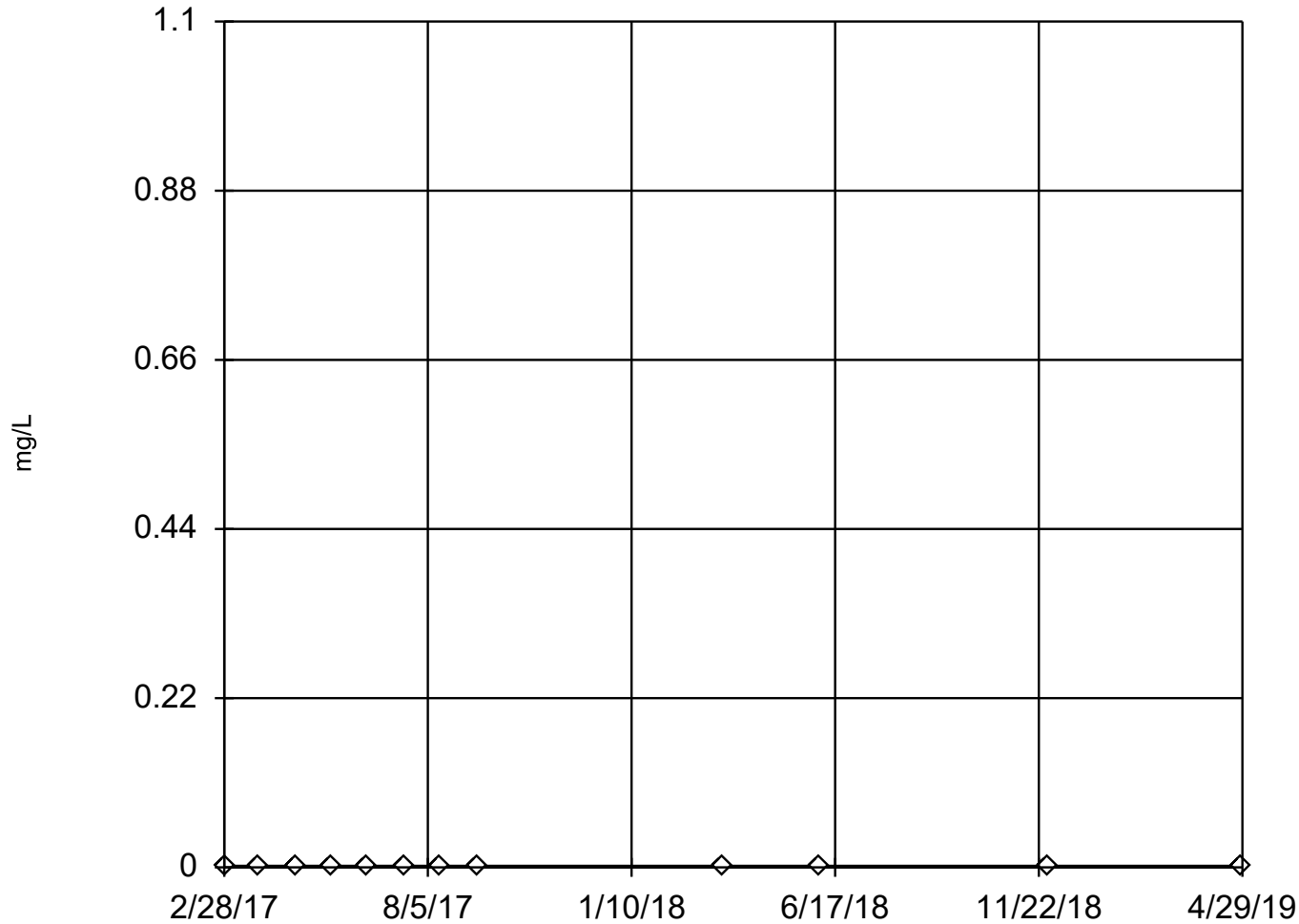
Constituent: Lithium (mg/L) Analysis Run 6/2/2019 7:06 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	MW-U1 (bg)
2/28/2017	<0.0025
3/27/2017	<0.0025
4/24/2017	<0.0025
5/22/2017	<0.0025
6/19/2017	<0.0025
7/17/2017	<0.0025
8/14/2017	<0.0025
9/13/2017	<0.0025
3/22/2018	0.00034 (J)
11/29/2018	<0.0025
4/29/2019	<0.0025

## Tukey's Outlier Screening

MW-D1



n = 12

No outliers found.  
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

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

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Thallium Analysis Run 6/2/2019 7:03 PM View: Sanitas\_Statistics Sampling Events 1 through

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Tukey's Outlier Screening

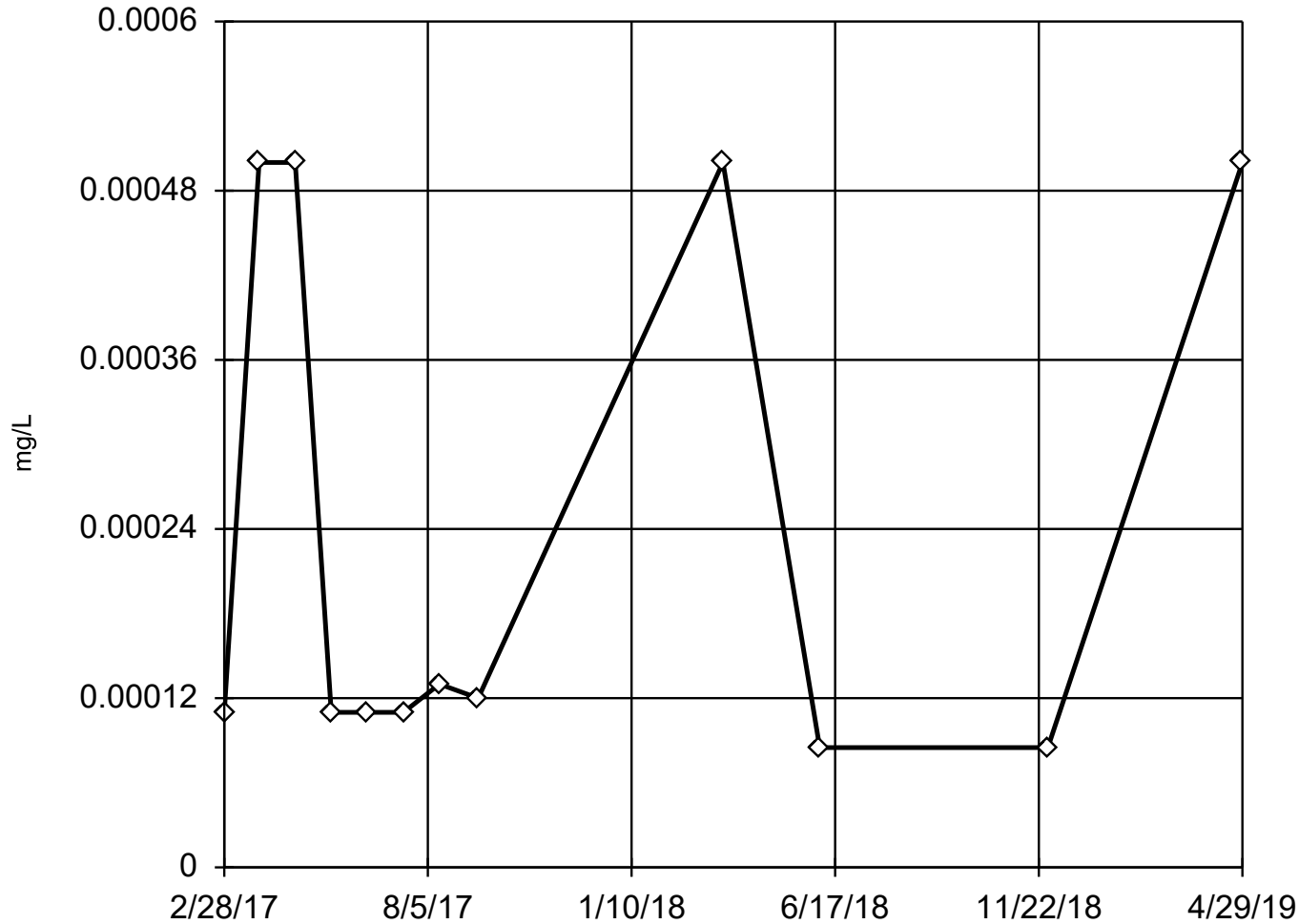
Constituent: Thallium (mg/L) Analysis Run 6/2/2019 7:06 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D1
2/28/2017	<0.0005
3/27/2017	<0.0005
4/24/2017	<0.0005
5/22/2017	<0.0005
6/19/2017	<0.0005
7/17/2017	<0.0005
8/14/2017	<0.0005
9/13/2017	<0.0005
3/22/2018	<0.0005
6/5/2018	<0.0005
11/29/2018	<0.0005
4/29/2019	<0.0005

## Tukey's Outlier Screening

MW-D2



n = 12

No outliers found.  
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

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

High cutoff = 0.04696,  
low cutoff = 0.000001171,  
based on IQR multiplier of 3.

Constituent: Thallium Analysis Run 6/2/2019 7:03 PM View: Sanitas\_Statistics Sampling Events 1 through

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Tukey's Outlier Screening

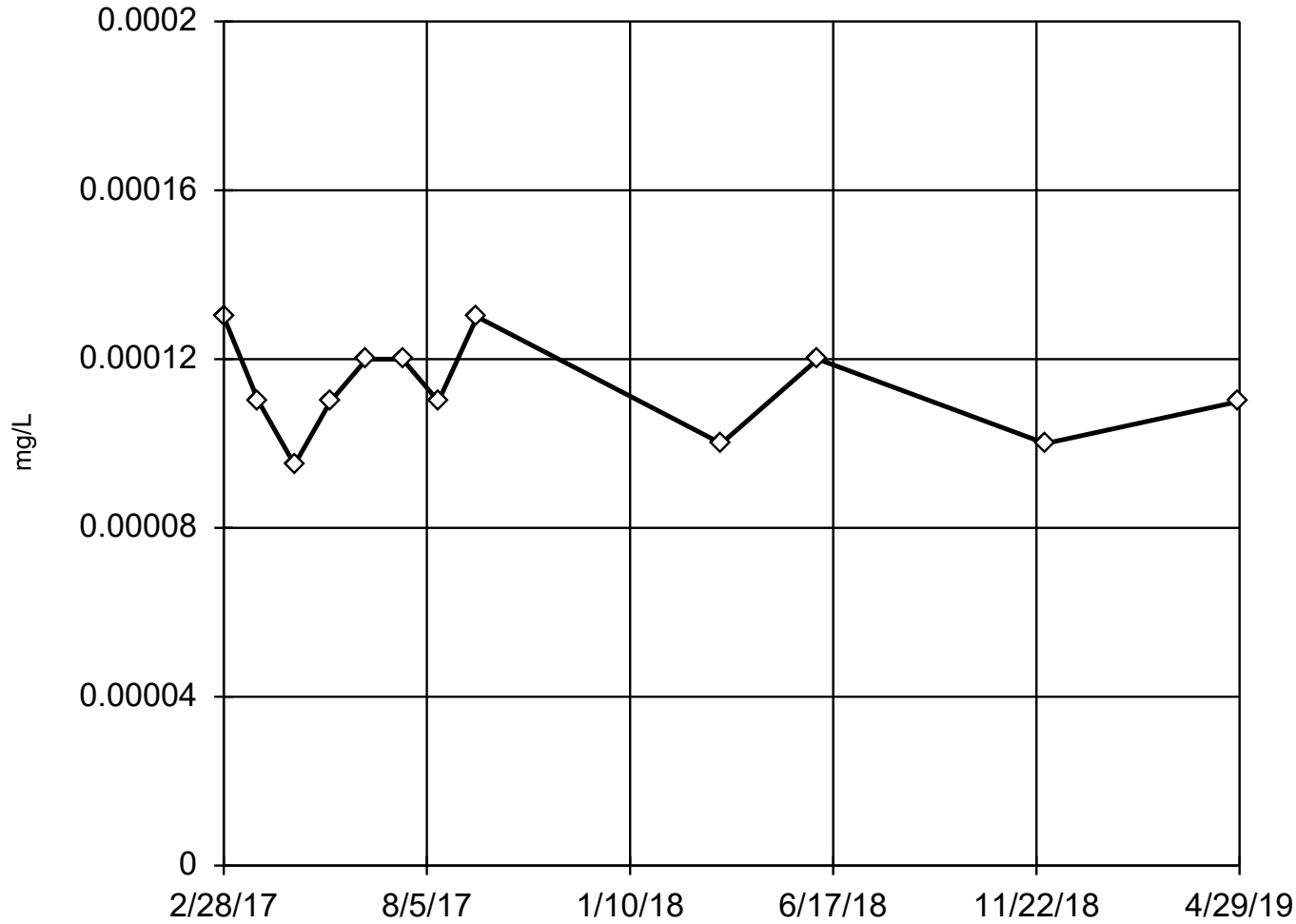
Constituent: Thallium (mg/L) Analysis Run 6/2/2019 7:06 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	MW-D2
2/28/2017	0.00011 (J)
3/27/2017	<0.0005
4/24/2017	<0.0005
5/22/2017	0.00011 (J)
6/19/2017	0.00011 (J)
7/17/2017	0.00011 (J)
8/14/2017	0.00013 (J)
9/13/2017	0.00012 (J)
3/22/2018	<0.0005
6/5/2018	8.5E-05 (J)
11/29/2018	8.5E-05 (J)
4/29/2019	<0.0005



### EPA 1989 Outlier Screening MW-D3



n = 12  
No statistical outliers.  
Mean 0.0001129, std. dev.  
0.00001137, critical Tn  
2.285  
Normality test used:  
Shapiro Wilk@alpha = 0.01  
Calculated = 0.9281  
Critical = 0.805  
The distribution was found  
to be normally distrib-  
uted.

