



*Prepared for*  
**Crisp County Power Commission**  
202 S. 7th Street  
Cordele, Georgia 31015

**SEMI-ANNUAL GROUNDWATER  
MONITORING REPORT  
CRISP COUNTY POWER COMMISSION  
PLANT CRISP ASH POND  
Warwick, Georgia**

*Prepared by*  
**Geosyntec**   
consultants

engineers | scientists | innovators

1255 Roberts Boulevard, Suite 200  
Kennesaw, Georgia 30144

October 2018

**CERTIFICATION BY QUALIFIED PROFESSIONAL ENGINEER**

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.

CUNEYT GOKMEN

Printed Name of Qualified Professional Engineer

028504

Registration No.

GEORGIA

Registration State

  
10/29/18  
Stamp/Signature/Date

## TABLE OF CONTENTS

1.0	INTRODUCTION .....	1
1.1	Site Location and History .....	1
1.2	Background.....	2
2.0	GROUNDWATER SAMPLING AND LABORATORY ANALYSIS RESULTS .....	3
2.1	Groundwater Sampling and Laboratory Analysis .....	3
2.2	March 2018 Groundwater Monitoring Results.....	4
2.3	June 2018 Groundwater Monitoring Results.....	5
3.0	ASSESSMENT MONITORING STATISTICAL DATA ANALYSIS PROCEDURES .....	6
3.1	GWPS for Appendix IV Constituents .....	6
3.2	Evaluation of SSLs for Appendix IV Constituents .....	7
4.0	STATISTICAL ANALYSIS RESULTS.....	8
5.0	FUTURE GROUNDWATER MONITORING PROGRAM.....	9
6.0	REFERENCES .....	10

## LIST OF TABLES

Table 1	Appendix IV Constituents Analytical Data Summary – First Groundwater Assessment Monitoring Event - Sampling Performed on 22 March 2018
Table 2	Boron Analytical Data Summary - Sampling Performed on 22 March 2018
Table 3	Appendix IV Analytical Data Summary - First Semi-Annual Groundwater Assessment Monitoring Event – Sampling Performed on 5 June 2018
Table 4	Appendix III Analytical Data Summary - First Semi-Annual Groundwater Assessment Monitoring Event – Sampling Performed on 5 June 2018

Table 5	Summary of Basic Groundwater Statistics and GWPS for Appendix IC Constituents
Table 6	Evaluation of SSLs for Appendix IV Constituents

### **LIST OF FIGURES**

Figure 1	Groundwater Monitoring Well Location Map
Figure 2	Potentiometric Surface Map

### **LIST OF APPENDICES**

Appendix A	Field Groundwater Sampling Forms
Appendix B	Laboratory Analytical Reports
Appendix C	Statistical Calculations and Time-series Graphs

## LIST OF ACRONYMS

CCPC	Crisp County Power Commission
CCR	Coal Combustion Residual
CFR	Code of Federal Regulations
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

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 [Geosyntec, 2018] summarizing the results of detection groundwater monitoring activities was submitted to the GA EPD 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. The first semi-annual assessment monitoring was performed in June 2018 in compliance with 40 CFR §257.95(d)(1).

The purpose of this report is to present a summary of the March 2018 and June 2018 assessment monitoring activities and associated 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).

### 1.1 Site Location and 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 6.1-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 sluicing operation was reduced significantly after August 2015. The coal burn unit was de-activated in 2017 for a short period of time. CCPC has submitted notification of closure in accordance with 40 CFR §257.

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 Plant Crisp ash pond was classified as a low hazard unit during the United States Environmental Protection Agency's (USEPA) coal combustion residuals impoundment assessment, dated February 2014 and conducted by CDM Smith [CDM Smith, 2014].

## **1.2 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 is composed of gravel, sand, and clay (Quaternary alluvial sediments). 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 Annual Groundwater Monitoring Report [Geosyntec, 2018]. The groundwater samples collected between February and September 2017 were analyzed for constituents listed in Appendix III to Part §257 (referred herein as Appendix III constituents) and Appendix IV to part §257 (referred herein as Appendix IV constituents).

Section 2 of this report presents a discussion of the March 2018 and June 2018 groundwater assessment monitoring events and laboratory analysis results. A summary of statistical data analysis is provided in Section 3. Statistical data analysis results are discussed in Section 4. 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 groundwater assessment monitoring program involved two sampling events during this reporting period. The initial assessment monitoring (performed in March 2018) was conducted within 90 days of triggering an assessment monitoring program in compliance with 40 CFR §257.95(a). The first semi-annual assessment monitoring performed in June 2018 was conducted within 90 days of obtaining the March 2018 monitoring results in compliance with 40 CFR §257.95(d)(1). The groundwater samples were collected in accordance with the USEPA Science and Ecosystem Support Division (SESD), Athens, Georgia, Standard Operating Procedure (SOP) [USEPA, 2013]. 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 June 5, 2018 groundwater elevation data. Based on the groundwater level readings, 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) or at least three well volumes were removed. 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 March 2018 groundwater samples were analyzed for Appendix IV constituents (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, radium, selenium, and thallium). The metal constituents were analyzed as total recoverable as the samples were not field filtered. The June 2018 groundwater samples were analyzed for Appendix III constituents (i.e., boron, calcium, chloride, fluoride, sulfate, total dissolved solids, and

pH) and Appendix IV constituents that were detected in the downgradient wells during the March 2018 monitoring sampling event (i.e., arsenic, barium, cobalt, fluoride, molybdenum, Radium 226 and 228 combined, and thallium).

## **2.2 March 2018 Groundwater Monitoring Results**

Laboratory analytical results from the March 2018 groundwater assessment monitoring event are summarized in **Table 1**. Laboratory analytical reports are provided as **Appendix B**. Results of the March 2018 groundwater monitoring revealed detected concentrations for the following Appendix IV constituents at the following downgradient well locations:

- Arsenic in MW-D3;
- Barium in MW-D1, MW-D2, and MW-D3;
- Cobalt in MW-D3;
- Fluoride in MW-D1, MW-D2, and MW-D3;
- Molybdenum in MW-D3;
- Radium 226 and 228 Combined in MW-D1, MW-D2, and MW-D3; and
- Thallium in MW-D3.

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 upgradient well background concentrations for those constituents without an established MCL (see the discussion in Section 3). Appendix IV constituents detected during the March 2018 monitoring event can be naturally occurring as some of them were detected at low concentrations in the background well.

The groundwater sample from background monitoring well MW-U1 was also analyzed for boron (an Appendix III constituent) during the March 2018 monitoring to evaluate for the presence of naturally occurring boron. Boron was detected in background monitoring well MW-U1 at an estimated concentration of 0.0077 mg/L. The boron concentration detected in background well location MW-U1 will be included in the background data set

and used to update boron background levels for the site. **Table 2** presents the boron results from background monitoring well MW-U1. The laboratory report for boron is included in **Appendix B**.

### **2.3 June 2018 Groundwater Monitoring Results**

Laboratory analytical results of Appendix IV constituents from the June 2018 groundwater assessment monitoring event are summarized in **Table 3**. The concentrations of Appendix IV constituents that were detected in the downgradient wells were below their respective USEPA's MCLs or background concentrations derived from the upgradient well.

**Table 4** presents a summary of laboratory analytical results of Appendix III constituents from the June 2018 groundwater assessment monitoring event. Laboratory analytical reports are provided as **Appendix B**.

The June 2018 assessment monitoring results were also 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 October 2017 Groundwater Monitoring and Statistical Analysis Plan [Geosyntec, 2018]. 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.9.5.32 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 constituent does not have an established MCL (cobalt, lithium, and molybdenum) or 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). Although the USEPA adopted health-based levels for constituents for which an MCL has not been established [Federal Register Vol. 83 No. 146, 36435, July 30, 2018], the statistically derived background concentrations are used as GWPS.
- (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. No outliers were identified in the background data. 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 [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 two assessment monitoring events (March and June 2018). The UTL was compared to established MCLs and GWPS was selected, as the higher of the two values. For constituents without an established MCL, the UTL was selected as the GWPS.

### **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.

#### 4.0 STATISTICAL ANALYSIS RESULTS

The statistical analysis results are summarized in **Table 5**, 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 minimum, maximum, mean, median, and standard deviation; (iii) results of outlier testing; (iv) UTL of each constituent constructed based on the eight background well data and the March and June 2018 data; (v) an MCL value for the constituent (if available) and; (vi) the derived GWPS for each constituent.

**Table 6** 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 GWPS to evaluate if there are any SSLs. Comparison of the lower confidence limit to the GWPS revealed no SSLs during the June 2018 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 initial assessment monitoring and first semi-annual monitoring 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), groundwater samples will be collected semi-annually for Appendix III and Appendix IV constituents. The next semi-annual assessment monitoring will be performed in December 2018 and a semi-annual monitoring report summarizing the December 2018 results will be submitted to GA EPD by 31 January 2019.

## 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>
- Geosyntec Consultants. (2018). “Annual Groundwater Monitoring Report. Plant Crisp Ash Pond.” Prepared for Crisp County Power Commission, January 2018.
- 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 (2013). Science and Ecosystem Support Division (SESD, Athens, Georgia) Standard Operating Procedure (SOP) (SESDPROC-301-R3).

# TABLES

**Table 1. Crisp County Power Commission  
Plant Crisp Ash Pond  
Appendix IV Analytical Data Summary - First Groundwater Assessment Monitoring Event  
Sampling Performed on 22 March 2018**

**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
Antimony	mg/L	0.006	0.0010	ND	ND	ND	ND
Arsenic	mg/L	0.01	0.00046	ND	ND	ND	<0.0013 (0.00060 J)
Barium	mg/L	2	0.00049	<0.0025 (0.0021 J)	0.0095	0.15	0.16
Beryllium	mg/L	0.004	0.00034	ND	ND	ND	ND
Cadmium	mg/L	0.005	0.00034	ND	ND	ND	ND
Chromium	mg/L	0.1 <sup>(4)</sup>	0.0011	<0.0025 (0.0016 J)	ND	ND	ND
Cobalt	mg/L	0.006 <sup>(2)</sup>	0.00040 <sup>(5)</sup>	ND	ND	ND	<0.0025 (0.0015 J)
Fluoride	mg/L	4	0.032	<0.10 (0.070 J)	<0.10 (0.080 J)	<0.10 (0.060 J)	0.11
Lead	mg/L	0.015 <sup>(6)</sup>	0.00035	ND	ND	ND	ND
Lithium	mg/L	0.04 <sup>(2)</sup>	0.0011 <sup>(7)</sup>	<0.001 (0.00034 J)	ND	ND	ND
Mercury	mg/L	0.002 <sup>(8)</sup>	0.000070	ND	ND	ND	ND
Molybdenum	mg/L	0.1 <sup>(2)</sup>	0.00085 <sup>(9)</sup>	ND	ND	ND	<0.015 (0.0022 J)
Radium 226 and 288 Combined	pCi/L	5	-- <sup>(10)</sup>	0.131 U	0.643	0.716	1.17
Selenium	mg/L	0.05	0.00024 <sup>(11)</sup>	0.00039	ND	ND	ND
Thallium	mg/L	0.002	0.000085	ND	ND	ND	<0.0005 (0.00010 J)

**Notes:**

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

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 promulgated pursuant to the Safe Drinking Water Act for potable water use.
2. USEPA's health-based level (Federal Register Vol. 83 No. 146, 36435, July 30, 2018).
3. MDL indicates minimum detection limit, which is the minimum concentration of analyte that can be measured and reported.
4. MCL value for total chromium.
5. Due to dilution of the sample, the MDL for cobalt in MW-U1 is 0.000080 mg/L.
6. USEPA's alternative Groundwater Protection Standard (Federal Register Vol. 83 No. 146, 36435, July 30, 2018).
7. Due to dilution of the sample, the MDL for lithium in MW-U1 is 0.00022 mg/L.
8. Value for inorganic mercury.
9. Due to dilution of the sample, the MDL for molybdenum in MW-U1 is 0.00017 mg/L.
10. During the analysis of radium, background concentrations are subtracted, thus each sample have a different Minimum Detectable Concentration (MDC). The MDCs were as follows: 0.338 pCi/L for MW-U1, 0.394 pCi/L for MW-D1, 0.359 pCi/L for MW-D2, and 0.437 pCi/L for MW-D3.
11. Due to dilution of the sample, the MDL for selenium in MW-U1 and MW-D3 is 0.000048 mg/L.

**Table 2. Crisp County Power Commission  
Plant Crisp Ash Pond  
Boron Analytical Data Summary  
Sampling Performed on 22 March 2018**

**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
<b>Boron</b>	mg/L	N/A	0.004	<0.01 (0.0077 J)	--	--	--

**Notes:**

"-" indicated wells not sampled for the constituent.

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 promulgated pursuant to the Safe Drinking Water Act for potable water use.
2. N/A indicates a substance does not have an MCL.
3. MDL indicates minimum detection limit, which is the minimum concentration of analyte that can be measured and reported.

**Table 3. Crisp County Power Commission  
Plant Crisp Ash Pond  
Appendix IV Analytical Data Summary - First Semi-Annual Groundwater Assessment Monitoring Event  
Sampling Performed on 5 June 2018**

**Appendix IV to 40 CFR Part 257 - Constituents for Assessment 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
<b>Arsenic</b>	mg/L	0.01	0.00046	ND	ND	ND	<0.0013 (0.00067 J)
<b>Barium</b>	mg/L	2	0.00049	0.0025	0.010	0.19	0.15
<b>Cobalt</b>	mg/L	N/A	0.00040	ND	ND	ND	<0.0025 (0.0017 J)
<b>Fluoride</b>	mg/L	4	0.032	<0.10 (0.060 J)	<0.10 (0.070 J)	<0.10 (0.070 J)	0.12
<b>Molybdenum</b>	mg/L	N/A	0.00085	ND	ND	ND	<0.01 (0.0022 J)
<b>Radium 226 and 288 Combined</b>	pCi/L	5	-- <sup>(4)</sup>	-0.0586	0.149	0.0139	0.564
<b>Thallium</b>	mg/L	0.002	0.000085	ND	ND	<0.0005 (0.000085 J)	<0.0005 (0.00012 J)

**Notes:**

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

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 promulgated pursuant to the Safe Drinking Water Act for potable water use.
2. USEPA's health-based level (Federal Register Vol. 83 No. 146, 36435, July 30, 2018).
3. MDL indicates minimum detection limit, which is the minimum concentration of analyte that can be measured and reported.
4. During the analysis of radium, background concentrations are subtracted, thus each sample have a different Minimum Detectable Concentration (MDC). The MDCs were as follows: 0.362 pCi/L for MW-U1, 0.407 pCi/L for MW-D1, 0.401 pCi/L for MW-D2, and 0.366 pCi/L for MW-D3.

**Table 4. Crisp County Power Commission  
Plant Crisp Ash Pond  
Appendix III Analytical Data Summary - First Semi-Annual Groundwater Assessment Monitoring Event  
Sampling Performed on 5 June 2018**

**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
<b>Boron</b>	mg/L	N/A	0.021	ND	0.086	0.11	0.21
<b>Calcium</b>	mg/L	N/A	0.13 <sup>(4)</sup>	33	22	130	110
<b>Chloride</b>	mg/L	N/A	0.6	<2 (1.8 J)	2.0	5.1	4.1
<b>Fluoride</b>	mg/L	N/A	0.032	<0.1 (0.060 J)	<0.1 (0.070 J)	<0.1 (0.070 J)	0.12
<b>Sulfate</b>	mg/L	N/A	1.4	<5 (2.9 J)	16	18	29
<b>pH</b>	mg/L	N/A	--	6.74	5.91	6.50	6.42
<b>Total Dissolved Solids</b>	mg/L	N/A	3.4	110	110	390	370

**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 promulgated pursuant to the Safe Drinking Water Act for potable water use.
  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. Due to dilution of the sample, the MDL for calcium in MW-D2 and MW-D3 is 0.63 mg/L.
- There is no MDL for pH.

**Table 5. Crisp County Power Commission  
Plant Crisp Ash Pond  
Summary of Basic Groundwater Statistics and GWPS for Appendix IV Constituents**

Appendix IV to Part 257 - Constituents for Assessment Monitoring	Well ID	Number of Samples	Number of Non-detects	% Non-detects	Minimum	Maximum	EPA 1989 Outlier Screening or Tukey's Outlier for Non-normal Data	Upper Tolerance Limit	Maximum Contaminant Level (MCL)	Groundwater Protection Standard (GWPS)
							Outliers in the Background Well Data			
Antimony [mg/L]	MW-U1	9	9	100%	<0.0025	<0.0025	No Outlier	0.0025	0.006	0.006
	MW-D1	9	9	100%	<0.0025	<0.0025				
	MW-D2	9	9	100%	<0.0025	<0.0025				
	MW-D3	9	9	100%	<0.0025	<0.0025				
Arsenic [mg/L]	MW-U1	10	9	90%	0.00046 (J)	<0.0013	No Outlier	0.0013	0.01	0.01
	MW-D1	10	10	100%	<0.0013	<0.0013				
	MW-D2	10	7	70%	0.00048 (J)	<0.0013				
	MW-D3	10	1	10%	0.00048 (J)	0.002				
Barium [mg/L]	MW-U1	10	0	0%	0.002	0.0034	No Outlier	0.0039	2	2
	MW-D1	10	0	0%	0.0095	0.014				
	MW-D2	10	0	0%	0.087	0.190				
	MW-D3	10	0	0%	0.150	0.230				
Beryllium [mg/L]	MW-U1	9	9	100%	<0.002	<0.0025	No Outlier	0.0025	0.004	0.004
	MW-D1	9	9	100%	<0.002	<0.0025				
	MW-D2	9	9	100%	<0.002	<0.0025				
	MW-D3	9	9	100%	<0.002	<0.0025				
Cadmium [mg/L]	MW-U1	9	9	100%	<0.001	<0.0025	No Outlier	0.0025	0.005	0.005
	MW-D1	9	9	100%	<0.001	<0.0025				
	MW-D2	9	9	100%	<0.001	<0.0025				
	MW-D3	9	9	100%	<0.001	<0.0025				
Chromium [mg/L]	MW-U1	9	0	0%	0.0012	0.0051	No Outlier	0.0051	0.1	0.1
	MW-D1	9	8	89%	<0.00125	0.0034				
	MW-D2	9	8	89%	<0.00125	0.0038				
	MW-D3	9	8	89%	<0.00125	0.0029				
Cobalt [mg/L]	MW-U1	10	10	100%	<0.0005	<0.0025	No Outlier	0.0025	N/A	0.0025
	MW-D1	10	10	100%	<0.0025	<0.0025				
	MW-D2	10	9	90%	0.00047 (J)	<0.0025				
	MW-D3	10	0	0%	0.00079 (J)	0.0017 (J)				
Fluoride [mg/L]	MW-U1	10	0	0%	0.040	0.070	No Outlier	0.087	4	4
	MW-D1	10	0	0%	0.050	0.110				
	MW-D2	10	0	0%	0.050	0.070				
	MW-D3	10	0	0%	0.060	0.130				
Lead [mg/L]	MW-U1	9	8	89%	0.00065 (J)	<0.0013	No Outlier	0.0013	N/A	0.0013
	MW-D1	9	8	89%	0.0008 (J)	<0.0013				
	MW-D2	9	7	78%	0.00037 (J)	<0.0013				
	MW-D3	9	9	100%	<0.0013	<0.0013				
Lithium [mg/L]	MW-U1	9	8	89%	0.00034 (J)	<0.0025	No Outlier	0.0025	N/A	0.0025
	MW-D1	9	9	100%	<0.0025	<0.005				
	MW-D2	9	9	100%	<0.0025	<0.005				
	MW-D3	9	9	100%	<0.0025	<0.005				
Mercury [mg/L]	MW-U1	9	8	89%	0.000099 (J)	<0.0002	No Outlier	0.0002	0.002	0.002
	MW-D1	9	8	89%	0.000077 (J)	<0.0002				
	MW-D2	9	7	78%	0.00011 (J)	<0.0002				
	MW-D3	9	8	89%	0.00011 (J)	<0.0002				
Molybdenum [mg/L]	MW-U1	10	10	100%	<0.003	<0.01	No Outlier	0.01	N/A	0.01
	MW-D1	10	10	100%	<0.01	<0.015				
	MW-D2	10	7	70%	0.0012 (J)	<0.015				
	MW-D3	10	0	0%	0.0017 (J)	0.0088				
Radium 226 and 228 228 Combined [pCi/L]	MW-U1	10	1	10%	0.000	0.614	No Outlier	0.8638	5	5
	MW-D1	10	1	10%	0.149	0.816				
	MW-D2	10	0	0%	0.014	1.280				
	MW-D3	10	0	0%	0.339	1.280				
Selenium [mg/L]	MW-U1	9	3	33%	0.00039	<0.0013	No Outlier	0.001	0.05	0.05
	MW-D1	9	8	89%	0.00033 (J)	<0.0013				
	MW-D2	9	6	67%	0.00033 (J)	<0.0013				
	MW-D3	9	6	67%	<0.00025	0.0028				
Thallium [mg/L]	MW-U1	10	10	100%	<0.0005	<0.0005	No Outlier	0.0005	0.002	0.002
	MW-D1	10	10	100%	<0.0005	<0.0005				
	MW-D2	10	3	30%	0.000085 (J)	<0.0005				
	MW-D3	10	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  
std = standard units

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

**Table 6. Crisp County Power Commission  
Plant Crisp Ash Pond  
Evaluation of SSLs for Appendix IV Constituents**

Appendix IV to Part 257 - Constituents for Assessment Monitoring	Well ID	Groundwater Protection Standard (GWPS)	Lower Confidence Limit if Detected in March/June 2018	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		0.108	No
	MW-D3		0.171	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	0.0025	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		0.057	No
	MW-D2		0.050	No
	MW-D3		0.100	No
Lead [mg/L]	MW-U1	0.0013	Background Well	
	MW-D1		ND	No
	MW-D2		ND	No
	MW-D3		ND	No
Lithium [mg/L]	MW-U1	0.0025	Background Well	
	MW-D1		ND	No
	MW-D2		ND	No
	MW-D3		ND	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	0.01	Background Well	
	MW-D1		ND	No
	MW-D2		ND	No
	MW-D3		0.002	No
Radium 226 and 228 Combined [pCi/L]	MW-U1	5	Background Well	
	MW-D1		0.129	No
	MW-D2		0.248	No
	MW-D3		0.403	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

std = standard units

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

# FIGURES




N:\Crisp County\GIS\IMXD\2018\GW Monitoring Well Location Map.mxd 9/17/2018 4:20:43 PM AK

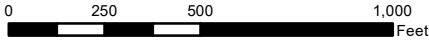


Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



**Legend**

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



**Groundwater Monitoring Well Location Map**

Crisp County Power Commission  
Warwick, Georgia



DATE:	OCTOBER 2018
PROJECT NO.	GW6152
DOCUMENT NO.	GA 180296
FILE NO.	GW MONITORING WELL LOCATION MAP.MXD
FIGURE NO.	1

KENNESAW, GA



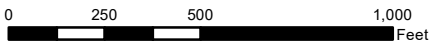
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

N:\Crisp County\GIS\IMXD\2018\Potentiometric Surface Map.mxd 9/20/2018 4:46:46 PM AK



**Legend**

- Groundwater Monitoring Well
- Groundwater Flow Direction
- Groundwater Elevation Contour - 5 June 2018 (ft)
- Ash Pond Limits
- CCPC Property Boundary



**Potentiometric Surface Map**

Crisp County Power Commission  
Warwick, Georgia



DATE:	OCTOBER 2018
PROJECT NO.	GW6152
DOCUMENT NO.	GA 180296
FILE NO.	POTENTIOMETRIC SURFACE MAP.MXD
FIGURE NO.	2

KENNESAW, GA

# APPENDIX A

## Field Groundwater Sampling Forms





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

SITE NAME: <b>Crisp County Power Commission</b>	SITE LOCATION: <b>961 Power Dam Rd Warwick, GA 31796</b>
WELL NO: <b>MW-D1</b>	SAMPLE ID: <b>MW-D1-20180322</b>
DATE: <b>3/22/18</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>14.56</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>14.56</b> feet ) X <b>0.16</b> gallons/foot = <b>1.3</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>1145</b>	PURGING ENDED AT: <b>1205</b>	TOTAL VOLUME PURGED (gallons):
---	---	-----------------------------------	-------------------------------	--------------------------------

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)
1145	0.0	0.0	0.063	14.78	7.02	20.02	215	4.53	3	214	CLEAR
1150	0.063	0.063	0.063	14.75	6.65	20.26	204	4.16	3	197	CLEAR
1155	0.063	0.315	0.063	14.79	6.60	20.15	198	4.15	1	201	CLEAR
1200	0.063	0.63	0.063	14.79	6.57	19.99	196	4.17	1	206	CLEAR
1205	0.063	0.95	0.063	14.8	6.54	20.19	210	4.11	1	211	CLEAR

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>1210</b>	SAMPLING ENDED AT: <b>1221</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: _____ 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 type="checkbox"/> N <input checked="" 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>MW-D1</b>	<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>2018</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>0322</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; 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 Commission</b>	SITE LOCATION: <b>961 Power Dam Rd Warwick, GA 31796</b>
WELL NO: <b>MW-D2</b>	SAMPLE ID: <b>MW-D2-20180322</b>
DATE: <b>3/22/18</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>12.42</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>12.42</b> feet ) X <b>0.16</b> gallons/foot = <b>1.6</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>0940</b>	PURGING ENDED AT: <b>1009</b>	TOTAL VOLUME PURGED (gallons): <b>1.5</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)
0943	0.0	0.0	.060	12.78	4.71	11.63	617	11.4	3	222	CLEAR
0948	0.3	0.3	.060	13.03	4.24	13.15	622	10.09	2	245	CLEAR
0953	0.3	0.6	.060	13.28	4.26	13.83	631	8.99	2	251	CLEAR
0958	0.3	0.9	.060	13.41	4.46	13.73	632	9.0	2	245	CLEAR
1003	0.3	1.2	.060	14.01	4.41	13.84	632	9.94	2	249	CLEAR
1008	0.3	1.5	.060	14.3	4.38	14.50	630	9.88	2	262	CLEAR

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>1012</b>	SAMPLING ENDED AT: <b>1023</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: _____ 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			
<b>MW-D2</b>	<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>2018</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>0322</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; 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: Crisp County Power Commission	SITE LOCATION: 961 Power Dam Rd Warwick, GA 31796
WELL NO: MW-D3	SAMPLE ID: MW-D3-20180322
	DATE: 3/22/18

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): 6.13	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 - 6.13 feet ) X 0.16 gallons/foot = 2.6 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: 1042	PURGING ENDED AT: 1105	TOTAL VOLUME PURGED (gallons): 1.32							
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)
1045	0.0	0.0	0.066	7.28	6.9	17.02	739	0.83	2	178	CLEAR
1050	0.33	0.33	0.066	7.98	6.91	17.6	722	0.0	2	149	CLEAR
1055	0.33	0.66	0.066	8.28	6.89	18.11	714	0.0	2	114	CLEAR
1100	0.33	0.99	0.066	8.50	6.91	18.67	708	0.0	2	101	CLEAR
1105	0.33	1.32	0.066	8.73	6.90	19.27	700	0.0	2	95	CLEAR
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): Stephen W. Randall			SAMPLING INITIATED AT: 1110		SAMPLING ENDED AT: 1129		
PUMP OR TUBING DEPTH IN WELL (feet): 17'			TUBING MATERIAL CODE: LDPE			FIELD-FILTERED: Y <input checked="" type="checkbox"/> N		FILTER SIZE: _____ μm		
FIELD DECONTAMINATION: PUMP Y <input checked="" type="checkbox"/> N			TUBING Y <input checked="" type="checkbox"/> N (replaced)			DUPLICATE: <input checked="" type="checkbox"/> 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				
MW-D3	1	HDPE	1.9 L	HNO3	---	---	9315, 9320, Ra226_Ra228		APP 250	
2018	1	HDPE	1 L	---	---	---	SM 4500		APP 250	
0322	1	HDPE	0.25 L	HNO3	---	---	6020, 7470A		APP 250	
DUP9	1	HDPE	1.9 L	HNO3	-	-	9315, 9320, Ra226, Ra228		APP 250	
2018	1	HDPE	1 L	---	-	-	6020, 7470A		APP 250	
0322	1	HDPE	0.25 L	HNO3	-	-	SM 4500		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: ± 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: Crisp County Power Commission		SITE LOCATION: 961 Power Dam Rd Warwick, GA 31796	
WELL NO: MW-41		SAMPLE ID: MW-41-20180322	
		DATE: 3/22/18	

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 0.25	WELL SCREEN INTERVAL DEPTH: 27.1 feet to 37.1 feet	STATIC DEPTH TO WATER (feet): 11.0	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) = ( 37.1 feet - 11 feet ) X 0.16 gallons/foot = 4.48 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): 32.1	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 32.1	PURGING INITIATED AT: 1240	PURGING ENDED AT: 1302	TOTAL VOLUME PURGED (gallons): 1.27
---	---	----------------------------	------------------------	-------------------------------------

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)
1242	0.0	0.0	0.063	11.39	7.43	20.73	218	6.63	2	185	CLEAR
1247	.315	.315	0.063	11.65	7.72	21.21	232	6.22	1	194	CLEAR
1252	.315	0.63	0.063	11.67	7.84	21.38	218	6.17	1	197	CLEAR
1257	.315	0.95	0.63	11.69	7.83	21.38	214	6.11	1	186	CLEAR
1302	.315	1.27	0.63	11.67	7.87	21.59	215	6.10	1	186	CLEAR

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: 1305	SAMPLING ENDED AT: 1320
PUMP OR TUBING DEPTH IN WELL (feet): 32.1	TUBING MATERIAL CODE: LDPE	FIELD-FILTERED: Y <input checked="" type="checkbox"/> N	FILTER SIZE: ___ μm
FIELD DECONTAMINATION: PUMP Y <input checked="" type="checkbox"/> N	TUBING Y <input checked="" type="checkbox"/> N (replaced)	DUPLICATE: Y <input checked="" type="checkbox"/> 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
	1	HDPE	0.25L	HNO3	BORON	---	---	APP	250

REMARKS: BORON SAMPLE COLLECTED AND WILL BE SENT UNDER DIFFERENT COC.

