Prepared for

Gulf Power Company One Energy Place Pensacola, Florida 32520

ASSESSMENT OF CORRECTIVE MEASURES

GULF POWER COMPANY, PLANT CRIST GYPSUM STORAGE AREA

Prepared by



engineers | scientists | innovators

1120 North 12th Avenue Pensacola, Florida 32501

Project Number TXR0943

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Geosyntec[>]

CERTIFICATION STATEMENT

This Assessment of Corrective Measures Report, Gulf Power Company – Plant Crist – Gypsum Storage Area has been prepared in general accordance with the requirements of the United States Environmental Protection Agency coal combustion residuals rule (40 Code of Federal Regulations [CFR] Part 257, Subpart D) under the supervision of a State of Florida licensed Professional Engineer and Professional Geologist with Geosyntec Consultants, Inc.

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TABLE OF CONTENTS

1.0	INT	RODUCTION	. 1
	1.1	Purpose and Scope	. 1
	1.2	Requirements	. 1
2.0	SIT	E BACKGROUND	. 2
	2.1	Site Description	. 2
	2.2	CCR Unit Description	. 2
	2.3	Hydrogeologic Site Conditions	. 2
	2.4	Groundwater Monitoring Activities	. 3
		2.4.1 General Groundwater Conditions	. 3
		2.4.2 Nature and Extent	. 4
	2.5	Remedial History	. 6
3.0	ACI	M OBJECTIVES AND EVALUATION PROCEDURE	. 8
	3.1	Source Control	. 8
	3.2	Objectives of Groundwater Remedial Technology Evaluation	. 8
	3.3	Evaluation Procedure Overview	. 8
4.0	ASS	SESSMENT OF CORRECTIVE MEASURES	. 9
	4.1	Remedial Technology Screening Evaluation	. 9
	4.2	Development of Groundwater Corrective Measures	. 9
	4.3	Description of Evaluated Groundwater Alternatives	10
5.0	REN	MEDY SELECTION PROCESS	13
	5.1	Additional Data or Characterization Needs	13
	5.2	Schedule for Selecting Remedy	13
6.0	REF	FERENCES	14



TABLE OF CONTENTS (Continued)

LIST OF TABLES

Table 1	Monitoring Well Network Summary
Table 2	Analytical Results of Delineation Sampling
Table 3	Remedial Technologies Screening Matrix
Table 4	Evaluation of Potential Corrective Measures Pursuant to 40 CFR
	§257.96
Table 5	Evaluation of Potential Corrective Measures Pursuant to 40 CFR
	§257.97

LIST OF FIGURES

Figure 1	Site Location Map – Gypsum Storage Area
Figure 2	CCR Groundwater Monitoring System – Gypsum Storage Area
Figure 3	Groundwater Monitoring Network for Delineation of Cobalt and
	Total Radium

LIST OF APPENDICES

Appendix A Laboratory Analytical, Data Validation, and Field Sampling Reports

1.0 INTRODUCTION

1.1 <u>Purpose and Scope</u>

On behalf of Gulf Power Company (Gulf Power), Geosyntec Consultants, Inc. (Geosyntec) has prepared this *Assessment of Corrective Measures Report* (Report) for Gulf Power's Plant Crist (Plant Crist or Site) coal combustion residuals (CCR) unit, Gypsum Storage Area (GSA).

Pursuant to 40 Code of Federal Regulations [CFR] §257.96 (CCR Rule), the Assessment of Corrective Measures (ACM) was initiated on January 13, 2019¹ in response to detections of two Appendix IV constituents (cobalt and total radium) at statistically significant levels (SSLs).

The purpose of this Report is to document the assessment of potential corrective measures to address the observed SSLs for cobalt and total radium at the Site.

1.2 <u>Requirements</u>

In accordance with the CCR Rule, this Report provides an assessment of potential corrective measures for groundwater remediation at the Plant Crist GSA. The requirements of the ACM, as outlined in the CCR Rule, include:

- (1) The performance, reliability, ease of implementation, and potential impacts of appropriate potential remedies, including safety impacts, cross-media impacts, and control of exposure to any residual contamination;
- (2) The time required to begin and complete the remedy; and
- (3) The institutional requirements, such as state or local permit requirements or other environmental or public health requirements that may substantially affect implementation of the remedy(s).

¹ For reference, the need for a 60-day extension to complete the ACM due to site-specific considerations was documented on April 12, 2019 and will be included in the 2019 Annual Report.



2.0 SITE BACKGROUND

2.1 <u>Site Description</u>

Plant Crist is an active coal-fired power plant located at 11999 Pate Street in Pensacola Escambia County, Florida. A Site location map is provided in **Figure 1**. The Site is bordered by Governors Bayou to the east and Clear Creek to the northeast. Land use around the Site is undeveloped areas or a mixture of residential and commercial, as well as local roadways. The active coal-operated power plant occupies the eastern half of the Site. The western half of the Site consists of undeveloped land, former and active permitted storage areas, and disposal basins for materials such as fly ash, bottom ash, and stormwater runoff.

Site topography ranges from approximately 120 feet (ft) relative to the North American Vertical Datum of 1988 (NAVD88) on the western portions of the Site and along Pate Street to approximately 5 ft NAVD88 near Clear Creek to the north and Governor's Bayou to the east.

2.2 <u>CCR Unit Description</u>

The GSA, also referred to as the gypsum storage pond, which is the only CCR pond at the Site, occupies approximately 14.3 acres and is constructed of an engineered composite liner. Decant water from the GSA is managed through gravity feed pipes to two lined ponds, the Process Sedimentation Pond and the Process Return Water Pond. The GSA and associated infrastructure (gypsum processing buildings, the two adjacent lined ponds, and piping associated with each) were constructed and became operational in 2010. The GSA is bounded to the north/northeast by Clear Creek, to the east by Governor's Bayou, to the south by the facility, and to the west by a permitted solid waste unit.

2.3 <u>Hydrogeologic Site Conditions</u>

The Sand and Gravel Aquifer, the uppermost aquifer underlying the Site, includes Pleistocene terrace deposits, the Pleistocene Citronelle Formation, and the upper portion of the Pliocene/Miocene coarse clastics. The Sand and Gravel Aquifer has been subdivided into three major zones (listed in order from ground surface): (i) the surficial zone; (ii) the low permeability zone; and (iii) the main producing zone (Roaza et al., 1991).

The surficial zone consists of the upper most layer of sand and gravel, although layers of silt and clay may also occur within this zone. Beneath the surficial zone is the low

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permeability zone. The low permeability zone is the first substantial, more regionally continuous lower permeability layer encountered within the Sand and Gravel Aquifer (Roaza et al., 1991). This layer generally consists of a poorly sorted mixture of sand, silt, and clay, although actual lithology is variable. As a semi-confining interval, the low permeability zone limits vertical groundwater flow between the surficial zone above and the main producing zone below (Roaza et al., 1991). The main producing zone is lithologically similar to the surficial zone with moderate to well sorted quartz sands and gravels with interbedded layers of sandy clay and clay. Groundwater in the main producing zone is under semi-confined conditions due to the nature of the low permeability zone that lies above and a regionally extensive confining unit that lies underneath (Richards, 2001).

Site-specific lithology in the uppermost aquifer (i.e., the Sand and Gravel Aquifer) consists primarily of silty or clayey sands interbedded with well-graded sands and gravels. Groundwater in the uppermost aquifer at the Site is generally encountered between 15 and 4 ft NAVD88 in a laterally extensive water-bearing zone of fine to coarse sand. This aquifer is considered the uppermost aquifer for groundwater monitoring purposes. The GSA CCR-groundwater monitoring wells (MW-200 to MW-206; see **Figure 2**) were screened in the uppermost aquifer between approximately 6 and -14 ft NAVD88 (see **Table 1**).

2.4 <u>Groundwater Monitoring Activities</u>

2.4.1 General Groundwater Conditions

Pursuant to the CCR Rule, in 2015/2016 Gulf Power installed and certified a CCR groundwater monitoring system for the GSA within the uppermost aquifer at the Site (Southern Company, 2018). Monitoring wells in the GSA groundwater monitoring network are listed below:

- Background: MW-100, MW-101, MW-107, MW-108, MW-306, and MW-307; and
- Downgradient: MW-200, MW-201, MW-202, MW-203, MW-204, MW-205, and MW-206.

The locations of the CCR monitoring wells and piezometers are presented on **Figure 2**, with construction details provided in **Table 1**.

In accordance with the CCR Rule, Gulf Power initiated an assessment monitoring program for the GSA in March 2018. Samples collected during the semi-annual

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assessment monitoring events were analyzed for all Appendix III constituents and those Appendix IV constituents detected in the March 2018 assessment monitoring event. Statistical analysis of the CCR-groundwater monitoring data identified SSLs of two Appendix IV constituents (Geosyntec, 2019a). The following SSLs were identified at the GSA:

- radium 226 and 228 combined (total radium): MW-200, MW-201, MW-203, MW-204, and MW-206; and
- cobalt: MW-204.

Accordingly, this Report focuses on evaluation of applicable remedial options for total radium and cobalt.

2.4.2 Nature and Extent

Following identification of SSLs, and pursuant to the CCR Rule, Gulf Power initiated characterization activities to evaluate the nature and extent of cobalt and total radium impacts.

Delineation Sampling

In February 2019, Gulf Power sampled groundwater from MW-205 in the vicinity of MW-204 to delineate the horizontal nature and extent of cobalt. Construction details for MW-205 are provided in **Table 1** and its location is shown in **Figure 3**. Vertical delineation efforts for cobalt are ongoing in the vicinity at MW-204.

To delineate the nature and extent of total radium at the GSA, samples were collected in February, March, and April 2019 in the vicinities of monitoring wells MW-200, MW-201, MW-203, MW-204, and MW-206, as described below:

- To delineate the horizontal and vertical extent of total radium at MW-200, Gulf Power installed and sampled PZ-200S and PZ-200D, respectively.
- To delineate the horizontal and vertical extent of total radium at MW-201, Gulf Power sampled GSA-2S and installed/sampled PZ-201D, respectively.
- To delineate the horizontal extent of total radium at MW-203, Gulf Power sampled MW-202.

- To delineate the horizontal extent of total radium at MW-204, Gulf Power sampled MW-205.
- To delineate the horizontal and vertical extent of total radium at MW-206, Gulf Power sampled GSA-2S and GE-1D, respectively.

Vertical delineation efforts for total radium are ongoing in the vicinity of MW-203 and MW-204. Construction information for monitoring wells and piezometers used for delineation are provided in **Table 1** and locations are shown in **Figure 3**.

Groundwater samples were collected in accordance with the methods described in the 2018 Annual Groundwater Monitoring Report (Geosyntec, 2019a) and analyzed for all Appendix III and those Appendix IV parameters detected in the 2018 assessment monitoring scan event (Geosyntec, 2019a). Laboratory analyses were performed by TestAmerica Laboratories, Inc. (TAL). TAL is accredited by the National Environmental Laboratory Accreditation Program (NELAP) and maintains a NELAP certification for all parameters analyzed for this project. Data were validated consistent with the methods presented in the 2018 Annual Groundwater Monitoring Report (Geosyntec, 2019a). A summary of results is presented in **Table 2**. Laboratory, data validation, and field sampling reports are included in **Appendix A**.

Delineation Results

Groundwater results from MW-205 included cobalt concentrations approximately 3-fold below the GWPS of 0.006 milligrams per liter (mg/L), indicating complete horizontal delineation of the cobalt SSL at MW-204. Vertical delineation activities are currently being pursued by Gulf Power. Other detected Appendix IV constituents, including total radium, were below the applicable GWPSs.

Delineation activities of total radium SSLs are summarized below:

• <u>MW-200</u>: Groundwater results from PZ-200D were below the minimum detectable concentration for total radium indicating complete vertical delineation of total radium at MW-200. The concentration of total radium at PZ-200S was 6.56 picocuries per liter (pCi/L), slightly above the GWPS of 5 pCi/L. Although the concentration at this well during this individual sampling event was above the GWPS, additional data are needed to evaluate temporal concentration variability at PZ-200S given data trends at MW-200. In addition, the detected total radium is likely due, in whole or in part, to naturally occurring radium as documented previously for the Site (LBG-Guyton, 1998; FDEP, 1999). Additional evaluations

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are currently being considered by Gulf Power to refine the need for horizontal delineation of total radium near MW-200. Other detected Appendix IV constituents at PZ-200D and PZ-200S were below applicable GWPSs.

- <u>MW-201</u>: Groundwater results from PZ-201D were below the minimum detectable concentration for total radium and approximately 2-fold below the GWPS of 5 pCi/L for total radium in GSA-2S. These results indicate complete horizontal and vertical delineation of the total radium at MW-201. Other detected Appendix IV constituents were below the applicable GWPSs in PZ-201D and GSA-2S.
- <u>MW-203</u>: Groundwater results from MW-202 included total radium concentrations approximately 2-fold below the GWPS of 5 pCi/L indicating complete horizontal delineation of the total radium at MW-203. Vertical delineation activities are currently being pursued by Gulf Power. Other detected Appendix IV constituents at MW-202 were below the applicable GWPSs.
- <u>MW-204</u>: Groundwater results from MW-205 included total radium concentrations approximately 1.5-fold below the GWPS of 5 pCi/L indicating complete horizontal delineation of the total radium at MW-204. Vertical delineation activities are currently being pursued by Gulf Power. Other detected Appendix IV constituents at MW-205, including cobalt (discussed above), were below the applicable GWPSs.
- <u>MW-206</u>: Groundwater results from GE-1D and GSA-2S included total radium concentrations approximately 8- to 2-fold below the GWPS of 5 pCi/L for total radium in GSA-2S. These results indicate complete horizontal and vertical delineation of the total radium at MW-206. Other detected Appendix IV constituents at GE-1D and GSA-2S were below the applicable GWPSs.

Although vertical delineation of the nature and extent of cobalt and/or total radium at select locations is ongoing at Plant Crist, adequate data are available to evaluate viable corrective measures.

2.5 <u>Remedial History</u>

As reported by Southern Company (2017) and Geosyntec (2019a), and pursuant to Consent Order OGC No. 16-1250 (Consent Order) between Gulf Power and the Florida Department of Environmental Protection (FDEP), Gulf Power implemented the following remedial actions in the vicinity of the GSA:

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- repaired GSA-related infrastructure as a source control measure, including slip lining the piping systems between the GSA, the Process Sedimentation Pond and Process Return Pond; and
- installed a groundwater pump and treat system downgradient of the GSA to promote hydraulic containment and removal of groundwater impacts resulting from the unpermitted discharge from GSA infrastructure. Extracted groundwater is treated onsite and disposed through permitted deep injection wells. Groundwater extraction and treatment are ongoing downgradient of the GSA, and Gulf Power plans to continue operating the groundwater pump and treat system in 2019.

3.0 ACM OBJECTIVES AND EVALUATION PROCEDURE

3.1 <u>Source Control</u>

As discussed in Section 2.5, source control at Plant Crist was previously completed through repairs to the GSA infrastructure pursuant to the Consent Order, in addition to the engineered composite liner for the GSA.

3.2 Objectives of Groundwater Remedial Technology Evaluation

The objective of the remedial technology evaluation at Plant Crist is to assess the applicability of potential remedial technologies to address cobalt and total radium concentrations above remedial goals.

3.3 <u>Evaluation Procedure Overview</u>

The remedial technology evaluation process involved a step-wise identification, screening, and evaluation of potentially applicable remedial technologies, culminating in development and more detailed analysis of corrective measures alternatives for groundwater. First, several remedial technologies were screened for general technology advantages, limitations, and applicability to important Site-specific conditions (see **Table 3**). Technologies retained from the initial screening level evaluation were utilized to develop groundwater corrective measures alternatives, some of which consist of a combination of remedial technologies. The corrective measures alternatives were subject to a detailed Site-specific analysis, as summarized in **Table 4**, based on assessment of corrective measures criteria presented in 40 CFR §257.96. The remedy selection criteria in 40 CFR §257.97 were also considered as part of the ACM, as summarized in **Table 5**. The criteria utilized for the detailed analyses are briefly described herein.

4.0 ASSESSMENT OF CORRECTIVE MEASURES

4.1 <u>Remedial Technology Screening Evaluation</u>

The remedial technology screening evaluation for applicability of potential groundwater remedies downgradient of the GSA is presented in **Table 3**. The initial screening process focused on remedial technologies that are broadly applicable to CCR-related constituents and/or applied at CCR units, including the following:

- Monitored Natural Attenuation (MNA)
- Hydraulic Containment (Pump and Treat)
- In-Situ Injection
- Permeable Reactive Barrier (PRB)
- Vertical Barrier Wall (Slurry Wall)
- Phytoremediation/TreeWell[®] system

Table 3 provides a description of each of the above groundwater remedial technologies, advantages and limitations associated with each technology, and Site-specific considerations relevant to the potential for remedial success.

Based on the evaluation summarized in **Table 3**, three of the groundwater remedial technologies were considered to be most applicable for the Site and carried forward into the more detailed evaluation.

4.2 <u>Development of Groundwater Corrective Measures</u>

Groundwater corrective measures consisting of one or more technologies were assembled from the retained technologies from the initial screening evaluation discussed in Section 4.1. The range of corrective action alternatives developed for GSA groundwater includes the following:

- Alternative 1: MNA
- Alternative 2: Hydraulic Containment (Pump and Treat) and MNA
- Alternative 3: In-Situ Injection and MNA

As summarized in Sections 2.5 and 3.1, the infrastructure repair at the GSA and engineered composite liner for the GSA serve as the source control measure. The source control measure will be the same and coupled with any of the groundwater corrective measure alternatives defined above. As such, the source control measure was not included in the detailed evaluations presented in **Tables 4 and 5**.

4.3 Description of Evaluated Groundwater Alternatives

The groundwater corrective measure alternatives developed in Section 4.2 were subjected to a detailed Site-specific analysis, as summarized in **Tables 4 and 5**, relative to applicable criteria summarized in Section 3.3. A brief description of each alternative is provided in this section.

Alternative 1: Monitored Natural Attenuation (MNA)

MNA relies on natural attenuation processes to achieve site-specific remediation objectives within a reasonable timeframe. Under certain conditions (e.g., through sorption, mineral precipitation, and/or oxidation-reduction reactions), MNA effectively reduces the dissolved concentrations and/or toxic forms of inorganic constituents in groundwater. Attenuation processes include mineral precipitation, sorption reactions such as adsorption on the surfaces of soil minerals, absorption into the matrix of soil minerals or partitioning into organic matter, dilution, dispersion, and radioactive decay. Further, oxidation-reduction (redox) reactions via abiotic or biotic processes, can transform the valence states of some inorganic constituents to less soluble and thus less mobile and/or less toxic forms. The attenuation mechanisms for each constituent are often unique and/or depend on site conditions. Implementation of an MNA process requires monitoring and evaluation of these attenuation processes. The timeframe to achieve cleanup goals is highly variable (from years to decades); as such, MNA remedies often include a remedial decision framework for development of contingent remedies.

Under the right conditions, MNA can be effective as a stand-alone technology to reduce concentrations of cobalt and total radium to remedial goals (e.g., GWPSs or background concentrations if the constituent is naturally occurring). The effectiveness of MNA for cobalt and total radium is anticipated to be enhanced by the completed source control measures (infrastructure repairs and GSA liner). This includes likely reduction in the time required to meet remedial objectives. Despite variable remedial timeframes, MNA is expected to be successful within a reasonable timeframe, assuming aquifer conditions that result in cobalt and total radium attenuation remain favorable. Improving our current understanding and documentation of Site- and constituent-specific attenuation

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mechanisms and/or temporal concentration changes will assist in predicting long-term performance.

Alternative 2: Hydraulic Containment (Pump and Treat) and MNA

Hydraulic Containment (Pump and Treat) involves the extraction of impacted groundwater to induce artificial gradients, which mitigates plume migration and facilitates removal of constituent mass. Impacted groundwater is removed through a series of extraction wells (or trenches) installed with screen intervals in the target zone, operating at design flow rates which result in capture of the groundwater plume. If needed, extracted groundwater is then treated aboveground for appropriate disposal. Hydraulic containment systems require significant capital expenditures for proper design (of both the extraction system and potentially the groundwater treatment system), construction, and operation. Hydraulic containment is an active remediation technology with a proven track record.

As discussed in Section 2.5, a groundwater pump and treat system has been installed downgradient of the GSA to promote hydraulic containment and removal of groundwater constituents resulting from unpermitted discharge from the GSA-related infrastructure. This hydraulic containment system has been documented to be effective at reducing concentrations of groundwater constituents (Geosyntec, 2019b). Based on extraction system design, the system is anticipated to be effective for containment/mass removal of cobalt and total radium. In addition, optimization of the current extraction system would be feasible, if needed, to meet remedial objectives related to CCR constituents. Challenges may be incurred with the following:

- increased extraction volumes, which may:
 - be constrained, in part, based the capacity for disposal in the permitted deep injection wells; and
 - o require modification of select permits (e.g., consumptive use); and/or
- the design and operation of any potential changes to the aboveground treatment system related to cobalt and/or total radium. A variety of sorption and precipitation approaches exist for the treatment of cobalt and total radium that will need to be considered.

Hydraulic Containment is routinely coupled with MNA, which is a component of this alternative. MNA can occur during operation of the extraction system. In addition, once

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the Pump and Treat system has successfully achieved the desired level of performance, the Site can transition to an MNA-only remedy as a polishing step to further reduce concentrations and/or maintain constituents at remedial goals. Additional discussion of MNA was provided in the above discussion for Alternative 1.

Alternative 3: In-Situ Injection and MNA

In-situ injection is a remediation technique used to treat select groundwater constituents. It is accomplished by introduction of a liquid or solid amendment to the aquifer which results in chemical and/or biological changes in the constituent leading to reduction in toxicity or mobility and/or enhances attenuation processes. The effective immobilization of cobalt and total radium using an in-situ injection technology has been successfully shown under aerobic conditions. Under aerobic conditions, soluble iron and oxygen (either via air sparging or through injection of a chemical oxidant) could be injected to promote the formation of iron (oxy-)hydroxides for subsequent sorption of cobalt and total radium onto these mineral phases. If sufficient iron is present in groundwater, the use of air sparging alone may be considered to precipitate iron (oxy-)hydroxides for sorption. Immobilization of cobalt and total radium under anaerobic conditions is also expected to occur (likely involving the injection of an electron donor together with iron and sulfur) but may require further evaluation to demonstrate effectiveness.

In-situ injection remedies may require additional Site characterization and lab- or pilotscale testing to evaluate the appropriate amendment(s), distribution of injected materials in the subsurface, injection well network design, and other implementation considerations (e.g., injection flow rates). In addition, the potential for unintended mobilization of other aquifer constituents during/following in-situ injection may require careful consideration and monitoring.

Installation of the injection well network may require coverage across a significant area to address the complete plume footprint. Alternative installation approaches may be considered, such as along the downgradient edge of the plume if sufficient area is available for well installation. Once implemented, operational costs are low and primarily associated with groundwater monitoring and performance evaluation/reporting unless a subsequent reinjection event is necessary. In-situ injection is often coupled with MNA, which is a component of this alternative. MNA will be utilized as a polishing step to further reduce concentrations and/or maintain constituents below remedial goals. Additional discussion of MNA was provided in the above discussion for Alternative 1.

5.0 **REMEDY SELECTION PROCESS**

5.1 Additional Data or Characterization Needs

Horizontal delineation of cobalt concentrations greater than its GWPS was successfully completed in the vicinity of MW-204. Similarly, delineation was completed for total radium in the vicinity of MW-200 (vertical), MW-201 (horizontal and vertical), MW-203 (horizontal), MW-204 (horizontal), and MW-206 (horizontal and vertical). Additional evaluation and/or delineation activities of total radium and/or cobalt in groundwater are ongoing to evaluate the nature and extent of these constituents at select locations downgradient of the GSA. Additional evaluation may include assessment of the contribution of naturally occurring total radium to observed groundwater detections. Completion of these additional activities will provide a better understanding of groundwater impacts and, when coupled with the evaluation presented in this Report, can aid Gulf Power in remedy selection.

Groundwater conditions will need to be monitored to evaluate Site-specific influences on attenuation processes. Improved understanding and documentation of Site- and constituent-specific attenuation mechanisms and/or temporal concentration changes since completion of the source control measure will assist in predicting long-term performance of any of the groundwater corrective measure alternatives considered herein.

In the interim, continued groundwater assessment monitoring in accordance with the CCR Rule will provide useful data to support Gulf Power's selection of a groundwater corrective measure for the Site.

5.2 <u>Schedule for Selecting Remedy</u>

The final groundwater remedy will be selected pursuant to the requirements identified in 40 CFR §257.97, including consideration of stakeholder input. At least 30 days prior to the selection of a final remedy, a public meeting will be held in accordance with 40 CFR §257.96(e). Depending on the timing of the public meeting and final remedy selection, semiannual report(s) will be prepared describing the progress in remedy selection. Upon selection of the final remedy, a final report describing the remedy and how it will meet the standards of 40 CFR §257.97(b) will be completed.

6.0 **REFERENCES**

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TABLES

TABLE 1: MONITORING WELL NETWORK SUMMARYPlant Crist - GSA, Gulf Power Company, Pensacola, Florida

Well Name	Installation Date	Northing	Easting	Ground Elevation	Top of Casing Elevation	Top of Screen Elevation	Bottom of Screen Elevation	Designation						
	Gypsum Storage Area - CCR Groundwater Monitoring Network													
MW-100	11/11/2015	578116.11	1107316.00	99.84	103.03	-5.16	-15.16	Upgradient						
MW-101	11/10/2015	577158.45	1107724.27	105.1	108	-1.9	-11.9	Upgradient						
MW-107	11/17/2015	577201.66	1107442.83	111.4	114.71	1.4	-8.6	Upgradient						
MW-108	11/17/2015	576208.36	1107577.06	80.51	83.54	-4.49	-14.49	Upgradient						
MW-200	11/11/2015	581703.17	1108041.01	17.2	20.13	-2.8	-12.8	Downgradient						
MW-201	11/11/2015	581138.29	1108637.91	52.45	52.12	3.15	-6.85	Downgradient						
MW-202	11/10/2015	580559.03	1109045.35	55.8	55.45	6.3	-3.7	Downgradient						
MW-203	11/9/2015	580100.37	1108497.51	47.46	50.6	-2.54	-12.54	Downgradient						
MW-204	11/9/2015	580325.06	1107978.45	16.43	19.47	-3.57	-13.57	Downgradient						
MW-205	11/17/2015	581076.41	1107907.46	17.31	20.28	-2.69	-12.69	Downgradient						
MW-206	2/9/2016	581888.48	1108613.37	26.25	29.11	1.25	-8.75	Downgradient						
MW-306	11/19/2015	578417.11	1106200.44	67.61	70.56	-12.39	-22.39	Upgradient						
MW-307	11/19/2015	578209.77	1106865.99	101.11	104.18	-8.89	-18.89	Upgradient						
			Groundwater N	Monitoring Lo	cations for Deli	neation								
PZ-200S	2/5/2019	581853.34	1108016.45	5.09	8.31	-19.83	-24.83	Delineation						
GSA-2S	4/13/2017	582073.8	1108707.19	21.03	24	-20.97	-30.97	Delineation						
PZ-201D	2/6/2019	581161.53	1108641.12	52.02	52	-131.98	-136.98	Delineation						
GE-1D	6/24/2009	581996.86	1108509.35	18.94	20.77	-77.06	-82.06	Delineation						
PZ-200D	1/29/2019	581775.39	1108002.66	8.89	12.03	-129.11	-139.11	Delineation						

Notes:

1. Northing and easting are in feet relative to the State Plane Florida North Datum of 1983.

2. Elevations are in feet relative to the North American Vertical Datum on 1988.

TABLE 2: ANALYTICAL RESULTS OF DELINEATION SAMPLING Plant Crist - GSA, Gulf Power Company, Pensacola, Florida

Monitoring Well	Well Designation	Sample Date	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Combined Radium (pCi/L)	Fluoride (mg/L)	Lead (mg/L)	Lithium (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	pH (SU)	Selenium (mg/L)	Sulfate (mg/L)	TDS (mg/L)	Thallium (mg/L)
		GWPS	0.006	0.01	2	0.004	NE	0.005	NE	NE	0.1	0.006	5	4	0.015	0.04	0.002	0.1	NE	0.05	NE	NE	0.002
MW-202	Downgradient	3/5/2019	0.001 U	0.00046 U	0.029	0.00034 U	0.098	0.00034 U	5	15	0.0011 U	0.00077 J	2.17	0.032 U	0.00035 U	0.0011 U	0.000078 J	0.002 U	4.93	0.00071 U	6.1	68	0.000085 U
MW-205	Downgradient	2/28/2019	0.001 U	0.00046 U	0.057	0.00034 U	1.4	0.00034 U	27	19	0.0011 U	0.0022 J	3.28	0.07 J	0.00047 J	0.0011 U	0.00019 J	0.002 U	5.02	0.00071 U	110	200	0.000085 U
PZ-200S	Delineation	3/5/2019	0.001 U	0.00046 U	0.05	0.00034 U	10	0.00034 U	220	450		0.0055	6.56	0.04 J	0.0005 J	0.0017 J	0.00007 U	0.002 U	5.31	0.0027	160	1300	0.00015 J
GSA-2S	Delineation	3/6/2019	0.001 U	0.00046 U	0.031	0.00034 U	1.6	0.00034 U	39	56		0.001 J	2.65	0.032 U	0.00056 J	0.0011 U	0.00007 U	0.002 U	4.48	0.0011 J	46	240	0.000085 U
PZ-201D	Delineation	3/5/2019	0.001 U	0.00046 U	0.062	0.00034 U	0.028 J	0.00034 U	5.1	2.7		0.0004 U	0.376 U	0.06 J	0.00088 J	0.0097	0.00007 U	0.002 U	6.74	0.00071 U	1.5 J	76	0.000085 U
GE-1D	Delineation	3/6/2019	0.001 U	0.00046 U	0.019	0.00034 U	0.021 U	0.00034 U	5.6	22		0.0019 J	0.599	0.032 U	0.00049 J	0.0028 J	0.00007 U	0.002 U	4.87	0.00071 U	2.5 J	40	0.000085 U
PZ-200D	Delineation	4/2/2019	0.001 U	0.00046 U	0.055	0.00034 U	0.022 J	0.00034 U	5.5	6.9		0.0012 J	0.518 U	0.07 J	0.0021	0.005	0.00007 U	0.002 U	6.69	0.00071 U	14	96	0.000085 U

Notes:

1. mg/L indicates milligrams per liter, pCi/L indicates picocuries per liter, SU indicates standard units.

2. TDS indicates Total Dissolved Solids.

3. GWPS indicates Groundwater Protection Standard as tabulated in Geosyntec (2019). NE indicates not established.

4. -- indicates that the constituent was not sampled in this assessment.

5. "U" indicates analyte was analyzed but not detected. "J" indicates that the analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

6. Data validation flags are included in Table 2. Data validation reports are included in Appendix A.

Groundwater Remedial Technology	Description	Advantages	Limitations	Site-Specific Consideration
Monitored Natural Attenuation (MNA)	MNA relies on natural attenuation processes to achieve site-specific remediation objectives within a reasonable timeframe. Under certain conditions (e.g., through sorption, mineral precipitation or oxidation-reduction reactions), MNA effectively reduces the dissolved concentrations and/or toxic forms of target constituents. Natural attenuation processes include biotic and abiotic reduction of constituent concentration or toxicity, mineral precipitation, sorption reactions such as adsorption on the surfaces of soil minerals, absorption into the matrix of soil minerals, partitioning into organic matter, dilution, dispersion, and radioactive decay. Further, oxidation-reduction (redox) reactions via abiotic or biotic processes, can transform the valence states of some inorganic constituents to less soluble and thus less mobile and/or less toxic forms. Implementation of an MNA remedial technology requires monitoring and evaluation of these attenuation processes, with a timeframe for contingency planning.	-Naturally occurring process(es) -Low adverse construction-related impacts on surrounding community -Negligible physical disruption to the remediation area -Negligible operation and maintenance or oversight -Can be coupled with other technologies	-Most viable when source is controlled and plume is relatively stable or receding -May require extended sampling and reporting timeframe with framework for contingency planning -Differing natural attenuation mechanisms and effectiveness for different inorganic constituents -May require demonstration of attenuation mechanisms and the capacity of the aquifer to attenuate constituents over the long-term -Reactions are potentially reversible, which may impact long-term effectiveness	MNA would be an applicable remedy for Cobalt (Co) and T Crist. Given that the source control remedy (infrastructure r used to passively remediate the downgradient plume. The n and Ra removal could include sorption to the aquifer matrix)hydroxide minerals, redox reactions that reduce mobility, a groundwater plume.
Hydraulic Containment (Pump and Treat)	Hydraulic containment via pump and treat (P&T) refers to the use of groundwater extraction to 1.) artificially induce a hydraulic gradient to capture groundwater constituents, and/or 2.) remove constituent mass within the plume. This approach uses extraction wells or trenches to capture groundwater, which may be treated above ground and then discharged to a water treatment plant, receiving water body, reinjected into the subsurface, or reused (e.g., land application, Coal Combustion Residual (CCR) conditioning, etc.).		 -Requires sufficient extraction volume and extraction wells to create effective capture zones -Requires viable option for management or treatment of extracted groundwater -May have to operate for extended periods of time -Potential for diminishing effectiveness over time -As a mass removal strategy, there will be differing levels of effectiveness depending on adsorption of individual compounds and/or subsurface heterogeneity 	 P&T would be applicable to inorganic constituents, including there is an existing P&T system that serves to provide capture groundwater constituents. If P&T is selected for treatment of existing system and consideration of the necessity for system remedial objectives would be performed. Consideration of groundwater flow to nearby surface water needed if a significant increase in the groundwater extraction maintain hydraulic containment.
In-Situ Injection	Use of an injection well network to provide suitable air or liquid reagents to cause constituents within a plume to precipitate from solution or adsorb to the geologic formation under either anaerobic or aerobic conditions. Reagent selection will depend on the constituent of concern, chemical composition of groundwater, aquifer oxidation-reduction potential, and pH.	-Minimal site disruption -Can be focused to a specific treatment zone -Does not require continuous active operation -May be viable to treat high risk constituents or targeted hot spots	 Each constituent may need a specific reagent for treatment Requires sufficiently permeable geologic media for injection Requires detailed understanding of nature and extent of impacts Long-term, slow release amendments preferred to reduce reinjection frequency Reactions are potentially reversible, which may impact long-term effectiveness Has not been widely applied at CCR sites Requires bench- and pilot-scale studies for effective design 	In-situ injection would be applicable for Co and Ra remedia aerobic conditions, soluble iron and oxygen (either via air sp oxidant) could be injected to promote the formation of iron subsequent sorption of Co and Ra onto these mineral phases groundwater, the use of air sparging alone may be considered)hydroxides for sorption. Immobilization of Co and Ra under expected to occur (likely involving the injection of an electro and sulfur) but would require further evaluation to demonstra
Permeable Reactive Barrier (PRB)	A PRB is a barrier placed to intercept the groundwater plume. The PRB contains a reactive media that enhances removal of constituents by precipitation or sorption to the media and/or degradation as the plume moves through the media. Reactive media selection will depend on the constituent of concern, chemical composition of groundwater, aquifer oxidation-reduction potential, and pH.	-Provides control of specific constituents without groundwater extraction and treatment -PRBs have been successfully used for a range of inorganics in non-CCR applications	 -Each constituent may need a specific reagent for treatment -Reactive media replacement may be required -Installation generally limited to unconsolidated formations -Installation depth is limited (at least 40 ft is currently achievable), and depends on available media placement equipment -Design may require the PRB to be keyed into bedrock or confining unit to prevent groundwater flow beneath the PRB -Requires detailed site characterization and delineation of groundwater plume and flow pathway -Has not been widely applied at CCR sites -Site disruption during construction 	A PRB consisting of a reactive media (e.g., zero valient iron sorption and precipitation of Co and Ra is anticipated to be Crist. Exact placement of the PRB would be evaluated durin higher permeability/conductivity of the PRB would not be e groundwater flow. Implementation uncertainties include the installation, reactive media mix and longevity, and the neces confining unit.
Vertical Barrier Wall	A vertical barrier wall is a physical barrier to groundwater flow that is placed in the subsurface, often around a capped source area, in order to contain the source and prevent future migration in groundwater from beneath the source to downgradient areas. Barrier walls include driven materials such as sheet pile and materials that are filled into trenches, such as a mixture of soil, cement, and/or bentonite (e.g. slurry wall).	-Can be implemented at an active facility -Effective for all inorganic constituents -Installation depths up to 200 feet -Substantially restricts groundwater flow -Well established design and construction methods -Commonly coupled with source control measures such as capping	-Typically applied where source material remains in place -Additional remedies may be required for any constituent beyond the boundary of the barrier wall -Hydraulic gradient control systems (e.g., pumping) may require long-term operation -Costs can increase if depth is greater than attainable with conventional construction equipment (currently about 80-100 feet) -Large staging/construction area and site disruption during installation	movement at the GSA for the containment of Co and Ra. A
Phytoremediation / TreeWell [®] System	Phytoremediation involves the use of an engineered TreeWell [®] system along the edge of the plume for uptake of impacted groundwater to achieve hydraulic control without the need for above-ground water treatment components. The system promotes root development to the targeted groundwater zone (depth), allowing for hydraulic control of impacted groundwater.	three growing seasons -Effective for all inorganic constituents	 -Requires sufficient and substantial area for planting of TreeWell[®] system to capture the plume -Delay of three growing seasons (minimum) for trees to become adequately sized to obtain capture -Potential seasonal impacts on tree growth and development -Limits potential future use of land where TreeWell[®] system has been installed -Most effective in areas where groundwater flow velocity is slow to moderate -Has not been widely applied at CCR sites -High winds can significantly impact TreeWell[®] system 	While applicable to Co and Ra, the high permeability, sandy use of this technology. In addition, the available space to pla impacted groundwater may not be sufficient downgradient of

1. Italicized Groundwater Remedial Technologies were assembled into groundwater corrective measures evaluated for the Site - See Tables 4 and 5.

2. All groundwater remedial technologies assume source control measures associated with infrastructure repair at the GSA have been completed.

TABLE 3: REMEDIAL TECHNOLOGIES SCREENING MATRIX

Plant Crist - GSA, Gulf Power Company, Pensacola, Florida

i	ons

nd Total Radium (Ra) at Plant ure repair) is in place, MNA can be he natural processes resulting in Co atrix on sulfide and/or iron (oxyity, and dilution/dispersion of the

luding Ra and Co. At Plant Crist, capture and treatment of select ent of Co and Ra, evaluation of the ystem optimization to meet CCR

ater bodies and wetlands may be action volume is required to

nediation at Plant Crist. Under air sparging or through a chemical iron (oxy-) hydroxides for hases. If sufficient iron is present in sidered to precipitate iron (oxyunder anaerobic conditions is also electron donor together with iron onstrate effectiveness.

t iron, polymer, or carbon) for the o be potentially effective at Plant during the remedial design. The be expected to impede le the available space for PRB necessity to key into a continuous

ate depth to limit groundwater a. A barrier wall, however, is capping, where the source material l measures at the GSA, a barrier al technologies considered.

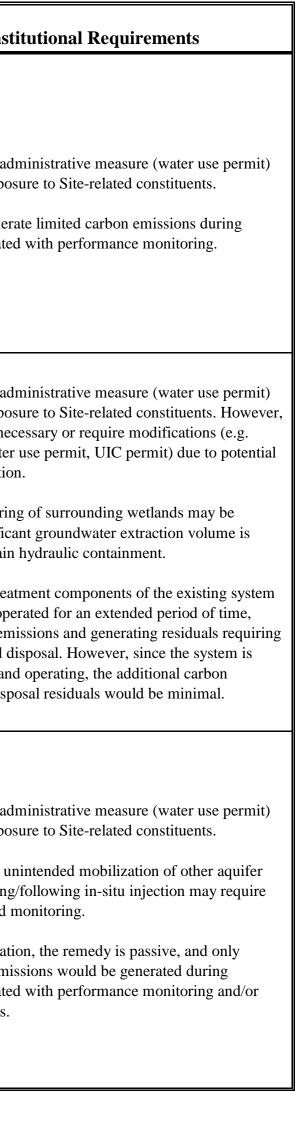
andy aquifer at the Site may limit o plant trees for removal of ient of the GSA.

TABLE 4: EVALUATION OF POTENTIAL CORRECTIVE MEASURES PURSUANT TO 40 CFR §257.96 Plant Crist - GSA, Gulf Power Company, Pensacola, Florida

Groundwater Corrective Measure	Performance	Reliability	Ease of Implementation	Potential Impacts	Time Required to Begin and Complete Remedy	Institu
Monitored Natural Attenuation (MNA)	Coupled with completed source control (infrastructure repair in the case of the GSA at Plant Crist), MNA can be effective at achieving remedial goals. Attenuation processes for Cobalt (Co) and Total Radium (Ra) are likely occurring at the site, and the completed source control measure is anticipated to expedite attenuation processes. A better understanding of site- specific mechanisms of Co and Ra attenuation and temporal concentration changes following source control would be advantageous to predict long-term performance.	Coupled with completed source control, MNA is reliable as long as the aquifer conditions that result in Co and Ra attenuation remain favorable and/or are enhanced. MNA can be used as a polishing technology for downgradient portions of groundwater impacted by Co and/or Ra following source control.	Easy with respect to infrastructure, but moderate to complex with respect to predictability. MNA is a proven technology, but future data may show that the existing attenuation capacity is insufficient to meet site objectives within a reasonable timeframe. The monitoring well network already exists to implement	Potential exposure and safety concerns during sampling	The infrastructure to begin MNA is in place; however, demonstrating attenuation mechanisms and MNA effectiveness takes time. The timeline to achieve remedial objectives with an MNA-only remedy can be highly-variable (a few years to decades). However, MNA is expected to be successful within a reasonable timeframe given completed source control measures.	An existing Site admir limits human exposur MNA would generate sampling associated w
Hydraulic Containment (Pump and Treat) and MNA	Pump and Treat (P&T) is effective at providing hydraulic control through extraction of impacted groundwater, as documented. Based on a preliminary analysis of data presented by Geosyntec (2019b), there is an apparent decreasing Co concentration trend at MW-204 (the only CCR monitoring well with a Co SSL) and there is an apparent decreasing concentration trend in the majority of monitoring wells with Ra SSLs. Decreasing trends may be related to coupled source control and/or operation of the existing on-site P&T system. Continued downgradient monitoring would confirm system performance for Co and Ra. MNA would be utilized as a polishing technology outside the capture zone for maintenance of remedial goals. In addition, once the P&T system had successfully achieved the desired level of performance, the Site could transition to an MNA-only remedy to further reduce concentrations and/or maintain constituents below remedial goals.	P&T is generally reliable for hydraulic containment, especially when coupled with completed source control and a downgradient polishing technology like MNA.	considered during the design phase. Additional operation and maintenance (O&M) requirements due to system optimization with respect to Co and Ra remediation are anticipated to be	Potential exposure and safety concerns during sampling activities and generation of IDW. Exposure and safety concerns can be minimized through standard	serves to provide capture and treatment of select groundwater constituents. If P&T is selected for treatment of Co and Ra, evaluation of the existing system and consideration of the necessity for system optimization to meet CCR remedial objectives could be performed and changed (if needed) could be implemented relatively quickly. MNA will be utilized for the maintenance of Co and Ra below remedial goals downgradient of the extraction system.	Above-ground treatm
In-Situ Injection and MNA	The effective immobilization of Co and Ra using in-situ injection technology is expected to be successful as it has been demonstrated under aerobic and anaerobic conditions. Under aerobic conditions, soluble iron and oxygen (either via air sparging or through a chemical oxidant) could be injected to promote the formation of iron (oxy-) hydroxides for subsequent sorption of Co and Ra onto these mineral phases. Anaerobic immobilization is also expected to occur but the approach (likely involving the injection of an electron donor together with iron and sulfur) may require study and testing to demonstrate effectiveness. Downgradient of the radius of influence (ROI) of injected materials, MNA would be utilized as a polishing technology to achieve remedial goals.	In-situ injection is anticipated to be reliable in the	Moderate. Installation of the injection well network may require coverage across a significant area to address the plume footprint or architecture. Alternative installation approaches may be considered, such as along the downgradient edge of impacted groundwater. Material distribution in the aquifer during injections	Low. The main potential impacts are short-term and related to construction activities during the installation of injection well network and subsequent injection activities. Once the network and initial injection event are complete, impacts are expected to be associated with the monitoring as detailed above. Potential safety concerns exist with injection well installation and injection processes. Safety concerns and exposure can be minimized through standard engineering controls, appropriate procedures, and PPE. The potential for unintended mobilization of other aquifer constituents during/following in-situ injection may require consideration and monitoring.	Installation of the injection network and an initial injection event can be accomplished relatively quickly. However, bench- and/or pilot-testing may be required to obtain design parameters to support remedial design. Once installed, achieving remedial goals within the treatment area will depend on the distribution of the injected materials and kinetics of the attenuation processes. MNA will be utilized to achieve remedial goals for Co and Ra downgradient of the injection system.	An existing Site admi limits human exposur The potential for unin constituents during/fo consideration and mor Following installation limited carbon emission sampling associated ware injection events.

Note:

1. All groundwater remedial technologies assume source control measures associated with infrastructure repair at the GSA have been completed.



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Protective of Human Health and the Environment	Attain the Groundwater Protection Standard (GWPS)	Control the Source(s) of Release	Removal of Material Released from the CCR Unit	Comply with Standards for Management of Waste	Long and Short-Term Effectiveness and Protectiveness of the Potential Remedy	Remedy Effectiveness in Controlling the Source to Reduce Further Releases	Ease of Implementation	Remedy Schedule
measure is anticipated to expedite attenuation processes. A	anticipated to achieve remedial goals when the aquifer conditions that result in Co and Ra attenuation remain favorable and/or are being enhanced. Additional data collection	The infrastructure repair coupled with the GSA's engineered liner system are anticipated to control	MNA relies on the natural processes active in the aquifer to reduce constituent toxicity and/or mobility by reducing constituent concentrations.	Waste generation during sampling would be minimal but management would require compliance with applicable standards	case of the GSA at Plant Crist), MNA can be effective in the long- and short-term when the aquifer conditions that result in Co and Ra attenuation remain favorable and/or are being enhanced. Attenuation processes for Co and Ra are likely occurring at the Site, and the completed source control measure is anticipated to expedite attenuation processes. A better understanding of site- specific mechanisms of Co and Ra attenuation and temporal concentration changes following source control would be	The infrastructure repair coupled with the GSA's engineered liner system are anticipated to control the source and reduce or eliminate further releases to	to predictability. MNA is a proven technology, but future data may show that the existing attenuation capacity is insufficient to meet site objectives within a reasonable timeframe. The monitoring well network already exists	an MNA-only remedy can be highly-variable (a
above-ground treatment of impacted groundwater. MNA would be utilized as a polishing technology outside the capture zone and is expected to be protective of human health and the environment.	achievement of remedial goals within the capture zone by removing impacted groundwater followed by above ground treatment. Coupled with P&T and source control, MNA can be used to reduce concentrations	coupled with the GSA's engineered liner system are anticipated to control the source and reduce or eliminate further releases to the environment.		compliance with applicable standards for waste management and current/modified permits. See above for waste management during	through extraction of impacted groundwater, as documented for Co and Ra with the existing P&T system at the GSA. Continued downgradient monitoring would confirm system performance for CCR constituents. MNA would be utilized as a polishing technology outside the capture zone for maintenance of remedial goals. In addition, once the P&T system had successfully achieved the desired level of performance, the Site could transition to an	The infrastructure repair coupled with the GSA's engineered liner system are anticipated to control the source and reduce or eliminate further releases to	GSA and has been shown to be effective for constituent mass removal. System optimization with respect to Co and Ra remediation may present a challenge due to their spatial distribution, above ground treatment approach, and/or potential increases in extraction volume. System optimization would be considered during the design phase. Additional operation and maintenance (O&M) requirements due to system	At Plant Crist, there is an existing P&T system that serves to provide capture and treatment of select groundwater constituents. If P&T is selected for treatment of Co and Ra, evaluation of the existing system and consideration of the necessity for system optimization to meet CCR remedial objectives could be performed and changed (if needed) could be implemented relatively quickly. MNA will be utilized for the maintenance of Co and Ra below remedial goals downgradient of the extraction system.
for the immobilization of Co and Ra. MNA would be utilized as a polishing technology outside the radius of influence (ROI) and is expected to be protective of human health and the environment. The potential for unintended mobilization of other aquifer	effective in achievement of remedial goals within the ROI by immobilizing Co and Ra. Coupled with injection and source control, MNA can be used to reduce concentrations of constituents below remedial goals	The infrastructure repair coupled with the GSA's engineered liner system are anticipated to control the source and reduce or eliminate further releases to the environment	This is anticipated to reduce concentrations/volume and toxicity of impacted groundwater.	Waste generation during injection and sampling would be minimal but management would require compliance with applicable standards.	aerobic conditions, soluble iron and oxygen (either via air sparging or through a chemical oxidant) could be injected to promote the formation of iron (oxy-) hydroxides for subsequent sorption of Co and Ra onto these mineral phases. Anaerobic immobilization is also expected to occur but the approach (likely involving the injection of an electron donor together with iron and sulfur) may require study and testing to demonstrate effectiveness. Downgradient of the ROI of injected materials, MNA would be	coupled with the GSA's engineered liner system are anticipated to control the source and reduce or eliminate further releases to	Alternative installation approaches may be considered, such as along the downgradient edge of impacted groundwater. Material distribution in the aquifer during injections (i.e., ROI) would require evaluation during	Installation of the injection network and an initial injection event can be accomplished relatively quickly. However, bench- and/or pilo testing may be required to obtain design parameters to support remedial design. Once installed, achieving remedial goals within the treatment area will depend on the distribution of the injected materials and kinetics of the attenuation processes. MNA will be utilized to achieve remedial goals for Co and Ra downgradient of the injection system.
	Environment Coupled with completed source control (infrastructure repair in the case of the GSA at Plant Crist), MNA can be effective at achieving remedial goals. Attenuation processes for Cobalt (Co) and Total Radium (Ra) are likely occurring at the Site, and the completed source control measure is anticipated to expedite attenuation processes. A better understanding of site-specific mechanisms of Co and Ra attenuation and temporal concentration changes following source control would be advantageous to predict long-term performance. An existing administrative measure (i.e., a water use permit) limits human exposure to groundwater. Pump and Treat (P&T) is anticipated to be protective of human health and the environment through extraction and above-ground treatment of impacted groundwater. MNA would be utilized as a polishing technology outside the capture zone and is expected to be protective of human health and the environment. Consideration of groundwater flow to nearby surface water bodies and wetlands may be needed if significant additional groundwater extraction volume is required to maintain hydraulic containment. In-situ injection is anticipated to be protective of human health and the environment through injection of materials for the immobilization of Co and Ra. MNA would be utilized as a polishing technology outside the radius of influence (ROI) and is expected to be protective of human health and the environment.	Environment Protection Standard (GWPS) Coupled with completed source control (infrastructure repair in the case of the GSA at Plant Crist), MNA can be frective at achieving remedial goals. Attenuation processes for Coball (Co) and Total Radium (Ra) are like and the completed source control measure is anticipated to expedite attenuation processes. A better understanding of site-specific mechanisms of Co and Ra attenuation and temporal concentration changes following source control would be advantageous to predict attenuation remain favorable and/or are being main favorable and/or are braid for anterial in pacted groundwater followed by above ground treatment. Coupled with P&T and source control, MNA are bused to reduce concentrations of constituents during/following in-situ injection of material goals within the ROI by immobilizing conclogy oustide the raduus of influence (ROI) and is expected to be pr	Environment Protection Standard (GWPS) Source(s) of Release Coupled with completed source control (infrastructure repair in the case of the GSA at Planc Crist), MNA can be effective at achieving remedial goals. Attenuation processes for Coblet (Co) and Total Radium (Ra) are likely count destanding of site-specific mechanisms of Co and meteropara Locentration changes and temporal Concentration changes. A materiation and temporal Concentration changes and temporal Concentration changes and temporal Concentration changes and temporal Concentration change and temporal Concentration changes and the environment. Net infrastructure repair coupled with source control, MNA is material in gradimitistrative measure (i.e. a water use permit) limits human exposure to groundwater. Net infrastructure repair coupled with the GSA's engineered liner system and above ground reatment Coupled with the GSA's engineered liner system and above ground reatment Coupled with the GSA's engineered liner system and above ground reatment. Coupled with the GSA's engineered liner system and active control, MNA as an teue water for the early of the infrastructure repair of constituents below remedial goals within the environment. Parmp and Treat (P&T) is anticipated to be protective of human health and the environment. Next is anticipated to be protective of human health and the environment. Next in single protective in anticipated to be effective in achieve remedial goals onticle the coputer zone. The infrastructure repair coupled with the GSA's engineered liner system anditinade to containment.	Protective of Human Health and the EnvironmentAtta the Groundwater Protection Standard (GWPS)Control the Source(s) of ReleaseReleased from the CCR UnitCoupled with completed source couron (diafratracture regist in the case of the GSA at Tau CS3), MNA transmit processes for Chalt (Co) and Taul Radium (Ra are likely release and the completed source couron (diafratracture regist in the case of the GSA at Tau CS3), MNA transmit measure is anticipated to scaped at the case of the GSA at Tau CS3, MNA release and the completed source couron the inferstments of tools is anticipated or scaped in the case of the case at the inte aquifer too source control with at in predicting the time to achieve remedial goal.NNA release on the natural media at Co and Ka attenuation resource couron with the aquifer too too and ka attenuation for completion too and ka attenuation of the case at the inte aquifer too too and ka attenuation for completion too and ka attenuation for completion too and ka attenuation for completion in too active and material too achieve remedial goals and compared groundwater.NNA reles on the natural meantain mechanism of too material too achieve remedial goals and complete with for GSA. and complete with for GSA. and complete with for GSA. and complete with for GSA. and complete with a difference with the case of the complete with for GSA. and	Protective of Human Health and the EavironmentAttain the Groundwater Protection Standards (GWPS)Control the Source(s) of ReleasedRemoval of Naterial Released from the CCRMaterial Management of Management of Management of Management of Management of Management of Released from the CCRMaterial Management of Management of Management of Management of Released from the CCRMaterial Released from the CCRMaterial Management of Management of Management of Released from the CCRMaterial Management of Management of Released from the CCRMaterial Released from the CCRMaterial Management of Management of Management of Released from the CCRMaterial Released from the CCRMaterial Management of Management of Released from the CCRMaterial Released from the CCRMaterial Management of Released from the CCRMaterial Released from the CCRMaterial Released from the CCRMaterial Released from the CCRProme and Tree (F&T) is audipted to be protective of parement of in the extended paradi parement of in the extended paradi parement of in the extended paradi parement of in the extended paradi paradia from t	Protective of Lunua Health and the Protection Standard (GWP)Attain the Groundball Carreds (of ReleaseRecord of Matchiell Release for Matchield UnitManagement of WaskeLang and Short-From Health Score Protectiveness and the Potential RemayCoupled with complexed near course and address remain protective rests for the couplex trans on the potential of a service protective rests for the couplex trans on the potential of a service protective rests for the couplex trans on the potential of a service protective rests for the couplex trans on the potential of a service protective rests for the couplex trans on the potential of a service protective rests for the couplex trans on the potential of a service protective rests for the couplex trans on the potential of a service protective rests for the couplex trans on the potential of a service protective rests for the couplex trans on the potential of a service protective rests for the couplex trans on the potential of a service protective rests for the couplex trans on the potential of a service protective rests for the couplex trans on the potential of a service protective rests for the couplex trans on the potential of a service protective rests for the couplex trans on the potential of a service protective rests for the couplex transmiss for the couplex tran	Protective of Human Highlan of the Excitation of the Characterize Excitation of the Characterize Control the Control the Source of KeltureRemoved of Munariant of Numare excitation WaterLong and Num-Term Uffectiveness and Protectivenes of the Potential Removed Protectivenes of the Potential Removed Protectiveness of the Potential RemovedSource of Kelture Protectiveness of the Potential Removed Protectiveness of the Potential RemovedSource of Kelture Protectiveness of the Potential RemovedSource of Kelture Protectiveness of the Potential RemovedSource of Kelture Protectiveness of the Potential Removed Protectiveness of the Potential RemovedSource of Kelture Protectiveness of the Potential Removed Protectiveness of the Potential RemovedSource of Kelture Protectiveness of the Potential RemovedSource of Kelture 	Preterior of Theorem 1 water in Security 1

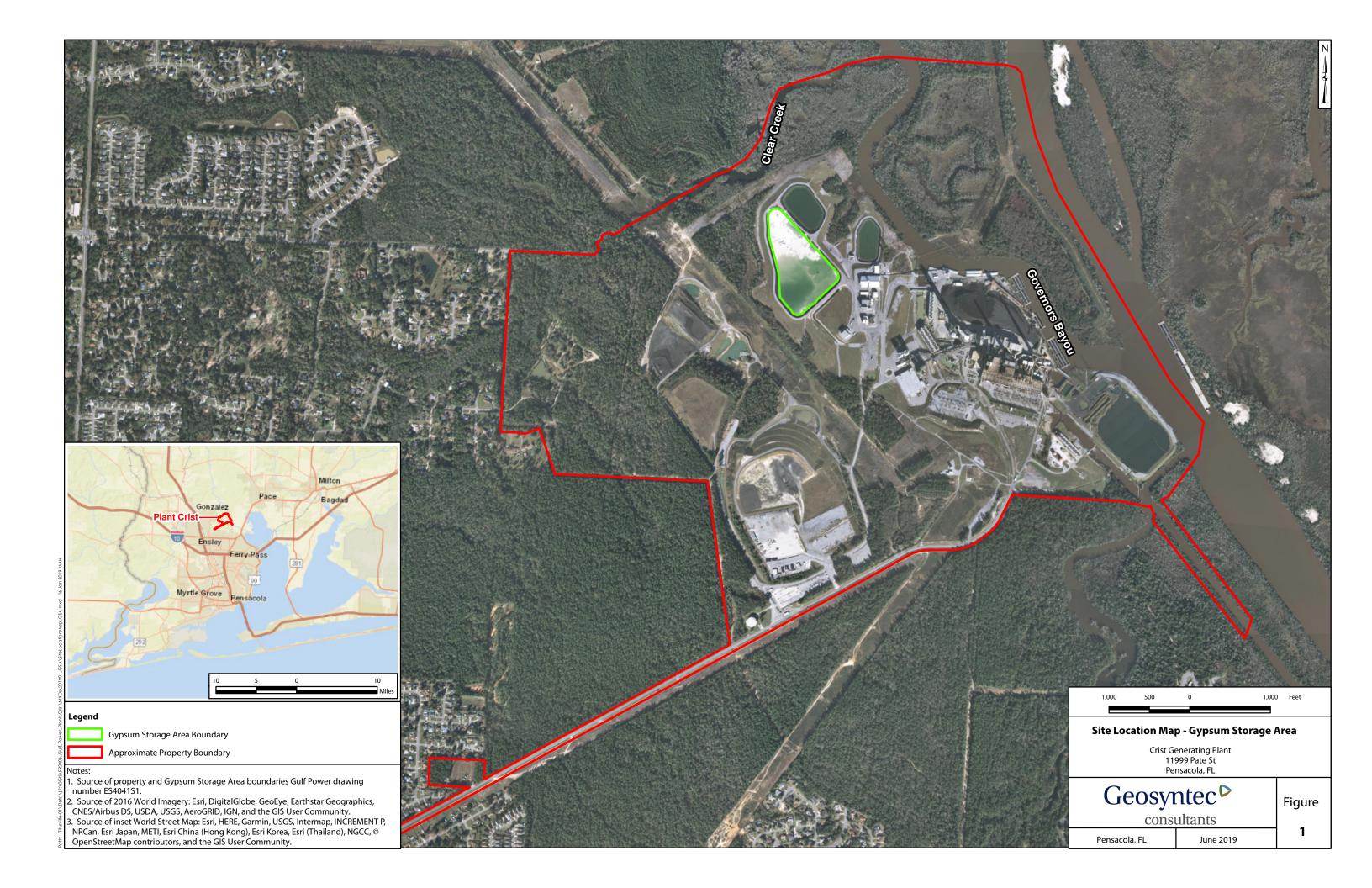
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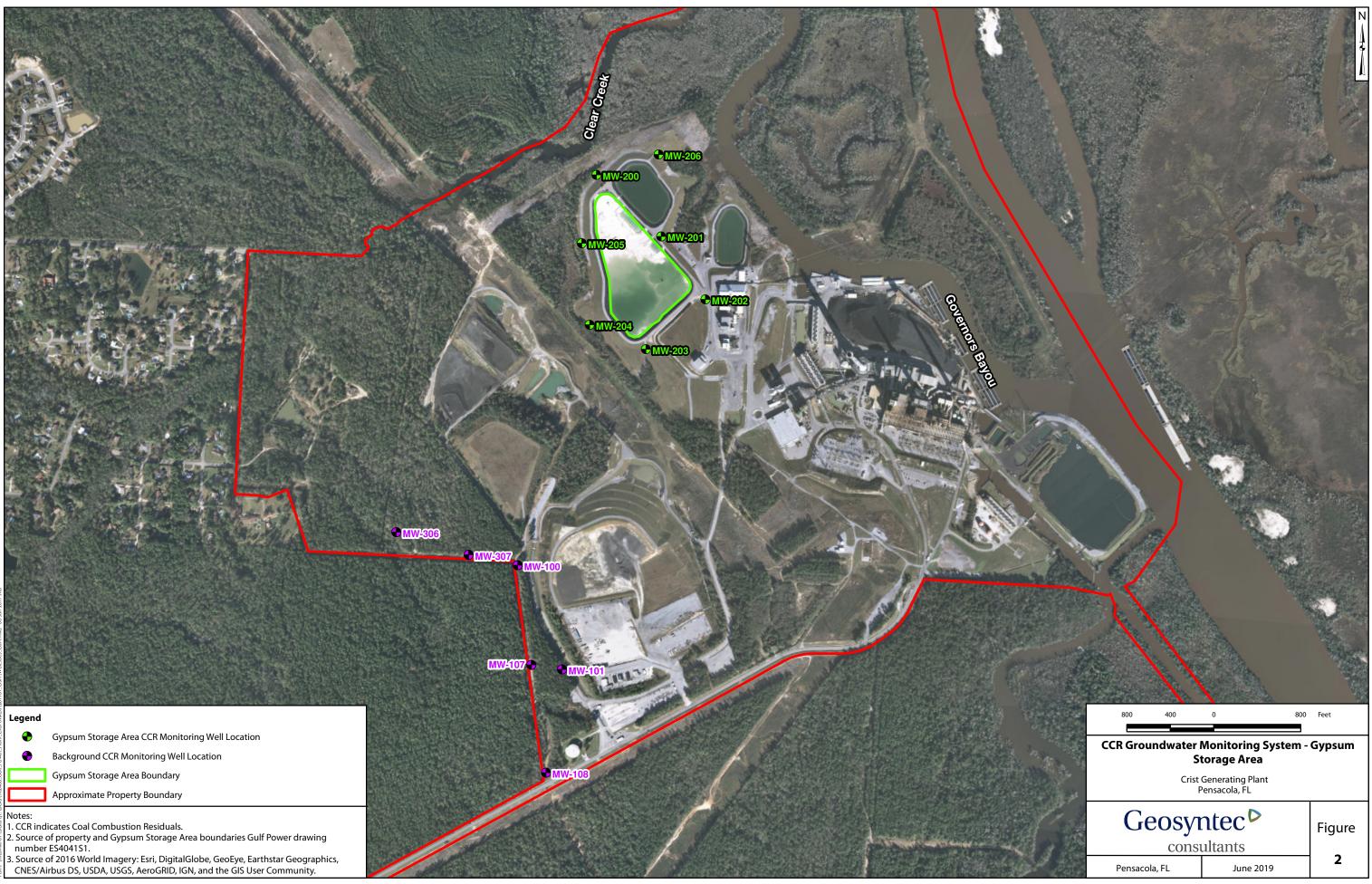
1. All groundwater remedial technologies assume source control measures associated with infrastructure repair at the GSA have been completed.