Constituent: Thallium Analysis Run 6/2/2019 7:03 PM View: Sanitas\_Statistics Sampling Events 1 through  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# EPA 1989 Outlier Screening

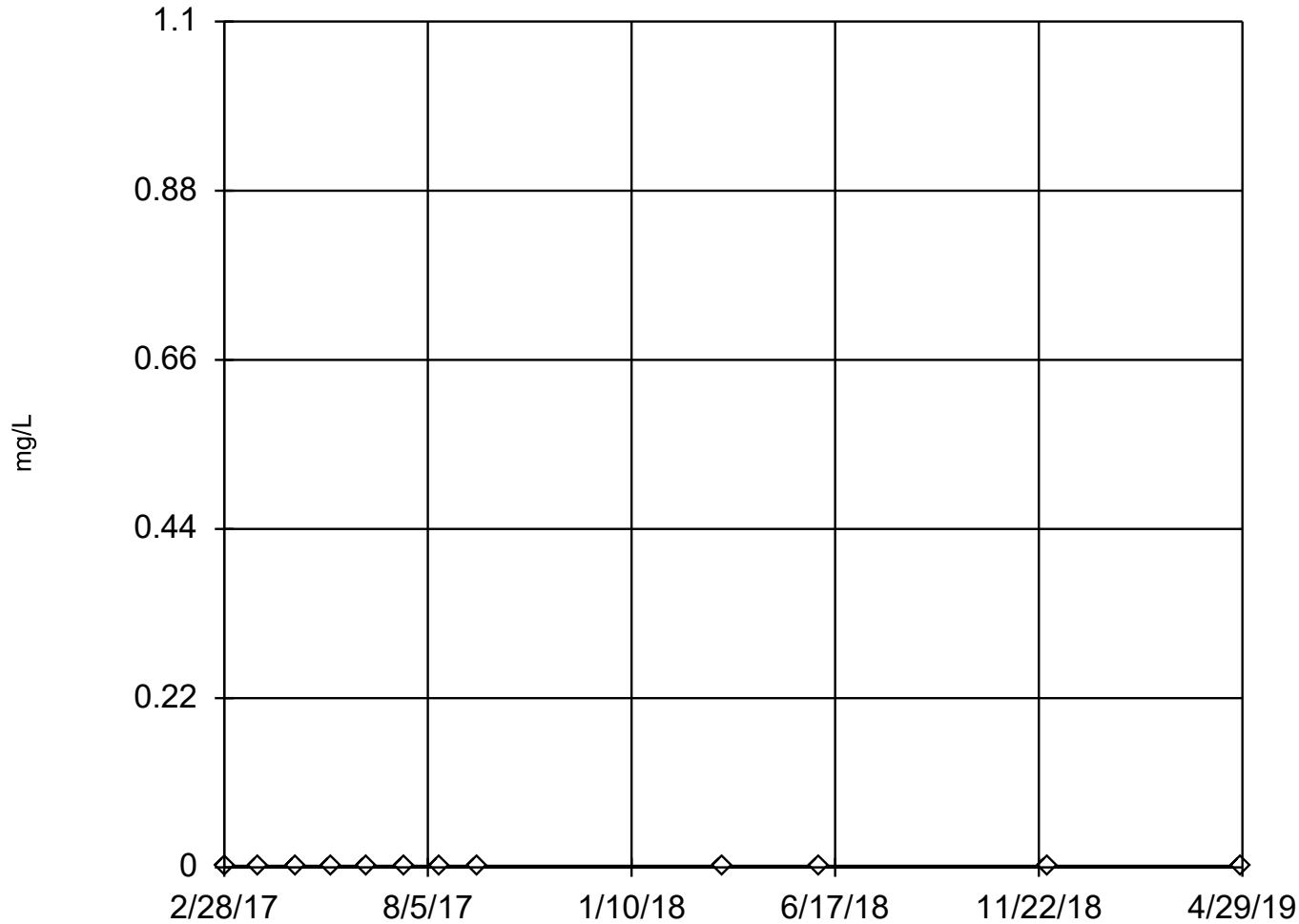
Constituent: Thallium (mg/L) Analysis Run 6/2/2019 7:06 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D3	Tn
2/28/2017	0.00013 (J)	1.438
3/27/2017	0.00011 (J)	-0.2124
4/24/2017	9.5E-05 (J)	-1.661
5/22/2017	0.00011 (J)	-0.2124
6/19/2017	0.00012 (J)	0.6474
7/17/2017	0.00012 (J)	0.6474
8/14/2017	0.00011 (J)	-0.2124
9/13/2017	0.00013 (J)	1.438
3/22/2018	0.0001 (J)	-1.154
6/5/2018	0.00012 (J)	0.6474
11/29/2018	0.0001 (J)	-1.154
4/29/2019	0.00011 (J)	-0.2124

## Tukey's Outlier Screening

MW-U1 (bg)



n = 12

No outliers found.  
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

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

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Thallium Analysis Run 6/2/2019 7:03 PM View: Sanitas\_Statistics Sampling Events 1 through

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

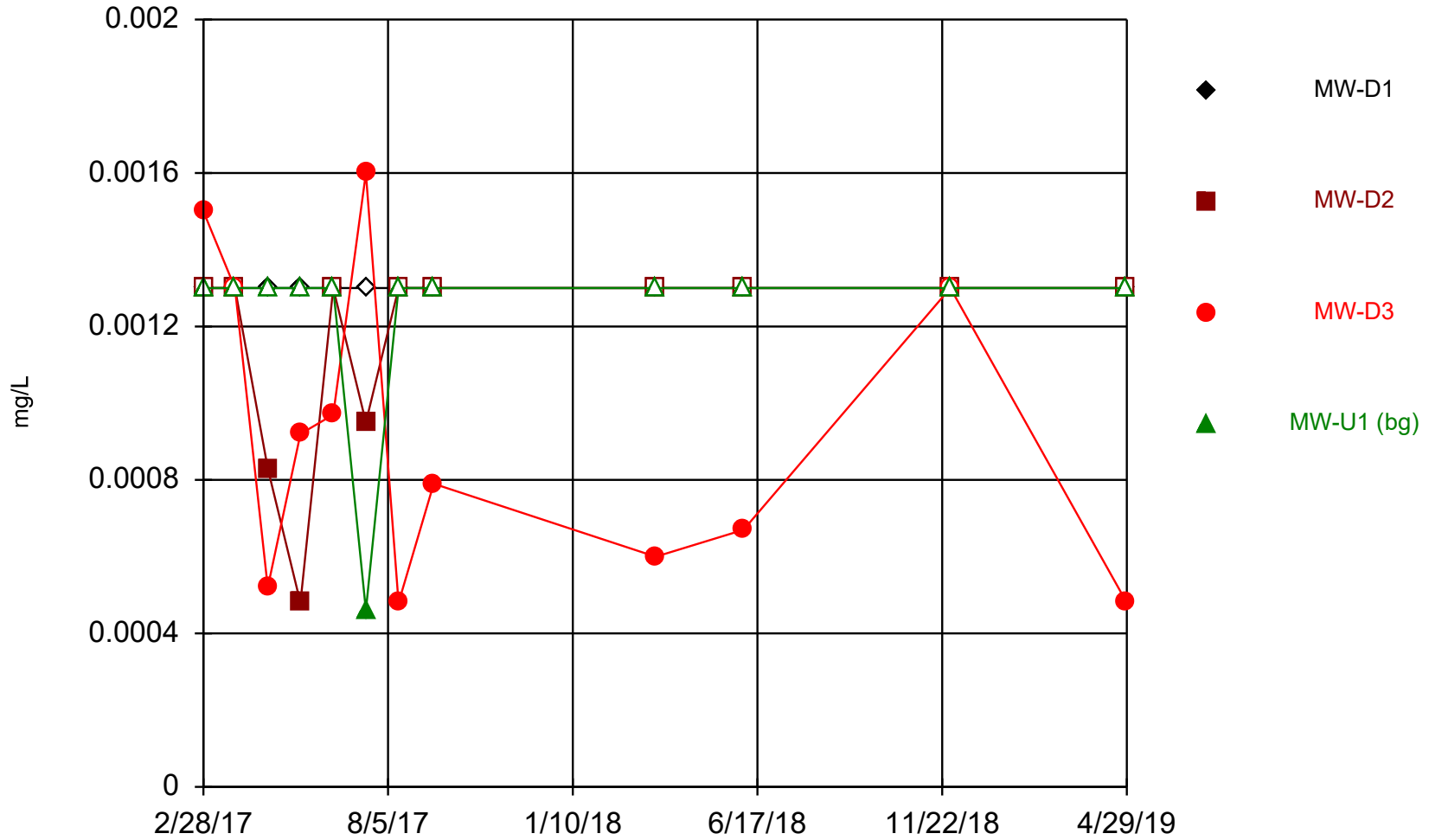
# Tukey's Outlier Screening

Constituent: Thallium (mg/L) Analysis Run 6/2/2019 7:06 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-U1 (bg)
2/28/2017	<0.0005
3/27/2017	<0.0005
4/24/2017	<0.0005
5/22/2017	<0.0005
6/19/2017	<0.0005
7/17/2017	<0.0005
8/14/2017	<0.0005
9/13/2017	<0.0005
3/22/2018	<0.0005
6/5/2018	<0.0005
11/29/2018	<0.0005
4/29/2019	<0.0005

### Time Series



Constituent: Arsenic Analysis Run 6/2/2019 7:00 PM View: Sanitas\_Statistics Sampling Events 1 through  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Time Series

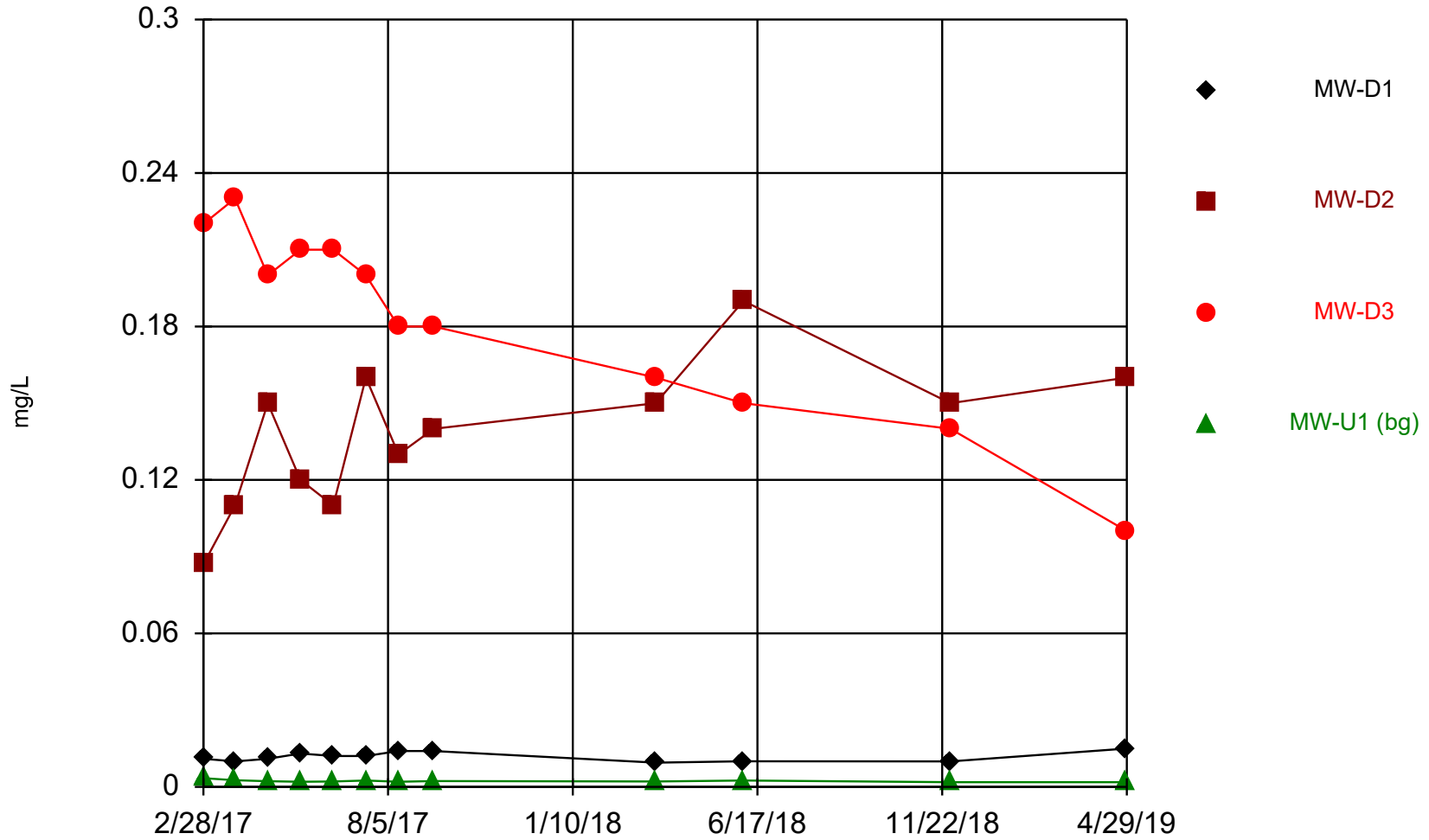
Constituent: Arsenic (mg/L) Analysis Run 6/2/2019 7:01 PM View: Sanitas\_Statistics Sampling Events 1 through 12

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D1	MW-D2	MW-D3	MW-U1 (bg)
2/28/2017	<0.0013	<0.0013	0.0015	<0.0013
3/27/2017	<0.0013	<0.0013	<0.0013	<0.0013
4/24/2017	<0.0013	0.00083 (J)	0.00052 (J)	<0.0013
5/22/2017	<0.0013	0.00048 (J)	0.00092 (J)	<0.0013
6/19/2017	<0.0013	<0.0013	0.00097 (J)	<0.0013
7/17/2017	<0.0013	0.00095 (J)	0.0016	0.00046 (J)
8/14/2017	<0.0013	<0.0013	0.00048 (J)	<0.0013
9/13/2017	<0.0013	<0.0013	0.00079 (J)	<0.0013
3/22/2018	<0.0013	<0.0013	0.0006 (J)	<0.0013
6/5/2018	<0.0013	<0.0013	0.00067 (J)	<0.0013
11/29/2018	<0.0013	<0.0013	<0.0013	<0.0013
4/29/2019	<0.0013	<0.0013	0.00048 (J)	<0.0013

### Time Series



Constituent: Barium Analysis Run 6/2/2019 7:00 PM View: Sanitas\_Statistics Sampling Events 1 through  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Time Series