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 Commission</b>	SITE LOCATION: <b>961 Power Dam Rd Warwick, GA 31796</b>
WELL NO: <b>MW-U1</b>	SAMPLE ID: <b>MW-U1-20180605</b>
DATE: <b>6/5/18</b>	

**PURGING DATA**

WELL DIAMETER (Inches): <b>2</b>	TUBING DIAMETER (Inches): <b>0.25</b>	WELL SCREEN INTERVAL DEPTH: <b>27.1</b> feet to <b>37.1</b> feet	STATIC DEPTH TO WATER (feet): <b>10.72</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>10.72</b> feet ) X <b>26.38</b> gallons/foot = <b>4.25</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>1315</b>	PURGING ENDED AT: <b>1445</b>	TOTAL VOLUME PURGED (gallons): <b>5.94</b>

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (microhos/cm or µS/cm)	DISSOLVED OXYGEN (circle units) (mg/L or % saturation)	TURBIDITY (NTUs)	ORP (mV)	COLOR/ODOR (describe)
1315	0.0	0.0	0.066	10.72	6.74	27.72	192	6.33	29	132	LT. SAND
1320	0.33	0.33	0.066	11.38	6.94	25.54	190	6.30	14	130	CLEAR
1325	0.33	0.66	0.066	11.42	6.96	25.34	190	6.64	16	132	"
1330	0.33	0.99	0.066	11.44	7.02	24.97	189	6.52	17	131	"
1335	0.33	1.32	0.066	11.49	7.09	23.33	184	6.65	21	132	"
1340	0.33	1.65	0.066	11.51	7.10	23.40	181	6.66	24	142	"
1345	0.33	1.98	0.066	11.52	6.98	24.21	187	6.62	15	141	"
1350	0.33	2.31	0.066	11.52	7.02	24.06	186	6.74	17	141	"
1355	0.33	2.64	0.066	11.53	7.07	23.98	185	6.77	14	141	"
1400	0.33	2.97	0.066	11.53	7.08	24.10	185	6.71	14	142	"
1405	0.33	3.3	0.066	11.53	7.11	24.00	185	6.69	14	141	"

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 = Bailor; 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>1450</b>	SAMPLING ENDED AT: <b>1505</b>
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: <b>LDPE</b>	FIELD-FILTERED: Y <input checked="" type="checkbox"/> N	FILTER SIZE: _____ µm
FIELD DECONTAMINATION: PUMP Y <input checked="" type="checkbox"/> N	TUBING Y <input checked="" type="checkbox"/> N (replaced)	DUPLICATE: Y <input checked="" type="checkbox"/> 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, Ra228_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 = Bailor; 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 Commission</b>	SITE LOCATION: <b>961 Power Dam Rd Warwick, GA 31796</b>
WELL NO: <b>MW-U1</b>	SAMPLE ID: <b>MW-U1-20180605</b>
DATE: <b>6/5/18</b>	

**PURGING DATA**

WELL DIAMETER (Inches): <b>2</b>	TUBING DIAMETER (Inches): <b>0.25</b>	WELL SCREEN INTERVAL DEPTH: <b>27.1</b> feet to <b>37.1</b> feet	STATIC DEPTH TO WATER (feet): <b>10.72</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>10.72</b> feet ) X <sup>26.38</sup> <b>0.16</b> gallons/foot = <b>4.25</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>13.15</b>	PURGING ENDED AT: <b>1445</b>	TOTAL VOLUME PURGED (gallons): <b>5.94</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)
1410	0.33	3.63	0.066	11.67	7.07	23.93	185	6.97	12	144	Clear
1415	0.33	3.96	0.066	11.69	7.10	24.04	185	6.96	13	145	"
1420	0.33	4.29	0.066	11.70	7.11	24.01	185	6.87	12	145	"
1425	0.33	4.62	0.066	11.71	7.16	24.07	185	6.61	12	144	"
1430	0.33	4.95	0.066	11.73	7.13	24.00	185	6.60	11	145	"
1435	0.33	5.28	0.066	11.73	7.14	23.95	184	6.40	9	145	"
1440	0.33	5.61	0.066	11.74	7.22	23.98	184	6.52	7	143	"
1445	0.33	5.94	0.066	11.75	7.21	24.17	184	6.50	7	143	"

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):	SAMPLING INITIATED AT: <b>1450</b>	SAMPLING ENDED AT: <b>1505</b>
--	--------------------------	------------------------------------	--------------------------------

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: <b>LDPE</b>	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 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)

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-D1	SAMPLE ID: MW-D1-20180605	DATE: 6/5/18	

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (Inches): 0.25	WELL SCREEN INTERVAL DEPTH: 12.6 feet to 22.6 feet	STATIC DEPTH TO WATER (feet): 14.58	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) = ( 22.6 feet - 14.58 feet ) X 8.02 gallons/foot = 1.30 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: 1135	PURGING ENDED AT: 1200	TOTAL VOLUME PURGED (gallons): 1.65							
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)
1135	0.0	0.0	0.066	14.84	6.31	25.86	177	6.22	1	138	CLEAR
1140	0.33	0.33	0.066	14.85	6.04	25.14	164	5.92	1	158	CLEAR
1145	0.33	0.66	0.066	14.88	5.95	25.00	166	5.97	1	162	CLEAR
1150	0.33	0.99	0.066	14.86	5.95	24.75	165	5.85	1	165	CLEAR
1155	0.33	1.32	0.066	14.88	5.89	24.65	165	5.65	1	168	CLEAR
1200	0.33	1.65	0.066	14.89	5.91	24.90	164	5.50	1	170	CLEAR
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): Stephen W. Randall		SAMPLING INITIATED AT: 1210	SAMPLING ENDED AT: 1245			
PUMP OR TUBING DEPTH IN WELL (feet): 17'	TUBING MATERIAL CODE: LDPE	FIELD-FILTERED: Y <input checked="" type="checkbox"/> N	Filtration Equipment Type:	FILTER SIZE: _____ μm				
FIELD DECONTAMINATION: PUMP Y <input checked="" type="checkbox"/> N	TUBING Y <input checked="" type="checkbox"/> N (replaced)	DUPLICATE: <input checked="" type="checkbox"/> 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
DUP 10	1	HDPE	1.9 L	HNO3	-	-	9315, 9320, RA226, RA228	APP 250
2018	1	HDPE	1 L	-	-	-	SM 4500	APP 250
0605	1	HDPE	0.25 L	HNO3	-	-	6020, 7470A	APP 250
REMARKS: DUP 10 TIME ON LOG 0800								
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 Commission</b>	SITE LOCATION: <b>961 Power Dam Rd Warwick, GA 31796</b>
WELL NO: <b>MW-D2</b>	SAMPLE ID: <b>MW-D2-20180605</b> DATE: <b>6/5/18</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>12.75</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>12.75</b> feet ) X <b>9.45</b> gallons/foot = <b>1.5</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>0924</b>	PURGING ENDED AT: <b>0945</b>	TOTAL VOLUME PURGED (gallons): <b>1.32</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 % saturation	TURBIDITY (NTUs)	ORP (mV)	COLOR/ODOR (describe)
0924	0.0	0.0	0.066	12.75	6.50	21.31	600	2.12	3	38	CLEAR
0930	0.33	0.33	0.066	13.35	6.41	21.10	596	2.00	1	37	"
0935	0.33	0.66	0.066	13.68	6.33	20.96	598	1.52	1	38	"
0940	0.33	0.99	0.066	13.85	6.30	20.90	607	1.21	1	41	"
0945	0.33	1.32	0.066	14.17	6.28	20.90	612	1.07	1	44	"

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" = 0.0008; 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>0950</b>	SAMPLING ENDED AT: <b>1003</b>
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: <b>LDPE</b>	FIELD-FILTERED: Y <input checked="" type="checkbox"/> N	FILTER SIZE: _____ μm
FIELD DECONTAMINATION: PUMP Y <input checked="" type="checkbox"/> N	TUBING Y <input checked="" type="checkbox"/> N (replaced)	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, R#228_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: ± 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: Crisp County Power Commission	SITE LOCATION: 961 Power Dam Rd Warwick, GA 31796
WELL NO: MW-D3	SAMPLE ID: MW-D3-20180605
DATE: 6/5/18	

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): 6.36	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 - 6.36 feet ) X 0.16 gallons/foot = 2.6 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: 1018	PURGING ENDED AT: 1038	TOTAL VOLUME PURGED (gallons): 1.32

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)
1018	0.0	0.0	0.066	7.2	6.42	22.45	591	1.87	8	119	CLEAR
1023	0.33	0.33	0.066	7.88	6.39	22.66	592	0.99	9	113	"
1028	0.33	0.66	0.066	8.52	6.39	22.51	596	0.72	7	88	"
1033	0.33	0.99	0.066	8.88	6.39	22.56	599	0.62	4	66	"
1038	0.33	1.32	0.066	9.05	6.40	22.62	599	0.57	4	54	"

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 = Baller; 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: 1045	SAMPLING ENDED AT: 1108
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: LDPE	FIELD-FILTERED: Y <input checked="" type="checkbox"/> N	FILTER SIZE: ___ μm
FIELD DECONTAMINATION: PUMP Y <input checked="" type="checkbox"/> N	TUBING Y <input checked="" type="checkbox"/> N (replaced)	DUPLICATE: Y <input checked="" type="checkbox"/> 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, Re220	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 = Baller; 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)

## APPENDIX B

### Laboratory Analytical Reports

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-151252-1

Client Project/Site: CCR App.IV GW Monitoring

Revision: 2

For:

Geosyntec Consultants, Inc.

1255 Roberts Blvd, NW

Suite 200

Kennesaw, Georgia 30144

Attn: Jeremy Gasser



Authorized for release by:

9/13/2018 6:30:33 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?



Visit us at:

[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.*

1

2

3

4

5

6

7

8

9

10

11

12

13

14



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Case Narrative . . . . .	3
Detection Summary . . . . .	4
Method Summary . . . . .	5
Sample Summary . . . . .	6
Client Sample Results . . . . .	7
Definitions . . . . .	12
Chronicle . . . . .	13
QC Association . . . . .	15
QC Sample Results . . . . .	17
Chain of Custody . . . . .	20
Receipt Checklists . . . . .	21
Certification Summary . . . . .	22

# Case Narrative

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

TestAmerica Job ID: 400-151252-1

---

**Job ID: 400-151252-1**

---

**Laboratory: TestAmerica Pensacola**

## Narrative

---

### Job Narrative 400-151252-1

#### Metals

Method(s) 6020: The method blank for preparation batch 391369 and analytical batch 391638 contained Selenium above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 6020: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 391369 and analytical batch 391638 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.



# Detection Summary

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

TestAmerica Job ID: 400-151252-1

## Client Sample ID: DUP-9

## Lab Sample ID: 400-151252-1

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	0.17		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Cobalt	0.0016	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable
Molybdenum	0.0017	J	0.015	0.00085	mg/L	5		6020	Total Recoverable
Fluoride	0.12		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA

## Client Sample ID: MW-D1

## Lab Sample ID: 400-151252-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0095		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Fluoride	0.080	J	0.10	0.032	mg/L	1		SM 4500 F C	Total/NA

## Client Sample ID: MW-D2

## Lab Sample ID: 400-151252-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.15		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Fluoride	0.060	J	0.10	0.032	mg/L	1		SM 4500 F C	Total/NA

## Client Sample ID: MW-D3

## Lab Sample ID: 400-151252-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00060	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.16		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Cobalt	0.0015	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable
Molybdenum	0.0022	J	0.015	0.00085	mg/L	5		6020	Total Recoverable
Thallium	0.00010	J	0.00050	0.000085	mg/L	5		6020	Total Recoverable
Fluoride	0.11		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA

## Client Sample ID: MW-U1

## Lab Sample ID: 400-151252-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0021	J	0.0025	0.00049	mg/L	5		6020	Total Recoverable
Chromium	0.0016	J	0.0025	0.0011	mg/L	5		6020	Total Recoverable
Lithium	0.00034	J	0.0010	0.00022	mg/L	1		6020	Total Recoverable
Selenium	0.00039		0.00025	0.000048	mg/L	1		6020	Total Recoverable
Fluoride	0.070	J	0.10	0.032	mg/L	1		SM 4500 F C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Method Summary

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

TestAmerica Job ID: 400-151252-1

Method	Method Description	Protocol	Laboratory
6020	Metals (ICP/MS)	SW846	TAL PEN
7470A	Mercury (CVAA)	SW846	TAL PEN
SM 4500 F C	Fluoride	SM	TAL PEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PEN
7470A	Preparation, Mercury	SW846	TAL PEN

#### Protocol References:

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

# Sample Summary

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

TestAmerica Job ID: 400-151252-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-151252-1	DUP-9	Water	03/22/18 08:00	03/23/18 09:03
400-151252-2	MW-D1	Water	03/22/18 12:10	03/23/18 09:03
400-151252-3	MW-D2	Water	03/22/18 10:12	03/23/18 09:03
400-151252-4	MW-D3	Water	03/22/18 11:10	03/23/18 09:03
400-151252-5	MW-U1	Water	03/22/18 13:05	03/23/18 09:03

- 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.IV GW Monitoring

TestAmerica Job ID: 400-151252-1

**Client Sample ID: DUP-9**

**Date Collected: 03/22/18 08:00**

**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151252-1**

**Matrix: Water**

## 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		03/25/18 13:50	03/26/18 19:53	5
<b>Arsenic</b>	<b>0.00048</b>	<b>J</b>	0.0013	0.00046	mg/L		03/25/18 13:50	03/26/18 19:53	5
<b>Barium</b>	<b>0.17</b>		0.0025	0.00049	mg/L		03/25/18 13:50	03/26/18 19:53	5
Beryllium	ND		0.0025	0.00034	mg/L		03/25/18 13:50	03/26/18 19:53	5
Cadmium	ND		0.0025	0.00034	mg/L		03/25/18 13:50	03/26/18 19:53	5
Chromium	ND		0.0025	0.0011	mg/L		03/25/18 13:50	03/26/18 19:53	5
<b>Cobalt</b>	<b>0.0016</b>	<b>J</b>	0.0025	0.00040	mg/L		03/25/18 13:50	03/26/18 19:53	5
Lead	ND		0.0013	0.00035	mg/L		03/25/18 13:50	03/26/18 19:53	5
Lithium	ND		0.0050	0.0011	mg/L		03/25/18 13:50	03/26/18 19:53	5
<b>Molybdenum</b>	<b>0.0017</b>	<b>J</b>	0.015	0.00085	mg/L		03/25/18 13:50	03/26/18 19:53	5
Selenium	ND		0.0013	0.00024	mg/L		03/25/18 13:50	03/26/18 19:53	5
Thallium	ND		0.00050	0.000085	mg/L		03/25/18 13:50	03/26/18 19:53	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000070	mg/L		03/26/18 12:19	03/27/18 12:57	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Fluoride</b>	<b>0.12</b>		0.10	0.032	mg/L			03/27/18 13:16	1

# Client Sample Results

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

TestAmerica Job ID: 400-151252-1

**Client Sample ID: MW-D1**

**Date Collected: 03/22/18 12:10**

**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151252-2**

**Matrix: Water**

**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		03/25/18 13:50	03/26/18 19:57	5
Arsenic	ND		0.0013	0.00046	mg/L		03/25/18 13:50	03/26/18 19:57	5
<b>Barium</b>	<b>0.0095</b>		0.0025	0.00049	mg/L		03/25/18 13:50	03/26/18 19:57	5
Beryllium	ND		0.0025	0.00034	mg/L		03/25/18 13:50	03/26/18 19:57	5
Cadmium	ND		0.0025	0.00034	mg/L		03/25/18 13:50	03/26/18 19:57	5
Chromium	ND		0.0025	0.0011	mg/L		03/25/18 13:50	03/26/18 19:57	5
Cobalt	ND		0.0025	0.00040	mg/L		03/25/18 13:50	03/26/18 19:57	5
Lead	ND		0.0013	0.00035	mg/L		03/25/18 13:50	03/26/18 19:57	5
Lithium	ND		0.0050	0.0011	mg/L		03/25/18 13:50	03/26/18 19:57	5
Molybdenum	ND		0.015	0.00085	mg/L		03/25/18 13:50	03/26/18 19:57	5
Selenium	ND		0.0013	0.00024	mg/L		03/25/18 13:50	03/26/18 19:57	5
Thallium	ND		0.00050	0.000085	mg/L		03/25/18 13:50	03/26/18 19:57	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000070	mg/L		03/26/18 12:19	03/27/18 12:59	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Fluoride</b>	<b>0.080</b>	<b>J</b>	0.10	0.032	mg/L			03/27/18 13:18	1

# Client Sample Results

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

TestAmerica Job ID: 400-151252-1

**Client Sample ID: MW-D2**

**Date Collected: 03/22/18 10:12**

**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151252-3**

**Matrix: Water**

**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		03/25/18 13:50	03/26/18 20:02	5
Arsenic	ND		0.0013	0.00046	mg/L		03/25/18 13:50	03/26/18 20:02	5
<b>Barium</b>	<b>0.15</b>		0.0025	0.00049	mg/L		03/25/18 13:50	03/26/18 20:02	5
Beryllium	ND		0.0025	0.00034	mg/L		03/25/18 13:50	03/26/18 20:02	5
Cadmium	ND		0.0025	0.00034	mg/L		03/25/18 13:50	03/26/18 20:02	5
Chromium	ND		0.0025	0.0011	mg/L		03/25/18 13:50	03/26/18 20:02	5
Cobalt	ND		0.0025	0.00040	mg/L		03/25/18 13:50	03/26/18 20:02	5
Lead	ND		0.0013	0.00035	mg/L		03/25/18 13:50	03/26/18 20:02	5
Lithium	ND		0.0050	0.0011	mg/L		03/25/18 13:50	03/26/18 20:02	5
Molybdenum	ND		0.015	0.00085	mg/L		03/25/18 13:50	03/26/18 20:02	5
Selenium	ND		0.0013	0.00024	mg/L		03/25/18 13:50	03/26/18 20:02	5
Thallium	ND		0.00050	0.000085	mg/L		03/25/18 13:50	03/26/18 20:02	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000070	mg/L		03/26/18 12:19	03/27/18 13:01	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Fluoride</b>	<b>0.060</b>	<b>J</b>	0.10	0.032	mg/L			03/27/18 13:22	1

# Client Sample Results

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

TestAmerica Job ID: 400-151252-1

**Client Sample ID: MW-D3**  
**Date Collected: 03/22/18 11:10**  
**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151252-4**  
**Matrix: Water**

**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		03/25/18 13:50	03/26/18 20:29	5
<b>Arsenic</b>	<b>0.00060</b>	<b>J</b>	0.0013	0.00046	mg/L		03/25/18 13:50	03/26/18 20:29	5
<b>Barium</b>	<b>0.16</b>		0.0025	0.00049	mg/L		03/25/18 13:50	03/26/18 20:29	5
Beryllium	ND		0.0025	0.00034	mg/L		03/25/18 13:50	03/26/18 20:29	5
Cadmium	ND		0.0025	0.00034	mg/L		03/25/18 13:50	03/26/18 20:29	5
Chromium	ND		0.0025	0.0011	mg/L		03/25/18 13:50	03/26/18 20:29	5
<b>Cobalt</b>	<b>0.0015</b>	<b>J</b>	0.0025	0.00040	mg/L		03/25/18 13:50	03/26/18 20:29	5
Lead	ND		0.0013	0.00035	mg/L		03/25/18 13:50	03/26/18 20:29	5
Lithium	ND		0.0050	0.0011	mg/L		03/25/18 13:50	03/26/18 20:29	5
<b>Molybdenum</b>	<b>0.0022</b>	<b>J</b>	0.015	0.00085	mg/L		03/25/18 13:50	03/26/18 20:29	5
Selenium	ND		0.00025	0.000048	mg/L		03/25/18 13:50	03/26/18 21:09	1
<b>Thallium</b>	<b>0.00010</b>	<b>J</b>	0.00050	0.000085	mg/L		03/25/18 13:50	03/26/18 20:29	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000070	mg/L		03/26/18 12:24	03/27/18 13:02	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Fluoride</b>	<b>0.11</b>		0.10	0.032	mg/L			03/27/18 13:26	1

# Client Sample Results

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

TestAmerica Job ID: 400-151252-1

**Client Sample ID: MW-U1**

**Date Collected: 03/22/18 13:05**

**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151252-5**

**Matrix: Water**

## 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		03/25/18 13:50	03/26/18 20:33	5
Arsenic	ND		0.0013	0.00046	mg/L		03/25/18 13:50	03/26/18 20:33	5
<b>Barium</b>	<b>0.0021</b>	<b>J</b>	0.0025	0.00049	mg/L		03/25/18 13:50	03/26/18 20:33	5
Beryllium	ND		0.0025	0.00034	mg/L		03/25/18 13:50	03/26/18 20:33	5
Cadmium	ND		0.0025	0.00034	mg/L		03/25/18 13:50	03/26/18 20:33	5
<b>Chromium</b>	<b>0.0016</b>	<b>J</b>	0.0025	0.0011	mg/L		03/25/18 13:50	03/26/18 20:33	5
Cobalt	ND		0.00050	0.000080	mg/L		03/25/18 13:50	03/26/18 21:14	1
Lead	ND		0.0013	0.00035	mg/L		03/25/18 13:50	03/26/18 20:33	5
<b>Lithium</b>	<b>0.00034</b>	<b>J</b>	0.0010	0.00022	mg/L		03/25/18 13:50	03/26/18 21:14	1
Molybdenum	ND		0.0030	0.00017	mg/L		03/25/18 13:50	03/26/18 21:14	1
<b>Selenium</b>	<b>0.00039</b>		0.00025	0.000048	mg/L		03/25/18 13:50	03/26/18 21:14	1
Thallium	ND		0.00050	0.000085	mg/L		03/25/18 13:50	03/26/18 20:33	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000070	mg/L		03/26/18 12:24	03/27/18 13:04	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Fluoride</b>	<b>0.070</b>	<b>J</b>	0.10	0.032	mg/L			03/27/18 13:28	1

# Definitions/Glossary

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

TestAmerica Job ID: 400-151252-1

## 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.IV GW Monitoring

TestAmerica Job ID: 400-151252-1

**Client Sample ID: DUP-9**

**Date Collected: 03/22/18 08:00**

**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151252-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			391369	03/25/18 13:50	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	391638	03/26/18 19:53	DRE	TAL PEN
Total/NA	Prep	7470A			391460	03/26/18 12:19	JAP	TAL PEN
Total/NA	Analysis	7470A		1	391649	03/27/18 12:57	JAP	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	391669	03/27/18 13:16	BAB	TAL PEN

**Client Sample ID: MW-D1**

**Date Collected: 03/22/18 12:10**

**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151252-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			391369	03/25/18 13:50	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	391638	03/26/18 19:57	DRE	TAL PEN
Total/NA	Prep	7470A			391460	03/26/18 12:19	JAP	TAL PEN
Total/NA	Analysis	7470A		1	391649	03/27/18 12:59	JAP	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	391669	03/27/18 13:18	BAB	TAL PEN

**Client Sample ID: MW-D2**

**Date Collected: 03/22/18 10:12**

**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151252-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			391369	03/25/18 13:50	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	391638	03/26/18 20:02	DRE	TAL PEN
Total/NA	Prep	7470A			391460	03/26/18 12:19	JAP	TAL PEN
Total/NA	Analysis	7470A		1	391649	03/27/18 13:01	JAP	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	391669	03/27/18 13:22	BAB	TAL PEN

**Client Sample ID: MW-D3**

**Date Collected: 03/22/18 11:10**

**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151252-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			391369	03/25/18 13:50	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	391638	03/26/18 20:29	DRE	TAL PEN
Total Recoverable	Prep	3005A			391369	03/25/18 13:50	DN1	TAL PEN
Total Recoverable	Analysis	6020		1	391638	03/26/18 21:09	DRE	TAL PEN
Total/NA	Prep	7470A			391460	03/26/18 12:24	JAP	TAL PEN
Total/NA	Analysis	7470A		1	391649	03/27/18 13:02	JAP	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	391669	03/27/18 13:26	BAB	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

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

TestAmerica Job ID: 400-151252-1

**Client Sample ID: MW-U1**

**Date Collected: 03/22/18 13:05**

**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151252-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			391369	03/25/18 13:50	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	391638	03/26/18 20:33	DRE	TAL PEN
Total Recoverable	Prep	3005A			391369	03/25/18 13:50	DN1	TAL PEN
Total Recoverable	Analysis	6020		1	391638	03/26/18 21:14	DRE	TAL PEN
Total/NA	Prep	7470A			391460	03/26/18 12:24	JAP	TAL PEN
Total/NA	Analysis	7470A		1	391649	03/27/18 13:04	JAP	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	391669	03/27/18 13:28	BAB	TAL PEN

#### Laboratory References:

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

# QC Association Summary

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

TestAmerica Job ID: 400-151252-1

## Metals

### Prep Batch: 391369

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151252-1	DUP-9	Total Recoverable	Water	3005A	
400-151252-2	MW-D1	Total Recoverable	Water	3005A	
400-151252-3	MW-D2	Total Recoverable	Water	3005A	
400-151252-4	MW-D3	Total Recoverable	Water	3005A	
400-151252-5	MW-U1	Total Recoverable	Water	3005A	
MB 400-391369/1-A ^1	Method Blank	Total Recoverable	Water	3005A	
MB 400-391369/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-391369/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-150861-B-1-B MS ^5	Matrix Spike	Total Recoverable	Water	3005A	
400-150861-B-1-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

### Prep Batch: 391460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151252-1	DUP-9	Total/NA	Water	7470A	
400-151252-2	MW-D1	Total/NA	Water	7470A	
400-151252-3	MW-D2	Total/NA	Water	7470A	
400-151252-4	MW-D3	Total/NA	Water	7470A	
400-151252-5	MW-U1	Total/NA	Water	7470A	
MB 400-391460/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-391460/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-151193-N-2-C MS	Matrix Spike	Total/NA	Water	7470A	
400-151193-N-2-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

### Analysis Batch: 391638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151252-1	DUP-9	Total Recoverable	Water	6020	391369
400-151252-2	MW-D1	Total Recoverable	Water	6020	391369
400-151252-3	MW-D2	Total Recoverable	Water	6020	391369
400-151252-4	MW-D3	Total Recoverable	Water	6020	391369
400-151252-4	MW-D3	Total Recoverable	Water	6020	391369
400-151252-5	MW-U1	Total Recoverable	Water	6020	391369
400-151252-5	MW-U1	Total Recoverable	Water	6020	391369
MB 400-391369/1-A ^1	Method Blank	Total Recoverable	Water	6020	391369
MB 400-391369/1-A ^5	Method Blank	Total Recoverable	Water	6020	391369
LCS 400-391369/2-A	Lab Control Sample	Total Recoverable	Water	6020	391369
400-150861-B-1-B MS ^5	Matrix Spike	Total Recoverable	Water	6020	391369
400-150861-B-1-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	6020	391369

### Analysis Batch: 391649

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151252-1	DUP-9	Total/NA	Water	7470A	391460
400-151252-2	MW-D1	Total/NA	Water	7470A	391460
400-151252-3	MW-D2	Total/NA	Water	7470A	391460
400-151252-4	MW-D3	Total/NA	Water	7470A	391460
400-151252-5	MW-U1	Total/NA	Water	7470A	391460
MB 400-391460/14-A	Method Blank	Total/NA	Water	7470A	391460
LCS 400-391460/15-A	Lab Control Sample	Total/NA	Water	7470A	391460
400-151193-N-2-C MS	Matrix Spike	Total/NA	Water	7470A	391460
400-151193-N-2-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	391460

TestAmerica Pensacola

# QC Association Summary

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

TestAmerica Job ID: 400-151252-1

## General Chemistry

### Analysis Batch: 391669

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151252-1	DUP-9	Total/NA	Water	SM 4500 F C	
400-151252-2	MW-D1	Total/NA	Water	SM 4500 F C	
400-151252-3	MW-D2	Total/NA	Water	SM 4500 F C	
400-151252-4	MW-D3	Total/NA	Water	SM 4500 F C	
400-151252-5	MW-U1	Total/NA	Water	SM 4500 F C	
MB 400-391669/3	Method Blank	Total/NA	Water	SM 4500 F C	
LCS 400-391669/4	Lab Control Sample	Total/NA	Water	SM 4500 F C	
660-86202-B-7 MS	Matrix Spike	Total/NA	Water	SM 4500 F C	
660-86202-B-7 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 F C	
400-150793-A-5 DU	Duplicate	Total/NA	Water	SM 4500 F C	

# QC Sample Results

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

TestAmerica Job ID: 400-151252-1

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

**Lab Sample ID: MB 400-391369/1-A ^1**  
**Matrix: Water**  
**Analysis Batch: 391638**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 391369**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.00050	0.00020	mg/L		03/25/18 13:50	03/26/18 20:47	1
Arsenic	ND		0.00025	0.000092	mg/L		03/25/18 13:50	03/26/18 20:47	1
Barium	ND		0.00050	0.000098	mg/L		03/25/18 13:50	03/26/18 20:47	1
Beryllium	ND		0.00050	0.000068	mg/L		03/25/18 13:50	03/26/18 20:47	1
Cadmium	ND		0.00050	0.000068	mg/L		03/25/18 13:50	03/26/18 20:47	1
Chromium	ND		0.00050	0.00022	mg/L		03/25/18 13:50	03/26/18 20:47	1
Cobalt	ND		0.00050	0.000080	mg/L		03/25/18 13:50	03/26/18 20:47	1
Lead	ND		0.00025	0.000070	mg/L		03/25/18 13:50	03/26/18 20:47	1
Lithium	ND		0.0010	0.00022	mg/L		03/25/18 13:50	03/26/18 20:47	1
Molybdenum	ND		0.0030	0.00017	mg/L		03/25/18 13:50	03/26/18 20:47	1
Selenium	ND		0.00025	0.000048	mg/L		03/25/18 13:50	03/26/18 20:47	1
Thallium	ND		0.00010	0.000017	mg/L		03/25/18 13:50	03/26/18 20:47	1

**Lab Sample ID: MB 400-391369/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 391638**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 391369**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0025	0.0010	mg/L		03/25/18 13:50	03/26/18 18:09	5
Arsenic	ND		0.0013	0.00046	mg/L		03/25/18 13:50	03/26/18 18:09	5
Barium	ND		0.0025	0.00049	mg/L		03/25/18 13:50	03/26/18 18:09	5
Beryllium	ND		0.0025	0.00034	mg/L		03/25/18 13:50	03/26/18 18:09	5
Cadmium	ND		0.0025	0.00034	mg/L		03/25/18 13:50	03/26/18 18:09	5
Chromium	ND		0.0025	0.0011	mg/L		03/25/18 13:50	03/26/18 18:09	5
Cobalt	ND		0.0025	0.00040	mg/L		03/25/18 13:50	03/26/18 18:09	5
Lead	ND		0.0013	0.00035	mg/L		03/25/18 13:50	03/26/18 18:09	5
Lithium	ND		0.0050	0.0011	mg/L		03/25/18 13:50	03/26/18 18:09	5
Molybdenum	ND		0.015	0.00085	mg/L		03/25/18 13:50	03/26/18 18:09	5
Selenium	0.000275	J	0.0013	0.00024	mg/L		03/25/18 13:50	03/26/18 18:09	5
Thallium	ND		0.00050	0.000085	mg/L		03/25/18 13:50	03/26/18 18:09	5

**Lab Sample ID: LCS 400-391369/2-A**  
**Matrix: Water**  
**Analysis Batch: 391638**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 391369**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0500	0.0530		mg/L		106	80 - 120
Arsenic	0.0500	0.0522		mg/L		104	80 - 120
Barium	0.0500	0.0484		mg/L		97	80 - 120
Beryllium	0.0500	0.0538		mg/L		108	80 - 120
Cadmium	0.0500	0.0510		mg/L		102	80 - 120
Chromium	0.0500	0.0534		mg/L		107	80 - 120
Cobalt	0.0500	0.0511		mg/L		102	80 - 120
Lead	0.0500	0.0481		mg/L		96	80 - 120
Lithium	0.0500	0.0524		mg/L		105	80 - 120
Molybdenum	0.0500	0.0523		mg/L		105	80 - 120
Selenium	0.0500	0.0501		mg/L		100	80 - 120
Thallium	0.0100	0.00956		mg/L		96	80 - 120

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-151252-1

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

**Lab Sample ID: 400-150861-B-1-B MS ^5**

**Matrix: Water**  
**Analysis Batch: 391638**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total Recoverable**  
**Prep Batch: 391369**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits	%Rec.
	Result	Qualifier	Added	Result	Qualifier					
Antimony	ND		0.0500	0.0556		mg/L		111	75 - 125	
Arsenic	ND		0.0500	0.0522		mg/L		104	75 - 125	
Barium	0.0089		0.0500	0.0593		mg/L		101	75 - 125	
Beryllium	ND		0.0500	0.0543		mg/L		109	75 - 125	
Cadmium	ND		0.0500	0.0523		mg/L		105	75 - 125	
Chromium	ND		0.0500	0.0534		mg/L		107	75 - 125	
Cobalt	ND		0.0500	0.0519		mg/L		104	75 - 125	
Lead	ND		0.0500	0.0482		mg/L		96	75 - 125	
Lithium	ND	F1	0.0500	0.0673	F1	mg/L		135	75 - 125	
Molybdenum	ND		0.0500	0.0552		mg/L		110	75 - 125	
Selenium	0.00067	J B	0.0500	0.0519		mg/L		102	75 - 125	
Thallium	ND		0.0100	0.00996		mg/L		100	75 - 125	

**Lab Sample ID: 400-150861-B-1-C MSD ^5**

**Matrix: Water**  
**Analysis Batch: 391638**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total Recoverable**  
**Prep Batch: 391369**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Antimony	ND		0.0500	0.0539		mg/L		108	75 - 125	3	20
Arsenic	ND		0.0500	0.0515		mg/L		103	75 - 125	1	20
Barium	0.0089		0.0500	0.0579		mg/L		98	75 - 125	2	20
Beryllium	ND		0.0500	0.0540		mg/L		108	75 - 125	0	20
Cadmium	ND		0.0500	0.0544		mg/L		109	75 - 125	4	20
Chromium	ND		0.0500	0.0529		mg/L		106	75 - 125	1	20
Cobalt	ND		0.0500	0.0518		mg/L		104	75 - 125	0	20
Lead	ND		0.0500	0.0475		mg/L		95	75 - 125	1	20
Lithium	ND	F1	0.0500	0.0661	F1	mg/L		132	75 - 125	2	20
Molybdenum	ND		0.0500	0.0541		mg/L		108	75 - 125	2	20
Selenium	0.00067	J B	0.0500	0.0506		mg/L		100	75 - 125	3	20
Thallium	ND		0.0100	0.00964		mg/L		96	75 - 125	3	20