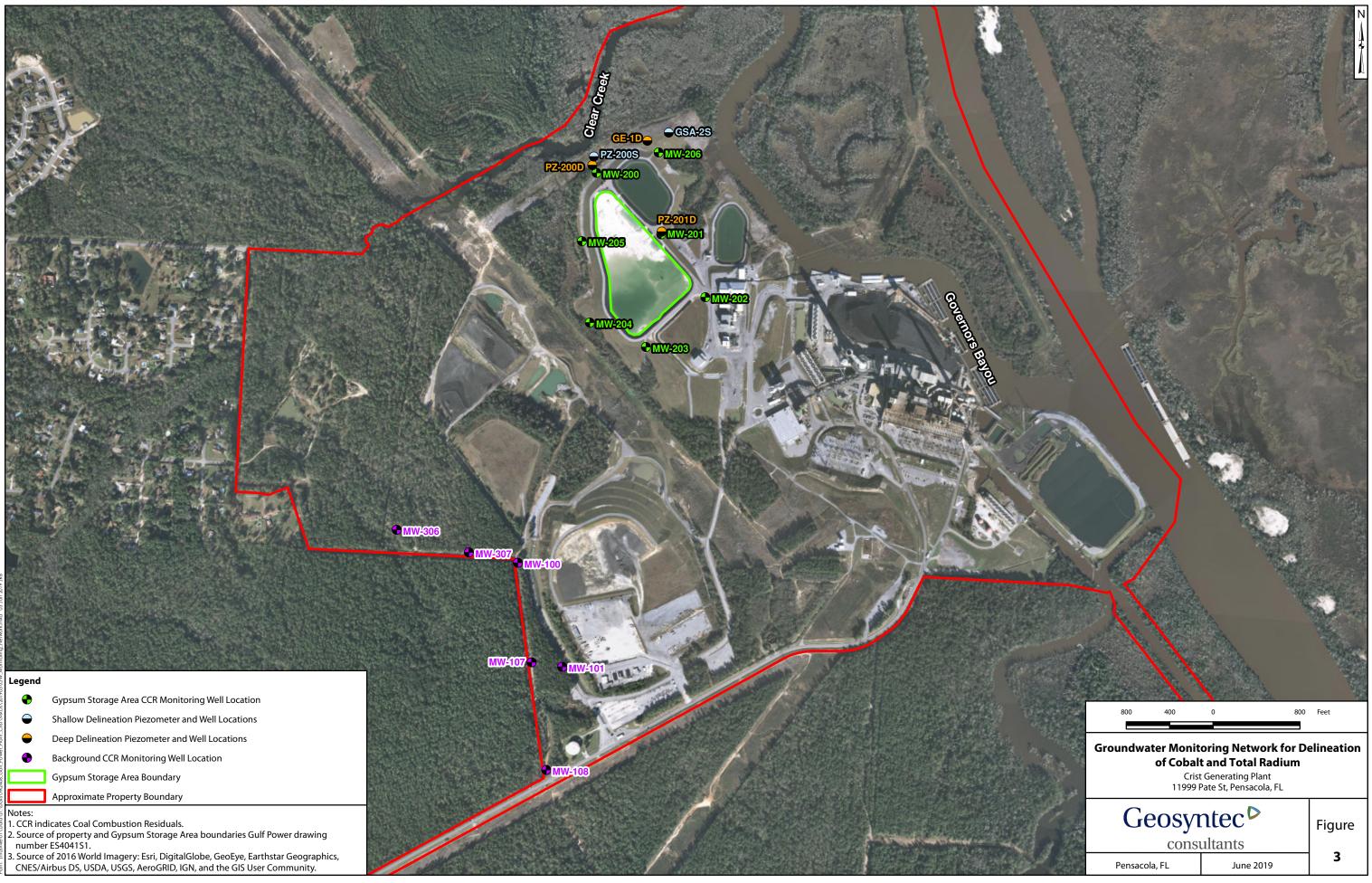
2. The 40 CFR §257.97 criterion related to community concerns will be considered following the public meeting during remedy selection.

TABLE 5: EVALUATION OF POTENTIAL CORRECTIVE MEASURES PURSUANT TO 40 CFR §257.97 Plant Crist - GSA, Gulf Power Company, Pensacola, Florida

FIGURES







APPENDIX A

Laboratory Analytical, Data Validation, and Field Sampling Reports

🛟 eurofins

Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 400-166764-1

Laboratory Sample Delivery Group: Gypsum Storage Area Client Project/Site: CCR Plant Crist

For:

.....Links

Review your project results through

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Gulf Power Company BIN 731 One Energy Place Pensacola, Florida 32520

Attn: Kristi Mitchell



Authorized for release by: 4/9/2019 10:47:18 AM

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

Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Detection Summary	4
Method Summary	8
Sample Summary	9
Client Sample Results	10
Definitions	21
Chronicle	22
QC Association	26
QC Sample Results	31
Chain of Custody	42
Receipt Checklists	44
Certification Summary	45

Job ID: 400-166764-1

Laboratory: Eurofins TestAmerica, Pensacola

Narrative

Job Narrative 400-166764-1

Metals

Method(s) 6020: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 433042 and analytical batch 433286 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 6020: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-200 (400-166764-1), MW-204 (400-166764-3), MW-206 (400-166764-5), DUP-05 (400-166764-9) and MW-201 (400-166764-10). Elevated reporting limits (RLs) are provided.

Method(s) 7470A: The matrix spike duplicate (MSD) recoveries for preparation batch 432932 and analytical batch 433378 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

General Chemistry

Method(s) SM 4500 F C: The sample duplicate precision for the following sample associated with analytical batch 433548 was outside control limits: (400-166764-B-4 DU). The associated Laboratory Control Sample (LCS)met acceptance criteria.

Method(s) SM 4500 F C: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 433548 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) SM 4500 CI- E: Due to the concentration of chlorides in the parent sample the MS/MSD were diluted after the spike. The spike amounts were adjusted by the dilution factor. (400-166648-A-5 MS), (400-166648-A-5 MSD), (400-166764-B-10 MS) and (400-166764-B-10 MSD)

Method(s) SM 4500 CI- E: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 433709 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) SM 4500 CI- E: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-200 (400-166764-1), MW-204 (400-166764-3), MW-206 (400-166764-5), DUP-05 (400-166764-9), MW-201 (400-166764-10), (400-166764-B-10 MS), (400-166764-B-10 MSD), (400-166648-A-5), (400-166648-A-5 MS) and (400-166648-A-5 MSD). Elevated reporting limits (RLs) are provided.

Method(s) SM 4500 SO4 E: Due to the concentration of sulfates in the parent sample the MS/MSD were diluted after the spike. The spike amounts were adjusted by the dilution factor. (400-166648-A-5 MS) and (400-166648-A-5 MSD)

Method(s) SM 4500 SO4 E: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 433223 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) SM 4500 SO4 E: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-200 (400-166764-1), MW-203 (400-166764-2), MW-204 (400-166764-3), MW-205 (400-166764-4), MW-206 (400-166764-5), DUP-02 (400-166764-6), (400-166648-A-5), (400-166648-A-5 MS), (400-166648-A-5 MSD), DUP-05 (400-166764-9) and MW-201 (400-166764-10). Elevated reporting limits (RLs) are provided.

Method(s) SM 4500 SO4 E: The native sample, matrix spike, and matrix spike duplicate (MS/MSD) associated with analytical batch 433751 were performed at the same dilution. Due to the additional level of analyte present in the spiked samples, the concentration of Sulfate in the MS/MSD was above the instrument calibration range. The data have been reported and qualified.

Client: Gulf Power Company Project/Site: CCR Plant Crist

Client Sample ID: MW-200

Lab Sample ID: 400-166764-1

Lab Sample ID: 400-166764-2

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D Metho	d	Prep Type
Arsenic	0.00067	Ι	0.0013	0.00046	mg/L	5	6020		Total
									Recoverable
Barium	0.045		0.0025	0.00049	mg/L	5	6020		Total
		_				_			Recoverable
Cobalt	0.0024	I	0.0025	0.00040	mg/L	5	6020		Total
			0.0040			· · · · · · · · · · · · · · · · · · ·			Recoverable
Lead	0.0012	I	0.0013	0.00035	mg/L	5	6020		Total
	0.0005		0.0050	0.0014		-	c000		Recoverable
Lithium	0.0025	I	0.0050	0.0011	mg/L	5	6020		Total
Selenium	0.0044		0.0013	0.00071	ma/l	5	6020		Recoverable
Seleman	0.0044		0.0013	0.00071	mg/∟	5	0020		Total Recoverable
Thallium	0.00010		0.00050	0.000085	ma/l	5	6020		Total
maniani	0.00010	•	0.00000	0.000000	ing/L	0	0020		Recoverable
Boron - DL	8.5		0.50	0.21	mg/L	50	6020		Total
					0				Recoverable
Calcium - DL	230		2.5	1.3	mg/L	50	6020		Total
									Recoverable
Mercury	0.0016		0.00020	0.000070	mg/L	1	7470A		Total/NA
Total Dissolved Solids	1400		10	6.8	mg/L	1	SM 25	40C	Total/NA
Chloride	470		40	28	mg/L	20	SM 45	00 CI- E	Total/NA
Fluoride	0.30		0.10	0.032		1	SM 45	00 F C	Total/NA
Sulfate	130		50		mg/L	10	SM 45	00 SO4 E	Total/NA
Field pH	4.97				SU	1		Sampling	Total/NA

Client Sample ID: MW-203

Analyte **Result Qualifier** PQL Dil Fac D Method MDL Unit Prep Type Barium 0.039 0.0025 0.00049 mg/L 5 6020 Total Recoverable 0.050 0.021 mg/L Boron 1.1 5 6020 Total Recoverable Calcium 30 0.25 0.13 mg/L 5 6020 Total Recoverable 0.00040 mg/L Cobalt 0.0025 5 6020 0.0023 I Total Recoverable Lithium 0.0011 I 0.0050 0.0011 mg/L 5 6020 Total Recoverable Selenium 0.0014 0.0013 0.00071 mg/L 5 6020 Total Recoverable **Total Dissolved Solids** 190 5.0 3.4 mg/L 1 SM 2540C Total/NA Chloride 24 2.0 1.4 mg/L 1 SM 4500 CI- E Total/NA Fluoride 0.040 I 0.10 0.032 mg/L 1 SM 4500 F C Total/NA Sulfate 100 25 7.0 mg/L 5 SM 4500 SO4 E Total/NA Field pH SU 4.46 1 Field Sampling Total/NA

Client Sample ID: MW-204

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D Method	Prep Type
Arsenic	0.0015		0.0013	0.00046	mg/L	5	6020	Total
								Recoverable
Barium	0.024		0.0025	0.00049	mg/L	5	6020	Total
								Recoverable
Beryllium	0.00038	I	0.0025	0.00034	mg/L	5	6020	Total
								Recoverable
Calcium	62		0.25	0.13	mg/L	5	6020	Total

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Pensacola

Lab Sample ID: 400-166764-3

Recoverable

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Client: Gulf Power Company Project/Site: CCR Plant Crist

Client Sample ID: MW-204 (Continued)

Job ID: 400-166764-1 SDG: Gypsum Storage Area

Lab Sample ID: 400-166764-3

Analyte	Result Qualifier	PQL	MDL	Unit	Dil Fac	DI	Method	Prep Type
Cobalt	0.013	0.0025	0.00040	mg/L	5	- 6	6020	Total
								Recoverable
Lead	0.0019	0.0013	0.00035	mg/L	5	6	6020	Total
								Recoverable
Lithium	0.0016 I	0.0050	0.0011	mg/L	5	6	6020	Total
								Recoverable
Selenium	0.0028	0.0013	0.00071	mg/L	5	6	6020	Total
								Recoverable
Thallium	0.00027 I	0.00050	0.000085	mg/L	5	6	6020	Total
								Recoverable
Boron - DL	4.9	0.50	0.21	mg/L	50	6	6020	Total
								Recoverable
Total Dissolved Solids	660	10	6.8	mg/L	1	5	SM 2540C	Total/NA
Chloride	72	4.0	2.8	mg/L	2	5	SM 4500 CI- E	Total/NA
Fluoride	0.27	0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	310	100	28	mg/L	20	5	SM 4500 SO4 E	Total/NA
Field pH	4.31			SU	1	F	Field Sampling	Total/NA

Client Sample ID: MW-205

Analyte **Result Qualifier** PQL MDL Unit Dil Fac D Method Prep Type Barium 0.057 0.0025 0.00049 mg/L 5 6020 Total Recoverable Boron 1.4 0.050 0.021 mg/L 5 6020 Total Recoverable Calcium 27 0.25 0.13 mg/L 5 6020 Total Recoverable Cobalt 0.00040 mg/L 5 6020 0.0022 I 0.0025 Total Recoverable 5 Lead 0.00047 I 0.0013 0.00035 mg/L 6020 Total Recoverable Mercury 0.00019 I 0.00020 0.000070 mg/L 1 7470A Total/NA **Total Dissolved Solids** 200 5.0 3.4 mg/L 1 SM 2540C Total/NA Chloride 19 2.0 1.4 mg/L SM 4500 CI- E Total/NA 1 Fluoride 0.10 0.070 0.032 mg/L 1 SM 4500 F C Total/NA 1 Sulfate 110 25 7.0 mg/L 5 SM 4500 SO4 E Total/NA Field pH 5.02 SU Field Sampling Total/NA 1

Client Sample ID: MW-206

Lab Sample ID: 400-166764-5

Lab Sample ID: 400-166764-4

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00089	Ī	0.0013	0.00046	mg/L	5	_	6020	Total
									Recoverable
Barium	0.048		0.0025	0.00049	mg/L	5		6020	Total
									Recoverable
Cadmium	0.00065	I	0.0025	0.00034	mg/L	5		6020	Total
									Recoverable
Cobalt	0.0022	I	0.0025	0.00040	mg/L	5		6020	Total
									Recoverable
Lead	0.0019		0.0013	0.00035	mg/L	5		6020	Total
									Recoverable
Selenium	0.011		0.0013	0.00071	mg/L	5		6020	Total
									Recoverable
Thallium	0.00024	I	0.00050	0.000085	mg/L	5		6020	Total
									Recoverable
Boron - DL	20		1.0	0.42	mg/L	100		6020	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Pensacola

Client Sample ID: MW-206 (Continued)

Job ID: 400-166764-1 SDG: Gypsum Storage Area

4

Lab Sample ID: 400-166764-6

Lab Sample ID: 400-166764-7

Lab Sample ID: 400-166764-8

Lab Sample ID: 400-166764-9

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac D	Method	Prep Type
Calcium - DL	350		5.0	2.5	mg/L	100	6020	Total
								Recoverable
Mercury	0.00012	I	0.00020	0.000070	mg/L	1	7470A	Total/NA
Total Dissolved Solids	1700		25	17	mg/L	1	SM 2540C	Total/NA
Chloride	720		40	28	mg/L	20	SM 4500 CI- E	Total/NA
Fluoride	0.10		0.10	0.032	mg/L	1	SM 4500 F C	Total/NA
Sulfate	240		100	28	mg/L	20	SM 4500 SO4 E	Total/NA
Field pH	4.42				SU	1	Field Sampling	Total/NA

Client Sample ID: DUP-02

Analyte	Result (Qualifier	PQL	MDL	Unit	Dil Fac	Method	Prep Type
Barium	0.056		0.0025	0.00049	mg/L	5	6020	Total
								Recoverable
Boron	1.5		0.050	0.021	mg/L	5	6020	Total
								Recoverable
Calcium	27		0.25	0.13	mg/L	5	6020	Total
								Recoverable
Cobalt	0.0022		0.0025	0.00040	mg/L	5	6020	Total
								Recoverable
Mercury	0.00018 I		0.00020	0.000070	mg/L	1	7470A	Total/NA
Total Dissolved Solids	240		5.0	3.4	mg/L	1	SM 2540C	Total/NA
Chloride	20		2.0	1.4	mg/L	1	SM 4500 CI- E	Total/NA
Fluoride	0.060 I		0.10	0.032	mg/L	1	SM 4500 F C	Total/NA
Sulfate	110		25	7.0	mg/L	5	SM 4500 SO4 E	Total/NA
Field pH	5.02				SU	1	Field Sampling	Total/NA

Client Sample ID: FB-02

No Detections.

Client Sample ID: EB-02

No Detections.

Client Sample ID: DUP-05

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.036		0.0025	0.00049	mg/L	5	_	6020	Total
									Recoverable
Cadmium	0.0024	I	0.0025	0.00034	mg/L	5		6020	Total
									Recoverable
Calcium	43		0.25	0.13	mg/L	5		6020	Total
									Recoverable
Chromium	0.0021	I	0.0025	0.0011	mg/L	5		6020	Total
									Recoverable
Cobalt	0.0018	I	0.0025	0.00040	mg/L	5		6020	Total
									Recoverable
Lead	0.00041	I	0.0013	0.00035	mg/L	5		6020	Total
									Recoverable
Lithium	0.0039	I	0.0050	0.0011	mg/L	5		6020	Total
									Recoverable
Selenium	0.0012	I	0.0013	0.00071	mg/L	5		6020	Total
									Recoverable
Thallium	0.00017	I	0.00050	0.000085	mg/L	5		6020	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: DUP-05 (Continued)

4

5

Lab Sample ID: 400-166764-9

Lab Sample ID: 400-166764-10

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D Method	Prep Type
Boron - DL	2.1		0.25	0.11	mg/L	25	6020	Total
								Recoverable
Mercury	0.0031		0.00020	0.000070	mg/L	1	7470A	Total/NA
Total Dissolved Solids	290		5.0	3.4	mg/L	1	SM 2540C	Total/NA
Chloride	73		4.0	2.8	mg/L	2	SM 4500 CI- E	Total/NA
Fluoride	0.65		0.10	0.032	mg/L	1	SM 4500 F C	Total/NA
Sulfate	86		25	7.0	mg/L	5	SM 4500 SO4 E	Total/NA
Field pH	4.71				SU	1	Field Sampling	Total/NA

Client Sample ID: MW-201

Analyte	Result Qu	ualifier PQL	MDL	Unit	Dil Fac	DI	Method	Prep Type
Barium	0.035	0.0025	0.00049	mg/L	5	- 6	6020	Total
								Recoverable
Cadmium	0.0023 I	0.0025	0.00034	mg/L	5	6	6020	Total
								Recoverable
Calcium	43	0.25	0.13	mg/L	5	(6020	Total
					<u>.</u> .			Recoverable
Cobalt	0.0017 I	0.0025	0.00040	mg/L	5	(6020	Total
					_			Recoverable
Lead	0.00037 I	0.0013	0.00035	mg/L	5	(6020	Total
	0.00.40	0.0050			-			Recoverable
Lithium	0.0043 I	0.0050	0.0011	mg/L	5	t	6020	Total
Orthon	0.0040	0.0040	0 00074					Recoverable
Selenium	0.0012 I	0.0013	0.00071	mg/L	5	t	6020	Total
Thallium	0.00016 I	0.00050	0.000085	~~~/l	5	,	6020	Recoverable
mailium	0.00016 1	0.00050	0.000085	mg/L	5	, c	6020	Total
Boron - DL	2.1	0.25	0.11	mg/L	25		6020	Recoverable
BOIOII - DE	2.1	0.25	0.11	mg/L	25	,	0020	Total
Mercury	0.0026	0.00020	0.000070	ma/l			7470A	Recoverable Total/NA
				0				
Total Dissolved Solids	300	5.0		mg/L	1		SM 2540C	Total/NA
Chloride	75	4.0		mg/L	2		SM 4500 CI- E	Total/NA
Fluoride	0.64	0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	86	25	7.0	mg/L	5	9	SM 4500 SO4 E	Total/NA
Field pH	4.71			SU	1	I	Field Sampling	Total/NA

Client Sample ID: MW-202

Client Sample ID: MW-	Client Sample ID: MW-202 Lab							
Analyte	Result Qualifier	PQL	MDL	Unit	Dil Fac D	Method	Prep Type	
Barium	0.029	0.0025	0.00049	mg/L	5	6020	Total	
Boron	0.098	0.050	0.021	mg/L	5	6020	Recoverable Total Recoverable	
Calcium	5.0	0.25	0.13	mg/L	5	6020	Total Recoverable	
Cobalt	0.00077 I	0.0025	0.00040	mg/L	5	6020	Total Recoverable	
Mercury	0.000078 I	0.00020	0.000070	mg/L	1	7470A	Total/NA	
Total Dissolved Solids	68	5.0	3.4	mg/L	1	SM 2540C	Total/NA	
Chloride	15	2.0	1.4	mg/L	1	SM 4500 CI- E	Total/NA	
Sulfate	6.1	5.0	1.4	mg/L	1	SM 4500 SO4 E	Total/NA	
Field pH	4.93			SU	1	Field Sampling	Total/NA	

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Pensacola

Method Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist

Job ID: 400-166764-1 SDG: Gypsum Storage Area

lethod	Method Description	Protocol	Laboratory
020	Metals (ICP/MS)	SW846	TAL PEN
470A	Mercury (CVAA)	SW846	TAL PEN
M 2540C	Solids, Total Dissolved (TDS)	SM	TAL PEN
M 4500 CI- E	Chloride, Total	SM	TAL PEN
M 4500 F C	Fluoride	SM	TAL PEN
M 4500 SO4 E	Sulfate, Total	SM	TAL PEN
ield Sampling	Field Sampling	EPA	TAL PEN
005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PEN
470A	Preparation, Mercury	SW846	TAL PEN

Protocol References:

EPA = US Environmental Protection Agency

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

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

Laboratory References:

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

Sample Summary

Matrix

Water

Client: Gulf Power Company Project/Site: CCR Plant Crist

Client Sample ID

MW-200

MW-203

MW-204

MW-205

MW-206

DUP-02

FB-02

EB-02

DUP-05

MW-201

MW-202

Lab Sample ID

400-166764-1

400-166764-2

400-166764-3

400-166764-4

400-166764-5

400-166764-6

400-166764-7

400-166764-8

400-166764-9

400-166764-10

400-166764-11

Inh ID: 400 166764 1 SDG

02/28/19 10:55 03/02/19 09:30

02/28/19 08:05 03/02/19 09:30

03/01/19 10:37 03/02/19 09:30

03/01/19 11:05 03/02/19 09:30

03/05/19 08:30 03/06/19 16:35

03/05/19 09:30 03/06/19 16:35

03/05/19 11:20 03/06/19 16:35

DG: Gypsum Storage Area						
Collected	Received					
02/28/19 10:05 03/01/19 10:35	03/02/19 09:30					
02/28/19 13:55		Ę				

Client: Gulf Power Company Project/Site: CCR Plant Crist

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Client Sample ID: MW-200 Date Collected: 02/28/19 10:05 Date Received: 03/02/19 09:30

Job ID: 400-166764-1 SDG: Gypsum Storage Area

Lab Sample ID: 400-166764-1

Matrix: Water

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		03/13/19 08:16	03/13/19 20:07	5
Arsenic	0.00067	1	0.0013	0.00046	mg/L		03/13/19 08:16	03/13/19 20:07	5
Barium	0.045		0.0025	0.00049	mg/L		03/13/19 08:16	03/13/19 20:07	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		03/13/19 08:16	03/13/19 20:07	5
Cadmium	0.00034	U	0.0025	0.00034	mg/L		03/13/19 08:16	03/13/19 20:07	5
Chromium	0.0011	U	0.0025	0.0011	mg/L		03/13/19 08:16	03/13/19 20:07	5
Cobalt	0.0024	•	0.0025	0.00040	mg/L		03/13/19 08:16	03/13/19 20:07	5
Lead	0.0012	1	0.0013	0.00035	mg/L		03/13/19 08:16	03/13/19 20:07	5
Lithium	0.0025	1	0.0050	0.0011	mg/L		03/13/19 08:16	03/13/19 20:07	5
Molybdenum	0.0020	U	0.015	0.0020	mg/L		03/13/19 08:16	03/13/19 20:07	5
Selenium	0.0044		0.0013	0.00071	mg/L		03/13/19 08:16	03/13/19 20:07	5
Thallium	0.00010	I.	0.00050	0.000085	mg/L		03/13/19 08:16	03/13/19 20:07	Ę
Method: 6020 - Metals (ICP/ Analyte	Result	Qualifier	PQL	MDL		D	Prepared	Analyzed	Dil Fac
Boron	8.5		0.50	0.21	mg/L		03/13/19 08:16	03/14/19 18:26	50
Calcium	230		2.5	1.3	mg/L		03/13/19 08:16	03/14/19 18:26	50
Method: 7470A - Mercury (C	VAA)								
Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Mercury	0.0016		0.00020	0.000070	mg/L		03/12/19 09:30	03/18/19 14:48	1
General Chemistry Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1400		10	6.8	mg/L			03/05/19 09:01	
Chloride	470		40		mg/L			03/13/19 12:34	20
Fluoride	0.30		0.10	0.032	-			03/15/19 17:17	
Sulfate	130		50		mg/L			03/13/19 15:43	1
Method: Field Sampling - Fi	eld Sampling								
Analyte		Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fa

Client: Gulf Power Company Project/Site: CCR Plant Crist

Client Sample ID: MW-203 Date Collected: 03/01/19 10:35 Date Received: 03/02/19 09:30

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

Job ID: 400-166764-1 SDG: Gypsum Storage Area

Lab Sample ID: 400-166764-2 Matrix: Water

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		03/13/19 08:16	03/13/19 20:10	5
Arsenic	0.00046	U	0.0013	0.00046	mg/L		03/13/19 08:16	03/13/19 20:10	5
Barium	0.039		0.0025	0.00049	mg/L		03/13/19 08:16	03/13/19 20:10	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		03/13/19 08:16	03/13/19 20:10	5
Boron	1.1		0.050	0.021	mg/L		03/13/19 08:16	03/13/19 20:10	5
Cadmium	0.00034	U	0.0025	0.00034	mg/L		03/13/19 08:16	03/13/19 20:10	5
Calcium	30		0.25	0.13	mg/L		03/13/19 08:16	03/13/19 20:10	5
Chromium	0.0011	U	0.0025	0.0011	mg/L		03/13/19 08:16	03/13/19 20:10	5
Cobalt	0.0023	1	0.0025	0.00040	mg/L		03/13/19 08:16	03/13/19 20:10	5
Lead	0.00035	U	0.0013	0.00035	mg/L		03/13/19 08:16	03/13/19 20:10	5
Lithium	0.0011	1	0.0050	0.0011	mg/L		03/13/19 08:16	03/13/19 20:10	5
Molybdenum	0.0020	U	0.015	0.0020	mg/L		03/13/19 08:16	03/13/19 20:10	5
Selenium	0.0014		0.0013	0.00071	mg/L		03/13/19 08:16	03/13/19 20:10	5
Thallium	0.000085	U	0.00050	0.000085	mg/L		03/13/19 08:16	03/13/19 20:10	5
_ Method: 7470A - Mercury (
Analyte		Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000070	U	0.00020	0.000070	mg/L		03/12/19 09:30	03/18/19 14:50	1
General Chemistry									
Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	190		5.0	3.4	mg/L			03/05/19 13:58	1
Chloride	24		2.0	1.4	mg/L			03/18/19 10:20	1
Fluoride	0.040	1	0.10	0.032	mg/L			03/19/19 10:12	1
Sulfate	100		25	7.0	mg/L			03/18/19 16:04	5
Method: Field Sampling - I	Field Sampling								
Analyte		Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	4.46				SU			03/01/19 10:35	1

Client: Gulf Power Company Project/Site: CCR Plant Crist Job ID: 400-166764-1 SDG: Gypsum Storage Area

Client Sample ID: MW-204 Date Collected: 02/28/19 13:55 Date Received: 03/02/19 09:30

Lab Sample ID: 400-166764-3 Matrix: Water

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		03/13/19 08:16	03/13/19 20:14	5
Arsenic	0.0015		0.0013	0.00046	mg/L		03/13/19 08:16	03/13/19 20:14	5
Barium	0.024		0.0025	0.00049	mg/L		03/13/19 08:16	03/13/19 20:14	Ę
Beryllium	0.00038	•	0.0025	0.00034	mg/L		03/13/19 08:16	03/13/19 20:14	Ę
Cadmium	0.00034	U	0.0025	0.00034	mg/L		03/13/19 08:16	03/13/19 20:14	į
Calcium	62		0.25	0.13	mg/L		03/13/19 08:16	03/13/19 20:14	:
Chromium	0.0011	U	0.0025	0.0011	mg/L		03/13/19 08:16	03/13/19 20:14	
Cobalt	0.013		0.0025	0.00040	mg/L		03/13/19 08:16	03/13/19 20:14	4
Lead	0.0019		0.0013	0.00035	mg/L		03/13/19 08:16	03/13/19 20:14	
Lithium	0.0016		0.0050	0.0011	mg/L		03/13/19 08:16	03/13/19 20:14	
Molybdenum	0.0020	U	0.015	0.0020	mg/L		03/13/19 08:16	03/13/19 20:14	
Selenium	0.0028		0.0013	0.00071	mg/L		03/13/19 08:16	03/13/19 20:14	
Thallium	0.00027	•	0.00050	0.000085	ma/L		03/13/19 08:16	03/13/19 20:14	
Analyte	Result	Qualifier	- DL PQL 0.50		Unit mg/L	D	Prepared 03/13/19 08:16	Analyzed 03/14/19 18:31	
Analyte Boron	Result		PQL		Unit mg/L	<u> </u>	•	•	
Method: 6020 - Metals (ICF Analyte Boron Method: 7470A - Mercury (Analyte	CVAA)		PQL	0.21		D	•	03/14/19 18:31	Dil Fa 5 Dil Fa
Analyte Boron Method: 7470A - Mercury (CVAA)	Qualifier Qualifier	PQL 0.50	0.21	mg/L	=	03/13/19 08:16	•	5 Dil Fa
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry	CVAA) <u>Result</u> <u>0.000070</u>	Qualifier Qualifier U	PQL 0.50 PQL 0.00020	0.21 MDL 0.000070	mg/L Unit mg/L	<u>D</u>	03/13/19 08:16 Prepared 03/12/19 09:30	03/14/19 18:31 Analyzed 03/18/19 14:52	5 Dil Fa
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry Analyte	CVAA) Result 0.000070 Result	Qualifier Qualifier	PQL 0.50 PQL 0.00020 PQL	0.21 MDL 0.000070 MDL	Unit mg/L Unit Unit	=	03/13/19 08:16 Prepared	03/14/19 18:31 Analyzed 03/18/19 14:52 Analyzed	5 Dil Fa
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry Analyte Total Dissolved Solids	Result CVAA) Result 0.000070 Result 660	Qualifier Qualifier U	PQL 0.50 PQL 0.00020 PQL 10	0.21 MDL 0.000070 MDL 6.8	Unit mg/L Unit mg/L	<u>D</u>	03/13/19 08:16 Prepared 03/12/19 09:30	03/14/19 18:31 Analyzed 03/18/19 14:52 Analyzed 03/05/19 13:58	Dil Fa
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry Analyte Total Dissolved Solids Chloride	CVAA) CVAA) Result 0.000070 Result 660 72	Qualifier Qualifier U	PQL 0.50 PQL 0.00020 PQL 10 4.0	0.21 MDL 0.000070 MDL 6.8 2.8	Unit mg/L Unit mg/L mg/L mg/L	<u>D</u>	03/13/19 08:16 Prepared 03/12/19 09:30	O3/14/19 18:31 Analyzed 03/18/19 14:52 Analyzed 03/05/19 13:58 03/18/19 10:46	Dil Fa
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry Analyte Total Dissolved Solids Chloride Fluoride	CVAA) CVAA) Result 0.000070 Result 660 72 0.27	Qualifier Qualifier U	PQL 0.50 PQL 0.00020 PQL 10 4.0 0.10	0.21 MDL 0.000070 MDL 6.8 2.8 0.032	Unit mg/L Unit mg/L mg/L mg/L	<u>D</u>	03/13/19 08:16 Prepared 03/12/19 09:30	Analyzed 03/14/19 18:31 Analyzed 03/18/19 14:52 Analyzed 03/05/19 13:58 03/18/19 10:46 03/15/19 17:21	Dil Fa
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry Analyte Total Dissolved Solids Chloride Fluoride Sulfate	Result 4.9 CVAA) Result 0.000070 Result 660 72 0.27 310	Qualifier Qualifier U	PQL 0.50 PQL 0.00020 PQL 10 4.0	0.21 MDL 0.000070 MDL 6.8 2.8 0.032	Unit mg/L Unit mg/L mg/L mg/L	<u>D</u>	03/13/19 08:16 Prepared 03/12/19 09:30	O3/14/19 18:31 Analyzed 03/18/19 14:52 Analyzed 03/05/19 13:58 03/18/19 10:46	Dil Fa
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry Analyte	Result CVAA) Result 0.000070 Result 660 72 0.27 310 Field Sampling	Qualifier Qualifier U	PQL 0.50 PQL 0.00020 PQL 10 4.0 0.10	0.21 MDL 0.000070 MDL 6.8 2.8 0.032	mg/L Unit mg/L Unit mg/L mg/L mg/L mg/L	<u>D</u>	03/13/19 08:16 Prepared 03/12/19 09:30	Analyzed 03/14/19 18:31 Analyzed 03/18/19 14:52 Analyzed 03/05/19 13:58 03/18/19 10:46 03/15/19 17:21	Dil Fa

PQL

0.0025

0.0013

0.0025

0.0025

0.050

0.25

0.0025

0.0025

0.0025

0.0013

0.0050

0.015

0.0013

0.00050

0.00020

PQL

MDL Unit

0.0010 mg/L

0.00046 mg/L

0.00049 mg/L

0.00034 mg/L

0.00034 mg/L

0.021 mg/L

0.13 mg/L

0.0011 mg/L

0.00040 mg/L

0.00035 mg/L

0.0011 mg/L

0.0020 mg/L

0.00071 mg/L

MDL Unit

0.000085 mg/L

0.000070 mg/L

D

D

Prepared

Client: Gulf Power Company Project/Site: CCR Plant Crist

Analyte

Arsenic

Barium

Beryllium

Cadmium

Calcium

Chromium

Cobalt

Lead

Lithium

Molybdenum

Selenium

Thallium

Analyte

Mercury

Boron

Antimony

Client Sample ID: MW-205 Date Collected: 02/28/19 09:05 Date Received: 03/02/19 09:30

Method: 7470A - Mercury (CVAA)

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

Result Qualifier

0.0010 U

0.00046 U

0.00034 U

0.00034 U

1.4

27

0.0011 U

0.0022 I

0.0011 U

0.0020 U

0.00071 U

0.000085 U

0.00019 I

Result Qualifier

0.00047 I

0.057

Job ID: 400-166764-1 SDG: Gypsum Storage Area

Analyzed

Lab Sample ID: 400-166764-4 Matrix: Water

03/13/19 08:16 03/13/19 20:18

03/13/19 08:16 03/13/19 20:18

03/13/19 08:16 03/13/19 20:18

03/13/19 08:16 03/13/19 20:18

03/13/19 08:16 03/13/19 20:18

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03/13/19 08:16 03/13/19 20:18

03/13/19 08:16 03/13/19 20:18

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03/13/19 08:16 03/13/19 20:18

03/13/19 08:16 03/13/19 20:18

03/13/19 08:16 03/13/19 20:18

03/12/19 09:30 03/18/19 14:54

Analvzed

Prepared

Dil Fac

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Dil Fac

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General Chemistry Analyte **Result Qualifier** PQL MDL Unit D Prepared Analyzed Dil Fac **Total Dissolved Solids** 200 5.0 3.4 mg/L 03/05/19 12:46 1 Chloride 19 2.0 1.4 mg/L 03/18/19 10:10 1 Fluoride 0.070 0.10 0.032 mg/L 03/15/19 17:31 1 5 Sulfate 110 25 7.0 mg/L 03/13/19 15:47 Method: Field Sampling - Field Sampling Analyte **Result Qualifier** PQL MDL Unit D Prepared Analyzed Dil Fac 02/28/19 09:05 Field pH 5.02 SU 1

PQL

0.0025

0.0013

0.0025

0.0025

0.0025

0.0025

0.0025

0.0013

0.0050

0.015

0.0013

0.00050

PQL

1.0

5.0

MDL Unit

0.0010 mg/L

0.00046 mg/L

0.00049 mg/L

0.00034 mg/L

0.00034 mg/L

0.0011 mg/L

0.00040 mg/L

0.00035 mg/L

0.0011 mg/L

0.0020 mg/L

0.00071 mg/L

0.000085 mg/L

MDL Unit

0.42 mg/L

2.5 mg/L

SU

D

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Prepared

Prepared

Client: Gulf Power Company Project/Site: CCR Plant Crist

Analyte

Antimony

Arsenic

Barium

Beryllium

Cadmium

Chromium

Cobalt

Lead

Lithium

Molybdenum

Selenium

Thallium

Analyte

Boron

Field pH

Calcium

Client Sample ID: MW-206 Date Collected: 02/28/19 10:55 Date Received: 03/02/19 09:30

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

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

Result Qualifier

0.0010 U

0.00089 I

0.048

0.00065 I

0.0011 U

0.0022 |

0.0011 U

0.0020 U

0.011

0.00024 |

Result Qualifier

20

350

4.42

0.0019

0.00034 U

Job ID: 400-166764-1 SDG: Gypsum Storage Area

Analyzed

Analyzed

02/28/19 10:55

Lab Sample ID: 400-166764-5 Matrix: Water

03/13/19 08:16 03/13/19 20:21

03/13/19 08:16 03/13/19 20:21

03/13/19 08:16 03/13/19 20:21

03/13/19 08:16 03/13/19 20:21

03/13/19 08:16 03/13/19 20:21

03/13/19 08:16 03/13/19 20:21

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Dil Fac

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Method: 7470A - Mercury (Analyte		Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00012		0.00020	0.000070			03/12/19 09:30		1
General Chemistry Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1700		25	17	mg/L			03/05/19 13:58	1
Chloride	720		40	28	mg/L			03/18/19 10:46	20
Fluoride	0.10		0.10	0.032	mg/L			03/15/19 17:43	1
Sulfate	240		100	28	mg/L			03/13/19 15:47	20
_ Method: Field Sampling - F	Field Sampling								
Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac

PQL

0.0025

0.0013

0.0025

0.0025

0.050

0.0025

0.0025

0.25

MDL Unit

0.0010 mg/L

0.00046 mg/L

0.00049 mg/L

0.00034 mg/L

0.00034 mg/L

0.021 mg/L

0.13 mg/L

0.0011 mg/L

Client: Gulf Power Company Project/Site: CCR Plant Crist

Analyte

Antimony

Arsenic

Barium

Beryllium

Cadmium

Calcium

Chromium

Boron

Client Sample ID: DUP-02 Date Collected: 02/28/19 08:05 Date Received: 03/02/19 09:30

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

Result Qualifier

0.0010 U

0.00046 U

0.056

0.00034 U

0.00034 U

1.5

27

0.0011 U

Job ID: 400-166764-1 SDG: Gypsum Storage Area

Analyzed

Lab Sample ID: 400-166764-6 Matrix: Water

03/13/19 08:16 03/13/19 20:25

03/13/19 08:16 03/13/19 20:25

03/13/19 08:16 03/13/19 20:25

03/13/19 08:16 03/13/19 20:25

03/13/19 08:16 03/13/19 20:25

03/13/19 08:16 03/13/19 20:25

03/13/19 08:16 03/13/19 20:25

03/13/19 08:16 03/13/19 20:25

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onioniani	0.0011	0	0.0020	0.0011	ing, E		00/10/10 00.10	00/10/10 20.20	0
Cobalt	0.0022	1	0.0025	0.00040	mg/L		03/13/19 08:16	03/13/19 20:25	5
Lead	0.00035	U	0.0013	0.00035	mg/L		03/13/19 08:16	03/13/19 20:25	5
Lithium	0.0011	U	0.0050	0.0011	mg/L		03/13/19 08:16	03/13/19 20:25	5
Molybdenum	0.0020	U	0.015	0.0020	mg/L		03/13/19 08:16	03/13/19 20:25	5
Selenium	0.00071	U	0.0013	0.00071	mg/L		03/13/19 08:16	03/13/19 20:25	5
Thallium	0.000085	U	0.00050	0.000085	mg/L		03/13/19 08:16	03/13/19 20:25	5
_ Method: 7470A - Mercury (
Analyte		Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00018	I	0.00020	0.000070	mg/L		03/12/19 09:30	03/18/19 14:57	1
General Chemistry									
Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	240		5.0	3.4	mg/L			03/05/19 12:46	1
Chloride	20		2.0	1.4	mg/L			03/18/19 10:13	1
Fluoride	0.060	1	0.10	0.032	mg/L			03/15/19 17:39	1
Sulfate	110		25	7.0	mg/L			03/13/19 15:47	5
_ Method: Field Sampling - I	Field Sampling								
Analyte		Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	5.02				SU			02/28/19 08:05	1

PQL

0.0025

0.0013

0.0025

0.0025

0.050

0.0025

MDL Unit

0.0010 mg/L

0.00046 mg/L

0.00049 mg/L

0.00034 mg/L

0.00034 mg/L

0.021 mg/L

1.4 mg/L

Analyte

Antimony

Arsenic

Barium

Boron

Beryllium

Cadmium

Sulfate

Client Sample ID: FB-02 Date Collected: 03/01/19 10:37 Date Received: 03/02/19 09:30

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

Result Qualifier

0.0010 U

0.00046 U

0.00049 U

0.00034 U

0.00034 U

0.021 U

1.4 U

Analyzed

03/18/19 15:12

Lab Sample ID: 400-166764-7 Matrix: Water

03/13/19 08:16 03/13/19 20:46

03/13/19 08:16 03/13/19 20:46

03/13/19 08:16 03/13/19 20:46

03/13/19 08:16 03/13/19 20:46

03/13/19 08:16 03/13/19 20:46

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Calcium	0.13	U	0.25	0.13	mg/L		03/13/19 08:16	03/13/19 20:46	5
Chromium	0.0011	U	0.0025	0.0011	mg/L		03/13/19 08:16	03/13/19 20:46	5
Cobalt	0.00040	U	0.0025	0.00040	mg/L		03/13/19 08:16	03/13/19 20:46	5
Lead	0.00035	U	0.0013	0.00035	mg/L		03/13/19 08:16	03/13/19 20:46	5
Lithium	0.0011	U	0.0050	0.0011	mg/L		03/13/19 08:16	03/13/19 20:46	5
Molybdenum	0.0020	U	0.015	0.0020	mg/L		03/13/19 08:16	03/13/19 20:46	5
Selenium	0.00071	U	0.0013	0.00071	mg/L		03/13/19 08:16	03/13/19 20:46	5
Thallium	0.000085	U	0.00050	0.000085	mg/L		03/13/19 08:16	03/13/19 20:46	5
Indilum									
Method: 7470A - Mercury (Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Method: 7470A - Mercury (· /		PQL 0.00020		Unit	D			Dil Fac
Method: 7470A - Mercury (Analyte	Result			MDL	Unit	D	Prepared		Dil Fac
Method: 7470A - Mercury (Analyte Mercury	Result 0.000070			MDL	Unit mg/L	<u>D</u>	Prepared		Dil Fac 1 Dil Fac
Method: 7470A - Mercury (Analyte Mercury General Chemistry	Result 0.000070	U	0.00020	MDL 0.000070 MDL	Unit mg/L	=	Prepared 03/12/19 09:30	03/18/19 14:59	1
Method: 7470A - Mercury (Analyte Mercury General Chemistry Analyte	Result	U Qualifier U	0.00020	MDL 0.000070 MDL 3.4	Unit mg/L Unit	=	Prepared 03/12/19 09:30	03/18/19 14:59 Analyzed	1

5.0

PQL

0.0025

0.0013

0.0025

0.0025

0.050

0.0025

0.0025

0.0025

0.0013

0.0050

0.015

0.0013

0.00050

0.25

MDL Unit

0.0010 mg/L

0.00046 mg/L

0.00049 mg/L

0.00034 mg/L

0.00034 mg/L

0.021 mg/L

0.13 mg/L

0.0011 mg/L

0.00040 mg/L

0.00035 mg/L

0.0011 mg/L

0.0020 mg/L

0.00071 mg/L

0.000085 mg/L

Analyte

Antimony

Arsenic

Barium

Boron

Beryllium

Cadmium

Calcium

Cobalt

Lead

Lithium

Molybdenum

Selenium

Thallium

Chromium

Client Sample ID: EB-02 Date Collected: 03/01/19 11:05 Date Received: 03/02/19 09:30

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

Result Qualifier

0.0010 U

0.00046 U

0.00049 U

0.00034 U

0.00034 U

0.0011 U

0.00040 U

0.00035 U

0.0011 U

0.0020 U

0.00071 U

0.000085 U

0.021 U

0.13 U

Analyzed

Lab Sample ID: 400-166764-8 Matrix: Water

03/13/19 08:16 03/13/19 20:50

03/13/19 08:16 03/13/19 20:50

03/13/19 08:16 03/13/19 20:50

03/13/19 08:16 03/13/19 20:50

03/13/19 08:16 03/13/19 20:50

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03/13/19 08:16 03/13/19 20:50

03/13/19 08:16 03/13/19 20:50

03/13/19 08:16 03/13/19 20:50

03/13/19 08:16 03/13/19 20:50

Prepared

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Method: 7470A - Mercury (C	VAA)								
Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000070	U	0.00020	0.000070	mg/L		03/12/19 09:30	03/18/19 15:01	1
General Chemistry									
Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	3.4	U	5.0	3.4	mg/L			03/05/19 13:58	1
Chloride	1.4	U	2.0	1.4	mg/L			03/18/19 10:20	1
Fluoride	0.032	U	0.10	0.032	mg/L			03/19/19 10:19	1
Sulfate	1.4	U	5.0	1.4	mg/L			03/18/19 15:16	1

Client: Gulf Power Company Project/Site: CCR Plant Crist

Client Sample ID: DUP-05 Date Collected: 03/05/19 08:30 Date Received: 03/06/19 16:35

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

Job ID: 400-166764-1 SDG: Gypsum Storage Area

Lab Sample ID: 400-166764-9 Matrix: Water

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		03/13/19 08:16	03/13/19 20:54	5
Arsenic	0.00046	U	0.0013	0.00046	mg/L		03/13/19 08:16	03/13/19 20:54	5
Barium	0.036		0.0025	0.00049	mg/L		03/13/19 08:16	03/13/19 20:54	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		03/13/19 08:16	03/13/19 20:54	5
Cadmium	0.0024	1	0.0025	0.00034	mg/L		03/13/19 08:16	03/13/19 20:54	5
Calcium	43		0.25	0.13	mg/L		03/13/19 08:16	03/13/19 20:54	5
Chromium	0.0021	I	0.0025	0.0011	mg/L		03/13/19 08:16	03/13/19 20:54	5
Cobalt	0.0018	1	0.0025	0.00040	mg/L		03/13/19 08:16	03/13/19 20:54	5
Lead 0	0.00041	1	0.0013	0.00035	mg/L		03/13/19 08:16	03/13/19 20:54	5
Lithium	0.0039	1	0.0050	0.0011	mg/L		03/13/19 08:16	03/13/19 20:54	5
Molybdenum	0.0020	U	0.015	0.0020	mg/L		03/13/19 08:16	03/13/19 20:54	5
Selenium	0.0012	1	0.0013	0.00071	mg/L		03/13/19 08:16	03/13/19 20:54	5
Thallium C	0.00017	Ι	0.00050	0.000085	mg/L		03/13/19 08:16	03/13/19 20:54	5
Method: 6020 - Metals (ICP/MS) - Te Analyte Boron		Qualifier	PQL 0.25	MDL 0.11	Unit mg/L	<u>D</u>	Prepared 03/13/19 08:16	Analyzed 03/14/19 18:38	Dil Fac 25
Method: 7470A - Mercury (CVAA)									
Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0031		0.00020	0.000070			03/12/19 09:30	03/18/19 15:03	1
General Chemistry									
Analyte	Docult	Qualifier	PQL	МП	Unit	D	Prepared	Analyzed	Dil Fac
-	Result	Quaimer	FQL		Unit				Diriuo
Total Dissolved Solids	290		5.0	3.4	mg/L			03/08/19 09:19	
Total Dissolved Solids Chloride				3.4	mg/L			•	1
	290		5.0	3.4	mg/L mg/L			03/08/19 09:19	1
Chloride	290 73		5.0 4.0	3.4 2.8 0.032	mg/L mg/L	<u>_</u>		03/08/19 09:19 03/18/19 10:46	1 2 1
Chloride Fluoride Sulfate	290 73 0.65 86		5.0 4.0 0.10	3.4 2.8 0.032	mg/L mg/L mg/L			03/08/19 09:19 03/18/19 10:46 03/19/19 10:41	1 2 1
Chloride Fluoride	290 73 0.65 86 npling	Qualifier	5.0 4.0 0.10	3.4 2.8 0.032	mg/L mg/L mg/L mg/L	 	Prepared	03/08/19 09:19 03/18/19 10:46 03/19/19 10:41	1 2 1 5 Dil Fac

PQL

0.0025

MDL Unit

0.0010 mg/L

D

Prepared

Client: Gulf Power Company Project/Site: CCR Plant Crist

Analyte

Antimony

Client Sample ID: MW-201 Date Collected: 03/05/19 09:30 Date Received: 03/06/19 16:35

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

Result Qualifier

0.0010 U

Job ID: 400-166764-1 SDG: Gypsum Storage Area

Analyzed

Lab Sample ID: 400-166764-10 **Matrix: Water**

03/13/19 08:16 03/13/19 20:57

9 20:57	5	-
9 20:57	5	2
9 20:57	5	0
9 20:57	5	0
9 20:57	5	3
9 20:57	5	
9 20:57	5	
9 20:57	5	
9 20:57	5	
yzed	Dil Fac	
9 18:42	25	13
yzed	Dil Fac	

Dil Fac

, analise inj	0.0010	•	0.0010						
Arsenic	0.00046	U	0.0013	0.00046	mg/L		03/13/19 08:16	03/13/19 20:57	5
Barium	0.035		0.0025	0.00049	mg/L		03/13/19 08:16	03/13/19 20:57	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		03/13/19 08:16	03/13/19 20:57	5
Cadmium	0.0023	1	0.0025	0.00034	mg/L		03/13/19 08:16	03/13/19 20:57	5
Calcium	43		0.25	0.13	mg/L		03/13/19 08:16	03/13/19 20:57	5
Chromium	0.0011	U	0.0025	0.0011	mg/L		03/13/19 08:16	03/13/19 20:57	5
Cobalt	0.0017	1	0.0025	0.00040	mg/L		03/13/19 08:16	03/13/19 20:57	5
Lead	0.00037	1	0.0013	0.00035	mg/L		03/13/19 08:16	03/13/19 20:57	5
Lithium	0.0043	I	0.0050	0.0011	mg/L		03/13/19 08:16	03/13/19 20:57	5
Molybdenum	0.0020	U	0.015	0.0020	mg/L		03/13/19 08:16	03/13/19 20:57	5
Selenium	0.0012	1	0.0013	0.00071	mg/L		03/13/19 08:16	03/13/19 20:57	5
Thallium	0.00016	1	0.00050	0.000085	mg/L		03/13/19 08:16	03/13/19 20:57	5
Method: 6020 - Metals (ICP	P/MS) - Total Re	ecoverable	e - DL						
Analyte Boron	Result	Qualifier	• - DL PQL 0.25	MDL 0.11	Unit mg/L	D	Prepared 03/13/19 08:16	Analyzed 03/14/19 18:42	Dil Fac 25
Analyte Boron Method: 7470A - Mercury (CVAA)	Qualifier	PQL 0.25	0.11	mg/L	=	03/13/19 08:16	03/14/19 18:42	25
Analyte Boron Method: 7470A - Mercury (Analyte	CVAA) Result		PQL 0.25	0.11 MDL	mg/L Unit	D	03/13/19 08:16 Prepared	03/14/19 18:42 Analyzed	25 Dil Fac
Analyte Boron Method: 7470A - Mercury (CVAA)	Qualifier	PQL 0.25	0.11	mg/L Unit	=	03/13/19 08:16	03/14/19 18:42 Analyzed	25
Analyte Boron Method: 7470A - Mercury (Analyte Mercury	CVAA) Result	Qualifier	PQL 0.25	0.11 MDL	mg/L Unit	=	03/13/19 08:16 Prepared	03/14/19 18:42 Analyzed	25 Dil Fac
Analyte Boron Method: 7470A - Mercury (Analyte	CVAA) Result 0.0026	Qualifier	PQL 0.25	0.11 MDL	mg/L Unit mg/L	=	03/13/19 08:16 Prepared	03/14/19 18:42 Analyzed	25 Dil Fac
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry	CVAA) Result 0.0026	Qualifier Qualifier	PQL 0.25 PQL 0.00020	0.11 MDL 0.000070 MDL	mg/L Unit mg/L	D	03/13/19 08:16 Prepared 03/12/19 09:41	03/14/19 18:42 Analyzed 03/14/19 14:18	25 Dil Fac
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry Analyte	CVAA) Result 0.0026 Result	Qualifier Qualifier	PQL 0.25 PQL 0.00020 PQL	0.11 MDL 0.000070 MDL 3.4	mg/L Unit mg/L Unit	D	03/13/19 08:16 Prepared 03/12/19 09:41	03/14/19 18:42 Analyzed 03/14/19 14:18 Analyzed	25 Dil Fac 1 Dil Fac
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry Analyte Total Dissolved Solids	CVAA) CVAA) Result 0.0026 Result 300	Qualifier Qualifier	PQL 0.25 PQL 0.00020 PQL 5.0	0.11 MDL 0.000070 MDL 3.4 2.8 0.032	mg/L Unit mg/L Unit mg/L mg/L mg/L	D	03/13/19 08:16 Prepared 03/12/19 09:41	Analyzed 03/14/19 18:42 Analyzed 03/14/19 14:18 Analyzed 03/08/19 09:19	25 Dil Fac 1 Dil Fac
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry Analyte Total Dissolved Solids Chloride	CVAA) CVAA) Result 0.0026 Result 300 75	Qualifier Qualifier	PQL 0.25 PQL 0.00020 PQL 5.0 4.0	0.11 MDL 0.000070 MDL 3.4 2.8 0.032	mg/L Unit mg/L Unit mg/L mg/L	D	03/13/19 08:16 Prepared 03/12/19 09:41	Analyzed 03/14/19 18:42 Analyzed 03/14/19 14:18 Analyzed 03/08/19 09:19 03/08/19 10:46	25 Dil Fac 1 Dil Fac 1 2
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry Analyte Total Dissolved Solids Chloride Fluoride	Result CVAA) Result 0.0026 Result 300 75 0.64	Qualifier Qualifier	PQL 0.25 PQL 0.00020 PQL 5.0 4.0 0.10	0.11 MDL 0.000070 MDL 3.4 2.8 0.032	mg/L Unit mg/L Unit mg/L mg/L mg/L	D	03/13/19 08:16 Prepared 03/12/19 09:41	Analyzed 03/14/19 18:42 Analyzed 03/14/19 14:18 Analyzed 03/08/19 09:19 03/18/19 10:46 03/19/19 10:44	25 Dil Fac 1 Dil Fac 1 2 1
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry Analyte Total Dissolved Solids Chloride Fluoride Sulfate	Result CVAA) Result 0.0026 Result 300 75 0.64 86 Field Sampling	Qualifier Qualifier	PQL 0.25 PQL 0.00020 PQL 5.0 4.0 0.10	0.11 MDL 0.000070 MDL 3.4 2.8 0.032	mg/L Unit mg/L Mg/L mg/L mg/L mg/L	D	03/13/19 08:16 Prepared 03/12/19 09:41	Analyzed 03/14/19 18:42 Analyzed 03/14/19 14:18 Analyzed 03/08/19 09:19 03/18/19 10:46 03/19/19 10:44	25 Dil Fac 1 Dil Fac 1 2 1
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry Analyte Total Dissolved Solids Chloride Fluoride Sulfate Method: Field Sampling - F	Result CVAA) Result 0.0026 Result 300 75 0.64 86 Field Sampling	Qualifier Qualifier Qualifier	PQL 0.25 PQL 0.00020 PQL 5.0 4.0 0.10 25	0.11 MDL 0.000070 MDL 3.4 2.8 0.032 7.0	mg/L Unit mg/L Mg/L mg/L mg/L mg/L	D	03/13/19 08:16 Prepared 03/12/19 09:41 Prepared	O3/14/19 18:42 Analyzed 03/14/19 14:18 Analyzed 03/14/19 14:18 03/08/19 09:19 03/18/19 10:46 03/19/19 10:44 03/18/19 16:08	25 Dil Fac 1 Dil Fac 1 2 1 5

Client: Gulf Power Company Project/Site: CCR Plant Crist

Client Sample ID: MW-202 Date Collected: 03/05/19 11:20 Date Received: 03/06/19 16:35

Job ID: 400-166764-1 SDG: Gypsum Storage Area

Lab Sample ID: 400-166764-11 Matrix: Water

Matrix: Water

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		03/13/19 08:16	03/13/19 22:02	5
Arsenic	0.00046	U	0.0013	0.00046	mg/L		03/13/19 08:16	03/13/19 22:02	5
Barium	0.029		0.0025	0.00049	mg/L		03/13/19 08:16	03/13/19 22:02	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		03/13/19 08:16	03/13/19 22:02	5
Boron	0.098		0.050	0.021	mg/L		03/13/19 08:16	03/13/19 22:02	5
Cadmium	0.00034	U	0.0025	0.00034	mg/L		03/13/19 08:16	03/13/19 22:02	5
Calcium	5.0		0.25	0.13	mg/L		03/13/19 08:16	03/13/19 22:02	5
Chromium	0.0011	U	0.0025	0.0011	mg/L		03/13/19 08:16	03/13/19 22:02	5
Cobalt	0.00077	1	0.0025	0.00040	mg/L		03/13/19 08:16	03/13/19 22:02	5
Lead	0.00035	U	0.0013	0.00035	mg/L		03/13/19 08:16	03/13/19 22:02	5
Lithium	0.0011	U	0.0050	0.0011	mg/L		03/13/19 08:16	03/13/19 22:02	5
Molybdenum	0.0020	U	0.015	0.0020	mg/L		03/13/19 08:16	03/13/19 22:02	5
Selenium	0.00071	U	0.0013	0.00071	mg/L		03/13/19 08:16	03/13/19 22:02	5
Thallium	0.000085	U	0.00050	0.000085	mg/L		03/13/19 08:16	03/13/19 22:02	5
Method: 7470A - Mercury									
Analyte	Result	Qualifier	PQL	MDL		D	Prepared	Analyzed	Dil Fac
Mercury	0.000078	I	0.00020	0.000070	mg/L		03/12/19 09:41	03/14/19 14:19	1
General Chemistry									
Analyte		Qualifier	PQL	MDL		D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	68		5.0		mg/L			03/08/19 09:19	1
Chloride	15		2.0		mg/L			03/18/19 10:20	1
Fluoride	0.032	U	0.10	0.032	mg/L			03/19/19 10:47	1
Sulfate	6.1		5.0	1.4	mg/L			03/18/19 15:17	1
Method: Field Sampling -	Field Sampling								
Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
-					SU		-	03/05/19 11:20	

Qualifiers

Metals Qualifier	Qualifier Description	
Ι	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.	
J3	Estimated value; value may not be accurate. Spike recovery or RPD outside of criteria.	5
L	Off-scale high. Actual value is known to be greater than the value given.	C
U	Indicates that the compound was analyzed for but not detected.	
General C	hemistry	
Qualifier	Qualifier Description	
Ι	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.	
J3	Estimated value; value may not be accurate. Spike recovery or RPD outside of criteria.	9
U	Indicates that the compound was analyzed for but not detected.	C

Glossary

Giussaiy		
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)	

Factor

5

Run

DL

Batch

Number

433043

Prepared

433286 03/13/19 20:07 DRE

433043 03/13/19 08:16 DRE

or Analyzed

03/13/19 08:16 DRE

Analyst

Lab

TAL PEN

Prep Type

Total Recoverable

Total Recoverable

Total Recoverable

Client Sample ID: MW-200 Date Collected: 02/28/19 10:05 Date Received: 03/02/19 09:30

Batch

Туре

Prep

Prep

Analysis

Batch

3005A

6020

3005A

Method

Lab Sample ID: 400-166764-1 Matrix: Water

5

Lab Sample ID: 400-166764-2

Matrix: Water

Total Recoverable	Analysis	6020	DL	50	433449	03/14/19 18:26	DRE
Total/NA	Prep	7470A			432929	03/12/19 09:30	JAP
Total/NA	Analysis	7470A		1	433735	03/18/19 14:48	JAP
Total/NA	Analysis	SM 2540C		1	432107	03/05/19 09:01	CLB
Total/NA	Analysis	SM 4500 CI- E		20	433142	03/13/19 12:34	RRC
Total/NA	Analysis	SM 4500 F C		1	433548	03/15/19 17:17	BAB
Total/NA	Analysis	SM 4500 SO4 E		10	433223	03/13/19 15:43	RRC
Total/NA	Analysis	Field Sampling		1	435646	02/28/19 10:05	AW

Client Sample ID: MW-203 Date Collected: 03/01/19 10:35 Date Received: 03/02/19 09:30

	Batch	Batch		Dilution	Batch	Prepared		
Prep Туре	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			433043	03/13/19 08:16	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	433286	03/13/19 20:10	DRE	TAL PEN
Total/NA	Prep	7470A			432929	03/12/19 09:30	JAP	TAL PEN
Total/NA	Analysis	7470A		1	433735	03/18/19 14:50	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	432185	03/05/19 13:58	CLB	TAL PEN
Total/NA	Analysis	SM 4500 CI- E		1	433709	03/18/19 10:20	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	433828	03/19/19 10:12	RRC	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		5	433751	03/18/19 16:04	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	435646	03/01/19 10:35	AW	TAL PEN

Client Sample ID: MW-204 Date Collected: 02/28/19 13:55 Date Received: 03/02/19 09:30

Lab Sample ID: 400-166764-3

Matrix: Water

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			433043	03/13/19 08:16	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	433286	03/13/19 20:14	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		433043	03/13/19 08:16	DRE	TAL PEN
Total Recoverable	Analysis	6020	DL	50	433449	03/14/19 18:31	DRE	TAL PEN
Total/NA	Prep	7470A			432929	03/12/19 09:30	JAP	TAL PEN
Total/NA	Analysis	7470A		1	433735	03/18/19 14:52	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	432185	03/05/19 13:58	CLB	TAL PEN
Total/NA	Analysis	SM 4500 CI- E		2	433709	03/18/19 10:46	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	433548	03/15/19 17:21	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		20	433223	03/13/19 15:47	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	435646	02/28/19 13:55	AW	TAL PEN

Factor

5

1

1

1

1

5

1

Run

Batch

Number

433043

432929

Prepared

433286 03/13/19 20:18

433735 03/18/19 14:54 JAP

432171 03/05/19 12:46 CLB

433709 03/18/19 10:10 RRC

433548 03/15/19 17:31 BAB

433223 03/13/19 15:47 RRC

435646 02/28/19 09:05 AW

or Analyzed

03/13/19 08:16 DRE

03/12/19 09:30 JAP

Analyst

DRE

Lab

Lab

TAL PEN

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total Recoverable

Total Recoverable

Client Sample ID: MW-205 Date Collected: 02/28/19 09:05 Date Received: 03/02/19 09:30

Batch

Туре

Prep

Prep

Analysis

Analysis

Analysis

Analysis

Analysis

Analysis

Analysis

Client Sample ID: MW-206

Date Collected: 02/28/19 10:55

Date Received: 03/02/19 09:30

Batch

3005A

6020

7470A

7470A

SM 2540C

SM 4500 CI- E

SM 4500 F C

SM 4500 SO4 E

Field Sampling

Method

Lab Sample ID: 400-166764-4 Matrix: Water

Sampla	יחו	400-166764-5
Sample	ю.	400-100/04-5
-		

Matrix: Water

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			433043	03/13/19 08:16	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	433286	03/13/19 20:21	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		433043	03/13/19 08:16	DRE	TAL PEN
Total Recoverable	Analysis	6020	DL	100	433449	03/14/19 18:34	DRE	TAL PEN
Total/NA	Prep	7470A			432929	03/12/19 09:30	JAP	TAL PEN
Total/NA	Analysis	7470A		1	433735	03/18/19 14:56	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	432185	03/05/19 13:58	CLB	TAL PEN
Total/NA	Analysis	SM 4500 CI- E		20	433709	03/18/19 10:46	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	433548	03/15/19 17:43	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		20	433223	03/13/19 15:47	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	435646	02/28/19 10:55	AW	TAL PEN

Client Sample ID: DUP-02 Date Collected: 02/28/19 08:05 Date Received: 03/02/19 09:30

Lab Sample ID: 400-166764-6

Matrix: Water

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			433043	03/13/19 08:16	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	433286	03/13/19 20:25	DRE	TAL PEN
Total/NA	Prep	7470A			432929	03/12/19 09:30	JAP	TAL PEN
Total/NA	Analysis	7470A		1	433735	03/18/19 14:57	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	432171	03/05/19 12:46	CLB	TAL PEN
Total/NA	Analysis	SM 4500 CI- E		1	433709	03/18/19 10:13	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	433548	03/15/19 17:39	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		5	433223	03/13/19 15:47	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	435646	02/28/19 08:05	AW	TAL PEN

Factor

5

1

1

1

1

1

Run

Batch

Number

433043

Prepared

or Analyzed

433286 03/13/19 20:46 DRE

432929 03/12/19 09:30 JAP

433735 03/18/19 14:59 JAP

432185 03/05/19 13:58 CLB

433709 03/18/19 10:20 RRC

433828 03/19/19 10:16 RRC

433751 03/18/19 15:12 RRC

03/13/19 08:16 DRE

Analyst

Lab TAL PEN

Client Sample ID: FB-02 Date Collected: 03/01/19 10:37 Date Received: 03/02/19 09:30

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total Recoverable

Total Recoverable

Batch

Туре

Prep

Prep

Analysis

Analysis

Analysis

Analysis

Analysis

Analysis

Batch

3005A

6020

7470A

7470A

SM 2540C

SM 4500 CI- E

SM 4500 F C

SM 4500 SO4 E

Method

Lab Sample ID: 400-166764-7 Matrix: Water

Lab Sample ID: 400-166764-8 Matrix: Water

Matrix: Water

Client Sample ID: EB-02 Date Collected: 03/01/19 11:05 Date Received: 03/02/19 09:30

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			433043	03/13/19 08:16	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	433286	03/13/19 20:50	DRE	TAL PEN
Total/NA	Prep	7470A			432929	03/12/19 09:30	JAP	TAL PEN
Total/NA	Analysis	7470A		1	433735	03/18/19 15:01	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	432185	03/05/19 13:58	CLB	TAL PEN
Total/NA	Analysis	SM 4500 CI- E		1	433709	03/18/19 10:20	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	433828	03/19/19 10:19	RRC	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	433751	03/18/19 15:16	RRC	TAL PEN

Client Sample ID: DUP-05 Date Collected: 03/05/19 08:30 Date Received: 03/06/19 16:35

Lab Sample ID: 400-166764-9 Matrix: Water

Γ	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			433043	03/13/19 08:16	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	433286	03/13/19 20:54	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		433043	03/13/19 08:16	DRE	TAL PEN
Total Recoverable	Analysis	6020	DL	25	433449	03/14/19 18:38	DRE	TAL PEN
Total/NA	Prep	7470A			432929	03/12/19 09:30	JAP	TAL PEN
Total/NA	Analysis	7470A		1	433735	03/18/19 15:03	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	432606	03/08/19 09:19	CLB	TAL PEN
Total/NA	Analysis	SM 4500 CI- E		2	433709	03/18/19 10:46	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	433828	03/19/19 10:41	RRC	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		5	433751	03/18/19 16:08	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	435646	03/05/19 08:30	AW	TAL PEN

Factor

5

25

1

Run

DL

DL

Batch

Number

433043

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total Recoverable

Total Recoverable

Total Recoverable

Total Recoverable

Client Sample ID: MW-201 Date Collected: 03/05/19 09:30 Date Received: 03/06/19 16:35