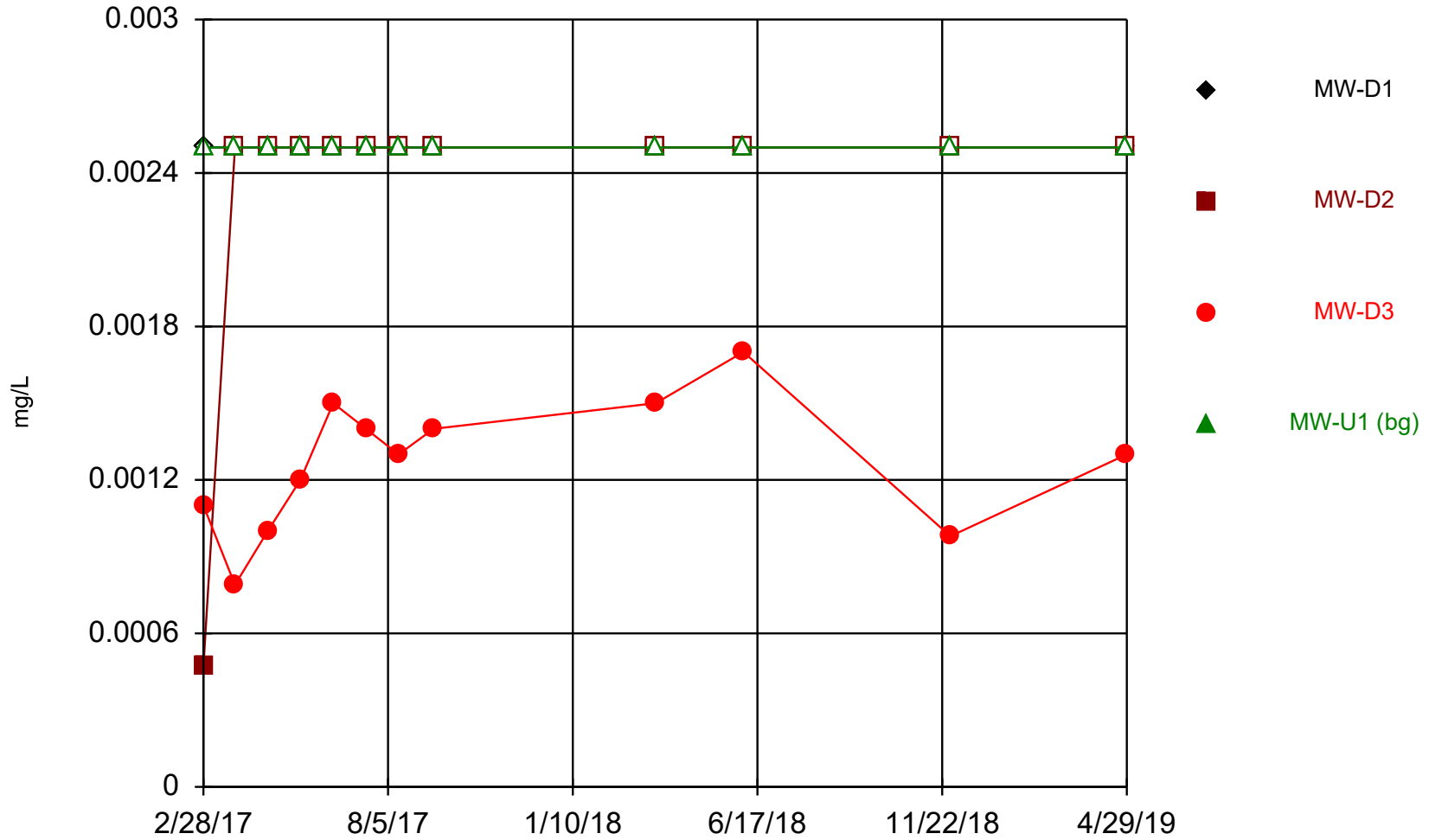
Constituent: Barium (mg/L) Analysis Run 6/2/2019 7:01 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D1	MW-D2	MW-D3	MW-U1 (bg)
2/28/2017	0.011	0.087	0.22	0.0034
3/27/2017	0.0099	0.11	0.23	0.0026
4/24/2017	0.011	0.15	0.2	0.0022 (J)
5/22/2017	0.013	0.12	0.21	0.002 (J)
6/19/2017	0.012	0.11	0.21	0.0021 (J)
7/17/2017	0.012	0.16	0.2	0.0025
8/14/2017	0.014	0.13	0.18	0.002 (J)
9/13/2017	0.014	0.14	0.18	0.0023 (J)
3/22/2018	0.0095	0.15	0.16	0.0021 (J)
6/5/2018	0.01	0.19	0.15	0.0025
11/29/2018	0.0099	0.15	0.14	0.0018 (J)
4/29/2019	0.015	0.16	0.1	0.0018 (J)



### Time Series



Constituent: Cobalt    Analysis Run 6/2/2019 7:00 PM    View: Sanitas\_Statistics Sampling Events 1 through 1  
CCPC Plant Crisp Ash Pond Site    Client: Geosyntec    Data: Sanitas\_Statistics Sampling Events 1 through 10

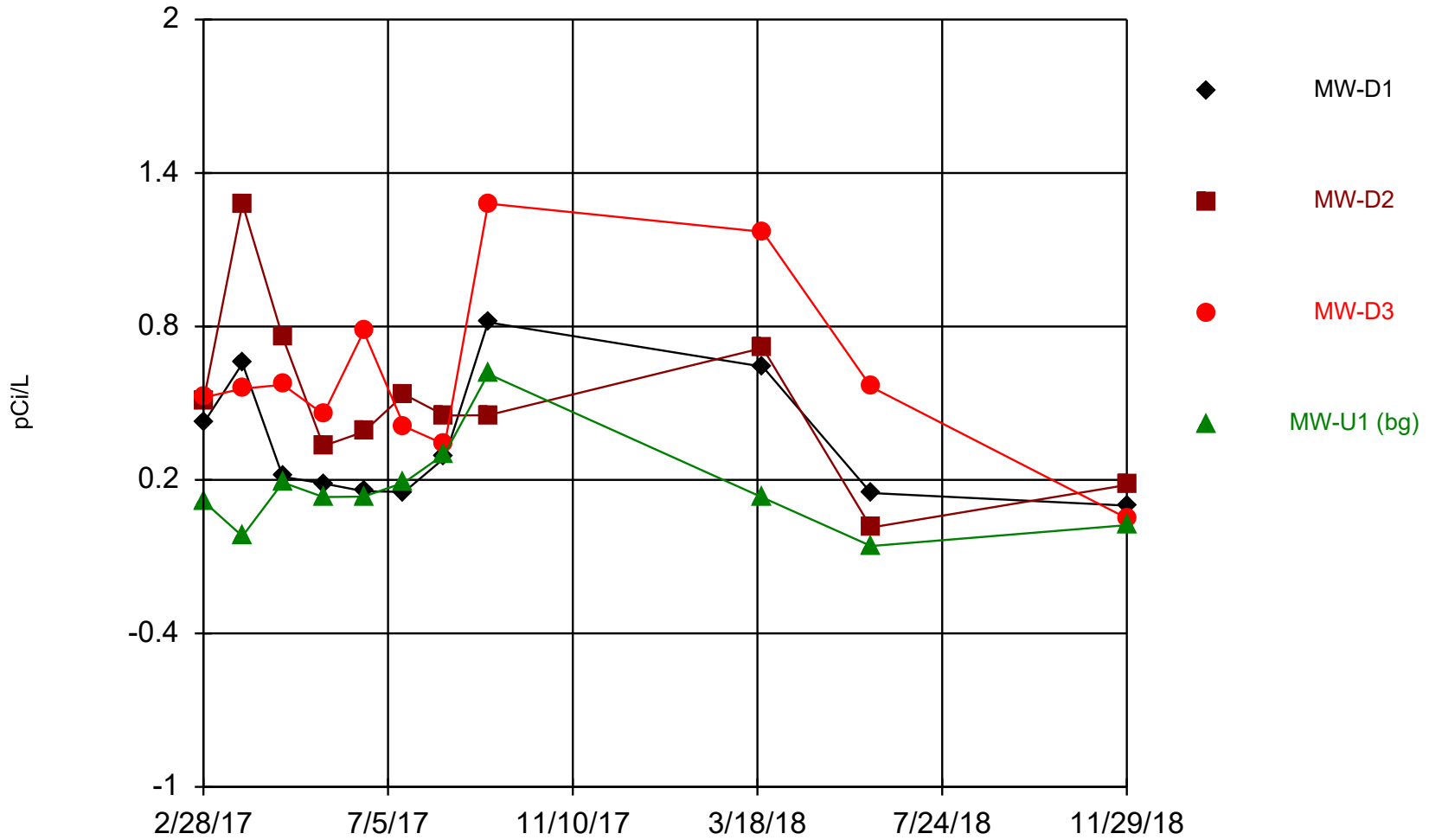
# Time Series

Constituent: Cobalt (mg/L) Analysis Run 6/2/2019 7:01 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D1	MW-D2	MW-D3	MW-U1 (bg)
2/28/2017	<0.0025	0.00047 (J)	0.0011 (J)	<0.0025
3/27/2017	<0.0025	<0.0025	0.00079 (J)	<0.0025
4/24/2017	<0.0025	<0.0025	0.001 (J)	<0.0025
5/22/2017	<0.0025	<0.0025	0.0012 (J)	<0.0025
6/19/2017	<0.0025	<0.0025	0.0015 (J)	<0.0025
7/17/2017	<0.0025	<0.0025	0.0014 (J)	<0.0025
8/14/2017	<0.0025	<0.0025	0.0013 (J)	<0.0025
9/13/2017	<0.0025	<0.0025	0.0014 (J)	<0.0025
3/22/2018	<0.0025	<0.0025	0.0015 (J)	<0.0025
6/5/2018	<0.0025	<0.0025	0.0017 (J)	<0.0025
11/29/2018	<0.0025	<0.0025	0.00098 (J)	<0.0025
4/29/2019	<0.0025	<0.0025	0.0013 (J)	<0.0025

### Time Series



Constituent: Combined Radium 226 + 228 Analysis Run 6/2/2019 7:00 PM View: Sanitas\_Statistics Sampl

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

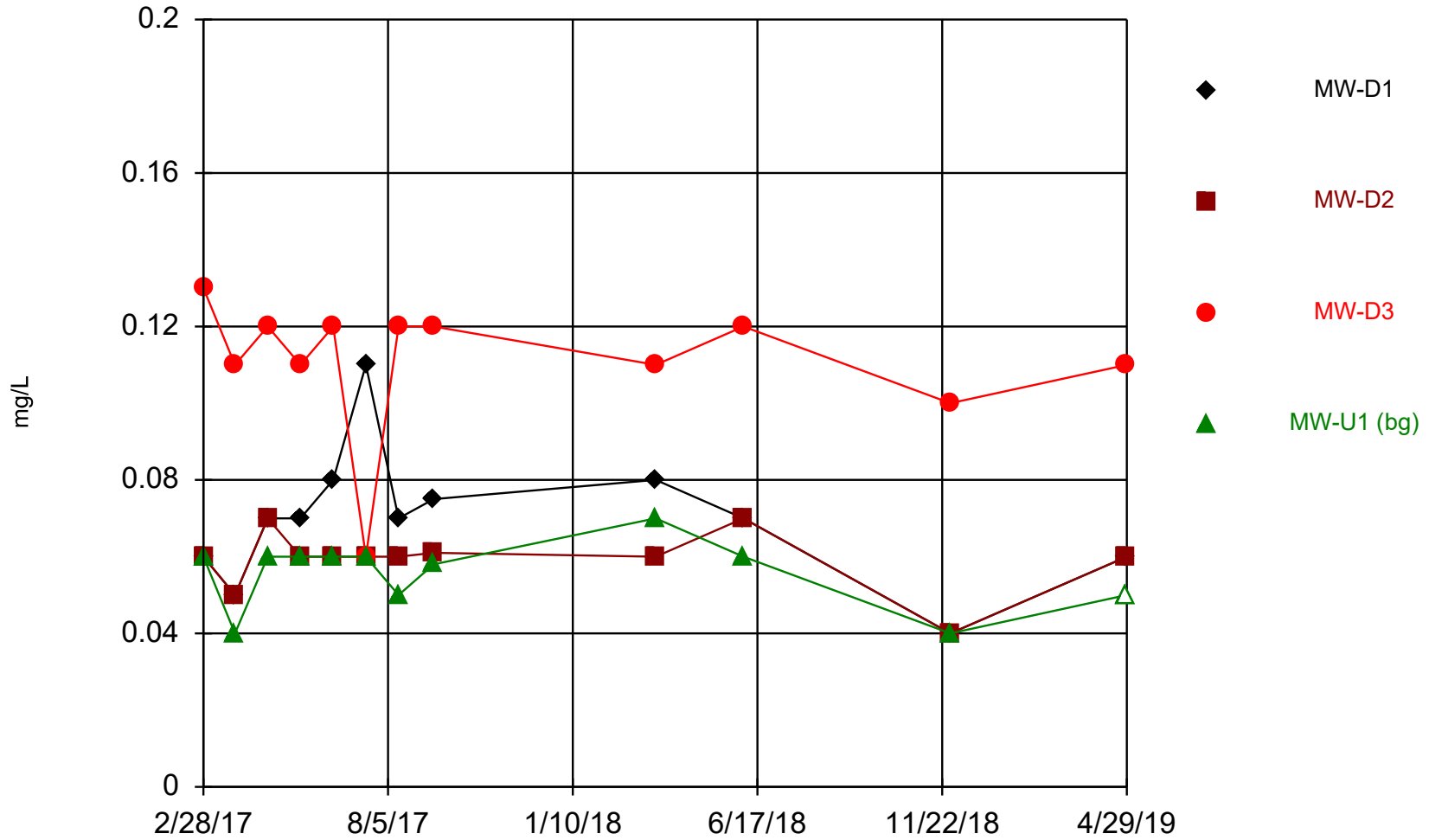
# Time Series

Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 6/2/2019 7:01 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D1	MW-D2	MW-D3	MW-U1 (bg)
2/28/2017	0.421	0.506	0.522	0.117
3/27/2017	0.655	1.28	0.557	-0.0198
4/24/2017	0.212	0.756	0.572	0.19
5/22/2017	0.186	0.333	0.457	0.133
6/19/2017	0.156	0.388	0.78	0.135
7/17/2017	0.153	0.534	0.409	0.19
8/14/2017	0.287	0.452	0.339	0.302
9/13/2017	0.816	0.453	1.28	0.614
3/22/2018	0.643	0.716	1.17	0.131
6/5/2018	0.149	0.0139	0.564	-0.0586
11/29/2018	0.0994	0.18	0.0501	0.0234