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 400-391460/14-A**

**Matrix: Water**  
**Analysis Batch: 391649**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 391460**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil	Fac
	Result	Qualifier								
Mercury	ND		0.00020	0.000070	mg/L		03/26/18 12:19	03/27/18 12:03		1

**Lab Sample ID: LCS 400-391460/15-A**

**Matrix: Water**  
**Analysis Batch: 391649**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 391460**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00101	0.00108		mg/L		107	80 - 120

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-151252-1

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

**Lab Sample ID: 400-151193-N-2-C MS**  
**Matrix: Water**  
**Analysis Batch: 391649**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 391460**  
**%Rec.**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	ND		0.00201	0.00218		mg/L		108	80 - 120

**Lab Sample ID: 400-151193-N-2-D MSD**  
**Matrix: Water**  
**Analysis Batch: 391649**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 391460**  
**%Rec.**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	ND		0.00201	0.00218		mg/L		108	80 - 120	0	20

## Method: SM 4500 F C - Fluoride

**Lab Sample ID: MB 400-391669/3**  
**Matrix: Water**  
**Analysis Batch: 391669**

**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			03/27/18 12:43	1

**Lab Sample ID: LCS 400-391669/4**  
**Matrix: Water**  
**Analysis Batch: 391669**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Fluoride	4.00	4.10		mg/L		103	90 - 110

**Lab Sample ID: 660-86202-B-7 MS**  
**Matrix: Water**  
**Analysis Batch: 391669**

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Fluoride	1.6		1.00	2.62		mg/L		106	75 - 125

**Lab Sample ID: 660-86202-B-7 MSD**  
**Matrix: Water**  
**Analysis Batch: 391669**

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Fluoride	1.6		1.00	2.62		mg/L		106	75 - 125	0	4

**Lab Sample ID: 400-150793-A-5 DU**  
**Matrix: Water**  
**Analysis Batch: 391669**

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Fluoride	0.10		0.100		mg/L		0	4

TestAmerica Pensacola

**TestAmerica Pensacola**  
 3355 McLemore Drive  
 Pensacola, FL 32514  
 Phone (850) 474-1001 Fax (850) 478-2671

**Chain of Custody Record**

**TestAmerica**  
 THE LEADER IN ENVIRONMENTAL TESTING

**Client Information**  
 Client Contact: Chris Livingston  
 Company: Geosyntec Consultants, Inc.  
 Address: 1255 Roberts Blvd, NW Suite 200  
 City: Kennesaw  
 State, Zip: GA, 30144  
 Phone: 678-202-9583 (Tel)  
 Email: clivington@geosyntec.com  
 Project Name: CCR App IV  
 Site:

**Sampler**  
 Lab PM: STEPHEN W. RANDALL  
 Phone: 478-322-6181  
 E-Mail: cheyenne.whitmire@testamericainc.com

**Whitmore, Cheyenne R**  
 Carner Tracking No(s):  
 COC No: 400-72903-28835.1  
 Page: Page 1 of 1  
 Job #: 19252

**Analysis Requested**

Due Date Requested:  
 TAT Requested (days): RUSH 1 DAY AS REQUESTED  
 PO #: Purchase Order not required  
 WO #:  
 Project #: 40007960  
 SSOV#:

**Sample Identification**

Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wastewater, B=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020-Sb,As,Ba,Be,Cd,Cr,Cu,Pb,LI,Mo,Se,Tl,7470A-Hg	4500-F,C-Fluoride	D	N	Total Number of Containers	Special Instructions/Note:
DUP-9	3/22/18	0800	G	Water	N	N						PH: 6.89
MW-D1	3/22/18	1210	G	Water	N	N						PH: 6.54
MW-D2	3/22/18	1012	G	Water	N	N						PH: 4.38
MW-D3	3/22/18	1110	G	Water	N	N						PH: 6.90
MW-U1	3/22/18	1305	G	Water	N	N						PH: 7.87
LAST FRESH												

Preservation Codes:  
 A - HCl  
 B - NaOH  
 C - Zn Acetate  
 D - Nitric Acid  
 E - NaHSO4  
 F - MeOH  
 G - Amchlor  
 H - Ascorbic Acid  
 I - Ice  
 J - DI Water  
 K - EDTA  
 L - EDTA  
 M - Hexane  
 N - None  
 O - AsNaO2  
 P - Na2O4S  
 Q - Na2SO3  
 R - Na2SO3  
 S - H2SO4  
 T - TSP Dodecahydrate  
 U - Acetone  
 V - MCAA  
 W - pH 4.5  
 Z - other (specify)

Other: 400-151252 COC

**Possible Hazard Identification**  
 Non-Hazard  
 Flammable  
 Skin Irritant  
 Poison B  
 Unknown  
 Radiological

Deliverable Requested:  III,  IV, Other (specify)

**Empty Kit Relinquished by:**  
 Relinquished by: Stephen W. Randall  
 Date/Time: 3/22/18 1745  
 Company: Geosyntec

**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**  
 Return To Client  
 Disposal By Lab  
 Archive For: \_\_\_\_\_ Months

**Special Instructions/QC Requirements:**

**Method of Shipment:**  
 Received by: Geosyntec  
 Date/Time: 3/22/18 1745  
 Company: Geosyntec

Relinquished by: Stephen W. Randall  
 Date/Time: 3/22/18 1745  
 Company: Geosyntec

Relinquished by: [Signature]  
 Date/Time: 3/23/18 0903  
 Company: IAPEN

Custody Seals Intact:  Yes  No  
 Custody Seal No.:  
 Cooler Temperature: °C and Other Remarks: 2.0°C IR-7-Leds Only

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

# Login Sample Receipt Checklist

Client: Geosyntec Consultants, Inc.

Job Number: 400-151252-1

**Login Number: 151252**

**List Source: TestAmerica Pensacola**

**List Number: 1**

**Creator: Edwards, Robin S**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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	2.1°C, IR-7; 18.1°C, IR-7
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 <math><6\text{mm}</math> (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.IV GW Monitoring

TestAmerica Job ID: 400-151252-1

## Laboratory: 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	01-12-19
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	10-09-18
Iowa	State Program	7	367	08-01-18 *
Kansas	NELAP	7	E-10253	10-31-18
Kentucky (UST)	State Program	4	53	06-30-19
Kentucky (WW)	State Program	4	98030	12-31-18
Louisiana	NELAP	6	30976	06-30-19
Louisiana (DW)	NELAP	6	LA170005	12-31-18
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	12-31-18
Oklahoma	State Program	6	9810	08-31-19
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-18
South Carolina	State Program	4	96026	06-30-18 *
Tennessee	State Program	4	TN02907	06-30-19
Texas	NELAP	6	T104704286-18-14	09-30-18
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	05-15-19
West Virginia DEP	State Program	3	136	06-30-19

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-151252-2

Client Project/Site: CCR App.IV GW Monitoring

For:

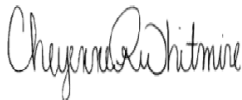
Geosyntec Consultants, Inc.

1255 Roberts Blvd, NW

Suite 200

Kennesaw, Georgia 30144

Attn: Jeremy Gasser



Authorized for release by:

4/20/2018 12:07:04 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?



Visit us at:

[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.*

1

2

3

4

5

6

7

8

9

10

11

12

13



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Case Narrative . . . . .	3
Method Summary . . . . .	4
Sample Summary . . . . .	5
Client Sample Results . . . . .	6
Definitions . . . . .	11
Chronicle . . . . .	12
QC Association . . . . .	14
QC Sample Results . . . . .	15
Chain of Custody . . . . .	17
Receipt Checklists . . . . .	18
Certification Summary . . . . .	19

# Case Narrative

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

TestAmerica Job ID: 400-151252-2

**Job ID: 400-151252-2**

**Laboratory: TestAmerica Pensacola**

## Narrative

### Job Narrative 400-151252-2

#### **RAD**

Method(s) PrecSep\_0: Radium 228 Prep Batch 160-357811: Insufficient sample volume was available to perform a sample duplicate (DUP, MS, MSD) for the following samples: DUP-9 (400-151252-1), MW-D1 (400-151252-2), MW-D2 (400-151252-3), MW-D3 (400-151252-4) and MW-U1 (400-151252-5). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method(s) PrecSep-21: Radium 226 Prep Batch 160-357806: Insufficient sample volume was available to perform a sample duplicate (DUP, MS, MSD) for the following samples: DUP-9 (400-151252-1), MW-D1 (400-151252-2), MW-D2 (400-151252-3), MW-D3 (400-151252-4) and MW-U1 (400-151252-5). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.



# Method Summary

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

TestAmerica Job ID: 400-151252-2

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

#### Protocol References:

None = None

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

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

#### Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Sample Summary

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

TestAmerica Job ID: 400-151252-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-151252-1	DUP-9	Water	03/22/18 08:00	03/23/18 09:03
400-151252-2	MW-D1	Water	03/22/18 12:10	03/23/18 09:03
400-151252-3	MW-D2	Water	03/22/18 10:12	03/23/18 09:03
400-151252-4	MW-D3	Water	03/22/18 11:10	03/23/18 09:03
400-151252-5	MW-U1	Water	03/22/18 13:05	03/23/18 09:03

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

# Client Sample Results

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

TestAmerica Job ID: 400-151252-2

**Client Sample ID: DUP-9**

**Date Collected: 03/22/18 08:00**

**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151252-1**

**Matrix: Water**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.225		0.0852	0.0876	1.00	0.0834	pCi/L	03/27/18 10:09	04/18/18 05:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.1		40 - 110					03/27/18 10:09	04/18/18 05:37	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.491		0.269	0.272	1.00	0.409	pCi/L	03/27/18 10:23	04/03/18 18:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.1		40 - 110					03/27/18 10:23	04/03/18 18:13	1
Y Carrier	92.3		40 - 110					03/27/18 10:23	04/03/18 18:13	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.716		0.282	0.286	5.00	0.409	pCi/L		04/19/18 17:52	1

# Client Sample Results

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

TestAmerica Job ID: 400-151252-2

**Client Sample ID: MW-D1**

**Date Collected: 03/22/18 12:10**

**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151252-2**

**Matrix: Water**

### Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0903		0.0613	0.0618	1.00	0.0800	pCi/L	03/27/18 10:09	04/18/18 05:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.2		40 - 110					03/27/18 10:09	04/18/18 05:37	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.553		0.268	0.272	1.00	0.394	pCi/L	03/27/18 10:23	04/03/18 18:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.2		40 - 110					03/27/18 10:23	04/03/18 18:13	1
Y Carrier	89.0		40 - 110					03/27/18 10:23	04/03/18 18:13	1

### Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.643		0.275	0.279	5.00	0.394	pCi/L		04/19/18 17:52	1

# Client Sample Results

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

TestAmerica Job ID: 400-151252-2

**Client Sample ID: MW-D2**

**Date Collected: 03/22/18 10:12**

**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151252-3**

**Matrix: Water**

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.105		0.0614	0.0621	1.00	0.0736	pCi/L	03/27/18 10:09	04/18/18 05:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.8		40 - 110					03/27/18 10:09	04/18/18 05:37	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.610		0.252	0.258	1.00	0.359	pCi/L	03/27/18 10:23	04/03/18 18:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.8		40 - 110					03/27/18 10:23	04/03/18 18:13	1
Y Carrier	92.7		40 - 110					03/27/18 10:23	04/03/18 18:13	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.716		0.259	0.265	5.00	0.359	pCi/L		04/19/18 17:52	1

# Client Sample Results

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

TestAmerica Job ID: 400-151252-2

**Client Sample ID: MW-D3**

**Date Collected: 03/22/18 11:10**

**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151252-4**

**Matrix: Water**

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.245		0.0823	0.0852	1.00	0.0602	pCi/L	03/27/18 10:09	04/18/18 05:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		40 - 110					03/27/18 10:09	04/18/18 05:37	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.927		0.314	0.325	1.00	0.437	pCi/L	03/27/18 10:23	04/03/18 18:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		40 - 110					03/27/18 10:23	04/03/18 18:13	1
Y Carrier	86.0		40 - 110					03/27/18 10:23	04/03/18 18:13	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.17		0.325	0.336	5.00	0.437	pCi/L		04/19/18 17:52	1

# Client Sample Results

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

TestAmerica Job ID: 400-151252-2

**Client Sample ID: MW-U1**

**Date Collected: 03/22/18 13:05**

**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151252-5**

**Matrix: Water**

### Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0141	U	0.0375	0.0375	1.00	0.0740	pCi/L	03/27/18 10:09	04/18/18 05:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					03/27/18 10:09	04/18/18 05:37	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.117	U	0.200	0.200	1.00	0.338	pCi/L	03/27/18 10:23	04/03/18 18:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					03/27/18 10:23	04/03/18 18:13	1
Y Carrier	93.1		40 - 110					03/27/18 10:23	04/03/18 18:13	1

### Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.131	U	0.203	0.203	5.00	0.338	pCi/L		04/19/18 17:52	1

# Definitions/Glossary

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

TestAmerica Job ID: 400-151252-2

## Qualifiers

### Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	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.IV GW Monitoring

TestAmerica Job ID: 400-151252-2

**Client Sample ID: DUP-9**

**Date Collected: 03/22/18 08:00**

**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151252-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			357806	03/27/18 10:09	TJT	TAL SL
Total/NA	Analysis	9315		1	361531	04/18/18 05:37	RTM	TAL SL
Total/NA	Prep	PrecSep_0			357811	03/27/18 10:23	TJT	TAL SL
Total/NA	Analysis	9320		1	358751	04/03/18 18:13	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	361901	04/19/18 17:52	RTM	TAL SL

**Client Sample ID: MW-D1**

**Date Collected: 03/22/18 12:10**

**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151252-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			357806	03/27/18 10:09	TJT	TAL SL
Total/NA	Analysis	9315		1	361531	04/18/18 05:37	RTM	TAL SL
Total/NA	Prep	PrecSep_0			357811	03/27/18 10:23	TJT	TAL SL
Total/NA	Analysis	9320		1	358751	04/03/18 18:13	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	361901	04/19/18 17:52	RTM	TAL SL

**Client Sample ID: MW-D2**

**Date Collected: 03/22/18 10:12**

**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151252-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			357806	03/27/18 10:09	TJT	TAL SL
Total/NA	Analysis	9315		1	361531	04/18/18 05:37	RTM	TAL SL
Total/NA	Prep	PrecSep_0			357811	03/27/18 10:23	TJT	TAL SL
Total/NA	Analysis	9320		1	358751	04/03/18 18:13	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	361901	04/19/18 17:52	RTM	TAL SL

**Client Sample ID: MW-D3**

**Date Collected: 03/22/18 11:10**

**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151252-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			357806	03/27/18 10:09	TJT	TAL SL
Total/NA	Analysis	9315		1	361531	04/18/18 05:37	RTM	TAL SL
Total/NA	Prep	PrecSep_0			357811	03/27/18 10:23	TJT	TAL SL
Total/NA	Analysis	9320		1	358751	04/03/18 18:13	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	361901	04/19/18 17:52	RTM	TAL SL

# Lab Chronicle

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

TestAmerica Job ID: 400-151252-2

**Client Sample ID: MW-U1**

**Date Collected: 03/22/18 13:05**

**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151252-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			357806	03/27/18 10:09	TJT	TAL SL
Total/NA	Analysis	9315		1	361531	04/18/18 05:37	RTM	TAL SL
Total/NA	Prep	PrecSep_0			357811	03/27/18 10:23	TJT	TAL SL
Total/NA	Analysis	9320		1	358751	04/03/18 18:13	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	361901	04/19/18 17:52	RTM	TAL SL

#### Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# QC Association Summary

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

TestAmerica Job ID: 400-151252-2

## Rad

### Prep Batch: 357806

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151252-1	DUP-9	Total/NA	Water	PrecSep-21	
400-151252-2	MW-D1	Total/NA	Water	PrecSep-21	
400-151252-3	MW-D2	Total/NA	Water	PrecSep-21	
400-151252-4	MW-D3	Total/NA	Water	PrecSep-21	
400-151252-5	MW-U1	Total/NA	Water	PrecSep-21	
MB 160-357806/8-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-357806/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-357806/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

### Prep Batch: 357811

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151252-1	DUP-9	Total/NA	Water	PrecSep_0	
400-151252-2	MW-D1	Total/NA	Water	PrecSep_0	
400-151252-3	MW-D2	Total/NA	Water	PrecSep_0	
400-151252-4	MW-D3	Total/NA	Water	PrecSep_0	
400-151252-5	MW-U1	Total/NA	Water	PrecSep_0	
MB 160-357811/8-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-357811/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-357811/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

# QC Sample Results

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

TestAmerica Job ID: 400-151252-2

## Method: 9315 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-357806/8-A**  
**Matrix: Water**  
**Analysis Batch: 361531**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 357806**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.001252	U	0.0393	0.0393	1.00	0.0828	pCi/L	03/27/18 10:09	04/18/18 05:38	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.1		40 - 110					03/27/18 10:09	04/18/18 05:38	1

**Lab Sample ID: LCS 160-357806/1-A**  
**Matrix: Water**  
**Analysis Batch: 361531**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 357806**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.8	12.08		1.21	1.00	0.0700	pCi/L	102	68 - 137
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	101		40 - 110						

**Lab Sample ID: LCSD 160-357806/2-A**  
**Matrix: Water**  
**Analysis Batch: 361531**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 357806**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	11.8	11.36		1.16	1.00	0.0674	pCi/L	96	68 - 137	0.31	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Ba Carrier	94.7		40 - 110								

## Method: 9320 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-357811/8-A**  
**Matrix: Water**  
**Analysis Batch: 358751**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 357811**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1028	U	0.209	0.209	1.00	0.356	pCi/L	03/27/18 10:23	04/03/18 18:13	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.1		40 - 110					03/27/18 10:23	04/03/18 18:13	1
Y Carrier	91.6		40 - 110					03/27/18 10:23	04/03/18 18:13	1

# QC Sample Results

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

TestAmerica Job ID: 400-151252-2

## Method: 9320 - Radium-228 (GFPC) (Continued)

**Lab Sample ID: LCS 160-357811/1-A**  
**Matrix: Water**  
**Analysis Batch: 358718**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 357811**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	8.42	9.327		1.06	1.00	0.379	pCi/L	111	56 - 140

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	101		40 - 110
Y Carrier	93.8		40 - 110

**Lab Sample ID: LCSD 160-357811/2-A**  
**Matrix: Water**  
**Analysis Batch: 358718**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 357811**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	8.42	8.489		1.02	1.00	0.426	pCi/L	101	56 - 140	0.40	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	94.7		40 - 110
Y Carrier	86.7		40 - 110



## Login Sample Receipt Checklist

Client: Geosyntec Consultants, Inc.

Job Number: 400-151252-2

**Login Number: 151252**

**List Source: TestAmerica Pensacola**

**List Number: 1**

**Creator: Edwards, Robin S**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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	2.1°C, IR-7; 18.1°C, IR-7
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 <math><6\text{mm}</math> (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.IV GW Monitoring

TestAmerica Job ID: 400-151252-2

## Laboratory: 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	06-30-18
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-19
Arkansas DEQ	State Program	6	88-0689	09-01-18
California	ELAP	9	2510	03-31-18 *
Florida	NELAP	4	E81010	06-30-18
Georgia	State Program	4	N/A	06-30-18
Illinois	NELAP	5	200041	10-09-18
Iowa	State Program	7	367	08-01-18
Kansas	NELAP	7	E-10253	10-31-18
Kentucky (UST)	State Program	4	53	06-30-18
Kentucky (WW)	State Program	4	98030	12-31-18
Louisiana	NELAP	6	30976	06-30-18
Louisiana (DW)	NELAP	6	LA170005	12-31-18
Maryland	State Program	3	233	09-30-18
Massachusetts	State Program	1	M-FL094	06-30-18
Michigan	State Program	5	9912	06-30-18
New Jersey	NELAP	2	FL006	06-30-18
North Carolina (WW/SW)	State Program	4	314	12-31-18
Oklahoma	State Program	6	9810	08-31-18
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-18
South Carolina	State Program	4	96026	06-30-18
Tennessee	State Program	4	TN02907	06-30-18
Texas	NELAP	6	T104704286-17-12	09-30-18
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-18
Washington	State Program	10	C915	05-15-18
West Virginia DEP	State Program	3	136	06-30-18

## Laboratory: TestAmerica St. Louis

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
Alaska	State Program	10	MO00054	06-30-18 *
Arizona	State Program	9	AZ0813	12-08-18
California	State Program	9	2886	06-30-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18 *
Illinois	NELAP	5	200023	11-30-18
Iowa	State Program	7	373	12-01-18
Kansas	NELAP	7	E-10236	10-31-18
Kentucky (DW)	State Program	4	90125	12-31-18
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA180017	12-31-18
Maryland	State Program	3	310	09-30-18
Michigan	State Program	5	9005	06-30-18
Missouri	State Program	7	780	06-30-18
Nevada	State Program	9	MO000542018-1	07-31-18

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Accreditation/Certification Summary

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

TestAmerica Job ID: 400-151252-2

## Laboratory: TestAmerica St. Louis (Continued)

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
New Jersey	NELAP	2	MO002	06-30-18 *
New York	NELAP	2	11616	03-31-19
North Dakota	State Program	8	R207	06-30-18
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-18
Pennsylvania	NELAP	3	68-00540	02-28-19
South Carolina	State Program	4	85002001	06-30-18
Texas	NELAP	6	T104704193-17-11	07-31-18
US Fish & Wildlife	Federal		058448	08-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-18
Virginia	NELAP	3	460230	06-14-18 *
Washington	State Program	10	C592	08-30-18
West Virginia DEP	State Program	3	381	08-31-18 *

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Pensacola

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

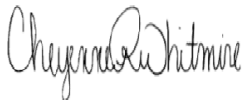
## ANALYTICAL REPORT

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

TestAmerica Job ID: 400-151253-1  
Client Project/Site: Boron

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

Attn: Jeremy Gasser



Authorized for release by:  
3/27/2018 5:48:36 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?



Visit us at:  
[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.*

1

2

3

4

5

6

7

8

9

10

11

12

13



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Detection Summary . . . . .	3
Method Summary . . . . .	4
Sample Summary . . . . .	5
Client Sample Results . . . . .	6
Definitions . . . . .	7
Chronicle . . . . .	8
QC Association . . . . .	9
QC Sample Results . . . . .	10
Chain of Custody . . . . .	11
Receipt Checklists . . . . .	12
Certification Summary . . . . .	13

# Detection Summary

Client: Geosyntec Consultants, Inc.  
Project/Site: Boron

TestAmerica Job ID: 400-151253-1

**Client Sample ID: MW-U1**

**Lab Sample ID: 400-151253-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.0077	J	0.010	0.0042	mg/L	1		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola



# Method Summary

Client: Geosyntec Consultants, Inc.  
Project/Site: Boron

TestAmerica Job ID: 400-151253-1

---

Method	Method Description	Protocol	Laboratory
6020	Metals (ICP/MS)	SW846	TAL PEN

---

**Protocol References:**

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

**Laboratory References:**

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



# Sample Summary

Client: Geosyntec Consultants, Inc.  
Project/Site: Boron

TestAmerica Job ID: 400-151253-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-151253-1	MW-U1	Water	03/22/18 13:05	03/23/18 09:03

---

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

# Client Sample Results

Client: Geosyntec Consultants, Inc.  
Project/Site: Boron

TestAmerica Job ID: 400-151253-1

**Client Sample ID: MW-U1**  
**Date Collected: 03/22/18 13:05**  
**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151253-1**  
**Matrix: Water**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.0077	J	0.010	0.0042	mg/L		03/25/18 13:50	03/26/18 20:51	1

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

# Definitions/Glossary

Client: Geosyntec Consultants, Inc.  
Project/Site: Boron

TestAmerica Job ID: 400-151253-1

## Qualifiers

### Metals

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: Boron

TestAmerica Job ID: 400-151253-1

**Client Sample ID: MW-U1**

**Date Collected: 03/22/18 13:05**

**Date Received: 03/23/18 09:03**

**Lab Sample ID: 400-151253-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			391369	03/25/18 13:50	DN1	TAL PEN
Total Recoverable	Analysis	6020		1	391638	03/26/18 20:51	DRE	TAL PEN

#### Laboratory References:

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

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

# QC Association Summary

Client: Geosyntec Consultants, Inc.  
Project/Site: Boron

TestAmerica Job ID: 400-151253-1

## Metals

### Prep Batch: 391369

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151253-1	MW-U1	Total Recoverable	Water	3005A	
MB 400-391369/1-A ^1	Method Blank	Total Recoverable	Water	3005A	
MB 400-391369/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-391369/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-150861-B-1-B MS ^5	Matrix Spike	Total Recoverable	Water	3005A	
400-150861-B-1-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

### Analysis Batch: 391638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151253-1	MW-U1	Total Recoverable	Water	6020	391369
MB 400-391369/1-A ^1	Method Blank	Total Recoverable	Water	6020	391369
MB 400-391369/1-A ^5	Method Blank	Total Recoverable	Water	6020	391369
LCS 400-391369/2-A	Lab Control Sample	Total Recoverable	Water	6020	391369
400-150861-B-1-B MS ^5	Matrix Spike	Total Recoverable	Water	6020	391369
400-150861-B-1-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	6020	391369

# QC Sample Results

Client: Geosyntec Consultants, Inc.  
Project/Site: Boron

TestAmerica Job ID: 400-151253-1

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

**Lab Sample ID: MB 400-391369/1-A ^1**  
**Matrix: Water**  
**Analysis Batch: 391638**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 391369**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.010	0.0042	mg/L		03/25/18 13:50	03/26/18 20:47	1

**Lab Sample ID: MB 400-391369/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 391638**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 391369**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.050	0.021	mg/L		03/25/18 13:50	03/26/18 18:09	5

**Lab Sample ID: LCS 400-391369/2-A**  
**Matrix: Water**  
**Analysis Batch: 391638**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 391369**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Boron	0.100	0.109		mg/L		109	80 - 120

**Lab Sample ID: 400-150861-B-1-B MS ^5**  
**Matrix: Water**  
**Analysis Batch: 391638**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total Recoverable**  
**Prep Batch: 391369**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Boron	ND		0.100	0.104		mg/L		104	75 - 125

**Lab Sample ID: 400-150861-B-1-C MSD ^5**  
**Matrix: Water**  
**Analysis Batch: 391638**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total Recoverable**  
**Prep Batch: 391369**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Boron	ND		0.100	0.0990		mg/L		99	75 - 125	4	20

**Chain of Custody Record**

<b>Client Information</b>		Lab PM: Whitmire, Chylene R		Carrier Tracking No(s):		COC No: 400-72990-28836.1	
Client Contact: Chris Livingston		E-Mail: chylene.whitmire@testamericainc.com		Page 1 of 1		Page 1 of 1	
Company: Geosyntec Consultants, Inc.		Due Date Requested:		Analysis Requested		Job #: 151253	
Address: 1255 Roberts Blvd, NW Suite 200		TAT Requested (days):		Field Filtered Sample (Yes or No)		Total Number of Containers	
City: Kennesaw		RUSH 1 DAY		Perform M/MSD (Yes or No)		Preservation Codes:	
State, Zip: GA, 30144		AS REQUESTED		6020 - Boron		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Phone: 678-202-9583(Tel)		Purchase Order not required		Field Filled Sample (Yes or No)		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Email: clivngston@geosyntec.com		Project #: 40007960		D		Special Instructions/Note:	
Project Name: Boron		SSOW#:					
Site:							
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform M/MSD (Yes or No)
9UP-8				Water			
MW-D1				Water			
MW-D2				Water			
MW-D3				Water			
MW-U1	3/22/18	1305	G	Water			
LAST ITEM							
<b>Possible Hazard Identification</b> <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: <input checked="" type="checkbox"/> I <input type="checkbox"/> II, IV, Other (specify)							
Empty Kit Relinquished by: _____ Date: _____							
Relinquished by: <i>Stephen W. Ransdale</i> Date: 3/22/18 1745 Company: <b>GEOSYNTEC</b>							
Relinquished by: _____ Date: _____ Company: _____							
Relinquished by: _____ Date: _____ Company: _____							
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No							
Custody Seal No.: _____							
Special Instructions/QC Requirements: _____							
Return To Client <input type="checkbox"/> Disposal By Lab <input checked="" type="checkbox"/> Archive For _____ Months							
Method of Shipment: _____							
Received by: _____ Date/Time: _____ Company: _____							
Received by: _____ Date/Time: _____ Company: _____							
Received by: _____ Date/Time: 3-23-18 0903 Company: <b>HA-PEN</b>							
Colder Temperature(s) °C and Other Remarks: <i>See File</i>							



## Login Sample Receipt Checklist

Client: Geosyntec Consultants, Inc.

Job Number: 400-151253-1

**Login Number: 151253**

**List Number: 1**

**Creator: Edwards, Robin S**

**List Source: TestAmerica Pensacola**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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.	True	
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	2.1°C, IR-7
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 <math><6\text{mm}</math> (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: Boron

TestAmerica Job ID: 400-151253-1

## Laboratory: 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	06-30-18
Arizona	State Program	9	AZ0710	01-12-19
Arkansas DEQ	State Program	6	88-0689	09-01-18
California	ELAP	9	2510	03-31-18
Florida	NELAP	4	E81010	06-30-18
Georgia	State Program	4	N/A	06-30-18
Illinois	NELAP	5	200041	10-09-18
Iowa	State Program	7	367	08-01-18
Kansas	NELAP	7	E-10253	10-31-18
Kentucky (UST)	State Program	4	53	06-30-18
Kentucky (WW)	State Program	4	98030	12-31-18
L-A-B	ISO/IEC 17025		L2471	02-22-20
Louisiana	NELAP	6	30976	06-30-18
Louisiana (DW)	NELAP	6	LA170005	12-31-18
Maryland	State Program	3	233	09-30-18
Massachusetts	State Program	1	M-FL094	06-30-18
Michigan	State Program	5	9912	06-30-18
New Jersey	NELAP	2	FL006	06-30-18
North Carolina (WW/SW)	State Program	4	314	12-31-18
Oklahoma	State Program	6	9810	08-31-18
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-18
South Carolina	State Program	4	96026	06-30-18
Tennessee	State Program	4	TN02907	06-30-18
Texas	NELAP	6	T104704286-17-12	09-30-18
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-18
Washington	State Program	10	C915	05-15-18
West Virginia DEP	State Program	3	136	06-30-18

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-154780-1

Client Project/Site: CCR App.III/IV GW Monitoring

For:

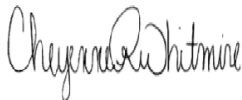
Geosyntec Consultants, Inc.

1255 Roberts Blvd, NW

Suite 200

Kennesaw, Georgia 30144

Attn: Jeremy Gasser



Authorized for release by:

6/21/2018 3:30:18 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?



Visit us at:

[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.*

1

2

3

4

5

6

7

8

9

10

11

12

13

14



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Case Narrative . . . . .	3
Detection Summary . . . . .	4
Method Summary . . . . .	6
Sample Summary . . . . .	7
Client Sample Results . . . . .	8
Definitions . . . . .	13
Chronicle . . . . .	14
QC Association . . . . .	16
QC Sample Results . . . . .	18
Chain of Custody . . . . .	23
Receipt Checklists . . . . .	24
Certification Summary . . . . .	25

# Case Narrative

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

TestAmerica Job ID: 400-154780-1

---

**Job ID: 400-154780-1**

---

**Laboratory: TestAmerica Pensacola**

## Narrative

---

**Job Narrative  
400-154780-1**

### Metals

Method(s) 6020: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-D2-20180605 (400-154780-2) and MW-D3-20180605 (400-154780-3). Elevated reporting limits (RLs) are provided.