Batch

Туре

Prep

Prep

Prep

Analysis

Analysis

Analysis

Analysis

Analysis

Analysis

Analysis

Analysis

Batch

3005A

6020

3005A

6020

7470A

7470A

SM 2540C

SM 4500 CI- E

SM 4500 F C

SM 4500 SO4 E

Field Sampling

Method

Lab Sample ID: 400-166764-10 Matrix: Water

1 432606 03/08/19 09:19 CLB TAL PEN 2 433709 03/18/19 10:46 RRC TAL PEN 1 433828 03/19/19 10:44 RRC TAL PEN 5 433751 03/18/19 16:08 RRC TAL PEN 1 435646 03/05/19 09:30 AW TAL PEN

Prepared

or Analyzed

03/13/19 08:16

433043 03/13/19 08:16 DRE

433449 03/14/19 18:42 DRE

432932 03/12/19 09:41 JAP

433378 03/14/19 14:18 JAP

433286 03/13/19 20:57

Analyst

DRE

DRE

Lab TAL PEN

TAL PEN

TAL PEN

TAL PEN

TAL PEN

TAL PEN

Client Sample ID: MW-202 Date Collected: 03/05/19 11:20

Date Received: 03/06/19 16:35

Lab Sample ID: 400-166764-11 Matrix: Water

ater	

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			433042	03/13/19 08:16	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	433286	03/13/19 22:02	DRE	TAL PEN
Total/NA	Prep	7470A			432932	03/12/19 09:41	JAP	TAL PEN
Total/NA	Analysis	7470A		1	433378	03/14/19 14:19	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	432606	03/08/19 09:19	CLB	TAL PEN
Total/NA	Analysis	SM 4500 CI- E		1	433709	03/18/19 10:20	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	433828	03/19/19 10:47	RRC	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	433751	03/18/19 15:17	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	435646	03/05/19 11:20	AW	TAL PEN

Laboratory References:

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

QC Association Summary

10

Metals

Prep Batch: 432929

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166764-1	MW-200	Total/NA	Water	7470A	
400-166764-2	MW-203	Total/NA	Water	7470A	
400-166764-3	MW-204	Total/NA	Water	7470A	
400-166764-4	MW-205	Total/NA	Water	7470A	
400-166764-5	MW-206	Total/NA	Water	7470A	
400-166764-6	DUP-02	Total/NA	Water	7470A	
400-166764-7	FB-02	Total/NA	Water	7470A	
400-166764-8	EB-02	Total/NA	Water	7470A	
400-166764-9	DUP-05	Total/NA	Water	7470A	
MB 400-432929/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-432929/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-166763-C-1-B MS	Matrix Spike	Total/NA	Water	7470A	
400-166763-C-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

Prep Batch: 432932

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch	
400-166764-10	MW-201	Total/NA	Water	7470A		
400-166764-11	MW-202	Total/NA	Water	7470A		
MB 400-432932/14-A	Method Blank	Total/NA	Water	7470A		
LCS 400-432932/15-A	Lab Control Sample	Total/NA	Water	7470A		
400-167030-N-9-B MS	Matrix Spike	Total/NA	Water	7470A		
400-167030-N-9-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A		

Prep Batch: 433042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166764-11	MW-202	Total Recoverable	Water	3005A	
MB 400-433042/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-433042/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-167048-G-3-B MS ^5	Matrix Spike	Total Recoverable	Water	3005A	
400-167048-G-3-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

Prep Batch: 433043

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
400-166764-1	MW-200	Total Recoverable	Water	3005A	
400-166764-1 - DL	MW-200	Total Recoverable	Water	3005A	
400-166764-2	MW-203	Total Recoverable	Water	3005A	
400-166764-3	MW-204	Total Recoverable	Water	3005A	
400-166764-3 - DL	MW-204	Total Recoverable	Water	3005A	
400-166764-4	MW-205	Total Recoverable	Water	3005A	
400-166764-5 - DL	MW-206	Total Recoverable	Water	3005A	
400-166764-5	MW-206	Total Recoverable	Water	3005A	
400-166764-6	DUP-02	Total Recoverable	Water	3005A	
400-166764-7	FB-02	Total Recoverable	Water	3005A	
400-166764-8	EB-02	Total Recoverable	Water	3005A	
400-166764-9 - DL	DUP-05	Total Recoverable	Water	3005A	
400-166764-9	DUP-05	Total Recoverable	Water	3005A	
400-166764-10	MW-201	Total Recoverable	Water	3005A	
400-166764-10 - DL	MW-201	Total Recoverable	Water	3005A	
MB 400-433043/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-433043/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-166763-C-2-C MS ^5	Matrix Spike	Total Recoverable	Water	3005A	

QC Association Summary

Job ID: 400-166764-1 SDG: Gypsum Storage Area

10

Metals (Continued)

Prep Batch: 433043 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166763-C-2-D MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	3005A	
nalysis Batch: 433286	5				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166764-1	MW-200	Total Recoverable	Water	6020	433043
400-166764-2	MW-203	Total Recoverable	Water	6020	433043
400-166764-3	MW-204	Total Recoverable	Water	6020	433043
400-166764-4	MW-205	Total Recoverable	Water	6020	43304
400-166764-5	MW-206	Total Recoverable	Water	6020	43304
400-166764-6	DUP-02	Total Recoverable	Water	6020	43304
400-166764-7	FB-02	Total Recoverable	Water	6020	43304
400-166764-8	EB-02	Total Recoverable	Water	6020	43304
400-166764-9	DUP-05	Total Recoverable	Water	6020	43304
400-166764-10	MW-201	Total Recoverable	Water	6020	43304
400-166764-11	MW-202	Total Recoverable	Water	6020	43304
MB 400-433042/1-A ^5	Method Blank	Total Recoverable	Water	6020	43304
MB 400-433043/1-A ^5	Method Blank	Total Recoverable	Water	6020	43304
LCS 400-433042/2-A	Lab Control Sample	Total Recoverable	Water	6020	43304
LCS 400-433043/2-A	Lab Control Sample	Total Recoverable	Water	6020	43304
400-166763-C-2-C MS ^5	Matrix Spike	Total Recoverable	Water	6020	43304
400-166763-C-2-D MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	6020	43304
400-167048-G-3-B MS ^5	Matrix Spike	Total Recoverable	Water	6020	43304
400-167048-G-3-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	6020	43304

Analysis Batch: 433378

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166764-10	MW-201	Total/NA	Water	7470A	432932
400-166764-11	MW-202	Total/NA	Water	7470A	432932
MB 400-432932/14-A	Method Blank	Total/NA	Water	7470A	432932
LCS 400-432932/15-A	Lab Control Sample	Total/NA	Water	7470A	432932
400-167030-N-9-B MS	Matrix Spike	Total/NA	Water	7470A	432932
400-167030-N-9-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	432932

Analysis Batch: 433449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166764-1 - DL	MW-200	Total Recoverable	Water	6020	433043
400-166764-3 - DL	MW-204	Total Recoverable	Water	6020	433043
400-166764-5 - DL	MW-206	Total Recoverable	Water	6020	433043
400-166764-9 - DL	DUP-05	Total Recoverable	Water	6020	433043
400-166764-10 - DL	MW-201	Total Recoverable	Water	6020	433043

Analysis Batch: 433735

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
400-166764-1	MW-200	Total/NA	Water	7470A	432929
400-166764-2	MW-203	Total/NA	Water	7470A	432929
400-166764-3	MW-204	Total/NA	Water	7470A	432929
400-166764-4	MW-205	Total/NA	Water	7470A	432929
400-166764-5	MW-206	Total/NA	Water	7470A	432929
400-166764-6	DUP-02	Total/NA	Water	7470A	432929
400-166764-7	FB-02	Total/NA	Water	7470A	432929
400-166764-8	EB-02	Total/NA	Water	7470A	432929

QC Association Summary

Metals (Continued)

Analysis Batch: 433735 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166764-9	DUP-05	Total/NA	Water	7470A	432929
MB 400-432929/14-A	Method Blank	Total/NA	Water	7470A	432929
LCS 400-432929/15-A	Lab Control Sample	Total/NA	Water	7470A	432929
400-166763-C-1-B MS	Matrix Spike	Total/NA	Water	7470A	432929
400-166763-C-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	432929

General Chemistry

Analysis Batch: 432107

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166764-1	MW-200	Total/NA	Water	SM 2540C	
MB 400-432107/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-432107/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-166713-A-2 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 432171

 Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method Prep Batch	
400-166764-4 400-166764-6	MW-205 DUP-02	Total/NA Total/NA	Water Water	SM 2540C SM 2540C	4
400-166764-6 MB 400-432171/1	Method Blank	Total/NA Total/NA	Water	SM 2540C	
LCS 400-432171/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-166763-B-4 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 432185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166764-2	MW-203	Total/NA	Water	SM 2540C	
400-166764-3	MW-204	Total/NA	Water	SM 2540C	
400-166764-5	MW-206	Total/NA	Water	SM 2540C	
400-166764-7	FB-02	Total/NA	Water	SM 2540C	
400-166764-8	EB-02	Total/NA	Water	SM 2540C	
MB 400-432185/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-432185/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-166764-2 DU	MW-203	Total/NA	Water	SM 2540C	

Analysis Batch: 432606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166764-9	DUP-05	Total/NA	Water	SM 2540C	
400-166764-10	MW-201	Total/NA	Water	SM 2540C	
400-166764-11	MW-202	Total/NA	Water	SM 2540C	
MB 400-432606/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-432606/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-166764-9 DU	DUP-05	Total/NA	Water	SM 2540C	

Analysis Batch: 433142

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166764-1	MW-200	Total/NA	Water	SM 4500 CI- E	
MB 400-433142/6	Method Blank	Total/NA	Water	SM 4500 CI- E	
LCS 400-433142/7	Lab Control Sample	Total/NA	Water	SM 4500 CI- E	
MRL 400-433142/3	Lab Control Sample	Total/NA	Water	SM 4500 CI- E	
400-166648-A-5 MS	Matrix Spike	Total/NA	Water	SM 4500 CI- E	
400-166648-A-5 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 CI- E	

Eurofins TestAmerica, Pensacola

SDG: Gypsum Storage Area

Job ID: 400-166764-1

General Chemistry

Analysis Batch: 433223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166764-1	MW-200	Total/NA	Water	SM 4500 SO4 E	
400-166764-3	MW-204	Total/NA	Water	SM 4500 SO4 E	
400-166764-4	MW-205	Total/NA	Water	SM 4500 SO4 E	
400-166764-5	MW-206	Total/NA	Water	SM 4500 SO4 E	
400-166764-6	DUP-02	Total/NA	Water	SM 4500 SO4 E	
MB 400-433223/6	Method Blank	Total/NA	Water	SM 4500 SO4 E	
LCS 400-433223/7	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MRL 400-433223/3	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
400-166648-A-5 MS	Matrix Spike	Total/NA	Water	SM 4500 SO4 E	
400-166648-A-5 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 SO4 E	
400-166857-D-1 MS	Matrix Spike	Total/NA	Water	SM 4500 SO4 E	
400-166857-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 SO4 E	

Analysis Batch: 433548

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166764-1	MW-200	Total/NA	Water	SM 4500 F C	
400-166764-3	MW-204	Total/NA	Water	SM 4500 F C	
400-166764-4	MW-205	Total/NA	Water	SM 4500 F C	
400-166764-5	MW-206	Total/NA	Water	SM 4500 F C	
400-166764-6	DUP-02	Total/NA	Water	SM 4500 F C	
MB 400-433548/3	Method Blank	Total/NA	Water	SM 4500 F C	
LCS 400-433548/4	Lab Control Sample	Total/NA	Water	SM 4500 F C	
660-93065-C-1 MS	Matrix Spike	Total/NA	Water	SM 4500 F C	
660-93065-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 F C	
400-166764-4 DU	MW-205	Total/NA	Water	SM 4500 F C	

Analysis Batch: 433709

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166764-2	MW-203	Total/NA	Water	SM 4500 CI- E	
400-166764-3	MW-204	Total/NA	Water	SM 4500 CI- E	
400-166764-4	MW-205	Total/NA	Water	SM 4500 CI- E	
400-166764-5	MW-206	Total/NA	Water	SM 4500 CI- E	
400-166764-6	DUP-02	Total/NA	Water	SM 4500 CI- E	
400-166764-7	FB-02	Total/NA	Water	SM 4500 CI- E	
400-166764-8	EB-02	Total/NA	Water	SM 4500 CI- E	
400-166764-9	DUP-05	Total/NA	Water	SM 4500 CI- E	
400-166764-10	MW-201	Total/NA	Water	SM 4500 CI- E	
400-166764-11	MW-202	Total/NA	Water	SM 4500 CI- E	
MB 400-433709/5	Method Blank	Total/NA	Water	SM 4500 CI- E	
LCS 400-433709/6	Lab Control Sample	Total/NA	Water	SM 4500 CI- E	
MRL 400-433709/51	Lab Control Sample	Total/NA	Water	SM 4500 CI- E	
400-166764-4 MS	MW-205	Total/NA	Water	SM 4500 CI- E	
400-166764-4 MSD	MW-205	Total/NA	Water	SM 4500 CI- E	
400-166764-10 MS	MW-201	Total/NA	Water	SM 4500 CI- E	
400-166764-10 MSD	MW-201	Total/NA	Water	SM 4500 CI- E	

Analysis Batch: 433751

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166764-2	MW-203	Total/NA	Water	SM 4500 SO4 E	
400-166764-7	FB-02	Total/NA	Water	SM 4500 SO4 E	
400-166764-8	EB-02	Total/NA	Water	SM 4500 SO4 E	

Job ID: 400-166764-1

10

SDG: Gypsum Storage Area

General Chemistry (Continued)

Analysis Batch: 433751 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method Pre	p Batch
400-166764-9	DUP-05	Total/NA	Water	SM 4500 SO4 E	
400-166764-10	MW-201	Total/NA	Water	SM 4500 SO4 E	
400-166764-11	MW-202	Total/NA	Water	SM 4500 SO4 E	
MB 400-433751/6	Method Blank	Total/NA	Water	SM 4500 SO4 E	
LCS 400-433751/7	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MRL 400-433751/3	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
400-166763-B-3 MS	Matrix Spike	Total/NA	Water	SM 4500 SO4 E	
400-166763-B-3 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 SO4 E	
400-166763-B-7 MS	Matrix Spike	Total/NA	Water	SM 4500 SO4 E	
400-166763-B-7 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 SO4 E	

Analysis Batch: 433828

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch 📕
400-166764-2	MW-203	Total/NA	Water	SM 4500 F C	
400-166764-7	FB-02	Total/NA	Water	SM 4500 F C	
400-166764-8	EB-02	Total/NA	Water	SM 4500 F C	
400-166764-9	DUP-05	Total/NA	Water	SM 4500 F C	
400-166764-10	MW-201	Total/NA	Water	SM 4500 F C	
400-166764-11	MW-202	Total/NA	Water	SM 4500 F C	
MB 400-433828/3	Method Blank	Total/NA	Water	SM 4500 F C	
LCS 400-433828/4	Lab Control Sample	Total/NA	Water	SM 4500 F C	
240-109006-C-2 MS	Matrix Spike	Total/NA	Water	SM 4500 F C	
240-109006-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 F C	
400-166763-B-1 DU	Duplicate	Total/NA	Water	SM 4500 F C	

Field Service / Mobile Lab

Analysis Batch: 435646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166764-1	MW-200	Total/NA	Water	Field Sampling	
400-166764-2	MW-203	Total/NA	Water	Field Sampling	
400-166764-3	MW-204	Total/NA	Water	Field Sampling	
400-166764-4	MW-205	Total/NA	Water	Field Sampling	
400-166764-5	MW-206	Total/NA	Water	Field Sampling	
400-166764-6	DUP-02	Total/NA	Water	Field Sampling	
400-166764-9	DUP-05	Total/NA	Water	Field Sampling	
400-166764-10	MW-201	Total/NA	Water	Field Sampling	
400-166764-11	MW-202	Total/NA	Water	Field Sampling	

Job ID: 400-166764-1

SDG: Gypsum Storage Area

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 400-433042/1-A ^5 Matrix: Water Analysis Batch: 433286

	MB	MB							
Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		03/13/19 08:16	03/13/19 21:01	5
Arsenic	0.00046	U	0.0013	0.00046	mg/L		03/13/19 08:16	03/13/19 21:01	5
Barium	0.00049	U	0.0025	0.00049	mg/L		03/13/19 08:16	03/13/19 21:01	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		03/13/19 08:16	03/13/19 21:01	5
Boron	0.021	U	0.050	0.021	mg/L		03/13/19 08:16	03/13/19 21:01	5
Cadmium	0.00034	U	0.0025	0.00034	mg/L		03/13/19 08:16	03/13/19 21:01	5
Calcium	0.13	U	0.25	0.13	mg/L		03/13/19 08:16	03/13/19 21:01	5
Chromium	0.0011	U	0.0025	0.0011	mg/L		03/13/19 08:16	03/13/19 21:01	5
Cobalt	0.00040	U	0.0025	0.00040	mg/L		03/13/19 08:16	03/13/19 21:01	5
Lead	0.00035	U	0.0013	0.00035	mg/L		03/13/19 08:16	03/13/19 21:01	5
Lithium	0.0011	U	0.0050	0.0011	mg/L		03/13/19 08:16	03/13/19 21:01	5
Molybdenum	0.0020	U	0.015	0.0020	mg/L		03/13/19 08:16	03/13/19 21:01	5
Selenium	0.00071	U	0.0013	0.00071	mg/L		03/13/19 08:16	03/13/19 21:01	5
Thallium	0.000085	U	0.00050	0.000085	mg/L		03/13/19 08:16	03/13/19 21:01	5

Lab Sample ID: LCS 400-433042/2-A Matrix: Water Analysis Batch: 433286

	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Antimony	0.0500	0.0477		mg/L		95	80 - 120
Arsenic	0.0500	0.0502		mg/L		100	80 - 120
Barium	0.0500	0.0486		mg/L		97	80 - 120
Beryllium	0.0500	0.0493		mg/L		99	80 - 120
Boron	0.100	0.0929		mg/L		93	80 - 120
Cadmium	0.0500	0.0507		mg/L		101	80 - 120
Calcium	5.00	4.77		mg/L		95	80 - 120
Chromium	0.0500	0.0503		mg/L		101	80 - 120
Cobalt	0.0500	0.0524		mg/L		105	80 - 120
Lead	0.0500	0.0486		mg/L		97	80 - 120
Lithium	0.0500	0.0536		mg/L		107	80 - 120
Molybdenum	0.0500	0.0482		mg/L		96	80 - 120
Selenium	0.0500	0.0479		mg/L		96	80 - 120
Thallium	0.0100	0.00969		mg/L		97	80 - 120

Lab Sample ID: 400-167048-G-3-B MS ^5 Matrix: Water Analysis Batch: 433286

Prep Batch: 433042

Client Sample ID: Method Blank

Prep Type: Total Recoverable Prep Batch: 433042

Job ID: 400-166764-1

SDG: Gypsum Storage Area

Client Sample ID: Lab Control Sample Prep Type: Total Recoverable

Client Sample ID: Matrix Spike

Prep Type: Total Recoverable Prep Batch: 433042

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Antimony	0.0010	U	0.0500	0.0471		mg/L		94	75 - 125	
Arsenic	0.0080		0.0500	0.0596		mg/L		103	75 - 125	
Barium	1.0		0.0500	1.09		mg/L		86	75 - 125	
Beryllium	0.00034	U	0.0500	0.0494		mg/L		99	75 - 125	
Boron	0.021	U	0.100	0.133	J3	mg/L		133	75 - 125	
Cadmium	0.00034	U	0.0500	0.0490		mg/L		98	75 - 125	
Calcium	140	L	5.00	144	L J3	mg/L		152	75 - 125	
Chromium	0.0011	U	0.0500	0.0512		mg/L		102	75 - 125	
Cobalt	0.0092		0.0500	0.0612		mg/L		104	75 - 125	

Job ID: 400-166764-1 SDG: Gypsum Storage Area

Client Sample ID: Matrix Spike

Prep Type: Total Recoverable

Dren Detek, 422042

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

Lab Sample ID: 400-167048-G-3-B MS ^5 Matrix: Water Analysia Databy 422000

Analysis Balch: 433200	Sample	Sample	Spike	MS	MS				%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Lead	0.0012	<u> </u>	0.0500	0.0509		mg/L		99	75 - 125
Lithium	0.0014	Ι	0.0500	0.0534		mg/L		104	75 - 125
Molybdenum	0.0020	U	0.0500	0.0504		mg/L		101	75 - 125
Selenium	0.00071	U	0.0500	0.0490		mg/L		98	75 - 125
Thallium	0.000085	U	0.0100	0.00961		mg/L		96	75 - 125

Lab Sample ID: 400-167048-G-3-C MSD ^5 **Matrix: Water**

Analysis Batch: 433286

Analysis Batch: 433286									Ргер ва	itch: 43	3042
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Antimony	0.0010	U	0.0500	0.0474		mg/L		95	75 - 125	1	20
Arsenic	0.0080		0.0500	0.0594		mg/L		103	75 - 125	0	20
Barium	1.0		0.0500	1.12	J3	mg/L		141	75 - 125	2	20
Beryllium	0.00034	U	0.0500	0.0499		mg/L		100	75 - 125	1	20
Boron	0.021	U	0.100	0.131	J3	mg/L		131	75 - 125	2	20
Cadmium	0.00034	U	0.0500	0.0509		mg/L		102	75 - 125	4	20
Calcium	140	L	5.00	145	L J3	mg/L		170	75 - 125	1	20
Chromium	0.0011	U	0.0500	0.0524		mg/L		105	75 - 125	2	20
Cobalt	0.0092		0.0500	0.0617		mg/L		105	75 - 125	1	20
Lead	0.0012	Τ	0.0500	0.0505		mg/L		99	75 - 125	1	20
Lithium	0.0014	I	0.0500	0.0542		mg/L		106	75 - 125	1	20
Molybdenum	0.0020	U	0.0500	0.0492		mg/L		98	75 - 125	2	20
Selenium	0.00071	U	0.0500	0.0477		mg/L		95	75 - 125	3	20
Thallium	0.000085	U	0.0100	0.00965		mg/L		97	75 - 125	0	20

Lab Sample ID: MB 400-433043/1-A ^5 Matrix: Water Analysis Batch: 433286

MB MB Analyte **Result Qualifier** PQL MDL Unit D Prepared Analyzed Dil Fac 0.0010 mg/L Antimony 0.0010 U 0.0025 03/13/19 08:16 03/13/19 18:33 5 Arsenic 0.00046 U 0.0013 0.00046 mg/L 03/13/19 08:16 03/13/19 18:33 5 Barium 0.00049 U 0.0025 0.00049 mg/L 03/13/19 08:16 03/13/19 18:33 5 Beryllium 0.00034 mg/L 5 0.00034 U 0.0025 03/13/19 08:16 03/13/19 18:33 Boron 0.021 U 0.050 0.021 mg/L 03/13/19 08:16 03/13/19 18:33 5 Cadmium 0.0025 0.00034 mg/L 5 0.00034 U 03/13/19 08:16 03/13/19 18:33 Calcium 0.13 U 0.25 0.13 mg/L 03/13/19 08:16 03/13/19 18:33 5 Chromium 0.0025 0.0011 mg/L 03/13/19 08:16 03/13/19 18:33 5 0.0011 U Cobalt 0.0025 0.00040 mg/L 03/13/19 08:16 03/13/19 18:33 5 0.00040 U Lead 0.00035 U 0.0013 0.00035 mg/L 03/13/19 08:16 03/13/19 18:33 5 0.0011 U 0.0050 0.0011 mg/L 03/13/19 08:16 03/13/19 18:33 5 Lithium 0.0020 mg/L 0.015 5 Molybdenum 0.0020 U 03/13/19 08:16 03/13/19 18:33 Selenium 0.00071 U 0.0013 0.00071 mg/L 03/13/19 08:16 03/13/19 18:33 5 Thallium 0.000085 U 0.00050 0.000085 mg/L 03/13/19 08:16 03/13/19 18:33 5

Prep Type: Total Recoverable Prep Batch: 433042

Client Sample ID: Matrix Spike Duplicate

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 433043

11

4/9/2019

Job ID: 400-166764-1 SDG: Gypsum Storage Area

Prep Type: Total Recoverable

Client Sample ID: Matrix Spike

Prep Type: Total Recoverable

Client Sample ID: Lab Control Sample

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

Lab Sample ID: LCS 400-433043/2-A Matrix: Water

Analysis Batch: 433286	Spike	1.05	LCS				Prep Batch: 433043 %Rec.
Analyte	Added		Qualifier	Unit	D	%Rec	Limits
Antimony	0.0500	0.0478		mg/L		96	80 - 120
Arsenic	0.0500	0.0506		mg/L		101	80 - 120
Barium	0.0500	0.0490		mg/L		98	80 - 120
Beryllium	0.0500	0.0501		mg/L		100	80 - 120
Boron	0.100	0.101		mg/L		101	80 - 120
Cadmium	0.0500	0.0505		mg/L		101	80 - 120
Calcium	5.00	4.80		mg/L		96	80 - 120
Chromium	0.0500	0.0503		mg/L		101	80 - 120
Cobalt	0.0500	0.0524		mg/L		105	80 - 120
Lead	0.0500	0.0495		mg/L		99	80 - 120
Lithium	0.0500	0.0538		mg/L		108	80 - 120
Molybdenum	0.0500	0.0486		mg/L		97	80 - 120
Selenium	0.0500	0.0480		mg/L		96	80 - 120
Thallium	0.0100	0.00990		mg/L		99	80 - 120

Lab Sample ID: 400-166763-C-2-C MS ^5 Matrix: Water Analysis Batch: 433286

Analysis Batch: 433286	Sample	Sample	Spike	MS	MS				Prep Batch: 433043 %Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Antimony	0.0010	U	0.0500	0.0483		mg/L		97	75 - 125
Arsenic	0.00046	U	0.0500	0.0512		mg/L		102	75 - 125
Barium	0.010		0.0500	0.0605		mg/L		100	75 - 125
Beryllium	0.00034	U	0.0500	0.0492		mg/L		98	75 - 125
Boron	0.021	U	0.100	0.105		mg/L		105	75 - 125
Cadmium	0.00034	U	0.0500	0.0514		mg/L		103	75 - 125
Calcium	0.57		5.00	5.41		mg/L		97	75 - 125
Chromium	0.0028		0.0500	0.0518		mg/L		98	75 - 125
Cobalt	0.00040	U	0.0500	0.0531		mg/L		106	75 - 125
Lead	0.00035	U	0.0500	0.0491		mg/L		98	75 - 125
Lithium	0.0014	I	0.0500	0.0533		mg/L		104	75 - 125
Molybdenum	0.0020	U	0.0500	0.0487		mg/L		97	75 - 125
Selenium	0.00071	U	0.0500	0.0493		mg/L		99	75 - 125
Thallium	0.000085	U	0.0100	0.00992		mg/L		99	75 - 125

Lab Sample ID: 400-166763-C-2-D MSD ^5 Matrix: Water Analysis Batch: 433286

Client Sample ID: Matrix Spike Duplicate Prep Type: Total Recoverable Prep Batch: 433043

Analysis Dalch. 455200									гер Ба	3043	
-	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Antimony	0.0010	U	0.0500	0.0476		mg/L		95	75 - 125	2	20
Arsenic	0.00046	U	0.0500	0.0509		mg/L		102	75 - 125	1	20
Barium	0.010		0.0500	0.0597		mg/L		98	75 - 125	1	20
Beryllium	0.00034	U	0.0500	0.0498		mg/L		100	75 - 125	1	20
Boron	0.021	U	0.100	0.104		mg/L		104	75 - 125	1	20
Cadmium	0.00034	U	0.0500	0.0516		mg/L		103	75 ₋ 125	0	20
Calcium	0.57		5.00	5.30		mg/L		95	75 - 125	2	20
Chromium	0.0028		0.0500	0.0524		mg/L		99	75 ₋ 125	1	20
Cobalt	0.00040	U	0.0500	0.0527		mg/L		105	75 - 125	1	20

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

Lab Sample ID: 400-16676 Matrix: Water Analysis Batch: 433286	3-C-2-D MS	D ^5					Client S			atrix Spik e: Total R Prep Ba	ecove	rable
Analysis Batch: 455200	Sample	Samp	le Spi	ke l	ISD	MSD				%Rec.		RPD
Analyte	Result	•	•		-	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Lead	0.00035		0.05)492		mg/L		98	75 - 125	0	20
Lithium	0.0014		0.05)538		mg/L		105	75 - 125	1	20
Molybdenum	0.0020		0.05)479		mg/L		96	75 - 125	2	20
Selenium	0.00071	U	0.05		488		mg/L		98	75 - 125	1	20
Thallium	0.000085		0.01		992		mg/L		99	75 - 125	0	20
lethod: 7470A - Mercu	iry (CVAA)										
Lab Sample ID: MB 400-43	32929/14-A							Clie	nt Sam	ple ID: Me	thod l	Blank
Matrix: Water										Prep Typ		
Analysis Batch: 433735										Prep Ba	tch: 43	32929
		MB M										
Analyte		esult Q		PQL		IDL Unit	D		epared	Analyz		Dil Fac
Mercury	0.000	070 U		0.00020	0.000	070 mg/L		03/1:	2/19 09:28	3 03/18/19 1	4:11	1
Lab Sample ID: LCS 400-4	32929/15-A						Clier	t Sar	nple ID:	Lab Con		
Matrix: Water										Prep Typ		
Analysis Batch: 433735										Prep Ba	tch: 43	32929
			Spi		LCS					%Rec.		
Analyte Mercury			Add0.001		sult)101	Qualifier	Unit mg/L	D	%Rec 100	Limits 80 - 120		
.ab Sample ID: 400-16676 Matrix: Water Analysis Batch: 433735	Sample		le Spi	ke	MS	MS				nple ID: M Prep Typ Prep Ba %Rec.	e: Tot	al/NA
Analyte	Result	Qualifi	ier Add	ed Re	sult	Qualifier	Unit	D	%Rec	Limits		
Mercury	0.000070	U	0.002	01 0.00	202		mg/L		100	80 - 120		
Lab Sample ID: 400-16676	3-C-1-C MS	D					Client S	amp	e ID: M	atrix Spik Prep Typ		al/NA
Matrix: Water												22020
										Prep Ba	tch: 43	
Analysis Batch: 433735	Sample	•	•		ISD					%Rec.		RPD
Analysis Batch: 433735	Result	Qualifi	ier Add	ed Re	sult	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Analysis Batch: 433735	•	Qualifi	•	ed Re			Unit mg/L	D	%Rec	%Rec.		RPD Limit
Analysis Batch: 433735 Analyte Mercury Lab Sample ID: MB 400-43	0.000070	Qualifi	ier Add	ed Re	sult				101	%Rec. Limits 80 - 120	RPD 0	RPD Limit 20 Blank
Analysis Batch: 433735 Analyte ^{Mercury} Lab Sample ID: MB 400-43 Matrix: Water	0.000070	Qualifi	ier Add	ed Re	sult				101	%Rec. Limits 80 - 120 ple ID: Me Prep Typ	RPD 0 ethod l be: Tot	RPD Limit 20 Blank al/NA
Analysis Batch: 433735 Analyte ^{Mercury} Lab Sample ID: MB 400-43 Matrix: Water	0.000070	Qualifi U	ier Add	ed Re	sult				101	%Rec. Limits 80 - 120	RPD 0 ethod l be: Tot	RPD Limit 20 Blank al/NA
Analysis Batch: 433735 Analyte Mercury Lab Sample ID: MB 400-43 Matrix: Water Analysis Batch: 433378	Result 0.000070 32932/14-A	Qualifi U MB M	ier Add 0.002	ed Re	sult 0203	Qualifier	mg/L	Clie	101 nt Sam	%Rec. Limits 80 - 120 Ple ID: Me Prep Typ Prep Ba	RPD 0 ethod l be: Tot tch: 43	RPD Limit 20 Blank al/NA 32932
Analysis Batch: 433735 Analyte Mercury Lab Sample ID: MB 400-43 Matrix: Water Analysis Batch: 433378 Analyte	Result 0.000070 32932/14-A Re	Qualifi U MB M	ier Add 0.002 IB Qualifier	ed Re 01 0.00	sult)203			Clie	101	%Rec. Limits 80 - 120 ple ID: Me Prep Typ Prep Ba Analyze	RPD 0 ethod l e: Tot tch: 43	RPD Limit 20 Blank al/NA
Analysis Batch: 433735 Analyte Mercury Lab Sample ID: MB 400-43 Matrix: Water Analysis Batch: 433378 Analyte Mercury	Result 0.000070 32932/14-A 	Qualifi U MB M esult Q 00070 U	ier Add 0.002 IB Qualifier	ed Re 01 0.00	sult)203	Qualifier IDL Unit	mg/L	Clie Pr 03/1:	101 nt Sam epared 2/19 09:41	%Rec. Limits 80 - 120 ple ID: Me Prep Typ Prep Ba Analyze	RPD 0 ethod I ee: Tot tch: 43 ed 4:04	RPD Limit 20 Blank al/NA 32932 Dil Fac 1
Analysis Batch: 433735 Analyte Mercury Lab Sample ID: MB 400-43 Matrix: Water Analysis Batch: 433378 Analyte Mercury Lab Sample ID: LCS 400-4	Result 0.000070 32932/14-A 	Qualifi U MB M esult Q 00070 U	ier Add 0.002 IB Qualifier	ed Re 01 0.00	sult)203	Qualifier IDL Unit	mg/L	Clie Pr 03/1:	101 nt Sam epared 2/19 09:41	%Rec. Limits 80 - 120 ple ID: Me Prep Typ Prep Ba Analyze 03/14/19 1	RPD 0 ethod I e: Tot tch: 43 ed 4:04	RPD Limit 20 Blank al/NA 32932 Dil Fac 1 mple
Analysis Batch: 433735 Analyte Mercury Lab Sample ID: MB 400-43 Matrix: Water Analysis Batch: 433378 Analyte Mercury Lab Sample ID: LCS 400-4 Matrix: Water	Result 0.000070 32932/14-A 	Qualifi U MB M esult Q 00070 U	ier Add 0.002	ed Re 01 0.000 PQL 0.00020	sult)203	Qualifier IDL Unit 070 mg/L	mg/L	Clie Pr 03/1:	101 nt Sam epared 2/19 09:41	%Rec. Limits 80 - 120 ple ID: Me Prep Typ Prep Ba 03/14/19 1 Lab Con	RPD 0 ethod I e: Tot tch: 43 ed 4:04 trol Sa e: Tot	RPD Limit 20 Blank al/NA 32932 Dil Fac 1 mple al/NA
Matrix: Water Analysis Batch: 433735 Analyte Mercury Lab Sample ID: MB 400-43 Matrix: Water Analysis Batch: 433378 Analyte Mercury Lab Sample ID: LCS 400-4 Matrix: Water Analysis Batch: 433378 Analysis Batch: 433378	Result 0.000070 32932/14-A 	Qualifi U MB M esult Q 00070 U	ier Add 0.002 IB Qualifier	ed Re 01 0.00 PQL	M 0.0000	Qualifier IDL Unit 070 mg/L	mg/L	Clie Pr 03/1:	101 nt Sam epared 2/19 09:41	%Rec. Limits 80 - 120 ple ID: Me Prep Typ Prep Ba Analyze 03/14/19 1 Lab Com Prep Typ Prep Ba	RPD 0 ethod I e: Tot tch: 43 ed 4:04 trol Sa e: Tot	RPD Limit 20 Blank al/NA 32932 Dil Fac 1 mple al/NA

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

Lab Sample ID: 400-167030)-N-9-B MS	I					Client	Sample ID: Matri	
Matrix: Water								Prep Type: T	
Analysis Batch: 433378	0	0	0					Prep Batch:	432932
Ameliate		Sample	Spike		MS	1114		%Rec.	
Analyte		Qualifier	Added		Qualifier	Unit	_ <u>D</u> %Re		
Mercury	0.000070	U	0.00201	0.00166		mg/L	8	3 80 - 120	
Lab Sample ID: 400-167030 Matrix: Water)-N-9-C MS	D				Client Sa	ample ID	: Matrix Spike Du Prep Type: T	
Analysis Batch: 433378								Prep Batch:	
·····,····	Sample	Sample	Spike	MSD	MSD			%Rec.	RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D %Re	c Limits RP	D Limit
Mercury	0.000070	U	0.00201	0.00157	J3	mg/L	7	8 80 - 120	6 20
lethod: SM 2540C - So		al Disso	lved (TD	S)			0		
Lab Sample ID: MB 400-43 Matrix: Water	2107/1						Client Sa	ample ID: Metho Prep Type: T	
Analysis Batch: 432107		МВ МВ							
Analyte	R¢	мв мв esult Quali	ifier	PQL	MDL Unit	D	Prepare	d Analyzed	Dil Fac
Total Dissolved Solids		3.4 U		5.0	3.4 mg/L			03/05/19 09:01	
Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 432107	32107/2					Client	Sample	ID: Lab Control Prep Type: T	
			Spike	LCS	LCS			%Rec.	
Analyte			Added	Result	Qualifier	Unit	D %Re	c Limits	
Total Dissolved Solids			293	292		mg/L	10		
Lab Sample ID: 400-166713	3-A-2 DU						Clie	nt Sample ID: Du	
								Prep Type: T	otal/NA
	<u> </u>	. .						Prep Type: T	
Analysis Batch: 432107	•	Sample			DU		_		RPD
Analysis Batch: 432107 Analyte	Result	Sample Qualifier		Result	Qualifier	Unit	_ <u>D</u>	RP	RPC D Limi
Analysis Batch: 432107 Analyte	•	•			Qualifier	Unit mg/L	_ D	RP	RPC D Limi
Analysis Batch: 432107 Analyte Total Dissolved Solids	Result 72	•		Result	Qualifier			RP	RPD D Limi 5 5
Analysis Batch: 432107 Analyte Total Dissolved Solids Lab Sample ID: MB 400-433	Result 72	•		Result	Qualifier				RPE D Limi 5 t
Analysis Batch: 432107 Analyte Total Dissolved Solids Lab Sample ID: MB 400-433 Matrix: Water	Result 72	•		Result	Qualifier			RP	RPE D Limi 5 5
Analysis Batch: 432107 Analyte Total Dissolved Solids Lab Sample ID: MB 400-433 Matrix: Water	Result 72	•		Result	Qualifier				RPE D Limi 5 t
Analysis Batch: 432107 Analyte Total Dissolved Solids Lab Sample ID: MB 400-433 Matrix: Water Analysis Batch: 432171	Result 72 2171/1	Qualifier MB MB	fier	Result 76.0	Qualifier		Client S	RP ample ID: Metho Prep Type: T	RPE <u>Limi</u> 5 t d Blank otal/NA
Analysis Batch: 432107 Analyte Total Dissolved Solids Lab Sample ID: MB 400-433 Matrix: Water Analysis Batch: 432171 Analyte	Result 72 2171/1	Qualifier MB MB esult Quali		Result 76.0	MDL Unit	mg/L D		ample ID: Metho Prep Type: T ed Analyzed	RPE D Limi 5 3 d Blank otal/NA
Analysis Batch: 432107 Analyte Total Dissolved Solids Lab Sample ID: MB 400-432 Matrix: Water Analysis Batch: 432171 Analyte Total Dissolved Solids Lab Sample ID: LCS 400-43	Result 72 2171/1 Re	Qualifier MB MB		Result 76.0	Qualifier	mg/L D	Client Sa	RP ample ID: Methor Prep Type: T ad <u>Analyzed</u> 03/05/19 12:46 ID: Lab Control	RPI D Limi 5 d Blanl otal/NA Dil Fa
Analysis Batch: 432107 Analyte Total Dissolved Solids Lab Sample ID: MB 400-432 Matrix: Water Analysis Batch: 432171 Analyte Total Dissolved Solids Lab Sample ID: LCS 400-43 Matrix: Water	Result 72 2171/1 Re	Qualifier MB MB esult Quali		Result 76.0	MDL Unit	mg/L D	Client Sa	ample ID: Metho Prep Type: T ed <u>Analyzed</u> 03/05/19 12:46	RPI D Limi 5 3 d Blank otal/NA Dil Fac Sample
Analysis Batch: 432107 Analyte Total Dissolved Solids Lab Sample ID: MB 400-432 Matrix: Water Analysis Batch: 432171 Analyte Total Dissolved Solids Lab Sample ID: LCS 400-43 Matrix: Water	Result 72 2171/1 Re	Qualifier MB MB esult Quali		Result 76.0 PQL 5.0	MDL Unit 3.4 mg/L	mg/L D	Client Sa	RP ample ID: Methor Prep Type: T ed <u>Analyzed</u> 03/05/19 12:46 ID: Lab Control Prep Type: T	RPE D Limi 5 2 d Blank otal/NA Dil Fac Sample
Matrix: Water Analysis Batch: 432107 Analyte Total Dissolved Solids Lab Sample ID: MB 400-433 Matrix: Water Analysis Batch: 432171 Analyte Total Dissolved Solids Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 432171 Analysis Batch: 432171	Result 72 2171/1 Re	Qualifier MB MB esult Quali	ifier	PQL	MDL Unit	mg/L D	Client Sa	RP ample ID: Methor Prep Type: T ad <u>Analyzed</u> 03/05/19 12:46 ID: Lab Control Prep Type: T %Rec.	RPD D Limit S d Blank otal/NA Dil Fac 1 Sample

QC Sample Results

Job ID: 400-166764-1 SDG: Gypsum Storage Area

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

Lab Sample ID: 400-166763- Matrix: Water	3-4 DU										Client	Sample II Prep Ty		
Analysis Batch: 432171														
· ····· , ·····························	Sample	San	nple			DU	DU							RPD
Analyte	Result	Qua	lifier			Result	Qualifie	r Unit		D			RPD	Limit
Total Dissolved Solids	440					448		mg/L		-			2	5
Lab Sample ID: MB 400-4321	85/1									Clic	nt Sam	ple ID: M	othod	Blank
Matrix: Water	00/1									Cile	int San	Prep Ty		
Analysis Batch: 432185														
		MB												
Analyte	Re		Qualifier		PQL		MDL Un		D	P	repared	Analyz		Dil Fac
Total Dissolved Solids		3.4	U		5.0		3.4 mg	/L				03/05/19	13:58	1
Lab Sample ID: LCS 400-432	185/2							С	lient	Sar	nple ID	: Lab Cor	trol Sa	ample
Matrix: Water											· ·	Prep Ty		
Analysis Batch: 432185														
·····,································				Spike		LCS	LCS					%Rec.		
Analyte				Added		Result	Qualifie	r Unit		D	%Rec	Limits		
Total Dissolved Solids				293		254		mg/L		_	87	78 - 122		
Lab Sample ID: 400-166764-2	ווח כ										Clier	nt Sample	. М\	N-203
Matrix: Water											oner	Prep Ty		
Analysis Batch: 432185												i i cp i y	. 10	
Analysis Datch. 402100	Sample	San	nple			DU	DU							RPD
Analyte	Result		•				Qualifie	r Unit		D			RPD	Limit
Total Dissolved Solids	190					186		mg/L		_			3	5
														
Lab Sample ID: MB 400-4326	06/1									Clie	ent Sam	ple ID: M		
Matrix: Water												Prep Ty		al/NA
Analysis Batch: 432606			МР											
Ameliate	D.	MB			DOI				-			A seals a	!	
Analyte Total Dissolved Solids	Ke	3.4	Qualifier		PQL		MDL Uni		D	P	repared	Analyz		Dil Fac
Total Dissolved Solids		3.4	U		5.0		3.4 mg	/L				03/08/19	09:19	1
Lab Sample ID: LCS 400-432	606/2							С	lient	Sar	nple ID	: Lab Cor	trol Sa	ample
Matrix: Water												Prep Ty	pe: Tot	tal/NA
Analysis Batch: 432606														
				Spike		LCS	LCS					%Rec.		
Analyte				Added		Result	Qualifie	r Unit		D	%Rec	Limits		
Total Dissolved Solids				293		232		mg/L		_	79	78 - 122		
Lab Sample ID: 400-166764-9) DU										Clie	nt Sample	D: D	UP-05
Matrix: Water											2	Prep Ty		
Analysis Batch: 432606														
	Sample	San	nple			DU	DU							RPD
Analyte	Result	Qua	lifier			Result	Qualifie	r Unit		D			RPD	Limit
Total Dissolved Solids	290					284		mg/L		_			2	5

11 12 13

Method: SM 4500 CI- E - Chloride, Total

Lab Sample ID: MB 400-433 Matrix: Water	142/6								С	lie	nt Sam	ple ID: Meth Prep Type		
Analysis Batch: 433142														
Analyte	Re	MB esult	MB Qualifier		PQL		MDL Unit		D	Pr	epared	Analyzed		Dil Fac
Chloride		1.4	U		2.0		1.4 mg/L					03/13/19 11:		1
Lab Sample ID: LCS 400-43 Matrix: Water	3142/7							Cli	ent S	an	nple ID:	Lab Contro Prep Type		
Analysis Batch: 433142				Online		1.00	1.00					0/ D = =		
Analyte				Spike Added		-	LCS Qualifier	Unit		D	%Rec	%Rec. Limits		
Chloride				30.0		30.9		mg/L		-	103	90 - 110		
Lab Sample ID: MRL 400-43	33142/3							Cli	ent S	an	nple ID:	Lab Contro		
Matrix: Water Analysis Batch: 433142												Prep Type	: 10	
				Spike		MRL	MRL					%Rec.		
Analyte				Added		Result	Qualifier	Unit		D	%Rec	Limits		
Chloride				2.00		1.80	Ι	mg/L		_	90	50 - 150		
Lab Sample ID: 400-166648 Matrix: Water	-A-5 MS									Cli	ient Saı	nple ID: Ma Prep Type		
Analysis Batch: 433142	Comula	6 a		Cuilto		ме	MS					%Rec.		
Analyte	Sample Result		-	Spike Added		-	MS Qualifier	Unit		D	%Rec	%Rec. Limits		
Chloride	94	Qua		10.0		102		mg/L		_	82	73 - 120		
Lab Sample ID: 400-166648 Matrix: Water Analysis Batch: 433142	Sample	Sam	ple	Spike		MSD	MSD					atrix Spike Prep Type %Rec.		
Analyte	Result	Qua	lifier	Added			Qualifier	Unit		D	%Rec		RPD	Limi
Chloride	94			10.0		102		mg/L			78	73 - 120	0	8
Lab Sample ID: MB 400-433 Matrix: Water Analysis Batch: 433709	709/5	мв	МВ						С	lie		ple ID: Meth Prep Type	: То	tal/NA
	_								_	_				Dil Fac
Analyte	R	esult	Qualifier		PQL		MDL Unit		<u>D</u>	Pr	repared	Analyzed		
Chloride Lab Sample ID: LCS 400-43 Matrix: Water					PQL 2.0		MDL Unit 1.4 mg/L	Cli			•	Analyzed 03/18/19 10: Lab Contro Prep Type	:10 ol S	ample
Chloride Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 433709		esult		Spike		LCS	1.4 mg/L		ent S	an	nple ID:	03/18/19 10: Lab Contro Prep Type %Rec.	:10 ol S	ample
Chloride Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 433709 Analyte		esult		Added		LCS Result	1.4 mg/L	Unit	ent S	an	nple ID: %Rec	03/18/19 10: Lab Contro Prep Type %Rec. Limits	:10 ol S	ample
Chloride Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 433709 Analyte Chloride Lab Sample ID: MRL 400-43 Matrix: Water	3709/6	esult		•		LCS	1.4 mg/L	Unit mg/L	ent S	an D	nple ID: <u>%Rec</u> 98	03/18/19 10: Lab Contro Prep Type %Rec.	ol S : To	ample tal/NA
Chloride Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 433709 Analyte Chloride Lab Sample ID: MRL 400-43	3709/6	esult		Added		LCS Result 29.5	1.4 mg/L	Unit mg/L	ent S	an D	nple ID: <u>%Rec</u> 98	03/18/19 10: Lab Contro Prep Type %Rec. Limits 90 - 110 Lab Contro	ol S : To	1 ample tal/NA
Chloride Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 433709 Analyte Chloride Lab Sample ID: MRL 400-43 Matrix: Water	3709/6	esult		Added 30.0		LCS Result 29.5	1.4 mg/L LCS Qualifier MRL Qualifier	Unit mg/L	ent S	an D	nple ID: <u>%Rec</u> 98	03/18/19 10: Lab Contro Prep Type %Rec. Limits 90 - 110 Lab Contro Prep Type	ol S : To	1 ample tal/NA

QC Sample Results

Method: SM 4500 CI- E - Chloride, Total

Lab Sample ID: 400-166764	-4 MS							Clien	t Sample	D: M	W-205
Matrix: Water									Prep Ty		
Analysis Batch: 433709										·	
-	Sample	Sample	Spike	MS	MS				%Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Chloride	19		10.0	28.5		mg/L		94	73 - 120		
_ Lab Sample ID: 400-166764								Clion	t Sample		M-205
Matrix: Water								Cilei			
									Prep Ty	pe. 10	
Analysis Batch: 433709	Sample	Samplo	Spike	MSD	MSD				%Rec.		RPD
Apolyto		Qualifier	Added		Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Analyte Chloride	19		10.0	28.8		mg/L		97	73 - 120		8
-	15		10.0	20.0		mg/L		57	75-120	1	0
Lab Sample ID: 400-166764	-10 MS							Clien	t Sample	D: M	W-201
Matrix: Water									Prep Ty	pe: To	tal/NA
Analysis Batch: 433709											
	Sample	Sample	Spike	MS	MS				%Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Chloride	75		10.0	78.7	J3	mg/L		40	73 - 120		
								O 11			
Lab Sample ID: 400-166764	-10 MSD							Clien	t Sample		
Matrix: Water									Prep Ty	pe: Io	tal/NA
Analysis Batch: 433709									~ -		
	•	Sample	Spike	-	MSD		_		%Rec.		RPD
Analyte	Result	Sample Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Analyte Chloride	•	•	•	-	Qualifier	Unit mg/L	D	%Rec 46		RPD	
	Result 75	•	Added	Result	Qualifier		D		Limits		Limit
Chloride Method: SM 4500 F C - I	Result 75 Fluoride	•	Added	Result	Qualifier			46	Limits 73 - 120	1	Limit 8
Chloride Method: SM 4500 F C - I Lab Sample ID: MB 400-433	Result 75 Fluoride	•	Added	Result	Qualifier			46	Limits 73 - 120	1 ethod	Limit 8 Blank
Chloride Method: SM 4500 F C - I Lab Sample ID: MB 400-433 Matrix: Water	Result 75 Fluoride	•	Added	Result	Qualifier			46	Limits 73 - 120	1 ethod	Limit 8 Blank
Chloride Method: SM 4500 F C - I Lab Sample ID: MB 400-433	Result 75 Fluoride	•	Added	Result	Qualifier			46	Limits 73 - 120	1 ethod	Limit 8 Blank
Chloride Method: SM 4500 F C - I Lab Sample ID: MB 400-433 Matrix: Water Analysis Batch: 433548	Result 75 Fluoride 3548/3	Qualifier	Added	Result	Qualifier	mg/L	Clie	46	Limits 73 - 120 ple ID: M Prep Ty	1 ethod pe: To	Limit 8 Blank
Chloride Method: SM 4500 F C - I Lab Sample ID: MB 400-433 Matrix: Water	Result 75 Fluoride 3548/3 Re	Qualifier	Added	Result 79.3	Qualifier J3	mg/L	Clie	46	Limits 73 - 120	1 ethod pe: To zed	Limit 8 Blank tal/NA
Chloride Method: SM 4500 F C - I Lab Sample ID: MB 400-433 Matrix: Water Analysis Batch: 433548 Analyte Fluoride	Result 75 Fluoride 3548/3	Qualifier MB MB esult Qualifier	Added	Result 79.3	Qualifier J3 MDL Unit	mg/L	Clie	ent Sam	Limits 73 - 120 ple ID: M Prep Ty - Analy 03/15/19	1 ethod pe: To zed 16:40	Limit 8 Blank tal/NA Dil Fac
Chloride Method: SM 4500 F C - I Lab Sample ID: MB 400-433 Matrix: Water Analysis Batch: 433548 Analyte Fluoride Lab Sample ID: LCS 400-43	Result 75 Fluoride 3548/3	Qualifier MB MB esult Qualifier	Added	Result 79.3	Qualifier J3 MDL Unit	mg/L	Clie	ent Sam	Limits 73 - 120 ple ID: M Prep Ty - Analy 03/15/19 : Lab Coi	zed 16:40	Limit 8 Blank tal/NA Dil Fac 1 ample
Chloride Method: SM 4500 F C - I Lab Sample ID: MB 400-433 Matrix: Water Analysis Batch: 433548 Analyte Fluoride Lab Sample ID: LCS 400-43 Matrix: Water	Result 75 Fluoride 3548/3	Qualifier MB MB esult Qualifier	Added	Result 79.3	Qualifier J3 MDL Unit	mg/L	Clie	ent Sam	Limits 73 - 120 ple ID: M Prep Ty - Analy 03/15/19	zed 16:40	Limit 8 Blank tal/NA Dil Fac 1 ample
Chloride Method: SM 4500 F C - I Lab Sample ID: MB 400-433 Matrix: Water Analysis Batch: 433548 Analyte Fluoride Lab Sample ID: LCS 400-43	Result 75 Fluoride 3548/3	Qualifier MB MB esult Qualifier	Added 10.0	Result 79.3 0.10	MDL Unit	mg/L	Clie	ent Sam	Limits 73 - 120 ple ID: M Prep Ty 03/15/19 : Lab Cou Prep Ty	zed 16:40	Limit 8 Blank tal/NA Dil Fac 1 ample
Chloride Method: SM 4500 F C - I Lab Sample ID: MB 400-433 Matrix: Water Analysis Batch: 433548 Analyte Fluoride Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 433548	Result 75 Fluoride 3548/3	Qualifier MB MB esult Qualifier	Added 10.0	PQL 0.10	Aualifier J3 MDL Unit 0.032 mg/L	mg/L	Clie	ent Sam	Limits 73 - 120 ple ID: M Prep Ty <u>Analy</u> 03/15/19 : Lab Con Prep Ty %Rec.	zed 16:40	Limit 8 Blank tal/NA Dil Fac 1 ample
Chloride Method: SM 4500 F C - I Lab Sample ID: MB 400-433 Matrix: Water Analysis Batch: 433548 Analyte Fluoride Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 433548 Analyte	Result 75 Fluoride 3548/3	Qualifier MB MB esult Qualifier	Added 10.0 Spike Added	PQL 0.10 LCS Result	Aualifier J3 MDL Unit 0.032 mg/L LCS Qualifier	mg/L	Clie	46 ent Sam repared nple ID %Rec	Limits 73 - 120 ple ID: M Prep Ty 03/15/19 : Lab Con Prep Ty %Rec. Limits	zed 16:40	Limit 8 Blank tal/NA Dil Fac 1 ample
Chloride Aethod: SM 4500 F C - I Lab Sample ID: MB 400-433 Matrix: Water Analysis Batch: 433548 Analyte Fluoride Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 433548	Result 75 Fluoride 3548/3	Qualifier MB MB esult Qualifier	Added 10.0	PQL 0.10	Aualifier J3 MDL Unit 0.032 mg/L LCS Qualifier	mg/L	Clie	ent Sam	Limits 73 - 120 ple ID: M Prep Ty <u>Analy</u> 03/15/19 : Lab Con Prep Ty %Rec.	zed 16:40	Limit 8 Blank tal/NA Dil Fac 1 ample
Chloride Method: SM 4500 F C - I Lab Sample ID: MB 400-433 Matrix: Water Analysis Batch: 433548 Analyte Fluoride Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 433548 Analyte Fluoride	Result 75 Fluoride 3548/3 Re 0 33548/4	Qualifier MB MB esult Qualifier	Added 10.0 Spike Added	PQL 0.10 LCS Result	Aualifier J3 MDL Unit 0.032 mg/L LCS Qualifier	mg/L	Clie	ent Sam repared mple ID %Rec 94	Limits 73 - 120 ple ID: M Prep Ty 03/15/19 : Lab Coi Prep Ty %Rec. Limits 90 - 110	zed 16:40 htrol S pe: To	Limit 8 Blank tal/NA Dil Fac 1 ample tal/NA
Chloride Iethod: SM 4500 F C - I Lab Sample ID: MB 400-433 Matrix: Water Analysis Batch: 433548 Analyte Fluoride Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 433548 Analyte Fluoride Lab Sample ID: 660-93065-	Result 75 Fluoride 3548/3 Re 0 33548/4	Qualifier MB MB esult Qualifier	Added 10.0 Spike Added	PQL 0.10 LCS Result	Aualifier J3 MDL Unit 0.032 mg/L LCS Qualifier	mg/L	Clie	ent Sam repared mple ID %Rec 94	Limits 73 - 120 ple ID: M Prep Ty 03/15/19 : Lab Con Prep Ty %Rec. Limits 90 - 110 mple ID:	1 lethod pe: To 16:40 ntrol S. pe: To Matrix	Limit 8 Blank tal/NA Dil Fac 1 ample tal/NA
Chloride Aethod: SM 4500 F C - I Lab Sample ID: MB 400-433 Matrix: Water Analysis Batch: 433548 Analyte Fluoride Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 433548 Analyte Fluoride Lab Sample ID: 660-93065- Matrix: Water	Result 75 Fluoride 3548/3 Re 0 33548/4	Qualifier MB MB esult Qualifier	Added 10.0 Spike Added	PQL 0.10 LCS Result	Aualifier J3 MDL Unit 0.032 mg/L LCS Qualifier	mg/L	Clie	ent Sam repared mple ID %Rec 94	Limits 73 - 120 ple ID: M Prep Ty 03/15/19 : Lab Coi Prep Ty %Rec. Limits 90 - 110	1 lethod pe: To 16:40 ntrol S. pe: To Matrix	Limit 8 Blank tal/NA Dil Fac 1 ample tal/NA
Chloride Method: SM 4500 F C - I Lab Sample ID: MB 400-433 Matrix: Water Analysis Batch: 433548 Analyte Fluoride Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 433548 Analyte Fluoride Lab Sample ID: 660-93065-	Result 75 Fluoride 3548/3 Re 0 3548/4	Qualifier MB MB sult Qualifier 032 U	Added 10.0 Spike Added 4.00	PQL 0.10 0 LCS Result 3.76 3.76	Aualifier J3 MDL Unit 0.032 mg/L LCS Qualifier	mg/L	Clie	ent Sam repared mple ID %Rec 94	Limits 73 - 120 ple ID: M Prep Ty 03/15/19 : Lab Cor Prep Ty %Rec. Limits 90 - 110 mple ID: Prep Ty	1 lethod pe: To 16:40 ntrol S. pe: To Matrix	Limit 8 Blank tal/NA Dil Fac 1 ample tal/NA
Chloride Method: SM 4500 F C - I Lab Sample ID: MB 400-433 Matrix: Water Analysis Batch: 433548 Analyte Fluoride Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 433548 Analyte Fluoride Lab Sample ID: 660-93065- Matrix: Water	Result 75 Fluoride 3548/3	Qualifier MB MB esult Qualifier	Added 10.0 Spike Added	Result 79.3 9.10 0.10 0.10 0.10 0.10 MS	MDL Unit D.032 mg/L LCS Qualifier	mg/L	Clie	ent Sam repared mple ID %Rec 94	Limits 73 - 120 ple ID: M Prep Ty 03/15/19 : Lab Con Prep Ty %Rec. Limits 90 - 110 mple ID:	1 lethod pe: To 16:40 ntrol S. pe: To Matrix	Limit 8 Blank tal/NA Dil Fac 1 ample tal/NA Spike

Method: SM 4500 F C - Fluoride (Continued)