### Time Series



Constituent: Fluoride Analysis Run 6/2/2019 7:00 PM View: Sanitas\_Statistics Sampling Events 1 through  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Time Series

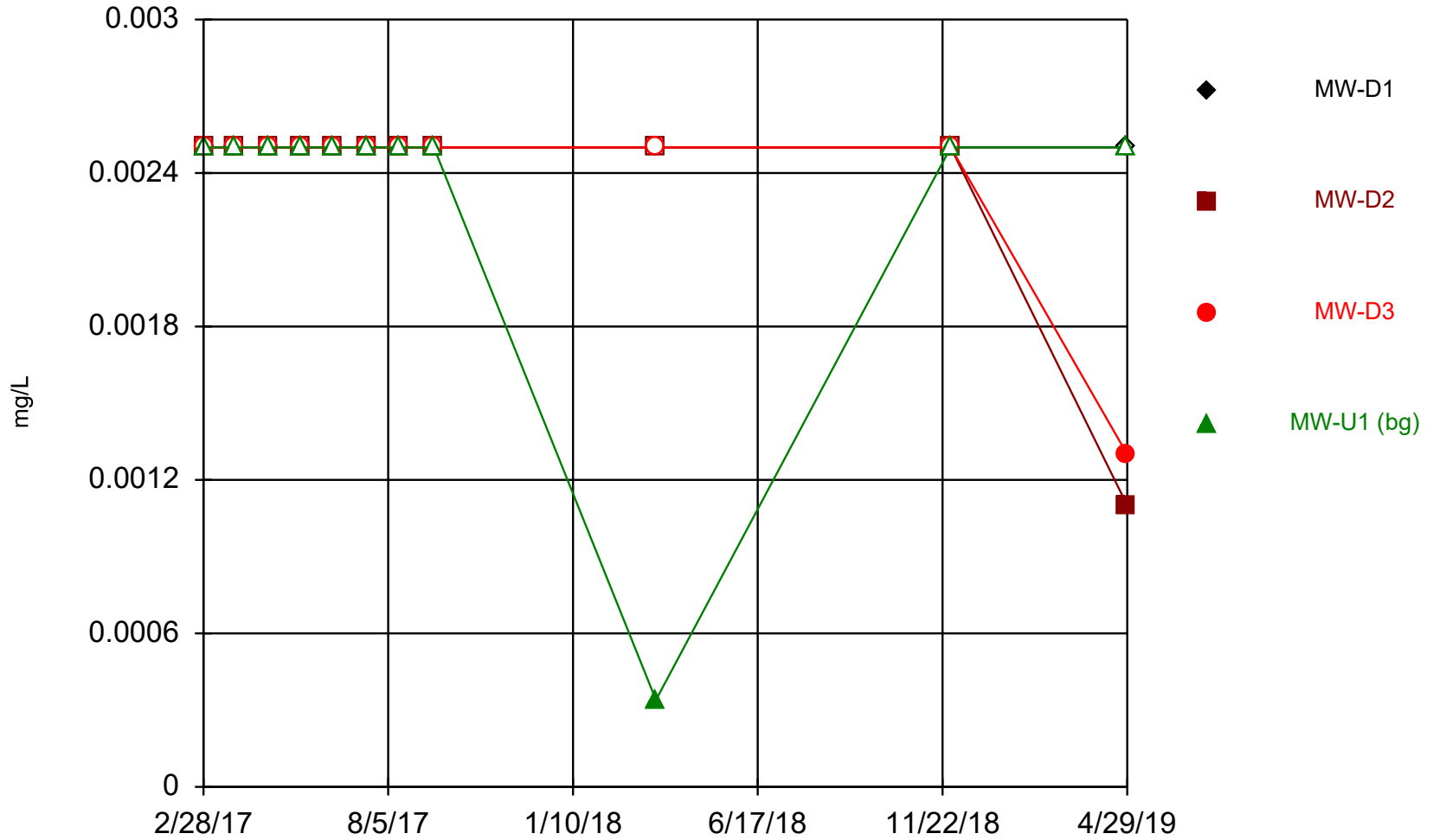
Constituent: Fluoride (mg/L) Analysis Run 6/2/2019 7:01 PM View: Sanitas\_Statistics Sampling Events 1 through 12

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D1	MW-D2	MW-D3	MW-U1 (bg)
2/28/2017	0.06 (J)	0.06 (J)	0.13	0.06 (J)
3/27/2017	0.05 (J)	0.05 (J)	0.11	0.04 (J)
4/24/2017	0.07 (J)	0.07 (J)	0.12	0.06 (J)
5/22/2017	0.07 (J)	0.06 (J)	0.11	0.06 (J)
6/19/2017	0.08 (J)	0.06 (J)	0.12	0.06 (J)
7/17/2017	0.11	0.06 (J)	0.06 (J)	0.06 (J)
8/14/2017	0.07 (J)	0.06 (J)	0.12	0.05 (J)
9/13/2017	0.075 (J)	0.061 (J)	0.12	0.058 (J)
3/22/2018	0.08 (J)	0.06 (J)	0.11	0.07 (J)
6/5/2018	0.07 (J)	0.07 (J)	0.12	0.06 (J)
11/29/2018	0.04 (J)	0.04 (J)	0.1	0.04 (J)
4/29/2019	0.06 (J)	0.06 (J)	0.11	<0.1

### Time Series



Constituent: Lithium Analysis Run 6/2/2019 7:01 PM View: Sanitas\_Statistics Sampling Events 1 through  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Time Series

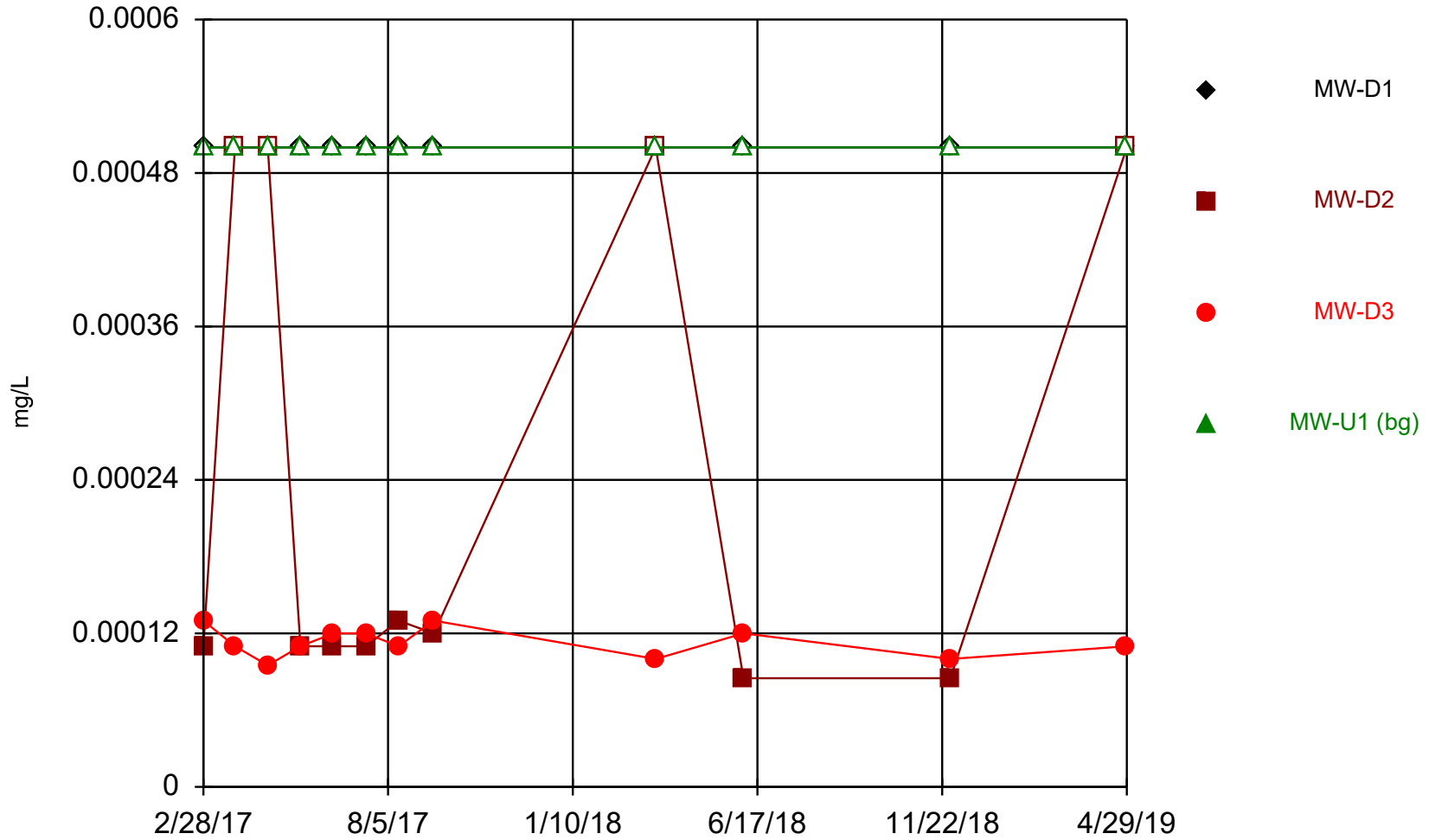
Constituent: Lithium (mg/L) Analysis Run 6/2/2019 7:01 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D1	MW-D2	MW-D3	MW-U1 (bg)
2/28/2017	<0.0025	<0.0025	<0.0025	<0.0025
3/27/2017	<0.0025	<0.0025	<0.0025	<0.0025
4/24/2017	<0.0025	<0.0025	<0.0025	<0.0025
5/22/2017	<0.0025	<0.0025	<0.0025	<0.0025
6/19/2017	<0.0025	<0.0025	<0.0025	<0.0025
7/17/2017	<0.0025	<0.0025	<0.0025	<0.0025
8/14/2017	<0.0025	<0.0025	<0.0025	<0.0025
9/13/2017	<0.0025	<0.0025	<0.0025	<0.0025
3/22/2018	<0.0025	<0.0025	<0.0025	0.00034 (J)
11/29/2018	<0.0025	<0.0025	<0.0025	<0.0025
4/29/2019	<0.0025	0.0011 (J)	0.0013 (J)	<0.0025



### Time Series



Constituent: Thallium Analysis Run 6/2/2019 7:01 PM View: Sanitas\_Statistics Sampling Events 1 through  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Time Series

Constituent: Thallium (mg/L) Analysis Run 6/2/2019 7:01 PM View: Sanitas\_Statistics Sampling Events 1 through 12

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D1	MW-D2	MW-D3	MW-U1 (bg)
2/28/2017	<0.0005	0.00011 (J)	0.00013 (J)	<0.0005
3/27/2017	<0.0005	<0.0005	0.00011 (J)	<0.0005
4/24/2017	<0.0005	<0.0005	9.5E-05 (J)	<0.0005
5/22/2017	<0.0005	0.00011 (J)	0.00011 (J)	<0.0005
6/19/2017	<0.0005	0.00011 (J)	0.00012 (J)	<0.0005
7/17/2017	<0.0005	0.00011 (J)	0.00012 (J)	<0.0005
8/14/2017	<0.0005	0.00013 (J)	0.00011 (J)	<0.0005
9/13/2017	<0.0005	0.00012 (J)	0.00013 (J)	<0.0005
3/22/2018	<0.0005	<0.0005	0.0001 (J)	<0.0005
6/5/2018	<0.0005	8.5E-05 (J)	0.00012 (J)	<0.0005
11/29/2018	<0.0005	8.5E-05 (J)	0.0001 (J)	<0.0005
4/29/2019	<0.0005	<0.0005	0.00011 (J)	<0.0005

# Tolerance Limit

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10 Printed 6/2/2019, 6:51 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic (mg/L)	n/a	0.0013	n/a	n/a	n/a	12	91.67	n/a	0.5404	NP Inter(NDs)
Barium (mg/L)	n/a	0.00378	n/a	n/a	n/a	12	0	No	0.01	Inter
Cobalt (mg/L)	n/a	0.0025	n/a	n/a	n/a	12	100	n/a	0.5404	NP Inter(NDs)
Combined Radium 226 + 228 (pCi/L)	n/a	0.8068	n/a	n/a	n/a	11	0	No	0.01	Inter
Fluoride (mg/L)	n/a	0.08614	n/a	n/a	n/a	12	8.333	No	0.01	Inter
Lithium (mg/L)	n/a	0.0025	n/a	n/a	n/a	11	90.91	n/a	0.5688	NP Inter(NDs)
Thallium (mg/L)	n/a	0.0005	n/a	n/a	n/a	12	100	n/a	0.5404	NP Inter(NDs)

## Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. 68.16% coverage at alpha=0.01; 77.93% coverage at alpha=0.05; 94.34% coverage at alpha=0.5. Report alpha = 0.5404.