### General Chemistry

Method(s) SM 4500 SO4 E: Due to the high concentration of sulfates the matrix spike / matrix spike duplicate (MS/MSD) could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

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

# Detection Summary

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

TestAmerica Job ID: 400-154780-1

## Client Sample ID: DUP-10-20180605

## Lab Sample ID: 400-154780-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0098		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.090		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	21		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	96		5.0	3.4	mg/L	1		SM 2540C	Total/NA
Chloride	1.8	J	2.0	0.60	mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.070	J	0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	15		5.0	1.4	mg/L	1		SM 4500 SO4 E	Total/NA
Field pH	6.31				SU	1		Field Sampling	Total/NA

## Client Sample ID: MW-D2-20180605

## Lab Sample ID: 400-154780-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.19		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.11		0.050	0.021	mg/L	5		6020	Total Recoverable
Thallium	0.000085	J	0.00050	0.000085	mg/L	5		6020	Total Recoverable
Calcium - DL	130		1.3	0.63	mg/L	25		6020	Total Recoverable
Total Dissolved Solids	390		5.0	3.4	mg/L	1		SM 2540C	Total/NA
Chloride	5.1		2.0	0.60	mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.070	J	0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	18		5.0	1.4	mg/L	1		SM 4500 SO4 E	Total/NA
Field pH	6.50				SU	1		Field Sampling	Total/NA

## Client Sample ID: MW-D3-20180605

## Lab Sample ID: 400-154780-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00067	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.15		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.21		0.050	0.021	mg/L	5		6020	Total Recoverable
Cobalt	0.0017	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable
Molybdenum	0.0022	J	0.010	0.00085	mg/L	5		6020	Total Recoverable
Thallium	0.00012	J	0.00050	0.000085	mg/L	5		6020	Total Recoverable
Calcium - DL	110		1.3	0.63	mg/L	25		6020	Total Recoverable
Total Dissolved Solids	370		5.0	3.4	mg/L	1		SM 2540C	Total/NA
Chloride	4.1		2.0	0.60	mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.12		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	6.42				SU	1		Field Sampling	Total/NA

## Client Sample ID: MW-D1-20180605

## Lab Sample ID: 400-154780-4

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

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

TestAmerica Job ID: 400-154780-1

## Client Sample ID: MW-D1-20180605 (Continued)

## Lab Sample ID: 400-154780-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.010		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.086		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	22		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	110		5.0	3.4	mg/L	1		SM 2540C	Total/NA
Chloride	2.0		2.0	0.60	mg/L	1		SM 4500 Cl- E	Total/NA
Fluoride	0.070	J	0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	16		5.0	1.4	mg/L	1		SM 4500 SO4 E	Total/NA
Field pH	5.91				SU	1		Field Sampling	Total/NA

## Client Sample ID: MW-U1-20180605

## Lab Sample ID: 400-154780-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0025		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Calcium	33		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	110		5.0	3.4	mg/L	1		SM 2540C	Total/NA
Chloride	1.8	J	2.0	0.60	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	2.9	J	5.0	1.4	mg/L	1		SM 4500 SO4 E	Total/NA
Field pH	6.74				SU	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Method Summary

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

TestAmerica Job ID: 400-154780-1

Method	Method Description	Protocol	Laboratory
6020	Metals (ICP/MS)	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

#### 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 = 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

TestAmerica Job ID: 400-154780-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-154780-1	DUP-10-20180605	Water	06/05/18 08:00	06/07/18 10:09
400-154780-2	MW-D2-20180605	Water	06/05/18 09:50	06/07/18 10:09
400-154780-3	MW-D3-20180605	Water	06/05/18 10:45	06/07/18 10:09
400-154780-4	MW-D1-20180605	Water	06/05/18 12:10	06/07/18 10:09
400-154780-5	MW-U1-20180605	Water	06/05/18 14:50	06/07/18 10:09

- 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

TestAmerica Job ID: 400-154780-1

**Client Sample ID: DUP-10-20180605**

**Lab Sample ID: 400-154780-1**

**Date Collected: 06/05/18 08:00**

**Matrix: Water**

**Date Received: 06/07/18 10:09**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0013	0.00046	mg/L		06/13/18 08:32	06/13/18 15:54	5
<b>Barium</b>	<b>0.0098</b>		0.0025	0.00049	mg/L		06/13/18 08:32	06/13/18 15:54	5
<b>Boron</b>	<b>0.090</b>		0.050	0.021	mg/L		06/13/18 08:32	06/13/18 15:54	5
<b>Calcium</b>	<b>21</b>		0.25	0.13	mg/L		06/13/18 08:32	06/13/18 15:54	5
Cobalt	ND		0.0025	0.00040	mg/L		06/13/18 08:32	06/13/18 15:54	5
Molybdenum	ND		0.010	0.00085	mg/L		06/13/18 08:32	06/13/18 15:54	5
Thallium	ND		0.00050	0.000085	mg/L		06/13/18 08:32	06/13/18 15:54	5

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>96</b>		5.0	3.4	mg/L			06/12/18 13:11	1
<b>Chloride</b>	<b>1.8</b>	<b>J</b>	2.0	0.60	mg/L			06/17/18 10:16	1
<b>Fluoride</b>	<b>0.070</b>	<b>J</b>	0.10	0.032	mg/L			06/19/18 14:19	1
<b>Sulfate</b>	<b>15</b>		5.0	1.4	mg/L			06/17/18 08:53	1

**Method: Field Sampling - Field Sampling**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Field pH</b>	<b>6.31</b>				SU			06/05/18 07:00	1

# Client Sample Results

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

TestAmerica Job ID: 400-154780-1

**Client Sample ID: MW-D2-20180605**

**Lab Sample ID: 400-154780-2**

**Date Collected: 06/05/18 09:50**

**Matrix: Water**

**Date Received: 06/07/18 10:09**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0013	0.00046	mg/L		06/13/18 08:32	06/13/18 15:59	5
<b>Barium</b>	<b>0.19</b>		0.0025	0.00049	mg/L		06/13/18 08:32	06/13/18 15:59	5
<b>Boron</b>	<b>0.11</b>		0.050	0.021	mg/L		06/13/18 08:32	06/13/18 15:59	5
Cobalt	ND		0.0025	0.00040	mg/L		06/13/18 08:32	06/13/18 15:59	5
Molybdenum	ND		0.010	0.00085	mg/L		06/13/18 08:32	06/13/18 15:59	5
<b>Thallium</b>	<b>0.000085</b>	<b>J</b>	0.00050	0.000085	mg/L		06/13/18 08:32	06/13/18 15:59	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Calcium</b>	<b>130</b>		1.3	0.63	mg/L		06/13/18 08:32	06/14/18 11:26	25

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>390</b>		5.0	3.4	mg/L			06/12/18 13:11	1
<b>Chloride</b>	<b>5.1</b>		2.0	0.60	mg/L			06/17/18 10:06	1
<b>Fluoride</b>	<b>0.070</b>	<b>J</b>	0.10	0.032	mg/L			06/19/18 14:31	1
<b>Sulfate</b>	<b>18</b>		5.0	1.4	mg/L			06/17/18 08:53	1

**Method: Field Sampling - Field Sampling**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Field pH</b>	<b>6.50</b>				SU			06/05/18 08:50	1

# Client Sample Results

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

TestAmerica Job ID: 400-154780-1

**Client Sample ID: MW-D3-20180605**

**Lab Sample ID: 400-154780-3**

**Date Collected: 06/05/18 10:45**

**Matrix: Water**

**Date Received: 06/07/18 10:09**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00067	J	0.0013	0.00046	mg/L		06/13/18 08:32	06/13/18 16:03	5
Barium	0.15		0.0025	0.00049	mg/L		06/13/18 08:32	06/13/18 16:03	5
Boron	0.21		0.050	0.021	mg/L		06/13/18 08:32	06/13/18 16:03	5
Cobalt	0.0017	J	0.0025	0.00040	mg/L		06/13/18 08:32	06/13/18 16:03	5
Molybdenum	0.0022	J	0.010	0.00085	mg/L		06/13/18 08:32	06/13/18 16:03	5
Thallium	0.00012	J	0.00050	0.000085	mg/L		06/13/18 08:32	06/13/18 16:03	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	110		1.3	0.63	mg/L		06/13/18 08:32	06/14/18 11:30	25

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	370		5.0	3.4	mg/L			06/12/18 13:11	1
Chloride	4.1		2.0	0.60	mg/L			06/17/18 10:16	1
Fluoride	0.12		0.10	0.032	mg/L			06/19/18 14:33	1
Sulfate	29		5.0	1.4	mg/L			06/18/18 10:34	1

**Method: Field Sampling - Field Sampling**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	6.42				SU			06/05/18 09:45	1

# Client Sample Results

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

TestAmerica Job ID: 400-154780-1

**Client Sample ID: MW-D1-20180605**

**Lab Sample ID: 400-154780-4**

**Date Collected: 06/05/18 12:10**

**Matrix: Water**

**Date Received: 06/07/18 10:09**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0013	0.00046	mg/L		06/13/18 08:32	06/13/18 16:08	5
<b>Barium</b>	<b>0.010</b>		0.0025	0.00049	mg/L		06/13/18 08:32	06/13/18 16:08	5
<b>Boron</b>	<b>0.086</b>		0.050	0.021	mg/L		06/13/18 08:32	06/13/18 16:08	5
<b>Calcium</b>	<b>22</b>		0.25	0.13	mg/L		06/13/18 08:32	06/13/18 16:08	5
Cobalt	ND		0.0025	0.00040	mg/L		06/13/18 08:32	06/13/18 16:08	5
Molybdenum	ND		0.010	0.00085	mg/L		06/13/18 08:32	06/13/18 16:08	5
Thallium	ND		0.00050	0.000085	mg/L		06/13/18 08:32	06/13/18 16:08	5

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>110</b>		5.0	3.4	mg/L			06/12/18 13:11	1
<b>Chloride</b>	<b>2.0</b>		2.0	0.60	mg/L			06/17/18 10:16	1
<b>Fluoride</b>	<b>0.070</b>	<b>J</b>	0.10	0.032	mg/L			06/19/18 14:36	1
<b>Sulfate</b>	<b>16</b>		5.0	1.4	mg/L			06/18/18 10:34	1

**Method: Field Sampling - Field Sampling**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Field pH</b>	<b>5.91</b>				SU			06/05/18 11:10	1

# Client Sample Results

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

TestAmerica Job ID: 400-154780-1

**Client Sample ID: MW-U1-20180605**

**Lab Sample ID: 400-154780-5**

**Date Collected: 06/05/18 14:50**

**Matrix: Water**

**Date Received: 06/07/18 10:09**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0013	0.00046	mg/L		06/13/18 08:32	06/13/18 16:12	5
<b>Barium</b>	<b>0.0025</b>		0.0025	0.00049	mg/L		06/13/18 08:32	06/13/18 16:12	5
Boron	ND		0.050	0.021	mg/L		06/13/18 08:32	06/13/18 16:12	5
<b>Calcium</b>	<b>33</b>		0.25	0.13	mg/L		06/13/18 08:32	06/13/18 16:12	5
Cobalt	ND		0.0025	0.00040	mg/L		06/13/18 08:32	06/13/18 16:12	5
Molybdenum	ND		0.010	0.00085	mg/L		06/13/18 08:32	06/13/18 16:12	5
Thallium	ND		0.00050	0.000085	mg/L		06/13/18 08:32	06/13/18 16:12	5

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>110</b>		5.0	3.4	mg/L			06/12/18 13:11	1
<b>Chloride</b>	<b>1.8</b>	<b>J</b>	2.0	0.60	mg/L			06/17/18 10:16	1
<b>Fluoride</b>	<b>0.060</b>	<b>J</b>	0.10	0.032	mg/L			06/19/18 14:38	1
<b>Sulfate</b>	<b>2.9</b>	<b>J</b>	5.0	1.4	mg/L			06/17/18 08:52	1

**Method: Field Sampling - Field Sampling**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Field pH</b>	<b>6.74</b>				SU			06/05/18 13:50	1

# Definitions/Glossary

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

TestAmerica Job ID: 400-154780-1

## Qualifiers

### Metals

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.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

### 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

TestAmerica Job ID: 400-154780-1

**Client Sample ID: DUP-10-20180605**

**Lab Sample ID: 400-154780-1**

**Date Collected: 06/05/18 08:00**

**Matrix: Water**

**Date Received: 06/07/18 10:09**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			400907	06/13/18 08:32	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401050	06/13/18 15:54	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	400737	06/12/18 13:11	RRC	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		1	401365	06/17/18 10:16	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	401670	06/19/18 14:19	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	401360	06/17/18 08:53	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	401946	06/05/18 07:00	AW	TAL PEN

**Client Sample ID: MW-D2-20180605**

**Lab Sample ID: 400-154780-2**

**Date Collected: 06/05/18 09:50**

**Matrix: Water**

**Date Received: 06/07/18 10:09**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			400907	06/13/18 08:32	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401050	06/13/18 15:59	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		400907	06/13/18 08:32	DRE	TAL PEN
Total Recoverable	Analysis	6020	DL	25	401225	06/14/18 11:26	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	400737	06/12/18 13:11	RRC	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		1	401365	06/17/18 10:06	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	401670	06/19/18 14:31	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	401360	06/17/18 08:53	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	401946	06/05/18 08:50	AW	TAL PEN

**Client Sample ID: MW-D3-20180605**

**Lab Sample ID: 400-154780-3**

**Date Collected: 06/05/18 10:45**

**Matrix: Water**

**Date Received: 06/07/18 10:09**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			400907	06/13/18 08:32	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401050	06/13/18 16:03	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		400907	06/13/18 08:32	DRE	TAL PEN
Total Recoverable	Analysis	6020	DL	25	401225	06/14/18 11:30	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	400737	06/12/18 13:11	RRC	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		1	401365	06/17/18 10:16	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	401670	06/19/18 14:33	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	401459	06/18/18 10:34	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	401946	06/05/18 09:45	AW	TAL PEN

# Lab Chronicle

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

TestAmerica Job ID: 400-154780-1

**Client Sample ID: MW-D1-20180605**

**Lab Sample ID: 400-154780-4**

**Date Collected: 06/05/18 12:10**

**Matrix: Water**

**Date Received: 06/07/18 10:09**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			400907	06/13/18 08:32	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401050	06/13/18 16:08	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	400737	06/12/18 13:11	RRC	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		1	401365	06/17/18 10:16	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	401670	06/19/18 14:36	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	401459	06/18/18 10:34	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	401946	06/05/18 11:10	AW	TAL PEN

**Client Sample ID: MW-U1-20180605**

**Lab Sample ID: 400-154780-5**

**Date Collected: 06/05/18 14:50**

**Matrix: Water**

**Date Received: 06/07/18 10:09**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			400907	06/13/18 08:32	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401050	06/13/18 16:12	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	400737	06/12/18 13:11	RRC	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		1	401365	06/17/18 10:16	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	401670	06/19/18 14:38	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	401360	06/17/18 08:52	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	401946	06/05/18 13:50	AW	TAL PEN

## Laboratory References:

TAL PEN = 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

TestAmerica Job ID: 400-154780-1

## Metals

### Prep Batch: 400907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154780-1	DUP-10-20180605	Total Recoverable	Water	3005A	
400-154780-2	MW-D2-20180605	Total Recoverable	Water	3005A	
400-154780-2 - DL	MW-D2-20180605	Total Recoverable	Water	3005A	
400-154780-3 - DL	MW-D3-20180605	Total Recoverable	Water	3005A	
400-154780-3	MW-D3-20180605	Total Recoverable	Water	3005A	
400-154780-4	MW-D1-20180605	Total Recoverable	Water	3005A	
400-154780-5	MW-U1-20180605	Total Recoverable	Water	3005A	
MB 400-400907/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-400907/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
600-167041-G-1-C MS ^5	Matrix Spike	Total Recoverable	Water	3005A	
600-167041-G-1-D MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

### Analysis Batch: 401050

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154780-1	DUP-10-20180605	Total Recoverable	Water	6020	400907
400-154780-2	MW-D2-20180605	Total Recoverable	Water	6020	400907
400-154780-3	MW-D3-20180605	Total Recoverable	Water	6020	400907
400-154780-4	MW-D1-20180605	Total Recoverable	Water	6020	400907
400-154780-5	MW-U1-20180605	Total Recoverable	Water	6020	400907
MB 400-400907/1-A ^5	Method Blank	Total Recoverable	Water	6020	400907
LCS 400-400907/2-A	Lab Control Sample	Total Recoverable	Water	6020	400907
600-167041-G-1-C MS ^5	Matrix Spike	Total Recoverable	Water	6020	400907
600-167041-G-1-D MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	6020	400907

### Analysis Batch: 401225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154780-2 - DL	MW-D2-20180605	Total Recoverable	Water	6020	400907
400-154780-3 - DL	MW-D3-20180605	Total Recoverable	Water	6020	400907

## General Chemistry

### Analysis Batch: 400737

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154780-1	DUP-10-20180605	Total/NA	Water	SM 2540C	
400-154780-2	MW-D2-20180605	Total/NA	Water	SM 2540C	
400-154780-3	MW-D3-20180605	Total/NA	Water	SM 2540C	
400-154780-4	MW-D1-20180605	Total/NA	Water	SM 2540C	
400-154780-5	MW-U1-20180605	Total/NA	Water	SM 2540C	
MB 400-400737/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-400737/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-154780-2 DU	MW-D2-20180605	Total/NA	Water	SM 2540C	
400-154780-3 DU	MW-D3-20180605	Total/NA	Water	SM 2540C	

### Analysis Batch: 401360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154780-1	DUP-10-20180605	Total/NA	Water	SM 4500 SO4 E	
400-154780-2	MW-D2-20180605	Total/NA	Water	SM 4500 SO4 E	
400-154780-5	MW-U1-20180605	Total/NA	Water	SM 4500 SO4 E	
MB 400-401360/17	Method Blank	Total/NA	Water	SM 4500 SO4 E	
LCS 400-401360/18	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	

TestAmerica Pensacola

# QC Association Summary

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

TestAmerica Job ID: 400-154780-1

## General Chemistry (Continued)

### Analysis Batch: 401360 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MRL 400-401360/14	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
400-154780-5 MS	MW-U1-20180605	Total/NA	Water	SM 4500 SO4 E	
400-154780-5 MSD	MW-U1-20180605	Total/NA	Water	SM 4500 SO4 E	

### Analysis Batch: 401365

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154780-1	DUP-10-20180605	Total/NA	Water	SM 4500 Cl- E	
400-154780-2	MW-D2-20180605	Total/NA	Water	SM 4500 Cl- E	
400-154780-3	MW-D3-20180605	Total/NA	Water	SM 4500 Cl- E	
400-154780-4	MW-D1-20180605	Total/NA	Water	SM 4500 Cl- E	
400-154780-5	MW-U1-20180605	Total/NA	Water	SM 4500 Cl- E	
MB 400-401365/6	Method Blank	Total/NA	Water	SM 4500 Cl- E	
LCS 400-401365/7	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
MRL 400-401365/3	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
400-154780-2 MS	MW-D2-20180605	Total/NA	Water	SM 4500 Cl- E	
400-154780-2 MSD	MW-D2-20180605	Total/NA	Water	SM 4500 Cl- E	

### Analysis Batch: 401459

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154780-3	MW-D3-20180605	Total/NA	Water	SM 4500 SO4 E	
400-154780-4	MW-D1-20180605	Total/NA	Water	SM 4500 SO4 E	
MB 400-401459/6	Method Blank	Total/NA	Water	SM 4500 SO4 E	
LCS 400-401459/7	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MRL 400-401459/3	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
400-154780-3 MS	MW-D3-20180605	Total/NA	Water	SM 4500 SO4 E	
400-154780-3 MSD	MW-D3-20180605	Total/NA	Water	SM 4500 SO4 E	

### Analysis Batch: 401670

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154780-1	DUP-10-20180605	Total/NA	Water	SM 4500 F C	
400-154780-2	MW-D2-20180605	Total/NA	Water	SM 4500 F C	
400-154780-3	MW-D3-20180605	Total/NA	Water	SM 4500 F C	
400-154780-4	MW-D1-20180605	Total/NA	Water	SM 4500 F C	
400-154780-5	MW-U1-20180605	Total/NA	Water	SM 4500 F C	
MB 400-401670/2	Method Blank	Total/NA	Water	SM 4500 F C	
LCS 400-401670/3	Lab Control Sample	Total/NA	Water	SM 4500 F C	
400-154780-1 MS	DUP-10-20180605	Total/NA	Water	SM 4500 F C	
400-154780-1 MSD	DUP-10-20180605	Total/NA	Water	SM 4500 F C	
400-155063-I-4 DU	Duplicate	Total/NA	Water	SM 4500 F C	

## Field Service / Mobile Lab

### Analysis Batch: 401946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154780-1	DUP-10-20180605	Total/NA	Water	Field Sampling	
400-154780-2	MW-D2-20180605	Total/NA	Water	Field Sampling	
400-154780-3	MW-D3-20180605	Total/NA	Water	Field Sampling	
400-154780-4	MW-D1-20180605	Total/NA	Water	Field Sampling	
400-154780-5	MW-U1-20180605	Total/NA	Water	Field Sampling	

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-154780-1

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

**Lab Sample ID: MB 400-400907/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 401050**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 400907**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0013	0.00046	mg/L		06/13/18 08:32	06/13/18 15:41	5
Barium	ND		0.0025	0.00049	mg/L		06/13/18 08:32	06/13/18 15:41	5
Boron	ND		0.050	0.021	mg/L		06/13/18 08:32	06/13/18 15:41	5
Calcium	ND		0.25	0.13	mg/L		06/13/18 08:32	06/13/18 15:41	5
Cobalt	ND		0.0025	0.00040	mg/L		06/13/18 08:32	06/13/18 15:41	5
Molybdenum	ND		0.010	0.00085	mg/L		06/13/18 08:32	06/13/18 15:41	5
Thallium	ND		0.00050	0.000085	mg/L		06/13/18 08:32	06/13/18 15:41	5

**Lab Sample ID: LCS 400-400907/2-A**  
**Matrix: Water**  
**Analysis Batch: 401050**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 400907**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	0.0500	0.0496		mg/L		99	80 - 120
Barium	0.0500	0.0501		mg/L		100	80 - 120
Boron	0.100	0.0987		mg/L		99	80 - 120
Calcium	5.00	4.77		mg/L		95	80 - 120
Cobalt	0.0500	0.0506		mg/L		101	80 - 120
Molybdenum	0.0500	0.0512		mg/L		102	80 - 120
Thallium	0.0100	0.00984		mg/L		98	80 - 120

**Lab Sample ID: 600-167041-G-1-C MS ^5**  
**Matrix: Water**  
**Analysis Batch: 401050**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total Recoverable**  
**Prep Batch: 400907**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Arsenic	0.013		0.0500	0.0639		mg/L		102	75 - 125
Barium	0.25		0.0500	0.296	4	mg/L		98	75 - 125
Boron	0.028	J	0.100	0.135		mg/L		108	75 - 125
Calcium	52		5.00	56.6	4	mg/L		90	75 - 125
Cobalt	0.0062		0.0500	0.0572		mg/L		102	75 - 125
Molybdenum	ND		0.0500	0.0544		mg/L		109	75 - 125
Thallium	ND		0.0100	0.00989		mg/L		99	75 - 125

**Lab Sample ID: 600-167041-G-1-D MSD ^5**  
**Matrix: Water**  
**Analysis Batch: 401050**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total Recoverable**  
**Prep Batch: 400907**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	0.013		0.0500	0.0642		mg/L		103	75 - 125	1	20
Barium	0.25		0.0500	0.295	4	mg/L		95	75 - 125	0	20
Boron	0.028	J	0.100	0.130		mg/L		103	75 - 125	4	20
Calcium	52		5.00	57.8	4	mg/L		112	75 - 125	2	20
Cobalt	0.0062		0.0500	0.0577		mg/L		103	75 - 125	1	20
Molybdenum	ND		0.0500	0.0529		mg/L		106	75 - 125	3	20
Thallium	ND		0.0100	0.0100		mg/L		100	75 - 125	1	20

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-154780-1

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

**Lab Sample ID: MB 400-400737/1**  
**Matrix: Water**  
**Analysis Batch: 400737**

**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			06/12/18 13:11	1

**Lab Sample ID: LCS 400-400737/2**  
**Matrix: Water**  
**Analysis Batch: 400737**

**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	290		mg/L		99	78 - 122

**Lab Sample ID: 400-154780-2 DU**  
**Matrix: Water**  
**Analysis Batch: 400737**

**Client Sample ID: MW-D2-20180605**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	390		388		mg/L		0	5

**Lab Sample ID: 400-154780-3 DU**  
**Matrix: Water**  
**Analysis Batch: 400737**

**Client Sample ID: MW-D3-20180605**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	370		368		mg/L		0	5

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

**Lab Sample ID: MB 400-401365/6**  
**Matrix: Water**  
**Analysis Batch: 401365**

**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	0.60	mg/L			06/17/18 10:06	1

**Lab Sample ID: LCS 400-401365/7**  
**Matrix: Water**  
**Analysis Batch: 401365**

**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	30.4		mg/L		101	90 - 110

**Lab Sample ID: MRL 400-401365/3**  
**Matrix: Water**  
**Analysis Batch: 401365**

**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	1.51	J	mg/L		75	50 - 150

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-154780-1

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

**Lab Sample ID: 400-154780-2 MS**  
**Matrix: Water**  
**Analysis Batch: 401365**

**Client Sample ID: MW-D2-20180605**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.1		10.0	16.0		mg/L		110	73 - 120

**Lab Sample ID: 400-154780-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 401365**

**Client Sample ID: MW-D2-20180605**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	5.1		10.0	16.1		mg/L		111	73 - 120	1	8

## Method: SM 4500 F C - Fluoride

**Lab Sample ID: MB 400-401670/2**  
**Matrix: Water**  
**Analysis Batch: 401670**

**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			06/19/18 14:03	1

**Lab Sample ID: LCS 400-401670/3**  
**Matrix: Water**  
**Analysis Batch: 401670**

**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	3.79		mg/L		95	90 - 110

**Lab Sample ID: 400-154780-1 MS**  
**Matrix: Water**  
**Analysis Batch: 401670**

**Client Sample ID: DUP-10-20180605**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.070	J	1.00	1.06		mg/L		99	75 - 125

**Lab Sample ID: 400-154780-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 401670**

**Client Sample ID: DUP-10-20180605**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.070	J	1.00	1.06		mg/L		99	75 - 125	0	4

**Lab Sample ID: 400-155063-I-4 DU**  
**Matrix: Water**  
**Analysis Batch: 401670**

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Fluoride	0.14		0.140		mg/L		0	4

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-154780-1

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

**Lab Sample ID: MB 400-401360/17**  
**Matrix: Water**  
**Analysis Batch: 401360**

**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			06/17/18 08:24	1

**Lab Sample ID: LCS 400-401360/18**  
**Matrix: Water**  
**Analysis Batch: 401360**

**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	14.1		mg/L		94	90 - 110

**Lab Sample ID: MRL 400-401360/14**  
**Matrix: Water**  
**Analysis Batch: 401360**

**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	6.07		mg/L		121	50 - 150

**Lab Sample ID: 400-154780-5 MS**  
**Matrix: Water**  
**Analysis Batch: 401360**

**Client Sample ID: MW-U1-20180605**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	2.9	J	10.0	12.9		mg/L		100	77 - 128

**Lab Sample ID: 400-154780-5 MSD**  
**Matrix: Water**  
**Analysis Batch: 401360**

**Client Sample ID: MW-U1-20180605**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Sulfate	2.9	J	10.0	12.9		mg/L		100	77 - 128	0	5

**Lab Sample ID: MB 400-401459/6**  
**Matrix: Water**  
**Analysis Batch: 401459**

**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			06/18/18 10:34	1

**Lab Sample ID: LCS 400-401459/7**  
**Matrix: Water**  
**Analysis Batch: 401459**

**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		97	90 - 110

**Lab Sample ID: MRL 400-401459/3**  
**Matrix: Water**  
**Analysis Batch: 401459**

**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	5.05		mg/L		101	50 - 150

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-154780-1

**Lab Sample ID: 400-154780-3 MS**  
**Matrix: Water**  
**Analysis Batch: 401459**

**Client Sample ID: MW-D3-20180605**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	29		10.0	38.8		mg/L		99	77 - 128

**Lab Sample ID: 400-154780-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 401459**

**Client Sample ID: MW-D3-20180605**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	29		10.0	38.8		mg/L		99	77 - 128	0	5

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

Chain of Custody Record

<b>Client Information</b> Client Contact: <b>STEPHEN W. RANDALL</b> Phone: <b>478-328-6181</b> Company: Geosyntec Consultants, Inc. Address: 1255 Roberts Blvd, NW, Suite 200 City: Kennesaw State, Zip: GA, 30144 Phone: 678-202-9583 (Tel) Email: igasser@geosyntec.com Project Name: CCR App. III/IV GW Monitoring Site:		Lab PM: Whitmire, Cheyenne R E-Mail: cheyenne.whitmire@testamericainc.com Carrier Tracking No(s): COC No: 400-74553-29334.1 Page: Page 1 of 1 Job #:	
Due Date Requested: TAT Requested (days): <b>STANDARD</b> PO #: Purchase Order not required WO #:		Analysis Requested 6020 - B, Ca, As, Ba, Co, Mo, Ti Field Filtered Sample (Yes or No)	
Sample Identification Dup-10-2018 0605 MW-D2-2018 0605 MW-D3-2018 0605 MW-D1-2018 0605 MW-U1-2018 0605		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 9316 Ra226, 9320 Ra228, Ra226Ra228_GFP-C - Radium 5M4500 Cl, E - Chloride, SM4500, SO4, E - Sulfate, 226 + Radium 228 4500 F, C - Fluoride, 2540C - Total Dissolved Solids 6200 - B, Ca, As, Ba, Co, Mo, Ti Field Filtered Sample (Yes or No)	
Sample Date 6/5/18 6/5/18 6/5/18 6/5/18 6/5/18		Sample Time 0800 0950 1045 1210 1450	
Sample Type G G G G G		Matrix Water Water Water Water Water	
Preservation Code: PH: 6.31 PH: 6.50 PH: 6.42 PH: 5.91 PH: 6.74		Special Instructions/Note: PH: 6.31 PH: 6.50 PH: 6.42 PH: 5.91 PH: 6.74	
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		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	
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:	
Empty Kit Relinquished by:		Method of Shipment:	
Relinquished by: <b>Stephen W. Randall</b> Date/Time: <b>6/6/18 1730</b> Company: <b>GEOSYNTEC</b>		Received by: <b>[Signature]</b> Date/Time: <b>6/16/18 1001</b> Company:	
Relinquished by:		Received by:	
Relinquished by:		Received by:	
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:	



## Login Sample Receipt Checklist

Client: Geosyntec Consultants, Inc.

Job Number: 400-154780-1

**Login Number: 154780**

**List Number: 1**

**Creator: Johnson, Jeremy N**

**List Source: TestAmerica Pensacola**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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	478770
Samples were received on ice.	True	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	26.8°C IR7 0.0°C IR7
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 <math><6\text{mm}</math> (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

TestAmerica Job ID: 400-154780-1

## Laboratory: 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	06-30-18
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-19
Arkansas DEQ	State Program	6	88-0689	09-01-18
California	ELAP	9	2510	06-30-18
Florida	NELAP	4	E81010	06-30-18
Georgia	State Program	4	E81010 (FL)	06-30-19
Illinois	NELAP	5	200041	10-09-18
Iowa	State Program	7	367	08-01-18
Kansas	NELAP	7	E-10253	10-31-18
Kentucky (UST)	State Program	4	53	06-30-18
Kentucky (WW)	State Program	4	98030	12-31-18
Louisiana	NELAP	6	30976	06-30-18
Louisiana (DW)	NELAP	6	LA170005	12-31-18
Maryland	State Program	3	233	09-30-18
Massachusetts	State Program	1	M-FL094	06-30-18
Michigan	State Program	5	9912	06-30-18
New Jersey	NELAP	2	FL006	06-30-18
North Carolina (WW/SW)	State Program	4	314	12-31-18
Oklahoma	State Program	6	9810	08-31-18
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-18
South Carolina	State Program	4	96026	06-30-18
Tennessee	State Program	4	TN02907	06-30-18
Texas	NELAP	6	T104704286-18-14	09-30-18
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-19
Washington	State Program	10	C915	05-15-19

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-154780-2

Client Project/Site: CCR App.III/IV GW Monitoring

For:

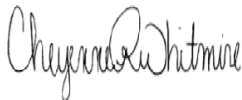
Geosyntec Consultants, Inc.

1255 Roberts Blvd, NW

Suite 200

Kennesaw, Georgia 30144

Attn: Jeremy Gasser



Authorized for release by:

7/12/2018 6:54:30 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?