Sample Analyte FluorideSpike Result Qualifier 0.83Spike Added Added Result Qualifier 1.00MSD%Rec. Rec. Linit mg/LP %Rec. 64Ref Lin T PRef Lin T PLab Sample ID: 400-166764-4 DU Matrix: Water Analysis Batch: 433548Client Sample ID: MW-20 Prep Type: Total/N Analysis Batch: 43328Client Sample ID: MW-20 Prep Type: Total/N MSDClient Sample ID: MW-20 Prep Type: Total/N MSDLab Sample ID: MB 400-433828/3 Matrix: Water Analysis Batch: 43328MB MB MB MB Analysis Batch: 43328Client Sample ID: Method Blar Prep Type: Total/N 0.032 UClient Sample ID: Method Blar Prep Type: Total/N 0.032 UClient Sample ID: Method Blar Prep Type: Total/N 0.032 UDI F Prep Type: Total/N 0.032 UDI F Prep Type: Total/N 0.032 UDI F Prep Type: Total/N 0.032 ULab Sample ID: LCS 400-433828/4 FluorideMB MB 0.032 UMDL Unit 0.032 UDPrepared 0.032 Mg/LAnalyzed 0.031919 00:35DI F Prep Type: Total/N Matrix: Water Analysis Batch: 43328Spike AddedClient Sample ID: Lab Control Samp Prep Type: Total/N Matrix: WaterAnalyte PluorideC22MS MS 1.00MS MS 1.29MS MS MS MS Rese.%Rec. Inits Prep Type: Total/N MS MS MS MS MS MS MS MS MS Matrix: WaterMS MS MS Rese.%Rec. Result QualifierMS MS MS Rese.%Rec. Result QualifierMS MS MS Rese.%Rec. Result QualifierMS MS M	Lab Sample ID: 660-93065 Matrix: Water	-C-1 MSD					Client S	Sample	ID: N	latrix Spil Prep Tyj		
AnalyteResultQualifierAddedResultQualifierUnitD%RecLimitsRPDLinFluoride0.831.001.47J3mg/LD6476.125000Lab Sample ID: 400-166764-4 DUMatrix: WaterAnalyteSample SampleDUDUClient Sample ID: MW-20AnalyteResultQualifier0.07000.06001.33mg/LDRPDLirAnalyteResultQualifier0.0700.06001.33mg/LDRPDLirFluoride0.0700.0700.06001.33mg/LDRPDLirAnalyteResultQualifier0.06001.33mg/LDRPDLirAnalyteResultQualifier0.0320.100.032mg/LDPrep Type: Total/NAnalyteResultQualifier0.100.032mg/LDPrep Type: Total/NAnalyteResultQualifier0.100.032mg/LD%Rec.AnalyteResultQualifierAddedResult QualifierUnitD%Rec.AnalyteResultQualifierAddedResult QualifierUnitD%Rec.AnalyteResultQualifierAddedResult QualifierUnitD%Rec.AnalyteResultQualifierAddedResult QualifierUnitD%Rec.AnalyteResult <th>Analysis Batch: 433548</th> <th>Samplo</th> <th>Samplo</th> <th>Sniko</th> <th>мер</th> <th>MSD</th> <th></th> <th></th> <th></th> <th>%Pac</th> <th></th> <th>RPD</th>	Analysis Batch: 433548	Samplo	Samplo	Sniko	мер	MSD				%Pac		RPD
Fluoride 0.83 1.00 1.47 J3 mg/L - 64 75.125 0 Lab Sample ID: 400-166764-4 DU Matrix: Water Client Sample ID: MW-20 Prep Type: Total/A Analyte Result Qualifier 0.070 Result Qualifier DU DU DU RR Analyte Result Qualifier 0.070 0.0000 1.33 mg/L D RPD_Lir Lab Sample ID: MB 400-433828/3 Matrix: Water MB MB DU DU D Prep Type: Total/A Analyte Result Qualifier 0.032 0.10 0.032 mg/L D Prepared Analyzed DIF Fluoride 0.032 0.10 0.10 0.032 mg/L D Prepared Analyzed DIF Lab Sample ID: LCS 400-433828/3 Result Qualifier Added Result Qualifier Mult D Prepared Analyzed DIF Analyte Result Qualifier Added Result Qualifier Mult D %Rec. Limits Dif Lab Sample ID: 240-109006-C-2 MS Spike MS MS MS MS	Analyte			•	-	-	Unit	Р 9	/Rec		RPD	Limit
Lab Sample ID: 400-166764-4 DU Client Sample ID: MW-22 Matrix: Water Sample Sample DU DU Re Analyte Result Qualifier Result Qualifier D RP Fluoride 0.070 0.070 Result Qualifier D RP Lab Sample ID: MB 400-433828/3 Client Sample ID: Method Blar Result Qualifier Prep Type: Total IN Matrix: Water Analyse Result Qualifier POL MOL Unit D Prep Type: Total IN Analyte Result Qualifier 0.032 0 0.002 mg/L D Prep Type: Total IN Analyte Result Qualifier POL MOL Unit D Prep Type: Total IN Analyte Result Qualifier 0.032 0 0.002 mg/L D Prep Type: Total IN Analyte Result Qualifier 0.032 0 0.002 mg/L D Prep Type: Total IN Analyte Result Qualifier 0.032 0 0.002 mg/L D Prep Type: Total IN Analyte Result Qualifier 0.10 0.002 mg/L D %Rec.												4
Matrix: Water Analysis Batch: 433548 Prep Type: Total/A Analysis Batch: 433548 Sample Sample DU DU Result Qualifier Result Qualifier Unit D RPD Lir Fluoride 0.070 0.070 0.0600 1.3 mg/L D RPD Lir Lab Sample ID: MB 400-433828/3 MB Analyte Result Qualifier PQL MDL Unit D Prep Type: Total/A Analyte Result Qualifier 0.032 0.010 0.032 mg/L D Prep Type: Total/A Analyte Result Qualifier 0.032 0.010 0.032 mg/L D Prep Type: Total/A Fluoride 0.032 0.032 0.010 0.032 mg/L D Prep Type: Total/A Analyte Result Qualifier 0.032 0.010 0.032 mg/L D Prep Type: Total/A Analyte Result Qualifier 0.032 0.010 0.032 mg/L D Prep Type: Total/A Analyte Result Qualifier Added Result Qualifier Unit D %Rec. Analyte Result Qualifier Added Result Qualifier Unit D %Rec. Fluoride 0.22 1.00 1.29 mg/L <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>												
Sample AnalyteSample Result QualifierDUPUResul Result QualifierResult QualifierDMit mgLDRPD RPD LinLab Sample ID: MB 400-433828/3 Matrix: Water Analysis Batch: 433828MB MB Result QualifierClient Sample ID: Method Blar Prep Type: Total/NClient Sample ID: Method Blar Prep Type: Total/NAnalyteResult QualifierPOL 0.032 UMDL Unit 	Matrix: Water	4-4 DU							Clier			
Analyte Result Qualifier Result Qualifier Unit D RPD Lin Fluonde 0.070 0 0.0600 1.33 mg/L D 15 Lab Sample ID: MB 400-433828/3 Matrix: Water MB MB Prep Type: Total/N Prep Type: Total/N Analyte Result Qualifier PQL MDL Unit D Prepared Analyzed Dif F Fluonde 0.032 0 0.03 mg/L D Prepared Analyzed Dif F Fluonde 0.032 0 0.03 mg/L D Prepared Analyzed Dif F Analyte Result Qualifier O.032 mg/L D YRec Client Sample ID: Lab Control Samp Fluonde 0.321 0 0.03 3.91 Unit D %Rec Limits Analyte Result Qualifier Added Result Qualifier D %Rec Limits Prep Type: Total/N Analyte Result Qualifier Added Result Qualifier Unit	Analysis Batch: 433548									
Fluoride 0.070 Image: Control of the standing of	A week de						11	-				RPD
Lab Sample ID: MB 400-433828/3 Client Sample ID: Method Blar Matrix: Water Analysis Batch: 433828 MB MB Analyte Result Qualifier PQL MDL Unit D Prepared Analyzed DII F Fluoride 0.032 U 0.10 0.032 mg/L D Prepared Analyzed DII F Lab Sample ID: LCS 400-433828/4 Client Sample ID: Lab Control Samp Prep Type: Total/N Matrix: Water Analyte Added Result Qualifier Unit D %Rec. Analyte Added Result Qualifier Unit D %Rec. Imits Fluoride 0.22 1.00 1.29 mg/L D %Rec. Imits Prop Type: Total/N Analyte Result Qualifier Added Result Qualifier Unit D %Rec. Imits Fluoride 0.22 1.00 1.29 mg/L D %Rec. Imits Prop Type: Total/N Analyte Result Qualifier Added Result Qualifier Unit D %Rec. Imits Tof Tof <t< td=""><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td> D</td><td></td><td></td><td></td><td>Limit 4</td></t<>	-							D				Limit 4
Matrix: Water Analysis Batch: 433828 MB MB MB MB MB MDL Unit D Prep Type: Total/N Fluoride 0.032 0.032 0.10 0.032 mg/L D Prepared Analyzed Dil F Lab Sample ID: LCS 400-433828/4 Matrix: Water Analyte Client Sample ID: Lab Control Samp Prep Type: Total/N Client Sample ID: Lab Control Samp Prep Type: Total/N Analyte Added Result Qualifier Unit D %Rec. Analyte Added Result Qualifier Unit D %Rec. Analyte Result Qualifier 4.00 3.91 Unit D %Rec. Analyte Result Qualifier Added Result Qualifier MS MS Analyte Result Qualifier 1.00 1.29 Unit D %Rec. Limits Fluoride 0.22 1.00 1.29 mg/L 0 %Rec. Limits Prep Type: Total/N Analyte Result Qualifier Added Result Qualifier Unit D %Rec. Lab Sample ID: 240-109006-C-2 MSD Client Sample ID: Matrix Spike Duplica Prep Type: Total/N Analyte	Fluoride	0.070	I		0.0600	1 3 3	mg/L				15	4
AnalyteResultQualifierPQLMDLUnitDPreparedAnalyzedDil FFluoride0.032U0.100.032mg/LDPreparedAnalyzedDil FLabSample ID: LCS 400-433828/4Client Sample ID: Lab Control Samp Prep Type: Total/NClient Sample ID: Lab Control Samp Prep Type: Total/NAnalysisBatch: 433828SpikeLCSLCS%Rec.AnalyteAddedResultQualifierUnitD%Rec.Fluoride0.22MDL3.91UnitD%Rec.AnalyteResultQualifierAddedResultQualifierUnitD%Rec.AnalyteResultQualifierAddedResultQualifierUnitD%Rec.ImitsFluoride0.221.001.29WSMSMS%Rec.Imits-Fluoride0.221.001.29WSMSDWRec.ImitsLab Sample ID: 240-109006-C-2 MSDClient Sample ID: Matrix Spike Duplica Matrix: WaterClient Sample ID: Matrix Spike Duplica Prep Type: Total/NPrep Type: Total/NAnalysis Batch: 433828SampleSpikeMSDMSDAnalysis Batch: 433828SampleSpikeMSDMSDAnalysis Batch: 433828SampleSpikeMSDNSDAnalysis Batch: 433828Qualifier1.001.29UnitD- <td>Matrix: Water</td> <td>3828/3</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Clien</td> <td>t Sarr</td> <td>-</td> <td></td> <td></td>	Matrix: Water	3828/3						Clien	t Sarr	-		
Fluoride 0.032 U 0.10 0.032 mg/L 03/19/19 09:35 Lab Sample ID: LCS 400-433828/4 Client Sample ID: LCS 400-433828/4 Client Sample ID: Lab Control Samp Prep Type: Total/N Analysis Batch: 433828 Spike LCS LCS %Rec. Analysis Batch: 433828 Added Result Qualifier Unit D %Rec. Analyte Added Added Result Qualifier Unit D %Rec. Lab Sample ID: 240-109006-C-2 MS Sample Sample Spike MS MS Client Sample ID: Matrix Spile Matrix: Water Result Qualifier Added Result Qualifier Unit D %Rec. Analyte Result Qualifier Added Result Qualifier Unit D %Rec. Analyte Result Qualifier Added Result Qualifier Unit D %Rec. Limits Fluoride 0.22 MSD MSD MSD MSD Prep Type: Total/N Analyte Result Qualifier Added Result Qualifier Unit	Analyta	De			DOI					Anaba		
Lab Sample ID: LCS 400-433828/4 Matrix: Water Analysis Batch: 433828Client Sample ID: Lab Control Samp Prep Type: Total/NAnalyte FluorideAdded 4.00Result 3.91Qualifier mg/LUnit mg/LD %Rec. Limits 98%Rec. Limits 									pareu			
Matrix: Water Prep Type: Total/N Analysis Batch: 433828 Spike LCS LCS Unit D %Rec. Limits - Analyte Added Result Qualifier Unit D %Rec. Limits - - Fluoride		0	.032 0		0.10 0	J.052 Thy/L				03/19/19	09.55	1
AnalyteSpikeLCSLCSWRec.AnalyteAddedResultQualifierUnitD%Rec.Fluoride240-109006-C-2 MS3.91SampleSampleClient Sample ID: Matrix SpikeAnalyteSampleSampleSpikeMSMSClient Sample ID: Matrix SpikeAnalyteResultQualifierAddedResultQualifierUnitD%Rec.AnalyteResultQualifierAddedResultQualifierUnitD%Rec.Fluoride0.220.221.001.29WithD%Rec.LimitsAnalyteResultQualifierAddedResultQualifierUnitD%Rec.AnalyteResultQualifierAddedResultQualifierUnitD%Rec.RecLab Sample ID: 240-109006-C-2 MSDClient Sample ID: Matrix Spike DuplicaPrep Type: Total/NMatrix: WaterResultQualifierAddedResultQualifierUnitD%Rec.RecAnalyteResultQualifier1.001.29MSDMSD%RecRecRecFluoride0.221.001.29MSDMSDSample ID: Natrix Spike DuplicaPrep Type: Total/NAnalyteResultQualifier1.001.29Client Sample ID: DuplicaPrep Type: Total/NAnalyteResultQualifierNSDMSDClient Sample ID: DuplicaPrep Type: Total/N	•	33828/4					Clien	nt Sam	ple ID			
AnalyteAddedResultQualifierUnitD%RecLimitsFluoride	Analysis Batch: 433828			-								
Fluoride 4.00 3.91 mg/L - 98 90-110 Lab Sample ID: 240-109006-C-2 MS Matrix: Water Analysis Batch: 433828 Sample Sample Spike MS MS Client Sample ID: Matrix Spil Prep Type: Total/N Analyte Result Qualifier Added Result Qualifier MS MS MS MS MRc Limits -				•								
Lab Sample ID: 240-109006-C-2 MS Matrix: Water Sample Sample Spike MS Client Sample ID: Matrix Spik Prep Type: Total/N Analyte Result Qualifier Added Result Qualifier Unit D %Rec. Fluoride 0.22 1.00 1.29 Client Sample ID: Matrix Spike Duplica Limits - Lab Sample ID: 240-109006-C-2 MSD Matrix: Water Sample Sample Spike MS MS Client Sample ID: Matrix Spike Duplica Analyte Result Qualifier Added Result Qualifier Unit D %Rec. Result Note:						Qualifier		D %				
Matrix: Water Prep Type: Total/N Analysis Batch: 433828 Sample Sample Spike MS MS MS %Rec. Limits MRec. Analyte Result Qualifier Added Result Qualifier Unit D %Rec. Limits - - Fluoride 0.22 1.00 1.29 Imit D %Rec. Limits -	Fluonde			4.00	3.91		mg/L		98	90 - 110		
Sample AnalyteSample Result 0.22Sample QualifierSpike AddedMS Result 1.29MS QualifierMS PaulifierMS PileMS PileMS PileMS PileMS PileMS PileMS PileMS PileMS PileMS 	Matrix: Water	6-C-2 MS						Clie	nt Sa			
AnalyteResultQualifierAddedResultQualifierUnitD%RecLimitsFluoride0.220.221.001.290.1290.11D%RecLimitsLab Sample ID: 240-109006-C-2 MSD Matrix: Water Analysis Batch: 433828SampleSpikeMSDMSDClient Sample ID: Matrix Spike Duplica Prep Type: Total/NAnalyteResultQualifierAddedMSDMSDMSD%Rec.RistAnalyteResultQualifierAddedAddedResultQualifierUnitD%Rec.RistFluoride0.220.221.001.290.12UnitD%Rec.RistFluoride0.220.220.221.001.29UnitD%Rec.RistLab Sample ID: 400-166763-B-1 DU Matrix: Water Analysis Batch: 433828SampleDUDUClient Sample ID: Duplica Prep Type: Total/NAnalyteResultQualifierDUDURistRPDLin	Analysis Batch. 455626	Sample	Sample	Snike	MS	MS				%Rec		
Fluoride0.221.001.29mg/L10775-125Lab Sample ID: 240-109006-C-2 MSD Matrix: Water Analysis Batch: 433828Client Sample ID: Matrix Spike Duplica Prep Type: Total/NMatrix: Water AnalyteSample Result 0.22Spike QualifierMSD 1.00MSD 1.29Client Sample ID: Matrix Spike Duplica Prep Type: Total/NAnalyte FluorideResult 0.22Qualifier 1.00MSD 1.29MSD WRC MSD%Rec. MSD MSD mg/LP %Rec 107RPD Limits 75-125RPD OLab Sample ID: 400-166763-B-1 DU Matrix: Water Analysis Batch: 433828Sample SampleDU DU Result QualifierDU DU RE Result QualifierRPD Lim REAnalyteResult QualifierQualifierDU RE Result QualifierRPD Lim	Analvte			•	_	-	Unit	D 9	%Rec			
Matrix: Water Analysis Batch: 433828 Sample Result Sample Qualifier Spike Added MSD Result MSD Qualifier MSD Unit D %Rec. RF Analyte Result Qualifier Added Result Qualifier Unit D %Rec. RF Lib 0.22 Qualifier 1.00 1.29 Qualifier Unit D %Rec. RF Lab Sample ID: 400-166763-B-1 DU Matrix: Water Client Sample ID: Duplica Prep Type: Total/N Analysis Batch: 433828 Sample DU DU RF Analyte Result Qualifier DU DU RF Analyte Result Qualifier Result Qualifier Unit D RFD	-	0.22		1.00			mg/L		107	75 - 125		
Sample Analyte FluorideSample Result 0.22Spike QualifierMSD Added 1.00MSD Qualifier QualifierMRc. Qualifier MSDRFD Limits MSDLimits MSDRPD Limits MSDLimits MRC.RPD Limits To - 125RPD To -Limits RPD Limits RPDRPD Limits 	Matrix: Water	6-C-2 MSD					Client S	Sample	ID: N			
Analyte FluorideResult 0.22Qualifier 0.22Added 1.00Result 1.29Qualifier unit mg/LUnit mg/LD %Rec 107Limits 75-125RPD 0Lim Limits Product Lim Matrix:Lab Sample ID: 400-166763-B-1 DU Matrix: Water Analysis Batch: 433828Sample Sample ResultDU DU DU ResultDU DU DU DU ResultDU DU DU DUDU RE ResultDU DU DU DUDU RE RESULT	Analysis Batch: 433828	Comul-	Sample	Calle	MOD	MOD				0/ Dee		000
Fluoride 0.22 1.00 1.29 mg/L 107 75-125 0 Lab Sample ID: 400-166763-B-1 DU Client Sample ID: Duplica Prep Type: Total/N Matrix: Water Prep Type: Total/N Prep Type: Total/N Analysis Batch: 433828 Sample Sample DU DU Rf Analyte Result Qualifier Result Qualifier Unit D RPD Lint	Analyte	-	-				Unit	• ח	Rec		חםק	RPD Limit
Lab Sample ID: 400-166763-B-1 DU Client Sample ID: Duplica Matrix: Water Prep Type: Total/N Analysis Batch: 433828 Sample Sample DU DU Analyte Result Qualifier Result Qualifier Unit D												4
Matrix: Water Prep Type: Total/N Analysis Batch: 433828 Sample Sample DU DU RF Analyte Result Qualifier Result Qualifier Unit D RPD Lint		0.22		1.00	1.20		<u>9</u> , L			10 - 120	0	т
Sample Sample DU DU RF Analyte Result Qualifier Result Qualifier Unit D RPD Lin	Matrix: Water	3-B-1 DU						(Client			
Analyte Result Qualifier Result Qualifier Unit D RPD Lin	Analysis Batch: 433828	Sample	Sample		ווח	טס						RPD
	Analyte						Unit	D			RPD	Limit
Fluoride 0.032 U mg/L NC	Fluoride						mg/L				NC	4

QC Sample Results

Method: SM 4500 SO4 E - Sulfate, Total

Lab Sample ID: MB 400-43 Matrix: Water	33223/6						Clie	ent Sam	ple ID: Meth Prep Type:		
Analysis Batch: 433223											
Analyte	Ba	MB MB sult Qualifier		PQL	MDL Unit		D P	repared	Analyzed	ni	il Fac
Sulfate		1.4 U		5.0	1.4 mg/L			repareu	03/13/19 13:		1
Lab Sample ID: LCS 400-4 Matrix: Water	33223/7					Clie	ent Sai	mple ID	: Lab Contro Prep Type:		
Analysis Batch: 433223			Spike	109	LCS				%Rec.		
Analyte			Added	-	Qualifier	Unit	D	%Rec	Limits		
Sulfate			15.0	14.1		mg/L		94	90 - 110		
Lab Sample ID: MRL 400-4 Matrix: Water	433223/3					Clie	ent Sai	mple ID	: Lab Contro Prep Type:		
Analysis Batch: 433223			Spike	MRI	MRL				%Rec.		
Analyte			Added		Qualifier	Unit	D	%Rec	Limits		
Sulfate			5.00	4.40	Ī	mg/L		88	50 - 150		
Lab Sample ID: 400-16664 Matrix: Water Analysis Batch: 433223	8-A-5 MS						CI	lient Sa	mple ID: Ma Prep Type:		
	Sample	Sample	Spike	MS	MS				%Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Sulfate	150 8-A-5 MSD		10.0	151	J3	mg/L	Samp	-5	77 - 128	Duplic	cate
Sulfate Lab Sample ID: 400-16664 Matrix: Water Analysis Batch: 433223	8-A-5 MSD	Sample				-	Samp	-	latrix Spike Prep Type:	Tota	I/NA
Lab Sample ID: 400-16664 Matrix: Water Analysis Batch: 433223	8-A-5 MSD Sample	Sample Qualifier	10.0 Spike Added	MSD	J3 MSD Qualifier	-	Samp	-	latrix Spike Prep Type: %Rec.	Total	I/NA RPE
Lab Sample ID: 400-16664 Matrix: Water Analysis Batch: 433223 Analyte	8-A-5 MSD Sample		Spike	MSD	MSD Qualifier	Client		le ID: N	latrix Spike Prep Type: %Rec.	Total	RPE Limi
Lab Sample ID: 400-16664 Matrix: Water Analysis Batch: 433223 Analyte Sulfate Lab Sample ID: 400-16685	Sample Result		Spike Added	MSD Result	MSD Qualifier	Client Unit	D	%Rec 27	latrix Spike Prep Type: %Rec. Limits F	Total $\frac{PD}{2} = \frac{1}{2}$ trix Sp	I/NA RPI Limi
Lab Sample ID: 400-16664 Matrix: Water Analysis Batch: 433223 Analyte Sulfate Lab Sample ID: 400-16685 Matrix: Water Analysis Batch: 433223	Sample Result 150 7-D-1 MS Sample	Qualifier	Spike Added 10.0 Spike	MSD Result 154 MS	MSD Qualifier J3 MS	Client Unit mg/L	D CI	%Rec 27	Arix Spike Prep Type: %Rec. Limits 77 - 128 mple ID: Mat Prep Type: %Rec.	Total $\frac{PD}{2} = \frac{1}{2}$ trix Sp	I/NA RPE Limi
Lab Sample ID: 400-16664 Matrix: Water Analysis Batch: 433223 Analyte Sulfate Lab Sample ID: 400-16685 Matrix: Water Analysis Batch: 433223 Analyte	Sample Result 150 7-D-1 MS Sample Result	Qualifier	Spike Added 10.0 Spike Added	MSD Result 154 MS Result	MSD Qualifier J3	Client Unit mg/L	D	%Rec 27	Arix Spike Prep Type: %Rec. Limits 77 - 128 mple ID: Mar Prep Type: %Rec. Limits	Total $\frac{PD}{2} = \frac{1}{2}$ trix Sp	I/NA RPE Limi t
Lab Sample ID: 400-16664 Matrix: Water Analysis Batch: 433223 Analyte Sulfate Lab Sample ID: 400-16685 Matrix: Water Analysis Batch: 433223 Analyte Sulfate Lab Sample ID: 400-16685 Matrix: Water	Sample Result 150 7-D-1 MS Sample Result 1.6	Qualifier	Spike Added 10.0 Spike	MSD Result 154 MS	MSD Qualifier J3 MS	Client Unit mg/L	D CI	Ne ID: N NRec 27 Nient Sa NRec 93	Arix Spike Prep Type: %Rec. Limits 77 - 128 mple ID: Mat Prep Type: %Rec.	Total	I/N/ RPI Limi (pike I/N/
Lab Sample ID: 400-16664 Matrix: Water Analysis Batch: 433223 Analyte Sulfate Lab Sample ID: 400-16685 Matrix: Water Analysis Batch: 433223 Analyte Sulfate Lab Sample ID: 400-16685 Matrix: Water Analysis Batch: 433223	8-A-5 MSD Sample Result 150 7-D-1 MS Sample Result 1.6 7-D-1 MSD Sample	Qualifier Sample Qualifier I	Spike Added 10.0 Spike Added 10.0 Spike	MSD Result 154 MS Result 10.9	MSD Qualifier J3 MS Qualifier MSD	Client Unit mg/L	D CI D Samp	Ne ID: N Nec 27 Nec 93 Ne ID: N	Arix Spike Prep Type: %Rec. Limits 77 - 128 mple ID: Mat Prep Type: %Rec. Limits 77 - 128 Arix Spike Prep Type: %Rec.	Total RPD 1 2 Total Duplic Total	I/NA RPE Limi (pike I/NA
Lab Sample ID: 400-16664 Matrix: Water Analysis Batch: 433223 Analyte Sulfate Lab Sample ID: 400-16685 Matrix: Water Analysis Batch: 433223 Analyte Sulfate Lab Sample ID: 400-16685 Matrix: Water Analysis Batch: 433223 Analyte	Sample Result 150 7-D-1 MS Sample Result 1.6 7-D-1 MSD Sample Result	Qualifier Sample Qualifier I Sample Qualifier	Spike Added 10.0 Spike Added 10.0 Spike Added	MSD Result 154 MS Result 10.9 MSD Result	MSD Qualifier J3 MS Qualifier	Client Unit mg/L Client Unit	D CI D Samp	Ne ID: N NRec NRec 93 Ne ID: N %Rec	latrix Spike Prep Type: %Rec. Limits 77 - 128 mple ID: Mar Prep Type: %Rec. Limits 77 - 128 latrix Spike Prep Type: %Rec. Limits	Total RPD 1 trix Sp Total Duplic Total RPD 1 RPD 1	I/NA RPE Limi ? pike I/NA cate I/NA RPE Limi
Lab Sample ID: 400-16664 Matrix: Water Analysis Batch: 433223 Analyte Sulfate Lab Sample ID: 400-16685 Matrix: Water Analysis Batch: 433223 Analyte Sulfate	Sample Result 150 7-D-1 MS Sample Result 1.6 7-D-1 MSD Sample Result 1.6	Qualifier	Spike Added 10.0 Spike Added 10.0 Spike	MSD Result 154 MS Result 10.9	MSD Qualifier J3 MS Qualifier MSD	Client Unit mg/L Unit mg/L Client	D CI D Samp D	Ne ID: N NRec 27 Ne ID: N Ne ID: N NRec 92	Arix Spike Prep Type: %Rec. Limits 77 - 128 mple ID: Mat Prep Type: %Rec. Limits 77 - 128 Arix Spike Prep Type: %Rec.	$\frac{\text{RPD}}{2} - \frac{1}{2}$ $\frac{\text{trix Sp}}{\text{Total}}$ $\frac{\text{Duplic}}{1} - \frac{1}{2}$ $\frac{\text{RPD}}{1} - \frac{1}{2}$	I/NA RPE Limi (pike I/NA RPE Limi (lank
Lab Sample ID: 400-16664 Matrix: Water Analysis Batch: 433223 Analyte Sulfate Lab Sample ID: 400-16685 Matrix: Water Analysis Batch: 433223 Analyte Sulfate Lab Sample ID: 400-16685 Matrix: Water Analysis Batch: 433223 Analyte Sulfate Lab Sample ID: MB 400-43 Matrix: Water	8-A-5 MSD Sample Result 150 7-D-1 MS Sample Result 1.6 7-D-1 MSD Sample Result 1.6 33751/6	Qualifier Sample Qualifier I Sample Qualifier	Spike Added 10.0 Spike Added 10.0 Spike Added	MSD Result 154 MS Result 10.9 MSD Result 10.8	MSD Qualifier J3 MS Qualifier MSD	Client Unit mg/L Client Unit mg/L	D Cl Samp D Clie	Ne ID: N NRec 27 Ne ID: N Ne ID: N NRec 92	Arix Spike Prep Type: %Rec. Limits 77 - 128 mple ID: Mar Prep Type: %Rec. Limits 77 - 128 Atrix Spike Prep Type: %Rec. Limits 77 - 128	Total RPD 2 Total Duplic Total RPD 1 1 1 1 1 1 1 1 1	I/NA RPD Limiti 5 pike I/NA RPD Limiti 5 lank

Method: SM 4500 SO4 E - Sulfate, Total

Lab Sample ID: LCS 400-4 Matrix: Water	33751/7					Clie	nt Sar	nple ID	: Lab Cor Prep Ty		
Analysis Batch: 433751			• •						~·-		
			Spike	-	LCS		_		%Rec.		
Analyte			Added		Qualifier	Unit	D	%Rec	Limits		
Sulfate			15.0	14.2		mg/L		95	90 - 110		
Lab Sample ID: MRL 400-4	433751/3					Clie	nt Sar	nple ID	: Lab Cor	ntrol Sa	ample
Matrix: Water									Prep Ty	pe: Tot	al/NA
Analysis Batch: 433751										- -	
			Spike	MRL	MRL				%Rec.		
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits		
Sulfate			5.00	3.72	Ī	mg/L		74	50 ₋ 150		
Lab Sample ID: 400-16676	3-B-3 MS						CI	ient Sa	mple ID:	Matrix	Spike
Matrix: Water									· Prep Ty		-
Analysis Batch: 433751											
	Sample	Sample	Spike	MS	MS				%Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Sulfate	35		10.0	43.1		mg/L		83	77 - 128		
Lab Sample ID: 400-16676	3-B-3 MSD					Client	Samp	le ID: N	latrix Spi	ke Dup	licate
Matrix: Water									Prep Ty		
Analysis Batch: 433751											
	•	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte		Qualifier	Added		Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Sulfate	35		10.0	43.3		mg/L		86	77 - 128	1	5
Lab Sample ID: 400-16676	3-B-7 MS						CI	ient Sa	mple ID:	Matrix	Spike
Matrix: Water									Prep Ty	pe: Tot	tal/NA
Analysis Batch: 433751											
	Sample	Sample	Spike	MS	MS				%Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Sulfate	7.4		10.0	17.4		mg/L		100	77 - 128		
Lab Sample ID: 400-16676	3-B-7 MSD					Client	Samp	le ID: N	latrix Spi	ke Dup	licate
Matrix: Water									Prep Ty		
Analysis Batch: 433751											
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
		0		D 14	0	11	-	0/ D	1		Linald
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit

estAmerica Pensacola	355 McLemore Drive	ensacola. FL 32514
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Chain of Custody Record

Pensacola, FL 32514 Phone (850) 474-1001 Fax (850) 478-2671				THE LEADER IN ENVIRONMENTAL TESTING
Client Information	Sampler Philip Evans	Lab PM: Whitmire, Cheyenne R	Carrier Tracking No(s):	COC No: 400-82559-23630.1
Client Contact: Kristi Mitchell	Phone: 850-3310-0192	1		Page: Page 1 of 1
Company: Gulf Power Company		Analysis Requested	quested	Job #:
Address: BIN 731 One Energy Place	Due Date Requested:			
City: Pensacola State, Zip: FL, 32520	TAT Requested (days):	Sulfate, 2540 e 5,56,TI, 7470/		A - HCL M Hexane B - NaOH N None C - Z. Acetate O - ASNA02 D - Nitric Acid P - Na2O4S E - NaHSO4 O - Na2SO3
Phone: 850-444-6427(Tel)	Po #: Pay by Credit Card	228_GF 04_E - Fluorid	400-166764 COC	
Email: kristi.mitchell@nexteraenergy.com	# OM	No)	5J	I - Ice J - DI Water
Project Name: CCR Plant Crist Gypsum Storage Area	Project #: 40005424	65 OT	ienis)	K - EDTA L - EDA
Site:	SSOW#:	SD (Yaz 20_Raz Solids Solids 4,8,6,0	of con	Other:
Sample Identification	Sample Type Sample (C=comp, Sample Time G=grab) Ier	Matrix Matrix Wwwarer, Wwwarer, Perform MS/M Perform MS/M Perform MS/M Perform MS/M Perform MS/M Perform MS/M Perform MS/M Mercury Mercury Mercury Mercury Mercury	of the second	Special Instructions/Note:
	Preserva	on Code: XXD N D N		
MW-200	2)28/19 1005 6	Water VXXX		
)	Water		
		Water		
MW-203	3/M19 1035	Water		
MW-204	9 38 19 1355	Water		
MW-205	2060 M186 E	Water		
MW-206	2/38/19 1055	Water		
Dup-02	2/28/19 0805	Water		
* Fretet FB-02	3/1/19 1037 V	water U V V V		
E8-02	3/1/19 1105 6	Water X X X X		
Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	assessed if samples are retain	ined longer than 1 month)
v, Other (specify)	Poison B Unknown Radiological	Return To Client Disy Special Instructions/QC Requirements	posal By Lab	Archive For Months
Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:	
Relinquisted by:	119 1900	Company RDH Received by SOUNUC	Varley DaterTime: 1-1	9 1900 Company H
Relinquished by	3-19 0930	1H	Date/Time:	Company
Relinquished by: 0 U	Date/Time:	Company Received by: Hundhard	S Date/Time:	0930 Company PEN
Custody Seals Intact: Custody Seal No.:		Cooler Temperature(s) °C and Officer Remarks	Remarks: 0.82,1	1.02 1R7
			1	Ver: 01/16/2019

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TestAmerica Pensacola										TactA	TactAmarica
3355 McLemore Drive Pensacola. FL 32514	C	hain o	hain of Custody Record	ody Re	scord						
Fax (850) 478-2671										THE LEADER IN	THE LEADER IN ENVIRONMENTAL TESTING
	Phil	DEVan	5	Lab PM: Whitm	Lab PM: Whitmire, Cheyenne R	nne R		Carrier Tracking No(s)	No(s):	COC No: 400-82559-23630.1	330.1
Client Contact: Kristi Mitchell	Phone: 950	-336-	2610	E-Mail: cheye	nne.whitm	ire@testame	E-Mail: cheyenne.whitmire@testamericainc.com			Page: Page 1 of 1	-
Company: Gulf Power Company							Analysis Requested	equested		Job #:	
Address: BIN 731 One Energy Place	Due Date Requested:									Preservation Codes	odes:
City. Pensacola	TAT Requested (days):	:(s)								A - HCL B - NaOH C - Zn Acetate	M - Hexane N - None O - AsNaO2
State, Zip: FL, 32520					EPC	al T,92,0		-	7	D - Nitric Acid E - NaHSO4	P - Na204S Q - Na2SO3
Phone: 850-444-6427(Tel)	PO #: Pay by Credit Card	P					ueveuup	活力		F - MeOH G - Amchlor H - Ascorbic Acid	R - Na2S2O3 S - H2SO4 T - TSP Dodecahvdrate
Email: kristi,mitchell@nexteraenergy.com	:# OM				(ON	- 0 - 1 0,00,10	uea 6u	i i i			
Project Name: CCR Plant Crist Gypsum Storage Area	Project #: 40005424				68 OL	009'80	udwes	400-166764 COC	oc	Contraction in the	W - pH 4-5 Z - other (specify)
Site:	SSOW#:				Y) as	Solids),98,8,0				of col	
		Sample		Matrix (w=water, S=solid, O=waste/oll,	eld Filtered arform MS/M 15_Ra226, 93	A4500_CI_E - M4500_CI_E - A50_CI_E - Srcury	- gnilqms2ble			rədmuN İsta	
Sample Identification	Sample Date	Hime	G=grab) BT=TIssue, A=A Preservation Code:	BT=Tissue, A=Air) tion Code:	N Po	09 C					Special Instructions/Note:
Du0-05	3/5/19	0830	E	Water	×	NO NO	8				
MW-201	3/5/19	(1930	G	Water	7	R R	X				
MW-202	315/19	1100	6	Water	X	XXX	k l				
				Water							
				Water							
NUMBER OF THE OWNER				Water							
				Water							
				Water							
				Water							
				Water							
							_		_		
ant	Poison B	Unknown	Radiological		Samp	le Disposal (A I Return To Client	(A fee may I Client	Disposal By Lab	samples are	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Return To Client Disposal By Lab — Archive For Mor	n 1 month) Months
0					Specia	al Instruction	Special Instructions/QC Requirements	ments:			
Empty Kit Belinquished by:		Date:			Time:			Method	Method of Shipment:		
Relinquished by: A A Relinquished by:	Date/Time: 3 U	619	1635	Company R	CDA Re	Received by: Received by:	R a	har	Date/Time:	19 163.	S Company
5							-	-			Lindino
	Date/Time:			Company	Ϋ́Υ	Received by:			Date/Time:		Company
Custody Seals Intact: Custody Seal No.: A Yes A No					ö	oler Temperatu	Cooler Temperature(s) °C and Other Remarks	er Remarks:		1 0.7%	しつナ

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12 13

Ver: 01/16/2019

Client: Gulf Power Company

Login Number: 166764 List Number: 1 Creator: Conrady, Hank W

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	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	0.9°C, 1.0°C IR-7, 1.1°C, 0.7°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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Job Number: 400-166764-1

SDG Number: Gypsum Storage Area

List Source: Eurofins TestAmerica, Pensacola

Accreditation/Certification Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist Job ID: 400-166764-1 SDG: Gypsum Storage Area

Laboratory: Eurofins TestAmerica, Pensacola

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

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

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Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 400-166764-2

Laboratory Sample Delivery Group: Gypsum Storage Area Client Project/Site: CCR Plant Crist

For:

Gulf Power Company BIN 731 One Energy Place Pensacola, Florida 32520

Attn: Kristi Mitchell



Authorized for release by: 4/15/2019 3:55:28 PM

Cheyenne Whitmire, Project Manager II (850)471-6222 cheyenne.whitmire@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.



Visit us at: www.testamericainc.com

Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Method Summary	4
Sample Summary	5
Client Sample Results	6
Definitions	17
Chronicle	18
QC Association	21
QC Sample Results	22
Chain of Custody	27
Receipt Checklists	29
Certification Summary	32

Job ID: 400-166764-2

Laboratory: Eurofins TestAmerica, Pensacola

Narrative

Job Narrative 400-166764-2

RAD

Method(s) 9315: Ra-226 Prep Batch 160-418846. Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. DUP-05 (400-166764-9), MW-201 (400-166764-10), MW-202 (400-166764-11), (LCS 160-418846/1-A), (MB 160-418846/18-A), (440-235151-B-4-A), (440-235151-A-4-A MS) and (440-235151-B-4-B MSD)

Method(s) 9315: Ra-226 Prep Batch 160-418219. Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MW-200 (400-166764-1), MW-203 (400-166764-2), MW-204 (400-166764-3), MW-205 (400-166764-4), MW-206 (400-166764-5), DUP-02 (400-166764-6), FB-02 (400-166764-7), EB-02 (400-166764-8), (LCS 160-418219/1-A), (MB 160-418219/24-A), (440-235076-D-1-A), (440-235076-A-1-B MS) and (440-235076-A-1-C MSD)

Method(s) 9320: Ra-228 Prep Batch 160-418851. Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. DUP-05 (400-166764-9), MW-201 (400-166764-10), MW-202 (400-166764-11), (LCS 160-418851/1-A), (MB 160-418851/18-A), (440-235151-B-4-C), (440-235151-A-4-B MS) and (440-235151-B-4-D MSD)

Method(s) 9320: Ra-228 Prep Batch 160-418231. Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MW-200 (400-166764-1), MW-203 (400-166764-2), MW-204 (400-166764-3), MW-205 (400-166764-4), MW-206 (400-166764-5), DUP-02 (400-166764-6), FB-02 (400-166764-7), EB-02 (400-166764-8), (LCS 160-418231/1-A), (MB 160-418231/24-A), (440-235076-D-1-B), (440-235076-A-1-D MS) and (440-235076-A-1-E MSD)

Method Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist

Job ID: 400-166764-2 SDG: Gypsum Storage Area

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

Sample Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist

Ich ID: 400 466764 0 SDG

	00-166764-2 Storage Area	
Collected	Received	
/28/19 10:05	03/02/19 09:30	

Lab Sample ID	Client Sample ID	Matrix	Collected Received	d
400-166764-1	MW-200	Water	02/28/19 10:05 03/02/19 09	9:30
400-166764-2	MW-203	Water	03/01/19 10:35 03/02/19 09	9:30
400-166764-3	MW-204	Water	02/28/19 13:55 03/02/19 09	9:30
400-166764-4	MW-205	Water	02/28/19 09:05 03/02/19 09	9:30
400-166764-5	MW-206	Water	02/28/19 10:55 03/02/19 09	9:30
400-166764-6	DUP-02	Water	02/28/19 08:05 03/02/19 09	9:30
400-166764-7	FB-02	Water	03/01/19 10:37 03/02/19 09	9:30
400-166764-8	EB-02	Water	03/01/19 11:05 03/02/19 09	9:30
400-166764-9	DUP-05	Water	03/05/19 08:30 03/06/19 16	3:35
400-166764-10	MW-201	Water	03/05/19 09:30 03/06/19 16	3:35
400-166764-11	MW-202	Water	03/05/19 11:20 03/06/19 16	3:35

Client Sample ID: MW-200 Date Collected: 02/28/19 10:05 Date Received: 03/02/19 09:30

Lab Sample ID: 400-166764-1

Matrix: Water

			Count Uncert.	Total Uncert.							J
Analyte	Result	Qualifier	(2 σ+/-)	(2 σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac	
Radium-226	4.47		0.361	0.540	1.00	0.111	pCi/L	03/08/19 09:27	04/02/19 21:22	1	ŝ
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac	
Ba Carrier	93.8		40 - 110					03/08/19 09:27	04/02/19 21:22	1	1

			Uncert.	Uncert.							
Analyte	Result	Qualifier	(2 σ+/-)	(2 σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac	
Radium-228	5.24		0.519	0.708	1.00	0.381	pCi/L	03/08/19 11:06	03/27/19 08:59	1	
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac	
Ba Carrier	93.8		40 - 110					03/08/19 11:06	03/27/19 08:59	1	
Y Carrier	85.2		40 - 110					03/08/19 11:06	03/27/19 08:59	1	

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2 σ+/-)	(2σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Combined Radium	9.70		0.632	0.890	5.00	0.381 pCi/L		04/14/19 07:25	1
226 + 228									

Client Sample ID: MW-203 Date Collected: 03/01/19 10:35 Date Received: 03/02/19 09:30

Lab Sample ID: 400-166764-2 Matrix: Water

5 6 7

Method: 9315 - F	Radium-226 (GFPC)								
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.61		0.229	0.271	1.00	0.102	pCi/L	03/08/19 09:27	04/02/19 23:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.1		40 - 110					03/08/19 09:27	04/02/19 23:11	1
Method: 9320 - F	Radium-228 (GFPC)								
			Count	Total						
			Uncert.	Uncert.						
Analyte	Pocult	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac

Radium-228	5.46		0.541	0.739	1.00	0.400 pCi/L	03/08/19 11:06	03/27/19 09:00	1	
Carrier	%Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
Ba Carrier	89.1		40 - 110				03/08/19 11:06	03/27/19 09:00	1	
Y Carrier	87.1		40 - 110				03/08/19 11:06	03/27/19 09:00	1	

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	7.07		0.587	0.787	5.00	0.400 pCi/L		04/14/19 07:25	1

Client Sample ID: MW-204 Date Collected: 02/28/19 13:55 Date Received: 03/02/19 09:30

Lab Sample ID: 400-166764-3 Matrix: Water

5 6

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.912		0.172	0.190	1.00	0.0980	pCi/L	03/08/19 09:27	04/02/19 21:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.1		40 - 110					03/08/19 09:27	04/02/19 21:22	1
_ Method: 9320 - Ra	adium-228 ((GFPC)								
			Count	Total						

			Uncert.	Uncert.							
Analyte	Result	Qualifier	(2 σ+/-)	(2 σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac	
Radium-228	10.5		0.712	1.20	1.00	0.455	pCi/L	03/08/19 11:06	03/27/19 09:00	1	
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac	
Ba Carrier	94.1		40 - 110					03/08/19 11:06	03/27/19 09:00	1	
Y Carrier	89.0		40 - 110					03/08/19 11:06	03/27/19 09:00	1	

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	11.4		0.732	1.21	5.00	0.455 pCi/L		04/14/19 07:25	1

Client Sample ID: MW-205 Date Collected: 02/28/19 09:05 Date Received: 03/02/19 09:30

Lab Sample ID: 400-166764-4

Matrix: Water

5 6

Method: 9315 -			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2 σ +/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.31		0.208	0.239	1.00	0.0935	pCi/L	03/08/19 09:27	04/02/19 23:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.8		40 - 110					03/08/19 09:27	04/02/19 23:20	1
Method: 9320 -	Radium-228 (GFPC)								
			Count	Total						
			Uncert.	Uncert.						
Analyte		Qualifier	(2σ+/-)	(2 σ +/-)	RL	MDC		Prepared	Analyzed	Dil Fac

Radium-228	1.97	0.364	0.407	1.00	0.406	pCi/L	03/08/19 11:06	03/27/19 09:00	1	
Carrier	%Yield Qualifie	r Limits					Prepared	Analyzed	Dil Fac	
Ba Carrier	93.8	40 - 110					03/08/19 11:06	03/27/19 09:00	1	
Y Carrier	89.3	40 - 110					03/08/19 11:06	03/27/19 09:00	1	

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2 σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.28		0.419	0.472	5.00	0.406 pCi/L		04/14/19 07:25	1

Client Sample ID: MW-206 Date Collected: 02/28/19 10:55 Date Received: 03/02/19 09:30

Lab Sample ID: 400-166764-5 **Matrix: Water**

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.97	· _	0.313	0.412	1.00	0.0962	pCi/L	03/08/19 09:27	04/02/19 21:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.2		40 - 110					03/08/19 09:27	04/02/19 21:25	1
- Method: 9320 - F	Radium-228 (GFPC)								
			Count	Total						

			Count Uncert.	Total Uncert.							
Analyte	Result	Qualifier	(2 σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac	
Radium-226	2.97		0.313	0.412	1.00	0.0962	pCi/L	03/08/19 09:27	04/02/19 21:25	1	-
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac	
Ba Carrier Method: 9320 -	91.2 Radium-228 (GFPC)	40 - 110 Count	Total				03/08/19 09:27	04/02/19 21:25	1	
-		GFPC)	Count					03/08/19 09:27	04/02/19 21:25	1	
-	Radium-228 ((GFPC) Qualifier		Total Uncert. (2σ+/-)	RL	MDC	Unit	03/08/19 09:27 Prepared	04/02/19 21:25 Analyzed	1 Dil Fac	1
Method: 9320 -	Radium-228 (Count Uncert.	Uncert.	RL 1.00	MDC 0.426				1 Dil Fac	
Method: 9320 -	Radium-228 (Count Uncert. (2σ+/-)	Uncert. (2σ+/-)				Prepared	Analyzed	1 Dil Fac 1 Dil Fac	
Method: 9320 - Analyte Radium-228	Radium-228 (Qualifier	Count Uncert. (2σ+/-) 0.520	Uncert. (2σ+/-)				Prepared 03/08/19 11:06	Analyzed 03/27/19 09:00	1	

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2 σ+/-)	(2σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Combined Radium	8.04		0.607	0.811	5.00	0.426 pCi/L		04/14/19 07:25	1
226 + 228									

Client Sample ID: DUP-02 Date Collected: 02/28/19 08:05 Date Received: 03/02/19 09:30

Lab Sample ID: 400-166764-6

Matrix: Water

5 6

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.22	··	0.215	0.241	1.00	0.116	pCi/L	03/08/19 09:27	04/02/19 21:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.2		40 - 110					03/08/19 09:27	04/02/19 21:25	1

Analyte		Qualifier	<u>(2σ+/-)</u>	(2σ+/-)	RL _	MDC		Prepared	Analyzed	Dil Fac	
Radium-228	1.56		0.378	0.404	1.00	0.461	pCi/L	03/08/19 11:06	03/27/19 09:00	I	
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac	
Ba Carrier	80.2		40 - 110					03/08/19 11:06	03/27/19 09:00	1	
Y Carrier	88.2		40 - 110					03/08/19 11:06	03/27/19 09:00	1	

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2 σ+/-)	(2σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.77		0.435	0.470	5.00	0.461 pCi/L		04/14/19 07:25	1

Client Sample ID: FB-02 Date Collected: 03/01/19 10:37 Date Received: 03/02/19 09:30

Lab Sample ID: 400-166764-7

Matrix: Water

5 6

Method: 9315 -	Radium-226	GFPC)								
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00228	U	0.0355	0.0355	1.00	0.0795	pCi/L	03/08/19 09:27	04/02/19 21:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.8		40 - 110					03/08/19 09:27	04/02/19 21:25	1

Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac	
Radium-228	0.194	U	0.238	0.239	1.00	0.394	pCi/L	03/08/19 11:06	03/27/19 09:00	1	
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac	
Ba Carrier	98.8		40 - 110					03/08/19 11:06	03/27/19 09:00	1	
Y Carrier	86.7		40 - 110					03/08/19 11:06	03/27/19 09:00	1	

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.196	U	0.241	0.242	5.00	0.394 pCi/L		04/14/19 07:25	1

.

Client Sample ID: EB-02 Date Collected: 03/01/19 11:05 Date Received: 03/02/19 09:30

Lab Sample ID: 400-166764-8

Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0517	U	0.0564	0.0566	1.00	0.0883	pCi/L	03/08/19 09:27	04/02/19 21:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.3		40 - 110					03/08/19 09:27	04/02/19 21:25	1
 Method: 9320 -	Radium-228 (GEPC)								
Method. 3320 -	1.441411-220	<u>()</u> ()()()()()()()()()()()()()()()()()()	Count	Total						

			Count Uncert.	Total Uncert.							
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac	
Radium-226	0.0517	U	0.0564	0.0566	1.00	0.0883	pCi/L	03/08/19 09:27	04/02/19 21:25	1	
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac	
											_
Ba Carrier <mark>Method: 9320 -</mark>	92.3 Radium-228 (GFPC)	40 - 110 Count	Total				03/08/19 09:27	04/02/19 21:25	1	
		GFPC)	Count					03/08/19 09:27	04/02/19 21:25	1	
Method: 9320 - Analyte	Radium-228 (Result	Qualifier	Count Uncert. (2σ+/-)	Uncert. (2σ+/-)	RL	MDC		Prepared	Analyzed	1 Dil Fac	
Method: 9320 - Analyte	Radium-228 (Qualifier	Count Uncert.	Uncert.	RL 1.00	MDC 0.371				1 Dil Fac	
	Radium-228 (Qualifier	Count Uncert. (2σ+/-)	Uncert. (2σ+/-)				Prepared	Analyzed	1 Dil Fac 1 Dil Fac	
Method: 9320 - Analyte Radium-228	Radium-228 (Qualifier	Count Uncert. (2σ+/-) 0.225	Uncert. (2σ+/-)				Prepared 03/08/19 11:06	Analyzed 03/27/19 09:00	1	

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2 σ +/-)	(2σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.242	U	0.232	0.232	5.00	0.371 pCi/L		04/14/19 07:25	1

Client Sample ID: DUP-05 Date Collected: 03/05/19 08:30 Date Received: 03/06/19 16:35

Lab Sample ID: 400-166764-9

Matrix: Water

5

6

		Count Uncert.	Total Uncert.						
Result	Qualifier	(2 σ+/-)	(2 σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
2.18		0.247	0.315	1.00	0.0812	pCi/L	03/12/19 11:02	04/03/19 13:42	1
%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
89.4		40 - 110					03/12/19 11:02	04/03/19 13:42	1
	2.18 %Yield	%Yield Qualifier	ResultQualifierUncert. (2σ+/-)2.180.247%YieldQualifierLimits	ResultQualifierUncert.Uncert.2.18Qualifier(2σ+/-)(2σ+/-)%YieldQualifierLimits	Result Qualifier Uncert. Uncert. 2.18 Qualifier (2σ+/-) (2σ+/-) RL %Yield Qualifier Limits 1.00	Result Qualifier Uncert. (2σ+/-) Uncert. (2σ+/-) MDC 2.18 Qualifier 0.247 0.315 1.00 0.0812 %Yield Qualifier Limits	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	ResultQualifierUncert. (2σ+/-)Uncert. (2σ+/-)MDCUnitPreparedAnalyzed2.180.2470.3151.000.0812pCi/L03/12/19 11:0204/03/19 13:42%YieldQualifierLimitsLimitsPreparedAnalyzed

Count Total Uncert. Uncert. Analyte **Result Qualifier** (2**σ**+/-) (2**σ**+/-) MDC Unit Prepared RL Analyzed Dil Fac 0.783 0.445 pCi/L 03/12/19 11:38 03/21/19 09:01 0.581 1.00 Radium-228 5.71 1 Carrier %Yield Qualifier Limits Prepared Analyzed Dil Fac Ba Carrier 89.4 40 - 110 03/12/19 11:38 03/21/19 09:01 1 Y Carrier 80.7 40 - 110 03/12/19 11:38 03/21/19 09:01 1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2 σ+/-)	(2σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Combined Radium	7.88		0.631	0.844	5.00	0.445 pCi/L		04/14/19 07:25	1
226 + 228									

Total

Uncert.

(2**σ+/-**)

0.313

Count Uncert.

(2**σ**+/-)

0.241

Limits

40 - 110

Analyte

Carrier

Ba Carrier

Radium-226

Client Sample ID: MW-201 Date Collected: 03/05/19 09:30 Date Received: 03/06/19 16:35

Method: 9315 - Radium-226 (GFPC)

Analyzed

Analyzed

Lab Sample ID: 400-166764-10

03/12/19 11:02 04/03/19 13:43

03/12/19 11:02 04/03/19 13:43

Prepared

Prepared

Matrix: Water

64-10 Water	
	5
Dil Fac	6
Dil Fac	
1	8
	9
Dil Fac	
Dil Fac	
1 1	
	13

Method: 9320 - I			Count	Total						
Analyte	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	5.89		0.599	0.808	1.00	0.425	pCi/L	03/12/19 11:38	03/21/19 09:02	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.3		40 - 110					03/12/19 11:38	03/21/19 09:02	1
Y Carrier	74.0		40 - 110					03/12/19 11:38	03/21/19 09:02	1

RL

1.00

MDC Unit

0.0733 pCi/L

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Result Qualifier

%Yield Qualifier

2.22

92.3

				Count	Total							
				Uncert.	Uncert.							
Analyte		Result	Qualifier	(2σ+/-)	(2 σ+/-)	RL	MDC U	Jnit	Prepared	Analyzed	Dil Fac	
Combir	ed Radium	8.11		0.646	0.867	5.00	0.425 p	Ci/L		04/14/19 07:25	1	
226 + 2	28											

Client Sample ID: MW-202 Date Collected: 03/05/19 11:20 Date Received: 03/06/19 16:35

Lab Sample ID: 400-166764-11

Matrix: Water

5

6

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2 σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.924		0.152	0.174	1.00	0.0900	pCi/L	03/12/19 11:02	04/03/19 13:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.8		40 - 110					03/12/19 11:02	04/03/19 13:43	1
Method: 9320 - I	Radium-228 ((GFPC)								
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2 σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Dedium 000	4.05		0.211	0.001	1.00	0.262	~C:/I	02/12/10 11:20	02/21/10 00:02	

Radium-228	1.25		0.311	0.331	1.00	0.362 pCi/L	03/12/19 11:38	03/21/19 09:02	1	
Carrier	%Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
Ba Carrier	96.8		40 - 110				03/12/19 11:38	03/21/19 09:02	1	
Y Carrier	81.9		40 - 110				03/12/19 11:38	03/21/19 09:02	1	
										4

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2 σ+/-)	(2 σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Combined Radium	2.17		0.346	0.374	5.00	0.362 pCi/L		04/14/19 07:25	1
226 + 228									

Qualifiers

|--|

Qualifiers		
Rad		
Qualifier	Qualifier Description	
U	Result is less than the sample detection limit.	
Glossary		5
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	7
CFL	Contains Free Liquid	
CNF	Contains No Free Liquid	9
DER	Duplicate Error Ratio (normalized absolute difference)	σ
Dil Fac	Dilution Factor	
DL	Detection Limit (DoD/DOE)	9
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	13
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) Dilution

Run

Factor

1

1

1

Batch

Number

Prepared

418219 03/08/19 09:27 HET

422416 04/02/19 21:22 CDR

418231 03/08/19 11:06 HET

421367 03/27/19 08:59 CDR

423568 04/14/19 07:25 CDR

or Analyzed Analyst

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Client Sample ID: MW-200 Date Collected: 02/28/19 10:05 Date Received: 03/02/19 09:30

Batch

Туре

Prep

Prep

Analysis

Analysis

Analysis

Batch

9315

9320

Method

PrecSep-21

PrecSep_0

Ra226 Ra228

Job ID: 400-166764-2
SDG: Gypsum Storage Area

Lab Sample ID: 400-166764-1 Matrix: Water

Lab

TAL SL

TAL SL

TAL SL

TAL SL

TAL SL

Lab Sample ID: 400-166764-2

Lab Sample ID: 400-166764-3

5
8
9
<u> </u>

Matrix: Water

Matrix: Water

Client Sample ID: MW-203 Date Collected: 03/01/19 10:35 Date Received: 03/02/19 09:30

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Туре	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			418219	03/08/19 09:27	HET	TAL SL
Total/NA	Analysis	9315		1	422416	04/02/19 23:11	CDR	TAL SL
Total/NA	Prep	PrecSep_0			418231	03/08/19 11:06	HET	TAL SL
Total/NA	Analysis	9320		1	421367	03/27/19 09:00	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	423568	04/14/19 07:25	CDR	TAL SL

Client Sample ID: MW-204 Date Collected: 02/28/19 13:55 Date Received: 03/02/19 09:30

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			418219	03/08/19 09:27	HET	TAL SL
Total/NA	Analysis	9315		1	422416	04/02/19 21:22	CDR	TAL SL
Total/NA	Prep	PrecSep_0			418231	03/08/19 11:06	HET	TAL SL
Total/NA	Analysis	9320		1	421367	03/27/19 09:00	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	423568	04/14/19 07:25	CDR	TAL SL

Client Sample ID: MW-205 Date Collected: 02/28/19 09:05 Date Received: 03/02/19 09:30

Lab Sample ID: 400-166764-4 Matrix: Water

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			418219	03/08/19 09:27	HET	TAL SL
Total/NA	Analysis	9315		1	422365	04/02/19 23:20	CDR	TAL SL
Total/NA	Prep	PrecSep_0			418231	03/08/19 11:06	HET	TAL SL
Total/NA	Analysis	9320		1	421367	03/27/19 09:00	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	423568	04/14/19 07:25	CDR	TAL SL

Dilution

Factor

1

1

1

Dilution

Factor

Run

Run

Batch

Number

418219

422365

418231

421367

Batch

Number

Prepared

or Analyzed

03/08/19 09:27

04/02/19 21:25

423568 04/14/19 07:25 CDR

Prepared

or Analyzed

03/08/19 11:06 HET 03/27/19 09:00 CDR

Analyst

Analyst

HET

CDR

Lab

TAL SL

TAL SL

TAL SL

TAL SL

TAL SL

Lab

Lab Sample ID: 400-166764-6

Matrix: Water

Matrix: Water

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Prep Type

Client Sample ID: MW-206 Date Collected: 02/28/19 10:55 Date Received: 03/02/19 09:30

Client Sample ID: DUP-02

Date Collected: 02/28/19 08:05

Date Received: 03/02/19 09:30

Batch

Type

Prep

Prep

Analysis

Analysis

Analysis

Batch

Type

Batch

9315

9320

Batch

Method

Method

PrecSep-21

PrecSep_0

Ra226 Ra228

Job ID: 400-166764-2
SDG: Gypsum Storage Area

Lab Sample ID: 400-166764-5 Matrix: Water

8

Total/NA Prep PrecSep-21 418219 03/08/19 09:27 HET TAL SL Total/NA 9315 Analysis 1 422365 04/02/19 21:25 CDR TAL SL Total/NA Prep PrecSep 0 418231 03/08/19 11:06 HET TAL SL 9320 TAL SL Total/NA Analysis 1 421367 03/27/19 09:00 CDR Total/NA Analysis Ra226 Ra228 1 423568 04/14/19 07:25 CDR TAL SL Lab Sample ID: 400-166764-7

Client Sample ID: FB-02 Date Collected: 03/01/19 10:37 Date Received: 03/02/19 09:30

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			418219	03/08/19 09:27	HET	TAL SL
Total/NA	Analysis	9315		1	422365	04/02/19 21:25	CDR	TAL SL
Total/NA	Prep	PrecSep_0			418231	03/08/19 11:06	HET	TAL SL
Total/NA	Analysis	9320		1	421367	03/27/19 09:00	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	423568	04/14/19 07:25	CDR	TAL SL

Client Sample ID: EB-02 Date Collected: 03/01/19 11:05 Date Received: 03/02/19 09:30

Lab Sample ID: 400-166764-8 Matrix: Water

Batch Batch Dilution Batch Prepared Prep Type Туре Method Run Factor Number or Analyzed Analyst Lab TAL SL Total/NA Prep PrecSep-21 418219 03/08/19 09:27 HET Total/NA 9315 422365 04/02/19 21:25 CDR TAL SL Analysis 1 Total/NA TAL SL Prep PrecSep_0 418231 03/08/19 11:06 HET Total/NA 9320 421367 03/27/19 09:00 CDR TAL SL Analysis 1 Total/NA Ra226 Ra228 423568 04/14/19 07:25 CDR TAL SL Analysis 1

Dilution

Factor

1

1

1

Run

Batch

Number

418846

Prepared

422457 04/03/19 13:42 CDR

418851 03/12/19 11:38 LTC

420408 03/21/19 09:01 KLS

423568 04/14/19 07:25 CDR

or Analyzed Analyst

03/12/19 11:02 LTC

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Client Sample ID: DUP-05 Date Collected: 03/05/19 08:30 Date Received: 03/06/19 16:35

Batch

Туре

Prep

Prep

Analysis

Analysis

Analysis

Lab Sample ID: 400-166764-9 Matrix: Water

Lab

TAL SL

TAL SL

TAL SL

TAL SL

TAL SL

Lab Sample ID: 400-166764-10

Lab Sample ID: 400-166764-11

Matrix: Water

Matrix: Water

Client Sample ID: MW-201 Date Collected: 03/05/19 09:30 Date Received: 03/06/19 16:35

Batch

9315

9320

Method

PrecSep-21

PrecSep_0

Ra226 Ra228

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			418846	03/12/19 11:02	LTC	TAL SL
Total/NA	Analysis	9315		1	422476	04/03/19 13:43	KLS	TAL SL
Total/NA	Prep	PrecSep_0			418851	03/12/19 11:38	LTC	TAL SL
Total/NA	Analysis	9320		1	420407	03/21/19 09:02	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	423568	04/14/19 07:25	CDR	TAL SL

Client Sample ID: MW-202 Date Collected: 03/05/19 11:20 Date Received: 03/06/19 16:35

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			418846	03/12/19 11:02	LTC	TAL SL
Total/NA	Analysis	9315		1	422476	04/03/19 13:43	KLS	TAL SL
Total/NA	Prep	PrecSep_0			418851	03/12/19 11:38	LTC	TAL SL
Total/NA	Analysis	9320		1	420407	03/21/19 09:02	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	423568	04/14/19 07:25	CDR	TAL SL

Laboratory References:

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

QC Association Summary

Rad

Prep Batch: 418219

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166764-1	MW-200	Total/NA	Water	PrecSep-21	
400-166764-2	MW-203	Total/NA	Water	PrecSep-21	
400-166764-3	MW-204	Total/NA	Water	PrecSep-21	
400-166764-4	MW-205	Total/NA	Water	PrecSep-21	
400-166764-5	MW-206	Total/NA	Water	PrecSep-21	
400-166764-6	DUP-02	Total/NA	Water	PrecSep-21	
400-166764-7	FB-02	Total/NA	Water	PrecSep-21	
400-166764-8	EB-02	Total/NA	Water	PrecSep-21	
MB 160-418219/24-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-418219/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
440-235076-A-1-B MS	Matrix Spike	Total/NA	Water	PrecSep-21	
440-235076-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 418231

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166764-1	MW-200	Total/NA	Water	PrecSep_0	
400-166764-2	MW-203	Total/NA	Water	PrecSep_0	
400-166764-3	MW-204	Total/NA	Water	PrecSep_0	
400-166764-4	MW-205	Total/NA	Water	PrecSep_0	
400-166764-5	MW-206	Total/NA	Water	PrecSep_0	
400-166764-6	DUP-02	Total/NA	Water	PrecSep_0	
400-166764-7	FB-02	Total/NA	Water	PrecSep_0	
400-166764-8	EB-02	Total/NA	Water	PrecSep_0	
MB 160-418231/24-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-418231/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
440-235076-A-1-D MS	Matrix Spike	Total/NA	Water	PrecSep_0	
440-235076-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep_0	

Prep Batch: 418846

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166764-9	DUP-05	Total/NA	Water	PrecSep-21	
400-166764-10	MW-201	Total/NA	Water	PrecSep-21	
400-166764-11	MW-202	Total/NA	Water	PrecSep-21	
MB 160-418846/18-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-418846/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
440-235151-A-4-A MS	Matrix Spike	Total/NA	Water	PrecSep-21	
440-235151-B-4-B MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 418851

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166764-9	DUP-05	Total/NA	Water	PrecSep_0	
400-166764-10	MW-201	Total/NA	Water	PrecSep_0	
400-166764-11	MW-202	Total/NA	Water	PrecSep_0	
MB 160-418851/18-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-418851/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
440-235151-A-4-B MS	Matrix Spike	Total/NA	Water	PrecSep_0	
440-235151-B-4-D MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep_0	

QC Sample Results

10

Method: 9315 - Radium-226 (GFPC)

Matrix: Wate	e ID: MB 10 er	60-4182	19/24-A						Cli		ole ID: Me Prep Typ		
Analysis Ba		16									Prep Bat		
				Count	Total								
		МВ	МВ	Uncert.	Uncert.								
Analyte		Result	Qualifier	(2 σ+/-)	(2 σ+/-)	RL	MDC	Unit	P	Prepared	Analyze	ed	Dil F
Radium-226		0.05094	<u> </u>	0.0618	0.0619	1.00	0.101	pCi/L	03/0	08/19 09:27	04/02/19 2	3:12	
		МВ	MB										
Carrier			Qualifier	Limits					F	Prepared	Analyze	ed	Dil F
Ba Carrier		95.3		40 - 110					03/0	08/19 09:27	04/02/19 2	23:12	
Lab Sample Matrix: Wate		1 <mark>60-418</mark> :	219/1-A					Cli	ent Sa		Lab Cont Prep Typ		
Analysis Ba		16									Prep Bat		
						Total							
			Spike		LCS	Uncert.					%Rec.		
Analyte			Added	Result	Qual	(2σ+/-)	RL	MDC		%Rec	Limits		
Radium-226			11.4	9.018		0.969	1.00	0.0778	pCi/L	79	68 - 137	_	
	LCS	LCS											
Carrier	%Yield	Qualifier	Limits										
Ba Carrier	96.8		40 - 110	-									
Lab Sample		35076-4	4-1-B MS						С		nple ID: M		
Matrix: Wate Analysis Ba		65									Prep Typ Prep Bat		
Analysis Da	ICH. 4223	00				Total					гтер Ба		102
	Sample	Sample	e Spike	MS	MS	Uncert.					%Rec.		
Analyte	Result	•	Added	Result	Qual	(2 σ +/-)	RL	MDC	Unit	%Rec	Limits		
Radium-226	-0.0204		15.1	11.93		1.30	1.00	0.127	pCi/L	79	75 - 138		
	MS	MS											
Carrier		Qualifier	Limits										
Ba Carrier	83.8		40 - 110	-									
												_	
	ID: 440-2	35076-4	A-1-C MSD					Client	Samp		atrix Spik		
Matrix: Wate	er										Prep Typ		
Matrix: Wate	er					Total					Prep Bat		
Matrix: Wate	er itch: 4224	55		MSD	MSD	Total Uncert					Prep Bat		182
Matrix: Wate Analysis Ba	er Itch: 4224 Sample	55 Sample	e Spike		MSD Qual	Uncert.	RL	MDC	Unit		Prep Bat %Rec.	tch: 41	182 R
Matrix: Wate Analysis Ba Analyte	er Itch: 4224 Sample	55 Sample Qual		MSD Result 12.93			RL 1.00	MDC 0.149			Prep Bat		182 R
Matrix: Wate Analysis Ba ^{Analyte}	er Itch: 4224 Sample <u>Result</u> -0.0204	55 Sample Qual	e Spike Added	Result		Uncert. (2σ+/-)				%Rec	Prep Bat %Rec. Limits	tch: 41 RER	182 R
Matrix: Wate Analysis Ba Analyte Radium-226	er Itch: 4224 Sample Result -0.0204 <i>MSD</i>	55 Sample Qual U MSD	e Spike Added 15.1	Result		Uncert. (2σ+/-)				%Rec	Prep Bat %Rec. Limits	tch: 41 RER	182 R
Matrix: Wate Analysis Ba Analyte Radium-226 Carrier	er Itch: 4224 Sample Result -0.0204 <i>MSD</i>	55 Sample Qual	e Spike Added 15.1	Result		Uncert. (2σ+/-)				%Rec	Prep Bat %Rec. Limits	tch: 41 RER	182 R
Matrix: Wate Analysis Ba Analyte Radium-226 Carrier Ba Carrier	er Itch: 4224 Sample 	55 Sample Qual MSD Qualifier	e Spike Added 15.1 Limits 40 - 110	Result		Uncert. (2σ+/-)			pCi/L	<mark>%Rec</mark> 85	Prep Bat %Rec. Limits 75 - 138	RER 0.37	182 R _Li
Matrix: Wate Analysis Ba Analyte Radium-226 Carrier Ba Carrier Lab Sample	er ttch: 4224 Sample Result -0.0204 <i>MSD</i> %Yield 90.9 ID: MB 10	55 Sample Qual MSD Qualifier	e Spike Added 15.1 Limits 40 - 110	Result		Uncert. (2σ+/-)			pCi/L	ent Samp	Prep Bat %Rec. Limits 75 - 138	tch: 41 RER 0.37	182 R Li
Matrix: Wate Analysis Ba Analyte Radium-226 <i>Carrier</i> Ba Carrier Lab Sample Matrix: Wate	er ttch: 4224 Sample Result -0.0204 <i>MSD</i> %Yield 90.9 D: MB 10 er	55 Sample Qual WSD Qualifier	e Spike Added 15.1 Limits 40 - 110	Result		Uncert. (2σ+/-)			pCi/L	ent Samp	Prep Bat %Rec. Limits 75-138	tch: 41 RER 0.37 ethod I e: Tot	182 R Li Bla
Matrix: Wate Analysis Ba Analyte Radium-226 <i>Carrier</i> Ba Carrier Lab Sample Matrix: Wate	er ttch: 4224 Sample Result -0.0204 <i>MSD</i> %Yield 90.9 D: MB 10 er	55 Sample Qual WSD Qualifier	e Spike Added 15.1 Limits 40 - 110	Result 12.93	Qual	Uncert. (2σ+/-)			pCi/L	ent Samp	Prep Bat %Rec. Limits 75 - 138	tch: 41 RER 0.37 ethod I e: Tot	I82 R Li Bla al/I
Matrix: Wate Analysis Ba Analyte Radium-226 <i>Carrier</i> Ba Carrier Lab Sample Matrix: Wate	er ttch: 4224 Sample Result -0.0204 <i>MSD</i> %Yield 90.9 D: MB 10 er	55 Sample Qual <i>U</i> <i>MSD</i> <i>Qualifier</i> 60-4188 57	e Spike Added 15.1 <u>Limits</u> 40 - 110 346/18-A	Result 12.93	Qual	Uncert. (2σ+/-)			pCi/L	ent Samp	Prep Bat %Rec. Limits 75-138	tch: 41 RER 0.37 ethod I e: Tot	I82 R Li Bla al/I
Lab Sample Matrix: Wate Analysis Ba Analyte Radium-226 Carrier Ba Carrier Lab Sample Matrix: Wate Analysis Ba	er ttch: 4224 Sample Result -0.0204 <i>MSD</i> %Yield 90.9 D: MB 10 er	55 Sample Qual <i>U</i> <i>MSD</i> <i>Qualifier</i> 60-4188 57 MB	e Spike Added 15.1 <u>Limits</u> 40 - 110 346/18-A	Result 12.93	Qual	Uncert. (2σ+/-)		0.149	pCi/L Clie	ent Samp	Prep Bat %Rec. Limits 75-138	RER 0.37 0.37 ethod l e: Tot tch: 44	Blai