Constituent: Arsenic Analysis Run 6/2/2019 6:50 PM View: Sanitas\_Statistics Sampling Events 1 through  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

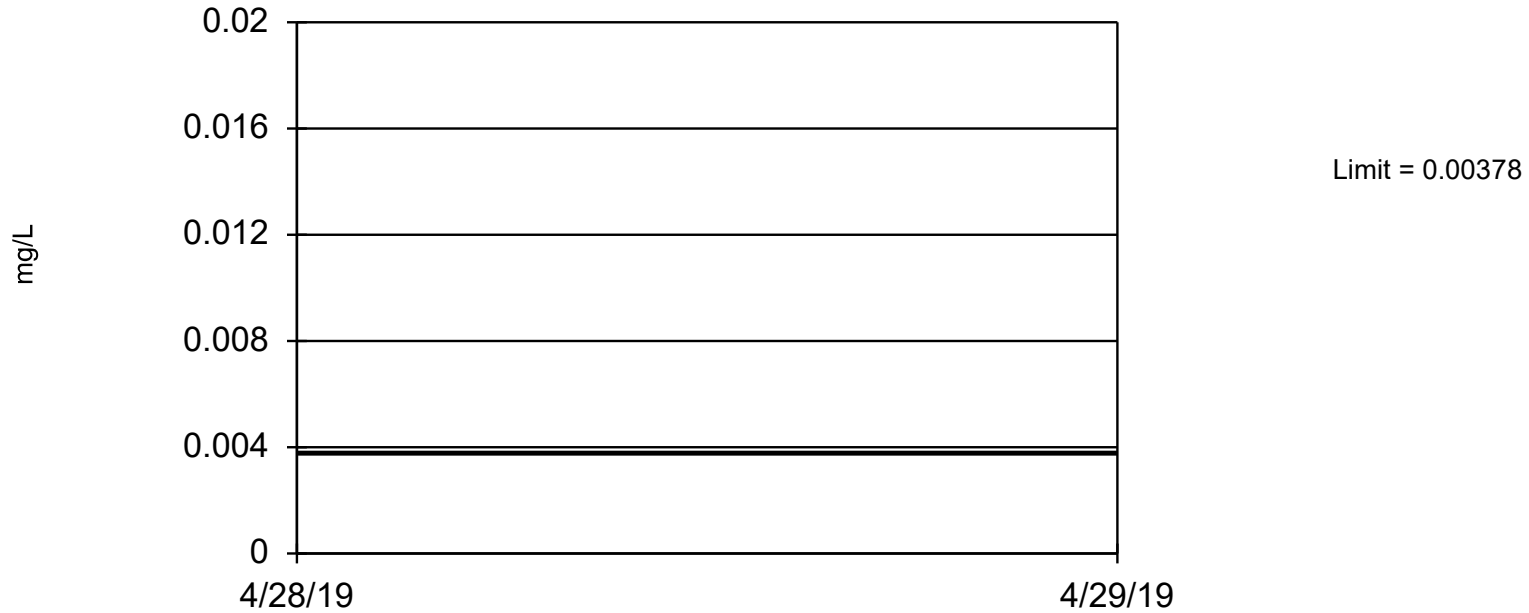
# Tolerance Limit

Constituent: Arsenic (mg/L) Analysis Run 6/2/2019 6:51 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-U1 (bg)
2/28/2017	<0.0013
3/27/2017	<0.0013
4/24/2017	<0.0013
5/22/2017	<0.0013
6/19/2017	<0.0013
7/17/2017	0.00046 (J)
8/14/2017	<0.0013
9/13/2017	<0.0013
3/22/2018	<0.0013
6/5/2018	<0.0013
11/29/2018	<0.0013
4/29/2019	<0.0013

### Tolerance Limit Interwell Parametric



95% coverage. Background Data Summary: Mean=0.002275, Std. Dev.=0.0004413, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8634, critical = 0.805. Report alpha = 0.01.

Constituent: Barium Analysis Run 6/2/2019 6:50 PM View: Sanitas\_Statistics Sampling Events 1 through  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

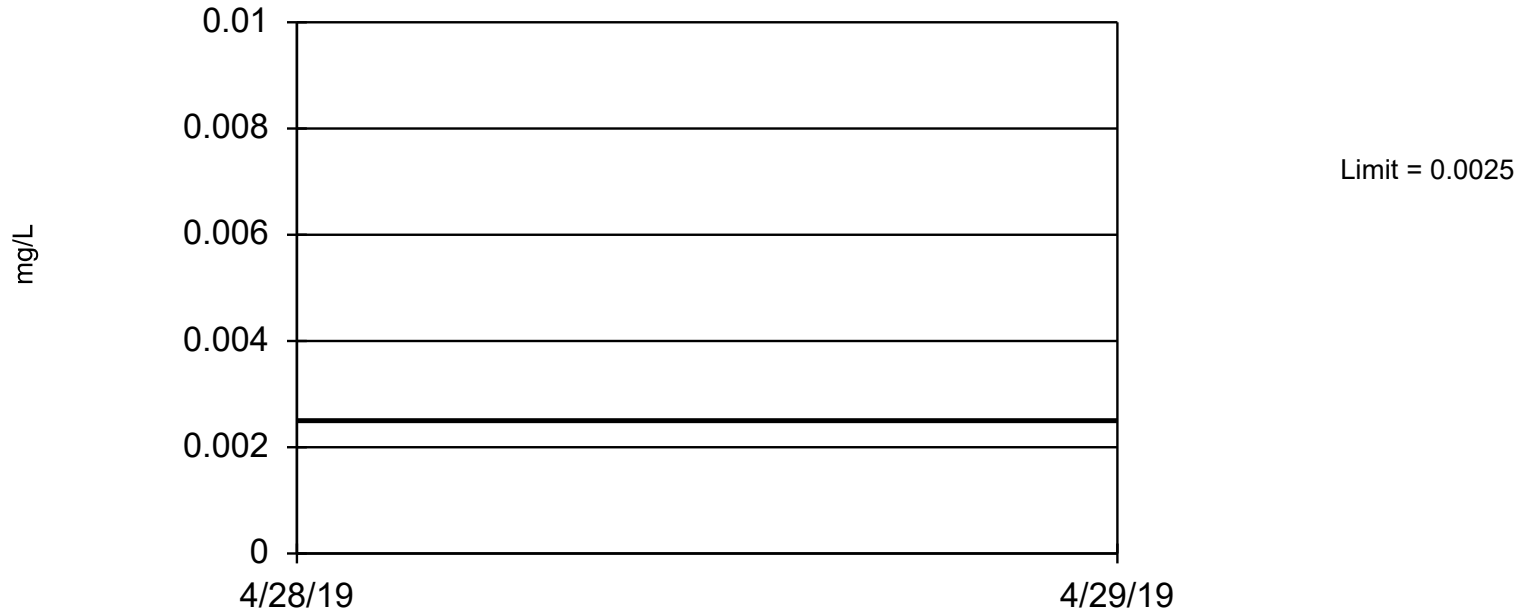
# Tolerance Limit

Constituent: Barium (mg/L) Analysis Run 6/2/2019 6:51 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-U1 (bg)
2/28/2017	0.0034
3/27/2017	0.0026
4/24/2017	0.0022 (J)
5/22/2017	0.002 (J)
6/19/2017	0.0021 (J)
7/17/2017	0.0025
8/14/2017	0.002 (J)
9/13/2017	0.0023 (J)
3/22/2018	0.0021 (J)
6/5/2018	0.0025
11/29/2018	0.0018 (J)
4/29/2019	0.0018 (J)

## Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 12 background values. 100% NDs. 68.16% coverage at alpha=0.01; 77.93% coverage at alpha=0.05; 94.34% coverage at alpha=0.5. Report alpha = 0.5404.

Constituent: Cobalt    Analysis Run 6/2/2019 6:50 PM    View: Sanitas\_Statistics Sampling Events 1 through 1  
CCPC Plant Crisp Ash Pond Site    Client: Geosyntec    Data: Sanitas\_Statistics Sampling Events 1 through 10



# Tolerance Limit

Constituent: Cobalt (mg/L) Analysis Run 6/2/2019 6:51 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-U1 (bg)
2/28/2017	<0.0025
3/27/2017	<0.0025
4/24/2017	<0.0025
5/22/2017	<0.0025
6/19/2017	<0.0025
7/17/2017	<0.0025
8/14/2017	<0.0025
9/13/2017	<0.0025
3/22/2018	<0.0025
6/5/2018	<0.0025
11/29/2018	<0.0025
4/29/2019	<0.0025

### Tolerance Limit Interwell Parametric



95% coverage. Background Data Summary: Mean=0.1597, Std. Dev.=0.1819, n=11. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8546, critical = 0.792. Report alpha = 0.01.

Constituent: Combined Radium 226 + 228 Analysis Run 6/2/2019 6:50 PM View: Sanitas\_Statistics Sampl

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

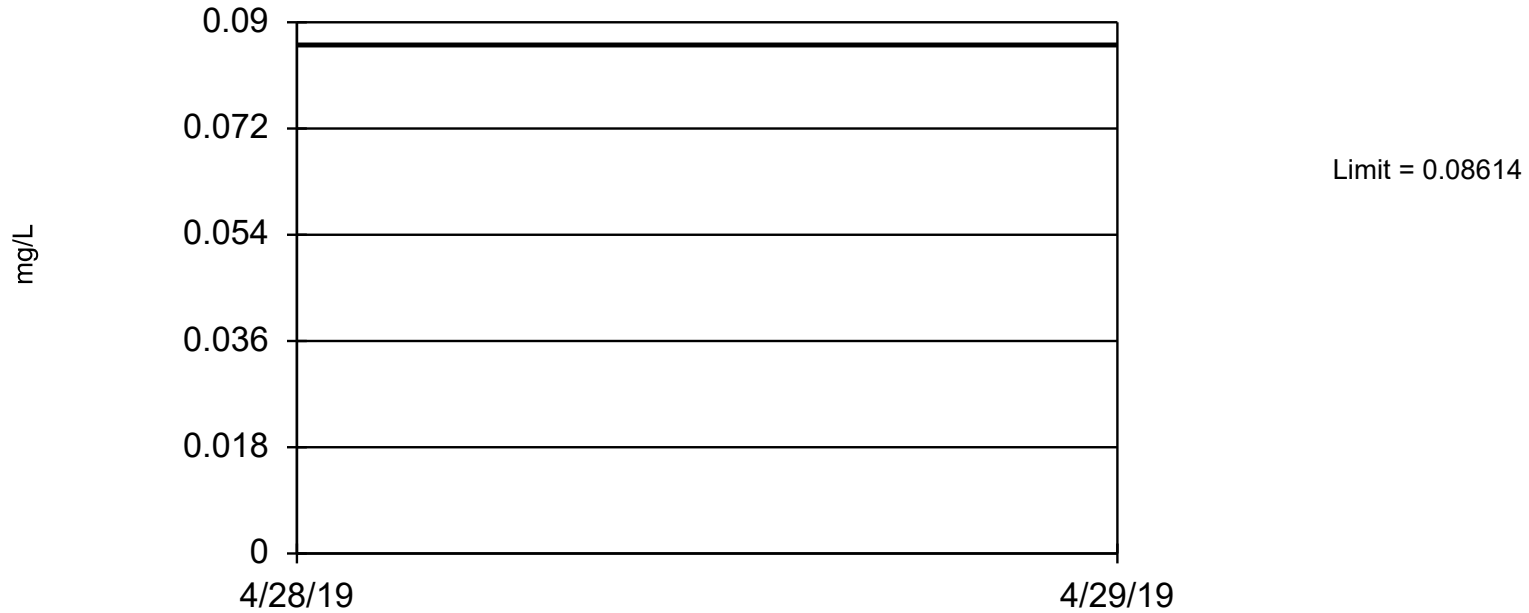
# Tolerance Limit

Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 6/2/2019 6:51 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-U1 (bg)
2/28/2017	0.117
3/27/2017	-0.0198
4/24/2017	0.19
5/22/2017	0.133
6/19/2017	0.135
7/17/2017	0.19
8/14/2017	0.302
9/13/2017	0.614
3/22/2018	0.131
6/5/2018	-0.0586
11/29/2018	0.0234

### Tolerance Limit Interwell Parametric



95% coverage. Background Data Summary: Mean=0.05567, Std. Dev.=0.008937, n=12, 8.333% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8415, critical = 0.805. Report alpha = 0.01.

Constituent: Fluoride Analysis Run 6/2/2019 6:50 PM View: Sanitas\_Statistics Sampling Events 1 through  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

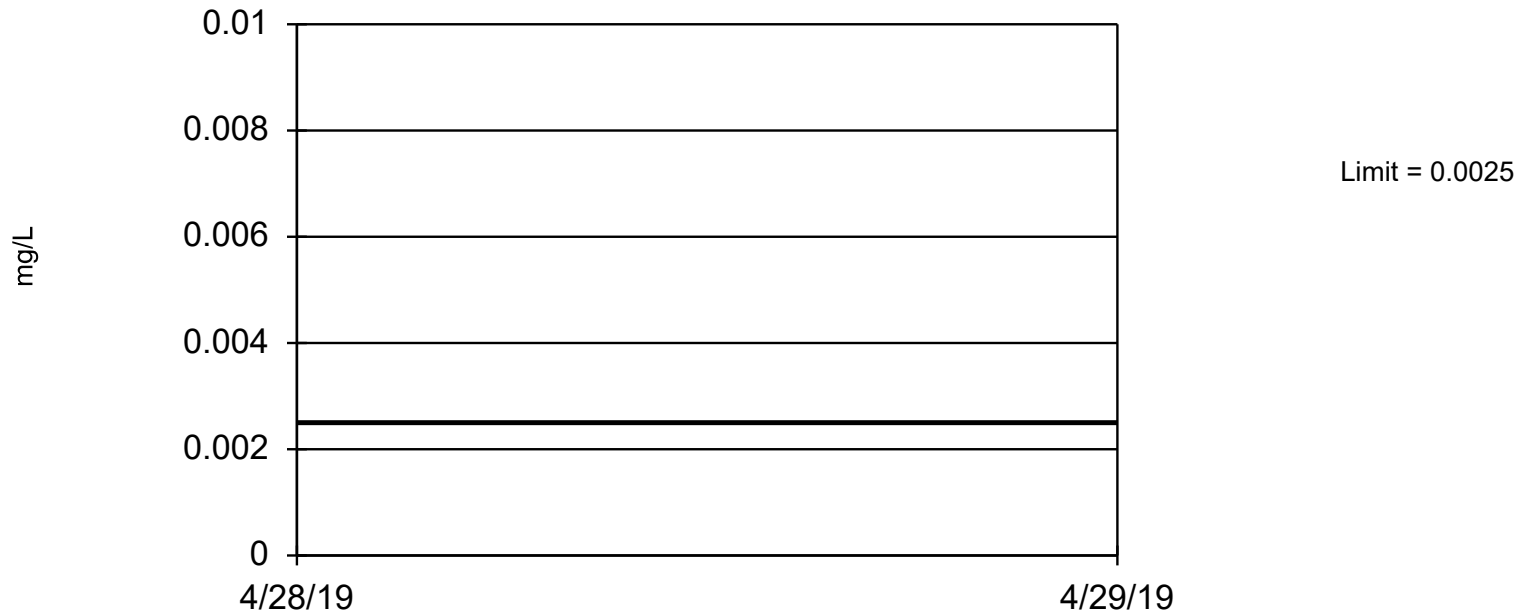
# Tolerance Limit

Constituent: Fluoride (mg/L) Analysis Run 6/2/2019 6:51 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-U1 (bg)
2/28/2017	0.06 (J)
3/27/2017	0.04 (J)
4/24/2017	0.06 (J)
5/22/2017	0.06 (J)
6/19/2017	0.06 (J)
7/17/2017	0.06 (J)
8/14/2017	0.05 (J)
9/13/2017	0.058 (J)
3/22/2018	0.07 (J)
6/5/2018	0.06 (J)
11/29/2018	0.04 (J)
4/29/2019	<0.1

## Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 11 background values. 90.91% NDs. 65.82% coverage at alpha=0.01; 75.98% coverage at alpha=0.05; 93.95% coverage at alpha=0.5. Report alpha = 0.5688.