Visit us at:

[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.*

1

2

3

4

5

6

7

8

9

10

11

12

13



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Case Narrative . . . . .	3
Method Summary . . . . .	4
Sample Summary . . . . .	5
Client Sample Results . . . . .	6
Definitions . . . . .	11
Chronicle . . . . .	12
QC Association . . . . .	14
QC Sample Results . . . . .	15
Chain of Custody . . . . .	17
Receipt Checklists . . . . .	18
Certification Summary . . . . .	19

# Case Narrative

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

TestAmerica Job ID: 400-154780-2

**Job ID: 400-154780-2**

**Laboratory: TestAmerica Pensacola**

## Narrative

### Job Narrative 400-154780-2

#### RAD

Method(s) 9315: Radium-226 Prep Batch 160-370867. The following samples have a barium carrier recovery above the 110% QC limit; (310-132147-5: 111%, 400-154780-4: 111%, and 400-154780-5: 111%). Affected samples had a barium correction applied, however, there are higher concentrations of salt-like compounds (i.e. calcium, magnesium, sodium, and strontium) that can interfere with a barium sulfate recovery. The LCS/LCSD (laboratory control sample/Duplicate) have acceptable spike recoveries demonstrating acceptable sample preparation and instrument performance. The samples have been truncated to 100% to reduce any potential bias a high carrier recovery may have. The data have been qualified and reported. MW-D1-20180605 (400-154780-4) and MW-U1-20180605 (400-154780-5)

Method(s) 9320: Radium-228 Prep Batch 160-371033. The following samples have a barium carrier recovery above the 110% QC limit; (310-132147-5: 111%, 400-154780-4: 111%, and 400-154780-5: 111%). Affected samples had a barium correction applied, however, there are higher concentrations of salt-like compounds (i.e. calcium, magnesium, sodium, and strontium) that can interfere with a barium sulfate recovery. The LCS/LCSD (laboratory control sample/Duplicate) have acceptable spike recoveries demonstrating acceptable sample preparation and instrument performance. The samples have been truncated to 100% to reduce any potential bias a high carrier recovery may have. The data have been qualified and reported. MW-D1-20180605 (400-154780-4) and MW-U1-20180605 (400-154780-5)

Method(s) PrecSep\_0: Radium 228 Prep Batch 160-371033: Insufficient sample volume was available to perform a sample duplicate (DUP) for the following samples: DUP-10-20180605 (400-154780-1), MW-D2-20180605 (400-154780-2), MW-D3-20180605 (400-154780-3), MW-D1-20180605 (400-154780-4) and MW-U1-20180605 (400-154780-5). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method(s) PrecSep\_0: Radium-228 Prep Batch 10-371033: The barium carrier recovery is outside the upper control limit (110%) for the following samples: MW-D1-20180605 (400-154780-4) and MW-U1-20180605 (400-154780-5). The QC samples associated with the batch have acceptable carrier recovery indicating the presence of matrix interference. The pellets were noted as larger during the out of ingrowth process.

Method(s) PrecSep-21: Radium 226 Prep Batch 160-370867: Insufficient sample volume was available to perform a sample duplicate (DUP) for the following samples: DUP-10-20180605 (400-154780-1), MW-D2-20180605 (400-154780-2), MW-D3-20180605 (400-154780-3), MW-D1-20180605 (400-154780-4) and MW-U1-20180605 (400-154780-5). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method(s) PrecSep-21: Radium-226 Prep Batch 10-370867: The barium carrier recovery is outside the upper control limit (110%) for the following samples: MW-D1-20180605 (400-154780-4) and MW-U1-20180605 (400-154780-5). The QC samples associated with the batch have acceptable carrier recovery indicating the presence of matrix interference. The pellets were noted as larger during the out of ingrowth process.

# Method Summary

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

TestAmerica Job ID: 400-154780-2

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

#### Protocol References:

None = None

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

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

#### Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Sample Summary

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

TestAmerica Job ID: 400-154780-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-154780-1	DUP-10-20180605	Water	06/05/18 08:00	06/07/18 10:09
400-154780-2	MW-D2-20180605	Water	06/05/18 09:50	06/07/18 10:09
400-154780-3	MW-D3-20180605	Water	06/05/18 10:45	06/07/18 10:09
400-154780-4	MW-D1-20180605	Water	06/05/18 12:10	06/07/18 10:09
400-154780-5	MW-U1-20180605	Water	06/05/18 14:50	06/07/18 10:09

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

# Client Sample Results

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

TestAmerica Job ID: 400-154780-2

**Client Sample ID: DUP-10-20180605**

**Lab Sample ID: 400-154780-1**

**Date Collected: 06/05/18 08:00**

**Matrix: Water**

**Date Received: 06/07/18 10:09**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0578	U	0.147	0.147	1.00	0.277	pCi/L	06/18/18 09:20	07/11/18 19:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					06/18/18 09:20	07/11/18 19:17	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.103	U	0.157	0.157	1.00	0.302	pCi/L	06/18/18 12:00	07/11/18 15:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					06/18/18 12:00	07/11/18 15:14	1
Y Carrier	97.2		40 - 110					06/18/18 12:00	07/11/18 15:14	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0447	U	0.215	0.215	5.00	0.302	pCi/L		07/12/18 17:53	1

# Client Sample Results

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

TestAmerica Job ID: 400-154780-2

**Client Sample ID: MW-D2-20180605**

**Lab Sample ID: 400-154780-2**

**Date Collected: 06/05/18 09:50**

**Matrix: Water**

**Date Received: 06/07/18 10:09**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0444	U	0.119	0.119	1.00	0.283	pCi/L	06/18/18 09:20	07/11/18 19:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	109		40 - 110					06/18/18 09:20	07/11/18 19:17	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0583	U	0.232	0.232	1.00	0.401	pCi/L	06/18/18 12:00	07/11/18 15:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	109		40 - 110					06/18/18 12:00	07/11/18 15:14	1
Y Carrier	94.2		40 - 110					06/18/18 12:00	07/11/18 15:14	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0139	U	0.261	0.261	5.00	0.401	pCi/L		07/12/18 17:53	1

# Client Sample Results

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

TestAmerica Job ID: 400-154780-2

**Client Sample ID: MW-D3-20180605**

**Lab Sample ID: 400-154780-3**

**Date Collected: 06/05/18 10:45**

**Matrix: Water**

**Date Received: 06/07/18 10:09**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.282		0.206	0.208	1.00	0.277	pCi/L	06/18/18 09:20	07/11/18 19:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					06/18/18 09:20	07/11/18 19:17	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.282	U	0.230	0.231	1.00	0.366	pCi/L	06/18/18 12:00	07/11/18 15:15	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					06/18/18 12:00	07/11/18 15:15	1
Y Carrier	95.3		40 - 110					06/18/18 12:00	07/11/18 15:15	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.564		0.309	0.311	5.00	0.366	pCi/L		07/12/18 17:53	1

# Client Sample Results

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

TestAmerica Job ID: 400-154780-2

**Client Sample ID: MW-D1-20180605**

**Lab Sample ID: 400-154780-4**

**Date Collected: 06/05/18 12:10**

**Matrix: Water**

**Date Received: 06/07/18 10:09**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0678	U	0.181	0.181	1.00	0.340	pCi/L	06/18/18 09:20	07/11/18 19:18	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	111	X	40 - 110					06/18/18 09:20	07/11/18 19:18	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0810	U	0.237	0.237	1.00	0.407	pCi/L	06/18/18 12:00	07/11/18 15:15	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	111	X	40 - 110					06/18/18 12:00	07/11/18 15:15	1
Y Carrier	95.0		40 - 110					06/18/18 12:00	07/11/18 15:15	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.149	U	0.298	0.298	5.00	0.407	pCi/L		07/12/18 17:53	1

# Client Sample Results

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

TestAmerica Job ID: 400-154780-2

**Client Sample ID: MW-U1-20180605**

**Lab Sample ID: 400-154780-5**

**Date Collected: 06/05/18 14:50**

**Matrix: Water**

**Date Received: 06/07/18 10:09**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0416	U	0.127	0.127	1.00	0.308	pCi/L	06/18/18 09:20	07/11/18 19:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	111	X	40 - 110					06/18/18 09:20	07/11/18 19:46	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0170	U	0.201	0.201	1.00	0.362	pCi/L	06/18/18 12:00	07/11/18 15:15	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	111	X	40 - 110					06/18/18 12:00	07/11/18 15:15	1
Y Carrier	96.1		40 - 110					06/18/18 12:00	07/11/18 15:15	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0586	U	0.238	0.238	5.00	0.362	pCi/L		07/12/18 17:53	1

# Definitions/Glossary

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

TestAmerica Job ID: 400-154780-2

## Qualifiers

### Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.
X	Carrier is outside acceptance limits.

## 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

TestAmerica Job ID: 400-154780-2

**Client Sample ID: DUP-10-20180605**

**Lab Sample ID: 400-154780-1**

**Date Collected: 06/05/18 08:00**

**Matrix: Water**

**Date Received: 06/07/18 10:09**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			370867	06/18/18 09:20	JLC	TAL SL
Total/NA	Analysis	9315		1	374837	07/11/18 19:17	RTM	TAL SL
Total/NA	Prep	PrecSep_0			371033	06/18/18 12:00	JLC	TAL SL
Total/NA	Analysis	9320		1	374834	07/11/18 15:14	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375258	07/12/18 17:53	RTM	TAL SL

**Client Sample ID: MW-D2-20180605**

**Lab Sample ID: 400-154780-2**

**Date Collected: 06/05/18 09:50**

**Matrix: Water**

**Date Received: 06/07/18 10:09**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			370867	06/18/18 09:20	JLC	TAL SL
Total/NA	Analysis	9315		1	374837	07/11/18 19:17	RTM	TAL SL
Total/NA	Prep	PrecSep_0			371033	06/18/18 12:00	JLC	TAL SL
Total/NA	Analysis	9320		1	374834	07/11/18 15:14	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375258	07/12/18 17:53	RTM	TAL SL

**Client Sample ID: MW-D3-20180605**

**Lab Sample ID: 400-154780-3**

**Date Collected: 06/05/18 10:45**

**Matrix: Water**

**Date Received: 06/07/18 10:09**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			370867	06/18/18 09:20	JLC	TAL SL
Total/NA	Analysis	9315		1	374837	07/11/18 19:17	RTM	TAL SL
Total/NA	Prep	PrecSep_0			371033	06/18/18 12:00	JLC	TAL SL
Total/NA	Analysis	9320		1	374834	07/11/18 15:15	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375258	07/12/18 17:53	RTM	TAL SL

**Client Sample ID: MW-D1-20180605**

**Lab Sample ID: 400-154780-4**

**Date Collected: 06/05/18 12:10**

**Matrix: Water**

**Date Received: 06/07/18 10:09**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			370867	06/18/18 09:20	JLC	TAL SL
Total/NA	Analysis	9315		1	374837	07/11/18 19:18	RTM	TAL SL
Total/NA	Prep	PrecSep_0			371033	06/18/18 12:00	JLC	TAL SL
Total/NA	Analysis	9320		1	374834	07/11/18 15:15	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375258	07/12/18 17:53	RTM	TAL SL

# Lab Chronicle

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

TestAmerica Job ID: 400-154780-2

**Client Sample ID: MW-U1-20180605**

**Lab Sample ID: 400-154780-5**

**Date Collected: 06/05/18 14:50**

**Matrix: Water**

**Date Received: 06/07/18 10:09**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			370867	06/18/18 09:20	JLC	TAL SL
Total/NA	Analysis	9315		1	374837	07/11/18 19:46	RTM	TAL SL
Total/NA	Prep	PrecSep_0			371033	06/18/18 12:00	JLC	TAL SL
Total/NA	Analysis	9320		1	374834	07/11/18 15:15	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375258	07/12/18 17:53	RTM	TAL SL

#### Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# QC Association Summary

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

TestAmerica Job ID: 400-154780-2

## Rad

### Prep Batch: 370867

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154780-1	DUP-10-20180605	Total/NA	Water	PrecSep-21	
400-154780-2	MW-D2-20180605	Total/NA	Water	PrecSep-21	
400-154780-3	MW-D3-20180605	Total/NA	Water	PrecSep-21	
400-154780-4	MW-D1-20180605	Total/NA	Water	PrecSep-21	
400-154780-5	MW-U1-20180605	Total/NA	Water	PrecSep-21	
MB 160-370867/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-370867/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-370867/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

### Prep Batch: 371033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154780-1	DUP-10-20180605	Total/NA	Water	PrecSep_0	
400-154780-2	MW-D2-20180605	Total/NA	Water	PrecSep_0	
400-154780-3	MW-D3-20180605	Total/NA	Water	PrecSep_0	
400-154780-4	MW-D1-20180605	Total/NA	Water	PrecSep_0	
400-154780-5	MW-U1-20180605	Total/NA	Water	PrecSep_0	
MB 160-371033/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-371033/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-371033/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

# QC Sample Results

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

TestAmerica Job ID: 400-154780-2

## Method: 9315 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-370867/23-A**  
**Matrix: Water**  
**Analysis Batch: 374836**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 370867**

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.01882	U	0.0960	0.0960	1.00	0.202	pCi/L	06/18/18 09:20	07/11/18 21:30	1
Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	%Yield	Qualifier	Limits							
Ba Carrier	109		40 - 110		06/18/18 09:20	07/11/18 21:30	1			

**Lab Sample ID: LCS 160-370867/1-A**  
**Matrix: Water**  
**Analysis Batch: 374836**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 370867**

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Radium-226	11.8	8.787		1.15	1.00	0.229	pCi/L	74	68 - 137
Carrier	LCS LCS		Limits		Prepared	Analyzed	Dil Fac		
Ba Carrier	%Yield	Qualifier	Limits						
Ba Carrier	109		40 - 110		06/18/18 09:20	07/11/18 21:30	1		

**Lab Sample ID: LCSD 160-370867/2-A**  
**Matrix: Water**  
**Analysis Batch: 374836**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 370867**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
				Uncert. (2σ+/-)							
Radium-226	11.8	9.151		1.20	1.00	0.253	pCi/L	78	68 - 137	0.16	1
Carrier	LCSD LCSD		Limits		Prepared	Analyzed	Dil Fac				
Ba Carrier	%Yield	Qualifier	Limits								
Ba Carrier	102		40 - 110		06/18/18 12:00	07/11/18 15:16	1				

## Method: 9320 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-371033/23-A**  
**Matrix: Water**  
**Analysis Batch: 374834**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 371033**

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	-0.05769	U	0.167	0.167	1.00	0.311	pCi/L	06/18/18 12:00	07/11/18 15:16	1
Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	%Yield	Qualifier	Limits							
Ba Carrier	109		40 - 110		06/18/18 12:00	07/11/18 15:16	1			
Y Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
Y Carrier	%Yield	Qualifier	Limits							
Y Carrier	95.0		40 - 110		06/18/18 12:00	07/11/18 15:16	1			

# QC Sample Results

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

TestAmerica Job ID: 400-154780-2

## Method: 9320 - Radium-228 (GFPC) (Continued)

**Lab Sample ID: LCS 160-371033/1-A**  
**Matrix: Water**  
**Analysis Batch: 374834**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 371033**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	8.15	6.152		0.761	1.00	0.342	pCi/L	75	56 - 140

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	109		40 - 110
Y Carrier	89.7		40 - 110

**Lab Sample ID: LCSD 160-371033/2-A**  
**Matrix: Water**  
**Analysis Batch: 374834**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 371033**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	8.15	6.409		0.795	1.00	0.331	pCi/L	79	56 - 140	0.17	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	102		40 - 110
Y Carrier	90.5		40 - 110

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

**Lab Sample ID: 180-78700-A-6 DU**  
**Matrix: Water**  
**Analysis Batch: 375258**

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

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Combined Radium 226 + 228	0.210	U	0.5506		0.223	5.00	0.307	pCi/L	0.80	



## Login Sample Receipt Checklist

Client: Geosyntec Consultants, Inc.

Job Number: 400-154780-2

**Login Number: 154780**

**List Source: TestAmerica Pensacola**

**List Number: 1**

**Creator: Johnson, Jeremy N**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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	478770
Samples were received on ice.	True	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	26.8°C IR7 0.0°C IR7
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 <math><6\text{mm}</math> (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

TestAmerica Job ID: 400-154780-2

## Laboratory: 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	01-12-19
Arkansas DEQ	State Program	6	88-0689	09-01-18
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	10-09-18
Iowa	State Program	7	367	08-01-18
Kansas	NELAP	7	E-10253	10-31-18
Kentucky (UST)	State Program	4	53	06-30-19
Kentucky (WW)	State Program	4	98030	12-31-18
Louisiana	NELAP	6	30976	06-30-19
Louisiana (DW)	NELAP	6	LA170005	12-31-18
Maryland	State Program	3	233	09-30-18
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	12-31-18
Oklahoma	State Program	6	9810	08-31-18
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-18
South Carolina	State Program	4	96026	06-30-18 *
Tennessee	State Program	4	TN02907	06-30-19
Texas	NELAP	6	T104704286-18-14	09-30-18
US Fish & Wildlife	Federal		LE058448-0	07-31-18
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-19
Washington	State Program	10	C915	05-15-19
West Virginia DEP	State Program	3	136	06-30-19

## Laboratory: TestAmerica St. Louis

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
Alaska	State Program	10	MO00054	06-30-19
ANAB	DoD ELAP		L2305	04-06-19
Arizona	State Program	9	AZ0813	12-08-18
California	State Program	9	2886	06-30-19
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-19
Illinois	NELAP	5	200023	11-30-18
Iowa	State Program	7	373	12-01-18
Kansas	NELAP	7	E-10236	10-31-18
Kentucky (DW)	State Program	4	90125	12-31-18
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA180017	12-31-18
Maryland	State Program	3	310	09-30-18
Michigan	State Program	5	9005	06-30-18 *
Missouri	State Program	7	780	06-30-18 *

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Accreditation/Certification Summary

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

TestAmerica Job ID: 400-154780-2

## Laboratory: TestAmerica St. Louis (Continued)

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
Nevada	State Program	9	MO000542018-1	07-31-18 *
New Jersey	NELAP	2	MO002	06-30-19
New York	NELAP	2	11616	03-31-19
North Dakota	State Program	8	R207	06-30-18 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-18 *
Pennsylvania	NELAP	3	68-00540	02-28-19
South Carolina	State Program	4	85002001	06-30-18 *
Texas	NELAP	6	T104704193-17-11	07-31-18 *
US Fish & Wildlife	Federal		058448	07-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-18 *
Virginia	NELAP	3	460230	06-14-19
Washington	State Program	10	C592	08-30-18
West Virginia DEP	State Program	3	381	08-31-18 *

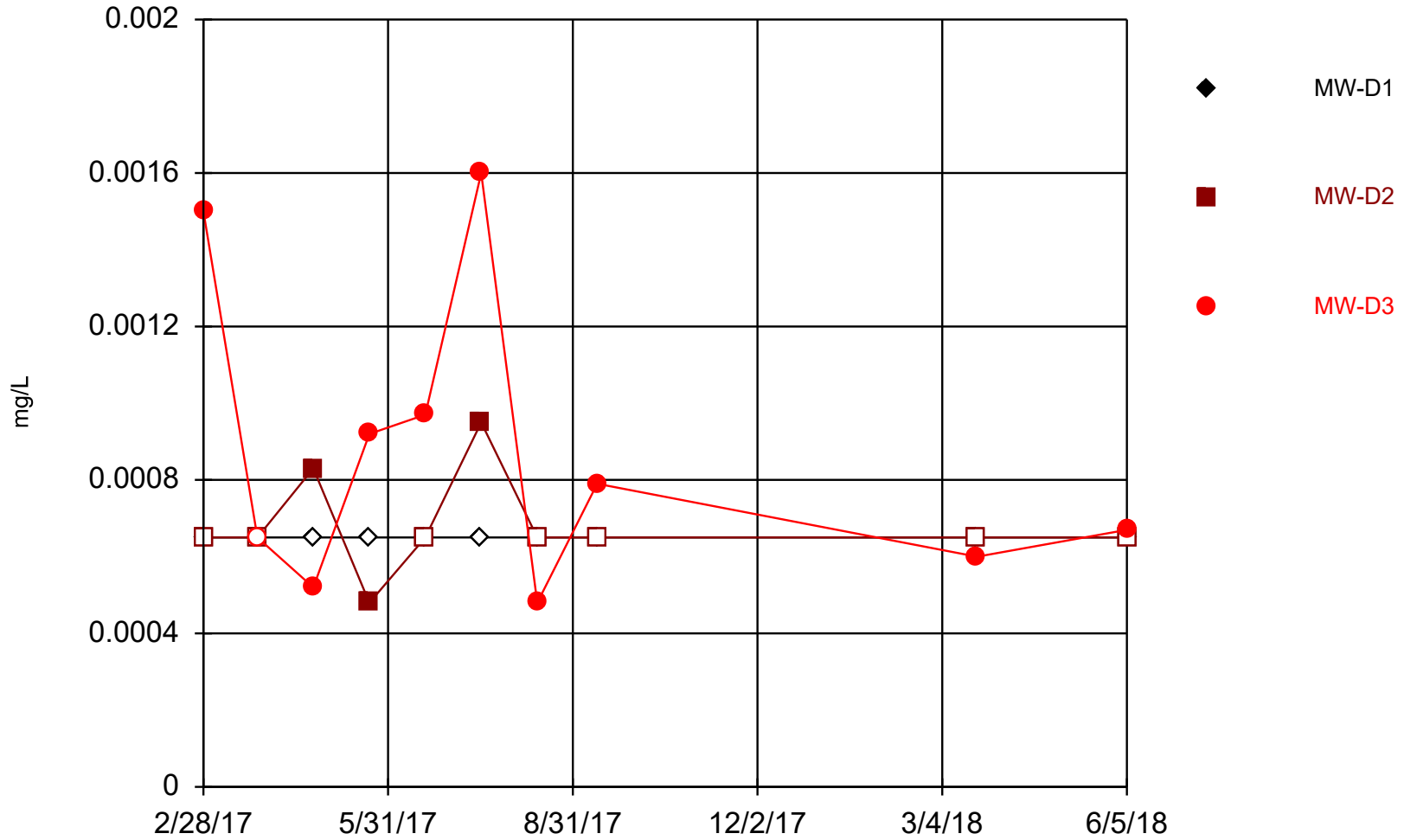
\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Pensacola

## APPENDIX C

### Statistical Calculations and Time-series Graphs

### Time Series



Constituent: Arsenic Analysis Run 9/19/2018 9:20 AM View: CCPC Monitoring Events 1 through 10

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

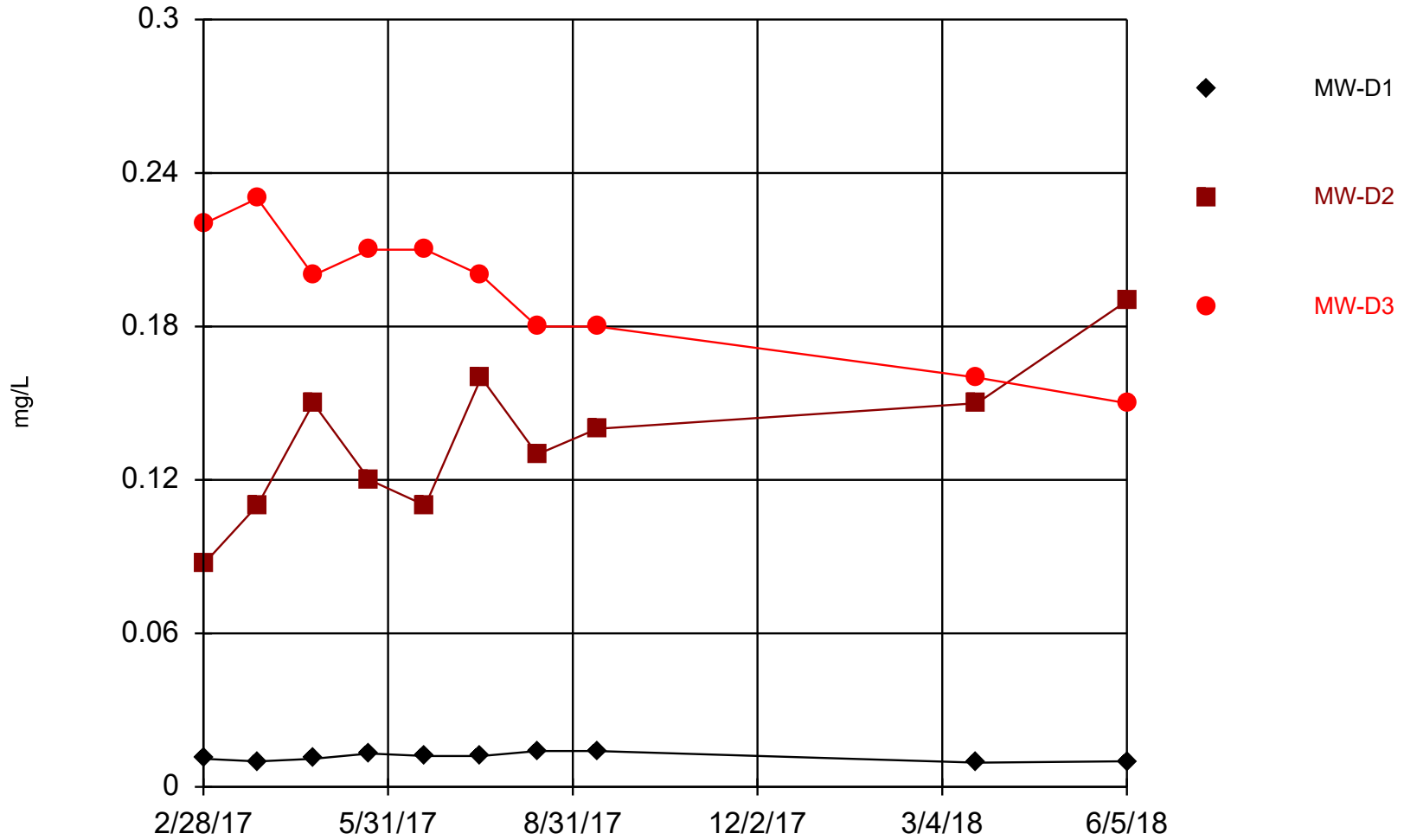
# Time Series

Constituent: Arsenic (mg/L) Analysis Run 9/19/2018 9:20 AM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	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)

### Time Series



Constituent: Barium Analysis Run 9/19/2018 9:20 AM View: CCPC Monitoring Events 1 through 10

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

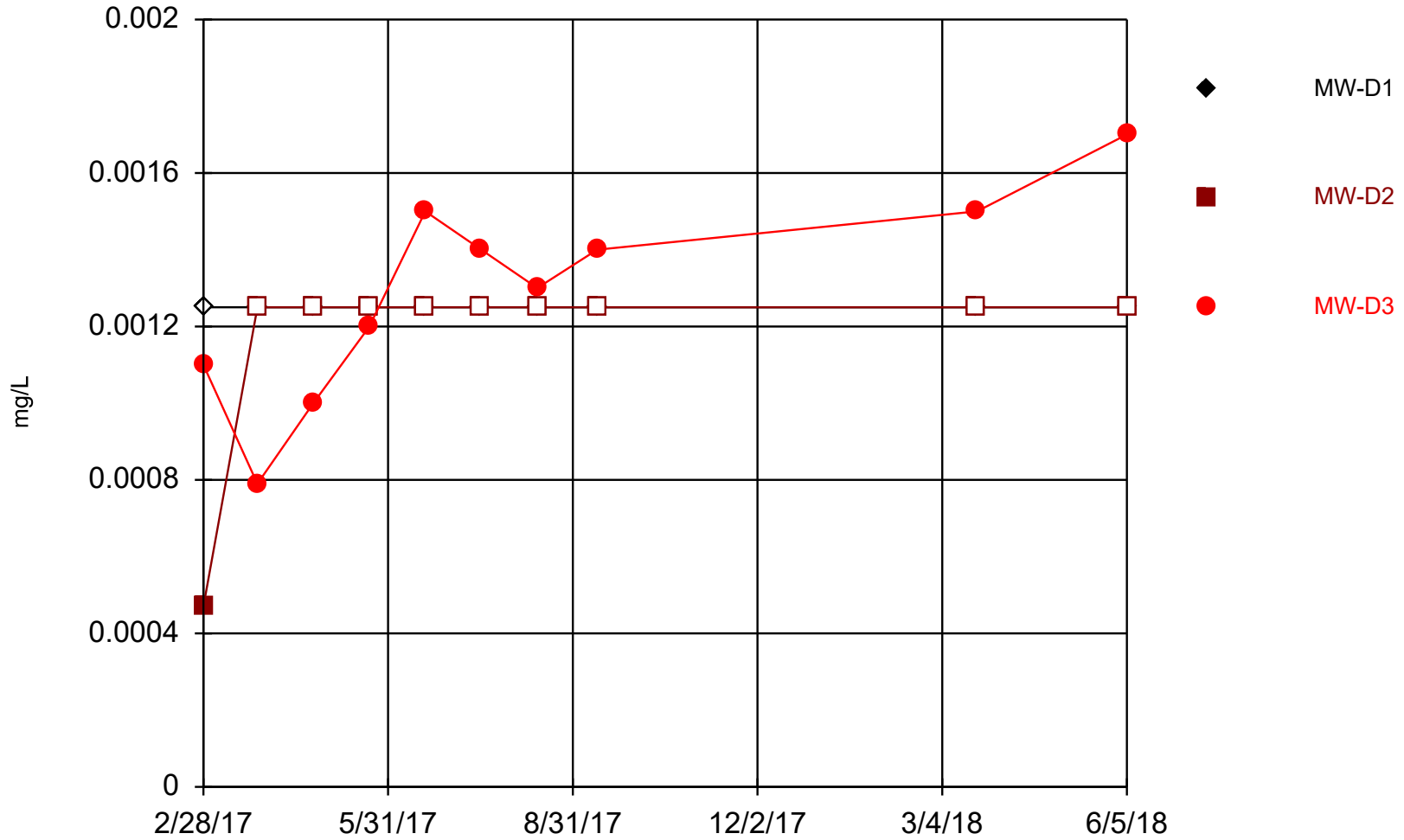
# Time Series

Constituent: Barium (mg/L) Analysis Run 9/19/2018 9:20 AM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	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

### Time Series



Constituent: Cobalt Analysis Run 9/19/2018 9:20 AM View: CCPC Monitoring Events 1 through 10

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

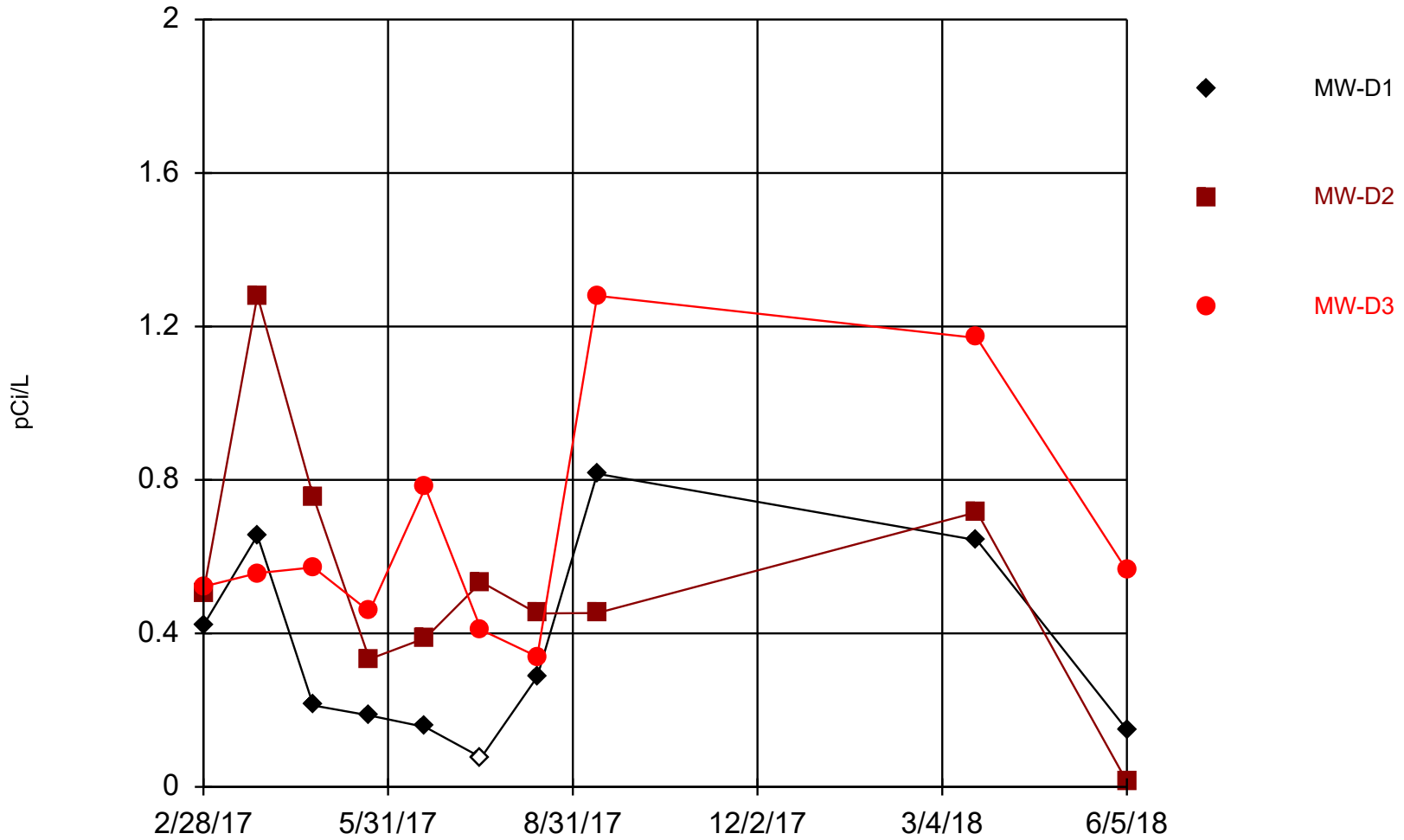
# Time Series

Constituent: Cobalt (mg/L) Analysis Run 9/19/2018 9:20 AM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	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)