QC Sample Results

10

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

	60-4188	46/18-A						Cli	ent Samp			
	57											
										Перва		1004
			l imits					F	Prenared	Δnalvz	ed .	Dil Fa
									-	-		Dirra
	60-418	846/1-A					Cli	ent Sa	mple ID:			
er												
tch: 4224	57									Prep Bat	tch: 4	1884
		Onites	1.00	1.00						0/ D = =		
						ы	MDC	Unit	% Pac			
					. ,							
		11.4	5.470		0.007	1.00	0.0000	P0"L	00	00-107		
	Qualifier		_									
102		40 - 110										
ID· 440-2	35151-4	4-4-A MS						С	lient San	nnle ID [.] M	latrix	Snik
	56											
					Total							
		Spike	MS	MS	Uncert.					%Rec.		
		Added		Qual	(2σ+/-)					Limits		
0.0651	U	11.4	8.954		0.941	1.00	0.0854	pCi/L	78	75 - 138		
MS	MS											
%Yield	Qualifier	Limits										
92.3		40 - 110	-									
ID: 440.0							0	•			- D	
	35151-6	3-4-B 1VISD					Clien	Samp				
	56											
					Total					Перва		1004
Sample	Sample	Spike	MSD	MSD	Uncert.					%Rec.		RE
		Added	Result	Qual	(2 σ +/-)	RL	MDC	Unit	%Rec	Limits	RER	Lim
0.0651	U	11.4	9.407		0.992	1.00	0.0877	pCi/L	82	75 - 138	0.23	
MSD	MSD											
		Limits										
84.1			-									
20 - Kaŭ	num-2	20 (GFPC)									
ID: MB 16 er	60-4182	31/24-A						Cli	ent Samp			
	68		. .									
		MD										
	MB	MB	Uncert.	Uncert.								
	Bacult	Qualifier	(2 σ +/-)	(2σ+/-)	RL	MDC	Unit		repared	Analyze	a d	Dil Fa
	ID: LCS 1 ID: LCS 1 ID: LCS 1 ID: LCS 1 ID: 4224 ID: 4224 ID: 440-2 ID: 400-2 ID: 400-2 ID	MB %Yield 92.0 ID: LCS 160-418 ID: LCS 160-418 ID: LCS 160-418 ID: 422457 LCS LCS %Yield Qualifier 102 ID: 440-235151-4 ID: 440-235151-4 ID: 440-235151-4 ID: 440-235151-4 Sample Sample Result Qual 0.0651 MS MS %Yield Qualifier 92.3 ID: 440-235151-E Sample Sample Result Qual 0.0651 MSD MSD %Yield Qualifier 92.3 ID: 440-235151-E Sample Sample Result Qual 0.0651 MSD MSD %Yield Qualifier 84.1 20 - Radium-2 ID: MB 160-4182 W Kch: 421368	tch: 422457 MB MB	$\frac{MB}{K} MB = \frac{MB}{\sqrt{Yield}} Qualifier} = \frac{Limits}{40.110}$ $\frac{MB}{92.0} = \frac{MB}{40.110}$ $\frac{MB}{92.0} = \frac{MB}{40.110}$ $\frac{MB}{92.0} = \frac{MB}{40.110}$ $\frac{MB}{92.0} = \frac{MB}{40.110}$ $\frac{MB}{11.4} = \frac{MB}{9.470}$ $\frac{MS}{11.4} = \frac{MS}{9.470}$ $\frac{MS}{11.4} = \frac{MS}{40.110}$ $\frac{MS}{102} = \frac{MS}{40.110}$ $\frac{MS}{11.4} = \frac{MS}{8.954}$ $\frac{MS}{\sqrt{Yield}} \frac{Qualifier}{Qual} = \frac{Limits}{40.110}$ $\frac{MS}{11.4} = \frac{MS}{8.954}$ $\frac{MS}{\sqrt{Yield}} \frac{Qualifier}{Qualifier} = \frac{Limits}{40.110}$ $\frac{MS}{11.4} = \frac{MS}{8.954}$ $\frac{MS}{\sqrt{Yield}} \frac{Qualifier}{Qualifier} = \frac{Limits}{40.110}$ $\frac{MS}{11.4} = \frac{MSD}{92.3} = \frac{MSD}{40.110}$ $\frac{MS}{11.4} = \frac{MSD}{9.407}$ $\frac{MSD}{\sqrt{Yield}} \frac{Qualifier}{Qual} = \frac{MSD}{40.110}$ $\frac{MSD}{\sqrt{Yield}} \frac{MSD}{Qualifier} = \frac{Limits}{40.110}$ $\frac{MSD}{\sqrt{Yield}} \frac{MSD}{Qualifier} = \frac{Limits}{40.110}$ $\frac{MSD}{\sqrt{Yield}} \frac{Qualifier}{Qualifier} = \frac{Limits}{40.110}$ $\frac{QUA}{\sqrt{10}} = \frac{MSD}{\sqrt{10}}$ $\frac{MSD}{\sqrt{Yield}} \frac{Qualifier}{Qualifier} = \frac{Limits}{40.110}$ $\frac{QUA}{\sqrt{10}} = \frac{MSD}{\sqrt{10}}$ $\frac{MSD}{\sqrt{10}} = \frac{Limits}{40.110}$ $\frac{MSD}{\sqrt{10}} = \frac{MSD}{\sqrt{10}}$ $\frac{MSD}{\sqrt{10}} = \frac{MSD}{\sqrt{10}}$ $\frac{MSD}{\sqrt{10}} = \frac{Limits}{40.110}$ $\frac{MSD}{\sqrt{10}} = \frac{MSD}{\sqrt{10}}$ $\frac{MSD}{\sqrt{10}} = \frac{MSD}{\sqrt{10}}$ $\frac{MSD}{\sqrt{10}} = \frac{Limits}{\sqrt{10}}$ $\frac{MSD}{\sqrt{10}} = \frac{MSD}{\sqrt{10}}$ $\frac{MSD}{\sqrt{10}} = \frac{MSD}{\sqrt{10}}$ $\frac{MSD}{\sqrt{10}} = \frac{Limits}{\sqrt{10}}$ $\frac{MSD}{\sqrt{10}} = \frac{MSD}{\sqrt{10}}$ $\frac{MSD}{\sqrt{10}} = \frac{Limits}{\sqrt{10}}$ $\frac{MSD}{\sqrt{10}} = \frac{Limits}{\sqrt{10}}$ $\frac{MSD}{\sqrt{10}} = \frac{MSD}{\sqrt{10}}$ $\frac{MSD}{\sqrt{10}} = \frac{MSD}{\sqrt{10}}$	MB MB $\frac{\% Yield Qualifier}{92.0} Limits$ $\frac{1}{40.110}$ ID: LCS 160-418846/1-A Fr tch: 422457 $\frac{Spike}{11.4} LCS LCS LCS LCS LCS LCS LCS LCS LCS LCS$	$\frac{MB}{S} \frac{MB}{S} \frac{MB}{92.0} \frac{MB}{40.110}$ $\frac{MS}{92.0} \frac{MB}{40.110}$ $\frac{MS}{40.110}$ $\frac{MS}{92.0} \frac{MS}{40.110}$ $\frac{MS}{40.110}$ $\frac{MS}{102} \frac{MS}{11.4} \frac{MS}{9.470} \frac{MS}{200} \frac{MS}{10.987}$ $\frac{MS}{11.4} \frac{MS}{9.470} \frac{MS}{10.987}$ $\frac{MS}{102} \frac{MS}{40.110}$ $\frac{MS}{102} \frac{MS}{40.110}$ $\frac{MS}{11.4} \frac{MS}{9.470} \frac{MS}{10.987}$ $\frac{MS}{102} \frac{MS}{40.110}$ $\frac{MS}{11.4} \frac{MS}{8.54} \frac{MS}{10.000} \frac{MS}{10.941}$ $\frac{MS}{1.40.110}$ $\frac{MS}{11.4} \frac{MS}{10.954} \frac{MS}{10.941} \frac{MS}{10.941}$ $\frac{MS}{10.941} \frac{MS}{40.110}$ $\frac{MS}{11.4} \frac{MS}{10.954} \frac{MS}{10.941} \frac{MS}{10.941}$ $\frac{MS}{10.941} \frac{MS}{10.941} \frac{MS}{10.941}$ $\frac{MS}{10.941} \frac{MS}{10.941} \frac{MS}{10.941} \frac{MS}{10.941}$ $\frac{MS}{10.941} \frac{MS}{10.941} \frac{MS}{10.9407} \frac{MS}{10.992}$ $\frac{MSD}{10.992} \frac{MSD}{11.4} \frac{MSD}{40.110}$ $\frac{MSD}{20.982} \frac{MSD}{8.11} \frac{MSD}{40.110}$ $\frac{MSD}{20.982} \frac{MSD}{8.11} \frac{MSD}{40.110}$ $\frac{MSD}{20.992} \frac{MSD}{11.4} \frac{MSD}{40.110}$ $\frac{MSD}{20.992} \frac{MSD}{10.992} \frac{MSD}{10.992}$ $\frac{MSD}{8.110} \frac{MSD}{40.110}$ $\frac{MSD}{20.992} \frac{MSD}{10.992} \frac{MSD}{10.992}$ $\frac{MSD}{10.992} \frac{MSD}{10.992} \frac{MSD}{10.992} \frac{MSD}{10.992} \frac{MSD}{10.992}$ $\frac{MSD}{10.992} \frac{MSD}{10.992} \frac{MSD}{10.99$	The function of the second state of the secon	$ \frac{MS}{Yield} \frac{Qualifier}{92.0} - \frac{Limits}{40.110} $ $ \frac{MS}{92.0} \frac{Vield}{40.110} \frac{Qualifier}{40.110} + \frac{Limits}{40.110} $ $ \frac{MDC}{102} + \frac{Added}{11.4} + \frac{Result}{9.470} \frac{Qual}{0.987} + \frac{Climits}{1.00} + Cli$	MB MB	MB MB Prepared $\frac{3220}{92.0}$ $\frac{1000}{40.100}$ $\frac{2000}{03/12/19 11.02}$ ID: LCS 160-418846/1-A Client Sample ID: Total Uncert. Added Result Qual Q20++) RL MDC Unit %Rec Client Sample ID: Client Sample ID: MDC Unit %Rec Added Result Qual Q20++) RL MDC Unit %Rec Total Uncert. Added Result Qual Q20++) RL MDC Unit %Rec Total Sample Sample Spike MS MS Vietal Qualifier Limits Sample Sample Spike MSD MSD Client Sample ID: Mi MS MS Client Sample MSD Client Sample ID: Mi MSD	Prep Typ Prep Bar Prep Typ Prep Bar	MB MB MB MB

Radium-228	0.1474	U	0.229	0.230	1.00	0.385 pCi/L	03/08/19 11:06	03/27/19 09:02	1
	МВ	МВ							
Carrier	%Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Ba Carrier	95.3		40 - 110				03/08/19 11:06	03/27/19 09:02	1

QC Sample Results

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

lient: Gulf Po	•									Job ID: 40		
roject/Site: C									SDG	: Gypsum S	torage	Area
lethod: 93	20 - Radi	ium-2	28 (GFPC) (Cont	inued)							
Lab Sample	ID: MB 16	0-4182	31/24-A						Client Sa	mple ID: Me		
Matrix: Wate		_								Prep Typ		
Analysis Bat	ch: 42136	8								Prep Bat	tch: 41	8231
		MB	МВ									
Carrier		%Yield	Qualifier	Limits					Prepared	Analyze	ed l	Dil Fac
Y Carrier		85.2		40 - 110					03/08/19 11:	06 03/27/19 0	9:02	1
Lab Sample	ID: LCS 16	60-418	231/1-A					Clie	ent Sample II	D: Lab Cont	trol Sa	mple
Matrix: Wate										Prep Typ		
Analysis Bat	ch: 42136	7								Prep Bat		
-						Total						
			Spike	LCS	LCS	Uncert.				%Rec.		
Analyte			Added	Result	Qual	(2 σ+/-)	RL	MDC	Unit %Re	c Limits		
Radium-228			9.36	9.011		1.04	1.00	0.333	pCi/L 9	6 56 - 140		
	LCS L	.cs										
Carrier	%Yield G		Limits									
Ba Carrier	96.8		40 - 110	-								
Y Carrier	88.2		40 - 110									
ab Sample Matrix: Wate	r		A-1-D MS						Client S	ample ID: M Prep Typ	e: Tot	al/NA
Analysis Bat	CII: 42136	1				Total				Prep Bat	icn: 41	18231
	Sample	Sample	e Spike	MS	MS	Uncert.				%Rec.		
Analyte	Result		Added	Result	-	(2σ+/-)	RL	MDC	Unit %Re			
Radium-228	0.275			12.65	<u></u>	1.50	1.00	0.568				
D a unita u	MS N											
Carrier	Yield G	Qualifier		-								
Ba Carrier	83.8		40 - 110									
Y Carrier	88.2		40 - 110									
Lab Sample		5076-4	A-1-E MSD					Client	Sample ID:			
Matrix: Wate		_								Prep Typ		
Analysis Bat	ch: 42136	7				Total				Prep Bat	tch: 41	8231
	Comments	Correct	0		MOD	Total				0/ D		
Analyta	Sample				MSD	Uncert.		MDC	Unit 0/D-	%Rec.	DED	RER
Analyte Radium-228	0.275		Added	Result 11.86		(2σ+/-) 1.41	RL 1.00	MDC 0.504			RER 0.27	Limit 1
\aulull-220			12.5	11.00		1.41	1.00	0.504	poi/L 9	5 45-150	0.27	I
. .	MSD N		• • · ·									
Carrier	¥ield	Qualifier		_								
Ba Carrier	90.9		40 - 110									
Carrier	84.5		40 - 110									
_ab Sample Matrix: Wate	r		51/18-A						Client Sa	nple ID: Me Prep Typ	e: Tot	al/NA
Analysis Bat	ch: 42041	6		-	_					Prep Bat	t <mark>ch: 4</mark> 1	8851
										<u> </u>		
•										-		Dil Fac
Analysis Bat Analyte Radium-228	ch: 42041	МВ	Qualifier	Count Uncert. (2σ+/-) 0.256	Total Uncert. (2σ+/-) 0.257	RL 1.00	MDC 0.413		Prepared 03/12/19 11:	Prep Bat	t <mark>ch: 41</mark> ed I	88

Y Carrier

81.5

40 - 110

QC Sample Results

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

	e ID: MB 160-41885	51/18-A						Cli		ole ID: Me		
Matrix: Wat										Prep Typ	e: Tot	al/NA
Analysis Ba	atch: 420416									Prep Bat	tch: 4	18851
	MB	МВ										
Carrier	%Yield	Qualifier	Limits					F	Prepared	Analyze	ed	Dil Fac
Ba Carrier	92.0		40 - 110					03/	12/19 11:38	03/21/19 0	9:12	1
Y Carrier	82.6		40 - 110					03/	12/19 11:38	03/21/19 0	9:12	1
	ID: LCS 160-4188	51/1-A					Clie	ent Sa		Lab Cont		
Matrix: Wat										Prep Typ		
Analysis Ba	atch: 420408				Total					Prep Bat	icn: 4	1885
		Spike	1.09	LCS	Uncert.					%Rec.		
Analyte		Added	Result		(2σ+/-)	RL	MDC	Unit	%Rec	Simits		
Radium-228		9.38	10.28	guai	1.17	1.00	0.358			56 - 140		
		5.50	10.20		1.17	1.00	0.000	POIL	110	00-1-0		
	LCS LCS											
Carrier	%Yield Qualifier	Limits	_									
Ba Carrier	102	40 - 110										
Y Carrier	79.3	40 - 110										
Analysis Ba	atch: 420416				Total					Prep Bat	tch: 4	1885 [,]
	Sample Sample	Spike	MS	MS	Uncert.					%Rec.		
Analyte	Result Qual	Added	Result	Qual	(2σ+/-)	RL	MDC	Unit	%Rec	Limits		
Radium-228	0.589	9.37	9.874		1.15	1.00	0.387	pCi/L	99	45 - 150		
	MS MS											
Carrier	%Yield Qualifier	Limits										
Ba Carrier	92.3	40 - 110	-									
Y Carrier	81.1	40 - 110										
Lab Sample	e ID: 440-235151-B	-4-D MSD					Client	Sam	ole ID: Ma	itrix Spik	e Dup	licate
Matrix: Wat										Prep Typ		
Analysis Ba	atch: 420416				Total					Prep Bat		
	Sample Sample	Spike	MSD	MSD	Uncert.					%Rec.		REF
Analyte	Result Qual	Added	Result	-	(2σ+/-)	RL	MDC	Unit	%Rec	Limits	RER	Limi
Radium-228	0.589	9.37	11.11		1.29	1.00	0.412		112	45 - 150	0.51	
								•				
Comion	MSD MSD	1										
Carrier Ba Carrier	%YieldQualifier84.1	<i>Limits</i> 40 _ 110	-									

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Lab Sample Matrix: Wate Analysis Bat	r	6750-A-3 DU							Client Sample Prep	e ID: Dup Type: Tot	
					Total						
	Sample	Sample	DU	DU	Uncert.						RER
Analyte	Result	Qual	Result	Qual	(2 σ+/-)	RL	MDC	Unit		RER	Limit
Combined Radium 226 + 228	3.76		3.589		0.482	5.00	0.339	pCi/L		0.18	

stAmerica Pensacola	3355 McLemore Drive	ensacola, FL 32514
Tes	3355	Pens

Chain of Custody Record



² hone (850) 474-1001 Fax (850) 478-2671				A STATEMENT OF THE PARTY OF THE
Client Information	Sampler: Philip Erans	Lab PM: Whitmire, Cheyenne R	Carrier Tracking No(s): COC No: 400-82559-23630.1	3630.1
Client Contact: Kristi Mitchell	-336-019	E-Mail: cheyenne.whitmire@testamericainc.com	Page: Page 1 of 1	
Company: Gulf Power Company		Analysis Requested		
Address: BIN 731 One Energy Place	Due Date Requested:		Preservation Codes	8 S
City: Pensacola	TAT Requested (days):		A - HCL B - NaOH C - Zn Acetate	
state, Zip: FL, 32520	1	- Sulfato at IT,92,0	D - Nitric Acid	P - Na204S Q - Na2203
Phone: 850-444-6427(Tel)	Po #: Pay by Credit Card	228_GI	400-166764 COC G - Amchlor H - Ascorbic Acid	P
Email: kristi.mitchell@nexteraenergy.com	WO #:	No)		
Project Name: CCR Plant Crist Gypsum Storage Area	Project #: 40005424	C3'C4' 16' 2W 558' K 558' K	rtainea L-EDA	W - pH 4-5 Z - other (specify)
Site:	SSOW#:	Y) DS 687_05 2010fd 2011dS 2011dS 2011dS 2011dS	of coi	
Samole Identification	Sample Type Sample Date Time G=rcomp.	Matrix Matrix Matrix Matrix Perform MS/M Perform MS/M Perform MS/M Perform MS/M Perform MS/M Perform MS/M Matrory Matr	Total Number (Special Instructions/Note:
	Preserva	I D N DXX		
MW-200	2/28/19 1005 6	X X		
		Water		
COCINITY		Water		
MW-203	3/M19 1035	Water		
MW-204	0 08 19 1355	Water		
MW-205	-	Water		
MW-206	2/38/19 1055	Water		
Dup - 02	2/28/19 0805	Water		
* Fretet FB-02	3/1/19 1037 V	Water U U V V		
E8-02	3/1/19 1105 6	Water X X X X		
Drecible Harred Identification	4	Samula Dienocal (4 faa may he	second if complete are referred former the	an 1 month)
ant 🗌	Poison B Duknown Radiological		Return To Client Disposal By Lab Archive For Mor	Months
ssted: I, II, III, IV, O		Special Instructions/QC Requirements	ents:	
Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:	
Relinquisited by:	11(9 (900	Had	102 Date 1-19 190	ADD COMPANY A
Relinquished by	8-19 0930	1H	U Date/Time:	Company
	Date/Time:	Company Received by: Hand hand	5 27.19 0930	Company PEN
Custody Seals Intact: Custody Seal No.:		Cooler Temperature(s) °C and Officer Remarks:	Semarks: C.S.C. 1.02	1.87
				Ver: 01/16/2019

Q

FestAmerica Pensacola	3355 McLemore Drive	Pensacola. FL 32514
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Chain of Custody Record



Pensacola, FL 32514 Phone (850) 474-1001 Fax (850) 478-2671			000		200				THE LEADER IN ENVIRONMENTAL	VIRONMENTAL TESTING
Client Information	Sampler: Philip Evan	0 Guan	5	Lab PM: Whitmi	Lab PM: Whitmire, Cheyenne R		Carrier Tracking No(s)		COC No: 400-82559-23630.1	0.1
Client Contact: Kristi Mitchell	Phone: 950	-336-	2610	E-Mail: cheyen	E-Mail: cheyenne.whitmire@testamericainc.com	mericainc.co	ш		Page: Page 1 of 1	-
Company: Gulf Power Company						Analysis	Analysis Requested		Job #:	
Address: BIN 731 One Energy Place	Due Date Requested:								Preservation Codes	es:
City. Pensacola	TAT Requested (days):	's):							B - NOH C - Zn Acetate	M - Hexane N - None O - AsNaO2
State, Zip: FL, 32520					- Sulfa	SJ				P - Na204S Q - Na2SO3 P N22SO3
Phone: 850-444-6427(Tel)	PO #: Pay by Credit Card	Ird		10	Elnorid 504 E 528 G	ieżeme				R - Na2S2O3 S - H2SO4 T - TSP Dodecahvdrate
Email: kristi,mitchell@nexteraenergy.com	:# OM				E C - 4200-2 9556K9 9556K9	ng Par		SJ		U - Acetone V - MCAA
Project Name: CCR Plant Crist Gypsum Storage Area	Project #: 40005424				9, 4500 228, Ra 228, Ra 228, Ra	ilqms2	400-166764 COC		L - EDA	W - pH 4-5 Z - other (specify)
Site:	:#MOSS			dues	Y) USI 20_Ra 201ids 201ids	Field :		_	Other:	
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (w=water, s=solid. O=waste/oll, BT=Tbsue, A=Atr)	Mercury 6020 - 5b,As,B3 5045500_CI_E - 10481 Dissolved 8315_Ra226, 93 9315_Ra226, 93 935	- gnilqmsSblei7		Total Number	Special Ir	Special Instructions/Note:
	X	X	0		a n aX	-				
Du0-05	3/5/19	0830	5	Water	0	2				
MW-201	315/19	(7930	B	Water	222	X				
MW-202	315/19	Oell	6	Water	R R R	8				
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						
المحدادات للححيط الأحمازيم	_								11	1
ant	Poison B Unknown		Radiological	le I	Return To Client	ar (A ree m Client	Return To Client Disposal By Lab	ampres are retain	Archive For Mor	Months
ested: I, II, III, IV, Other (specify)					Special Instructions/QC Requirements:	ons/QC Rec	quirements:			
Empty Kit Belinquished by:		Date:			Time:		Method o	Method of Shipment:		
Relinquished by: U C C	3	6/13	1635	Company RD A	H Received by:	ZY	aver	Date/Time: 3-6-19	1635	Company
Relinquished by:	Date/Time:			Company		-		Date/Time:		Company
Relinquished by:	Date/Time:			Company	Received by:			Date/Time:		Company
Custody Seals Intact: Custody Seal No.: A Yes A No					Cooler Temper	ature(s) °C and	Cooler Temperature(s) °C and Other Remarks:	1.1	0.76	CUT
-										Ver: 01/16/2019

Client: Gulf Power Company

Login Number: 166764 List Number: 1 Creator: Conrady, Hank W

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	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	0.9°C, 1.0°C IR-7, 1.1°C, 0.7°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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Job Number: 400-166764-2 SDG Number: Gypsum Storage Area

List Source: Eurofins TestAmerica, Pensacola

Login Sample Receipt Checklist

Client: Gulf Power Company

Login Number: 166764 List Number: 2 Creator: Hellm Michael

Job Number: 400-166764-2
SDG Number: Gypsum Storage Area

List Creation: 03/05/19 05:37 PM

List Source: Eurofins TestAmerica, St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey neter.</td <td>True</td> <td></td>	True	
he cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
he cooler or samples do not appear to have been compromised or ampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	19.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
s the Field Sampler's name present on COC?	N/A	
here are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate ITs)	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	
here is sufficient vol. for all requested analyses, incl. any requested //S/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is 60mm (1/4").	N/A	
Aultiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Gulf Power Company

Login Number: 166764 List Number: 3 Creator: Hellm Michael

Job Number: 400-166764-2
SDG Number: Gypsum Storage Area

List Creation: 03/08/19 03:06 PM

List Source: Eurofins TestAmerica, St. Louis

Creator: Hellm, Michael		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
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.	N/A	18.0
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?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Accreditation/Certification Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist Job ID: 400-166764-2 SDG: Gypsum Storage Area

13

Laboratory: Eurofins TestAmerica, Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-19
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-20
Arkansas DEQ	State Program	6	88-0689	09-01-19
California	State Program	9	2510	06-30-19
lorida	NELAP	4	E81010	06-30-19
Seorgia	State Program	4	E81010 (FL)	06-30-19
linois	NELAP	5	200041	10-09-19
owa	State Program	7	367	08-01-20
ansas	NELAP	7	E-10253	10-31-19
Kentucky (UST)	State Program	4	53	06-30-19
Kentucky (WW)	State Program	4	98030	12-31-19
ouisiana	NELAP	6	30976	06-30-19
ouisiana (DW)	NELAP	6	LA017	12-31-19
laryland	State Program	3	233	09-30-19
assachusetts	State Program	1	M-FL094	06-30-19
lichigan	State Program	5	9912	06-30-19
ew Jersey	NELAP	2	FL006	06-30-19
orth Carolina (WW/SW)	State Program	4	314	12-31-19
klahoma	State Program	6	9810	08-31-19
Pennsylvania	NELAP	3	68-00467	01-31-20
hode Island	State Program	1	LAO00307	12-30-19
South Carolina	State Program	4	96026	06-30-19
ennessee	State Program	4	TN02907	06-30-19
exas	NELAP	6	T104704286-18-15	09-30-19
S Fish & Wildlife	Federal		LE058448-0	07-31-19
SDA	Federal		P330-18-00148	05-17-21
irginia	NELAP	3	460166	06-14-19
/ashington	State Program	10	C915	05-15-19
Vest Virginia DEP	State Program	3	136	07-31-19

Accreditation/Certification Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist Job ID: 400-166764-2 SDG: Gypsum Storage Area

Laboratory: Eurofins 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 / DOE		L2305	04-06-22
Arizona	State Program	9	AZ0813	12-08-19
California	State Program	9	2886	06-30-19
Connecticut	State Program	1	PH-0241	03-31-19 *
Florida	NELAP	4	E87689	06-30-19
Hawaii	State Program	9	NA	06-30-19
Illinois	NELAP	5	200023	11-30-19
lowa	State Program	7	373	12-01-20
Kansas	NELAP	7	E-10236	10-31-19
Kentucky (DW)	State Program	4	KY90125	12-31-19
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA011	12-31-19
Maryland	State Program	3	310	09-30-19
Michigan	State Program	5	9005	06-30-19
Missouri	State Program	7	780	06-30-19
Nevada	State Program	9	MO000542018-1	07-31-19
New Jersey	NELAP	2	MO002	06-30-19
New York	NELAP	2	11616	03-31-20
North Dakota	State Program	8	R207	06-30-19
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-19
Pennsylvania	NELAP	3	68-00540	02-28-20
South Carolina	State Program	4	85002001	06-30-19
Texas	NELAP	6	T104704193-18-13	07-31-19
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542018-10	07-31-19
Virginia	NELAP	3	460230	06-14-19
Washington	State Program	10	C592	08-30-19
West Virginia DEP	State Program	3	381	08-31-19

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

🛟 eurofins

Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 400-166941-1

Laboratory Sample Delivery Group: GSA Delineation Sampling Client Project/Site: CCR Plant Crist

For:

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Expert

Gulf Power Company BIN 731 One Energy Place Pensacola, Florida 32520

Attn: Kristi Mitchell



Authorized for release by: 4/9/2019 9:17:48 AM

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

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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.

Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Detection Summary	4
Method Summary	7
Sample Summary	8
Client Sample Results	9
Definitions	15
Chronicle	16
QC Association	19
QC Sample Results	22
Chain of Custody	28
Receipt Checklists	29
Certification Summary	30

Job ID: 400-166941-1

Laboratory: Eurofins TestAmerica, Pensacola

Narrative

Job Narrative 400-166941-1

Metals

Method(s) 6020: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 433805 and analytical batch 433981 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 6020: The post digestion spike % recovery for Calcium associated with batch 433981 was outside of control limits. The following sample is impacted: (400-166941-C-1-A PDS ^5).

Method(s) 6020: The following samples were diluted to bring the concentration of target analytes within the calibration range: PZ-200S (400-166941-1), GSA-2S (400-166941-2) and DUP-06 (400-166941-5). Elevated reporting limits (RLs) are provided.

General Chemistry

Method(s) SM 4500 F C: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 433876 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) SM 4500 CI- E: Due to the concentration of chlorides in the parent sample, the MS/MSD were diluted after the spike. The spike amounts were adjusted by the dilution factor. (400-167121-A-7 MS) and (400-167121-A-7 MSD)

Method(s) SM 4500 CI- E: The following samples were diluted to bring the concentration of target analytes within the calibration range: PZ-200S (400-166941-1), GSA-2S (400-166941-2), DUP-06 (400-166941-5), (400-167121-A-7), (400-167121-A-7 MS) and (400-167121-A-7 MSD). Elevated reporting limits (RLs) are provided.

Method(s) SM 4500 SO4 E: Due to the concentration of sulfates in the parent sample, the MS/MSD were diluted after the spike. The spike amounts were adjusted by the dilution factor. (400-167243-A-1 MS) and (400-167243-A-1 MSD)

Method(s) SM 4500 SO4 E: The following samples were diluted to bring the concentration of target analytes within the calibration range: PZ-200S (400-166941-1), GSA-2S (400-166941-2), DUP-06 (400-166941-5), (400-167243-A-1), (400-167243-A-1 MS) and (400-167243-A-1 MSD). Elevated reporting limits (RLs) are provided.

Detection Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist

Client Sample ID: PZ-200S

Lab Sample ID: 400-166941-1

Analyte	Result Qualifier	PQL	MDL	Unit	Dil Fac	D Method	Prep Type
Barium	0.050	0.0025	0.00049	mg/L	5	6020	Total
							Recoverable
Cobalt	0.0055	0.0025	0.00040	mg/L	5	6020	Total
							Recoverable
Lead	0.00050 I	0.0013	0.00035	mg/L	5	6020	Total
							Recoverable
Lithium	0.0017 I	0.0050	0.0011	mg/L	5	6020	Total
							Recoverable
Selenium	0.0027	0.0013	0.00071	mg/L	5	6020	Total
							Recoverable
Thallium	0.00015 I	0.00050	0.000085	mg/L	5	6020	Total
		<u></u>				· · · · <u>· · · · ·</u> · · · · · · · · · ·	Recoverable
Boron - DL	10	0.50	0.21	mg/L	50	6020	Total
							Recoverable
Calcium - DL	220	2.5	1.3	mg/L	50	6020	Total
	1000	10				014 05 400	Recoverable
Total Dissolved Solids	1300	10		mg/L	1	SM 2540C	Total/NA
Chloride	450	40	28	mg/L	20	SM 4500 CI- E	Total/NA
Fluoride	0.040 l	0.10	0.032	mg/L	1	SM 4500 F C	Total/NA
Sulfate	160	50	14	mg/L	10	SM 4500 SO4	E Total/NA
Field pH	5.31			SU	1	Field Sampling	Total/NA

Client Sample ID: GSA-2S

Lab Sample ID: 400-166941-2

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.031		0.0025	0.00049	mg/L	5	_	6020	Total
									Recoverable
Calcium	39		0.25	0.13	mg/L	5		6020	Total
									Recoverable
Cobalt	0.0010	I	0.0025	0.00040	mg/L	5		6020	Total
									Recoverable
Lead	0.00056	I	0.0013	0.00035	mg/L	5		6020	Total
									Recoverable
Selenium	0.0011	I	0.0013	0.00071	mg/L	5		6020	Total
									Recoverable
Boron - DL	1.6		0.25	0.11	mg/L	25		6020	Total
									Recoverable
Total Dissolved Solids	240		5.0	3.4	mg/L	1		SM 2540C	Total/NA
Chloride	56		4.0	2.8	mg/L	2		SM 4500 CI- E	Total/NA
Sulfate	46		10	2.8	mg/L	2		SM 4500 SO4 E	Total/NA
Field pH	4.48				SU	1		Field Sampling	Total/NA

Client Sample ID: PZ-201D

Lab Sample ID: 400-166941-3

Analyte	Result Q	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.062		0.0025	0.00049	mg/L	5		6020	Total
									Recoverable
Calcium	5.1		0.25	0.13	mg/L	5		6020	Total
									Recoverable
Lead	0.00088 I		0.0013	0.00035	mg/L	5		6020	Total
									Recoverable
Lithium	0.0097		0.0050	0.0011	mg/L	5		6020	Total
									Recoverable
Boron - RA	0.028 I		0.050	0.021	mg/L	5		6020	Total
									Recoverable
Total Dissolved Solids	76		5.0	3.4	mg/L	1		SM 2540C	Total/NA
Chloride	2.7		2.0	1.4	mg/L	1		SM 4500 CI- E	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist

Client Sample ID: PZ-201D (Continued)

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac D	Method	Prep Type
Fluoride	0.060	<u> </u>	0.10	0.032	mg/L	1	SM 4500 F C	Total/NA
Sulfate	1.5	I	5.0	1.4	mg/L	1	SM 4500 SO4 E	Total/NA
Field pH	6.74				SU	1	Field Sampling	Total/NA

Client Sample ID: GE-1D

Lab Sample ID: 400-166941-4

Lab Sample ID: 400-166941-5

Analyte	Result Qualifier	PQL	MDL	Unit	Dil Fac	DI	Method	Prep Type
Barium	0.019	0.0025	0.00049	mg/L	5	— ē	6020	Total
								Recoverable
Calcium	5.6	0.25	0.13	mg/L	5	(6020	Total
								Recoverable
Cobalt	0.0019 I	0.0025	0.00040	mg/L	5	6	6020	Total
								Recoverable
Lead	0.00049 I	0.0013	0.00035	mg/L	5	(6020	Total
								Recoverable
Lithium	0.0028 I	0.0050	0.0011	mg/L	5	6	6020	Total
								Recoverable
Total Dissolved Solids	40	5.0	3.4	mg/L	1	5	SM 2540C	Total/NA
Chloride	22	2.0	1.4	mg/L	1		SM 4500 CI- E	Total/NA
Sulfate	2.5 I	5.0	1.4	mg/L	1	5	SM 4500 SO4 E	Total/NA
Field pH	4.87			SU	1	I	Field Sampling	Total/NA

Client Sample ID: DUP-06

Analyte PQL MDL Unit Dil Fac D Method **Result Qualifier** Prep Type Arsenic 0.00047 I 0.0013 0.00046 mg/L 5 6020 Total Recoverable Barium 0.051 0.0025 0.00049 mg/L 5 6020 Total Recoverable 0.00040 mg/L Cobalt 0.0057 0.0025 5 6020 Total Recoverable Lead 0.00053 I 0.0013 0.00035 mg/L 5 6020 Total Recoverable Lithium 0.0016 I 0.0050 0.0011 mg/L 5 6020 Total Recoverable Selenium 0.0026 0.0013 0.00071 mg/L 5 6020 Total Recoverable Thallium 0.00015 I 0.00050 0.000085 mg/L 5 6020 Total Recoverable Boron - DL 0.50 0.21 mg/L 50 6020 11 Total Recoverable Calcium - DL 220 2.5 50 6020 1.3 mg/L Total Recoverable **Total Dissolved Solids** 1300 10 6.8 mg/L 1 SM 2540C Total/NA Chloride 40 28 mg/L SM 4500 CI- E 450 20 Total/NA Fluoride 0.040 0.10 0.032 mg/L SM 4500 F C Total/NA 1 Sulfate 160 50 14 mg/L 10 SM 4500 SO4 E Total/NA Field pH 5.31 SU Field Sampling Total/NA 1

Client Sample ID: DUP-07

Analyte	Result Qualifier	PQL	MDL	Unit	Dil Fac	D Method	Prep Type
Barium	0.019	0.0025	0.00049	mg/L	5	6020	Total Recoverable
Calcium	5.5	0.25	0.13	mg/L	5	6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

Lab Sample ID: 400-166941-6

Lab Sample ID: 400-166941-3

SDG: GSA Delineation Sampling

Job ID: 400-166941-1

Detection Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist

Job ID: 400-166941-1 SDG: GSA Delineation Sampling

Client Sample ID: DUP-07 (Continued)

Lab Sample ID: 400-166941-6

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac D	Method	Prep Type
Cobalt	0.0018	Ι	0.0025	0.00040	mg/L	5	6020	Total
								Recoverable
Lead	0.00049	I	0.0013	0.00035	mg/L	5	6020	Total
								Recoverable
Lithium	0.0022	I	0.0050	0.0011	mg/L	5	6020	Total
								Recoverable
Boron - RA	0.026	I	0.050	0.021	mg/L	5	6020	Total
								Recoverable
Total Dissolved Solids	36		5.0	3.4	mg/L	1	SM 2540C	Total/NA
Chloride	22		2.0	1.4	mg/L	1	SM 4500 CI- E	Total/NA
Sulfate	2.4	I	5.0	1.4	mg/L	1	SM 4500 SO4 E	Total/NA
Field pH	4.87				SU	1	Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist

Job ID: 400-166941-1 SDG: GSA Delineation Sampling

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

Protocol References:

EPA = US Environmental Protection Agency

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

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

Laboratory References:

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

Sample Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist

Job ID: 400-166941-1 SDG: GSA Delineation Sampling

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-166941-1	PZ-200S	Water	03/05/19 16:10	03/06/19 16:35
400-166941-2	GSA-2S	Water	03/06/19 12:10	03/06/19 16:35
400-166941-3	PZ-201D	Water	03/05/19 13:12	03/06/19 16:35
400-166941-4	GE-1D	Water	03/06/19 14:32	03/06/19 16:35
400-166941-5	DUP-06	Water	03/05/19 17:10	03/06/19 16:35
400-166941-6	DUP-07	Water	03/06/19 13:32	03/06/19 16:35

Client: Gulf Power Company Project/Site: CCR Plant Crist

Client Sample ID: PZ-200S Date Collected: 03/05/19 16:10 Date Received: 03/06/19 16:35

Lab Sample ID: 400-166941-1 Matrix: Water

Matrix: Water

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		03/19/19 12:10	03/19/19 16:53	5
Arsenic	0.00046	U	0.0013	0.00046	mg/L		03/19/19 12:10	03/19/19 16:53	5
Barium	0.050		0.0025	0.00049	mg/L		03/19/19 12:10	03/19/19 16:53	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		03/19/19 12:10	03/19/19 16:53	Ę
Cadmium	0.00034	U	0.0025	0.00034	mg/L		03/19/19 12:10	03/19/19 16:53	Ę
Cobalt	0.0055		0.0025	0.00040	mg/L		03/19/19 12:10	03/19/19 16:53	Ę
Lead	0.00050	1	0.0013	0.00035	mg/L		03/19/19 12:10	03/19/19 16:53	Ę
Lithium	0.0017	1	0.0050	0.0011	mg/L		03/19/19 12:10	03/19/19 16:53	Ę
Molybdenum	0.0020	U	0.015	0.0020	mg/L		03/19/19 12:10	03/19/19 16:53	ę
Selenium	0.0027		0.0013	0.00071	mg/L		03/19/19 12:10	03/19/19 16:53	Ę
Thallium	0.00015	1	0.00050	0.000085	mg/L		03/19/19 12:10	03/19/19 16:53	ł
Method: 6020 - Metals (ICI Analyte Boron Calcium		Qualifier	PQL 0.50 2.5	0.21	Unit mg/L mg/L	<u>D</u>	Prepared 03/19/19 12:10 03/19/19 12:10	Analyzed 03/20/19 16:26 03/20/19 16:26	Dil Fa
Method: 7470A - Mercury Analyte	(CVAA)	Qualifier	PQL		Unit	D	Prepared	Analyzed	Dil Fa
Mercury	0.000070	U	0.00020	0.000070	mg/L		03/20/19 13:33	03/21/19 13:48	
General Chemistry									
Analyte	Result	Qualifier	PQL		Unit	D	Prepared	Analyzed	Dil Fa
Total Dissolved Solids	1300		10	6.8	mg/L			03/08/19 09:19	
Chloride	450		40	28	mg/L			03/19/19 14:28	20
Fluoride	0.040	1	0.10	0.032	mg/L			03/19/19 13:55	
	160		50	14	mg/L			03/20/19 10:54	1
Sulfate	100								
Method: Field Sampling -	Field Sampling								
Sulfate Method: Field Sampling - Analyte	Field Sampling	Qualifier	PQL	MDL	Unit SU	D	Prepared	Analyzed 03/05/19 16:10	Dil Fac

Client: Gulf Power Company Project/Site: CCR Plant Crist

Client Sample ID: GSA-2S Date Collected: 03/06/19 12:10 Date Received: 03/06/19 16:35

Job ID: 400-166941-1 SDG: GSA Delineation Sampling

Lab Sample ID: 400-166941-2 **Matrix: Water**

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		03/19/19 12:10	03/19/19 17:12	5
Arsenic	0.00046	U	0.0013	0.00046	mg/L		03/19/19 12:10	03/19/19 17:12	5
Barium	0.031		0.0025	0.00049	mg/L		03/19/19 12:10	03/19/19 17:12	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		03/19/19 12:10	03/19/19 17:12	5
Cadmium	0.00034	U	0.0025	0.00034	mg/L		03/19/19 12:10	03/19/19 17:12	5
Calcium	39		0.25	0.13	mg/L		03/19/19 12:10	03/19/19 17:12	5
Cobalt	0.0010	I	0.0025	0.00040	mg/L		03/19/19 12:10	03/19/19 17:12	5
Lead	0.00056	1	0.0013	0.00035	mg/L		03/19/19 12:10	03/19/19 17:12	5
Lithium	0.0011	U	0.0050	0.0011	mg/L		03/19/19 12:10	03/19/19 17:12	5
Molybdenum	0.0020	U	0.015	0.0020	mg/L		03/19/19 12:10	03/19/19 17:12	5
Selenium	0.0011	1	0.0013	0.00071	mg/L		03/19/19 12:10	03/19/19 17:12	5
Thallium	0.000085	U	0.00050	0.000085	mg/L		03/19/19 12:10	03/19/19 17:12	5
Analyte	Result	Qualifier	PQL		Unit	D	Prepared	Analyzed	Dil Fac
Method: 6020 - Metals (ICF Analyte Boron	Result				Unit mg/L	D	Prepared 03/19/19 12:10	Analyzed 03/20/19 16:29	Dil Fac 25
Analyte Boron Method: 7470A - Mercury ((CVAA)	Qualifier	PQL 0.25	0.11	mg/L	<u> </u>	03/19/19 12:10	03/20/19 16:29	25
Analyte Boron Method: 7470A - Mercury (Analyte	(CVAA) Result	Qualifier Qualifier	PQL 0.25 PQL	0.11 MDL	mg/L Unit	D	03/19/19 12:10 Prepared	03/20/19 16:29 Analyzed	
Analyte Boron Method: 7470A - Mercury (Analyte Mercury	(CVAA)	Qualifier Qualifier	PQL 0.25	0.11	mg/L Unit	<u> </u>	03/19/19 12:10	03/20/19 16:29	25 Dil Fac
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry	(CVAA) (CVAA) (0.000070	Qualifier Qualifier U	PQL 0.25 PQL 0.00020	0.11 MDL 0.000070	mg/L Unit mg/L	D	03/19/19 12:10 Prepared 03/20/19 13:33	03/20/19 16:29 Analyzed 03/21/19 13:50	25 Dil Fac 1
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry Analyte	(CVAA) (CVAA) (0.000070	Qualifier Qualifier	PQL 0.25 PQL	0.11 MDL 0.000070 MDL	mg/L Unit mg/L Unit	<u> </u>	03/19/19 12:10 Prepared	03/20/19 16:29 Analyzed	25 Dil Fac
Analyte Boron Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte Total Dissolved Solids	(CVAA) (CVAA) <u>Result</u> 0.000070 Result	Qualifier Qualifier U	PQL 0.25 PQL 0.00020	0.11 MDL 0.000070 MDL 3.4	mg/L Unit mg/L	D	03/19/19 12:10 Prepared 03/20/19 13:33	03/20/19 16:29 Analyzed 03/21/19 13:50 Analyzed	25 Dil Fac 1 Dil Fac
Analyte Boron Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte Total Dissolved Solids Chloride	Result (CVAA) Result 0.000070 Result 240	Qualifier Qualifier U Qualifier	PQL 0.25 PQL 0.00020 PQL 5.0	0.11 MDL 0.000070 MDL 3.4	mg/L Unit mg/L Unit mg/L mg/L	D	03/19/19 12:10 Prepared 03/20/19 13:33	Analyzed 03/20/19 16:29 Analyzed 03/21/19 13:50 Analyzed 03/21/19 13:50	25 Dil Fac 1 Dil Fac 1
Analyte Boron Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte Total Dissolved Solids Chloride Fluoride	(CVAA) (CVAA) Result 0.000070 Result 240 56	Qualifier Qualifier U Qualifier	PQL 0.25 PQL 0.00020 PQL 5.0 4.0	0.11 MDL 0.000070 MDL 3.4 2.8 0.032	mg/L Unit mg/L Unit mg/L mg/L	D	03/19/19 12:10 Prepared 03/20/19 13:33	Analyzed 03/20/19 16:29 Analyzed 03/21/19 13:50 Analyzed 03/08/19 09:19 03/19/19 14:31	25 Dil Fac 1 Dil Fac 1 2
Analyte Boron Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte Total Dissolved Solids Chloride Fluoride Sulfate	Result (CVAA) Result 0.000070 Result 240 56 0.032 46	Qualifier Qualifier U Qualifier	PQL 0.25 PQL 0.00020 PQL 5.0 4.0 0.10	0.11 MDL 0.000070 MDL 3.4 2.8 0.032	mg/L Unit mg/L Unit mg/L mg/L mg/L	D	03/19/19 12:10 Prepared 03/20/19 13:33	Analyzed 03/20/19 16:29 Analyzed 03/21/19 13:50 Analyzed 03/21/19 13:50 03/21/19 13:50 03/08/19 09:19 03/19/19 14:31 03/19/19 13:59	25 Dil Fac 1 Dil Fac 1 2 1
Analyte	Result (CVAA) Result 0.000070 Result 240 56 0.032 46 Field Sampling	Qualifier Qualifier U Qualifier	PQL 0.25 PQL 0.00020 PQL 5.0 4.0 0.10	0.11 MDL 0.000070 MDL 3.4 2.8 0.032	mg/L Unit mg/L mg/L mg/L mg/L mg/L	D	03/19/19 12:10 Prepared 03/20/19 13:33	Analyzed 03/20/19 16:29 Analyzed 03/21/19 13:50 Analyzed 03/21/19 13:50 03/21/19 13:50 03/08/19 09:19 03/19/19 14:31 03/19/19 13:59	25 Dil Fac 1 Dil Fac 1 2 1

Client: Gulf Power Company Project/Site: CCR Plant Crist

Client Sample ID: PZ-201D Date Collected: 03/05/19 13:12 Date Received: 03/06/19 16:35

Lab Sample ID: 400-166941-3 Matrix: Water

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		03/19/19 12:10	03/19/19 17:16	5
Arsenic	0.00046	U	0.0013	0.00046	mg/L		03/19/19 12:10	03/19/19 17:16	5
Barium	0.062		0.0025	0.00049	mg/L		03/19/19 12:10	03/19/19 17:16	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		03/19/19 12:10	03/19/19 17:16	5
Cadmium	0.00034	U	0.0025	0.00034	mg/L		03/19/19 12:10	03/19/19 17:16	5
Calcium	5.1		0.25	0.13	mg/L		03/19/19 12:10	03/19/19 17:16	5
Cobalt	0.00040	U	0.0025	0.00040	mg/L		03/19/19 12:10	03/19/19 17:16	5
Lead	0.00088	1	0.0013	0.00035	mg/L		03/19/19 12:10	03/19/19 17:16	5
Lithium	0.0097		0.0050	0.0011	mg/L		03/19/19 12:10	03/19/19 17:16	5
Molybdenum	0.0020	U	0.015	0.0020	mg/L		03/19/19 12:10	03/19/19 17:16	5
Selenium	0.00071	U	0.0013	0.00071	mg/L		03/19/19 12:10	03/19/19 17:16	5
Thallium	0.000085	U	0.00050	0.000085	mg/L		03/19/19 12:10	03/19/19 17:16	5
Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	0.028	I	0.050	0.021	mg/L		03/19/19 12:10	03/20/19 16:33	5
Method: 7470A - Mercury	(CVAA)				-				-
Method: 7470A - Mercury Analyte	(CVAA)	Qualifier	0.050 PQL 0.00020		Unit	D	03/19/19 12:10 Prepared 03/20/19 13:33	03/20/19 16:33 Analyzed 03/21/19 13:52	Dil Fac
Method: 7470A - Mercury Analyte Mercury	<mark>(CVAA)</mark> Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Method: 7470A - Mercury Analyte Mercury General Chemistry	(CVAA) Result 0.000070	Qualifier	PQL	MDL 0.000070	Unit	D	Prepared	Analyzed	Dil Fac
Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte	(CVAA) Result 0.000070	Qualifier U	PQL 0.00020	MDL 0.000070 MDL	Unit mg/L		Prepared 03/20/19 13:33	Analyzed 03/21/19 13:52	Dil Fac
Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte Total Dissolved Solids	(CVAA) 	Qualifier U	PQL 0.00020 PQL	MDL 0.000070 MDL 3.4	Unit mg/L Unit		Prepared 03/20/19 13:33	Analyzed 03/21/19 13:52 Analyzed	Dil Fac
Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte Total Dissolved Solids Chloride	(CVAA) 	Qualifier U Qualifier	PQL 0.00020 PQL 5.0	MDL 0.000070 MDL 3.4	Unit mg/L Unit mg/L mg/L		Prepared 03/20/19 13:33	Analyzed 03/21/19 13:52 Analyzed 03/08/19 09:19	Dil Fac 1 Dil Fac
Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte Fotal Dissolved Solids Chloride Fluoride	(CVAA) 	Qualifier U Qualifier	PQL 0.00020 PQL 5.0 2.0	MDL 0.000070 MDL 3.4 1.4 0.032	Unit mg/L Unit mg/L mg/L		Prepared 03/20/19 13:33	Analyzed 03/21/19 13:52 Analyzed 03/08/19 09:19 03/19/19 13:45	Dil Fac 1 Dil Fac 1 1
Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte Total Dissolved Solids Chloride Fluoride Sulfate	(CVAA) Result 0.000070 Result 76 2.7 0.060 1.5	Qualifier U Qualifier	PQL 0.00020 PQL 5.0 2.0 0.10	MDL 0.000070 MDL 3.4 1.4 0.032	Unit mg/L mg/L mg/L mg/L		Prepared 03/20/19 13:33	Analyzed 03/21/19 13:52 Analyzed 03/08/19 09:19 03/19/19 13:45 03/19/19 14:03	Dil Fac 1 Dil Fac 1 1
Boron Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte Total Dissolved Solids Chloride Fluoride Sulfate Method: Field Sampling - Analyte	(CVAA) Result 0.000070 Result 76 2.7 0.060 1.5 Field Sampling	Qualifier U Qualifier	PQL 0.00020 PQL 5.0 2.0 0.10	MDL 0.000070 MDL 3.4 1.4 0.032	Unit mg/L Unit mg/L mg/L mg/L		Prepared 03/20/19 13:33	Analyzed 03/21/19 13:52 Analyzed 03/08/19 09:19 03/19/19 13:45 03/19/19 14:03	Dil Fac

Client: Gulf Power Company Project/Site: CCR Plant Crist

Client Sample ID: GE-1D Date Collected: 03/06/19 14:32 Date Received: 03/06/19 16:35

Lab Sample ID: 400-166941-4 Matrix: Water

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		03/19/19 12:10	03/19/19 17:37	Ę
Arsenic	0.00046	U	0.0013	0.00046	mg/L		03/19/19 12:10	03/19/19 17:37	Ę
Barium	0.019		0.0025	0.00049	mg/L		03/19/19 12:10	03/19/19 17:37	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		03/19/19 12:10	03/19/19 17:37	5
Boron	0.021	U	0.050	0.021	mg/L		03/19/19 12:10	03/19/19 17:37	5
Cadmium	0.00034	U	0.0025	0.00034	mg/L		03/19/19 12:10	03/19/19 17:37	5
Calcium	5.6		0.25	0.13	mg/L		03/19/19 12:10	03/19/19 17:37	5
Cobalt	0.0019	1	0.0025	0.00040	mg/L		03/19/19 12:10	03/19/19 17:37	5
Lead	0.00049	1	0.0013	0.00035	mg/L		03/19/19 12:10	03/19/19 17:37	5
Lithium	0.0028		0.0050	0.0011	mg/L		03/19/19 12:10	03/19/19 17:37	5
Molybdenum	0.0020	U	0.015	0.0020	mg/L		03/19/19 12:10	03/19/19 17:37	5
Selenium	0.00071	U	0.0013	0.00071	mg/L		03/19/19 12:10	03/19/19 17:37	5
Thallium	0.000085	U	0.00050	0.000085	mg/L		03/19/19 12:10	03/19/19 17:37	5
Method: 7470A - Mercury	(CVAA)								
Analyte		Qualifier	PQL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000070	U	0.00020	0.000070	mg/L		03/20/19 13:33	03/21/19 13:53	1
General Chemistry									
Analyte	Result	Qualifier	PQL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	40		5.0	3.4	mg/L			03/08/19 09:19	1
Chloride	22		2.0	1.4	mg/L			03/19/19 13:52	1
Fluoride	0.032	U	0.10	0.032	mg/L			03/19/19 14:07	1
Sulfate	2.5	1	5.0	1.4	mg/L			03/20/19 10:20	1
Method: Field Sampling -	Field Sampling								
Analyte		Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	4.87				SU			03/06/19 14:32	1

PQL

0.0025

0.0013

MDL Unit

0.0010 mg/L

0.00046 mg/L

Client: Gulf Power Company Project/Site: CCR Plant Crist

Analyte

Antimony

Arsenic

Client Sample ID: DUP-06 Date Collected: 03/05/19 17:10 Date Received: 03/06/19 16:35

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

Result Qualifier

0.0010 U

0.00047 I

Job ID: 400-166941-1 SDG: GSA Delineation Sampling

Analyzed

Lab Sample ID: 400-166941-5 **Matrix: Water**

03/19/19 12:10 03/19/19 17:41

03/19/19 12:10 03/19/19 17:41

Prepared

D

Dil Fac

5

5

	2
	9
	2

Barium	0.051		0.0025	0.00049	mg/L		03/19/19 12:10	03/19/19 17:41	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		03/19/19 12:10	03/19/19 17:41	5
Cadmium	0.00034	U	0.0025	0.00034	mg/L		03/19/19 12:10	03/19/19 17:41	5
Cobalt	0.0057		0.0025	0.00040	mg/L		03/19/19 12:10	03/19/19 17:41	5
Lead	0.00053	•	0.0013	0.00035	mg/L		03/19/19 12:10	03/19/19 17:41	5
Lithium	0.0016	1	0.0050	0.0011	mg/L		03/19/19 12:10	03/19/19 17:41	5
Molybdenum	0.0020	U	0.015	0.0020	mg/L		03/19/19 12:10	03/19/19 17:41	5
Selenium	0.0026		0.0013	0.00071	mg/L		03/19/19 12:10	03/19/19 17:41	5
Thallium	0.00015	I.	0.00050	0.000085	mg/L		03/19/19 12:10	03/19/19 17:41	5
Method: 6020 - Metals (IC	P/MS) - Total Re	coverable	- DL						
Analyte		Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron			0.50	0.21	mg/L		03/19/19 12:10	03/20/19 16:36	50
								00/00/40 40:00	50
Calcium	220		2.5	1.3	mg/L		03/19/19 12:10	03/20/19 16:36	50
-			2.5	1.3	mg/L		03/19/19 12:10	03/20/19 16:36	50
Calcium Method: 7470A - Mercury Analyte	(CVAA)	Qualifier	2.5 PQL	1.3 MDL	C	D	03/19/19 12:10 Prepared	Analyzed	Dil Fac
Method: 7470A - Mercury	(CVAA)				Unit	D			
Method: 7470A - Mercury Analyte Mercury	(CVAA) Result		PQL	MDL	Unit	D	Prepared	Analyzed	
Method: 7470A - Mercury Analyte	(CVAA) <u>Result</u> 0.000070		PQL	MDL	Unit mg/L	D 	Prepared	Analyzed	
Method: 7470A - Mercury Analyte Mercury General Chemistry	(CVAA) <u>Result</u> 0.000070	U	PQL 0.00020	MDL 0.000070 MDL	Unit mg/L	=	Prepared 03/20/19 13:33	Analyzed 03/21/19 14:21	Dil Fac
Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte	(CVAA) <u>Result</u> 0.000070 <u>Result</u>	U	PQL 0.00020 PQL	MDL 0.000070 MDL 6.8	Unit mg/L Unit	=	Prepared 03/20/19 13:33	Analyzed 03/21/19 14:21 Analyzed	Dil Fac
Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte Total Dissolved Solids	(CVAA) <u>Result</u> 0.000070 <u>Result</u> 1300	U Qualifier	PQL 0.00020 PQL 10	MDL 0.000070 MDL 6.8	Unit mg/L Unit mg/L mg/L	=	Prepared 03/20/19 13:33	Analyzed 03/21/19 14:21 Analyzed 03/08/19 09:19	Dil Fac 1 Dil Fac
Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte Total Dissolved Solids Chloride	(CVAA) <u>Result</u> 0.000070 <u>Result</u> 1300 450	U Qualifier	PQL 0.00020 PQL 10 40	MDL 0.000070 MDL 6.8 28 0.032	Unit mg/L Unit mg/L mg/L	=	Prepared 03/20/19 13:33	Analyzed 03/21/19 14:21 Analyzed 03/08/19 09:19 03/19/19 14:28	Dil Fac 1 Dil Fac 1 20
Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte Total Dissolved Solids Chloride Fluoride Sulfate	(CVAA) Result 0.000070 Result 1300 450 0.040 160	U Qualifier	PQL 0.00020 PQL 10 40 0.10	MDL 0.000070 MDL 6.8 28 0.032	Unit mg/L Unit mg/L mg/L mg/L	=	Prepared 03/20/19 13:33	Analyzed 03/21/19 14:21 Analyzed 03/08/19 09:19 03/19/19 14:28 03/19/19 14:10	Dil Fac 1 Dil Fac 1 20 1
Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte Total Dissolved Solids Chloride Fluoride	(CVAA) Result 0.000070 Result 1300 450 0.040 160 Field Sampling	U Qualifier	PQL 0.00020 PQL 10 40 0.10	MDL 0.000070 MDL 6.8 28 0.032	Unit mg/L Unit mg/L mg/L mg/L	=	Prepared 03/20/19 13:33	Analyzed 03/21/19 14:21 Analyzed 03/08/19 09:19 03/19/19 14:28 03/19/19 14:10	Dil Fac 1 Dil Fac 1 20 1

4/9/2019

Client: Gulf Power Company Project/Site: CCR Plant Crist

Client Sample ID: DUP-07 Date Collected: 03/06/19 13:32 Date Received: 03/06/19 16:35

Lab Sample ID: 400-166941-6 Matrix: Water

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		03/19/19 12:10	03/19/19 17:44	5
Arsenic	0.00046	U	0.0013	0.00046	mg/L		03/19/19 12:10	03/19/19 17:44	5
Barium	0.019		0.0025	0.00049	mg/L		03/19/19 12:10	03/19/19 17:44	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		03/19/19 12:10	03/19/19 17:44	5
Cadmium	0.00034	U	0.0025	0.00034	mg/L		03/19/19 12:10	03/19/19 17:44	5
Calcium	5.5		0.25	0.13	mg/L		03/19/19 12:10	03/19/19 17:44	5
Cobalt	0.0018	I	0.0025	0.00040	mg/L		03/19/19 12:10	03/19/19 17:44	5
Lead	0.00049	1	0.0013	0.00035	mg/L		03/19/19 12:10	03/19/19 17:44	5
Lithium	0.0022	1	0.0050	0.0011	mg/L		03/19/19 12:10	03/19/19 17:44	5
Molybdenum	0.0020	U	0.015	0.0020	mg/L		03/19/19 12:10	03/19/19 17:44	5
Selenium	0.00071	U	0.0013	0.00071	mg/L		03/19/19 12:10	03/19/19 17:44	5
Thallium	0.000085	U	0.00050	0.000085	mg/L		03/19/19 12:10	03/19/19 17:44	5
Mothadi 6020 Matala /ICB		aavarahla							
Analyte		Qualifier	- RA PQL 0.050	MDL 0.021		D	Prepared 03/19/19 12:10	Analyzed 03/20/19 16:40	
Analyte Boron	Result 0.026	Qualifier	PQL			D	•	-	
Analyte Boron Method: 7470A - Mercury (CVAA)	Qualifier	PQL		mg/L	D	•	-	5
Analyte Boron Method: 7470A - Mercury (Analyte	CVAA)	Qualifier I Qualifier	PQL 0.050	0.021	mg/L Unit		03/19/19 12:10	03/20/19 16:40	5 Dil Fac
Analyte Boron Method: 7470A - Mercury (Analyte ^{Mercury}	CVAA) Result	Qualifier I Qualifier	PQL 0.050 PQL	0.021 MDL	mg/L Unit		03/19/19 12:10 Prepared	03/20/19 16:40 Analyzed	5
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry	CVAA) Result 0.026 CVAA) Result 0.000070	Qualifier I Qualifier	PQL 0.050 PQL	0.021 MDL	mg/L Unit mg/L		03/19/19 12:10 Prepared	03/20/19 16:40 Analyzed	Dil Fac
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry Analyte	CVAA) Result 0.026 CVAA) Result 0.000070	Qualifier I Qualifier U	PQL 0.050 PQL 0.00020	0.021 MDL 0.000070	mg/L Unit mg/L Unit	D	03/19/19 12:10 Prepared 03/20/19 13:33	03/20/19 16:40 Analyzed 03/21/19 14:23	Dil Fac 5 Dil Fac 1 Dil Fac
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry Analyte Total Dissolved Solids	Result 0.026 CVAA) Result 0.000070 Result	Qualifier I Qualifier U	PQL 0.050 PQL 0.00020 PQL	0.021 MDL 0.000070 MDL 3.4	mg/L Unit mg/L Unit	D	03/19/19 12:10 Prepared 03/20/19 13:33	03/20/19 16:40 Analyzed 03/21/19 14:23 Analyzed	Dil Fac
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry Analyte Fotal Dissolved Solids Chloride	Result 0.026 CVAA) Result 0.000070 Result 36	Qualifier Qualifier U Qualifier	PQL 0.050 PQL 0.00020 PQL 5.0	0.021 MDL 0.000070 MDL 3.4	mg/L Unit mg/L Unit mg/L mg/L	D	03/19/19 12:10 Prepared 03/20/19 13:33	03/20/19 16:40 Analyzed 03/21/19 14:23 Analyzed 03/08/19 09:19	Dil Fac Dil Fac
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry Analyte Fotal Dissolved Solids Chloride Fluoride	Result 0.026 CVAA) Result 0.000070 Result 36 22	Qualifier I Qualifier U Qualifier U	PQL 0.050 PQL 0.00020 PQL 5.0 2.0	0.021 MDL 0.000070 MDL 3.4 1.4 0.032	mg/L Unit mg/L Unit mg/L mg/L	D	03/19/19 12:10 Prepared 03/20/19 13:33	Analyzed 03/20/19 16:40 Analyzed 03/21/19 14:23 Analyzed 03/08/19 09:19 03/19/19 13:52	Dil Fac
Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry Analyte Total Dissolved Solids Chloride Fluoride Sulfate	Result 0.026 CVAA) Result 0.000070 Result 36 22 0.032 2.4	Qualifier I Qualifier U Qualifier U	PQL 0.050 PQL 0.00020 PQL 5.0 2.0 0.10	0.021 MDL 0.000070 MDL 3.4 1.4 0.032	mg/L Unit mg/L Unit mg/L mg/L mg/L	D	03/19/19 12:10 Prepared 03/20/19 13:33	Analyzed 03/20/19 16:40 Analyzed 03/21/19 14:23 Analyzed 03/21/19 14:23 03/21/19 14:23 03/20/19 13:52 03/19/19 13:52 03/19/19 14:14	Dil Fac 1 Dil Fac 1 1 1
Method: 6020 - Metals (ICP Analyte Boron Method: 7470A - Mercury (Analyte Mercury General Chemistry Analyte Total Dissolved Solids Chloride Fluoride Sulfate Method: Field Sampling - F Analyte	Result 0.026 CVAA) Result 0.000070 Result 36 22 0.032 2.4 Field Sampling	Qualifier I Qualifier U Qualifier U	PQL 0.050 PQL 0.00020 PQL 5.0 2.0 0.10	0.021 MDL 0.000070 MDL 3.4 1.4 0.032	mg/L Unit mg/L Mg/L mg/L mg/L mg/L	D	03/19/19 12:10 Prepared 03/20/19 13:33	Analyzed 03/20/19 16:40 Analyzed 03/21/19 14:23 Analyzed 03/21/19 14:23 03/21/19 14:23 03/20/19 13:52 03/19/19 13:52 03/19/19 14:14	Dil Fac