Constituent: Lithium    Analysis Run 6/2/2019 6:50 PM    View: Sanitas\_Statistics Sampling Events 1 through  
CCPC Plant Crisp Ash Pond Site    Client: Geosyntec    Data: Sanitas\_Statistics Sampling Events 1 through 10

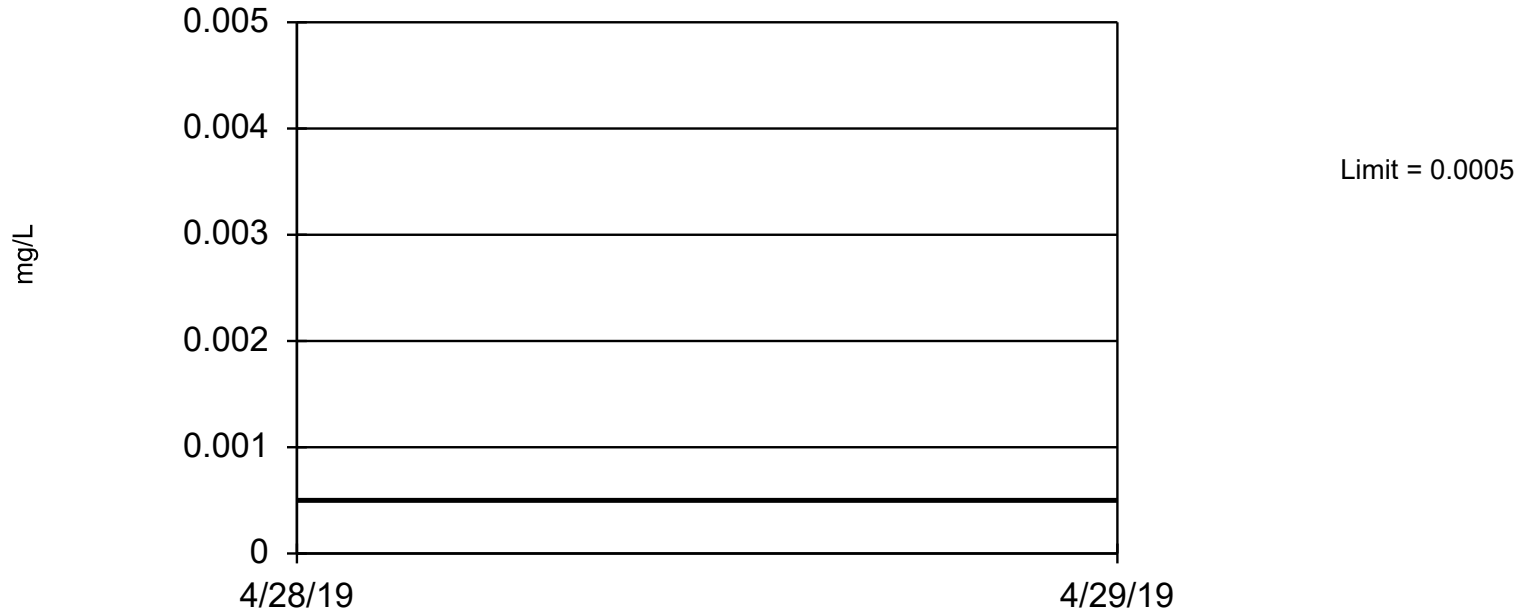
# Tolerance Limit

Constituent: Lithium (mg/L) Analysis Run 6/2/2019 6:51 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-U1 (bg)
2/28/2017	<0.0025
3/27/2017	<0.0025
4/24/2017	<0.0025
5/22/2017	<0.0025
6/19/2017	<0.0025
7/17/2017	<0.0025
8/14/2017	<0.0025
9/13/2017	<0.0025
3/22/2018	0.00034 (J)
11/29/2018	<0.0025
4/29/2019	<0.0025

## Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 12 background values. 100% NDs. 68.16% coverage at alpha=0.01; 77.93% coverage at alpha=0.05; 94.34% coverage at alpha=0.5. Report alpha = 0.5404.

Constituent: Thallium Analysis Run 6/2/2019 6:50 PM View: Sanitas\_Statistics Sampling Events 1 through  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10



# Tolerance Limit

Constituent: Thallium (mg/L) Analysis Run 6/2/2019 6:51 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-U1 (bg)
2/28/2017	<0.0005
3/27/2017	<0.0005
4/24/2017	<0.0005
5/22/2017	<0.0005
6/19/2017	<0.0005
7/17/2017	<0.0005
8/14/2017	<0.0005
9/13/2017	<0.0005
3/22/2018	<0.0005
6/5/2018	<0.0005
11/29/2018	<0.0005
4/29/2019	<0.0005

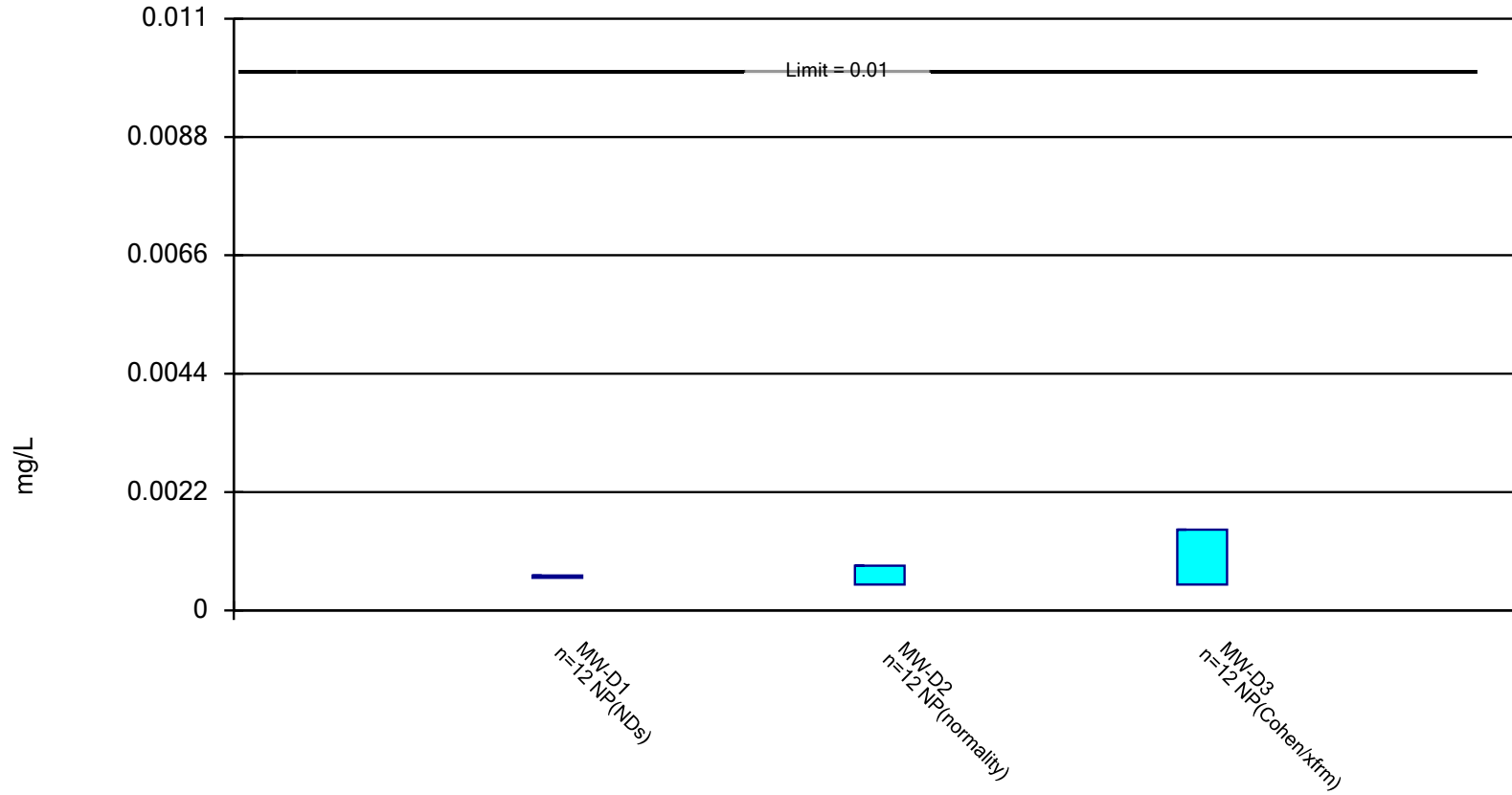
# Confidence Interval

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10 Printed 6/2/2019, 6:59 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic (mg/L)	MW-D1	0.00065	0.00065	0.01	No	12	100	No	0.01	NP (NDs)
Arsenic (mg/L)	MW-D2	0.00083	0.00048	0.01	No	12	75	No	0.01	NP (normality)
Arsenic (mg/L)	MW-D3	0.0015	0.00048	0.01	No	12	16.67	No	0.01	NP (Cohens/xfrm)
Barium (mg/L)	MW-D1	0.01324	0.01031	2	No	12	0	No	0.01	Param.
Barium (mg/L)	MW-D2	0.1601	0.1161	2	No	12	0	No	0.01	Param.
Barium (mg/L)	MW-D3	0.2116	0.1518	2	No	12	0	No	0.01	Param.
Cobalt (mg/L)	MW-D1	0.00125	0.00125	0.0025	No	12	100	No	0.01	NP (NDs)
Cobalt (mg/L)	MW-D2	0.00125	0.00047	0.0025	No	12	91.67	No	0.01	NP (NDs)
Cobalt (mg/L)	MW-D3	0.001469	0.00106	0.0025	No	12	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-D1	0.5229	0.1459	5	No	11	0	sqrt(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-D2	0.7871	0.2333	5	No	11	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-D3	0.9045	0.3137	5	No	11	0	No	0.01	Param.
Fluoride (mg/L)	MW-D1	0.08322	0.05595	4	No	12	0	No	0.01	Param.
Fluoride (mg/L)	MW-D2	0.07	0.05	4	No	12	0	No	0.01	NP (normality)
Fluoride (mg/L)	MW-D3	0.1225	0.1019	4	No	12	0	x^3	0.01	Param.
Lithium (mg/L)	MW-D1	0.00125	0.00125	0.0025	No	11	100	No	0.006	NP (NDs)
Lithium (mg/L)	MW-D2	0.00125	0.0011	0.0025	No	11	90.91	No	0.006	NP (NDs)
Lithium (mg/L)	MW-D3	0.00125	0.00125	0.0025	No	11	90.91	No	0.006	NP (NDs)
Thallium (mg/L)	MW-D1	0.00025	0.00025	0.002	No	12	100	No	0.01	NP (NDs)
Thallium (mg/L)	MW-D2	0.00025	0.000085	0.002	No	12	33.33	No	0.01	NP (normality)
Thallium (mg/L)	MW-D3	0.0001218	0.000104	0.002	No	12	0	No	0.01	Param.

## Non-Parametric Confidence Interval

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



Constituent: Arsenic Analysis Run 6/2/2019 6:58 PM View: Sanitas\_Statistics Sampling Events 1 through

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Confidence Interval

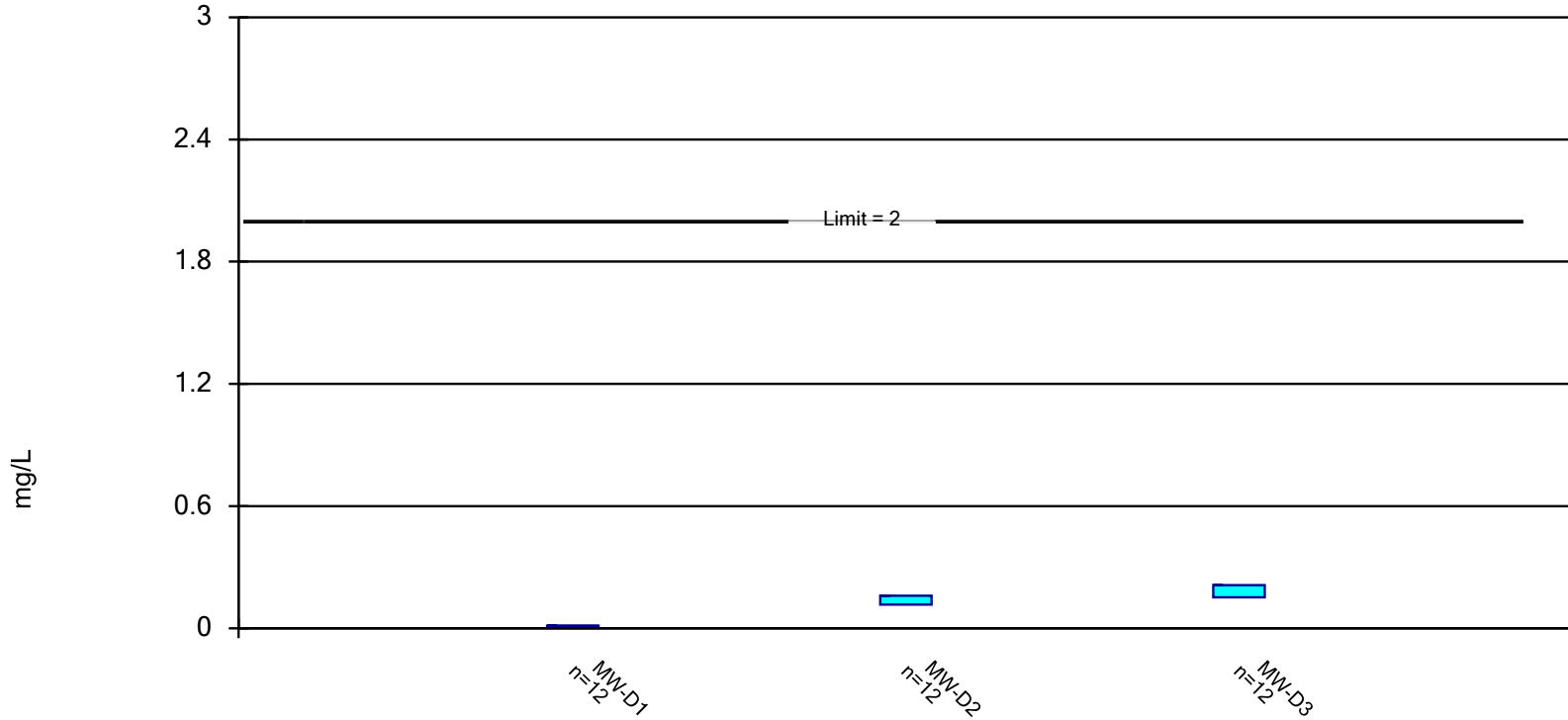
Constituent: Arsenic (mg/L) Analysis Run 6/2/2019 6:59 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D1	MW-D2	MW-D3
2/28/2017	<0.0013	<0.0013	0.0015
3/27/2017	<0.0013	<0.0013	<0.0013
4/24/2017	<0.0013	0.00083 (J)	0.00052 (J)
5/22/2017	<0.0013	0.00048 (J)	0.00092 (J)
6/19/2017	<0.0013	<0.0013	0.00097 (J)
7/17/2017	<0.0013	0.00095 (J)	0.0016
8/14/2017	<0.0013	<0.0013	0.00048 (J)
9/13/2017	<0.0013	<0.0013	0.00079 (J)
3/22/2018	<0.0013	<0.0013	0.0006 (J)
6/5/2018	<0.0013	<0.0013	0.00067 (J)
11/29/2018	<0.0013	<0.0013	<0.0013
4/29/2019	<0.0013	<0.0013	0.00048 (J)
<b>Mean</b>	0.00065	0.0006758	0.0008192
<b>Std. Dev.</b>	0	0.0001141	0.0003759
<b>Upper Lim.</b>	0.00065	0.00083	0.0015
<b>Lower Lim.</b>	0.00065	0.00048	0.00048