### Time Series



Constituent: Combined Radium 226 + 228    Analysis Run 9/19/2018 9:20 AM    View: CCPC Monitoring Even

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

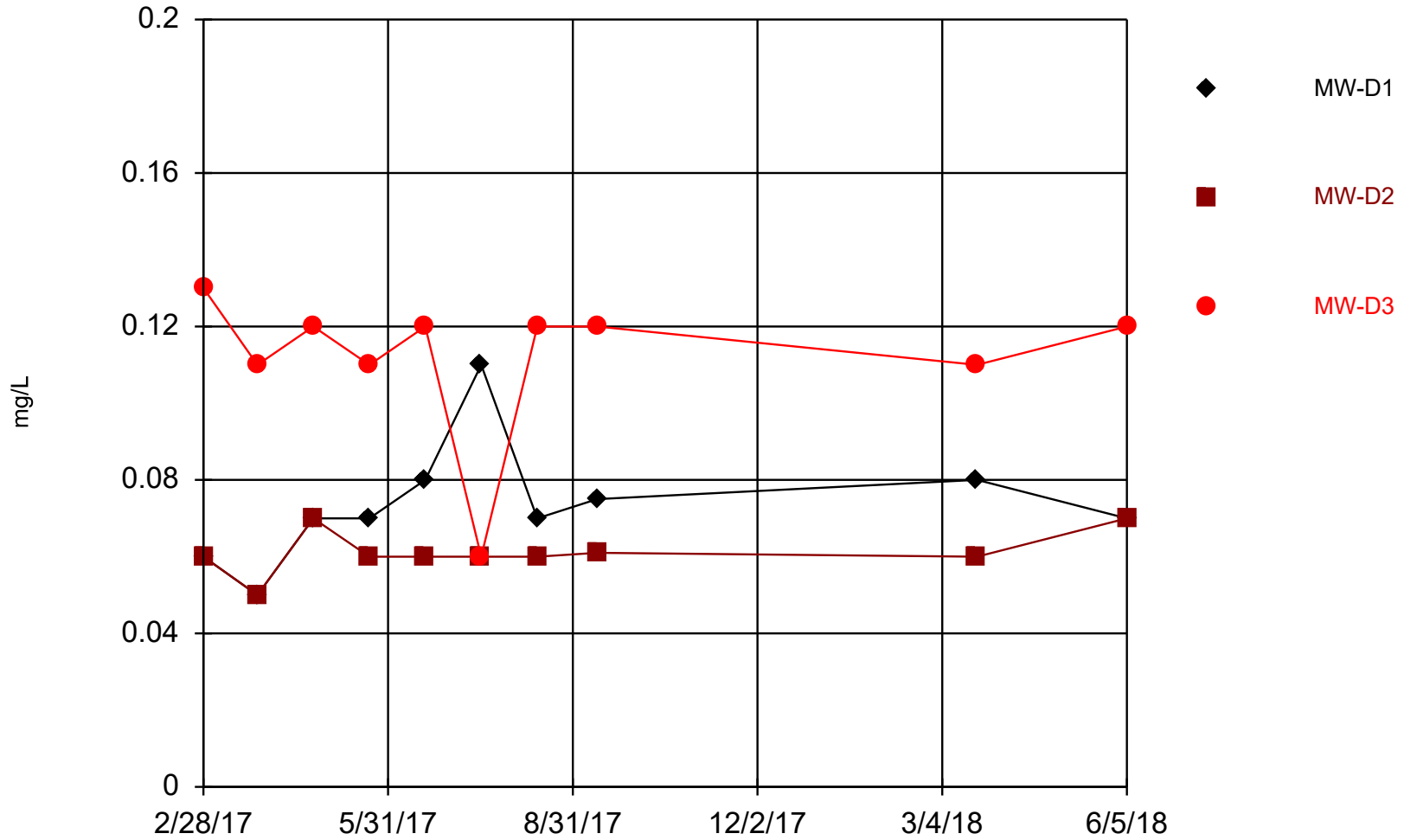
# Time Series

Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 9/19/2018 9:20 AM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	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

### Time Series



Constituent: Fluoride Analysis Run 9/19/2018 9:20 AM View: CCPC Monitoring Events 1 through 10

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

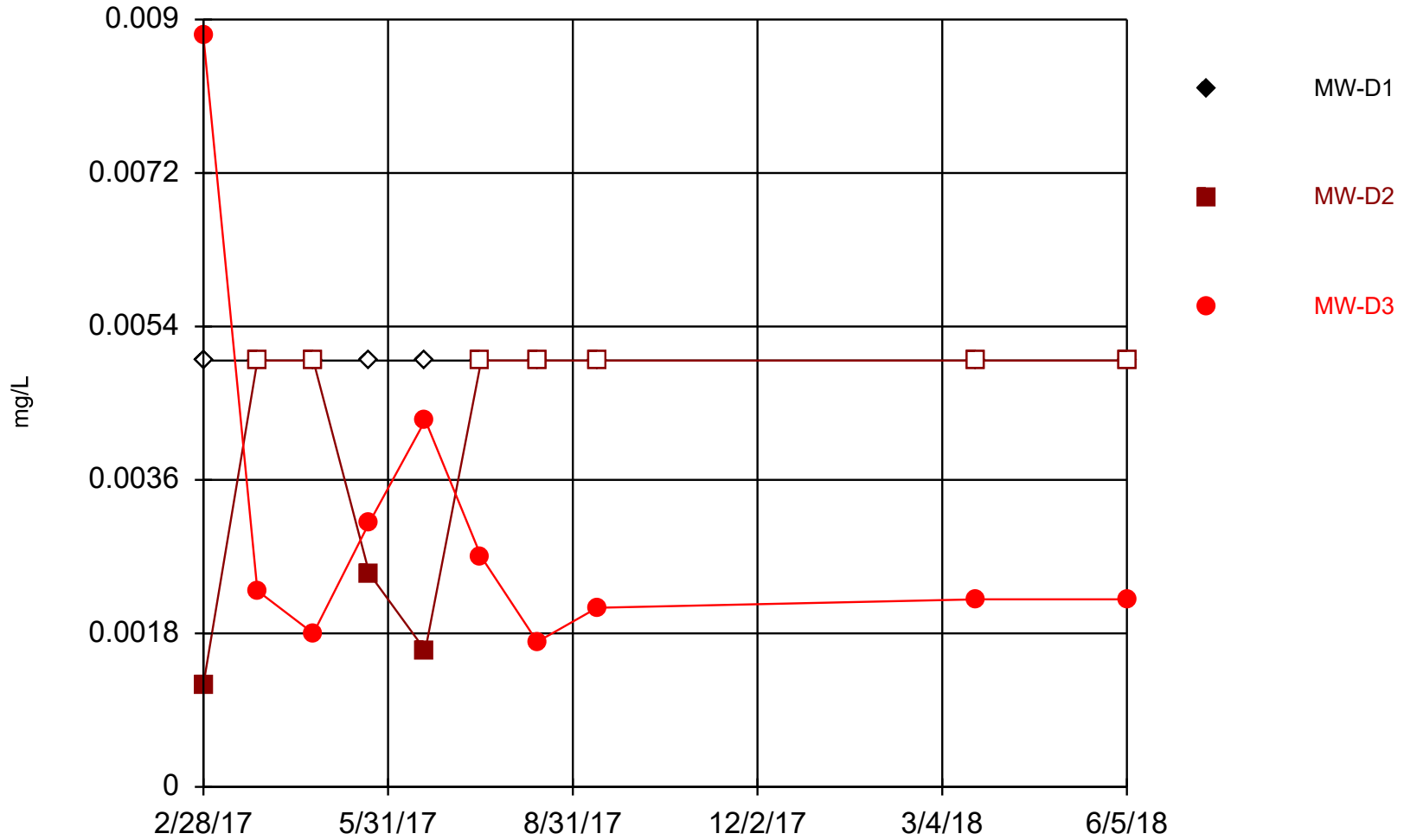
# Time Series

Constituent: Fluoride (mg/L) Analysis Run 9/19/2018 9:20 AM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	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

### Time Series



Constituent: Molybdenum Analysis Run 9/19/2018 9:20 AM View: CCPC Monitoring Events 1 through 10

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

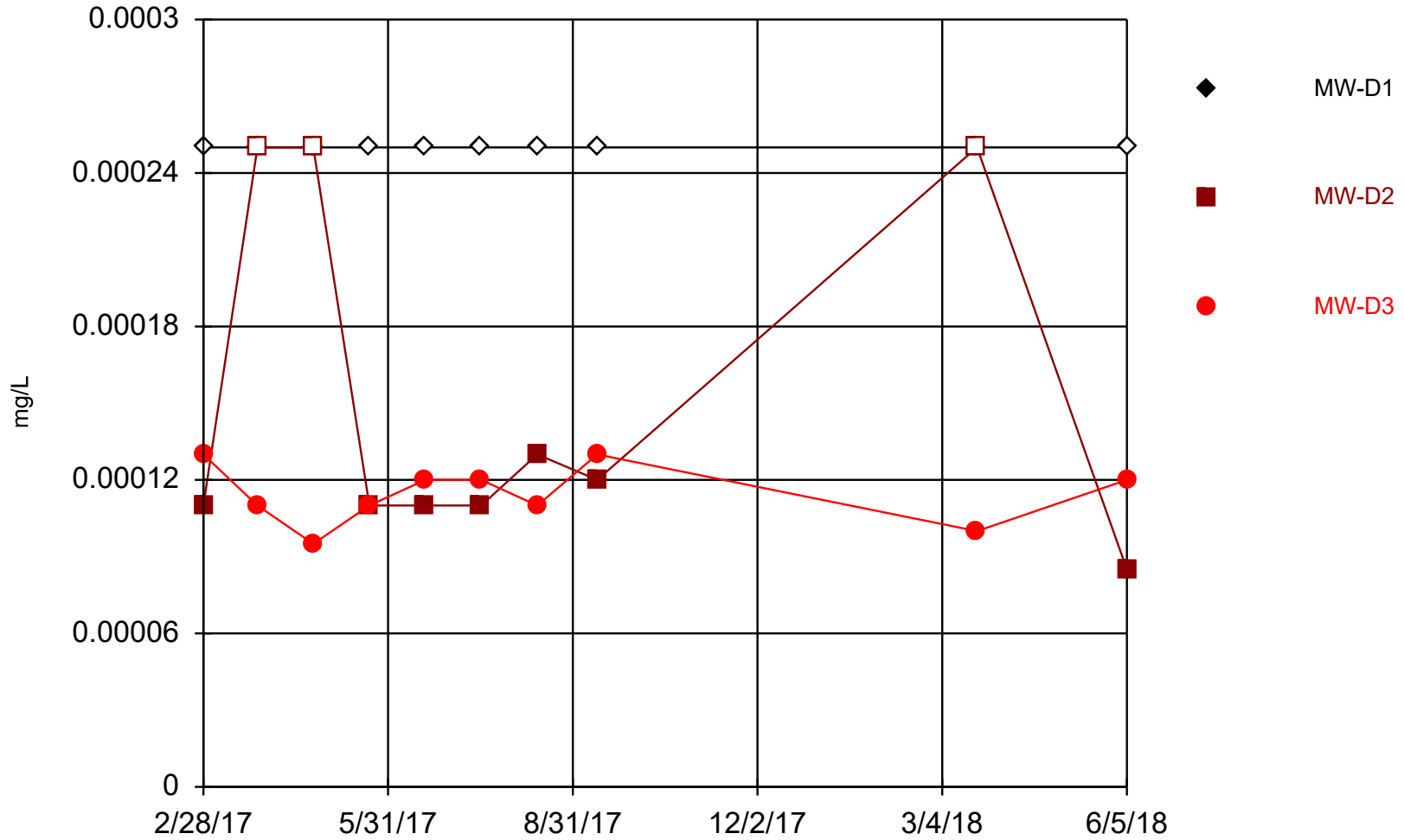
# Time Series

Constituent: Molybdenum (mg/L) Analysis Run 9/19/2018 9:20 AM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	MW-D1	MW-D2	MW-D3
2/28/2017	<0.01	0.0012 (J)	0.0088 (J)
3/27/2017	<0.01	<0.01	0.0023 (J)
4/24/2017	<0.01	<0.01	0.0018 (J)
5/22/2017	<0.01	0.0025 (J)	0.0031 (J)
6/19/2017	<0.01	0.0016 (J)	0.0043 (J)
7/17/2017	<0.01	<0.01	0.0027 (J)
8/14/2017	<0.01	<0.01	0.0017 (J)
9/13/2017	<0.01	<0.01	0.0021 (J)
3/22/2018	<0.01	<0.01	0.0022 (J)
6/5/2018	<0.01	<0.01	0.0022 (J)

### Time Series



Constituent: Thallium Analysis Run 9/19/2018 9:20 AM View: CCPC Monitoring Events 1 through 10

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

# Time Series

Constituent: Thallium (mg/L) Analysis Run 9/19/2018 9:20 AM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	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)

# Summary Report

Constituent: Antimony Analysis Run 9/19/2018 8:29 AM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

For observations made between 2/28/2017 and 3/22/2018, a summary of the selected data set:

Observations = 36  
ND/Trace = 36  
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	9	9	0.0025	0.0025	0.0025	0.0025	0	0	NaN
MW-D2	9	9	0.0025	0.0025	0.0025	0.0025	0	0	NaN
MW-D3	9	9	0.0025	0.0025	0.0025	0.0025	0	0	NaN
MW-U1 (bg)	9	9	0.0025	0.0025	0.0025	0.0025	0	0	NaN

# Summary Report

Constituent: Arsenic Analysis Run 9/19/2018 8:29 AM View: CCPC Monitoring Events 1 through 10  
 CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

For observations made between 2/28/2017 and 6/5/2018, a summary of the selected data set:

Observations = 40  
 ND/Trace = 27  
 Wells = 4  
 Minimum Value = 0.00046  
 Maximum Value = 0.0016  
 Mean Value = 0.001147  
 Median Value = 0.0013  
 Standard Deviation = 0.0003035  
 Coefficient of Variation = 0.2647  
 Skewness = -1.209

<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	0.0013	0.0013	0.0013	0.0013	0	0	NaN
MW-D2	10	7	0.00048	0.0013	0.001136	0.0013	0.0002881	0.2536	-1.404
MW-D3	10	1	0.00048	0.0016	0.000935	0.000855	0.0004054	0.4335	0.5243
MW-U1 (bg)	10	9	0.00046	0.0013	0.001216	0.0013	0.0002656	0.2184	-2.667

# Summary Report

Constituent: Barium Analysis Run 9/19/2018 8:29 AM View: CCPC Monitoring Events 1 through 10  
 CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

For observations made between 2/28/2017 and 6/5/2018, a summary of the selected data set:

Observations = 40  
 ND/Trace = 0  
 Wells = 4  
 Minimum Value = 0.002  
 Maximum Value = 0.23  
 Mean Value = 0.08568  
 Median Value = 0.0505  
 Standard Deviation = 0.08467  
 Coefficient of Variation = 0.9882  
 Skewness = 0.3065

<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	0	0.0095	0.014	0.01164	0.0115	0.001645	0.1414	0.2339
MW-D2	10	0	0.087	0.19	0.1347	0.135	0.02968	0.2203	0.227
MW-D3	10	0	0.15	0.23	0.194	0.2	0.02591	0.1335	-0.3848
MW-U1 (bg)	10	0	0.002	0.0034	0.00237	0.00225	0.0004218	0.178	1.504

# Summary Report

Constituent: Beryllium Analysis Run 9/19/2018 8:29 AM View: CCPC Monitoring Events 1 through 10  
 CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

For observations made between 2/28/2017 and 3/22/2018, a summary of the selected data set:

Observations = 36  
 ND/Trace = 36  
 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	9	9	0.0025	0.0025	0.0025	0.0025	0	0	NaN
MW-D2	9	9	0.0025	0.0025	0.0025	0.0025	0	0	NaN
MW-D3	9	9	0.0025	0.0025	0.0025	0.0025	0	0	NaN
MW-U1 (bg)	9	9	0.0025	0.0025	0.0025	0.0025	0	0	NaN

# Summary Report

Constituent: Cadmium Analysis Run 9/19/2018 8:29 AM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

For observations made between 2/28/2017 and 3/22/2018, a summary of the selected data set:

Observations = 36  
ND/Trace = 36  
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	9	9	0.0025	0.0025	0.0025	0.0025	0	0	NaN
MW-D2	9	9	0.0025	0.0025	0.0025	0.0025	0	0	NaN
MW-D3	9	9	0.0025	0.0025	0.0025	0.0025	0	0	NaN
MW-U1 (bg)	9	9	0.0025	0.0025	0.0025	0.0025	0	0	NaN

# Summary Report

Constituent: Chromium Analysis Run 9/19/2018 8:29 AM View: CCPC Monitoring Events 1 through 10  
 CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

For observations made between 2/28/2017 and 3/22/2018, a summary of the selected data set:

Observations = 36  
 ND/Trace = 24  
 Wells = 4  
 Minimum Value = 0.0012  
 Maximum Value = 0.0051  
 Mean Value = 0.002408  
 Median Value = 0.0025  
 Standard Deviation = 0.0007232  
 Coefficient of Variation = 0.3003  
 Skewness = 1.19

<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	9	8	0.0025	0.0034	0.0026	0.0025	0.0003	0.1154	2.475
MW-D2	9	8	0.0025	0.0038	0.002644	0.0025	0.0004333	0.1639	2.475
MW-D3	9	8	0.0025	0.0029	0.002544	0.0025	0.0001333	0.0524	2.475
MW-U1 (bg)	9	0	0.0012	0.0051	0.001844	0.0014	0.001229	0.6663	2.413

# Summary Report

Constituent: Cobalt Analysis Run 9/19/2018 8:29 AM View: CCPC Monitoring Events 1 through 10  
 CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

For observations made between 2/28/2017 and 6/5/2018, a summary of the selected data set:

Observations = 40  
 ND/Trace = 29  
 Wells = 4  
 Minimum Value = 0.00047  
 Maximum Value = 0.0025  
 Mean Value = 0.002146  
 Median Value = 0.0025  
 Standard Deviation = 0.0006086  
 Coefficient of Variation = 0.2835  
 Skewness = -1.324

<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	9	0.00047	0.0025	0.002297	0.0025	0.0006419	0.2795	-2.667
MW-D3	10	0	0.00079	0.0017	0.001289	0.00135	0.0002706	0.2099	-0.3837
MW-U1 (bg)	10	10	0.0025	0.0025	0.0025	0.0025	0	0	NaN

# Summary Report

Constituent: Combined Radium 226 + 228 Analysis Run 9/19/2018 8:29 AM View: CCPC Monitoring Events 1 through 10  
 CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

For observations made between 2/28/2017 and 6/5/2018, a summary of the selected data set:

Observations = 40

ND/Trace = 2

Wells = 4

Minimum Value = -0.0586

Maximum Value = 1.28

Mean Value = 0.4383

Median Value = 0.415

Standard Deviation = 0.3253

Coefficient of Variation = 0.7423

Skewness = 0.9213

<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	1	0.149	0.816	0.3715	0.2495	0.2472	0.6654	0.7187
MW-D2	10	0	0.0139	1.28	0.5432	0.4795	0.3307	0.6088	0.8158
MW-D3	10	0	0.339	1.28	0.665	0.5605	0.3184	0.4788	1.076
MW-U1 (bg)	10	1	-0.0586	0.614	0.1734	0.134	0.1857	1.071	1.236

# Summary Report

Constituent: Fluoride Analysis Run 9/19/2018 8:29 AM View: CCPC Monitoring Events 1 through 10  
 CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

For observations made between 2/28/2017 and 6/5/2018, a summary of the selected data set:

Observations = 40  
 ND/Trace = 0  
 Wells = 4  
 Minimum Value = 0.04  
 Maximum Value = 0.13  
 Mean Value = 0.0761  
 Median Value = 0.0655  
 Standard Deviation = 0.0253  
 Coefficient of Variation = 0.3324  
 Skewness = 0.9074

<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	0	0.05	0.11	0.0735	0.07	0.01564	0.2128	1.027
MW-D2	10	0	0.05	0.07	0.0611	0.06	0.005666	0.09273	0.0221
MW-D3	10	0	0.06	0.13	0.112	0.12	0.01932	0.1725	-2.147
MW-U1 (bg)	10	0	0.04	0.07	0.0578	0.06	0.007857	0.1359	-1.023

# Summary Report

Constituent: Lead Analysis Run 9/19/2018 8:29 AM View: CCPC Monitoring Events 1 through 10  
 CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

For observations made between 2/28/2017 and 3/22/2018, a summary of the selected data set:

Observations = 36  
 ND/Trace = 32  
 Wells = 4  
 Minimum Value = 0.00037  
 Maximum Value = 0.0013  
 Mean Value = 0.00122  
 Median Value = 0.0013  
 Standard Deviation = 0.0002359  
 Coefficient of Variation = 0.1933  
 Skewness = -2.717

<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	9	8	0.0008	0.0013	0.001244	0.0013	0.0001667	0.1339	-2.475
MW-D2	9	7	0.00037	0.0013	0.001108	0.0013	0.0003828	0.3456	-1.362
MW-D3	9	9	0.0013	0.0013	0.0013	0.0013	0	0	NaN
MW-U1 (bg)	9	8	0.00065	0.0013	0.001228	0.0013	0.0002167	0.1765	-2.475

# Summary Report

Constituent: Mercury Analysis Run 9/19/2018 8:29 AM View: CCPC Monitoring Events 1 through 10  
 CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

For observations made between 2/28/2017 and 3/22/2018, a summary of the selected data set:

Observations = 36  
 ND/Trace = 31  
 Wells = 4  
 Minimum Value = 0.000077  
 Maximum Value = 0.0002  
 Mean Value = 0.0001882  
 Median Value = 0.0002  
 Standard Deviation = 0.00003249  
 Coefficient of Variation = 0.1726  
 Skewness = -2.53

<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	9	8	0.000077	0.0002	0.0001863	0.0002	0.000041	0.22	-2.475
MW-D2	9	7	0.00011	0.0002	0.0001878	0.0002	0.00002991	0.1593	-2.271
MW-D3	9	8	0.00011	0.0002	0.00019	0.0002	0.00003	0.1579	-2.475
MW-U1 (bg)	9	8	0.000099	0.0002	0.0001888	0.0002	0.00003367	0.1783	-2.475

# Summary Report

Constituent: Molybdenum Analysis Run 9/19/2018 8:29 AM View: CCPC Monitoring Events 1 through 10  
 CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

For observations made between 2/28/2017 and 6/5/2018, a summary of the selected data set:

Observations = 40  
 ND/Trace = 27  
 Wells = 4  
 Minimum Value = 0.0012  
 Maximum Value = 0.01  
 Mean Value = 0.007662  
 Median Value = 0.01  
 Standard Deviation = 0.003581  
 Coefficient of Variation = 0.4673  
 Skewness = -0.9078

<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	0.01	0.01	0.01	0.01	0	0	NaN
MW-D2	10	7	0.0012	0.01	0.00753	0.01	0.003989	0.5298	-0.8927
MW-D3	10	0	0.0017	0.0088	0.00312	0.00225	0.002134	0.6841	2.126
MW-U1 (bg)	10	10	0.01	0.01	0.01	0.01	0	0	NaN

# Summary Report

Constituent: Selenium Analysis Run 9/19/2018 8:29 AM View: CCPC Monitoring Events 1 through 10  
 CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

For observations made between 2/28/2017 and 3/22/2018, a summary of the selected data set:

Observations = 36  
 ND/Trace = 22  
 Wells = 4  
 Minimum Value = 0.00026  
 Maximum Value = 0.0028  
 Mean Value = 0.001081  
 Median Value = 0.0013  
 Standard Deviation = 0.0004782  
 Coefficient of Variation = 0.4425  
 Skewness = 0.7098

<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	9	8	0.00033	0.0013	0.001192	0.0013	0.0003233	0.2712	-2.475
MW-D2	9	6	0.00033	0.0013	0.00108	0.0013	0.0003707	0.3432	-1.239
MW-D3	9	5	0.00026	0.0028	0.001214	0.0013	0.0007263	0.5981	0.8676
MW-U1 (bg)	9	3	0.00041	0.0013	0.0008367	0.0007	0.0003606	0.4309	0.4794

# Summary Report

Constituent: Thallium Analysis Run 9/19/2018 8:29 AM View: CCPC Monitoring Events 1 through 10  
 CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

For observations made between 2/28/2017 and 6/5/2018, a summary of the selected data set:

Observations = 40

ND/Trace = 23

Wells = 4

Minimum Value = 0.000085

Maximum Value = 0.0005

Mean Value = 0.0003355

Median Value = 0.0005

Standard Deviation = 0.0001939

Coefficient of Variation = 0.5781

Skewness = -0.3084

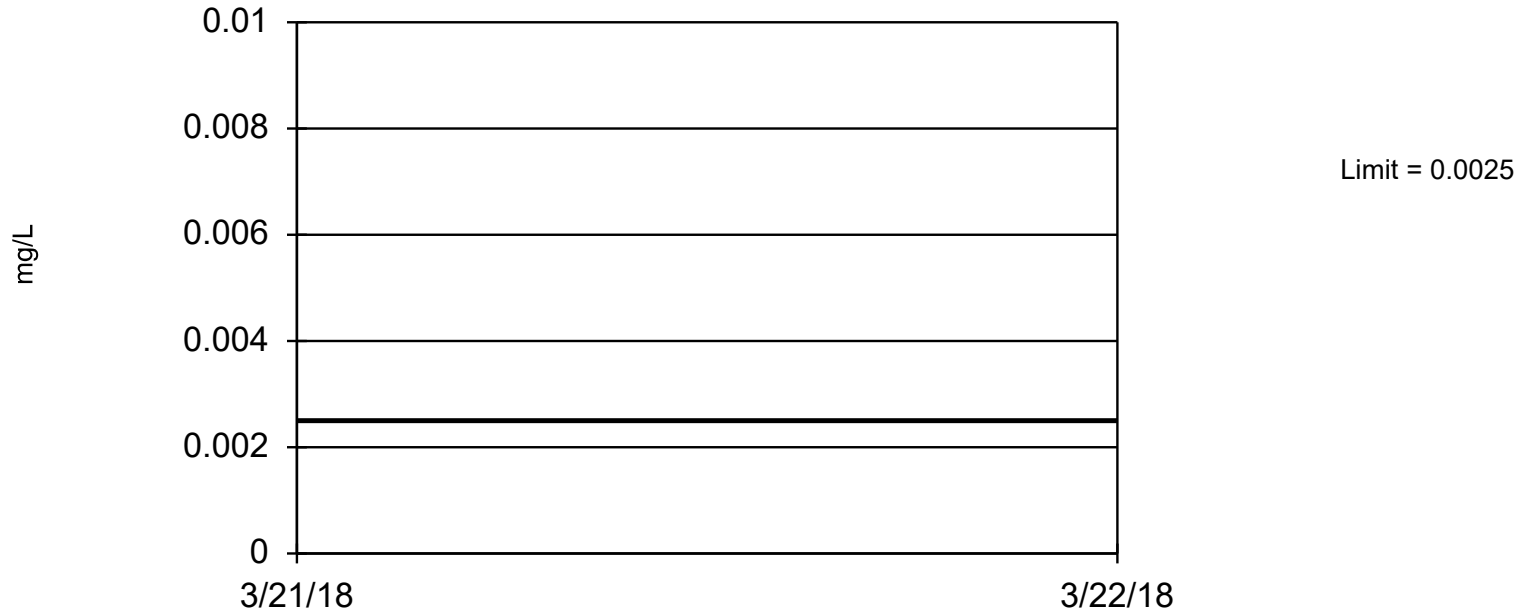
<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-D1	10	10	0.0005	0.0005	0.0005	0.0005	0	0	NaN
MW-D2	10	3	0.000085	0.0005	0.0002275	0.000115	0.0001884	0.828	0.8612
MW-D3	10	0	0.000095	0.00013	0.0001145	0.000115	0.00001165	0.1018	-0.2064
MW-U1 (bg)	10	10	0.0005	0.0005	0.0005	0.0005	0	0	NaN

# Tolerance Limit

CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10 Printed 9/19/2018, 8:41 AM

<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>
Antimony (mg/L)	n/a	0.0025	n/a	n/a	n/a	9	100	n/a	0.6302	NP Inter(NDs)
Arsenic (mg/L)	n/a	0.0013	n/a	n/a	n/a	10	90	n/a	0.5987	NP Inter(NDs)
Barium (mg/L)	n/a	0.003947	n/a	n/a	n/a	10	0	No	0.01	Inter
Beryllium (mg/L)	n/a	0.0025	n/a	n/a	n/a	9	100	n/a	0.6302	NP Inter(NDs)
Cadmium (mg/L)	n/a	0.0025	n/a	n/a	n/a	9	100	n/a	0.6302	NP Inter(NDs)
Chromium (mg/L)	n/a	0.0051	n/a	n/a	n/a	9	0	n/a	0.6302	NP Inter(normal...
Cobalt (mg/L)	n/a	0.0025	n/a	n/a	n/a	10	100	n/a	0.5987	NP Inter(NDs)
Combined Radium 226 + 228 (pCi/L)	n/a	0.8638	n/a	n/a	n/a	10	10	No	0.01	Inter
Fluoride (mg/L)	n/a	0.08718	n/a	n/a	n/a	10	0	No	0.01	Inter
Lead (mg/L)	n/a	0.0013	n/a	n/a	n/a	9	88.89	n/a	0.6302	NP Inter(NDs)
Mercury (mg/L)	n/a	0.0002	n/a	n/a	n/a	9	88.89	n/a	0.6302	NP Inter(NDs)
Molybdenum (mg/L)	n/a	0.01	n/a	n/a	n/a	10	100	n/a	0.5987	NP Inter(NDs)
Selenium (mg/L)	n/a	0.001122	n/a	n/a	n/a	9	33.33	No	0.01	Inter
Thallium (mg/L)	n/a	0.0005	n/a	n/a	n/a	10	100	n/a	0.5987	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 9 background values. 100% NDs. 59.96% coverage at alpha=0.01; 71.68% coverage at alpha=0.05; 92.77% coverage at alpha=0.5. Report alpha = 0.6302.