Qualifiers

Metals Qualifier	Qualifier Description	
Ι	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.	
J3	Estimated value; value may not be accurate. Spike recovery or RPD outside of criteria.	5
L	Off-scale high. Actual value is known to be greater than the value given.	
U	Indicates that the compound was analyzed for but not detected.	
General C	hemistry	
Qualifier	Qualifier Description	
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.	
J3	Estimated value; value may not be accurate. Spike recovery or RPD outside of criteria.	9
U	Indicates that the compound was analyzed for but not detected.	Ľ

Glossary

Glussaly		
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)	

Prep Type

Total Recoverable

Total Recoverable

Total Recoverable

Total Recoverable

Client Sample ID: PZ-200S Date Collected: 03/05/19 16:10 Date Received: 03/06/19 16:35

Batch

Туре

Prep

Prep

Analysis

Analysis

Batch

3005A

6020

3005A

6020

Method

Lab Sample ID: 400-166941-1 Matrix: Water

	•						
Total/NA	Prep	7470A		433992	03/20/19 13:33	JAP	TAL PEN
Total/NA	Analysis	7470A	1	434199	03/21/19 13:48	JAP	TAL PEN
Total/NA	Analysis	SM 2540C	1	432606	03/08/19 09:19	CLB	TAL PEN
Total/NA	Analysis	SM 4500 CI- E	20	433871	03/19/19 14:28	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C	1	433876	03/19/19 13:55	RRC	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E	10	433957	03/20/19 10:54	RRC	TAL PEN
Total/NA	Analysis	Field Sampling	1	435647	03/05/19 16:10	AW	TAL PEN

Dilution

Factor

5

50

Run

DL

DL

Batch

Number

433805

Prepared

433981 03/19/19 16:53 DRE

433805 03/19/19 12:10 DRE

434112 03/20/19 16:26 DRE

or Analyzed

03/19/19 12:10 DRE

Analyst

Lab

TAL PEN

TAL PEN

TAL PEN

TAL PEN

Lab Sample ID: 400-166941-2

Lab Sample ID: 400-166941-3

Matrix: Water

Matrix: Water

Client Sample ID: GSA-2S

Date Collected: 03/06/19 12:10 Date Received: 03/06/19 16:35

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			433805	03/19/19 12:10	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	433981	03/19/19 17:12	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		433805	03/19/19 12:10	DRE	TAL PEN
Total Recoverable	Analysis	6020	DL	25	434112	03/20/19 16:29	DRE	TAL PEN
Total/NA	Prep	7470A			433992	03/20/19 13:33	JAP	TAL PEN
Total/NA	Analysis	7470A		1	434199	03/21/19 13:50	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	432606	03/08/19 09:19	CLB	TAL PEN
Total/NA	Analysis	SM 4500 CI- E		2	433871	03/19/19 14:31	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	433876	03/19/19 13:59	RRC	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		2	433957	03/20/19 10:58	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	435647	03/06/19 12:10	AW	TAL PEN

Client Sample ID: PZ-201D Date Collected: 03/05/19 13:12 Date Received: 03/06/19 16:35

	Batch	Batch		Dilution	Batch	Prepared		
Prep Туре	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			433805	03/19/19 12:10	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	433981	03/19/19 17:16	DRE	TAL PEN
Total Recoverable	Prep	3005A	RA		433805	03/19/19 12:10	DRE	TAL PEN
Total Recoverable	Analysis	6020	RA	5	434112	03/20/19 16:33	DRE	TAL PEN
Total/NA	Prep	7470A			433992	03/20/19 13:33	JAP	TAL PEN
Total/NA	Analysis	7470A		1	434199	03/21/19 13:52	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	432606	03/08/19 09:19	CLB	TAL PEN
Total/NA	Analysis	SM 4500 CI- E		1	433871	03/19/19 13:45	RRC	TAL PEN
Fotal/NA	Analysis	SM 4500 F C		1	433876	03/19/19 14:03	RRC	TAL PEN

Lab Chronicle

1

Job ID: 400-166941-1 SDG: GSA Delineation Sampling

Client Sample ID: PZ-201D Date Collected: 03/05/19 13:12 Date Received: 03/06/19 16:35

Client Sample ID: GE-1D

Total/NA

Analysis Field Sampling 435647 03/05/19 13:12 AW

TAL PEN

Lab Sample ID: 400-166941-4 **Matrix: Water**

Lab Sample ID: 400-166941-5

Matrix: Water

Matrix: Water

Date Collected: 03/06/19 14:32 Date Received: 03/06/19 16:35

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			433805	03/19/19 12:10	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	433981	03/19/19 17:37	DRE	TAL PEN
Total/NA	Prep	7470A			433992	03/20/19 13:33	JAP	TAL PEN
Total/NA	Analysis	7470A		1	434199	03/21/19 13:53	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	432606	03/08/19 09:19	CLB	TAL PEN
Total/NA	Analysis	SM 4500 CI- E		1	433871	03/19/19 13:52	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	433876	03/19/19 14:07	RRC	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	433957	03/20/19 10:20	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	435647	03/06/19 14:32	AW	TAL PEN

Client Sample ID: DUP-06 Date Collected: 03/05/19 17:10 Date Received: 03/06/19 16:35

Γ	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A	_		433805	03/19/19 12:10	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	433981	03/19/19 17:41	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		433805	03/19/19 12:10	DRE	TAL PEN
Total Recoverable	Analysis	6020	DL	50	434112	03/20/19 16:36	DRE	TAL PEN
Total/NA	Prep	7470A			433992	03/20/19 13:33	JAP	TAL PEN
Total/NA	Analysis	7470A		1	434199	03/21/19 14:21	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	432606	03/08/19 09:19	CLB	TAL PEN
Total/NA	Analysis	SM 4500 CI- E		20	433871	03/19/19 14:28	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	433876	03/19/19 14:10	RRC	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		10	433957	03/20/19 10:54	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	435647	03/05/19 17:10	AW	TAL PEN

Client Sample ID: DUP-07 Date Collected: 03/06/19 13:32 Date Received: 03/06/19 16:35

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			433805	03/19/19 12:10	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	433981	03/19/19 17:44	DRE	TAL PEN
Total Recoverable	Prep	3005A	RA		433805	03/19/19 12:10	DRE	TAL PEN
Total Recoverable	Analysis	6020	RA	5	434112	03/20/19 16:40	DRE	TAL PEN
Total/NA	Prep	7470A			433992	03/20/19 13:33	JAP	TAL PEN
Total/NA	Analysis	7470A		1	434199	03/21/19 14:23	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	432606	03/08/19 09:19	CLB	TAL PEN

Eurofins TestAmerica, Pensacola

Lab Sample ID: 400-166941-6

Client: Gulf Power Company Project/Site: CCR Plant Crist

Matrix: Water

Lab Sample ID: 400-166941-6

Client Sample ID: DUP-07 Date Collected: 03/06/19 13:32 Date Received: 03/06/19 16:35

Total/NA	Analysis	SM 4500 F C	1	433876	03/19/19 14:14	RRC	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E	1	433957	03/20/19 10:20	RRC	TAL PEN
Total/NA	Analysis	Field Sampling	1	435647	03/06/19 13:32	AW	TAL PEN

Laboratory References:

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

10

Metals

Prep Batch: 433805

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
400-166941-1	PZ-200S	Total Recoverable	Water	3005A	
400-166941-1 - DL	PZ-200S	Total Recoverable	Water	3005A	
400-166941-2	GSA-2S	Total Recoverable	Water	3005A	
400-166941-2 - DL	GSA-2S	Total Recoverable	Water	3005A	
400-166941-3	PZ-201D	Total Recoverable	Water	3005A	
400-166941-3 - RA	PZ-201D	Total Recoverable	Water	3005A	
400-166941-4	GE-1D	Total Recoverable	Water	3005A	
400-166941-5	DUP-06	Total Recoverable	Water	3005A	
400-166941-5 - DL	DUP-06	Total Recoverable	Water	3005A	
400-166941-6	DUP-07	Total Recoverable	Water	3005A	
400-166941-6 - RA	DUP-07	Total Recoverable	Water	3005A	
MB 400-433805/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-433805/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-166941-1 MS	PZ-200S	Total Recoverable	Water	3005A	
400-166941-1 MSD	PZ-200S	Total Recoverable	Water	3005A	

Analysis Batch: 433981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166941-1	PZ-200S	Total Recoverable	Water	6020	433805
400-166941-2	GSA-2S	Total Recoverable	Water	6020	433805
400-166941-3	PZ-201D	Total Recoverable	Water	6020	433805
400-166941-4	GE-1D	Total Recoverable	Water	6020	433805
400-166941-5	DUP-06	Total Recoverable	Water	6020	433805
400-166941-6	DUP-07	Total Recoverable	Water	6020	433805
MB 400-433805/1-A ^5	Method Blank	Total Recoverable	Water	6020	433805
LCS 400-433805/2-A	Lab Control Sample	Total Recoverable	Water	6020	433805
400-166941-1 MS	PZ-200S	Total Recoverable	Water	6020	433805
400-166941-1 MSD	PZ-200S	Total Recoverable	Water	6020	433805

Prep Batch: 433992

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166941-1	PZ-200S	Total/NA	Water	7470A	
400-166941-2	GSA-2S	Total/NA	Water	7470A	
400-166941-3	PZ-201D	Total/NA	Water	7470A	
400-166941-4	GE-1D	Total/NA	Water	7470A	
400-166941-5	DUP-06	Total/NA	Water	7470A	
400-166941-6	DUP-07	Total/NA	Water	7470A	
MB 400-433992/13-A	Method Blank	Total/NA	Water	7470A	
LCS 400-433992/14-A	Lab Control Sample	Total/NA	Water	7470A	
400-167267-K-5-E MS	Matrix Spike	Total/NA	Water	7470A	
400-167267-K-5-F MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

Analysis Batch: 434112

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
400-166941-1 - DL	PZ-200S	Total Recoverable	Water	6020	433805
400-166941-2 - DL	GSA-2S	Total Recoverable	Water	6020	433805
400-166941-3 - RA	PZ-201D	Total Recoverable	Water	6020	433805
400-166941-5 - DL	DUP-06	Total Recoverable	Water	6020	433805
400-166941-6 - RA	DUP-07	Total Recoverable	Water	6020	433805

Metals Analysis Batch: 434199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166941-1	PZ-200S	Total/NA	Water	7470A	433992
400-166941-2	GSA-2S	Total/NA	Water	7470A	433992
400-166941-3	PZ-201D	Total/NA	Water	7470A	433992
400-166941-4	GE-1D	Total/NA	Water	7470A	433992
400-166941-5	DUP-06	Total/NA	Water	7470A	433992
400-166941-6	DUP-07	Total/NA	Water	7470A	433992
MB 400-433992/13-A	Method Blank	Total/NA	Water	7470A	433992
LCS 400-433992/14-A	Lab Control Sample	Total/NA	Water	7470A	433992
400-167267-K-5-E MS	Matrix Spike	Total/NA	Water	7470A	433992
400-167267-K-5-F MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	433992

General Chemistry

Analysis Batch: 432606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166941-1	PZ-200S	Total/NA	Water	SM 2540C	
400-166941-2	GSA-2S	Total/NA	Water	SM 2540C	
400-166941-3	PZ-201D	Total/NA	Water	SM 2540C	
400-166941-4	GE-1D	Total/NA	Water	SM 2540C	
400-166941-5	DUP-06	Total/NA	Water	SM 2540C	
400-166941-6	DUP-07	Total/NA	Water	SM 2540C	
MB 400-432606/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-432606/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-166940-A-4 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 433871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166941-1	PZ-200S	Total/NA	Water	SM 4500 CI- E	
400-166941-2	GSA-2S	Total/NA	Water	SM 4500 CI- E	
400-166941-3	PZ-201D	Total/NA	Water	SM 4500 CI- E	
400-166941-4	GE-1D	Total/NA	Water	SM 4500 CI- E	
400-166941-5	DUP-06	Total/NA	Water	SM 4500 CI- E	
400-166941-6	DUP-07	Total/NA	Water	SM 4500 CI- E	
MB 400-433871/6	Method Blank	Total/NA	Water	SM 4500 CI- E	
LCS 400-433871/7	Lab Control Sample	Total/NA	Water	SM 4500 CI- E	
MRL 400-433871/3	Lab Control Sample	Total/NA	Water	SM 4500 CI- E	
400-167121-A-1 MS	Matrix Spike	Total/NA	Water	SM 4500 CI- E	
400-167121-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 CI- E	
400-167121-A-7 MS	Matrix Spike	Total/NA	Water	SM 4500 CI- E	
400-167121-A-7 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 CI- E	

Analysis Batch: 433876

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166941-1	PZ-200S	Total/NA	Water	SM 4500 F C	
400-166941-2	GSA-2S	Total/NA	Water	SM 4500 F C	
400-166941-3	PZ-201D	Total/NA	Water	SM 4500 F C	
400-166941-4	GE-1D	Total/NA	Water	SM 4500 F C	
400-166941-5	DUP-06	Total/NA	Water	SM 4500 F C	
400-166941-6	DUP-07	Total/NA	Water	SM 4500 F C	
MB 400-433876/3	Method Blank	Total/NA	Water	SM 4500 F C	
LCS 400-433876/4	Lab Control Sample	Total/NA	Water	SM 4500 F C	

QC Association Summary

General Chemistry (Continued)

Analysis Batch: 433876 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-92964-C-5 MS	Matrix Spike	Total/NA	Water	SM 4500 F C	
660-92964-C-5 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 F C	
660-92964-C-4 DU	Duplicate	Total/NA	Water	SM 4500 F C	

Analysis Batch: 433957

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166941-1	PZ-200S	Total/NA	Water	SM 4500 SO4 E	
400-166941-2	GSA-2S	Total/NA	Water	SM 4500 SO4 E	
400-166941-3	PZ-201D	Total/NA	Water	SM 4500 SO4 E	
400-166941-4	GE-1D	Total/NA	Water	SM 4500 SO4 E	
400-166941-5	DUP-06	Total/NA	Water	SM 4500 SO4 E	
400-166941-6	DUP-07	Total/NA	Water	SM 4500 SO4 E	
MB 400-433957/6	Method Blank	Total/NA	Water	SM 4500 SO4 E	
LCS 400-433957/7	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MRL 400-433957/3	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
400-167243-A-1 MS	Matrix Spike	Total/NA	Water	SM 4500 SO4 E	
400-167243-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 SO4 E	
400-167399-A-1 MS	Matrix Spike	Total/NA	Water	SM 4500 SO4 E	
400-167399-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 SO4 E	

Field Service / Mobile Lab

Analysis Batch: 435647

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method Prep E
400-166941-1	PZ-200S	Total/NA	Water	Field Sampling
400-166941-2	GSA-2S	Total/NA	Water	Field Sampling
400-166941-3	PZ-201D	Total/NA	Water	Field Sampling
400-166941-4	GE-1D	Total/NA	Water	Field Sampling
400-166941-5	DUP-06	Total/NA	Water	Field Sampling
400-166941-6	DUP-07	Total/NA	Water	Field Sampling

5 6 7

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 400-433805/1-A ^5 Matrix: Water Analysis Batch: 433981

	MB	MB							
Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		03/19/19 12:10	03/19/19 16:42	5
Arsenic	0.00046	U	0.0013	0.00046	mg/L		03/19/19 12:10	03/19/19 16:42	5
Barium	0.00049	U	0.0025	0.00049	mg/L		03/19/19 12:10	03/19/19 16:42	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		03/19/19 12:10	03/19/19 16:42	5
Boron	0.021	U	0.050	0.021	mg/L		03/19/19 12:10	03/19/19 16:42	5
Cadmium	0.00034	U	0.0025	0.00034	mg/L		03/19/19 12:10	03/19/19 16:42	5
Calcium	0.13	U	0.25	0.13	mg/L		03/19/19 12:10	03/19/19 16:42	5
Cobalt	0.00040	U	0.0025	0.00040	mg/L		03/19/19 12:10	03/19/19 16:42	5
Lead	0.00035	U	0.0013	0.00035	mg/L		03/19/19 12:10	03/19/19 16:42	5
Lithium	0.0011	U	0.0050	0.0011	mg/L		03/19/19 12:10	03/19/19 16:42	5
Molybdenum	0.0020	U	0.015	0.0020	mg/L		03/19/19 12:10	03/19/19 16:42	5
Selenium	0.00071	U	0.0013	0.00071	mg/L		03/19/19 12:10	03/19/19 16:42	5
Thallium	0.000085	U	0.00050	0.000085	mg/L		03/19/19 12:10	03/19/19 16:42	5

Lab Sample ID: LCS 400-433805/2-A Matrix: Water Analysis Batch: 433981

Prep Batch: 433805 Spike LCS LCS %Rec. Added Limits Analyte **Result Qualifier** Unit D %Rec 0.0500 0.0486 80 - 120 Antimony mg/L 97 0.0500 Arsenic 0.0508 mg/L 102 80 - 120 Barium 0.0500 0.0530 mg/L 106 80 - 120 Beryllium 0.0500 0.0480 mg/L 96 80 - 120 Boron 0.100 0.0990 mg/L 99 80 - 120 0.0500 0.0467 Cadmium 93 80 - 120 mg/L Calcium 5.00 5.03 101 80 - 120 mg/L Cobalt 0.0500 0.0496 99 80 - 120 mg/L Lead 0.0500 0.0483 mg/L 97 80 - 120 Lithium 0.0500 0.0497 mg/L 99 80 - 120 Molybdenum 0.0500 mg/L 99 0.0494 80 - 120 Selenium 0.0500 0.0467 mg/L 93 80 - 120 80 - 120 Thallium 0.0100 0.00953 95 mg/L

Lab Sample ID: 400-166941-1 MS Matrix: Water

Prep Batch: 433805 Analysis Batch: 433981 Sample Sample Spike MS MS %Rec. **Result Qualifier** Added Analyte **Result Qualifier** Unit D %Rec Limits Antimony 0.0010 U 0.0500 0.0496 mg/L 99 75 - 125 Arsenic 0.00046 U 0.0500 0.0524 105 75 - 125 mg/L Barium 0.050 0.0500 0.105 mg/L 110 75 - 125 Beryllium 0.00034 U 0.0500 0.0482 mg/L 96 75 - 125 Boron 291 75 - 125 11 L 0.100 11.0 L J3 mg/L 0.0500 Cadmium 0.00034 U 0.0462 mg/L 92 75 - 125 230 L Calcium 5.00 237 LJ3 181 75 - 125 mg/L Cobalt 0.0055 0.0500 0.0544 98 75 - 125 mg/L 0.0500 0.0494 98 Lead 0.00050 I mg/L 75 - 125 Lithium 0.0017 I 0.0500 0.0498 mg/L 96 75 - 125 Molybdenum 0.0020 U 0.0500 0.0502 mg/L 100 75 - 125

Eurofins TestAmerica, Pensacola

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Client Sample ID: PZ-200S

Prep Type: Total Recoverable

Prep Type: Total Recoverable

Prep Batch: 433805

QC Sample Results

Client Sample ID: PZ-200S

11

Prep Type: Total Recoverable

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

Lab Sample ID: 400-166941-1 MS **Client Sample ID: PZ-200S** Prep Type: Total Recoverable **Matrix: Water** Analysis Batch: 433981 Prep Batch: 433805 MS MS Sample Sample Spike %Rec. Result Qualifier Added Result Qualifier Unit Limits Analyte D %Rec Selenium 0.0027 0.0500 0.0512 97 75 - 125 mg/L Thallium 0.00015 I 0.0100 0.00956 mg/L 94 75 - 125

Lab Sample ID: 400-166941-1 MSD Matrix: Water Analysis Batch: 433981

Analysis Batch: 433981									Prep Ba	atch: 43	33805
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Antimony	0.0010	U	0.0500	0.0480		mg/L		96	75 - 125	3	20
Arsenic	0.00046	U	0.0500	0.0513		mg/L		103	75 - 125	2	20
Barium	0.050		0.0500	0.103		mg/L		106	75 - 125	2	20
Beryllium	0.00034	U	0.0500	0.0479		mg/L		96	75 - 125	1	20
Boron	11	L	0.100	10.9	L J3	mg/L		272	75 - 125	0	20
Cadmium	0.00034	U	0.0500	0.0458		mg/L		92	75 - 125	1	20
Calcium	230	L	5.00	230	J3 L	mg/L		42	75 - 125	3	20
Cobalt	0.0055		0.0500	0.0533		mg/L		96	75 - 125	2	20
Lead	0.00050	I	0.0500	0.0491		mg/L		97	75 - 125	1	20
Lithium	0.0017	Ι	0.0500	0.0495		mg/L		96	75 - 125	0	20
Molybdenum	0.0020	U	0.0500	0.0483		mg/L		97	75 - 125	4	20
Selenium	0.0027		0.0500	0.0502		mg/L		95	75 - 125	2	20
Thallium	0.00015	I	0.0100	0.00948		mg/L		93	75 - 125	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 400-43 Matrix: Water Analysis Batch: 434199	33992/13-A Me	3 MB						Clie		ole ID: Metho Prep Type: T Prep Batch:	otal/NA
Analyte	Resul	t Qualifier	I	PQL	MDL	Unit	D	P	repared	Analyzed	Dil Fac
Mercury	0.000070	υ	0.00	0020 0.0	00070	mg/L		03/2	0/19 13:33	03/21/19 13:13	1
Lab Sample ID: LCS 400-4 Matrix: Water Analysis Batch: 434199	33992/14-A		Spike	LC:	6 LCS		Clien	t Sar		Lab Control Prep Type: T Prep Batch: %Rec.	otal/NA
Analyte			Added	Resu	t Qua	lifier	Unit	D	%Rec	Limits	
Mercury			0.00101	0.00095	3		mg/L		95	80 - 120	
Lab Sample ID: 400-16726 Matrix: Water Analysis Batch: 434199	7-K-5-E MS							CI		nple ID: Matri Prep Type: T Prep Batch:	otal/NA
	Sample Sa	mple	Spike	M	S MS					%Rec.	
Analyte	Result Qu	alifier	Added	Resu	t Qua	lifier	Unit	D	%Rec	Limits	
Mercury	0.000070 U		0.00201	0.0019	1		mg/L		95	80 - 120	

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

Lab Sample ID: 400-167267 Matrix: Water	′-K-5-F MS	D						Clien	t Sar	npl	le ID: M	latrix Spil Prep Ty	pe: Tot	al/NA
Analysis Batch: 434199	Sample	Sami	nle	Spike		MSD	MSD					Prep Ba %Rec.	atch: 4	33992 RPD
Analyte	Result	•		Added		-	Qualifier	Unit		D	%Rec	Limits	RPD	Limit
Mercury	0.000070	U		0.00201	(0.00186		mg/L		_	92	80 - 120	3	20
Method: SM 2540C - So	lids, Tota	al Di	ssolve	d (TD	S)									
Lab Sample ID: MB 400-432	2606/1									منا	nt Sam	ple ID: M	ethod	Rlank
Matrix: Water											int Oain	Prep Ty		
Analysis Batch: 432606														
,		MB	МВ											
Analyte	Re	esult	Qualifier		PQL	I	MDL Unit		D	Pr	epared	Analy	zed	Dil Fac
Total Dissolved Solids		3.4	U		5.0		3.4 mg/l	-				03/08/19	09:19	1
-														
Lab Sample ID: LCS 400-43	32606/2							Cli	ent S	San	nple ID	: Lab Cor		
Matrix: Water												Prep Ty	pe: Tot	al/N/
Analysis Batch: 432606				.								~ -		
Ameliate				Spike		-	LCS	11		-	0/ D = =	%Rec.		
Analyte Total Dissolved Solids				Added 293		232	Qualifier			D	%Rec 79	Limits		
Total Dissolved Solids				293		232		mg/L			79	10-122		
Lab Sample ID: 400-166940	-A-4 DU										Client	Sample I	D: Dup	licate
Lab Sample ID: 400-166940 Matrix: Water)-A-4 DU										Client	Sample I Prep Tv		
Matrix: Water)-A-4 DU										Client	Sample I Prep Ty		
-)-A-4 DU Sample	Sam	ole			DU	DU				Client			al/NA
Matrix: Water							DU Qualifier	Unit		D	Client			

Method: SM 4500 CI- E - Chloride, Total

Lab Sample ID: MB 400-433871/6 Matrix: Water									Cli	ent Sam	ple ID: Metho Prep Type: 1	
Analysis Batch: 433871 Analyte	MB Result	MB Qualifier		PQL		мпі	Unit	г	DP	repared	Analyzed	Dil Fac
Chloride	1.4			2.0			mg/L				03/19/19 13:42	
Lab Sample ID: LCS 400-433871/7 Matrix: Water Analysis Batch: 433871								Clie	nt Sa	mple ID:	: Lab Control Prep Type: 1	
			Spike		LCS	LCS	5				%Rec.	
Analyte			Added		Result	Qua	lifier	Unit	D	%Rec	Limits	
Chloride			30.0		32.5			mg/L		108	90 - 110	
Lab Sample ID: MRL 400-433871/3 Matrix: Water Analysis Batch: 433871								Clie	nt Sa	mple ID:	: Lab Control Prep Type: 1	
Analysis Batch. 400071			Spike		MRL	MRI	_				%Rec.	
Analyte			Added		Result		lifier	Unit	D	%Rec	Limits	
Chloride			2.00		1.80	Ī		mg/L		90	50 - 150	

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

_ Lab Sample ID: 400-167121 Matrix: Water	I-A-1 MS						CI	ient Sa	mple ID: M Prep Typ		
Analysis Batch: 433871											
	Sample	Sample	Spike	MS	MS				%Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Chloride	19		10.0	28.6		mg/L		99	73 - 120		
Lab Sample ID: 400-167121	I-A-1 MSD					Client Sa	amp	le ID: N	latrix Spik	e Dup	licate
Matrix: Water									Prep Typ		
Analysis Batch: 433871											
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte		Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	19		10.0	28.6		mg/L		99	73 - 120	0	8
Lab Sample ID: 400-167121	I-A-7 MS						CI	ient Sa	mple ID: M	atrix	Spike
Matrix: Water									Prep Typ	e: Tot	al/NA
Analysis Batch: 433871											
-	Sample	Sample	Spike	MS	MS				%Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Chloride	62		10.0	70.1		mg/L		79	73 - 120		
Lab Sample ID: 400-167121 Matrix: Water Analysis Batch: 433871		Commun	Onika	MOD	MOD	Client S	amp	le ID: N	latrix Spike Prep Typ		al/NA
A secolaria	•	Sample	Spike	_	MSD	11	_	0/ D	%Rec.		RPD
Analyte Chloride	62	Qualifier	Added 10.0	70.6	Qualifier	Unit	_ <u>D</u>	84	Limits 73 - 120	RPD	Limit 8
			10.0	70.0		mg/L		04	73-120	1	
Method: SM 4500 F C -	Fluoride										
Lab Sample ID: MB 400-43 Matrix: Water	3876/3						Clie	ent Sam	ple ID: Me Prep Typ		
Analysis Batch: 433876											
		MB MB									
Analyte	Re	sult Qualifier		PQL I	MDL Unit	D	Р	repared	Analyze	d	
Fluoride									-		Dil Fac
_	0	.032 U		0.10 0	.032 mg/L			-	03/19/19 1		
Lab Sample ID: LCS 400-43		.032 U		0.10 0				nple ID	-	3:38	1
-		.032 U		0.10 0				mple ID	03/19/19 1	3:38 rol Sa	1 Imple
_ Lab Sample ID: LCS 400-43 Matrix: Water		.032 U		0.10 0				nple ID	03/19/19 1	3:38 rol Sa	1 Imple
_ Lab Sample ID: LCS 400-43		.032 U	Spike					nple ID	03/19/19 1	3:38 rol Sa	1 Imple
_ Lab Sample ID: LCS 400-43 Matrix: Water		.032 U	Spike Added	LCS	.032 mg/L			nple ID %Rec	03/19/19 1 : Lab Cont Prep Typ	3:38 rol Sa	1 Imple
Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 433876		.032 U	•	LCS	LCS	Client	Sai	·	03/19/19 1 : Lab Cont Prep Typ %Rec.	3:38 rol Sa	1 Imple
Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 433876 Analyte Fluoride	33876/4	.032 U	Added	LCS Result	LCS	Client	Sai	%Rec 96	03/19/19 1 : Lab Cont Prep Typ %Rec. Limits 90 - 110	3:38 rrol Sa e: Tot	1 al/NA
Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 433876 Analyte	33876/4	.032 U	Added	LCS Result	LCS	Client	Sai	%Rec 96	03/19/19 1 : Lab Cont Prep Typ %Rec. Limits	3:38 rol Sa e: Tot	1 al/NA
Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 433876 Analyte Fluoride Lab Sample ID: 660-92964-	33876/4	.032 U	Added	LCS Result 3.83	LCS Qualifier	Client	Sai	%Rec 96	03/19/19 1 : Lab Cont Prep Typ %Rec. Limits 90 - 110 mple ID: M	3:38 rol Sa e: Tot	1 al/NA
Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 433876 Analyte Fluoride Lab Sample ID: 660-92964- Matrix: Water	33876/4 C-5 MS	.032 U	Added	LCS Result 3.83	LCS	Client	Sai	%Rec 96	03/19/19 1 : Lab Cont Prep Typ %Rec. Limits 90 - 110 mple ID: M	3:38 rol Sa e: Tot	1 al/NA
Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 433876 Analyte Fluoride Lab Sample ID: 660-92964- Matrix: Water	33876/4 C-5 MS Sample		Added 4.00	LCS Result 3.83	LCS Qualifier MS Qualifier	Client	Sai	%Rec 96	03/19/19 1 : Lab Cont Prep Typ %Rec. Limits 90 - 110 mple ID: M Prep Typ	3:38 rol Sa e: Tot	1 al/NA

Method: SM 4500 F C - Fluoride (Continued)

Lab Sample ID: 660-92964- Matrix: Water	·C-5 MSD					Client Sa	amp	Ie ID: N	latrix Spil Prep Ty		
Analysis Batch: 433876											
		Sample	Spike		MSD				%Rec.		RPI
Analyte		Qualifier	Added		Qualifier	Unit	_ D	%Rec	Limits	RPD	Limi
Fluoride	0.23		1.00	0.780	J3	mg/L		55	75 - 125	0	4
Lab Sample ID: 660-92964- Matrix: Water	-C-4 DU							Client	Sample II Prep Ty		
Analysis Batch: 433876											
	Sample	Sample		DU	DU						RPI
Analyte	Result	Qualifier		Result	Qualifier	Unit	D			RPD	Lim
Fluoride	0.14			0.140		mg/L				0	
lethod: SM 4500 SO4 I		e, Total					<u></u>				
Lab Sample ID: MB 400-43 Matrix: Water	3957/6						Clie	ent Sam	ple ID: M Prep Ty		
Analysis Batch: 433957		МВ МВ									
Analyte	Re	sult Qualifier		PQL	MDL Unit	D	P	repared	Analyz	hov	Dil Fa
Sulfate		1.4 U		5.0	1.4 mg/L			repared	$-\frac{312}{03/20/19}$		Dirra
Lab Sample ID: LCS 400-4 Matrix: Water	33957/7					Client	Sar	nple ID	: Lab Cor Prep Ty		
Analysis Batch: 433957			Cuilco		LCS				%Rec.		
Awalista			Spike			11	-	0/ D = =			
Analyte Sulfate			Added 15.0	14.8	Qualifier	Unit mg/L	D	98	Limits		
Sunate			10.0	14.0		ilig/L		50	50-110		
Lab Sample ID: MRL 400-4	33957/3					Client	Sar	nple ID	: Lab Cor	ntrol Sa	ampl
Matrix: Water									Prep Ty		
Analysis Batch: 433957											
-			Spike	MRL	MRL				%Rec.		
Analyto			Added		Qualifier	Unit	D	%Rec	Limits		
			= 00		-	· · · · //		88	50 - 150		
-			5.00	4.40	I	mg/L					
Sulfate	3-A-1 MS		5.00	4.40	I	mg/L	CI		mple ID: I	Matrix	Spik
Sulfate Lab Sample ID: 400-16724	3-A-1 MS		5.00	4.40	I	mg/∟	CI		mple ID: I Prep Ty		
Sulfate Lab Sample ID: 400-16724 Matrix: Water	3-A-1 MS		5.00	4.40	I	mg/L	CI		mple ID: I Prep Ty		
Analyte Sulfate Lab Sample ID: 400-167243 Matrix: Water Analysis Batch: 433957		Sample	5.00 Spike		MS	mg/∟	CI				
Sulfate Lab Sample ID: 400-167243 Matrix: Water Analysis Batch: 433957	Sample	Sample Qualifier		MS		mg/∟ Unit	CI D		Prep Ty		
Sulfate Lab Sample ID: 400-167243 Matrix: Water Analysis Batch: 433957 Analyte	Sample		Spike	MS	MS	-		ient Sa	Prep Ty %Rec.		
Sulfate Lab Sample ID: 400-167243 Matrix: Water Analysis Batch: 433957 Analyte Sulfate Lab Sample ID: 400-167243	Sample Result 44		Spike Added	MS Result	MS	Unit mg/L	_ <u>D</u>	ient Sa <u>%Rec</u> 104	Prep Ty %Rec. Limits 77 - 128	pe: To 	blicat
Sulfate Lab Sample ID: 400-167243 Matrix: Water Analysis Batch: 433957 Analyte Sulfate Lab Sample ID: 400-167243 Matrix: Water	Sample Result 44		Spike Added	MS Result	MS	Unit mg/L	_ <u>D</u>	ient Sa <u>%Rec</u> 104	Prep Ty %Rec. Limits 77 - 128	pe: To 	blicate
Sulfate Lab Sample ID: 400-16724 Matrix: Water	Sample Result 44 3-A-1 MSD	Qualifier	Spike Added 10.0	MS Result 54.1	MS Qualifier	Unit mg/L	_ <u>D</u>	ient Sa <u>%Rec</u> 104	Prep Ty %Rec. Limits 77 - 128	pe: To 	blicato
Sulfate Lab Sample ID: 400-167243 Matrix: Water Analysis Batch: 433957 Analyte Sulfate Lab Sample ID: 400-167243 Matrix: Water	Sample Result 44 3-A-1 MSD Sample		Spike Added	MS Result 54.1	MS	Unit mg/L	_ <u>D</u>	ient Sa <u>%Rec</u> 104	Prep Ty %Rec. Limits 77 - 128 latrix Spil Prep Ty	pe: To 	blicate

Method: SM 4500 SO4 E - Sulfate, Total (Continued)

Lab Sample ID: 400-16739 Matrix: Water	9-A-1 MS						CI	lient Sa	mple ID: Prep Ty			
Analysis Batch: 433957	Sample	Sample	Spike	MS	MS				%Rec.			
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits			F
Sulfate	17		10.0	27.0		mg/L		101	77 - 128			
Lab Sample ID: 400-16739 Matrix: Water	9-A-1 MSD					Client	Samp	le ID: N	latrix Spi Prep Ty			
Analysis Batch: 433957	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Sulfate	17		10.0	27.1		mg/L		102	77 - 128	0	5	

ola		
Pensacola	ve	514
-	Dri	FL 3251
merica	nore	Ц
TestAm	3355 McLemore Drive	Pensacola,

Chain of Custody Record



Phone (850) 474-1001 Fax (850) 478-2671									THE LEADER IN E	THE LEADER IN ENVIRONMENTAL TESTING
Client Information	Sampler. Rill Hevendon	Per la	celterary		Lab PM: Whitmire, Cheyenne R	R	Carrier Tracking No(s):	g No(s):	COC No: 400-82560-23631.1	31.1
Client Contact: Kristi Mitchell	Phone: 7-3	36	-0192		ie.whitmire(E-Mail: cheyenne.whitmire@testamericainc.com	.com		Page: Page 1 of 1	
Company: Gulf Power Company						Analy	Analysis Requested		Job #:	
Address: BIN 731 One Energy Place	Due Date Requested:	ä			- 21				Preservation Codes	
City: Pensacola	TAT Requested (days)	/s):			(e' 5240	- 4074			A - HCL B - NaOH C - Zn Acetate	M - Hexane N - None O - AsNaO2
State, Zip: FL, 32520					sting -	/ '11 '99			D - Nitric Acid E - NaHSO4	
Phone: 850-444-6427(Tel)	PO #: Pay by Credit Carc	ard		(0	528 G				F - MeUH G - Amchlor H - Ascorbic Acid	
Email: kristi.mitchell@nexteraenergy.com	:# OM			or N	1200 <u>-5</u> 226Ra Vo)	'q4'0	(CAN)		I - Ice J - DI Water	
Project Name: CCR Plant Crist GSA Delineation Sampling	Project #: 40005424			səy) əl	46, 5M4 228, Ra 228, Ra	0'PO'8O				W - pH 4-5 Z - other (specify)
Site:	SSOW#:			gme2	Chlorid 20_Ra 150_Ra	,98,8,	400 1 con		of Other:	
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=arab)	Matrix de (wwwater, s=solid, O=wasteloli, BT-Theure, A-Ark)	9315_Ra226, 93 9315_Ra226, 93	Total Dissolved 5020 - Sb, 84,88 Wercury FleidSampling -			Total Number	Snecial Instructions/Note-
	X	X	m -		A OX	0				
PZ-200S	3-5-19	1610	5	Water	XX	8				
PZ-200D				Water	-					
GSA-2S	3-6-19	1210	2	Water	X	K X				
PZ-201D	2-5-19	1312	4	Water	×	XX				
GE-4DR				Water						
GE-1D	3-6-19	1432	5	Water	X	X				
D w - 66	3-5-19	01/1	5	Water	2	XX				
Dup-07	3-6-19	1332	5	Water	N	XX				
				Water	,					
				Water						
Identification				1	Sample L	isposal (A fee	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	samples are re	atained longer than	1 month)
Non-Hazard Hammable Skin Intiant Pro Deliverable Requested: I, II, III, IV, Other (specify)	OISON B UNK	u	Kadiological		Special Ir	Return 1 o Client Dispecial Instructions/QC Requirements:	Cequirements:	Lab	Archive For	Months
Empty Kit-Relinquished by:		Date:		F	Time:		Method	Method of Shipment:		
Relinquipred by:	Date/Time: 3 6	6119	1635	Company		outre C	auer	Date/Time:	9 1635	Company
Kelinquished by-	Date/Time:			Company		ed by: /	1	Date/Time:		Company
	Date/Time:			Company	Received by:	ed by:		Date/Time:		Company
Custody Seals Intact: Custody Seal No.:					Cooler	Temperature(s) °C	Cooler Temperature(s) °C and Other Remarks:	5.7	11 2 70	7
	-								-	Ver: 01/16/2019

9 10 11

Login Sample Receipt Checklist

Client: Gulf Power Company

Login Number: 166941 List Number: 1 Creator: Perez, Trina M

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	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	0.7°C, 1.1°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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Job Number: 400-166941-1

SDG Number: GSA Delineation Sampling

Accreditation/Certification Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist Job ID: 400-166941-1 SDG: GSA Delineation Sampling

Laboratory: Eurofins TestAmerica, Pensacola

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

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

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Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 400-166941-2

Laboratory Sample Delivery Group: GSA Delineation Sampling Client Project/Site: CCR Plant Crist

For:

Gulf Power Company BIN 731 One Energy Place Pensacola, Florida 32520

Attn: Kristi Mitchell



Authorized for release by: 4/15/2019 4:29:37 PM

Cheyenne Whitmire, Project Manager II (850)471-6222 cheyenne.whitmire@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.

.....Links **Review your project** results through **Total** Access Have a Question? Ask-The Expert Visit us at: www.testamericainc.com

Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Method Summary	4
Sample Summary	5
Client Sample Results	6
Definitions	12
Chronicle	13
QC Association	15
QC Sample Results	16
Chain of Custody	20
Receipt Checklists	21
Certification Summary	23

Job ID: 400-166941-2

Laboratory: Eurofins TestAmerica, Pensacola

Narrative

Job Narrative 400-166941-2

RAD

Method(s) 903.0, 9315: Ra-226 Prep Batch 160-419090. Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. DUP-06 (400-166941-5), DUP-07 (400-166941-6), (LCS 160-419090/1-A), (MB 160-419090/24-A), (160-33070-J-11-E), (160-33070-I-11-A MS) and (160-33070-B-11-B MSD)

Method(s) 903.0, 9315: Ra-226 Prep Batch 160-419103. Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. PZ-200S (400-166941-1), GSA-2S (400-166941-2), PZ-201D (400-166941-3), GE-1D (400-166941-4), (LCS 160-419103/1-A), (MB 160-419103/23-A), (490-169432-E-1-A) and (490-169432-F-1-A DU)

Method(s) 904.0, 9320: Ra-228 Prep Batch 160-419136. Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. PZ-200S (400-166941-1), GSA-2S (400-166941-2), PZ-201D (400-166941-3), GE-1D (400-166941-4), (LCS 160-419136/1-A), (MB 160-419136/23-A), (490-169432-E-1-B) and (490-169432-F-1-B DU)

Method(s) 904.0, 9320: Ra-228 Prep Batch 160-419100. Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. DUP-06 (400-166941-5), DUP-07 (400-166941-6), (LCS 160-419100/1-A), (MB 160-419100/24-A), (160-33070-J-11-F), (160-33070-I-11-B MS) and (160-33070-B-11-C MSD)

Method Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist

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

Sample Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist

Job ID: 400-166941-2 SDG: GSA Delineation Sampling

Client Sample ID	Matrix	Collected	Received
PZ-200S	Water	03/05/19 16:10	03/06/19 16:35
GSA-2S	Water	03/06/19 12:10	03/06/19 16:35
PZ-201D	Water	03/05/19 13:12	03/06/19 16:35
GE-1D	Water	03/06/19 14:32	03/06/19 16:35
DUP-06	Water	03/05/19 17:10	03/06/19 16:35
DUP-07	Water	03/06/19 13:32	03/06/19 16:35
-	PZ-200S GSA-2S PZ-201D GE-1D DUP-06	PZ-200SWaterGSA-2SWaterPZ-201DWaterGE-1DWaterDUP-06Water	PZ-200S Water 03/05/19 16:10 GSA-2S Water 03/06/19 12:10 PZ-201D Water 03/05/19 13:12 GE-1D Water 03/06/19 14:32 DUP-06 Water 03/05/19 17:10

Client Sample ID: PZ-200S Date Collected: 03/05/19 16:10 Date Received: 03/06/19 16:35

Lab Sample ID: 400-166941-1 Matrix: Water

Matrix: Water

5 6

			Count Uncert.	Total Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Radium-226	3.67		0.313	0.455	1.00	0.102 pCi/L	03/13/19 12:14	04/04/19 16:47	1
Carrier	%Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Ba Carrier	92.3		40 - 110				03/13/19 12:14	04/04/19 16:47	1
Method: 9320 - F	Radium-228 (GFPC)							
			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Padium_228	2 89		0 434	0 509	1 00	0.421 nCi/l	03/13/19 14:05	03/26/19 15:57	1

Radium-228	2.89	0.434	0.509	1.00	0.421 pCi/L	03/13/19 14:05	03/26/19 15:57	1	
Carrier	%Yield G	Qualifier Limits				Prepared	Analyzed	Dil Fac	
Ba Carrier	92.3	40 - 110				03/13/19 14:05	03/26/19 15:57	1	
Y Carrier	84.1	40 - 110				03/13/19 14:05	03/26/19 15:57	1	

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2 σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Combined Radium	6.56		0.535	0.683	5.00	0.421 pCi/L		04/14/19 07:25	1
226 + 228									

Client: Gulf Power Company Project/Site: CCR Plant Crist

Client Sample ID: GSA-2S Date Collected: 03/06/19 12:10 Date Received: 03/06/19 16:35

Lab Sample ID: 400-166941-2 Matrix: Water

Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.28		0.192	0.224	1.00	0.0898	pCi/L	03/13/19 12:14	04/04/19 16:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.6		40 - 110					03/13/19 12:14	04/04/19 16:47	1

	alyte	Result	Qualifier	(2σ+/-) 0.327	(2σ+/-) 0.350	RL 1.00	MDC 0.381	 Prepared 03/13/19 14:05	Analyzed 03/26/19 15:57	Dil Fac	
	rrier		Qualifier	Limits				Prepared	Analyzed	Dil Fac	
Ba	Carrier	92.6		40 - 110				03/13/19 14:05	03/26/19 15:57	1	
Y	Carrier	85.6		40 - 110				03/13/19 14:05	03/26/19 15:57	1	

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2 σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Combined Radium	2.65		0.379	0.416	5.00	0.381 pCi/L		04/14/19 07:25	1
226 + 228									

Client Sample ID: PZ-201D Date Collected: 03/05/19 13:12 Date Received: 03/06/19 16:35

Lab Sample ID: 400-166941-3 **Matrix: Water**

5 6

Method: 9315 -	Radium-226 ((GFPC)								
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.216		0.0892	0.0913	1.00	0.0874	pCi/L	03/13/19 12:14	04/04/19 16:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.6		40 - 110					03/13/19 12:14	04/04/19 16:48	1
	Radium-228	(GFPC)								
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac

Radium-228	0.160	U	0.247	0.247	1.00	0.415 pCi/L	03/13/19 14:05	03/26/19 15:57	1	
Carrier	%Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
Ba Carrier	90.6		40 - 110				03/13/19 14:05	03/26/19 15:57	1	
Y Carrier	83.7		40 - 110				03/13/19 14:05	03/26/19 15:57	1	
_										

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.376	U	0.263	0.263	5.00	0.415 pCi/L		04/14/19 07:25	1

Client Sample ID: GE-1D Date Collected: 03/06/19 14:32 Date Received: 03/06/19 16:35

_

Lab Sample ID: 400-166941-4 Matrix: Water

Matrix: Water

5 6

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2 σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.193		0.0849	0.0867	1.00	0.0921	pCi/L	03/13/19 12:14	04/04/19 16:49	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 - 110					03/13/19 12:14	04/04/19 16:49	1
 Method: 9320 - F	Radium-228 (GFPC)								
			Count	Total						
			Uncort	Uncort						

Analyte	Booult	Qualifier	(2σ+/-)	(2σ+/-)	ы	MDC	llnit	Prepared	Analvzed	Dil Fac	
		Quaimer		<u> </u>	RL _					DIFAC	
Radium-228	0.406		0.235	0.238	1.00	0.352	pCı/L	03/13/19 14:05	03/26/19 15:57	1	
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac	
Ba Carrier	97.6		40 - 110					03/13/19 14:05	03/26/19 15:57	1	
Y Carrier	85.6		40 - 110					02/12/10 11:05	03/26/19 15:57	4	

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2 σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.599		0.250	0.253	5.00	0.352 pCi/L		04/14/19 07:25	1

Client Sample Results

Client Sample ID: DUP-06 Date Collected: 03/05/19 17:10 Date Received: 03/06/19 16:35

Lab Sample ID: 400-166941-5 Matrix: Water

Method: 9315 - F			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2 σ+/-)	(2 σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	3.16		0.318	0.427	1.00	0.0798	pCi/L	03/13/19 10:50	04/04/19 06:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.0		40 - 110					03/13/19 10:50	04/04/19 06:17	1
Method: 9320 - F	Radium-228 (GFPC)								
		-	Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2 σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.63		0.458	0.567	1.00	0.410	pCi/l	03/13/19 11:44	03/29/19 08:59	1

Carrier	%Yield	Qualifier Limits	Prepared Analyzed	Dil Fac
Ba Carrier	95.0	40 - 110	03/13/19 11:44 03/29/19 08:59	1
Y Carrier	87.5	40 - 110	03/13/19 11:44 03/29/19 08:59	1
Method: Ra226	_Ra228 - Com	bined Radium-226 a	nd Radium-228	

Count Total Uncert. Uncert. Analyte **Result Qualifier** (2**σ**+/-) RL MDC Unit Prepared Analyzed Dil Fac (2**σ**+/-) 0.558 0.710 5.00 0.410 pCi/L 04/14/19 07:25 **Combined Radium** 6.79 1

226 + 228

400-166941-5 Matrix: Water

Client Sample ID: DUP-07 Date Collected: 03/06/19 13:32 Date Received: 03/06/19 16:35

Lab Sample ID: 400-166941-6 **Matrix: Water**

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.258		0.0943	0.0971	1.00	0.0842	pCi/L	03/13/19 10:50	04/04/19 06:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier			40 - 110					03/13/19 10:50	04/04/19 06:17	1

			Count Uncert.	Total Uncert.							
Analyte	Result	Qualifier	(2 σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac	
Radium-226	0.258		0.0943	0.0971	1.00	0.0842	pCi/L	03/13/19 10:50	04/04/19 06:17	1	
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac	
Ba Carrier Method: 9320 -	107 Radium-228 (GFPC)	40 - 110 Count	Total				03/13/19 10:50	04/04/19 06:17	1	
•		GFPC)	Count					03/13/19 10:50	04/04/19 06:17	1	
•	Radium-228 ((GFPC) Qualifier	Count Uncert. (2σ+/-)	Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	1 Dil Fac	
Method: 9320 - Analyte	Radium-228 (Count Uncert.	Uncert.	RL 1.00					1 Dil Fac 1	
Method: 9320 -	Radium-228 (Count Uncert. (2σ+/-)	Uncert. (2σ+/-)				Prepared	Analyzed	Dil Fac 1 Dil Fac	
Method: 9320 - Analyte Radium-228	Radium-228 (Qualifier	Count Uncert. (2σ+/-) 0.217	Uncert. (2σ+/-)				Prepared 03/13/19 11:44	Analyzed 03/29/19 08:59	1	

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2 σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Combined Radium	0.614		0.237	0.240	5.00	0.331 pCi/L	_	04/14/19 07:25	1
226 + 228									

Qualifiers

|--|

Qualifiers		3
Rad		
Qualifier	Qualifier Description	4
U	Result is less than the sample detection limit.	
Glossary		5
Abbreviation	These commonly used abbreviations may or may not be present in this report.	6
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis	
%R	Percent Recovery	7
CFL	Contains Free Liquid	
CNF	Contains No Free Liquid	0
DER	Duplicate Error Ratio (normalized absolute difference)	0
Dil Fac	Dilution Factor	
DL	Detection Limit (DoD/DOE)	9
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	13
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) Dilution

Run

Factor

1

1

1

Batch

Number

Prepared

419103 03/13/19 12:14 LTC

422642 04/04/19 16:47 CDR

419136 03/13/19 14:05 LTC

421229 03/26/19 15:57 CDR

423568 04/14/19 07:25 CDR

or Analyzed Analyst

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Client Sample ID: PZ-200S Date Collected: 03/05/19 16:10 Date Received: 03/06/19 16:35

Batch

Туре

Prep

Prep

Analysis

Analysis

Analysis

Batch

9315

9320

Method

PrecSep-21

PrecSep_0

Ra226 Ra228

Lab Sample ID: 400-166941-1 Matrix: Water

Lab

TAL SL

TAL SL

TAL SL

TAL SL

TAL SL

Lab Sample ID: 400-166941-2

Lab Sample ID: 400-166941-3

Matrix: Water

Matrix: Water

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Client Sample ID: GSA-2S Date Collected: 03/06/19 12:10 Date Received: 03/06/19 16:35

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			419103	03/13/19 12:14	LTC	TAL SL
Total/NA	Analysis	9315		1	422642	04/04/19 16:47	CDR	TAL SL
Total/NA	Prep	PrecSep_0			419136	03/13/19 14:05	LTC	TAL SL
Total/NA	Analysis	9320		1	421229	03/26/19 15:57	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	423568	04/14/19 07:25	CDR	TAL SL

Client Sample ID: PZ-201D Date Collected: 03/05/19 13:12 Date Received: 03/06/19 16:35

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			419103	03/13/19 12:14	LTC	TAL SL
Total/NA	Analysis	9315		1	422643	04/04/19 16:48	CDR	TAL SL
Total/NA	Prep	PrecSep_0			419136	03/13/19 14:05	LTC	TAL SL
Total/NA	Analysis	9320		1	421229	03/26/19 15:57	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	423568	04/14/19 07:25	CDR	TAL SL

Client Sample ID: GE-1D Date Collected: 03/06/19 14:32 Date Received: 03/06/19 16:35

Lab Sample ID: 400-166941-4 Matrix: Water

-	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			419103	03/13/19 12:14	LTC	TAL SL
Total/NA	Analysis	9315		1	422643	04/04/19 16:49	CDR	TAL SL
Total/NA	Prep	PrecSep_0			419136	03/13/19 14:05	LTC	TAL SL
Total/NA	Analysis	9320		1	421229	03/26/19 15:57	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	423568	04/14/19 07:25	CDR	TAL SL

Client Sample ID: DUP-06 Date Collected: 03/05/19 17:10 Date Received: 03/06/19 16:35

Lab Sample ID: 400-166941-5 Matrix: Water

Lab Sample ID: 400-166941-6

Matrix: Water

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	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			419090	03/13/19 10:50	LTC	TAL SL
Total/NA	Analysis	9315		1	422643	04/04/19 06:17	CDR	TAL SL
Total/NA	Prep	PrecSep_0			419100	03/13/19 11:44	LTC	TAL SL
Total/NA	Analysis	9320		1	421903	03/29/19 08:59	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	423568	04/14/19 07:25	CDR	TAL SL

Client Sample ID: DUP-07 Date Collected: 03/06/19 13:32 Date Received: 03/06/19 16:35

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			419090	03/13/19 10:50	LTC	TAL SL
Total/NA	Analysis	9315		1	422643	04/04/19 06:17	CDR	TAL SL
Total/NA	Prep	PrecSep_0			419100	03/13/19 11:44	LTC	TAL SL
Total/NA	Analysis	9320		1	421903	03/29/19 08:59	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	423568	04/14/19 07:25	CDR	TAL SL

Laboratory References:

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

Prep	o Bate	ch: 4'	19090

Rad

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batcl
400-166941-5	DUP-06	Total/NA	Water	PrecSep-21	
400-166941-6	DUP-07	Total/NA	Water	PrecSep-21	
MB 160-419090/24-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-419090/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
160-33070-B-11-B MSD	Matrix Spike Duplicate	Dissolved	Water	PrecSep-21	
160-33070-I-11-A MS	Matrix Spike	Dissolved	Water	PrecSep-21	
rep Batch: 419100					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
400-166941-5	DUP-06	Total/NA	Water	PrecSep_0	
400-166941-6	DUP-07	Total/NA	Water	PrecSep_0	
MB 160-419100/24-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-419100/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
160-33070-B-11-C MSD	Matrix Spike Duplicate	Dissolved	Water	PrecSep_0	
160-33070-I-11-B MS	Matrix Spike	Dissolved	Water	PrecSep_0	
rep Batch: 419103					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
400-166941-1	PZ-200S	Total/NA	Water	PrecSep-21	
400-166941-2	GSA-2S	Total/NA	Water	PrecSep-21	
400-166941-3	PZ-201D	Total/NA	Water	PrecSep-21	
400-166941-4	GE-1D	Total/NA	Water	PrecSep-21	
MB 160-419103/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-419103/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
490-169432-F-1-A DU	Duplicate	Total/NA	Water	PrecSep-21	

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-166941-1	PZ-200S	Total/NA	Water	PrecSep_0	
400-166941-2	GSA-2S	Total/NA	Water	PrecSep_0	
400-166941-3	PZ-201D	Total/NA	Water	PrecSep_0	
400-166941-4	GE-1D	Total/NA	Water	PrecSep_0	
MB 160-419136/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-419136/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
490-169432-F-1-B DU	Duplicate	Total/NA	Water	PrecSep_0	

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Method: 9315 - Radium-226 (GFPC)

Lab Sample ID): MB 1	60-4190	90/24-A						Cli		ole ID: Method	
Matrix: Water	h. 4000	40									Prep Type: To	
Analysis Batc	n: 4226	43		Count	Total						Prep Batch:	41909
		МВ	MR	Count Uncert.	Uncert.							
Analyte			Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	P	Prepared	Analyzed	Dil F
Radium-226		0.03216		0.0564	0.0565	1.00	0.101			13/19 10:50	-	
				0.0004	0.0000	1.00	0.101	poi/L	00/	10/10 10.00	04/04/10 00.17	
. .		MB							_			
Carrier			Qualifier	Limits						Prepared	Analyzed	Dil F
Ba Carrier		97.3		40 - 110					03/1	13/19 10:50	04/04/19 06:17	
Lab Sample ID Matrix: Water Analysis Batc			090/1-A					Cli	ent Sa		Lab Control S Prep Type: To Prep Batch:	otal/N
						Total					Trop Batom	4100
			Spike	LCS	LCS	Uncert.					%Rec.	
Analyte			Added	Result	Qual	(2 σ+/-)	RL	MDC	Unit	%Rec	Limits	
Radium-226			11.4	8.548		0.929	1.00	0.110	pCi/L	75	75 - 125	
	LCS	105										
Carrier		Qualifier	· Limits									
Ba Carrier	99.1		40 - 110	-								
Lab Sample ID): MB 1	60-4191	03/23-A						Clie		ole ID: Method	
Matrix: Water											Prep Type: To	
Analysis Batc	h: <mark>4226</mark>	43									Prep Batch:	4191
				Count	Total							
		MB		Uncert.	Uncert.				_			
Analyte			Qualifier	<u>(2σ+/-)</u>	(2σ+/-)	RL	MDC	Unit		Prepared	Analyzed	Dil F
Radium-226		0.03843	U	0.0428	0.0429	1.00	0.0667	pCi/L	03/	13/19 12:14	04/04/19 16:49	
Carrier			Qualifier	Limits						Prepared	Analyzed	Dil F
Ba Carrier		100		40 - 110					03/1	13/19 12:14	04/04/19 16:49	
Lab Sample ID	$ \cdot 1 cs^{-1} $	160-419	103/1-4					Cli	ent Sa	mnle ID:	Lab Control S	Samn
Matrix: Water								•			Prep Type: To	
Analysis Batc	h: 4226	55									Prep Batch:	
						Total						
			Spike	LCS	LCS	Uncert.					%Rec.	
Analyte			Added	Result	Qual	(2 σ+/-)	RL	MDC	Unit	%Rec	Limits	
Radium-226			11.4	10.83		1.13	1.00	0.0885	pCi/L	95	75 - 125	
	LCS	LCS										
Carrier		Qualifier	· Limits									
Ba Carrier	95.6		40 - 110	-								
										0		
Lab Sample ID): 490-1	oy432-F	1-A DU								Sample ID: Du	
Matrix: Water	h. 4000	40									Prep Type: To	
	n: 4226	42				Total					Prep Batch:	4191
						iuldi						
		Sample		ייח	ווח							D
Analysis Batc	Sample	e Sample t Qual)	DU Result	DU Qual	Uncert. (2σ+/-)	RL	MDC	Unit		REF	RI R Lir

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

Matrix: Wate		82-F-1-A DL	J							Sample ID: Du Prep Type: T	otal/NA
Analysis Ba	tch: 422642									Prep Batch:	419103
	DU DU										
Carrier	%Yield Qual	ifier Lim	its								
Ba Carrier	92.3	40 -	110								
Lab Sample Matrix: Wate	ID: 160-3307(er)-B-11-B M	SD				Client	Samp		atrix Spike Du rep Type: Dis	-
Analysis Ba	tch: 422642				Total					Prep Batch:	
	Sample Sar	nole Sr	oike MSD	MSD	Uncert.					%Rec.	REF
Analyte	Result Qua			Qual	(2σ+/-)	RL	MDC	Unit	%Rec	Limits REI	
Radium-226	0.465		11.3 10.08	·	1.07	1.00	0.0919			75 - 138 0.5	
	MSD MSD							•			
Carrier	%Yield Qual	ifier Lim	its								
Ba Carrier	97.3		110								
	ID: 160-33070)-I-11-A MS						С		n <mark>ple ID: Matri</mark>	
Matrix: Wate									P	rep Type: Dis	
Analysis Ba	tch: 422642									Prep Batch:	41909
	0				Total					0/ D	
	Sample Sar	• •		MS	Uncert.				a/ 5	%Rec.	
Analyte Radium-226	_ Result Qua		ded Result 11.4 8.931	Qual	(2σ+/-) 0.968	RL 1.00	0.0832			Limits 75 - 138	
Naulum-220	0.405		11.4 0.951		0.900	1.00	0.0032	poi/L	75	75-156	
	MS MS										
Carrier	%Yield Qual										
Ba Carrier	95.9	40 -	110								
	20 - Radiun	า-228 (GF	PC)								
lethod: 93			,								
lethod: 93 Lab Sample			,					Clie	ent Samp	ole ID: Metho	d Blank
Lab Sample	ID: MB 160-4		,					Clie		ole ID: Method Prep Type: T	
Lab Sample Matrix: Wate	ID: MB 160-4		,					Clie		ole ID: Metho Prep Type: T Prep Batch:	otal/N/
Lab Sample Matrix: Wate	ID: MB 160-4		Çount	Total				Clie		Prep Type: T	otal/N/
Lab Sample Matrix: Wate	ID: MB 160-4 er atch: 421795			Total Uncert.				Clie		Prep Type: T	otal/N/
Lab Sample Matrix: Wate Analysis Ba	ID: MB 160-4 er htch: 421795 Res	19100/24-A MB MB sult Qualifier	Count		RL	MDC				Prep Type: T	otal/N/ 41910(
Lab Sample Matrix: Wate Analysis Ba ^{Analyte}	ID: MB 160-4 er htch: 421795 Res	19100/24-А ИВ МВ	Count Uncert.	Uncert.	RL 1.00	MDC 0.367		P	repared	Prep Type: T Prep Batch:	otal/N/ 41910 Dil Fa
Lab Sample Matrix: Wate Analysis Ba ^{Analyte}	e ID: MB 160-4 er atch: 421795 Res 0.18	19100/24-A MB MB sult Qualifier	Count Uncert. (2σ+/-)	Uncert. (2σ+/-)				P	repared	Prep Type: T Prep Batch: Analyzed	otal/NA 419100 Dil Fa
	e ID: MB 160-4 er htch: 421795 	MB MB sult Qualifier 398 U	Count Uncert. (2σ+/-)	Uncert. (2σ+/-)				P 03/1	repared	Prep Type: T Prep Batch: Analyzed	otal/NA
Lab Sample Matrix: Wate Analysis Ba Analyte Radium-228	EID: MB 160-4 er htch: 421795 Res 0.18	MB MB sult Qualifier 398 U MB MB	Count Uncert. (2σ+/-) 0.223	Uncert. (2σ+/-)				P 03/1 	Prepared 13/19 11:44 Prepared	Prep Type: T Prep Batch: Analyzed 03/29/19 09:01	otal/N/ 41910(Dil Fa
Lab Sample Matrix: Wate Analysis Ba Analyte Radium-228 Carrier	EID: MB 160-4 er htch: 421795 Res 0.18 0.18 %Yi 9	MB MB sult Qualifier 398 U MB MB eld Qualifier	Count Uncert. (2σ+/-) 0.223 Limits	Uncert. (2σ+/-)				P 03/1 F 03/2	Prepared 13/19 11:44 Prepared 13/19 11:44	Prep Type: T Prep Batch: Analyzed 03/29/19 09:01 Analyzed	otal/NA 419100 Dil Fac
Lab Sample Matrix: Wate Analysis Ba Analyte Radium-228 Carrier Ba Carrier Y Carrier	EID: MB 160-4 er htch: 421795 Res 0.18 0.18 %Yi 9 8	MB MB MB MB Qualifier 0 MB MB eld Qualifier 7.3 5.6	Count Uncert. (2σ+/-) 0.223 Limits 40 - 110	Uncert. (2σ+/-)			pCi/L	— P 03/1 03/2 03/2	Prepared 13/19 11:44 Prepared 13/19 11:44 13/19 11:44	Prep Type: T Prep Batch: 03/29/19 09:01 <u>Analyzed</u> 03/29/19 09:01 03/29/19 09:01	otal/NA 419100 Dil Fa
Lab Sample Matrix: Wate Analysis Ba Analyte Radium-228 Carrier Ba Carrier Y Carrier	ID: MB 160-4 er stch: 421795 Res 0.18 %Yi 9 8 ID: LCS 160-4	MB MB MB MB Qualifier 0 MB MB eld Qualifier 7.3 5.6	Count Uncert. (2σ+/-) 0.223 Limits 40 - 110	Uncert. (2σ+/-)			pCi/L	— P 03/1 03/2 03/2	Prepared 13/19 11:44 Prepared 13/19 11:44 13/19 11:44 mple ID:	Prep Type: T Prep Batch: <u>Analyzed</u> 03/29/19 09:01 <u>Analyzed</u> 03/29/19 09:01	otal/N/ 419100 Dil Fa Dil Fa

				Total					
	Spike	LCS	LCS	Uncert.				%Rec.	
Analyte	Added	Result	Qual	(2σ+/-)	RL	MDC Unit	%Rec	Limits	
Radium-228	9.35	8.771		1.01	1.00	0.297 pCi/L	94	75 - 125	