### Parametric Confidence Interval

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



Constituent: Barium Analysis Run 6/2/2019 6:58 PM View: Sanitas\_Statistics Sampling Events 1 through  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Confidence Interval

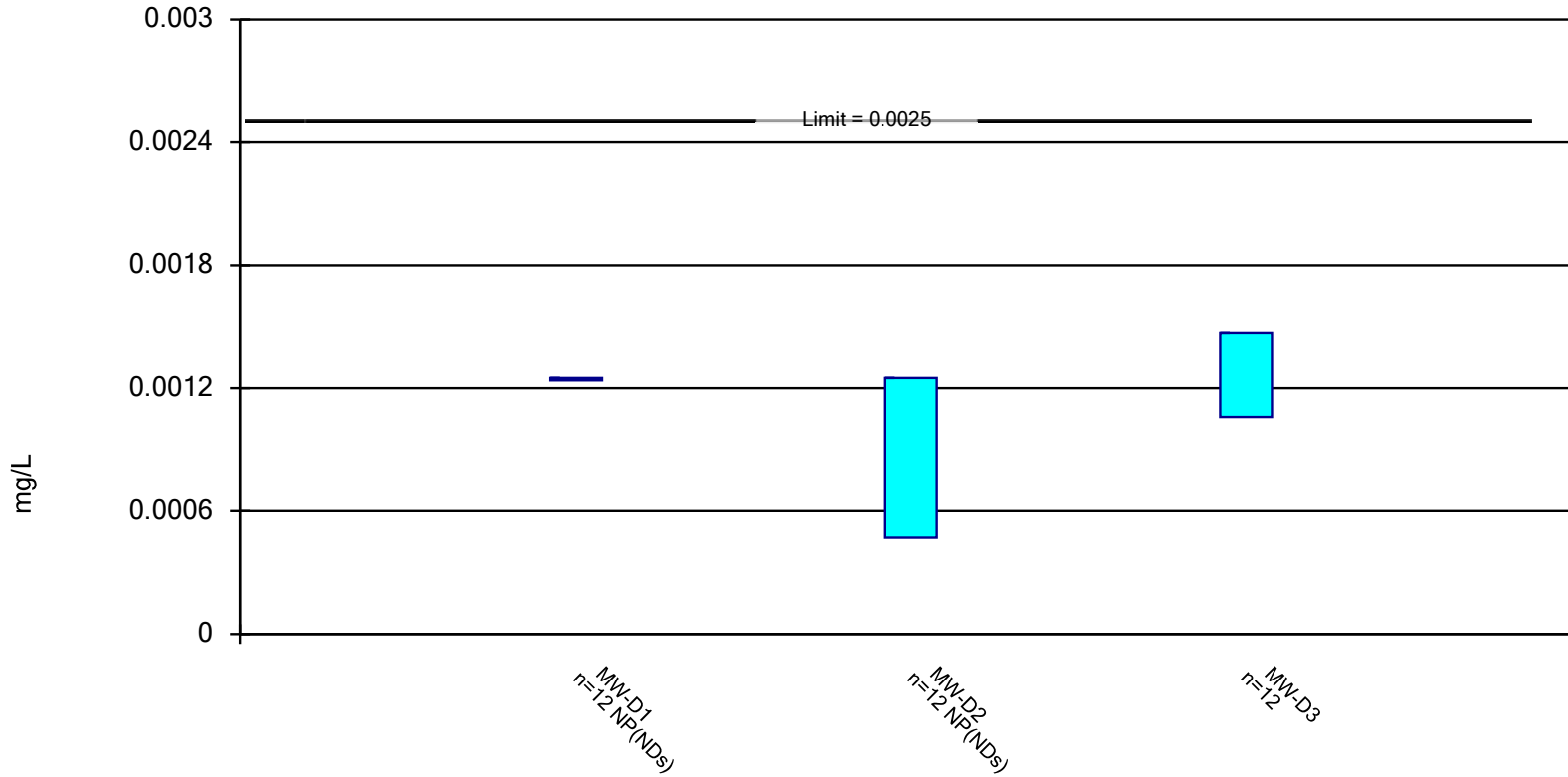
Constituent: Barium (mg/L) Analysis Run 6/2/2019 6:59 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D1	MW-D2	MW-D3
2/28/2017	0.011	0.087	0.22
3/27/2017	0.0099	0.11	0.23
4/24/2017	0.011	0.15	0.2
5/22/2017	0.013	0.12	0.21
6/19/2017	0.012	0.11	0.21
7/17/2017	0.012	0.16	0.2
8/14/2017	0.014	0.13	0.18
9/13/2017	0.014	0.14	0.18
3/22/2018	0.0095	0.15	0.16
6/5/2018	0.01	0.19	0.15
11/29/2018	0.0099	0.15	0.14
4/29/2019	0.015	0.16	0.1
<b>Mean</b>	0.01178	0.1381	0.1817
<b>Std. Dev.</b>	0.00187	0.02807	0.0381
<b>Upper Lim.</b>	0.01324	0.1601	0.2116
<b>Lower Lim.</b>	0.01031	0.1161	0.1518

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

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



Constituent: Cobalt Analysis Run 6/2/2019 6:58 PM View: Sanitas\_Statistics Sampling Events 1 through 1

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Confidence Interval

Constituent: Cobalt (mg/L) Analysis Run 6/2/2019 6:59 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

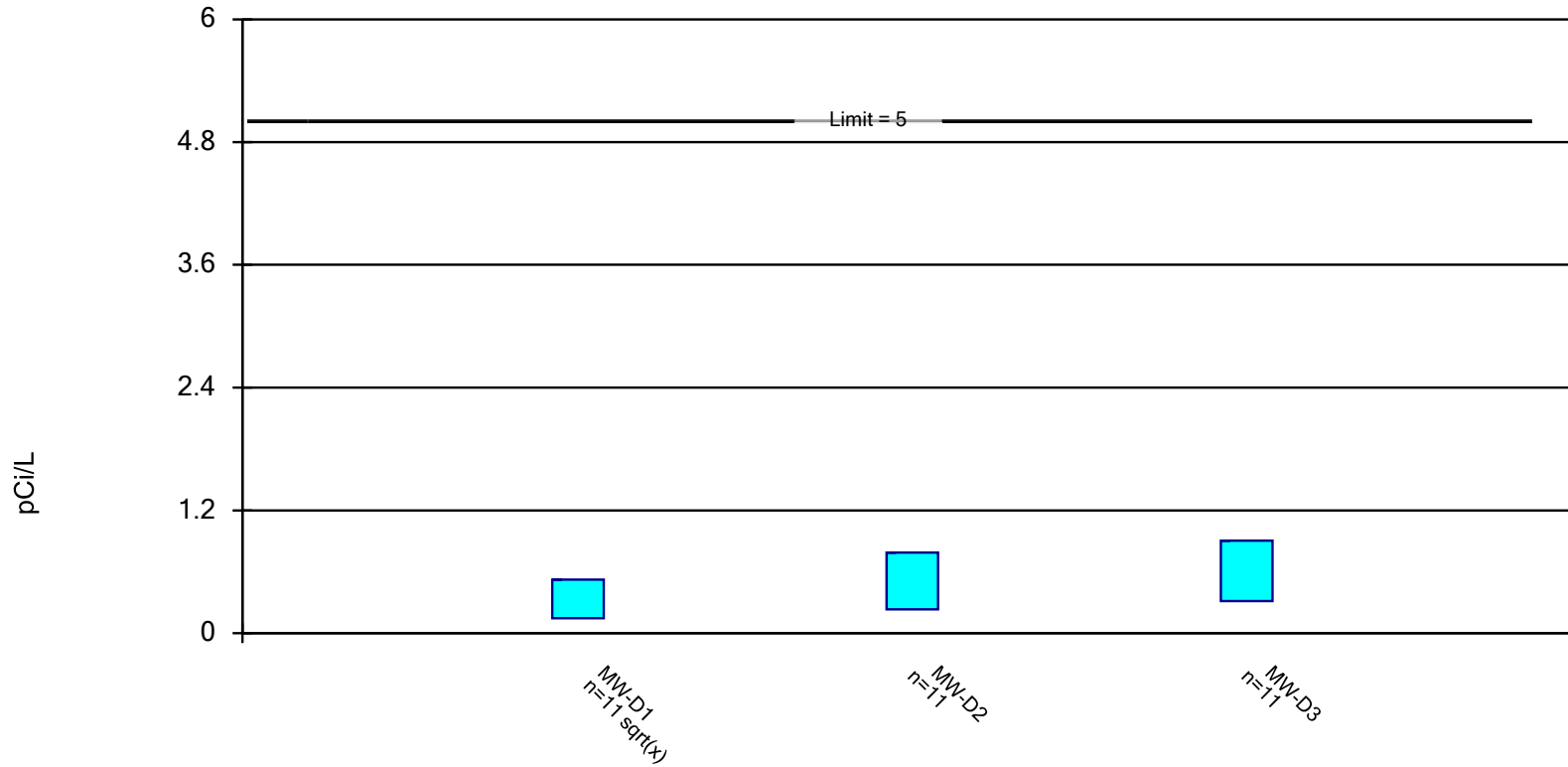
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	MW-D1	MW-D2	MW-D3
2/28/2017	<0.0025	0.00047 (J)	0.0011 (J)
3/27/2017	<0.0025	<0.0025	0.00079 (J)
4/24/2017	<0.0025	<0.0025	0.001 (J)
5/22/2017	<0.0025	<0.0025	0.0012 (J)
6/19/2017	<0.0025	<0.0025	0.0015 (J)
7/17/2017	<0.0025	<0.0025	0.0014 (J)
8/14/2017	<0.0025	<0.0025	0.0013 (J)
9/13/2017	<0.0025	<0.0025	0.0014 (J)
3/22/2018	<0.0025	<0.0025	0.0015 (J)
6/5/2018	<0.0025	<0.0025	0.0017 (J)
11/29/2018	<0.0025	<0.0025	0.00098 (J)
4/29/2019	<0.0025	<0.0025	0.0013 (J)
<b>Mean</b>	0.00125	0.001185	0.001264
<b>Std. Dev.</b>	0	0.0002252	0.0002606
<b>Upper Lim.</b>	0.00125	0.00125	0.001469
<b>Lower Lim.</b>	0.00125	0.00047	0.00106



### Parametric Confidence Interval

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



Constituent: Combined Radium 226 + 228 Analysis Run 6/2/2019 6:58 PM View: Sanitas\_Statistics Sampl