Constituent: Antimony Analysis Run 9/19/2018 8:40 AM View: CCPC Monitoring Events 1 through 10

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

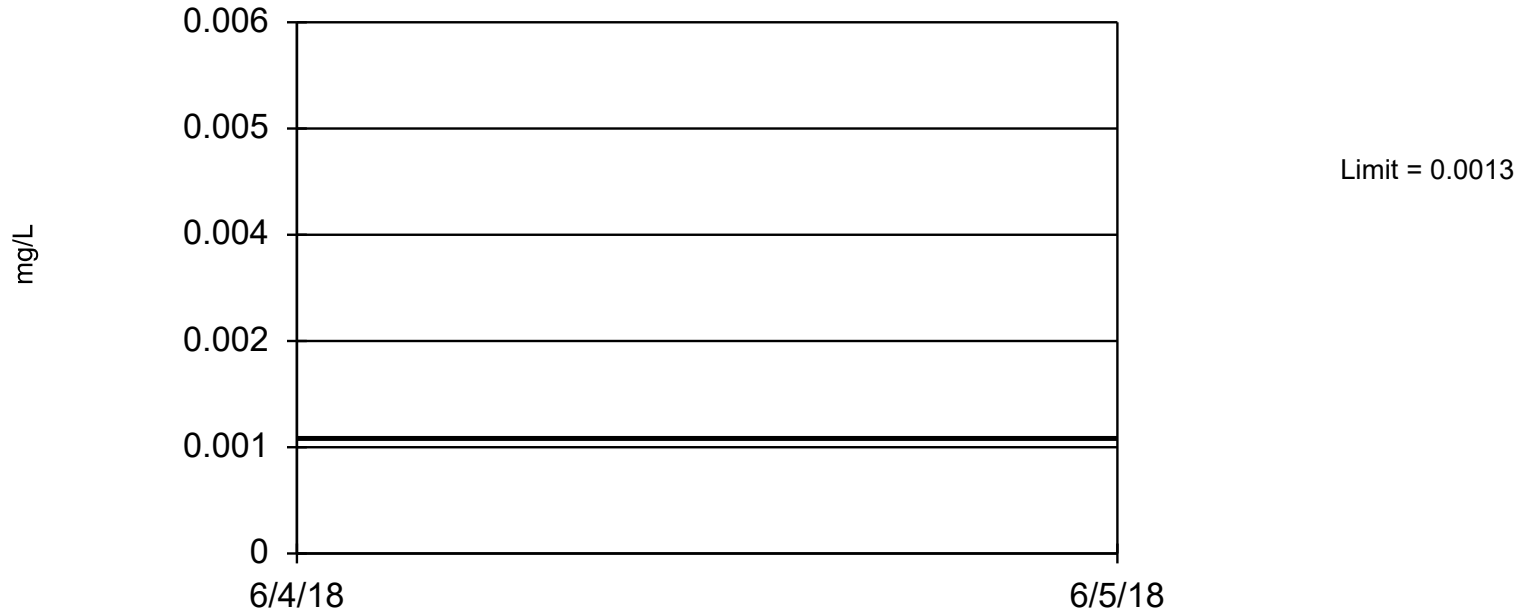
# Tolerance Limit

Constituent: Antimony (mg/L) Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Events 1 through 10  
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

## Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 10 background values. 90% NDs. 63.09% coverage at alpha=0.01; 74.02% coverage at alpha=0.05; 93.16% coverage at alpha=0.5. Report alpha = 0.5987.

Constituent: Arsenic Analysis Run 9/19/2018 8:40 AM View: CCPC Monitoring Events 1 through 10

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

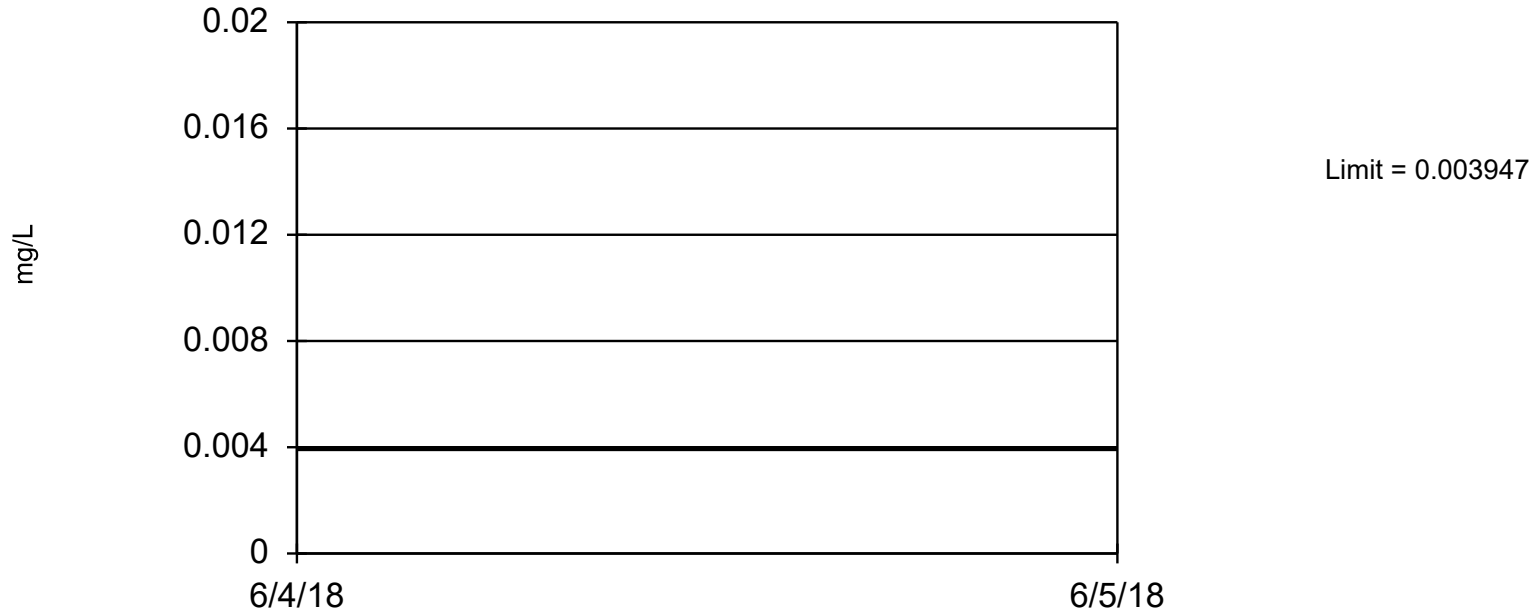
# Tolerance Limit

Constituent: Arsenic (mg/L) Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	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

### Tolerance Limit Interwell Parametric



95% coverage. Background Data Summary: Mean=0.00237, Std. Dev.=0.0004218, n=10. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.811, critical = 0.781. Report alpha = 0.01.

Constituent: Barium Analysis Run 9/19/2018 8:40 AM View: CCPC Monitoring Events 1 through 10

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

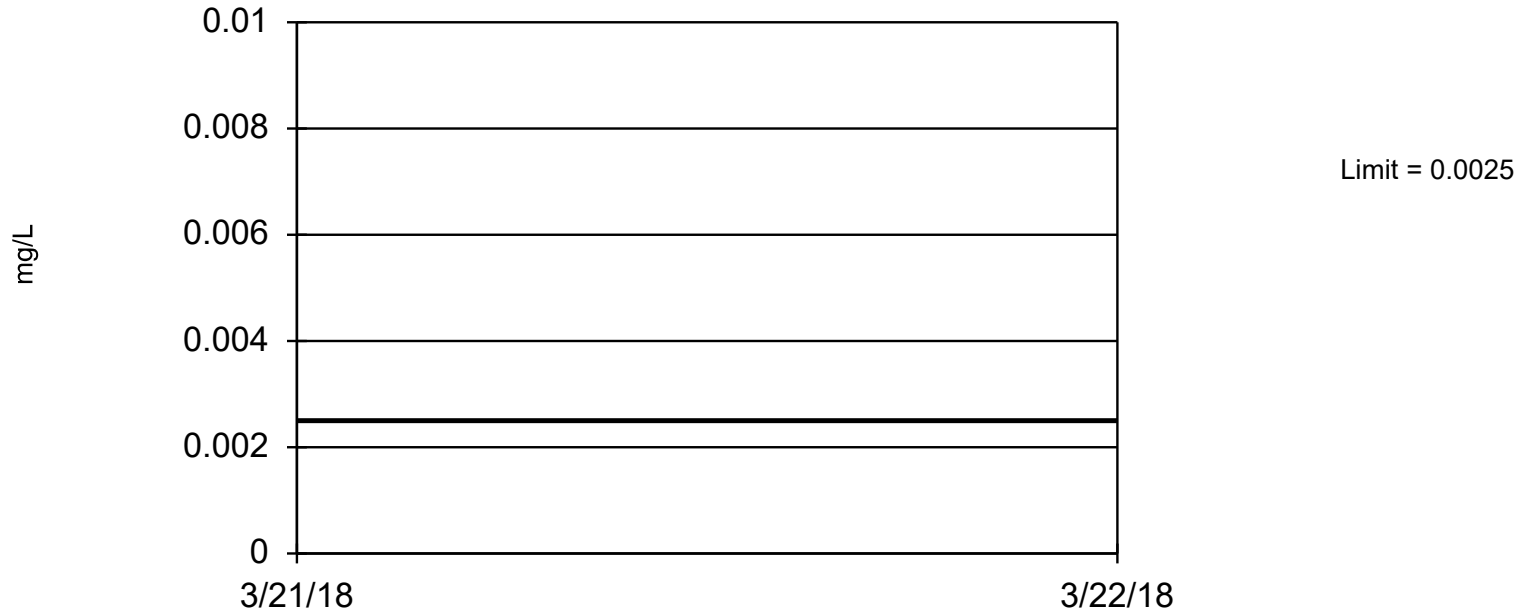
# Tolerance Limit

Constituent: Barium (mg/L) Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	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

## Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 9 background values. 100% NDs. 59.96% coverage at alpha=0.01; 71.68% coverage at alpha=0.05; 92.77% coverage at alpha=0.5. Report alpha = 0.6302.

Constituent: Beryllium Analysis Run 9/19/2018 8:40 AM View: CCPC Monitoring Events 1 through 10

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

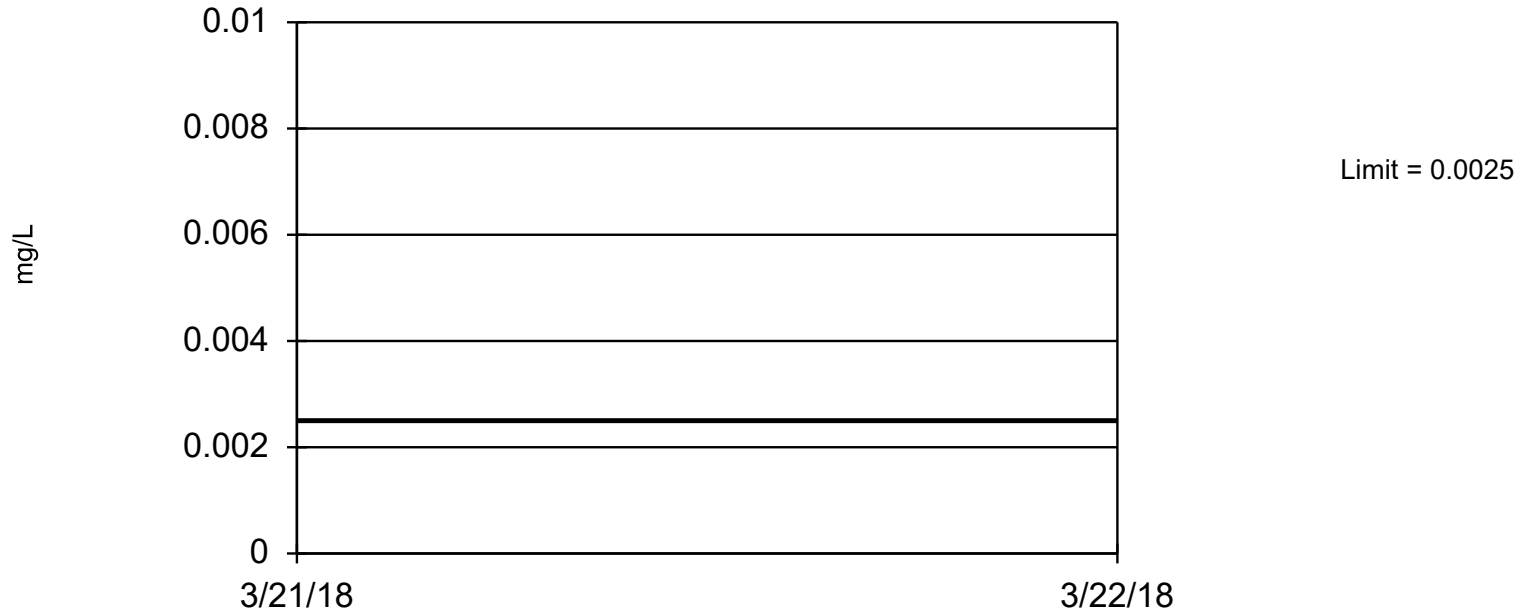
# Tolerance Limit

Constituent: Beryllium (mg/L) Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Events 1 through 10  
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

## Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 9 background values. 100% NDs. 59.96% coverage at alpha=0.01; 71.68% coverage at alpha=0.05; 92.77% coverage at alpha=0.5. Report alpha = 0.6302.

Constituent: Cadmium Analysis Run 9/19/2018 8:40 AM View: CCPC Monitoring Events 1 through 10

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

# Tolerance Limit

Constituent: Cadmium (mg/L) Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Events 1 through 10  
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

## Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 9 background values. 59.96% coverage at alpha=0.01; 71.68% coverage at alpha=0.05; 92.77% coverage at alpha=0.5. Report alpha = 0.6302.

Constituent: Chromium Analysis Run 9/19/2018 8:40 AM View: CCPC Monitoring Events 1 through 10

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

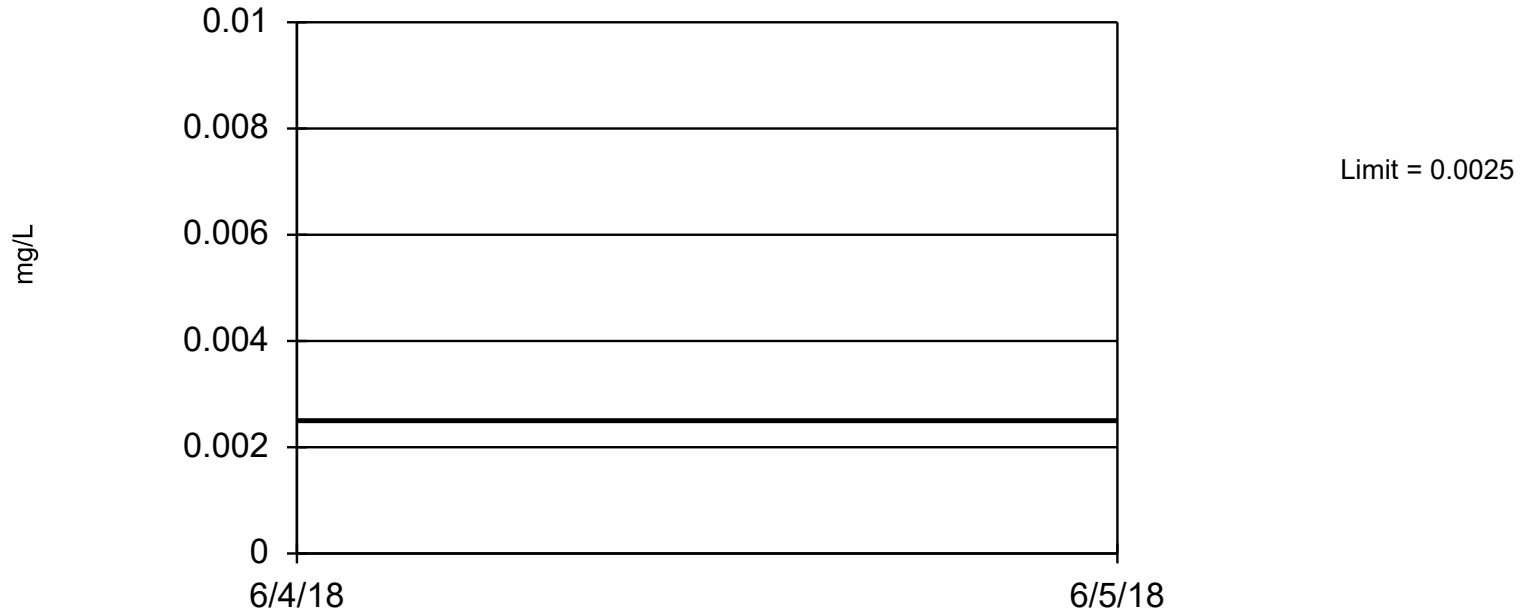
# Tolerance Limit

Constituent: Chromium (mg/L) Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	MW-U1 (bg)
2/28/2017	0.0051
3/27/2017	0.0017 (J)
4/24/2017	0.0014 (J)
5/22/2017	0.0014 (J)
6/19/2017	0.0014 (J)
7/17/2017	0.0014 (J)
8/14/2017	0.0012 (J)
9/13/2017	0.0014 (J)
3/22/2018	0.0016 (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 10 background values. 100% NDs. 63.09% coverage at alpha=0.01; 74.02% coverage at alpha=0.05; 93.16% coverage at alpha=0.5. Report alpha = 0.5987.

Constituent: Cobalt Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Events 1 through 10

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

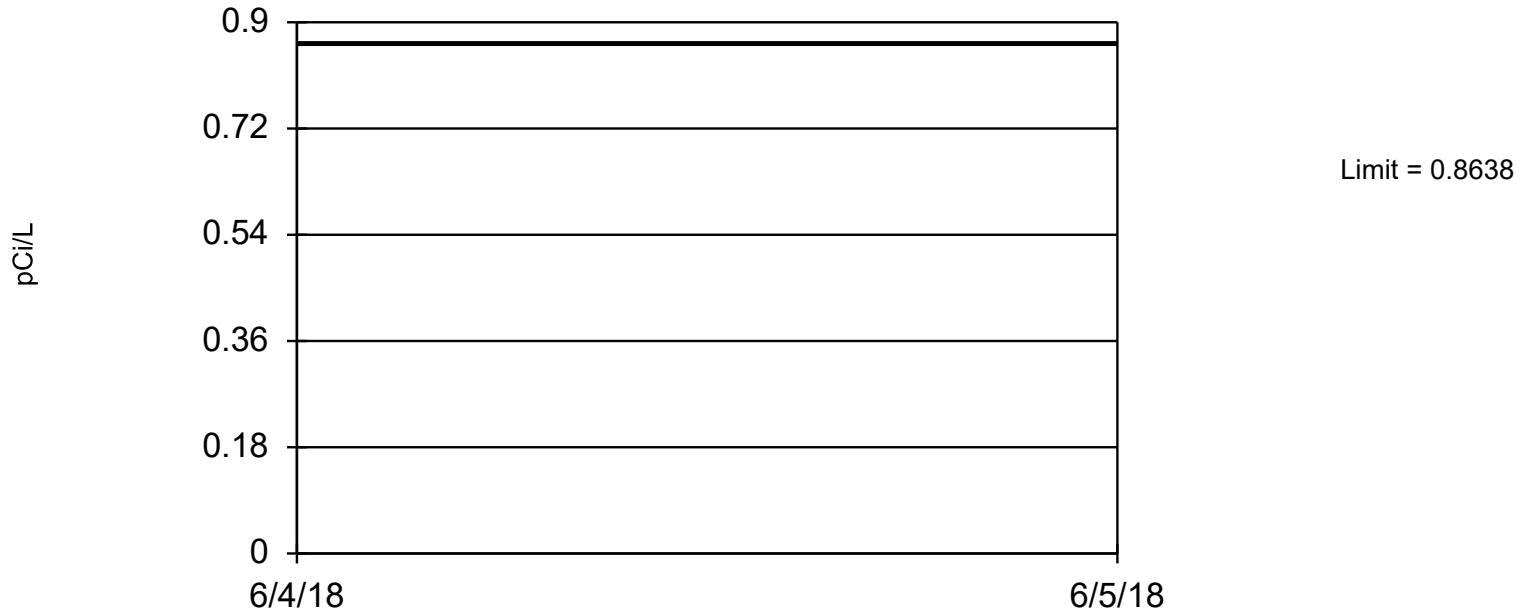
# Tolerance Limit

Constituent: Cobalt (mg/L) Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Events 1 through 10  
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

### Tolerance Limit Interwell Parametric



95% coverage. Background Data Summary: Mean=0.1639, Std. Dev.=0.1872, n=10, 10% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8394, critical = 0.781. Report alpha = 0.01.

Constituent: Combined Radium 226 + 228 Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Even

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

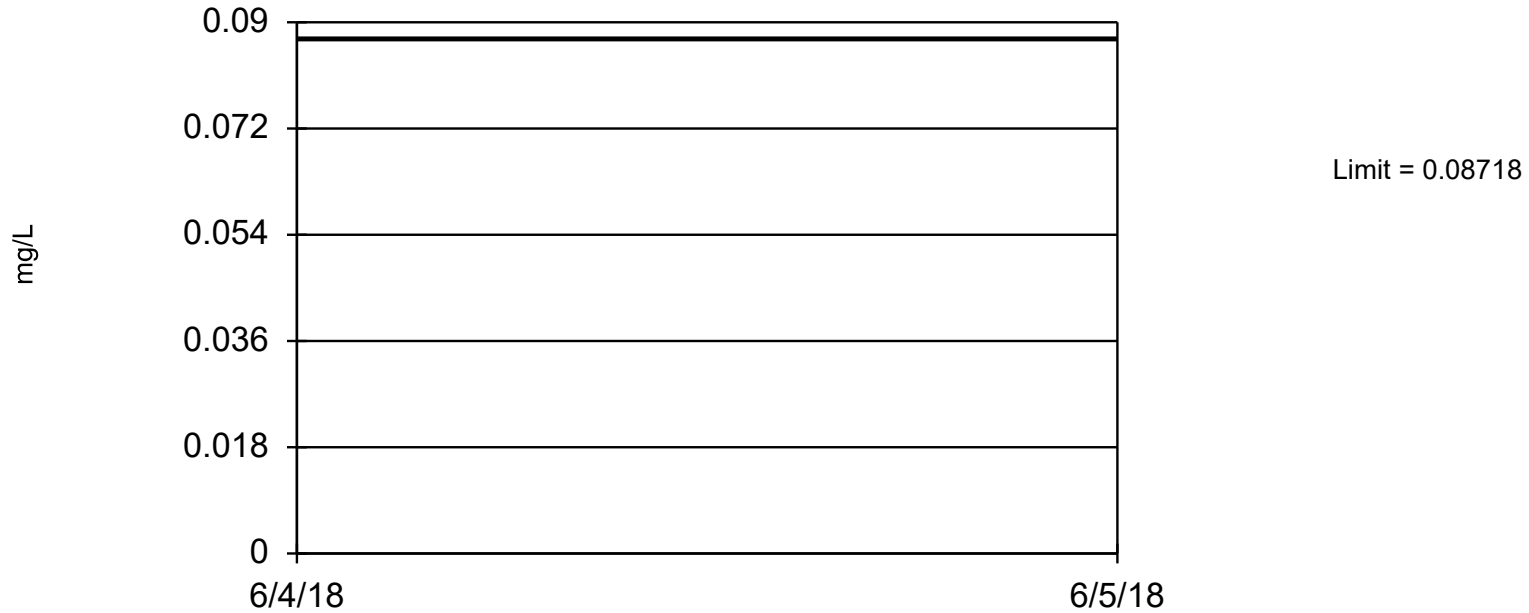
# Tolerance Limit

Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	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

### Tolerance Limit Interwell Parametric



95% coverage. Background Data Summary: Mean=0.0578, Std. Dev.=0.007857, n=10. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7889, critical = 0.781. Report alpha = 0.01.

Constituent: Fluoride Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Events 1 through 10

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

# Tolerance Limit

Constituent: Fluoride (mg/L) Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	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)

## Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 9 background values. 88.89% NDs. 59.96% coverage at alpha=0.01; 71.68% coverage at alpha=0.05; 92.77% coverage at alpha=0.5. Report alpha = 0.6302.

Constituent: Lead Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Events 1 through 10

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

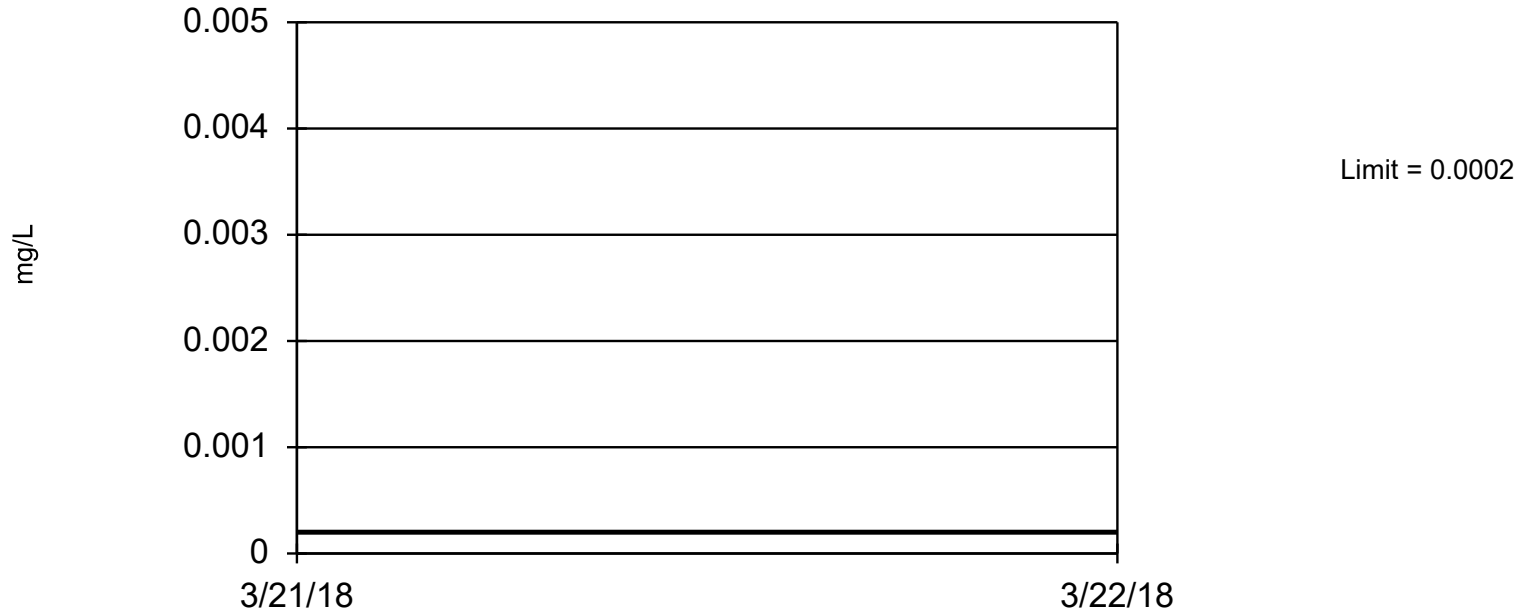
# Tolerance Limit

Constituent: Lead (mg/L) Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	MW-U1 (bg)
2/28/2017	<0.0013
3/27/2017	<0.0013
4/24/2017	<0.0013
5/22/2017	0.00065 (J)
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

## Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 9 background values. 88.89% NDs. 59.96% coverage at alpha=0.01; 71.68% coverage at alpha=0.05; 92.77% coverage at alpha=0.5. Report alpha = 0.6302.

Constituent: Mercury Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Events 1 through 10

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

# Tolerance Limit

Constituent: Mercury (mg/L) Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	MW-U1 (bg)
2/28/2017	9.9E-05 (JB)
3/27/2017	<0.0002
4/24/2017	<0.0002
5/22/2017	<0.0002
6/19/2017	<0.0002
7/17/2017	<0.0002
8/14/2017	<0.0002
9/13/2017	<0.0002
3/22/2018	<0.0002

## Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 10 background values. 100% NDs. 63.09% coverage at alpha=0.01; 74.02% coverage at alpha=0.05; 93.16% coverage at alpha=0.5. Report alpha = 0.5987.

Constituent: Molybdenum Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Events 1 through 10

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

# Tolerance Limit

Constituent: Molybdenum (mg/L) Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	MW-U1 (bg)
2/28/2017	<0.01
3/27/2017	<0.01
4/24/2017	<0.01
5/22/2017	<0.01
6/19/2017	<0.01
7/17/2017	<0.01
8/14/2017	<0.01
9/13/2017	<0.01
3/22/2018	<0.01
6/5/2018	<0.01

### Tolerance Limit Interwell Parametric



95% coverage. Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.0005767, Std. Dev.=0.0001374, n=9, 33.33% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8282, critical = 0.764. Report alpha = 0.01.

Constituent: Selenium Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Events 1 through 10

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

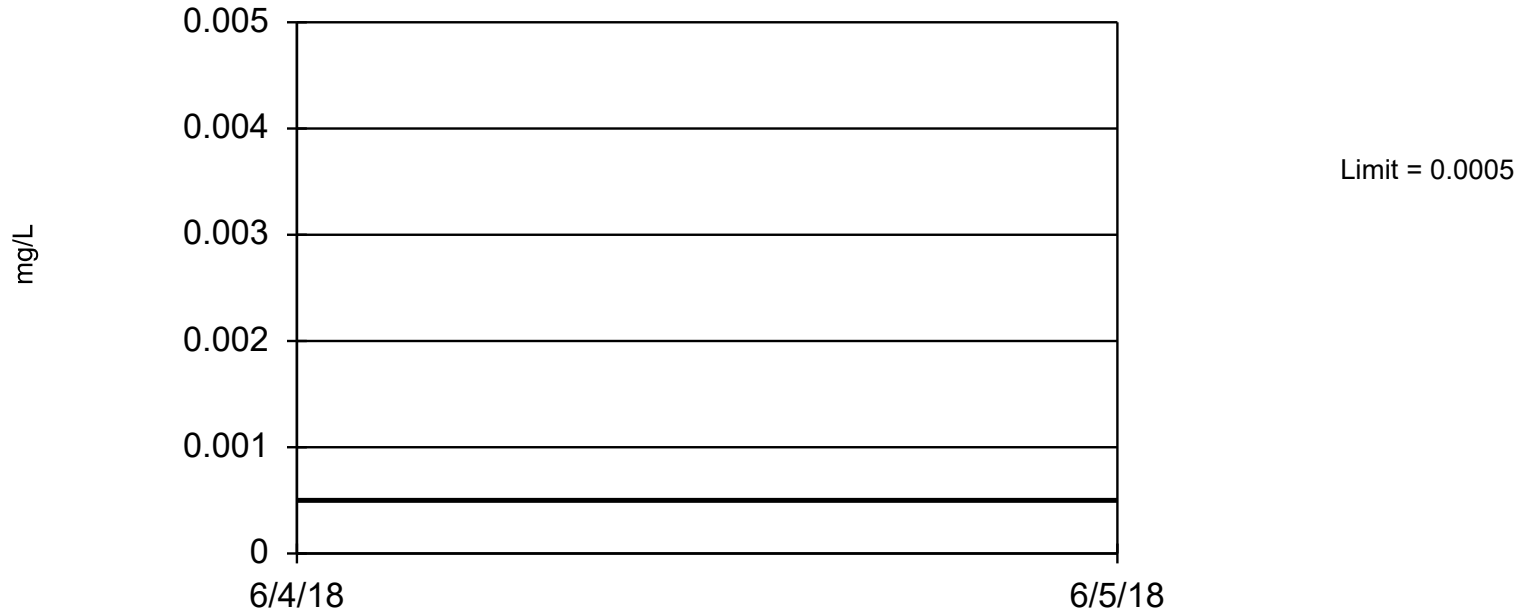
# Tolerance Limit

Constituent: Selenium (mg/L) Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	MW-U1 (bg)
2/28/2017	<0.0013
3/27/2017	<0.0013
4/24/2017	<0.0013
5/22/2017	0.00076 (J)
6/19/2017	0.00062 (JB)
7/17/2017	0.0007 (J)
8/14/2017	0.00058 (J)
9/13/2017	0.00041 (J)
3/22/2018	0.00039

## Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 10 background values. 100% NDs. 63.09% coverage at alpha=0.01; 74.02% coverage at alpha=0.05; 93.16% coverage at alpha=0.5. Report alpha = 0.5987.