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

Lab Sample Matrix: Wate Analysis Bat	er		100/1-A					Clie	ent Sa		Lab Control Prep Type: T Prep Batch:	otal/
											Trop Datom	
	LCS											
Carrier		Qualifier		_								
Ba Carrier	99.1		40 - 110									
Y Carrier	90.1		40 - 110									
Lab Sample	ID: MB 1	60-4191	36/23-A						Clie	ent Samp	ole ID: Metho	d Bla
Matrix: Wate	er										Prep Type: T	otal/
Analysis Ba	tch: 4212	29		Count	Total						Prep Batch:	4191
		МВ	мв	Uncert.	Uncert.							
Analyte			Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	P	repared	Analyzed	Dil
Radium-228		0.004270		0.200	0.200	1.00	0.360			13/19 14:05	-	
			MD									
Carrier			MB Qualifier	Limits						Prepared	Analyzod	Dil
Sa Carrier		% Y Ieia 100	wuanner	40 - 110						•	Analyzed 03/26/19 15:57	ווט
Y Carrier		84.5		40 - 110 40 - 110							03/26/19 15:57	
Carrier		04.0		40-110					00/1	10,10 14.00	00,20,10,10.01	
ab Sample	ID: LCS	160-419	136/1-A					Clie	ent Sa	mple ID:	Lab Control	Sam
Aatrix: Wate											Prep Type: T	
Analysis Bat	tch: 4212	29									Prep Batch:	4191
						Total						
			Spike		LCS	Uncert.					%Rec.	
Analyte			Added	Result	Qual	(2σ+/-)	RL	MDC		%Rec	Limits	
Radium-228			9.36	9.522		1.12	1.00	0.382	pCi/L	102	75 - 125	
	LCS	LCS										
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	95.6		40 - 110	_								
Y Carrier	80.7		40 - 110									
_ab Sample	ID: 490-1	69432-1	-1-B DU							Client S	Sample ID: Du	olica
Matrix: Wate											Prep Type: T	
Analysis Bat	tch: 4212	29									Prep Batch:	
-						Total						
	Sample	Sample		ווס	DU	Uncert.						R
				50	20							
-	Resul	t Qual		Result	Qual	(2σ+/-)	RL	MDC			RE	
-	-				Qual		RL 1.00	MDC 0.453			REI 0.3	
-	Resul	3		Result	Qual	(2σ+/-)						
Radium-228	Resul 0.536 DU	3		Result	Qual	(2σ+/-)						
Radium-228 Carrier	Resul 0.536 DU	bu		Result 0.3165	Qual	(2σ+/-)						
Radium-228 Carrier Ba Carrier	Resul 0.530 DU %Yield	bu	Limits	Result 0.3165	Qual	(2σ+/-)						
Radium-228 Carrier Ba Carrier Y Carrier	Result 0.536 DU %Yield 92.3 83.7	DU Qualifier	Limits 40 - 110 40 - 110	Result 0.3165	Qual	(2σ+/-)		0.453	pCi/L		0.3	6
Radium-228 Carrier Ba Carrier / Carrier _ab Sample	Resul 0.536 DU %Yield 92.3 83.7 ID: 160-3	DU Qualifier	Limits 40 - 110 40 - 110	Result 0.3165	Qual	(2σ+/-)		0.453	pCi/L		0.3 atrix Spike Du	or and the second secon
Radium-228 Carrier Ba Carrier Y Carrier Lab Sample Matrix: Wate	Result 0.530 DU %Yield 92.3 83.7 ID: 160-3 er	DU Qualifier	Limits 40 - 110 40 - 110	Result 0.3165	Qual	(2σ+/-)		0.453	pCi/L		0.3 atrix Spike Du rep Type: Dis	iplica
Radium-228 Carrier Ba Carrier Y Carrier Lab Sample Matrix: Wate	Result 0.530 DU %Yield 92.3 83.7 ID: 160-3 er	DU Qualifier	Limits 40 - 110 40 - 110	Result 0.3165	Qual	(2σ+/-)		0.453	pCi/L		0.3 atrix Spike Du	iplica
Radium-228 Carrier Ba Carrier Y Carrier Lab Sample Matrix: Wate	Result 0.530 DU %Yield 92.3 83.7 ID: 160-3 er tch: 4219	DU Qualifier	<u>Limits</u> 40 - 110 40 - 110	0.3165	Qual	(2σ+/-) 0.283		0.453	pCi/L		0.3 atrix Spike Du rep Type: Dis	iplica
Analyte Radium-228 <i>Carrier</i> Ba Carrier Y Carrier Lab Sample Matrix: Wate Analysis Bat	Resul 0.536 DU %Yield 92.3 83.7 ID: 160-3 er tch: 4219 Sample	DU Qualifier 3070-B	<u>Limits</u> 40 - 110 40 - 110	0.3165	Qual U	(2σ+/-) 0.283		0.453	pCi/L		0.3 atrix Spike Du Prep Type: Dis Prep Batch:	iplica ssolv 4191

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

Lab Sample Matrix: Wat Analysis Ba	ter		-C MSD					Clien	t Samı		atrix Spike Dup Prep Type: Diss Prep Batch: 4	olved
	MSD	MSD										
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	97.3		40 - 110									
Carrier	87.1		40 - 110									
ab Sample	e ID: 160-3	3070-l-11-	BMS						С	lient San	nple ID: Matrix	Spike
Aatrix: Wat									Ŭ		Prep Type: Diss	
Analysis Ba		12									Prep Batch: 4	
		-				Total						
	Sample	Sample	Spike	MS	MS	Uncert.					%Rec.	
nalyte	Result	Qual	Added	Result	Qual	(2 σ+/-)	RL	MDC	Unit	%Rec	Limits	
Radium-228	1.46		9.35	11.39		1.25	1.00	0.299	pCi/L	106	45 - 150	
	MS	MS										
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	95.9		40 - 110									
/ Carrier	90.5		40 - 110									
a file a sile D	-000 D-	000 0-	and the state	Dealla								
etnoa: R	a226_Ra	228 - 00	mbined	Radiur	n-226	and Radi	um-228)				
_ab Sample	e ID: 400-1	66750-A-3	DU							Client S	Sample ID: Dup	licate
Matrix: Wat											Prep Type: Tot	
Analysis Ba	atch: 4235	68										
•						Total						
	Sample	Sample		DU	DU	Uncert.						RE
Analyte	Result	Qual		Result	Our	(2 σ+ /-)	RL		Unit		RER	Limi

0.482

5.00

0.339 pCi/L

3.589

 Analyte
 Result
 Qual

 Combined
 3.76

 Radium 226 +

 228

0.18

Icola		
Pensacola	ve	14
ca	Dri	FL 32514
eri	nore	F
TestAmerica	3355 McLemore Drive	Pensacola,

Chain of Custody Record



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Phone (850) 4/4-1001 Fax (850) 4/8-26/1				
Client Information	RIN Hevendarte Celton		Carrier Tracking No(s):	COC No: 400-82560-23631.1
Client Contact: Kristi Mitchell	56-33660193	E-Mail: chevenne.whitmire@testamericainc.com		Page: Page 1 of 1
Company: Gulf Power Company		Analvsis Reminester	Pullested	Job #:
Address: BIN 731 One Energy Place	Due Date Requested:	E		
City. Pensacola	TAT Requested (days):			A - HCL M - Hexane B - NaOH N - None C - 7n Aretate O - Astiso72
State, Zip: FL, 32520	T	e e e,TI, 74		
Phone: 850-444-6427(Tel)	Po #: Pay by Credit Card	228_GF 04_E - Fluorid 700,5		
Email: kristi.mitchell@nexteraenergy.com	#OM	20'6P'I E C - I 1200 2 556K%	* *	I - Ice J - DI Water
Project Name: CCR Plant Crist GSA Delineation Sampling	Project #: 40005424	es or 1 16, 5M4 228, Ra 228, Ra		K - EDTA L - EDA
Site:	SSOW#:	SD (Y Solids Solids (B,Be,G (B,Be,G		Other:
	Sample Type Sample (C=comp.	leid Filtered 3 erform MS/M 315_Ra226, 93 M4500_C_LE - 0210 J5solved ercury ercury ercury	400-106941 COC	
Sample Identification	Preservation Code:			Special Instructions/Note:
PZ-200S	3-5-19 1610 6	2 7 K		
PZ-200D		Water		
GSA-2S	3-6-19 1210 12	Water X X		
PZ-201D	* 3mm	×		
GE-4DR		Water		
GE-1D	3-6-19 1432 6-	water X X X		
D w - 66	3-5-19 1710 6-	Water 👔 🦹 🕺 K		
Dup-07	3-6-19 1332 6	Water & X X		
		Water		
		Water		
Possible Hazard Identification		Sample Disnosal (A fee may b	he accascad if camples are refer	ined former than 1 months
ant	Poison B Unknown Radiological	Return To Client	osal By Lab	Archive For Months
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements.	ements:	
Empty Kit-Relinquished by:	Date:	Time:	Method of Shipment:	
Relinquified by:	3/6/19 1635	FOH	Lec Date/Time:	1635 Company
Relinquished by:	Date/Time:	Company Redeived by:) Date/Time:	Company
Relinquished by:	Date/Time: 0	Company Received by:	Date/Time:	Company
Custody Seals Intact: Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks	er Remarks: C.1	12 717
				Ver: 01/16/2019

10 11 12

Login Sample Receipt Checklist

Client: Gulf Power Company

Login Number: 166941 List Number: 1 Creator: Perez, Trina M

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	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	0.7°C, 1.1°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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Job Number: 400-166941-2

SDG Number: GSA Delineation Sampling

List Source: Eurofins TestAmerica, Pensacola

Login Sample Receipt Checklist

Client: Gulf Power Company

Login Number: 166941 List Number: 2 **Creator: Hellm, Michael**

Job Number: 400-166941-2
SDG Number: GSA Delineation Sampling

Creator: Helim, Michael		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey neter.</td <td>True</td> <td></td>	True	
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.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	18.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
s the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Accreditation/Certification Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist Job ID: 400-166941-2 SDG: GSA Delineation Sampling

Laboratory: Eurofins TestAmerica, Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
labama	State Program	4	40150	06-30-19
NAB	ISO/IEC 17025		L2471	02-22-20
rizona	State Program	9	AZ0710	01-12-20
vrkansas DEQ	State Program	6	88-0689	09-01-19
California	State Program	9	2510	06-30-19
lorida	NELAP	4	E81010	06-30-19
eorgia	State Program	4	E81010 (FL)	06-30-19
inois	NELAP	5	200041	10-09-19
wa	State Program	7	367	08-01-20
ansas	NELAP	7	E-10253	10-31-19
entucky (UST)	State Program	4	53	06-30-19
entucky (WW)	State Program	4	98030	12-31-19
ouisiana	NELAP	6	30976	06-30-19
ouisiana (DW)	NELAP	6	LA017	12-31-19
aryland	State Program	3	233	09-30-19
assachusetts	State Program	1	M-FL094	06-30-19
chigan	State Program	5	9912	06-30-19
ew Jersey	NELAP	2	FL006	06-30-19
orth Carolina (WW/SW)	State Program	4	314	12-31-19
dahoma	State Program	6	9810	08-31-19
ennsylvania	NELAP	3	68-00467	01-31-20
node Island	State Program	1	LAO00307	12-30-19
outh Carolina	State Program	4	96026	06-30-19
ennessee	State Program	4	TN02907	06-30-19
exas	NELAP	6	T104704286-18-15	09-30-19
S Fish & Wildlife	Federal		LE058448-0	07-31-19
SDA	Federal		P330-18-00148	05-17-21
rginia	NELAP	3	460166	06-14-19
ashington	State Program	10	C915	05-15-19
/est Virginia DEP	State Program	3	136	07-31-19

Accreditation/Certification Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist Job ID: 400-166941-2 SDG: GSA Delineation Sampling

Laboratory: Eurofins 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 / DOE		L2305	04-06-22
Arizona	State Program	9	AZ0813	12-08-19
California	State Program	9	2886	06-30-19 *
Connecticut	State Program	1	PH-0241	03-31-21
Florida	NELAP	4	E87689	06-30-19 *
Hawaii	State Program	9	NA	06-30-19
Illinois	NELAP	5	200023	11-30-19
Iowa	State Program	7	373	12-01-20
Kansas	NELAP	7	E-10236	10-31-19
Kentucky (DW)	State Program	4	KY90125	12-31-19
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA011	12-31-19
Maryland	State Program	3	310	09-30-19
Michigan	State Program	5	9005	06-30-19
Missouri	State Program	7	780	06-30-19
Nevada	State Program	9	MO000542018-1	07-31-19
New Jersey	NELAP	2	MO002	06-30-19 *
New York	NELAP	2	11616	03-31-20
North Dakota	State Program	8	R207	06-30-19 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-19
Pennsylvania	NELAP	3	68-00540	02-28-20
South Carolina	State Program	4	85002001	06-30-19
Texas	NELAP	6	T104704193-18-13	07-31-19
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542018-10	07-31-19
Virginia	NELAP	3	460230	06-14-19 *
Washington	State Program	10	C592	08-30-19
West Virginia DEP	State Program	3	381	08-31-19

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

4/15/2019

🛟 eurofins

Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 400-168194-1

Laboratory Sample Delivery Group: GSA Delineation Sampling Client Project/Site: CCR Plant Crist

For:

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The

www.testamericainc.com

Visit us at:

Expert

Gulf Power Company BIN 731 One Energy Place Pensacola, Florida 32520

Attn: Kristi Mitchell



Authorized for release by: 4/29/2019 2:42:40 PM

Cheyenne Whitmire, Project Manager II (850)471-6222 cheyenne.whitmire@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.

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	9
Chronicle	10
QC Association	11
QC Sample Results	13
Chain of Custody	20
Receipt Checklists	21
Certification Summary	22

Job ID: 400-168194-1

Laboratory: Eurofins TestAmerica, Pensacola

Narrative

Job Narrative 400-168194-1

Metals

Method(s) 6020: The post digestion spike % recovery associated with batch 437615 was outside of control limits. The following sample is impacted: (400-168490-H-3-C PDS ^5).

Method(s) 6020: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 437384 and analytical batch 437615 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.

General Chemistry

Method(s) SM 4500 F C: The matrix spike / matrix spike duplicate(MS/MSD) precision for analytical batch 436905 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample(LCS)was within acceptance limits.

Method(s) SM 4500 CI- E: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for analytical batch 437484 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Sample GE-4DR was canceled per client.

Detection Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist

Client Sample ID: PZ-200D

Lab Sample ID: 400-168194-1

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D Method	Prep Type
Barium	0.055		0.0025	0.00049	mg/L	5	6020	Total
								Recoverable
Boron	0.022	I	0.050	0.021	mg/L	5	6020	Total
			0.05	0.40		_		Recoverable
Calcium	5.5		0.25	0.13	mg/L	5	6020	Total
Cobalt	0.0012		0.0005	0.00040			6020	Recoverable
Cobait	0.0012	1	0.0025	0.00040	mg/∟	5	6020	Total
Lead	0.0021		0.0013	0.00035	ma/l	5	6020	Recoverable Total
Ecad	0.0021		0.0010	0.00000	mg/L	5	0020	Recoverable
Lithium	0.0050		0.0050	0.0011	ma/L	5	6020	Total
								Recoverable
Barium, Dissolved	0.035		0.0025	0.00049	mg/L	5	6020	Dissolved
Calcium, Dissolved	4.8		0.25	0.13	mg/L	5	6020	Dissolved
Lithium, Dissolved	0.0021	I	0.0050	0.0011	mg/L	5	6020	Dissolved
Total Dissolved Solids	96		5.0	3.4	mg/L	1	SM 2540C	Total/NA
Chloride	6.9		2.0	1.4	mg/L	1	SM 4500 CI- E	Total/NA
Fluoride	0.070	I	0.10	0.032	mg/L	1	SM 4500 F C	Total/NA
Sulfate	14		5.0	1.4	mg/L	1	SM 4500 SO4 E	Total/NA
Total Dissolved Solids Field Filtered	70		5.0	3.4	mg/L	1	SM 2540C	Dissolved
Chloride, Dissolved	3.0		2.0	1.4	mg/L	1	SM 4500 CI- E	Dissolved
Fluoride, Dissolved	0.070	Ι	0.10	0.032	mg/L	1	SM 4500 F C	Dissolved
Sulfate, Dissolved	6.5		5.0	1.4	mg/L	1	SM 4500 SO4 E	Dissolved
Field pH	6.69				SU	1	Field Sampling	Total/NA

Method Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist

Job ID: 400-168194-1 SDG: GSA Delineation Sampling

lethod	Method Description	Protocol	Laboratory
020	Metals (ICP/MS)	SW846	TAL PEN
470A	Mercury (CVAA)	SW846	TAL PEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PEN
SM 4500 CI- E	Chloride, Total	SM	TAL PEN
SM 4500 F C	Fluoride	SM	TAL PEN
SM 4500 SO4 E	Sulfate, Total	SM	TAL PEN
ield Sampling	Field Sampling	EPA	TAL PEN
005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PEN
470A	Preparation, Mercury	SW846	TAL PEN

Protocol References:

EPA = US Environmental Protection Agency

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

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

Laboratory References:

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

Sample Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist

Job ID: 400-168194-1 SDG: GSA Delineation Sampling

Lab Sample ID	Client Sample ID	Matrix	Collected Received
400-168194-1	PZ-200D	Water	04/02/19 16:25 04/03/19 14:50

Client Sample Results

PQL

0.0025

0.0013

0.0025

0.0025

0.050 0.0025

0.25

0.0025

0.0013

0.0050

0.015

0.0013

0.00050

MDL Unit

0.0010 mg/L

0.00046 mg/L

0.00049 mg/L

0.00034 mg/L

0.00034 mg/L

0.00040 mg/L

0.00035 mg/L

0.0011 mg/L

0.0020 mg/L

0.00071 mg/L

0.000085 mg/L

0.021 mg/L

0.13 mg/L

Client: Gulf Power Company Project/Site: CCR Plant Crist

Analyte

Antimony

Arsenic

Barium

Beryllium

Cadmium

Calcium

Cobalt

Lithium

Selenium

Thallium

Molybdenum

Lead

Boron

Client Sample ID: PZ-200D Date Collected: 04/02/19 16:25 Date Received: 04/03/19 14:50

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

Result Qualifier

0.0010 U

0.00046 U

0.055

0.00034 U

0.022 I

5.5

0.00034 U

0.0012 I

0.0021

0.0050

0.0020 U

0.00071 U

0.000085 U

Job ID: 400-168194-1 SDG: GSA Delineation Sampling

Analyzed

Lab Sample ID: 400-168194-1 **Matrix: Water**

04/17/19 09:15 04/17/19 23:03

04/17/19 09:15 04/17/19 23:03

04/17/19 09:15 04/17/19 23:03

04/17/19 09:15 04/17/19 23:03

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04/17/19 09:15 04/17/19 23:03

04/17/19 09:15 04/17/19 23:03

Prepared

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Method: 6020 - Metals (IC	P/MS) - Dissolv	ed							
Analyte	, Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony, Dissolved	0.0010	U	0.0025	0.0010	mg/L		04/17/19 09:15	04/17/19 23:19	5
Arsenic, Dissolved	0.00046	U	0.0013	0.00046	mg/L		04/17/19 09:15	04/17/19 23:19	5
Barium, Dissolved	0.035		0.0025	0.00049	mg/L		04/17/19 09:15	04/17/19 23:19	5
Beryllium, Dissolved	0.00034	U	0.0025	0.00034	mg/L		04/17/19 09:15	04/17/19 23:19	5
Boron, Dissolved	0.021	U	0.050	0.021	mg/L		04/17/19 09:15	04/17/19 23:19	5
Cadmium, Dissolved	0.00034	U	0.0025	0.00034	mg/L		04/17/19 09:15	04/17/19 23:19	5
Calcium, Dissolved	4.8		0.25	0.13	mg/L		04/17/19 09:15	04/17/19 23:19	5
Cobalt, Dissolved	0.00040	U	0.0025	0.00040	mg/L		04/17/19 09:15	04/17/19 23:19	5
Lead, Dissolved	0.00035	U	0.0013	0.00035	mg/L		04/17/19 09:15	04/17/19 23:19	5
Lithium, Dissolved	0.0021	1	0.0050	0.0011	mg/L		04/17/19 09:15	04/17/19 23:19	5
Molybdenum, Dissolved	0.0020	U	0.015	0.0020	mg/L		04/17/19 09:15	04/17/19 23:19	5
Selenium, Dissolved	0.00071	U	0.0013	0.00071	mg/L		04/17/19 09:15	04/17/19 23:19	5
Thallium, Dissolved	0.000085	U	0.00050	0.000085	mg/L		04/17/19 09:15	04/17/19 23:19	5

Method:	7470A - Mercury	v (CVAA)
		,

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000070	U	0.00020	0.000070	mg/L		04/15/19 15:07	04/16/19 12:44	1
Method: 7470A - Mercury (CVAA)	- Dissol	ved							
Analyte		Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	0.000070	U	0.00020	0.000070	mg/L		04/15/19 15:07	04/16/19 12:48	1
General Chemistry									
Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	96		5.0	3.4	mg/L			04/05/19 10:59	1
Chloride	6.9		2.0	1.4	mg/L			04/17/19 14:15	1
Fluoride	0.070	I.	0.10	0.032	mg/L			04/12/19 11:02	1
Sulfate	14		5.0	1.4	mg/L			04/17/19 16:28	1
General Chemistry - Dissolved									
Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids Field	70		5.0	3.4	mg/L			04/05/19 10:59	1
Chloride, Dissolved	3.0		2.0	1.4	mg/L			04/17/19 14:15	1
Fluoride, Dissolved	0.070	1	0.10	0.032	mg/L			04/12/19 11:02	1

Client Sample Results

		Client S	Sample F	Resul	ts					1
Client: Gulf Power Company Project/Site: CCR Plant Crist							SDG: GSA	Job ID: 400-10 A Delineation S		2
Client Sample ID: PZ-200D Date Collected: 04/02/19 16:25						Lal	b Sample	ID: 400-168 Matrix	3194-1 : Water	
Date Received: 04/03/19 14:50										
General Chemistry - Dissolved (Analyte		d) Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	5
Sulfate, Dissolved	6.5		5.0	1.4	mg/L			04/17/19 16:28	1	
Method: Field Sampling - Field S Analyte		Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	0
Field pH	6.69				SU		•	04/02/19 16:25	1	
										8
										9
										13

Qualifiers

Metals Qualifier	Qualifier Description	
Ι	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.	 _
J3	Estimated value; value may not be accurate. Spike recovery or RPD outside of criteria.	5
L	Off-scale high. Actual value is known to be greater than the value given.	
U	Indicates that the compound was analyzed for but not detected.	
General C	hemistry	
Qualifier	Qualifier Description	
Ι	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.	
J3	Estimated value; value may not be accurate. Spike recovery or RPD outside of criteria.	ß
U	Indicates that the compound was analyzed for but not detected.	-0

Glossary

Glussaly		
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)	

Dilution

Run

Factor

5

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Batch

Number

437384

Prepared

or Analyzed

04/17/19 09:15

437384 04/17/19 09:15 DRE

437615 04/17/19 23:03 DRE

437150 04/15/19 15:07 JAP

437306 04/16/19 12:48 JAP

437150 04/15/19 15:07 JAP

437306 04/16/19 12:44 JAP

436020 04/05/19 10:59 CLB

436020 04/05/19 10:59 CLB

437484 04/17/19 14:15 RRC

437484 04/17/19 14:15 RRC

436905 04/12/19 11:02 BAB

436905 04/12/19 11:02 BAB

437533 04/17/19 16:28 RRC

437533 04/17/19 16:28 RRC

436457 04/02/19 16:25 AW

437615 04/17/19 23:19

Analyst

DRE

DRE

Lab

TAL PEN

Prep Type

Dissolved

Dissolved

Dissolved

Dissolved

Total/NA

Total/NA

Dissolved

Total/NA

Dissolved

Total/NA

Dissolved

Total/NA

Dissolved

Total/NA

Total/NA

Total Recoverable

Total Recoverable

Client Sample ID: PZ-200D Date Collected: 04/02/19 16:25 Date Received: 04/03/19 14:50

Batch

Туре

Prep

Prep

Prep

Prep

Analysis

Batch

3005A

6020

3005A

6020

7470A

7470A

7470A

7470A

SM 2540C

SM 2540C

SM 4500 CI- E

SM 4500 CI- E

SM 4500 F C

SM 4500 F C

SM 4500 SO4 E

SM 4500 SO4 E

Field Sampling

Method

Lab Sample ID: 400-168194-1 Matrix: Water

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Laboratory References:

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

7470A

2 3 4 5 6 7

437150

Prep Batch: 437150

Metals

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-168194-1	PZ-200D	Dissolved	Water	7470A	
400-168194-1	PZ-200D	Total/NA	Water	7470A	
MB 400-437150/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-437150/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-168576-F-2-D MS	Matrix Spike	Total/NA	Water	7470A	
400-168576-F-2-E MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	
Analysis Batch: 4373	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-168194-1	PZ-200D	Dissolved	Water	7470A	437150
400-168194-1	PZ-200D	Total/NA	Water	7470A	437150
MB 400-437150/14-A	Method Blank	Total/NA	Water	7470A	437150
LCS 400-437150/15-A	Lab Control Sample	Total/NA	Water	7470A	437150
	Matrix Spike		Water		437150

400-168576-F-2-E MSD Prep Batch: 437384

Matrix Spike Duplicate

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
400-168194-1	PZ-200D	Dissolved	Water	3005A	
400-168194-1	PZ-200D	Total Recoverable	Water	3005A	
MB 400-437384/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-437384/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-168490-H-3-D MS ^5	Matrix Spike	Total Recoverable	Water	3005A	
400-168490-H-3-E MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

Total/NA

Water

Analysis Batch: 437615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-168194-1	PZ-200D	Dissolved	Water	6020	437384
400-168194-1	PZ-200D	Total Recoverable	Water	6020	437384
MB 400-437384/1-A ^5	Method Blank	Total Recoverable	Water	6020	437384
LCS 400-437384/2-A	Lab Control Sample	Total Recoverable	Water	6020	437384
400-168490-H-3-D MS ^5	Matrix Spike	Total Recoverable	Water	6020	437384
400-168490-H-3-E MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	6020	437384

General Chemistry

Analysis Batch: 436020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-168194-1	PZ-200D	Dissolved	Water	SM 2540C	
400-168194-1	PZ-200D	Total/NA	Water	SM 2540C	
MB 400-436020/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-436020/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-168178-E-2 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 436905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-168194-1	PZ-200D	Dissolved	Water	SM 4500 F C	
400-168194-1	PZ-200D	Total/NA	Water	SM 4500 F C	
MB 400-436905/3	Method Blank	Total/NA	Water	SM 4500 F C	
LCS 400-436905/4	Lab Control Sample	Total/NA	Water	SM 4500 F C	
400-168497-A-1 MS	Matrix Spike	Total/NA	Water	SM 4500 F C	

3 4 5 6 7

9 10

General Chemistry (Continued)

Analysis Batch: 436905 (Continued)

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
00-168497-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 F C	
nalysis Batch: 4374	184				
ab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
00-168194-1	PZ-200D	Dissolved	Water	SM 4500 CI- E	
00-168194-1	PZ-200D	Total/NA	Water	SM 4500 CI- E	
B 400-437484/6	Method Blank	Total/NA	Water	SM 4500 CI- E	
CS 400-437484/7	Lab Control Sample	Total/NA	Water	SM 4500 CI- E	
IRL 400-437484/3	Lab Control Sample	Total/NA	Water	SM 4500 CI- E	
00-168709-A-1 MS	Matrix Spike	Total/NA	Water	SM 4500 CI- E	
00-168709-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 CI- E	
00-168862-G-3 DU	Duplicate	Total/NA	Water	SM 4500 CI- E	
alysis Batch: 4375	533				
ab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
00-168194-1	PZ-200D	Dissolved	Water	SM 4500 SO4 E	
00-168194-1	PZ-200D	Total/NA	Water	SM 4500 SO4 E	
IB 400-437533/6	Method Blank	Total/NA	Water	SM 4500 SO4 E	
CS 400-437533/7	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
/IRL 400-437533/3	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
00-168497-A-1 MS	Matrix Spike	Total/NA	Water	SM 4500 SO4 E	
400-168497-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 SO4 E	

Field Service / Mobile Lab

Analysis Batch: 436457

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-168194-1	PZ-200D	Total/NA	Water	Field Sampling	

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 400-437384/1-A ^5 Matrix: Water Analysis Batch: 437615

	MB	МВ							
Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		04/17/19 09:15	04/17/19 20:35	5
Antimony, Dissolved	0.0010	U	0.0025	0.0010	mg/L		04/17/19 09:15	04/17/19 20:35	5
Arsenic	0.00046	U	0.0013	0.00046	mg/L		04/17/19 09:15	04/17/19 20:35	5
Arsenic, Dissolved	0.00046	U	0.0013	0.00046	mg/L		04/17/19 09:15	04/17/19 20:35	5
Barium	0.00049	U	0.0025	0.00049	mg/L		04/17/19 09:15	04/17/19 20:35	5
Barium, Dissolved	0.00049	U	0.0025	0.00049	mg/L		04/17/19 09:15	04/17/19 20:35	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		04/17/19 09:15	04/17/19 20:35	5
Beryllium, Dissolved	0.00034	U	0.0025	0.00034	mg/L		04/17/19 09:15	04/17/19 20:35	5
Boron	0.021	U	0.050	0.021	mg/L		04/17/19 09:15	04/17/19 20:35	5
Boron, Dissolved	0.021	U	0.050	0.021	mg/L		04/17/19 09:15	04/17/19 20:35	5
Cadmium	0.00034	U	0.0025	0.00034	mg/L		04/17/19 09:15	04/17/19 20:35	5
Cadmium, Dissolved	0.00034	U	0.0025	0.00034	mg/L		04/17/19 09:15	04/17/19 20:35	5
Calcium	0.13	U	0.25	0.13	mg/L		04/17/19 09:15	04/17/19 20:35	5
Calcium, Dissolved	0.13	U	0.25	0.13	mg/L		04/17/19 09:15	04/17/19 20:35	5
Cobalt	0.00040	U	0.0025	0.00040	mg/L		04/17/19 09:15	04/17/19 20:35	5
Cobalt, Dissolved	0.00040	U	0.0025	0.00040	mg/L		04/17/19 09:15	04/17/19 20:35	5
Lead	0.00035	U	0.0013	0.00035	mg/L		04/17/19 09:15	04/17/19 20:35	5
Lead, Dissolved	0.00035	U	0.0013	0.00035	mg/L		04/17/19 09:15	04/17/19 20:35	5
Lithium	0.0011	U	0.0050	0.0011	mg/L		04/17/19 09:15	04/17/19 20:35	5
Lithium, Dissolved	0.0011	U	0.0050	0.0011	mg/L		04/17/19 09:15	04/17/19 20:35	5
Molybdenum	0.0020	U	0.015	0.0020	mg/L		04/17/19 09:15	04/17/19 20:35	5
Molybdenum, Dissolved	0.0020	U	0.015	0.0020	mg/L		04/17/19 09:15	04/17/19 20:35	5
Selenium	0.00071	U	0.0013	0.00071	mg/L		04/17/19 09:15	04/17/19 20:35	5
Selenium, Dissolved	0.00071	U	0.0013	0.00071	mg/L		04/17/19 09:15	04/17/19 20:35	5
Thallium	0.000085	U	0.00050	0.000085	mg/L		04/17/19 09:15	04/17/19 20:35	5
Thallium, Dissolved	0.000085	U	0.00050	0.000085	mg/L		04/17/19 09:15	04/17/19 20:35	5

Lab Sample ID: LCS 400-437384/2-A Matrix: Water Analysis Batch: 437615

Analysis Batch: 437615	Spike	LCS	LCS				Prep Batch: 437384 %Rec.
Analyte	Added		Qualifier	Unit	D	%Rec	Limits
Antimony	0.0500	0.0465		mg/L		93	80 - 120
Antimony, Dissolved	0.0500	0.0465		mg/L		93	80 - 120
Arsenic	0.0500	0.0524		mg/L		105	80 - 120
Arsenic, Dissolved	0.0500	0.0524		mg/L		105	80 - 120
Barium	0.0500	0.0510		mg/L		102	80 - 120
Barium, Dissolved	0.0500	0.0510		mg/L		102	80 - 120
Beryllium	0.0500	0.0497		mg/L		99	80 - 120
Beryllium, Dissolved	0.0500	0.0497		mg/L		99	80 - 120
Boron	0.100	0.0997		mg/L		100	80 - 120
Boron, Dissolved	0.100	0.0997		mg/L		100	80 - 120
Cadmium	0.0500	0.0517		mg/L		103	80 - 120
Cadmium, Dissolved	0.0500	0.0517		mg/L		103	80 - 120
Calcium	5.00	5.16		mg/L		103	80 - 120
Calcium, Dissolved	5.00	5.16		mg/L		103	80 - 120
Cobalt	0.0500	0.0514		mg/L		103	80 - 120
Cobalt, Dissolved	0.0500	0.0514		mg/L		103	80 - 120
Lead	0.0500	0.0469		mg/L		94	80 - 120

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Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 437384

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

Lab Sample ID: LCS 400-437384/2-A Matrix: Water

Analysis Batch: 437615							Prep Batch: 437384
	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Lead, Dissolved	0.0500	0.0469		mg/L		94	80 - 120
Lithium	0.0500	0.0530		mg/L		106	80 - 120
Lithium, Dissolved	0.0500	0.0530		mg/L		106	80 - 120
Molybdenum	0.0500	0.0524		mg/L		105	80 - 120
Molybdenum, Dissolved	0.0500	0.0524		mg/L		105	80 - 120
Selenium	0.0500	0.0508		mg/L		102	80 - 120
Selenium, Dissolved	0.0500	0.0508		mg/L		102	80 - 120
Thallium	0.0100	0.00950		mg/L		95	80 - 120
Thallium, Dissolved	0.0100	0.00950		mg/L		95	80 - 120

Lab Sample ID: 400-168490-H-3-D MS ^5 Matrix: Water Analysis Batch: 437615

Prep Batch: 437384 Sample Sample Spike MS MS %Rec. Analyte **Result Qualifier** Added **Result Qualifier** %Rec Limits Unit D Antimony 0.0010 U 0.0500 0.0499 mg/L 100 75 - 125 100 Antimony, Dissolved 0.0010 U 0.0500 0.0499 75 - 125 mg/L Arsenic 0.0019 0.0500 0.0565 109 75 - 125 mg/L 0.0500 109 Arsenic. Dissolved 0.0019 0.0565 75 - 125 mg/L Barium 0.34 0.0500 0.394 mg/L 99 75 - 125 75 - 125 Barium, Dissolved 0.34 0.0500 0.394 mg/L 99 Beryllium 0.00034 U 0.0500 0.0504 mg/L 101 75 - 125 Beryllium, Dissolved 0.00034 U 0.0500 0.0504 mg/L 101 75 - 125 0.100 Boron 0.021 U 0.119 mg/L 119 75 - 125 Boron, Dissolved 0.021 U 0.100 0.119 mg/L 119 75 - 125 0.0500 0.0532 75 - 125 Cadmium 0.00034 U mg/L 106 Cadmium, Dissolved 0.00034 U 0.0500 0.0532 mg/L 106 75 - 125 Calcium 110 5.00 114 L mg/L 86 75 - 125 Calcium, Dissolved 110 5.00 114 L mg/L 86 75 - 125 0.0500 103 75 - 125 Cobalt 0.00040 U 0.0515 mg/L Cobalt, Dissolved 0.00040 U 0.0500 0.0515 mg/L 103 75 - 125 75 - 125 Lead 0.0500 0.0488 98 0.00035 U mg/L Lead. Dissolved 0.00035 U 0.0500 0.0488 mg/L 98 75 - 125 Lithium 0.0035 I 0.0500 0.0553 104 75 - 125 mg/L Lithium, Dissolved 0.0035 I 0.0500 0.0553 mg/L 104 75 - 125 0.0020 U Molybdenum 0.0500 0.0545 mg/L 109 75 - 125 Molybdenum, Dissolved 109 0.0020 U 0.0500 0.0545 mg/L 75 - 125 Selenium 0.00071 U 0.0500 0.0535 mg/L 107 75 - 125 107 Selenium, Dissolved 0.00071 U 0.0500 0.0535 mg/L 75 - 125 Thallium 0.00968 0.000085 U 0.0100 mg/L 97 75 - 125 Thallium, Dissolved 0.0100 0.00968 0.000085 U mg/L 97 75 - 125

Lab Sample ID: 400-168490-H-3-E MSD ^5 Matrix: Water Analysis Batch: 437615

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Antimony	0.0010	U	0.0500	0.0479		mg/L		96	75 - 125	4	20	
Antimony, Dissolved	0.0010	U	0.0500	0.0479		mg/L		96	75 - 125	4	20	

Client Sample ID: Lab Control Sample Prep Type: Total Recoverable

Client Sample ID: Matrix Spike Prep Type: Total Recoverable

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Prep Type: Total Recoverable

Prep Batch: 437384

Client Sample ID: Matrix Spike Duplicate

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

Lab Sample ID: 400-168490-H-3-E MSD ^5 **Matrix: Water** Analysis Batch: 437615

Analysis Batch: 437615								терту	Prep Ba		
Analysis Daten. 407010	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	•	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	0.0019		0.0500	0.0554		mg/L		107	75 - 125	2	20
Arsenic, Dissolved	0.0019		0.0500	0.0554		mg/L		107	75 - 125	2	20
Barium	0.34		0.0500	0.401		mg/L		115	75 - 125	2	20
Barium, Dissolved	0.34		0.0500	0.401		mg/L		115	75 - 125	2	20
Beryllium	0.00034	U	0.0500	0.0500		mg/L		100	75 - 125	1	20
Beryllium, Dissolved	0.00034	U	0.0500	0.0500		mg/L		100	75 - 125	1	20
Boron	0.021	U	0.100	0.119		mg/L		119	75 - 125	0	20
Boron, Dissolved	0.021	U	0.100	0.119		mg/L		119	75 - 125	0	20
Cadmium	0.00034	U	0.0500	0.0530		mg/L		106	75 - 125	0	20
Cadmium, Dissolved	0.00034	U	0.0500	0.0530		mg/L		106	75 - 125	0	20
Calcium	110		5.00	117	L J3	mg/L		136	75 - 125	2	20
Calcium, Dissolved	110		5.00	117	L J3	mg/L		136	75 - 125	2	20
Cobalt	0.00040	U	0.0500	0.0512		mg/L		102	75 - 125	1	20
Cobalt, Dissolved	0.00040	U	0.0500	0.0512		mg/L		102	75 - 125	1	20
Lead	0.00035	U	0.0500	0.0469		mg/L		94	75 - 125	4	20
Lead, Dissolved	0.00035	U	0.0500	0.0469		mg/L		94	75 - 125	4	20
Lithium	0.0035	Τ	0.0500	0.0553		mg/L		104	75 - 125	0	20
Lithium, Dissolved	0.0035	I	0.0500	0.0553		mg/L		104	75 - 125	0	20
Molybdenum	0.0020	U	0.0500	0.0531		mg/L		106	75 - 125	3	20
Molybdenum, Dissolved	0.0020	U	0.0500	0.0531		mg/L		106	75 - 125	3	20
Selenium	0.00071	U	0.0500	0.0519		mg/L		104	75 - 125	3	20
Selenium, Dissolved	0.00071	U	0.0500	0.0519		mg/L		104	75 - 125	3	20
Thallium	0.000085	U	0.0100	0.00985		mg/L		99	75 - 125	2	20
Thallium, Dissolved	0.000085	U	0.0100	0.00985		mg/L		99	75 - 125	2	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 400-437 Matrix: Water Analysis Batch: 437306		МР					Clie		ole ID: Method Prep Type: To Prep Batch:	otal/NA
Analyte		MB Qualifier	PQ	L	MDL Uni	t	D P	repared	Analyzed	Dil Fac
Mercury	0.000070		0.0002		0070 mg	-		•	04/16/19 12:12	1
Mercury, Dissolved	0.000070	U	0.0002	0 0.00	0070 mg	L	04/1	15/19 15:07	04/16/19 12:12	1
Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 437306	7150/15-A		Spike	LCS	LCS	Clie	ent Sa		Lab Control S Prep Type: To Prep Batch: %Rec.	otal/NA
Analyte			Added	Result	Qualifie	· Unit	D	%Rec	Limits	
Mercury			0.00101	0.000911		mg/L		90	80 - 120	
Mercury, Dissolved			0.00101	0.000911		mg/L		90	80 - 120	

Lab Sample ID: 400-168576-F-2-D MS Matrix: Water

Matrix: Water Analysis Batch: 437306									Prep Type: Total/NA Prep Batch: 437150
	Sample	Sample	Spike	MS	MS				%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Mercury	0.000070	U	0.00201	0.00188		mg/L		93	80 - 120
Mercury, Dissolved	0.000070	U	0.00201	0.00188		mg/L		93	80 - 120

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Client Sample ID: Matrix Spike

Prep Type: Total Recoverable

11 12 13

Client Sample ID: Matrix Spike Duplicate

Method: 7470A - Mercury (CVAA)

Lab Sample ID: 400-168576-F	-2-E MS	D							Client	Sam	ple	e ID: M	latrix Spil		
Matrix: Water													Prep Ty		
Analysis Batch: 437306													Prep Ba	tch: 4	3715
	Sample	Sam	ple	Spike		MSD	MSI	כ					%Rec.		RP
Analyte	Result	Qual	lifier	Added		Result	Qua	lifier	Unit	I	D	%Rec	Limits	RPD	Lim
Mercury	0.000070	U		0.00201	(0.00180			mg/L			89	80 - 120	5	2
Mercury, Dissolved	0.000070	U		0.00201	(0.00180			mg/L			89	80 - 120	5	2
lethod: SM 2540C - Soli	ds, Tota	al Di	ssolve	d (TD	S)										
Lab Sample ID: MB 400-4360 Matrix: Water	20/1									C	lier	nt Sam	ple ID: M		
													Prep Ty	be: 10	tal/in/
Analysis Batch: 436020		мв	MD												
Amelute	D .				DOI			11		<u> </u>	D		A a b		D:
Analyte	Re		Qualifier		PQL		MDL			D	Pre	epared	Analyz		Dil Fa
Total Dissolved Solids		3.4			5.0			mg/L					04/05/19		
Total Dissolved Solids Field Filtered		3.4	U		5.0		3.4	mg/L					04/05/19	10:59	
Lab Sample ID: LCS 400-436	020/2								Clie	ent S	am	ple ID	: Lab Con		
Matrix: Water													Prep Ty	oe: To	tal/N
Analysis Batch: 436020															
				Spike		LCS	LCS	6					%Rec.		
Analyte				Added		Result		lifier	Unit	I	D '	%Rec	Limits		
Total Dissolved Solids				293		262			mg/L			89	78 - 122		
Total Dissolved Solids Field Filtered				293		262			mg/L			89	78 - 122		
Lab Sample ID: 400-168178-I	E-2 DU											Client	Sample II	D: Dup	olicat
Matrix: Water													Prep Ty		
Analysis Batch: 436020															
-	Sample	Sam	ple			DU	DU								RP
Analyte	Result	Qual	lifier			Result	Qua	lifier	Unit	I	D			RPD	Lim
Total Dissolved Solids	86					84.0			mg/L					2	
Total Dissolved Solids Field	86					84.0			mg/L					2	
Filtered															
lethod: SM 4500 CI- E -	Chlorid	e, To	otal												
Lab Sample ID: MB 400-4374	84/6									C	lier	nt Sam	ple ID: M		
Matrix: Water													Prep Ty	Je. 10	
Analysis Batch: 437484		мв	MD												
Analyta	De		Qualifier				MDI	Unit		D	Dre	norod	Analua	od	
Analyte Chloride	K6	1.4			PQL 2.0			Unit mg/L		D	r re	epared	Analyz 04/17/19		Dil Fa
								-							
Chloride, Dissolved		1.4	U		2.0		1.4	mg/L					04/17/19	14:15	
Lab Sample ID: LCS 400-437	484/7								Clie	ent S	am	ple ID	: Lab Con	trol S	ampl
Matrix: Water													Prep Ty		
Analysis Batch: 437484													· · • [* · J]		
				Spike		1.05	LCS						%Rec.		
						200		,							

-	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	30.0	32.5		mg/L		108	90 - 110	
Chloride, Dissolved	30.0	32.5		mg/L		108	90 - 110	

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

Lab Sample ID: MRL 400-43	37484/3					Clie	nt Sar	nple ID	: Lab Cont		
Matrix: Water									Prep Typ	e: To	tal/NA
Analysis Batch: 437484											
• • •			Spike		RL MRL		_	~ -	%Rec.		
Analyte			Added		Ilt Qualifi		D	%Rec	Limits		
Chloride			2.00		10 I	mg/L		70	50 - 150		
Chloride, Dissolved			2.00	1.2	40 I	mg/L		70	50 - 150		
Lab Sample ID: 400-168709	-A-1 MS						CI	ient Sa	mple ID: M	atrix	Spike
Matrix: Water									Prep Typ		
Analysis Batch: 437484											
-	Sample	Sample	Spike	Ν	IS MS				%Rec.		
Analyte	Result	Qualifier	Added	Res	ılt Qualifi	er Unit	D	%Rec	Limits		
Chloride	4.4		10.0	19	.4 J3	mg/L		149	73 - 120		
Chloride, Dissolved	4.4		10.0	19	.4 J3	mg/L		149	73 - 120		
 Lab Sample ID: 400-168709						Client	Samn	Ie ID: N	atrix Spik		licate
Matrix: Water						onent	oump		Prep Typ		
Analysis Batch: 437484									1100 190	0. 10	
Analysis Baton: 401404	Sample	Sample	Spike	MS	D MSD				%Rec.		RPD
Analyte	•	Qualifier	Added	Res	ılt Qualifi	er Unit	D	%Rec	Limits	RPD	Limit
Chloride	4.4		10.0	16	.8 J3	mg/L		124	73 - 120	14	8
Chloride, Dissolved	4.4		10.0	16	.8 J3	mg/L		124	73 ₋ 120	14	8
Matrix: Water Analysis Batch: 437484									Prep Тур	e. 10	
	•	Sample			U DU						RPD
Analyte		Qualifier			ult Qualifi		D			RPD	Limit
Chloride	23			22		mg/L				1	8
Chloride, Dissolved	23			22	.4	mg/L				1	8
Method: SM 4500 F C - I	Fluoride										
Lab Sample ID: MB 400-436	3905/3						Clie	ent San	nple ID: Me	thod	Blank
Matrix: Water											
Analysis Batch: 436905									Pred IVD	e: 10	tai/NA
									Prep Typ	e: 10	tal/NA
Analysis Daten. 400000		MB MB							Prep Typ	e: 10	tai/NA
Analyte	Re	MB MB esult Qualifi	er	PQL	MDL U	nit	D P	repared	Analyze		Dil Fac
-			er	PQL 0.10	MDL U 0.032 m		D P	repared		ed	
Analyte	0	esult Qualifi	er			g/L	<u>D</u> P	repared	Analyze	ed 0:28	Dil Fac
Analyte Fluoride Fluoride, Dissolved	C C	esult Qualifi	er	0.10	0.032 m	g/L g/L			Analyze 04/12/19 1 04/12/19 1	ed 0:28 0:28	Dil Fac 1 1
Analyte Fluoride Fluoride, Dissolved Lab Sample ID: LCS 400-43	C C	esult Qualifi	ier	0.10	0.032 m	g/L g/L			Analyze 04/12/19 1 04/12/19 1 : Lab Cont	ed 0:28 0:28 0:28	Dil Fac 1 1
Analyte Fluoride Fluoride, Dissolved Lab Sample ID: LCS 400-43 Matrix: Water	C C	esult Qualifi	er	0.10	0.032 m	g/L g/L			Analyze 04/12/19 1 04/12/19 1	ed 0:28 0:28 0:28	Dil Fac 1 1
Analyte Fluoride Fluoride, Dissolved Lab Sample ID: LCS 400-43	C C	esult Qualifi	er Spike	0.10	0.032 m	g/L g/L			Analyze 04/12/19 1 04/12/19 1 : Lab Cont	ed 0:28 0:28 0:28	Dil Fac 1 1
Analyte Fluoride Fluoride, Dissolved Lab Sample ID: LCS 400-43 Matrix: Water	C C	esult Qualifi		0.10 0.10	0.032 m 0.032 m	g/L g/L Clie			Analyze 04/12/19 1 04/12/19 1 : Lab Cont Prep Typ	ed 0:28 0:28 0:28	Dil Fac 1 1
Analyte Fluoride Fluoride, Dissolved Lab Sample ID: LCS 400-43 Matrix: Water Analysis Batch: 436905	C C	esult Qualifi	Spike	0.10 0.10 LC Rest	0.032 m 0.032 m	g/L g/L Clie	nt Sar	nple ID	Analyze 04/12/19 1 04/12/19 1 04/12/19 1 C Lab Cont Prep Typ %Rec.	ed 0:28 0:28 0:28	Dil Fac 1 1

Method: SM 4500 F C - Fluoride (Continued)

Lab Sample ID: 400-168497-A-1 Matrix: Water	MS							CI	ient Sa	mple ID: I Prep Ty		
Analysis Batch: 436905												
	Sample	Sample	Spike		MS	MS				%Rec.		
Analyte		Qualifier	Added	R	Result	Qualifier	Unit	D	%Rec	Limits		
Fluoride	0.040	<u> </u>	1.00		0.980		mg/L		94	75 - 125		
Fluoride, Dissolved	0.040	I	1.00		0.980		mg/L		94	75 - 125		
Lab Sample ID: 400-168497-A-1	MSD						Client Sa	amp	le ID: N	Aatrix Spil	ke Dup	licate
Matrix: Water										Prep Ty	pe: Tot	al/NA
Analysis Batch: 436905												
	Sample	Sample	Spike		MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	R	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Fluoride	0.040	I	1.00		1.08	J3	mg/L		104	75 - 125	10	4
Fluoride, Dissolved	0.040	I	1.00		1.08	J3	mg/L		104	75 - 125	10	4
Method: SM 4500 SO4 E - S	ulfate	e, Total										
Lab Sample ID: MB 400-437533	/6							Clie	ent San	nple ID: M	ethod I	Blank
Matrix: Water										Prep Ty	pe: Tot	al/NA
Analysis Batch: 437533												
		MB MB										
Analyte	Re	sult Qualifier		PQL	ľ	MDL Unit	D	Р	repared	Analyz	zed	Dil Fac
Sulfate		1.4 U		5.0		1.4 mg/L			-	04/17/19	16:21	1
Sulfate, Dissolved		1.4 U		5.0		1.4 mg/L				04/17/19	16:21	1
Lab Sample ID: LCS 400-43753	3/7						Client	Sai	mple ID	: Lab Cor	trol Sa	mple
Matrix: Water										Prep Ty		
Analysis Batch: 437533												
Analysis Daten. 407000			Spike		LCS	LCS				%Rec.		
Analyte			Added	R	-	Qualifier	Unit	D	%Rec	Limits		
Sulfate			15.0		14.9	Quanner	mg/L		99	90 - 110		
			15.0		14.9		mg/L		99	90 - 110		
Sulfate, Dissolved			15.0		14.9		mg/∟		99	90-110		
Lab Sample ID: MRL 400-43753	3/3						Client	t Sai	mple ID	: Lab Cor	ntrol Sa	ample
Matrix: Water										Prep Ty	pe: Tot	al/NA
Analysis Batch: 437533												
· · ·			Spike		MRL	MRL				%Rec.		
Analyte			Added	R	Result	Qualifier	Unit	D	%Rec	Limits		
Sulfate			5.00		4.48		mg/L		90	50 - 150		
Sulfate, Dissolved			5.00		4.48		mg/L		90	50 - 150		
- Lab Sample ID: 400-168497-A-1	MS							CI	ient Sa	mple ID: I	Matrix :	Spike
Matrix: Water										Prep Ty		
Analysis Batch: 437533	• •									
		Sample	Spike		MS					%Rec.		
Analyte		Qualifier	Added	R		Qualifier	Unit	D	%Rec	Limits		
Sulfate	21.2		10.0		30.2		mg/L	-	89	77 - 128		
					00.2		ing/ L					

Method: SM 4500 SO4 E - Sulfate, Total (Continued)

Lab Sample ID: 400-16849 Matrix: Water Analysis Batch: 437533	7-A-1 MSD					Client	Samp	ole ID: N	latrix Spil Prep Ty		
· ····· , ··· · ··· · · · · · · · · · · · · · ·	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Sulfate	21.2		10.0	29.9		mg/L		87	77 - 128	1	5
Sulfate, Dissolved	21.2		10.0	29.9		mg/L		87	77 _ 128	1	5

TestAmerica Pensacola 3355 McLemore Drive Pensacola, FL 32514 Phone (850) 474-1001 Fax (850) 478-2671	C	Chain o	f Cust	n of Custody Record	cord				TestAmeric THE LEADER IN ENVIRONMENTAL T		\mathcal{V}
Client Information	Sampler:	Bendalon	ADO	Lab PM: Whitmi	Lab PM: Whitmire, Cheyenne R	~	Carrier Tracking No(s)	Vo(s):	COC No: 400-82560-23631.1	31.1	
Client Contact: Kristi Mitchell	Phone:			E-Mail: cheyen	E-Mail: cheyenne.whitmire@testamericainc.com	estamericaine	com.		Page: Page 1 of 1		
Company: Gulf Power Company						Analysis	sis Requested		Job #:		
Address: BIN 731 One Energy Place	Due Date Requested:	#							Preservation Codes		
City: Pensacola Scient 74	TAT Requested (days):	rs):					5.1 5.1-1 5.		A - HOL B - NaOH C - Zn Acetate D - Nitrio Acid	M - Hexane N - None O - AsNaO2 D - Mo2OAS	
state, Zp: FL, 32520					- Sulfa	'11'as	10/1, (10/1),		E - NaHSO4 F - MeOH		
Phone: P50-444-6427(Tel) Email:	PO#: Pay by Credit Card WO#:	Ird			- Fluor	ם'רו'שס'	714		G - Amchlor H - Ascorbic Acid I - Ice		
kristi.mitchell@nexteraenergy.com					9226 14500 14500 14500	d Bui	V V V V		-	V - MCAA W - nH 4-5	
Project Name: CCR Plant Crist GSA Delineation Sampling Site:	Project #: 40005424 SSOW#:			ex) olune	D (Yes or 0_Ra228, R hloride, SM 50lids, 4500	p0,60,98,6	501 5 spor 742 501		and the second second second second	Z - other (specify)	
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=orab)	Matrix (w=water, S=solid, O=waste/oil, HT-Theone Andr)	Field Filtered S Perform MS/M9 5315_Ra226, 932 5844500_CI_E - C 584500_CI_E - C	1 - Sb, As, Ba, Ba, Ba, Ba, Ba, Ba, Ba, Ba, Ba, Ba	103/17 25126 0269 10545		Total Number of Contract of Co	Sonecial Instructions/Note:	
	BILC/ J-1	M'					X				
7 70	1	101	>	MAICI	2 X	X	7				
CEUDE	M3/13	0411	0	Water	X	x	x x x				
											_
						+				1	
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1							t	400-16	400-168194 COC	
	-										
					+	+		+			
Possible Hazard Identification	Poison B Duknown	U umot	Radiological		Sample Di	le Disposal (A fe Return To Client	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Return To Client Disposal By Lab Acchive For Mor	amples are r	etained longer than Archive For	1 month) Months	
Deliverable Requested: I, II, III, IV, Other (specify)					Special Inst	tructions/QC	Special Instructions/QC Requirements:				
Empty Kit Relinquished by:		Date:			Time:		Method (Method of Shipment:			
Relinquished by: Relinquished by:	Date/Time: Date/Time:		1450	Company Company		Received by: Received by:	aver	Date/Time: 4/3/ Date/Time:	151 1450	Company	
Relinquished by:	Date/Time:			Company	Received by:	1 by:		Date/Time:		Company	-
Custody Scale Intrati. Custody Scal No -	_				T color T	O (Jolan Marata	Cooler Temperstitue(c) ^o C and Other Remarke:				-
Custody Seals Intact: Custody Seal No.: A Yes A No					- iainn	emperature(s)	and Umer Kellians.	0.5°C	(21t		_
										Ver: 01/16/2019	

Login Sample Receipt Checklist

Client: Gulf Power Company

Login Number: 168194 List Number: 1 Creator: Shannon, Jonathon W

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	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	0.5°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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Job Number: 400-168194-1

SDG Number: GSA Delineation Sampling

13

Accreditation/Certification Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist Job ID: 400-168194-1 SDG: GSA Delineation Sampling

Laboratory: Eurofins TestAmerica, Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-19
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-20
Arkansas DEQ	State Program	6	88-0689	09-01-19
California	State Program	9	2510	06-30-19
Iorida	NELAP	4	E81010	06-30-19
Seorgia	State Program	4	E81010 (FL)	06-30-19
linois	NELAP	5	200041	10-09-19
owa	State Program	7	367	08-01-20
ansas	NELAP	7	E-10253	10-31-19
Centucky (UST)	State Program	4	53	06-30-19
entucky (WW)	State Program	4	98030	12-31-19
ouisiana	NELAP	6	30976	06-30-19
ouisiana (DW)	NELAP	6	LA017	12-31-19
laryland	State Program	3	233	09-30-19
lassachusetts	State Program	1	M-FL094	06-30-19
ichigan	State Program	5	9912	06-30-19
ew Jersey	NELAP	2	FL006	06-30-19
orth Carolina (WW/SW)	State Program	4	314	12-31-19
klahoma	State Program	6	9810	08-31-19
Pennsylvania	NELAP	3	68-00467	01-31-20
Rhode Island	State Program	1	LAO00307	12-30-19
outh Carolina	State Program	4	96026	06-30-19
ennessee	State Program	4	TN02907	06-30-19
exas	NELAP	6	T104704286-18-15	09-30-19
IS Fish & Wildlife	Federal		LE058448-0	07-31-19
SDA	Federal		P330-18-00148	05-17-21
irginia	NELAP	3	460166	06-14-19
Vashington	State Program	10	C915	05-15-20
Vest Virginia DEP	State Program	3	136	07-31-19

14

Eurofins TestAmerica, Pensacola

🛟 eurofins

Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 400-168194-2

Laboratory Sample Delivery Group: GSA Delineation Sampling Client Project/Site: CCR Plant Crist

For:

.....Links

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The

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Expert

Gulf Power Company BIN 731 One Energy Place Pensacola, Florida 32520

Attn: Mr. Mike Markey



Authorized for release by: 5/22/2019 11:48:27 AM

Cheyenne Whitmire, Project Manager II (850)471-6222 cheyenne.whitmire@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.

Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Method Summary	5
Sample Summary	6
Client Sample Results	7
Definitions	8
Chronicle	9
QC Association	10
QC Sample Results	11
Chain of Custody	15
Receipt Checklists	16
Certification Summary	18

Job ID: 400-168194-2

Laboratory: Eurofins TestAmerica, Pensacola

Narrative

Job Narrative 400-168194-2

RAD

Method(s) 9315: Ra-226 Prep Batch 160-424080. The following samples have an RER (replicate error ratio) result outside of the acceptance criteria of 1 (1.71) for Ra-226. Duplicate precision is demonstrated by acceptable relative percent difference (RPD), within the limit of 40% (36%). The data have been reported with this narrative. PZ-200D (400-168194-1), (LCS 160-424080/1-A), (MB 160-424080/23-A), (240-110089-J-4-A), (240-110089-A-4-A MS) and (240-110089-A-4-B MSD)

Method(s) 9315: Radium-226 Prep Batch: 160-424080. Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. PZ-200D (400-168194-1), (LCS 160-424080/1-A), (MB 160-424080/23-A), (240-110089-J-4-A), (240-110089-A-4-A MS) and (240-110089-A-4-B MSD)

Method(s) 9315: Radium-226 Prep Batch 160-424884. Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. PZ-200D (400-168194-1), (LCS 160-424884/1-A), (LCSD 160-424884/2-A) and (MB 160-424884/23-A)

Method(s) 9320: Ra-228 Prep Batch 160-424240. The daily background check (BKG) for the detector (Protean 2) the method blank (MB) was counted on (5/3/19) but was not saved due to an instrument communications error. The bracketing BKG on 5/2 and 5/4 were both within limits. The MB exhibited activity below the MDC, indicating the absence of detector contamination. The laboratory does not believe this excursion affects the data. PZ-200D (400-168194-1), (LCS 160-424240/1-A), (MB 160-424240/23-A), (240-110089-J-4-B), (240-110089-A-4-C MS) and (240-110089-A-4-D MSD)

Method(s) 9320: Ra-228 Prep Batch 160-424240. Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. PZ-200D (400-168194-1), (LCS 160-424240/1-A), (MB 160-424240/23-A), (240-110089-J-4-B), (240-110089-A-4-C MS) and (240-110089-A-4-D MSD)

Method(s) 9320: Ra-228 Prep Batch 160-424240. The following samples have an RER (replicate error ratio) result outside of the acceptance criteria of 1 (1.51)) for Ra-228. Duplicate precision is demonstrated by acceptable relative percent difference (RPD), within the limit of 40% (36%). The data have been reported with this narrative. PZ-200D (400-168194-1), (LCS 160-424240/1-A), (MB 160-424240/23-A), (240-110089-J-4-B), (240-110089-A-4-C MS) and (240-110089-A-4-D MSD)

Method(s) 9320: Ra-228 Prep Batch 160-424886. Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. PZ-200D (400-168194-1), (LCS 160-424886/1-A), (LCSD 160-424886/2-A) and (MB 160-424886/23-A)

Method(s) PrecSep_0: Radium-228 Prep Batch 424240. The following sample was run at a reduced aliquot: PZ-200D (400-168194-1). Samples in jobs 160-33733, 180-87353, and 240-110089 were reduced due to sediment and yellow sample matrix. Samples 400-168194-1 and 480-151258-3 were reduced due to brown sediment. Sample 400-168194-2 was reduced due to heavy brown sediment.

Method(s) PrecSep_0: Radium 228 Prep Batch 160-424886. Insufficient sample volume was available to perform a sample duplicate (DUP) for the following samples: PZ-200D (400-168194-1). 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 424080. The following sample was run at a reduced aliquot: PZ-200D (400-168194-1). Samples in jobs 160-33733, 180-87353, and 240-110089 were reduced due to sediment and yellow sample matrix. Samples 400-168194-1 and 480-151258-3 were reduced due to brown sediment. Sample 400-168194-2 was reduced due to heavy brown sediment.

Method(s) PrecSep-21: Radium 226 Prep Batch 160-424884. Insufficient sample volume was available to perform a sample duplicate

Job ID: 400-168194-2 (Continued)

Laboratory: Eurofins TestAmerica, Pensacola (Continued)

(DUP) for the following samples: PZ-200D (400-168194-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist

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

Sample Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist

Job ID: 400-168194-2 SDG: GSA Delineation Sampling

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Assest ID
400-168194-1	PZ-200D	Water	04/02/19 16:25	04/03/19 14:50	

Eurofins TestAmerica, Pensacola

Client Sample Results

Total

Uncert.

(2**σ**+/-)

0.174

Count

Uncert.