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Confidence Interval

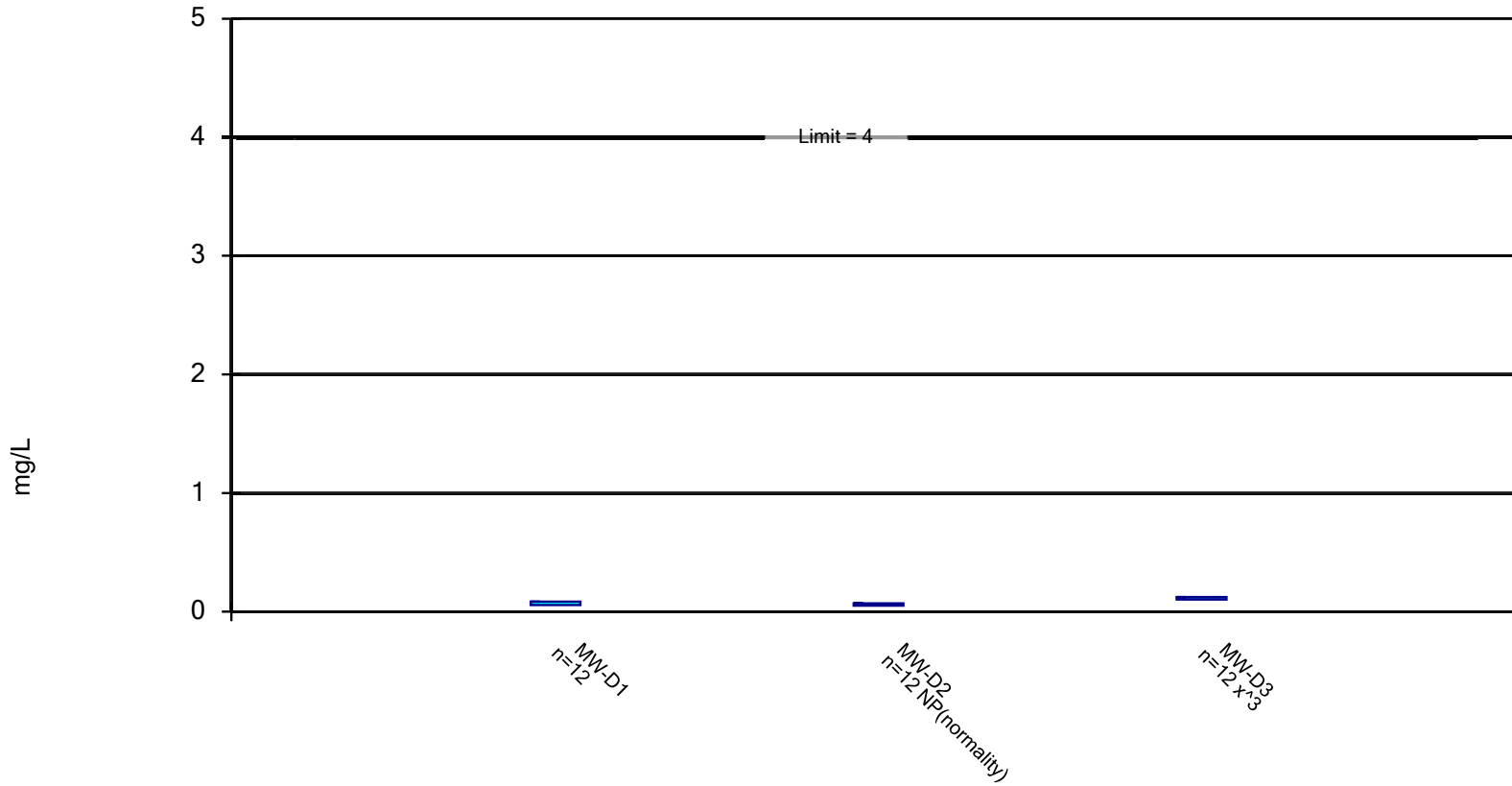
Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 6/2/2019 6:59 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D1	MW-D2	MW-D3
2/28/2017	0.421	0.506	0.522
3/27/2017	0.655	1.28	0.557
4/24/2017	0.212	0.756	0.572
5/22/2017	0.186	0.333	0.457
6/19/2017	0.156	0.388	0.78
7/17/2017	0.153	0.534	0.409
8/14/2017	0.287	0.452	0.339
9/13/2017	0.816	0.453	1.28
3/22/2018	0.643	0.716	1.17
6/5/2018	0.149	0.0139	0.564
11/29/2018	0.0994	0.18	0.0501
<b>Mean</b>	0.3434	0.5102	0.6091
<b>Std. Dev.</b>	0.251	0.3323	0.3544
<b>Upper Lim.</b>	0.5229	0.7871	0.9045
<b>Lower Lim.</b>	0.1459	0.2333	0.3137

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

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



Constituent: Fluoride Analysis Run 6/2/2019 6:59 PM View: Sanitas\_Statistics Sampling Events 1 through

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Confidence Interval

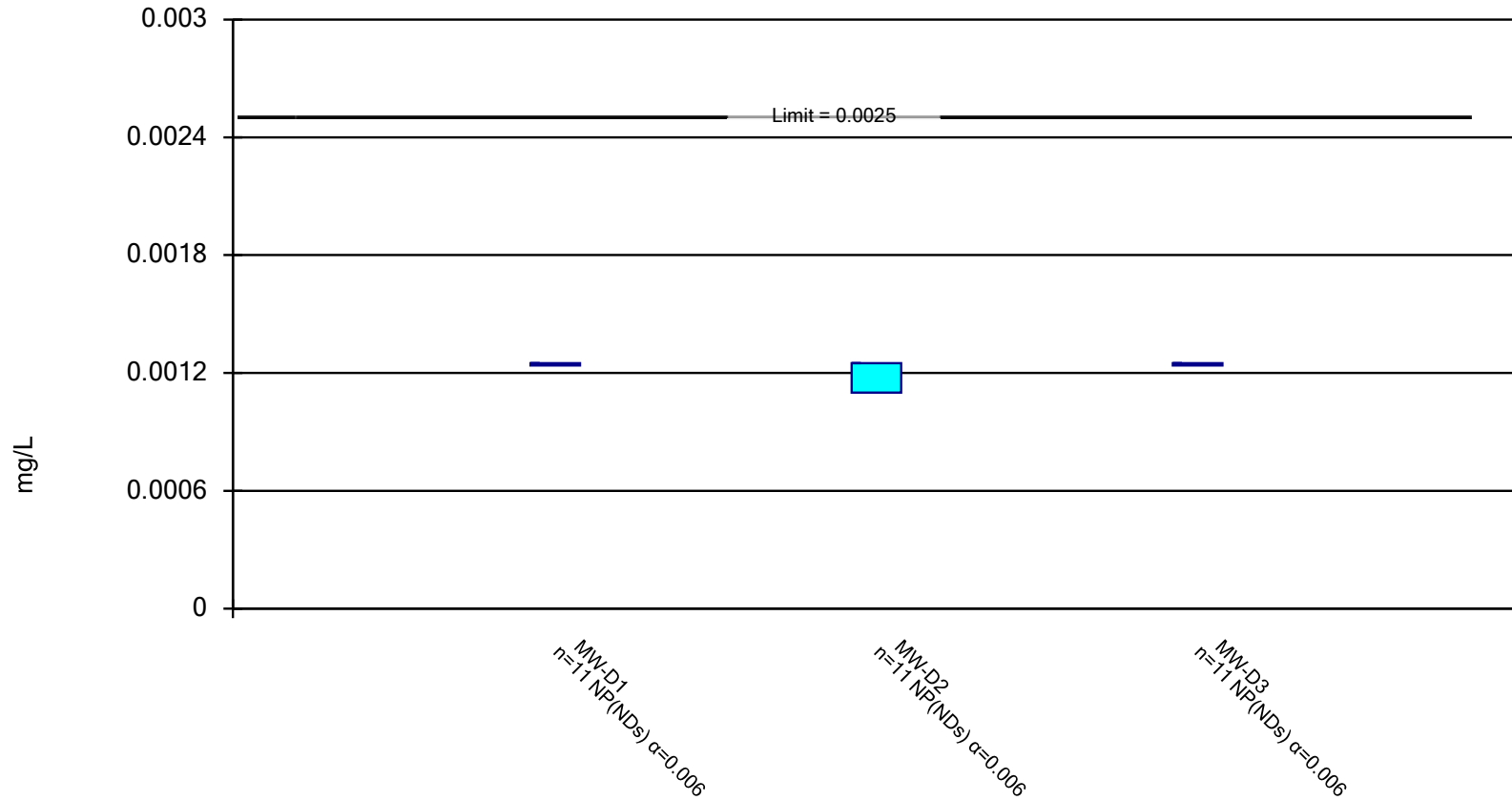
Constituent: Fluoride (mg/L) Analysis Run 6/2/2019 6:59 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D1	MW-D2	MW-D3
2/28/2017	0.06 (J)	0.06 (J)	0.13
3/27/2017	0.05 (J)	0.05 (J)	0.11
4/24/2017	0.07 (J)	0.07 (J)	0.12
5/22/2017	0.07 (J)	0.06 (J)	0.11
6/19/2017	0.08 (J)	0.06 (J)	0.12
7/17/2017	0.11	0.06 (J)	0.06 (J)
8/14/2017	0.07 (J)	0.06 (J)	0.12
9/13/2017	0.075 (J)	0.061 (J)	0.12
3/22/2018	0.08 (J)	0.06 (J)	0.11
6/5/2018	0.07 (J)	0.07 (J)	0.12
11/29/2018	0.04 (J)	0.04 (J)	0.1
4/29/2019	0.06 (J)	0.06 (J)	0.11
<b>Mean</b>	0.06958	0.05925	0.1108
<b>Std. Dev.</b>	0.01738	0.007944	0.01782
<b>Upper Lim.</b>	0.08322	0.07	0.1225
<b>Lower Lim.</b>	0.05595	0.05	0.1019

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Lithium Analysis Run 6/2/2019 6:59 PM View: Sanitas\_Statistics Sampling Events 1 through

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Confidence Interval

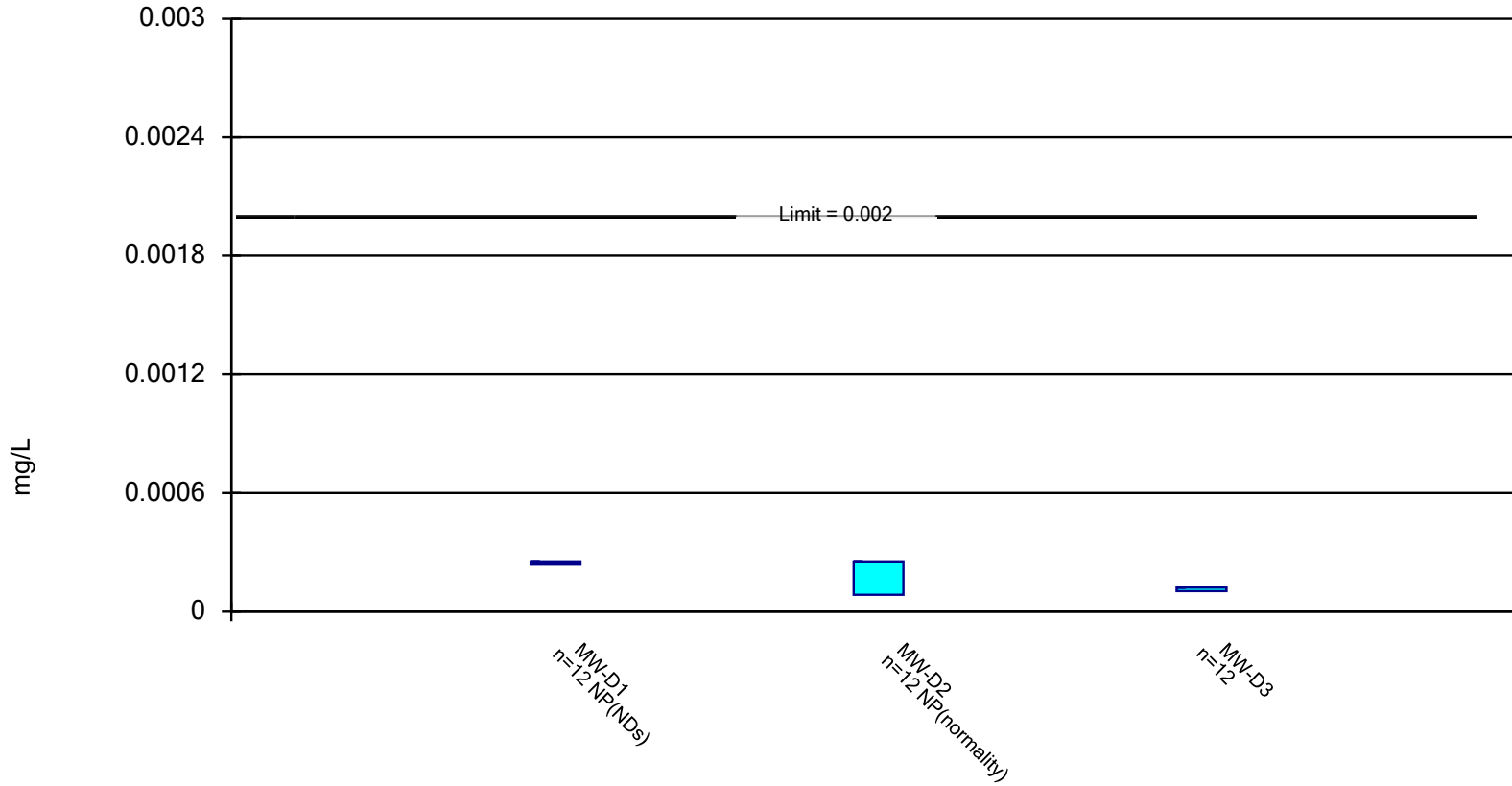
Constituent: Lithium (mg/L) Analysis Run 6/2/2019 6:59 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D1	MW-D2	MW-D3
2/28/2017	<0.0025	<0.0025	<0.0025
3/27/2017	<0.0025	<0.0025	<0.0025
4/24/2017	<0.0025	<0.0025	<0.0025
5/22/2017	<0.0025	<0.0025	<0.0025
6/19/2017	<0.0025	<0.0025	<0.0025
7/17/2017	<0.0025	<0.0025	<0.0025
8/14/2017	<0.0025	<0.0025	<0.0025
9/13/2017	<0.0025	<0.0025	<0.0025
3/22/2018	<0.0025	<0.0025	<0.0025
11/29/2018	<0.0025	<0.0025	<0.0025
4/29/2019	<0.0025	0.0011 (J)	0.0013 (J)
<b>Mean</b>	0.00125	0.001236	0.001255
<b>Std. Dev.</b>	0	4.523E-05	1.508E-05
<b>Upper Lim.</b>	0.00125	0.00125	0.00125
<b>Lower Lim.</b>	0.00125	0.0011	0.00125

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

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



Constituent: Thallium Analysis Run 6/2/2019 6:59 PM View: Sanitas\_Statistics Sampling Events 1 through

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

# Confidence Interval

Constituent: Thallium (mg/L) Analysis Run 6/2/2019 6:59 PM View: Sanitas\_Statistics Sampling Events 1 through 12  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

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	MW-D1	MW-D2	MW-D3
2/28/2017	<0.0005	0.00011 (J)	0.00013 (J)
3/27/2017	<0.0005	<0.0005	0.00011 (J)
4/24/2017	<0.0005	<0.0005	9.5E-05 (J)
5/22/2017	<0.0005	0.00011 (J)	0.00011 (J)
6/19/2017	<0.0005	0.00011 (J)	0.00012 (J)
7/17/2017	<0.0005	0.00011 (J)	0.00012 (J)
8/14/2017	<0.0005	0.00013 (J)	0.00011 (J)
9/13/2017	<0.0005	0.00012 (J)	0.00013 (J)
3/22/2018	<0.0005	<0.0005	0.0001 (J)
6/5/2018	<0.0005	8.5E-05 (J)	0.00012 (J)
11/29/2018	<0.0005	8.5E-05 (J)	0.0001 (J)
4/29/2019	<0.0005	<0.0005	0.00011 (J)
<b>Mean</b>	0.00025	0.000155	0.0001129
<b>Std. Dev.</b>	0	7.125E-05	1.137E-05
<b>Upper Lim.</b>	0.00025	0.00025	0.0001218
<b>Lower Lim.</b>	0.00025	8.5E-05	0.000104