Constituent: Thallium    Analysis Run 9/19/2018 8:41 AM    View: CCPC Monitoring Events 1 through 10

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

# Tolerance Limit

Constituent: Thallium (mg/L) Analysis Run 9/19/2018 8:41 AM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	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

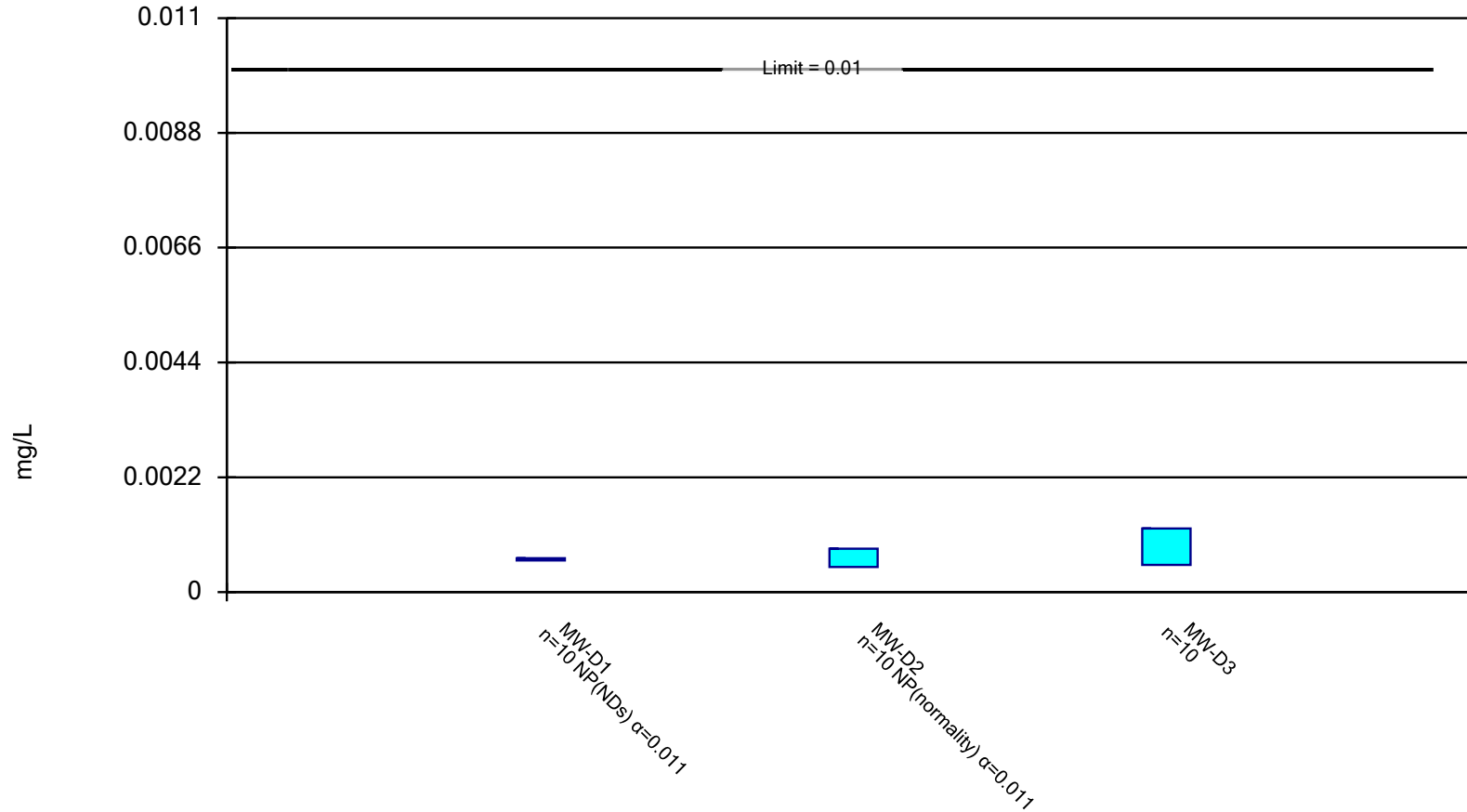
# Confidence Interval

CCPC Plant Crisp Ash Pond Site    Client: Geosyntec    Data: Sanitas\_Statistics Sampling Events 1 through 10    Printed 9/27/2018, 4:43 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	10	100	No	0.011	NP (NDs)
Arsenic (mg/L)	MW-D2	0.00083	0.00048	0.01	No	10	70	No	0.011	NP (normality)
Arsenic (mg/L)	MW-D3	0.00122	0.00052	0.01	No	10	10	No	0.01	Param.
Barium (mg/L)	MW-D1	0.01311	0.01017	2	No	10	0	No	0.01	Param.
Barium (mg/L)	MW-D2	0.1612	0.1082	2	No	10	0	No	0.01	Param.
Barium (mg/L)	MW-D3	0.2171	0.1709	2	No	10	0	No	0.01	Param.
Cobalt (mg/L)	MW-D1	0.00125	0.00125	0.0025	No	10	100	No	0.011	NP (NDs)
Cobalt (mg/L)	MW-D2	0.00125	0.00047	0.0025	No	10	90	No	0.011	NP (NDs)
Cobalt (mg/L)	MW-D3	0.00153	0.001048	0.0025	No	10	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-D1	0.5911	0.1292	5	No	10	10	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-D2	0.8383	0.2481	5	No	10	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-D3	0.9202	0.4029	5	No	10	0	sqrt(x)	0.01	Param.
Fluoride (mg/L)	MW-D1	0.08746	0.05954	4	No	10	0	No	0.01	Param.
Fluoride (mg/L)	MW-D2	0.07	0.05	4	No	10	0	No	0.011	NP (normality)
Fluoride (mg/L)	MW-D3	0.1242	0.1047	4	No	10	0	x^5	0.01	Param.
Molybdenum (mg/L)	MW-D1	0.005	0.005	0.01	No	10	100	No	0.011	NP (NDs)
Molybdenum (mg/L)	MW-D2	0.005	0.0012	0.01	No	10	70	No	0.011	NP (normality)
Molybdenum (mg/L)	MW-D3	0.0043	0.0017	0.01	No	10	0	No	0.011	NP (normality)
Thallium (mg/L)	MW-D1	0.00025	0.00025	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	MW-D2	0.00025	0.000085	0.002	No	10	30	No	0.011	NP (normality)
Thallium (mg/L)	MW-D3	0.0001249	0.0001041	0.002	No	10	0	No	0.01	Param.

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

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



Constituent: Arsenic Analysis Run 9/27/2018 4:43 PM View: CCPC Monitoring Events 1 through 10

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

# Confidence Interval

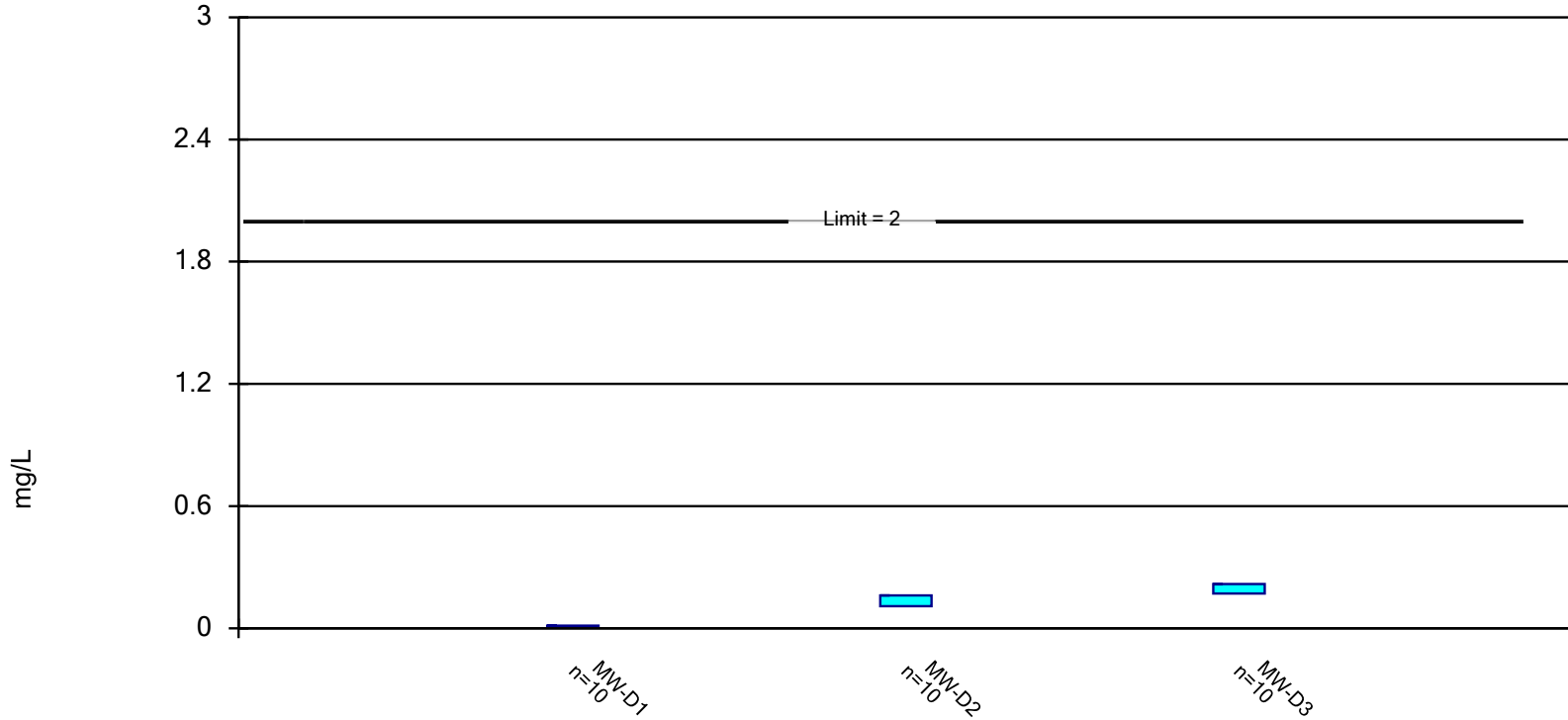
Constituent: Arsenic (mg/L) Analysis Run 9/27/2018 4:43 PM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	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)
<b>Mean</b>	0.00065	0.000681	0.00087
<b>Std. Dev.</b>	0	0.0001255	0.0003922
<b>Upper Lim.</b>	0.00065	0.00083	0.00122
<b>Lower Lim.</b>	0.00065	0.00048	0.00052

### 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 9/27/2018 4:43 PM View: CCPC Monitoring Events 1 through 10

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

# Confidence Interval

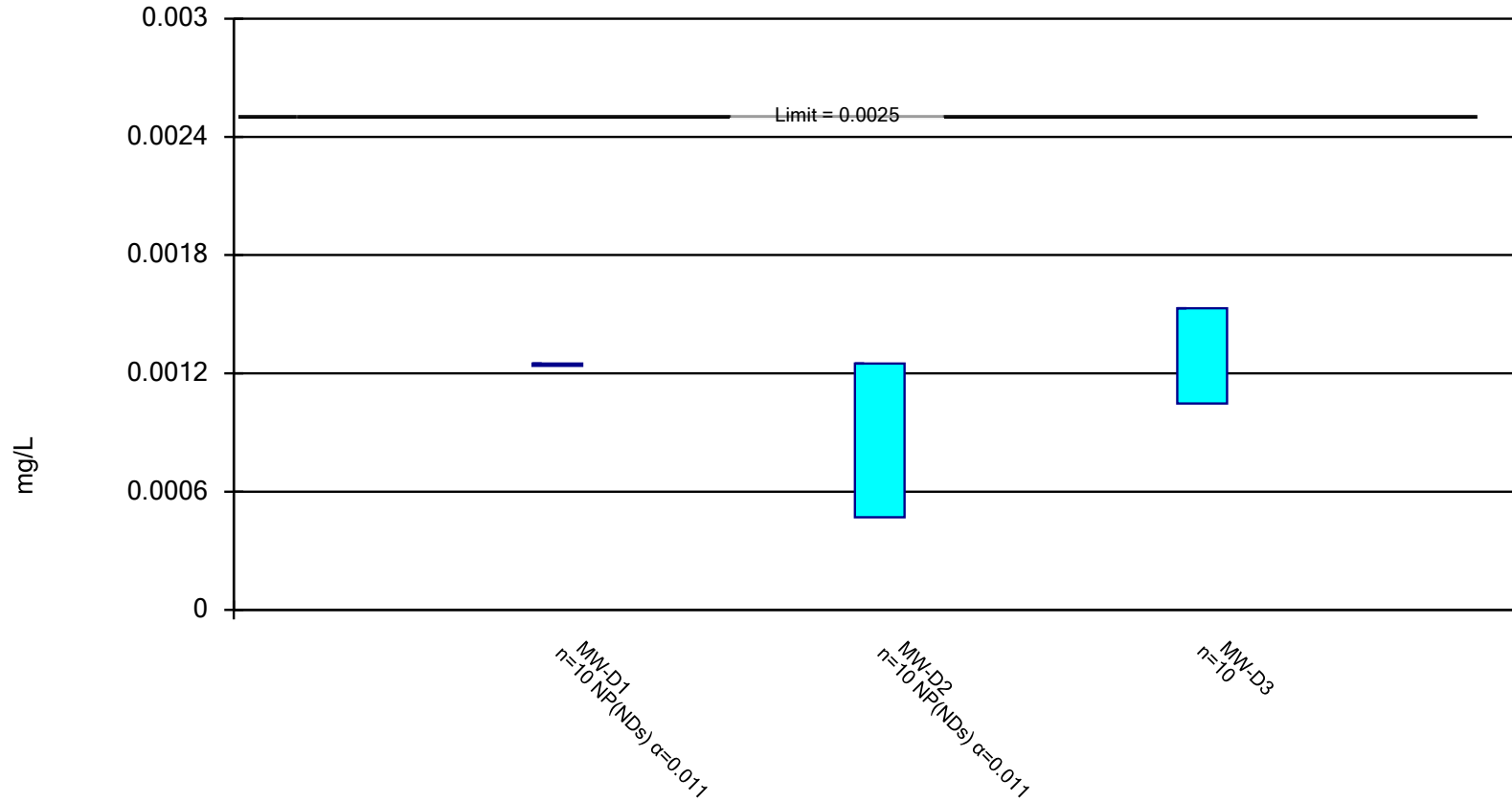
Constituent: Barium (mg/L) Analysis Run 9/27/2018 4:43 PM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	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
<b>Mean</b>	0.01164	0.1347	0.194
<b>Std. Dev.</b>	0.001645	0.02968	0.02591
<b>Upper Lim.</b>	0.01311	0.1612	0.2171
<b>Lower Lim.</b>	0.01017	0.1082	0.1709

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

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



Constituent: Cobalt Analysis Run 9/27/2018 4:43 PM View: CCPC Monitoring Events 1 through 10

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

# Confidence Interval

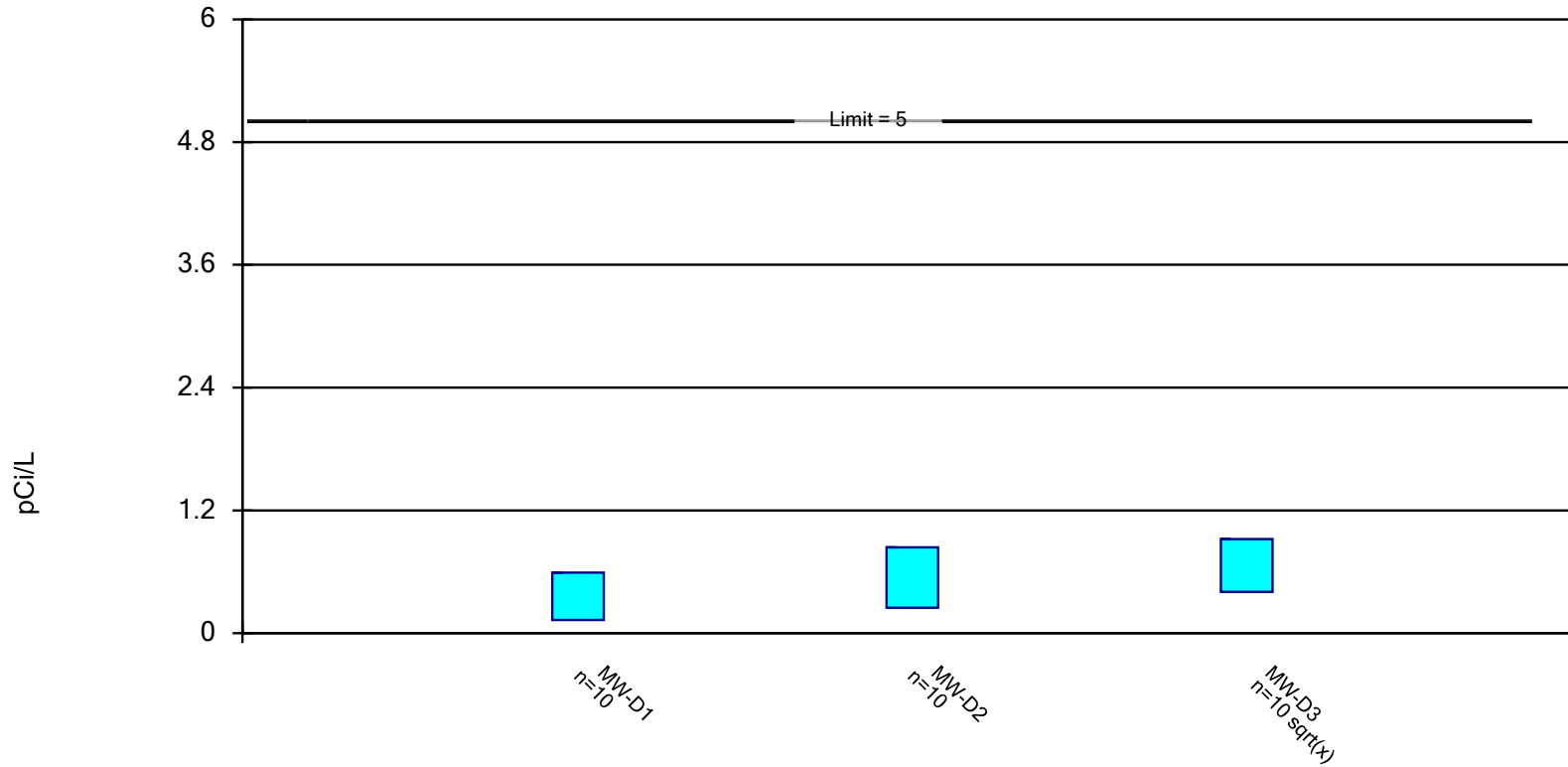
Constituent: Cobalt (mg/L) Analysis Run 9/27/2018 4:43 PM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	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)
<b>Mean</b>	0.00125	0.001172	0.001289
<b>Std. Dev.</b>	0	0.0002467	0.0002706
<b>Upper Lim.</b>	0.00125	0.00125	0.00153
<b>Lower Lim.</b>	0.00125	0.00047	0.001048

### 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 9/27/2018 4:43 PM View: CCPC Monitoring Even

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

# Confidence Interval

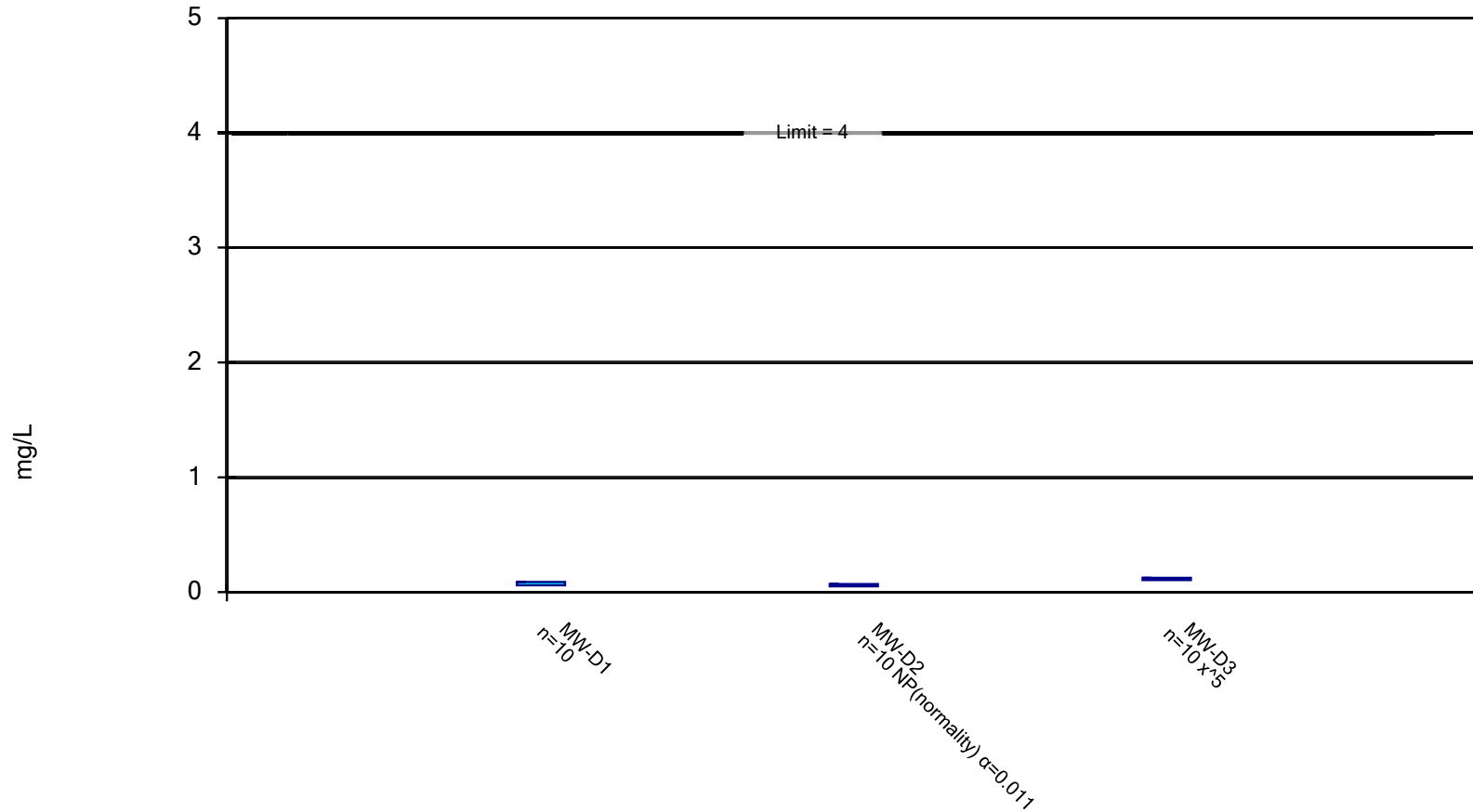
Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 9/27/2018 4:43 PM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	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
<b>Mean</b>	0.3601	0.5432	0.665
<b>Std. Dev.</b>	0.2588	0.3307	0.3184
<b>Upper Lim.</b>	0.5911	0.8383	0.9202
<b>Lower Lim.</b>	0.1292	0.2481	0.4029

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

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



Constituent: Fluoride Analysis Run 9/27/2018 4:43 PM View: CCPC Monitoring Events 1 through 10

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

# Confidence Interval

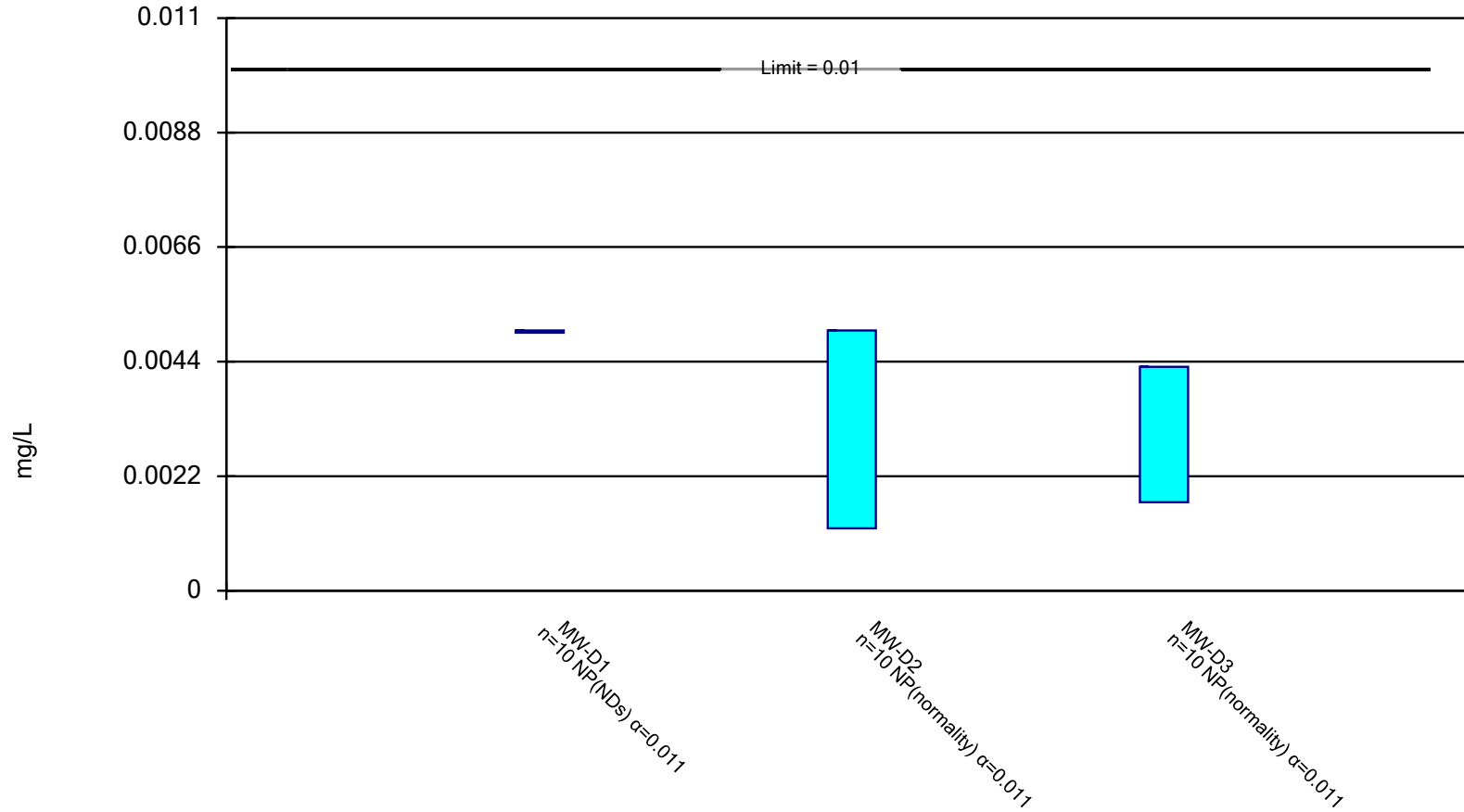
Constituent: Fluoride (mg/L) Analysis Run 9/27/2018 4:43 PM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	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
<b>Mean</b>	0.0735	0.0611	0.112
<b>Std. Dev.</b>	0.01564	0.005666	0.01932
<b>Upper Lim.</b>	0.08746	0.07	0.1242
<b>Lower Lim.</b>	0.05954	0.05	0.1047

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Molybdenum Analysis Run 9/27/2018 4:43 PM View: CCPC Monitoring Events 1 through 10

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

# Confidence Interval

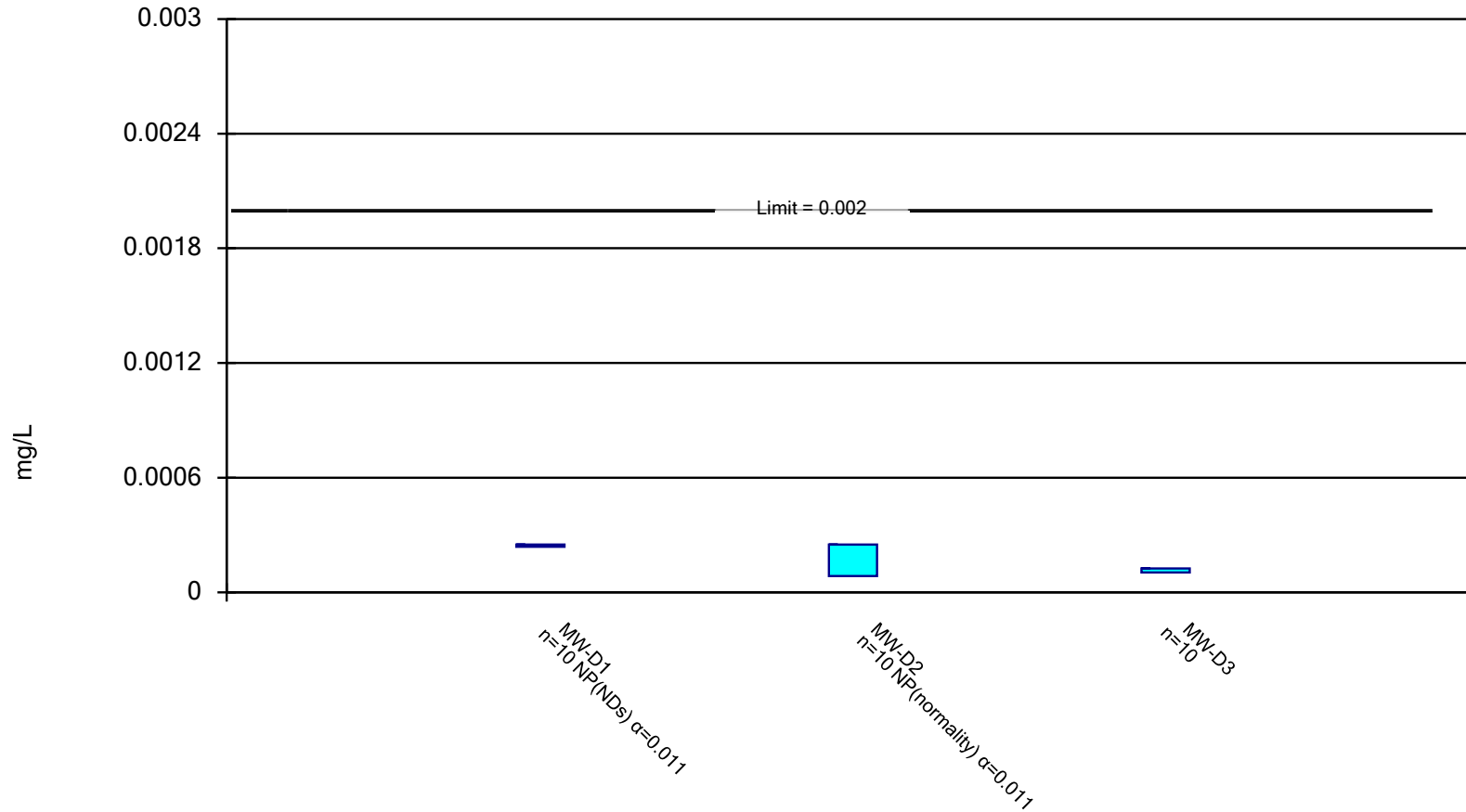
Constituent: Molybdenum (mg/L) Analysis Run 9/27/2018 4:43 PM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	MW-D1	MW-D2	MW-D3
2/28/2017	<0.01	0.0012 (J)	0.0088 (J)
3/27/2017	<0.01	<0.01	0.0023 (J)
4/24/2017	<0.01	<0.01	0.0018 (J)
5/22/2017	<0.01	0.0025 (J)	0.0031 (J)
6/19/2017	<0.01	0.0016 (J)	0.0043 (J)
7/17/2017	<0.01	<0.01	0.0027 (J)
8/14/2017	<0.01	<0.01	0.0017 (J)
9/13/2017	<0.01	<0.01	0.0021 (J)
3/22/2018	<0.01	<0.01	0.0022 (J)
6/5/2018	<0.01	<0.01	0.0022 (J)
<b>Mean</b>	0.005	0.00403	0.00312
<b>Std. Dev.</b>	0	0.001593	0.002134
<b>Upper Lim.</b>	0.005	0.005	0.0043
<b>Lower Lim.</b>	0.005	0.0012	0.0017

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

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



Constituent: Thallium Analysis Run 9/27/2018 4:43 PM View: CCPC Monitoring Events 1 through 10

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

# Confidence Interval

Constituent: Thallium (mg/L) Analysis Run 9/27/2018 4:43 PM View: CCPC Monitoring Events 1 through 10  
CCPC Plant Crisp Ash Pond Site Client: Geosyntec Data: Sanitas\_Statistics Sampling Events 1 through 10

---

	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)
<b>Mean</b>	0.00025	0.0001525	0.0001145
<b>Std. Dev.</b>	0	6.82E-05	1.165E-05
<b>Upper Lim.</b>	0.00025	0.00025	0.0001249
<b>Lower Lim.</b>	0.00025	8.5E-05	0.0001041