(2**σ**+/-)

Limits

40 - 110

0.170

Analyte

Carrier

Ba Carrier

Radium-226

Client Sample ID: PZ-200D Date Collected: 04/02/19 16:25 Date Received: 04/03/19 14:50

Method: 9315 - Radium-226 (GFPC)

Analyzed

Analyzed

Lab Sample ID: 400-168194-1 Matrix: Water

04/16/19 17:54 05/14/19 05:48

04/16/19 17:54 05/14/19 05:48

Prepared

Prepared

Matrix: Water

Dil Fac

Dil Fac

1

1

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

Result Qualifier

%Yield Qualifier

0.402 F

92.1

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2 σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.297		0.116	0.119	1.00	0.115	pCi/L	04/21/19 10:58	05/17/19 10:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					04/21/19 10:58	05/17/19 10:16	1

MDC Unit

0.177 pCi/L

RL

1.00

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	l otal Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analvzed	Dil Fac
Radium-228	0.115		0.430	0.430	1.00		pCi/L	04/17/19 11:48		1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.1		40 - 110					04/17/19 11:48	05/03/19 13:51	1
Y Carrier	86.0		40 - 110					04/17/19 11:48	05/03/19 13:51	1

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

Analyte Radium-228	Result 0	Qualifier	Count Uncert. (2σ+/-) 0.257	Total Uncert. (2σ+/-) 0.263	RL 1.00	MDC 0.365	Unit pCi/L	Prepared 04/21/19 11:38	Analyzed 05/13/19 16:06	Dil Fac
Carrier	%Yield 0	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					04/21/19 11:38	05/13/19 16:06	1
Y Carrier	80.4		40 - 110					04/21/19 11:38	05/13/19 16:06	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

				Count	Total						
				Uncert.	Uncert.						
Analyte		Result	Qualifier	(2 σ+/-)	(2 σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radiu	um 226	0.518	U	0.462	0.464	5.00	0.752	pCi/L		05/15/19 10:17	1

+ 228

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228 - Dissolved

			Count	Total					
			Uncert.	Uncert.					
Analyte	Result	Qualifier	(2σ+/-)	(2 σ+/-)	RL	MDC Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.518	U	0.462	0.464	5.00	0.752 pCi/L		05/21/19 09:43	1

Qualifiers

R	а	d	

Qualifier	Qualifier Description	
F	MS/MSD Recovery and/or RPD exceeds the control limits	
U	Result is less than the sample detection limit.	5

Glossary

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)
TEO	

TEQ Toxicity Equivalent Quotient (Dioxin) Dilution

Factor

1

1

1

1

1

1

Run

Batch

Number

424884

428897

424080

Prepared

or Analyzed

04/21/19 10:58

05/17/19 10:16

428140 05/14/19 05:48 KLS

424886 04/21/19 11:38 CLP

428064 05/13/19 16:06 BLH

424240 04/17/19 11:48 HET

426595 05/03/19 13:51 CDR

429218 05/21/19 09:43 SMP

428506 05/15/19 10:17 SMP

04/16/19 17:54 CMM

Analyst

CLP

KLS

Lab TAL SL

TAL SL

TAL SL

TAL SL

TAL SL

TAL SL

TAL SL

TAL SL

TAL SL

TAL SL

Prep Type

Dissolved

Dissolved

Total/NA

Total/NA

Dissolved

Dissolved

Total/NA

Total/NA

Dissolved

Total/NA

Client Sample ID: PZ-200D Date Collected: 04/02/19 16:25 Date Received: 04/03/19 14:50

Batch

Туре

Prep

Prep

Prep

Prep

Analysis

Analysis

Analysis

Analysis

Analysis

Analysis

Batch

9315

9315

9320

9320

Method

PrecSep-21

PrecSep-21

PrecSep 0

PrecSep_0

Ra226_Ra228

Ra226_Ra228

Lab Sample ID: 400-168194-1 Matrix: Water

Laboratory References:

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

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Matrix

Water

Water

Water

Water

Water

Matrix

Water

Water

Water

Water

Water

Client Sample ID

Lab Control Sample

Client Sample ID

Lab Control Sample

Matrix Spike Duplicate

PZ-200D

Method Blank

Matrix Spike

Matrix Spike Duplicate

PZ-200D

Method Blank

Matrix Spike

Prep Batch: 424080

MB 160-424080/23-A

LCS 160-424080/1-A

240-110089-A-4-A MS

240-110089-A-4-B MSD

Prep Batch: 424240

MB 160-424240/23-A

LCS 160-424240/1-A

240-110089-A-4-C MS

240-110089-A-4-D MSD

Lab Sample ID

400-168194-1

Lab Sample ID

400-168194-1

Rad

Method

PrecSep-21

PrecSep-21

PrecSep-21

PrecSep-21

PrecSep-21

Method

PrecSep_0

PrecSep 0

PrecSep_0

PrecSep_0

PrecSep_0

2 3 5 6 7

Prep Batch

Prep Batch

Prep Batch: 424884					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-168194-1	PZ-200D	Dissolved	Water	PrecSep-21	
MB 160-424884/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-424884/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-424884/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 424886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-168194-1	PZ-200D	Dissolved	Water	PrecSep_0	
MB 160-424886/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-424886/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-424886/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Eurofins TestAmerica, Pensacola

QC Sample Results

10

Method: 9315 - Radium-226 (GFPC)

Lab Sample I Matrix: Wate		60-4240	80/23-A						Clie		ole ID: Me Prep Type		
Analysis Bat	ch: 4281	40									Prep Bat		
				Count	Total								
		MB	MB	Uncert.	Uncert.								
Analyte		Result	Qualifier	(2 σ+/-)	(2 σ+/-)	RL	MDC	Unit	P	repared	Analyze	d	Dil Fa
Radium-226		0.03189	U	0.0518	0.0519	1.00	0.0912	pCi/L	04/1	6/19 17:54	05/14/19 0	5:48	
		MB	МВ										
Carrier		%Yield	Qualifier	Limits					P	repared	Analyze	d	Dil Fa
Ba Carrier		105		40 - 110					04/1	6/19 17:54	05/14/19 0	5:48	
Lab Sample I Matrix: Wate		160-424	080/1-A					Cli	ent Sar		Lab Cont		
Analysis Bat		52									Prep Type Prep Bat		
analycic Dat		-				Total					Trop Dat	U III 4	_
			Spike	LCS	LCS	Uncert.					%Rec.		
Analyte			Added	Result	Qual	(2 σ+/-)	RL	MDC	Unit	%Rec	Limits		
Radium-226			15.1	12.75		1.34	1.00	0.109	pCi/L	84	75 - 125		
	105	LCS											
Carrier		Qualifier	Limits										
Ba Carrier	104	quamo	40 - 110	-									
Lab Sample I Matrix: Wate Analysis Bat	r					Total					ple ID: M Prep Type Prep Bat	e: To	tal/N
	Sample	e Sample	e Spike	MS	MS	Uncert.					%Rec.		
Analyte	Resul	t Qual	Added	Result	Qual	(2 σ+/-)	RL	MDC	Unit	%Rec	Limits		
Radium-226	0.0378	JUF	15.1	13.08		1.37	1.00	0.121	pCi/L	86	75 - 138		
	MS	MS											
Carrier		Qualifier	Limits										
Ba Carrier	95.5		40 - 110	-									
Lab Sample I	ID: 240-1	1 0089- /	A-4-B MSD					Client	t Samp		trix Spike		
Matrix: Wate Analysis Bat		64				Total					Prep Type Prep Bat		
	Sample	e Sample	e Spike	MSD	MSD	Uncert.					%Rec.		R
Analyte	Resul	t Qual	Added	Result	Qual	(2 σ+/-)	RL	MDC	Unit	%Rec	Limits	RER	Lir
Radium-226	0.0378	JUF	22.7	18.80	F	1.97	1.00	0.178	pCi/L	83	75 - 138	1.71	
	MSD	MSD											
		Qualifier	Limits										
Carrier			40 - 110	_									
	97.7								Clie	ent Samp		thad	Pla
Ba Carrier Lab Sample I Matrix: Wate	ID: MB 1 r	96		Count Uncert	Total						Prep Type Prep Bat	e: To	tal/N
Carrier Ba Carrier Lab Sample I Matrix: Water Analysis Bate Analyte	ID: MB 1 r	<mark>96</mark> мв		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit			Prep Type	e: To ch: 4	tal/N

QC Sample Results

10

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

Matrix: Wat			84/23-A						Clie	-	le ID: Methoo Prep Type: To Prep Batch:	otal/N/
											Trop Batom	
0		MB		1					-		A	D// E.
Carrier			Qualifier	Limits						Prepared	Analyzed	Dil Fa
Ba Carrier		109		40 - 110					04/2	21/19 10:58	05/17/19 12:44	
Lab Sample Matrix: Wat		160-424	884/1-A					Clie	ent Sa		Lab Control S Prep Type: Te	
Analysis Ba		96									Prep Batch:	
, ,						Total						
			Spike	LCS	LCS	Uncert.					%Rec.	
Analyte			Added	Result	Qual	(2σ+/-)	RL	MDC	Unit	%Rec	Limits	
Radium-226			11.4	9.293		1.02	1.00	0.114	pCi/L	82	75 - 125	
	LCS	LCS										
Carrier		Qualifier	Limits									
Ba Carrier	110		40 - 110	-								
Lab Sample	e ID: LCSE) 160-42	: 4884/2-A					Client S	ample	ID: Lab	Control Samp	ole Du
Matrix: Wat											Prep Type: T	otal/N
Analysis Ba	atch: 4288	96									Prep Batch:	42488
			-			Total						
			Spike		LCSD	Uncert.					%Rec.	RE
Analyte			Added	Result	Qual	(2σ+/-)	RL	MDC		%Rec	Limits REF	
Radium-226			11.4	10.29		1.12	1.00	0.124	pCi/L	91	75 - 125 0.4	7
	LCSD	LCSD										
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	99.7		40 - 110	-								
lathad: 01	320 - Rag	dium-2	28 (GFPC)								
Lab Sample Matrix: Wat	ter		40/23-A						Clie		le ID: Method Prep Type: Te Prep Batch:	otal/N
Lab Sample Matrix: Wat	ter		40/23-A	Count	Total				Clie			otal/N
Lab Sample Matrix: Wat	ter			Count Uncert.	Total Uncert.				Clie		Prep Type: T	otal/N
Lab Sample Matrix: Wat Analysis Ba	ter	'00 мв				RL	MDC	Unit			Prep Type: T	otal/N 42424
Lab Sample Matrix: Wat Analysis Ba Analyte	ter	'00 мв	MB Qualifier	Uncert.	Uncert.	RL 1.00	MDC 0.508		Ρ	repared	Prep Type: T Prep Batch:	otal/N 42424
Lab Sample Matrix: Wat Analysis Ba Analyte	ter	00 MB Result 0.05561	MB Qualifier U	Uncert. (2σ+/-)	Uncert. (2σ+/-)				Ρ	repared	Prep Type: To Prep Batch: Analyzed	otal/N 42424
Lab Sample Matrix: Wat Analysis Ba Analyte Radium-228	ter	700 MB Result 0.05561 MB	MB Qualifier U	Uncert. (2σ+/-)	Uncert. (2σ+/-)				P 04/1	2 repared 17/19 11:48	Prep Type: T Prep Batch: Analyzed 05/03/19 13:53	otal/N 42424 Dil Fa
Lab Sample Matrix: Wat Analysis Ba Analyte Radium-228 Carrier	ter	700 MB Result 0.05561 MB	MB Qualifier U	Uncert. (2σ+/-) 0.291	Uncert. (2σ+/-)				— P 04/1 <i>P</i>	repared 7/19 11:48 Prepared	Prep Type: To Prep Batch: Analyzed	otal/N 42424 Dil Fa
Lab Sample Matrix: Wat Analysis Ba Analyte Radium-228 Carrier Ba Carrier	ter	700 MB Result 0.05561 <i>MB</i> %Yield	MB Qualifier U	Uncert. (2σ+/-) 0.291 <i>Limits</i>	Uncert. (2σ+/-)				P 04/1 04/1	Prepared 17/19 11:48 Prepared 17/19 11:48	Prep Type: To Prep Batch: Analyzed 05/03/19 13:53 Analyzed	otal/N 42424 Dil Fa
Lab Sample Matrix: Wat Analysis Ba Analyte Radium-228 Carrier Ba Carrier Y Carrier	ter atch: 4267 	700 MB Result 0.05561 MB %Yield 105 86.7	MB Qualifier U MB Qualifier	Uncert. (2σ+/-) 0.291 Limits 40 - 110	Uncert. (2σ+/-)			pCi/L	P 04/1 P 04/1 04/1	Prepared 17/19 11:48 Prepared 17/19 11:48 17/19 11:48	Analyzed 05/03/19 13:53 Analyzed 05/03/19 05/03/19 13:53 05/03/19 13:53 05/03/19 13:53	Dil Fa
Lab Sample Matrix: Wat Analysis Ba Analyte Radium-228 Carrier Ba Carrier Y Carrier Lab Sample	ter atch: 4267 	700 MB Result 0.05561 MB %Yield 105 86.7	MB Qualifier U MB Qualifier	Uncert. (2σ+/-) 0.291 Limits 40 - 110	Uncert. (2σ+/-)			pCi/L	P 04/1 P 04/1 04/1	Prepared 17/19 11:48 Prepared 17/19 11:48 17/19 11:48 mple ID:	Prep Type: To Prep Batch: <u>Analyzed</u> 05/03/19 13:53 <u>Analyzed</u> 05/03/19 13:53 05/03/19 13:53 Lab Control S	otal/N 42424 Dil Fa Dil Fa
Lab Sample Matrix: Wat Analysis Ba Analyte Radium-228 Carrier Ba Carrier Y Carrier Lab Sample Matrix: Wat	ter atch: 4267 e ID: LCS ⁻ ter	700 MB Result 0.05561 MB %Yield 105 86.7 160-4242	MB Qualifier U MB Qualifier	Uncert. (2σ+/-) 0.291 Limits 40 - 110	Uncert. (2σ+/-)			pCi/L	P 04/1 P 04/1 04/1	Prepared 17/19 11:48 Prepared 17/19 11:48 17/19 11:48 mple ID:	Prep Type: T Prep Batch: <u>Analyzed</u> 05/03/19 13:53 <u>Analyzed</u> 05/03/19 13:53 05/03/19 13:53 Lab Control S Prep Type: T	otal/N 42424 Dil Fa Dil Fa Dil Fa
Lab Sample Matrix: Wat Analysis Ba Analyte Radium-228 Carrier Ba Carrier Y Carrier Lab Sample Matrix: Wat	ter atch: 4267 e ID: LCS ⁻ ter	700 MB Result 0.05561 MB %Yield 105 86.7 160-4242	MB Qualifier U MB Qualifier	Uncert. (2σ+/-) 0.291 Limits 40 - 110	Uncert. (2σ+/-)			pCi/L	P 04/1 P 04/1 04/1	Prepared 17/19 11:48 Prepared 17/19 11:48 17/19 11:48 mple ID:	Prep Type: To Prep Batch: <u>Analyzed</u> 05/03/19 13:53 <u>Analyzed</u> 05/03/19 13:53 05/03/19 13:53 Lab Control S	otal/N 42424 Dil Fa Dil Fa Dil Fa
Lab Sample Matrix: Wat Analysis Ba Analyte Radium-228 Carrier Ba Carrier Y Carrier Lab Sample Matrix: Wat Analysis Ba	ter atch: 4267 e ID: LCS ⁻ ter	700 MB Result 0.05561 MB %Yield 105 86.7 160-4242	MB Qualifier U MB Qualifier	Uncert. (2σ+/-) 0.291 Limits 40 - 110 40 - 110	Uncert. (2σ+/-)	1.00		pCi/L	P 04/1 P 04/1 04/1	Prepared 17/19 11:48 Prepared 17/19 11:48 17/19 11:48 mple ID:	Prep Type: T Prep Batch: <u>Analyzed</u> 05/03/19 13:53 <u>Analyzed</u> 05/03/19 13:53 05/03/19 13:53 Lab Control S Prep Type: T	Dil Fa Dil Fa Dil Fa
Lab Sample Matrix: Wat Analysis Ba Analyte Radium-228 Carrier Ba Carrier Y Carrier Lab Sample Matrix: Wat	ter atch: 4267 e ID: LCS ⁻ ter	700 MB Result 0.05561 MB %Yield 105 86.7 160-4242	MB Qualifier U MB Qualifier 240/1-A	Uncert. (2σ+/-) 0.291 Limits 40 - 110 40 - 110	Uncert. (2σ+/-) 0.291	1.00		pCi/L	P 04/1 04/1 04/1 04/1 ent Sa	Prepared 17/19 11:48 Prepared 17/19 11:48 17/19 11:48 mple ID:	Prep Type: T Prep Batch: <u>Analyzed</u> 05/03/19 13:53 <u>Analyzed</u> 05/03/19 13:53 05/03/19 13:53 Use Control S Prep Type: To Prep Batch:	Dil Fa

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

Lab Sample Matrix: Wat		60-4242	40/1-A					Clie	ent Sai		Lab Control Prep Type: T	
Analysis Ba		94									Prep Batch:	
• ·	LCS											
Carrier		Qualifier	Limits	-								
Ba Carrier	104		40 - 110									
Y Carrier	87.1		40 - 110									
Lab Sample	• ID: 240-1	10089-A-	-4-C MS						CI	lient San	nple ID: Matri	x Spike
Matrix: Wat	er										Prep Type: T	otal/N/
Analysis Ba	atch: 42659	94									Prep Batch:	424240
						Total						
		Sample	Spike		MS	Uncert.					%Rec.	
Analyte	Result		Added	Result	Qual	(2σ+/-)	RL	MDC		%Rec	Limits	
Radium-228	0.125	UF	12.3	10.98		1.30	1.00	0.460	pCi/L	88	45 - 150	
	MS											
Carrier	%Yield	Qualifier	Limits	_								
Ba Carrier	95.5		40 - 110									
Y Carrier	87.1		40 - 110									
Lab Sample	• ID: 240-1 [,]	10089-A-	-4-D MSD					Client	Samp	le ID: Ma	atrix Spike Di	uplicat
Matrix: Wat											Prep Type: T	
Analysis Ba		94									Prep Batch:	
···· ·						Total						
	Sample	Sample	Spike	MSD	MSD	Uncert.					%Rec.	RE
Analyte	Result	Qual	Added	Result	Qual	(2 σ+/-)	RL	MDC	Unit	%Rec	Limits RE	R Lim
Radium-228	0.125	UF	18.5	15.77	F	1.87	1.00	0.716	pCi/L	85	45 - 150 1.5	51
	MSD	MSD										
Carrier		Qualifier	Limits									
Ba Carrier	97.7		40 - 110	-								
Y Carrier	87.1		40 - 110									
I h. O			C/00 A						0			d Diam
Lab Sample Matrix: Wat		00-42400	0/23-A						CIE		ole ID: Metho Prep Type: T	
Analysis Ba		85									Prep Batch:	
Analysis Da	atch. 42000	00		Count	Total						Fiep Datch.	42400
		MB N	ИB	Uncert.	Uncert.							
Analyte		Result C		(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Р	repared	Analyzed	Dil Fa
Radium-228		0.1298		0.230	0.230	1.00		pCi/L		21/19 11:38	-	
Carrier			MB Qualifiar	Limits					~	ronorod	Analyzad	Dil Fa
Carrier Ba Carrier		%Yield 0 109	zuanner	40 - 110						Prepared	Analyzed 05/13/19 16:09	DIIFa
Ba Carrier Y Carrier		709 75.1		40 - 110 40 - 110							05/13/19 16:09	
i Camel		75.1		+0 - 110					04/2		00/13/19 10.09	
Lab Sample	D: LCS 1	60-4248	86/1-A					Clie	ent Sai	mple ID:	Lab Control	Sample
Matrix: Wate											Prep Type: T	
Analysis Ba		64									Prep Batch:	
-						Total					-	
			Spike		LCS	Uncert.					%Rec.	
Analyte			Added	Result	Qual	(2 σ+/-)	RL	MDC	Unit	%Rec	Limits	
		-	9.21	8.236		0.991	1.00	0.386	0://	89	75 - 125	

Eurofins TestAmerica, Pensa	acola

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

Lab Sample		160 12199	6/1 1					Clie	nt Sar		Lab Con	trol Sa	molo	
Lab Sample Matrix: Wat		100-42400	0/1-A					Cile	int Jai		Lab Cont			
		64									Prep Typ Prep Bat			
Analysis Ba											Ртер Ба	ICH. 44	24000	
	LCS	LCS												5
Carrier	%Yield	Qualifier	Limits											
Ba Carrier	110		40 - 110											
Y Carrier	75.9		40 - 110											
-														
Lab Sample	e ID: LCSE	D 160-4248	86/2-A					Client Sa	ample		Control S			
Matrix: Wat	ter		8 6/2-A				(Client Sa	ample		Prep Typ	e: Tot	al/NA	8
	ter		386/2-A				•	Client Sa	ample			e: Tot	al/NA	8
Matrix: Wat	ter					Total	l	Client Sa	ample		Prep Typ Prep Bat	e: Tot	al/NA 24886	8
Matrix: Wat Analysis Ba	ter		Spike		LCSD	Uncert.					Prep Typ Prep Bat %Rec.	e: Tot tch: 42	al/NA 24886 RER	9
Matrix: Wate Analysis Ba	ter		Spike Added	Result		Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	Prep Typ Prep Bat %Rec. Limits	e: Tot tch: 42	al/NA 24886	8
Matrix: Wat Analysis Ba	ter		Spike			Uncert.			Unit		Prep Typ Prep Bat %Rec.	e: Tot tch: 42	al/NA 24886 RER	8 9 1
Matrix: Wate Analysis Ba	ter atch: 4280 		Spike Added	Result		Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	Prep Typ Prep Bat %Rec. Limits	e: Tot tch: 42	al/NA 24886 RER	8 9 1
Matrix: Wate Analysis Ba	ter atch: 4280 <i>LCSD</i>		Spike Added	Result		Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	Prep Typ Prep Bat %Rec. Limits	e: Tot tch: 42	al/NA 24886 RER	8 9 1 1
Matrix: Wate Analysis Ba Analyte Radium-228	ter atch: 4280 <i>LCSD</i>	064 	Spike Added 9.21	Result		Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	Prep Typ Prep Bat %Rec. Limits	e: Tot tch: 42	al/NA 24886 RER	1 1

	LCSD	LCSD	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	99.7		40 - 110
Y Carrier	75.9		40 - 110

Eurofins TestAmerica, Pensacola

TestAmerica Pensacola 3355 McLemore Drive Pensacola, FL 32514 Phone (850) 474-1001 Fax (850) 478-2671	hai	n of Custody Record	ord		
Client Information	Sampler: Bruddor	Y	Lab PM: Whitmire, Cheyenne R	Carrier Tracking No(s):	COC No: 400-82560-23631.1
Client Contact: Kristi Mitchell	Phone:	E-Mail: cheyenne	E-Mail: cheyenne.whitmire@testamericainc.com		Page: Page 1 of 1
Company: Gulf Power Company			Anajysis Rec	Requested	Job #:
Address: BIN 731 One Energy Place	Due Date Requested:		ejte	161 2V	
City: Pensacola	TAT Requested (days):		- 4074	1.1.	
State, Zip: FL, 32520			efluß - b 7,11,92	4 t t 4 t	D - Nitric Acid P - Na204S E - NaHSO4 Q - Na2SO3 F - MaOH B - Na2SO3
Phone: 850-444-6427(Tel)	Po #: Pay by Credit Card	(0)	Eluori Fluori LI,Mo,	<u>با</u>	
Email: kristi.mitchell@nexteraenergy.com	WO #:	s or N	CO'6P' E C - 1200 2	5.7	I - Ice J - DI Water
Project Name: CCR Plant Crist GSA Delineation Sampling	Project #: 40005424	e)) elc	2228, Ra 116, SM 116,	501	K-EUIA L-EDA
Site:	SSOW#:	Samp	20_Ra	por	of Other:
Samula Idantification	Santie Date Time G	Sample Matrix et al anticology (C=comp, orwastell, et al anticology, anticology, et al anticology, et	961000000000000000000000000000000000000	L 03 17	nedmuki listo" nede nede nede nede nede ned ned ned ne
	X	ation Code:	D N D		
0.02-29	M/2/19/ 16257 (water	XXX XXX		
GEUDR	CN13/19 1149 (C Water	XXX	x x	
				-	
					Kewes
					400-168194 COC
ant	Poison B Duknown Rad	Radiological	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Return To Client Disposal By Lab Archive For Mor	assessed if samples are rei	tained longer than 1 month) Archive For Months
			Special Instructions/QC Requirements		
Empty Kit Relinquished by:	Date:		Time:	Method of Shipment:	
Relinquished by:	DatedTime: Date/Time:	50 Company	Received by: Received by:	pate/Time:	15 1450 Company Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Custody Seals Intact: Custody Seal No.:			Cooler Temperature(s) °C and Other Remarks:	Remarks: D. S ⁰ C	#2)
					Ver: 01/16/2019

Page 15 of 19

Login Sample Receipt Checklist

Client: Gulf Power Company

Login Number: 168194 List Number: 1 Creator: Shannon, Jonathon W

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	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	0.5°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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Job Number: 400-168194-2

SDG Number: GSA Delineation Sampling

List Source: Eurofins TestAmerica, Pensacola

Login Sample Receipt Checklist

Client: Gulf Power Company

Login Number: 168194 List Number: 2 **Creator: Hellm, Michael**

Job Number: 400-168194-2
SDG Number: GSA Delineation Sampling

List Creation: 04/05/19 06:35 PM

List Source: Eurofins TestAmerica, St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
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.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	18.0
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?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
_ · · · · · · · · · · · · · · · · · · ·	_	

True

N/A

Samples do not require splitting or compositing.

Residual Chlorine Checked.

Accreditation/Certification Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist Job ID: 400-168194-2 SDG: GSA Delineation Sampling

13

Laboratory: Eurofins TestAmerica, Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
labama	State Program	4	40150	06-30-19
IAB	ISO/IEC 17025		L2471	02-22-20
izona	State Program	9	AZ0710	01-12-20
kansas DEQ	State Program	6	88-0689	09-01-19
alifornia	State Program	9	2510	06-30-19
orida	NELAP	4	E81010	06-30-19
eorgia	State Program	4	E81010 (FL)	06-30-19
nois	NELAP	5	200041	10-09-19
wa	State Program	7	367	08-01-20
ansas	NELAP	7	E-10253	10-31-19
entucky (UST)	State Program	4	53	06-30-19
entucky (WW)	State Program	4	98030	12-31-19
uisiana	NELAP	6	30976	06-30-19
uisiana (DW)	NELAP	6	LA017	12-31-19
aryland	State Program	3	233	09-30-19
assachusetts	State Program	1	M-FL094	06-30-19
chigan	State Program	5	9912	06-30-19
w Jersey	NELAP	2	FL006	06-30-19
rth Carolina (WW/SW)	State Program	4	314	12-31-19
lahoma	State Program	6	9810	08-31-19
ennsylvania	NELAP	3	68-00467	01-31-20
node Island	State Program	1	LAO00307	12-30-19
outh Carolina	State Program	4	96026	06-30-19
ennessee	State Program	4	TN02907	06-30-19
exas	NELAP	6	T104704286-18-15	09-30-19
S Fish & Wildlife	Federal		LE058448-0	07-31-19
SDA	Federal		P330-18-00148	05-17-21
rginia	NELAP	3	460166	06-14-19
ashington	State Program	10	C915	05-15-20
/est Virginia DEP	State Program	3	136	07-31-19

Accreditation/Certification Summary

Client: Gulf Power Company Project/Site: CCR Plant Crist Job ID: 400-168194-2 SDG: GSA Delineation Sampling

Laboratory: Eurofins 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		L2305	04-06-22
Arizona	State Program	9	AZ0813	12-08-19
California	State Program	9	2886	06-30-19 *
Connecticut	State Program	1	PH-0241	03-31-21
Florida	NELAP	4	E87689	06-30-19 *
Hawaii	State Program	9	NA	06-30-19
Illinois	NELAP	5	200023	11-30-19
Iowa	State Program	7	373	12-01-20
Kansas	NELAP	7	E-10236	10-31-19
Kentucky (DW)	State Program	4	KY90125	12-31-19
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA011	12-31-19
Maryland	State Program	3	310	09-30-19
Michigan	State Program	5	9005	06-30-19
Missouri	State Program	7	780	06-30-19
Nevada	State Program	9	MO000542018-1	07-31-19
New Jersey	NELAP	2	MO002	06-30-19 *
New York	NELAP	2	11616	03-31-20
North Dakota	State Program	8	R207	06-30-19 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-19
Pennsylvania	NELAP	3	68-00540	02-28-20
South Carolina	State Program	4	85002001	06-30-19
Texas	NELAP	6	T104704193-18-13	07-31-19
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542018-10	07-31-19
Virginia	NELAP	3	460230	06-14-19 *
Washington	State Program	10	C592	08-30-19
West Virginia DEP	State Program	3	381	08-31-19

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

13

Geosyntec[>] consultants

Memorandum

Date: April 30, 2019

To: Lane Dorman

From: Jennifer Pinion

CC: J. Caprio

Subject: Stage 2A Data Validations - Level II Data Deliverable – Eurofins TestAmerica Job ID 400-166764-1

SITE: Plant Crist

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of seven aqueous samples, one field blank, one equipment blank, and two field duplicates, collected 28 February - 5 March 2019, as part of the Plant Crist sampling event.

The samples were analyzed at Eurofins TestAmerica, Pensacola, Florida, for the following analytical tests:

- Metals by EPA Methods 3005A/6020
- Mercury by EPA Method 7470A
- Total Dissolved Solids (TDS) by Standard Method 2540C
- Chloride by Standard Method 4500 CL-E
- Fluoride by Standard Method 4500 F C
- Sulfate by Standard Method 4500 SO4 E

EXECUTIVE SUMMARY

Based on the Stage 2A data validation covering the quality control (QC) parameters listed below and the information provided, the data are usable for meeting project objectives.

The data were reviewed based on the pertinent methods referenced in the laboratory report, professional and technical judgment and the following documents:

• United States Environmental Protection Agency (US EPA) Region IV Data Validation Standard Operating Procedures (US EPA Region IV, September 2011);

- USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017 (EPA 540-R-2017-001);
- Southern Company Services, Inc., Standard Operating Procedure (hereafter referred to as the SOP) for Level 2A Verification of Coal Combustion Residuals Data, Environmental Testing Laboratory Program, Draft, November 21, 2017, Revision 0, Prepared by Environmental Standards, Inc., Valley Forge, Pennsylvania.

The following samples were analyzed and reported in the laboratory report:

Laboratory ID	Client ID
400-166764-1	MW-200
400-166764-2	MW-203
400-166764-3	MW-204
400-166764-4	MW-205
400-166764-5	MW-206
400-166764-6	DUP-02

Laboratory ID	Client ID
400-166764-7	FB-02
400-166764-8	EB-02
400-166764-9	DUP-05
400-166764-10	MW-201
400-166764-11	MW-202

Incorrect error corrections were observed on the chain of custody (COC), instead of the proper procedure of a single strike through, correction, and initials and date of person making the corrections.

1.0 METALS

The samples were analyzed by EPA methods 3005A/6020.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

1.1 Overall Assessment

The metals data reported in this data package are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

1.2 <u>Holding Time</u>

The holding time for the metals analysis of a water sample is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

1.3 <u>Method Blank</u>

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported (batches 433042 and batch 433043). Metals were not detected in the method blanks above the method detection limits (MDLs).

1.4 <u>Matrix Spike/Matrix Spike Duplicate (MS/MSD)</u>

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two batch MS/MSD pair were reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

1.5 <u>Laboratory Control Sample (LCS)</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs were reported. The recovery results were within the laboratory and SOP specified acceptance criteria.

1.6 Equipment Blank

One equipment blank, EB-02, was collected with the sample set. Metals were not detected in the equipment blank above the MDLs.

1.7 Field Blank

One field blank, FB-02, was collected with the sample set. Metals were not detected in the field blank above the MDLs.

1.8 <u>Field Duplicate</u>

Two field duplicate samples were collected with the sample set, DUP-02 and DUP-05. Acceptable precision [relative percent difference (RPD) < 20% or difference < project quantitation limit (PQL)] was demonstrated between the field duplicates and the original samples MW-205 and MW-201, respectively.

1.9 <u>Sensitivity</u>

The samples were reported to the MDLs. Elevated non-detect results were reported due to dilutions analyzed.

1.10 Electronic Data Deliverable (EDD) Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

2.0 MERCURY

The samples were analyzed by EPA method 7470A.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

2.1 <u>Overall Assessment</u>

The mercury data reported in this data package are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to

the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

2.2 <u>Holding Time</u>

The holding time for the mercury analysis of a water sample is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

2.3 <u>Method Blank</u>

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported (batches 432929 and 432932). Mercury was not detected in the method blanks above the MDL.

2.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two batch MS/MSD pairs were reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

2.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs were reported. The recovery results were within the laboratory and SOP specified acceptance criteria.

2.6 Equipment Blank

One equipment blank, EB-02, was collected with the sample set. Mercury was not detected in the equipment blank above the MDL.

2.7 Field Blank

One field blank, FB-02, was collected with the sample set. Mercury was not detected in the field blank above the MDL.

2.8 <u>Field Duplicate</u>

Two field duplicate samples were collected with the sample set, DUP-02 and DUP-05. Acceptable precision (RPD < 20% or difference < PQL) was demonstrated between the field duplicates and the original samples MW-205 and MW-201.

2.9 <u>Sensitivity</u>

The samples were reported to the MDL. Elevated non-detect results were not reported.

2.10 <u>Electronic Data Deliverable Review</u>

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

3.0 WET CHEMISTRY

The samples were analyzed for chloride by Standard Method 4500 Cl-E, fluoride by Standard Method 4500 F C, sulfate by Standard Method 4500 SO4 E and TDS by Standard Method 2540C.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

3.1 Overall Assessment

The wet chemistry data reported in this data package are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for these analyses, for this dataset is 100%.

3.2 <u>Holding Times</u>

The holding time for the fluoride, chloride and sulfate analysis of a water sample is 28 days from sample collection to analysis. The holding time for TDS analysis of a water sample is 7 days from sample collection to analysis. The holding times were met for the sample analyses.

3.3 <u>Method Blank</u>

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Method blanks were reported for each analysis and batch (TDS batches 432107, 432171, 432185, and 432606, chloride batches 433142 and 433709, sulfate batches 433223 and 433751, fluoride batches 433548 and 433828). The wet chemistry parameters were not detected in the method blanks above the MDLs.

3.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Sample set specific MS/MSD pairs were reported for chloride using samples MW-205 and MW-201. The recovery and RPD results were within the laboratory specified acceptance criteria with the following exception.

The recoveries of chloride in the MS/MSD pair using sample MW-201 were low and outside the laboratory specified acceptance criteria. Since the chloride concentration in sample MW-201 was greater than four times the spike concentration, no qualifications were applied to the data, based on professional and technical judgement.

A batch MS/MSD pair was also reported for fluoride. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). LCSs were reported for each analysis and batch. The recovery results were within the laboratory and SOP specified acceptance criteria.

3.6 <u>Laboratory Duplicate</u>

Sample set specific laboratory duplicates were reported for TDS using samples MW-203 and DUP-05 and fluoride using sample MW-205. The RPD result was within the laboratory and SOP specified acceptance criteria.

Batch laboratory duplicates were also reported for TDS and fluoride. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.7 Equipment Blank

One equipment blank, EB-02, was collected with the sample set. Wet chemistry parameters were not detected in the equipment blank above the MDLs.

3.8 <u>Field Blank</u>

One field blank, FB-02, was collected with the sample set. The wet chemistry parameters were not detected in the field blank above the MDLs.

3.9 <u>Field Duplicate</u>

Two field duplicate samples were collected with the sample sets, DUP-01 and DUP-02. Acceptable precision (RPD < 20% or difference < PQL) was demonstrated between the field duplicates and the original samples MW-12 and MW-09, respectively.

3.10 Sensitivity

The samples were reported to the MDLs. Elevated non-detect results were not reported.

3.11 <u>Electronic Data Deliverable Review</u>

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

* * * * *

ATTACHMENT 1 DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY Assigned by Geosyntec's Data Validation Team per the SOP

DATA QUALIFIER DEFINITIONS

- U* This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.
- UJ The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.
- J The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

ATTACHMENT 2 DATA VALIDATION REASON CODES Assigned by Geosyntec's Data Validation Team per the SOP

Reason Code	Explanation
BL	Laboratory blank contamination. The result should be considered
	"not-detected."
BE	Equipment blank contamination. The result should be considered
	"not-detected."
BF	Field blank contamination. The result should be considered "not-
	detected."
L	LCS and LCSD recoveries outside acceptance limits, indeterminate
	bias
L-	LCS and/or LCSD recoveries outside of acceptance limits. The
	result may be biased low.
L+	LCS and/or LCSD recoveries outside of acceptance limits. The
	result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result
	may be biased low.

Geosyntec[>] consultants

Memorandum

Date:April 29, 2018To:Carl EldredFrom:Kristoffer HendersonCC:H. Parthasarathy and J. CaprioSubject:Stage 2A Data Validations - Level II Data Deliverable – Eurofins
TestAmerica Laboratories, Inc. Job Number 440-166764-2

SITE: Plant Crist

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of seven aqueous samples, two field duplicate samples, one equipment blank and one field blank collected February 28 - March 5, 2019, as part of the Plant Crist CCR sampling event.

The samples were analyzed at Eurofins TestAmerica St. Louis (TA St. Louis), Earth City, MO for the following analytical tests:

- Radium-226 by EPA Method 9315
- Radium-228 by EPA Method 9320
- Combine Radium 226 + 228 by Calculation

EXECUTIVE SUMMARY

Based on this Stage 2A data validation covering the quality control (QC) parameters listed below and the information provided, the data are usable for meeting project objectives.

The data were reviewed based on the pertinent methods referenced in the laboratory report, professional and technical judgment and the following documents:

- US EPA Region IV Data Validation Standard Operating Procedures (US EPA Region IV, September 2011);
- American National Standard, Verification and Validation of Radiological Data for use in Waste Management and Environmental Remediation, February 15, 2012 (ANSI/ANS-41.5-2012); and,

• Southern Company Services, Inc., Standard Operating Procedure (hereafter referred to as the SOP) for Level 2A Verification of Coal Combustion Residuals Data, Environmental Testing Laboratory Program, Draft, November 21, 2017, Revision 0, Prepared by Environmental Standards, Inc., Valley Forge, Pennsylvania.

The following samples were analyzed and reported in the laboratory report:

Laboratory ID	Client ID
400-166764-1	MW-200
400-166764-2	MW-203
400-166764-3	MW-204
400-166764-4	MW-205
400-166764-5	MW-206
400-166764-6	DUP-02

Laboratory ID	Client ID
400-166764-7	FB-02
400-166764-8	EB-02
400-166764-9	DUP-05
400-166764-10	MW-201
400-166764-11	MW-202

1.0 RADIOCHEMISTRY

The samples were analyzed for radium-226 by EPA method 9315, radium-228 by EPA method 9320 and combine radium 226+228 by calculation.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Tracers and Carriers
- ✓ Field Blank
- ✓ Equipment Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

1.1 Overall Assessment

The radium-226 and radium-228 data reported in this data package are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values

Data Validation Plant Crist 29 April 2019 Page 3

qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this sample set is 100%.

1.2 Holding Times

The holding times for the radium-226 and radium-228 analyses of a water sample are 180 days from sample collection to analysis. The holding times were met for the sample analyses.

1.3 <u>Method Blank</u>

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported for the radium-226 data (batches 418219 and 418846). Two method blanks were reported for the radium-228 data (batches 418231 and 418851). Radium-226 and radium-228 were not detected in the method blanks above the minimum detectable concentrations (MDCs).

1.4 <u>Matrix Spike/Matrix Spike Duplicate (MS/MSD)</u>

Two batch MS/MSD pairs were reported for the radium-226 data. Two batch MS/MSD pairs were reported for the radium-228 data. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

1.5 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs were reported for radium-226 and two LCSs were reported for radium-228. The recovery results were within the laboratory and SOP specified acceptance criteria.

1.6 Laboratory Duplicate

Laboratory duplicates were not reported with the data.

1.7 <u>Tracers and Carriers</u>

Carriers were reported for the radium-226 and radium-228 analyses and a tracer was reported for the radium-228 analyses. The recovery results were within the laboratory and SOP specified acceptance criteria.

1.8 Field Blank

One field blank was collected with the sample set, FB-02. Radium-226 and -228 were not detected in the field blank above the MDCs.

1.9 Equipment Blank

One equipment blank was collected with the sample set, EB-02. Radium-226 and -228 were not detected in the equipment blank above the MDCs.

1.10 Field Duplicate

Two field duplicate samples were collected with the sample set, DUP-02 and DUP-05. Acceptable precision [(relative error ration (RER) $(2\sigma) \ge 3$] was demonstrated between the field duplicates and original samples, MW-205 and MW-201, respectively.

1.11 <u>Sensitivity</u>

The samples were reported to the MDCs. No elevated non-detect results were reported.

1.12 <u>Electronic Data Deliverable (EDD) Review</u>

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

* * * * *

Data Validation Plant Crist 29 April 2019 Page 5

ATTACHMENT 1 DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY Assigned by Geosyntec's Data Validation Team per the SOP

DATA QUALIFIER DEFINITIONS

- U* This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.
- UJ The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.
- J The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- R The data are unusable. The sample results are rejected due to serious analytical efficiencies in the ability to analyze the sample and meet quality control criteria. The analyte may or may not be present in the sample
- UR The analyte was analyzed for, but was not detected above the level of the reported sample reporting or method detection; however, the data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the staple and meet quality control criteria. The analyte may or may not be present in the sample.

ATTACHMENT 2 DATA VALIDATION REASON CODES Assigned by Geosyntec's Data Validation Team per the SOP

Reason Code	Explanation
BE	Equipment blank contamination. The result should be
	considered "not-detected."
BF	Field blank contamination. The result should be considered
	"not-detected."
BL	Laboratory blank contamination. The result should be considered
	"not-detected."
FD	Field duplicate imprecision.
M+	MS and/or MSD recoveries outside of acceptance limits. The
	result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result
	may be biased low.

Geosyntec[>] consultants

Memorandum

Date: April 30, 2019

To: Lane Dorman

From: Jennifer Pinion

CC: J. Caprio

Subject: Stage 2A Data Validations - Level II Data Deliverable– Eurofins TestAmerica Job IDs 400-166941-1

SITE: Plant Crist

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of four aqueous samples and two field duplicate samples, collected 5-6 March 2019, as part of the Plant Crist sampling event.

The samples were analyzed at Eurofins TestAmerica, Pensacola, Florida, for the following analytical tests:

- Metals by EPA Methods 3005A/6020
- Mercury by EPA Methods 7470A
- Total Dissolved Solids (TDS) by Standard Method 2540C
- Chloride by Standard Method 4500 CL-E
- Fluoride by Standard Method 4500 F C
- Sulfate by Standard Method 4500 SO4 E

EXECUTIVE SUMMARY

Based on the Stage 2A data validation covering the quality control (QC) parameters listed below and the information provided, the data are usable for meeting project objectives.

The data were reviewed based on the pertinent methods referenced in the laboratory reports, professional and technical judgment and the following documents:

- United States Environmental Protection Agency (US EPA) Region IV Data Validation Standard Operating Procedures (US EPA Region IV, September 2011);
- USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017 (EPA 540-R-2017-001);

• Southern Company Services, Inc., Standard Operating Procedure (hereafter referred to as the SOP) for Level 2A Verification of Coal Combustion Residuals Data, Environmental Testing Laboratory Program, Draft, November 21, 2017, Revision 0, Prepared by Environmental Standards, Inc., Valley Forge, Pennsylvania.

The following samples were analyzed and reported in the laboratory report:

Laboratory ID	Client ID		
400-166941-1	PZ-200S		
400-166941-2	GSA-2S		
400-166941-3	PZ-201D		

Laboratory ID	Client ID		
400-166941-4	GE-1D		
400-166941-5	DUP-06		
400-166941-6	DUP-07		

Samples PZ-200D and GE-4DR were listed on the chain of custody (COC); however, no sample collection date and time were listed with the samples. In addition, the samples were not logged in by the laboratory. Additional information from the client indicated that the samples were collected but were not reported due to issues with analyses.

1.0 METALS

The samples were analyzed by EPA methods 3005A/6020.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

1.1 <u>Overall Assessment</u>

The metals data reported in this data package are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total

number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

1.2 <u>Holding Time</u>

The holding time for the metals analysis of a water sample is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

1.3 <u>Method Blank</u>

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported (batch 433805). Metals were not detected in the method blank above the method detection limits (MDLs).

1.4 <u>Matrix Spike/Matrix Spike Duplicate (MS/MSD)</u>

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One sample specific MS/MSD pair was reported using sample PZ-200S. The recovery and relative percent difference (RPD) results were within laboratory specified acceptance criteria with the following exceptions.

The MS/MSD recoveries of boron and MS recovery of calcium were high and outside the laboratory specified acceptance criteria and the MSD recovery of calcium was low and outside the laboratory specified acceptance criteria. Since the concentrations of boron and calcium were greater than four times the spike concentrations, no qualifications have been applied to the data, based on professional and technical judgement.

1.5 <u>Laboratory Control Sample (LCS)</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was reported. The recovery results were within the laboratory and SOP specified acceptance criteria.

1.6 Equipment Blank

Equipment blanks were not collected with the sample set.

1.7 Field Blank

Field blanks were not collected with the sample set.

1.8 <u>Field Duplicate</u>

Two field duplicate samples were collected with the sample set, DUP-06 and DUP-07. Acceptable precision [relative percent difference (RPD) < 20% or difference < practical quantitation limit (PQL)] was demonstrated between the field duplicates and the original samples, PZ-200S and GE-ID.

1.9 <u>Sensitivity</u>

The samples were reported to the MDLs. Elevated non-detect results were reported due to dilutions analyzed.

1.10 Electronic Data Deliverable (EDD) Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

2.0 MERCURY

The samples were analyzed by EPA method 7470A.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

2.1 Overall Assessment

The mercury data reported in this data package are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to

the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

2.2 <u>Holding Time</u>

The holding time for the mercury analysis of a water sample is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

2.3 <u>Method Blank</u>

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported (batch 433992). Mercury was not detected in the method blank above the MDL.

2.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One batch MS/MSD pair was reported. Since this was batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

2.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was reported. The recovery result was within the laboratory and SOP specified acceptance criteria.

2.6 Equipment Blank

Equipment blanks were not collected with the sample set.

2.7 Field Blank

Field blanks were not collected with the sample set.

2.8 <u>Field Duplicate</u>

Two field duplicate samples were collected with the sample set, DUP-06 and DUP-07. Acceptable precision (RPD < 20% or difference < PQL) was demonstrated between the field duplicates and the original samples, PZ-200S and GE-ID.

2.9 <u>Sensitivity</u>

The samples were reported to the MDL. Elevated non-detect results were not reported.

2.10 Electronic Data Deliverable Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

3.0 WET CHEMISTRY

The samples were analyzed for chloride by Standard Method 4500 Cl-E, fluoride by Standard Method 4500 F C, sulfate by Standard Method 4500 SO4 E and TDS by Standard Method 2540C.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

3.1 Overall Assessment

The wet chemistry data reported in this data package are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for these analyses, for this dataset is 100%.

3.2 <u>Holding Times</u>

The holding time for the fluoride, chloride and sulfate analysis of a water sample is 28 days from sample collection to analysis. The holding time for TDS analysis of a water sample is 7 days from sample collection to analysis. The holding times were met for the sample analyses.

3.3 <u>Method Blank</u>

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Method blanks were reported for each analysis and batch (TDS batch 432606, chloride batch 433871, sulfate batch 433957 and fluoride batch 433876). The wet chemistry parameters were not detected in the method blanks above the MDLs.

3.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Batch MS/MSD pair were also reported for chloride, fluoride, and sulfate. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). LCSs were reported for each analysis and batch. The recovery results were within the laboratory and SOP specified acceptance criteria.

3.6 <u>Laboratory Duplicate</u>

Batch laboratory duplicates were also reported for TDS and fluoride. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.7 Equipment Blank

Equipment blanks were not collected with the sample set.

3.8 Field Blank

Field blanks were not collected with the sample set.

3.9 <u>Field Duplicate</u>

Two field duplicate samples were collected with the sample set, DUP-06 and DUP-07. Acceptable precision (RPD < 20% or difference < PQL) was demonstrated between the field duplicates and the original samples, PZ-200S and GE-ID.

3.10 Sensitivity

The samples were reported to the MDLs. Elevated non-detect results were not reported.

3.11 <u>Electronic Data Deliverable Review</u>

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

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ATTACHMENT 1 DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY Assigned by Geosyntec's Data Validation Team per the SOP

DATA QUALIFIER DEFINITIONS

- U* This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.
- UJ The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.
- J The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

ATTACHMENT 2 DATA VALIDATION REASON CODES Assigned by Geosyntec's Data Validation Team per the SOP

Reason Code	Explanation
BL	Laboratory blank contamination. The result should be considered
	"not-detected."
BE	Equipment blank contamination. The result should be considered
	"not-detected."
BF	Field blank contamination. The result should be considered "not-
	detected."
L	LCS and LCSD recoveries outside acceptance limits, indeterminate
	bias
L-	LCS and/or LCSD recoveries outside of acceptance limits. The
	result may be biased low.
L+	LCS and/or LCSD recoveries outside of acceptance limits. The
	result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result
	may be biased low.

Geosyntec[>] consultants

Memorandum

Date:April 29, 2018To:Carl EldredFrom:Kristoffer HendersonCC:H. Parthasarathy and J. CaprioSubject:Stage 2A Data Validations - Level II Data Deliverable – Eurofins
TestAmerica Laboratories, Inc. Job Number 440-166941-2

SITE: Plant Crist

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of four aqueous samples and two field duplicate samples collected March 5-6, 2019, as part of the Plant Crist CCR sampling event.

The samples were analyzed at Eurofins TestAmerica St. Louis (TA St. Louis), Earth City, MO for the following analytical tests:

- Radium-226 by EPA Method 9315
- Radium-228 by EPA Method 9320
- Combine Radium 226 + 228 by Calculation

EXECUTIVE SUMMARY

Based on this Stage 2A data validation covering the quality control (QC) parameters listed below and the information provided, the data are usable for meeting project objectives.

The data were reviewed based on the pertinent methods referenced in the laboratory report, professional and technical judgment and the following documents:

- US EPA Region IV Data Validation Standard Operating Procedures (US EPA Region IV, September 2011);
- American National Standard, Verification and Validation of Radiological Data for use in Waste Management and Environmental Remediation, February 15, 2012 (ANSI/ANS-41.5-2012); and,

• Southern Company Services, Inc., Standard Operating Procedure (hereafter referred to as the SOP) for Level 2A Verification of Coal Combustion Residuals Data, Environmental Testing Laboratory Program, Draft, November 21, 2017, Revision 0, Prepared by Environmental Standards, Inc., Valley Forge, Pennsylvania.

The following samples were analyzed and reported in the laboratory report:

Laboratory ID	Client ID	Laborator	y ID	Client ID
400-166941-1	PZ-200S	400-16694	1-4	GE-1D
400-166941-2	GSA-2S	400-16694	1-5	DUP-06
400-166941-3	PZ-201D	400-16694	1-6	DUP-07

Samples PZ-200D and GE-4DR were listed on the chain of custody (COC); however, no sample collection date and time were listed with the samples. In addition, the samples were not logged in by the laboratory. Additional information from the client indicated that the samples were collected but were not reported due to issues with the analyses.

1.0 RADIOCHEMISTRY

The samples were analyzed for radium-226 by EPA method 9315, radium-228 by EPA method 9320 and combine radium 226+228 by calculation.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Tracers and Carriers
- ✓ Field Blank
- ✓ Equipment Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

1.1 Overall Assessment

The radium-226 and radium-228 data reported in this data package are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this sample set is 100%.

1.2 Holding Times

The holding times for the radium-226 and radium-228 analyses of a water sample are 180 days from sample collection to analysis. The holding times were met for the sample analyses.

1.3 <u>Method Blank</u>

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported for the radium-226 data (batches 419090 and 419103). Two method blanks were reported for the radium-228 data (batches 419100 and 419136). Radium-226 and radium-228 were not detected in the method blanks above the minimum detectable concentrations (MDCs).

1.4 <u>Matrix Spike/Matrix Spike Duplicate (MS/MSD)</u>

One batch MS/MSD pair was reported for the radium-226 data. Two batch MS/MSD pairs were reported for the radium-228 data. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

1.5 <u>Laboratory Control Sample (LCS)</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs were reported for radium-226 and two LCSs were reported for radium-228. The recovery results were within the laboratory and SOP specified acceptance criteria.

1.6 Laboratory Duplicate

One batch laboratory duplicate was reported for the radium-226 data. One batch laboratory duplicate was reported for the radium-228 data. One batch laboratory duplicate was reported for the combined radium-226+228. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

Data Validation Plant Crist 29 April 2019 Page 4

1.7 <u>Tracers and Carriers</u>

Carriers were reported for the radium-226 and radium-228 analyses and a tracer was reported for the radium-228 analyses. The recovery results were within the laboratory and SOP specified acceptance criteria.

1.8 Field Blank

A field blank was not collected with the sample set.

1.9 Equipment Blank

An equipment blank was not collected with the sample set.

1.10 Field Duplicate

Two field duplicate samples were collected with the sample set, DUP-06 and DUP-07. Acceptable precision [(relative error ration (RER) $(2\sigma) \ge 3$] was demonstrated between the field duplicates and original samples, PZ-200S and GE-1D, respectively.

1.11 <u>Sensitivity</u>

The samples were reported to the MDCs. No elevated non-detect results were reported.

1.12 <u>Electronic Data Deliverable (EDD) Review</u>

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

* * * * *

Data Validation Plant Crist 29 April 2019 Page 5

ATTACHMENT 1 DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY Assigned by Geosyntec's Data Validation Team per the SOP

DATA QUALIFIER DEFINITIONS

- U* This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.
- UJ The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.
- J The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- R The data are unusable. The sample results are rejected due to serious analytical efficiencies in the ability to analyze the sample and meet quality control criteria. The analyte may or may not be present in the sample
- UR The analyte was analyzed for, but was not detected above the level of the reported sample reporting or method detection; however, the data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the staple and meet quality control criteria. The analyte may or may not be present in the sample.

ATTACHMENT 2 DATA VALIDATION REASON CODES Assigned by Geosyntec's Data Validation Team per the SOP

Reason Code	Explanation
BE	Equipment blank contamination. The result should be
	considered "not-detected."
BF	Field blank contamination. The result should be considered
	"not-detected."
BL	Laboratory blank contamination. The result should be considered
	"not-detected."
FD	Field duplicate imprecision.
M+	MS and/or MSD recoveries outside of acceptance limits. The
	result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result
	may be biased low.

Geosyntec[>]

Memorandum

Date: May 16, 2019

To: Lane Dorman

From: Kristoffer Henderson

CC: J. Caprio

Subject: Stage 2A Data Validations - Level II Data Deliverable – Eurofins TestAmerica Job ID 400-168194-1

SITE: Plant Crist

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of one aqueous sample collected 2 April 2019, as part of the Plant Crist sampling event.

The sample was analyzed at Eurofins TestAmerica, Pensacola, Florida, for the following analytical tests:

- Total and Dissolved Metals by EPA Methods 3005A/6020
- Total and Dissolved Metals Mercury by EPA Method 7470A
- Total Dissolved Solids (TDS) and Field Filtered TDS by Standard Method 2540C
- Total and Dissolved Chloride by Standard Method 4500 CL-E
- Total and Dissolved Fluoride by Standard Method 4500 F C
- Total and Dissolved Sulfate by Standard Method 4500 SO4 E
- Field pH

EXECUTIVE SUMMARY

Based on the Stage 2A data validation covering the quality control (QC) parameters listed below and the information provided, the data are usable for meeting project objectives.

The data were reviewed based on the pertinent methods referenced in the laboratory reports, professional and technical judgment and the following documents:

- United States Environmental Protection Agency (US EPA) Region IV Data Validation Standard Operating Procedures (US EPA Region IV, September 2011);
- USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017 (EPA 540-R-2017-001);

• Southern Company Services, Inc., Standard Operating Procedure (hereafter referred to as the SOP) for Level 2A Verification of Coal Combustion Residuals Data, Environmental Testing Laboratory Program, Draft, November 21, 2017, Revision 0, Prepared by Environmental Standards, Inc., Valley Forge, Pennsylvania.

The following sample was analyzed and reported in the laboratory report:

Laboratory ID	Client ID
400-168194-1	PZ-200D

The sample was received at the laboratory within the criteria of 0-6°C. No sample preservation or sample receipt issues were noted by the laboratory.

Sample GE4DR was listed on the chain of custody (COC); however, the sample was canceled by the client and was not reported.

1.0 TOTAL AND DISSOLVED METALS

The sample was analyzed for metals by EPA methods 3005A/6020.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Total and Dissolved Assessment
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

1.1 Overall Assessment

The metals data reported in this data package are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

1.2 <u>Holding Time</u>

The holding time for the metals analysis of a water sample is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

1.3 <u>Method Blank</u>

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported (batch 437384). Metals were not detected in the method blank above the method detection limits (MDLs).

1.4 <u>Matrix Spike/Matrix Spike Duplicate (MS/MSD)</u>

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One batch MS/MSD pair was reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

1.5 <u>Laboratory Control Sample (LCS)</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was reported. The recovery results were within the laboratory and SOP specified acceptance criteria.

1.6 Equipment Blank

Equipment blanks were not collected with the sample set.

1.7 Field Blank

Field blanks were not collected with the sample set.

1.8 <u>Field Duplicate</u>

Field duplicates were not collected with the sample set.

1.9 <u>Total and Dissolved Assessment</u>

The sample was analyzed for both total and dissolved metals. The total metals results were greater than or equal to the dissolved metals results.

1.10 Sensitivity

The sample was reported to the MDLs. Elevated non-detect results were reported due to dilutions analyzed.

1.11 <u>Electronic Data Deliverable (EDD) Review</u>

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

2.0 TOTAL AND DISSOLVED MERCURY

The sample was analyzed for mercury by EPA method 7470A.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Total and Dissolved Assessment
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

2.1 Overall Assessment

The mercury data reported in this data package are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

2.2 <u>Holding Time</u>

The holding time for the mercury analysis of a water sample is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

2.3 <u>Method Blank</u>

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported (batch 437150). Mercury was not detected in the method blank above the MDL.

2.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One batch MS/MSD pair was reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

2.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was reported. The recovery result was within the laboratory and SOP specified acceptance criteria.

2.6 Equipment Blank

Equipment blanks were not collected with the sample set.

2.7 Field Blank

Field blanks were not collected with the sample set.

2.8 <u>Field Duplicate</u>

Field duplicates were not collected with the sample set.

2.9 Total and Dissolved Assessment

The sample was analyzed for both total and dissolved mercury. The total mercury result was greater than or equal to the dissolved mercury result.

2.10 <u>Sensitivity</u>

The sample was reported to the MDL. Elevated non-detect results were not reported.

2.11 <u>Electronic Data Deliverable Review</u>

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

3.0 WET CHEMISTRY

The sample was analyzed for total and dissolved chloride by Standard Method 4500 Cl-E, total and dissolved fluoride by Standard Method 4500 F C, sulfate by Standard Method 4500 SO4 E and TDS and field filtered TDS by Standard Method 2540C.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Total and Dissolved Assessment
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

3.1 Overall Assessment

The wet chemistry data reported in this data package are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for these analyses, for this dataset is 100%.

3.2 <u>Holding Times</u>

The holding time for the fluoride, chloride and sulfate analysis of a water sample is 28 days from sample collection to analysis. The holding time for TDS analysis of a water sample is 7 days from sample collection to analysis. The holding times were met for the sample analyses.

3.3 <u>Method Blank</u>

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Method blanks were reported for each analysis and batch (TDS batch 436020, chloride batch 437484, sulfate batch 437533 and fluoride batch 436905). The wet chemistry parameters were not detected in the method blanks above the MDLs.

3.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Batch MS/MSD pairs were reported for fluoride, chloride and sulfate. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). LCSs were reported for each analysis and batch. The recovery results were within the laboratory and SOP specified acceptance criteria.

3.6 <u>Laboratory Duplicate</u>

Batch laboratory duplicates were reported for TDS and chloride. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.7 Equipment Blank

Equipment blanks were not collected with the sample set.

3.8 Field Blank

Field blanks were not collected with the sample set.

3.9 <u>Field Duplicate</u>

Field duplicates were not collected with the sample set.

3.10 Total and Dissolved Assessment

The sample was analyzed for both total and dissolved chloride, fluoride and sulfate and both TDS and field filtered TDS. The total chloride, fluoride and sulfate results were greater than or equal to the dissolved chloride, fluoride and sulfate results and the TDS result was greater than or equal to the field filtered TDS result.

3.11 <u>Sensitivity</u>

The sample was reported to the MDLs. Elevated non-detect results were not reported.

3.12 <u>Electronic Data Deliverable Review</u>

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

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ATTACHMENT 1 DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY Assigned by Geosyntec's Data Validation Team per the SOP

DATA QUALIFIER DEFINITIONS

- U* This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.
- UJ The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.
- J The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

ATTACHMENT 2 DATA VALIDATION REASON CODES Assigned by Geosyntec's Data Validation Team per the SOP

Reason Code	Explanation
BL	Laboratory blank contamination. The result should be considered
	"not-detected."
BE	Equipment blank contamination. The result should be considered
	"not-detected."
BF	Field blank contamination. The result should be considered "not-
	detected."
L	LCS and LCSD recoveries outside acceptance limits, indeterminate
	bias
L-	LCS and/or LCSD recoveries outside of acceptance limits. The
	result may be biased low.
L+	LCS and/or LCSD recoveries outside of acceptance limits. The
	result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result
	may be biased low.



Memorandum

Date:June 6, 2019To:Carl EldredFrom:Kristoffer HendersonCC:H. Parthasarathy and J. CaprioSubject:Stage 2A Data Validations - Level II Data Deliverable – Eurofins
TestAmerica Laboratories, Inc. Job Numbers 440-168194-2 and 440-
168194-4

SITE: Plant Crist

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of one aqueous sample collected April 2, 2019, as part of the Plant Crist CCR sampling event.

The sample was analyzed at Eurofins TestAmerica St. Louis (TA St. Louis), Earth City, MO for the following analytical tests:

- Total and Dissolved Radium-226 by EPA Method 9315
- Total and Dissolved Radium-228 by EPA Method 9320
- Total and Dissolved Combine Radium 226 + 228 by Calculation

EXECUTIVE SUMMARY

Based on this Stage 2A data validation covering the quality control (QC) parameters listed below, the data are usable for meeting project objectives.

The data were reviewed based on the pertinent methods referenced in the laboratory report, professional and technical judgment and the following documents:

- US EPA Region IV Data Validation Standard Operating Procedures (US EPA Region IV, September 2011);
- American National Standard, Verification and Validation of Radiological Data for use in Waste Management and Environmental Remediation, February 15, 2012 (ANSI/ANS-41.5-2012); and,
- Southern Company Services, Inc., Standard Operating Procedure (hereafter referred to as the SOP) for Level 2A Verification of Coal Combustion Residuals Data, Environmental Testing Laboratory Program, Draft, November 21, 2017, Revision 0, Prepared by Environmental Standards, Inc., Valley Forge, Pennsylvania.

The following sample was analyzed and reported in the laboratory report:

Laboratory ID	Client ID		
400-168194-1	PZ-200D		

Laboratory report 400-168194-4 was generated by the laboratory to correct the dissolved combined radium 226 + 228 result. The incorrect result in laboratory report 400-168194-2 was R qualified as rejected.

1.0 RADIOCHEMISTRY

The sample was analyzed for total and dissolved radium-226 by EPA method 9315, total and dissolved radium-228 by EPA method 9320 and total and dissolved combine radium 226+228 by calculation.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Carriers
- ✓ Field Blank
- ✓ Equipment Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Total and Dissolved Assessment
- ✓ Electronic Data Deliverable Review

1.1 <u>Overall Assessment</u>

The radium-226 and radium-228 data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this sample set is 100%.

1.2 Holding Times

The holding times for the radium-226 and radium-228 analyses of a water sample are 180 days from sample collection to analysis. The holding times were met for the sample analyses.

1.3 <u>Method Blank</u>

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported for the radium-226 data (batches 424080 and 424884) and two method blanks were reported for the radium-228 data (batches 424240 and 424886). Radium-226 and radium-228 were not detected in the method blanks above the minimum detectable concentrations (MDCs).

1.4 <u>Matrix Spike/Matrix Spike Duplicate (MS/MSD)</u>

One batch MS/MSD pair was reported for the radium-226 data and one batch MS/MSD pair was reported for the radium-228 data. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

1.5 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS and one LCS/LCS duplicate (LCSD) pair were reported for radium-226 and one LCS and one LCS/LCSD pair were reported for radium-228. The recovery and replicate error ratio (RER) results were within the laboratory and SOP specified acceptance criteria.

1.6 Laboratory Duplicate

Laboratory duplicates were not reported with the data.

1.7 <u>Carriers</u>

Carriers were reported for the radium-226 and radium-228 analyses. The recovery results were within the laboratory and SOP specified acceptance criteria.

1.8 Field Blank

A field blank was not collected with the sample set.

1.9 Equipment Blank

An equipment blank was not collected with the sample set.

DVR Plant Crist 400-168194-2_4

1.10 Field Duplicate

A field duplicate was not collected with the sample set.

1.11 <u>Sensitivity</u>

The sample was reported to the MDCs. No elevated non-detect results were reported.

1.12 Total and Dissolved Assessment

The sample was analyzed for total and dissolved radium-226 and radium-228. The total radium-226 concentration was greater than the dissolved radium-228 concentration. However, the dissolved radium-228 concentration was greater than the total radium-228 concentration. Since the RER between the total and dissolved radium-228 concentrations was less than 3, no qualifications were applied to the data.

1.13 <u>Electronic Data Deliverables (EDDs) Review</u>

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II reports and the EDDs.

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ATTACHMENT 1 DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY Assigned by Geosyntec's Data Validation Team per the SOP

DATA QUALIFIER DEFINITIONS

- U* This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.
- UJ The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.
- J The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- R The data are unusable. The sample results are rejected due to serious analytical efficiencies in the ability to analyze the sample and meet quality control criteria. The analyte may or may not be present in the sample
- UR The analyte was analyzed for, but was not detected above the level of the reported sample reporting or method detection; however, the data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the staple and meet quality control criteria. The analyte may or may not be present in the sample.

ATTACHMENT 2 DATA VALIDATION REASON CODES Assigned by Geosyntec's Data Validation Team per the SOP

Reason Code	Explanation
BE	Equipment blank contamination. The result should be
	considered "not-detected."
BF	Field blank contamination. The result should be considered
	"not-detected."
BL	Laboratory blank contamination. The result should be considered
	"not-detected."
FD	Field duplicate imprecision.
M+	MS and/or MSD recoveries outside of acceptance limits. The
	result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result
	may be biased low.

Date: 2019-02-28 09:04:22

Project Information:		Pump Information:	
Operator Name	Philip Evans	Pump Model/Type	PP
Company Name	RDH Environmental	Tubing Type	PE
Project Name	Crist plant CCR	Tubing Diameter	.17 in
Site Name	Crist Plant	Tubing Length	40 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	417744		
Turbidity Make/Model	HACH 2100Q	Pump placement from TOC	27.8 ft
Well Information:		Pumping Information:	
Well ID	MW-205	Final Pumping Rate	400 mL/min
Well diameter	2 in	Total System Volume	0.2685369 L
Well Total Depth	32.8 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0.01 in
Depth to Water	16.42 ft	Total Volume Pumped	6 L

Low-Flow Sar	mpling Stabiliz	zation Summary	/						
	Time	Elapsed	Temp C	pН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.2	+/- 0.2	+/- 5%	+/- 10		+/- 0.2	+/- 10
Last 5	08:52:21	300.02	22.39	5.01	323.39	0.30	16.43	3.68	159.28
Last 5	08:57:21	600.02	22.44	5.02	313.24	0.25	16.43	3.68	154.49
Last 5	09:02:21	900.02	22.44	5.02	314.00	0.24	16.43	3.65	151.41
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.05	0.01	-10.14			0.00	-4.79
Variance 2			0.00	-0.00	0.75			-0.03	-3.08

Notes Sample time @ 0905. Cloudy 65. Dup-02 @ 0805.

Date: 2019-03-05 11:17:11

Project Information:		Pump Information:	
Operator Name	Philip Evans	Pump Model/Type	BP
Company Name	RDH Environmental	Tubing Type	PE
Project Name	Crist plant CCR	Tubing Diameter	.17 in
Site Name	Crist Plant	Tubing Length	70 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	417744		
Turbidity Make/Model	HACH 2100Q	Pump placement from TOC	54.8 ft
Well Information:		Pumping Information:	
Well ID	MW-202	Final Pumping Rate	400 mL/min
Well diameter	2 in	Total System Volume	0.5324396 L
Well Total Depth	59.8 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0.02 in
Depth to Water	51.33 ft	Total Volume Pumped	18 L

Low-Flow Sa	mpling Stabiliz	ation Summary	/						
	Time	Elapsed	Temp C	pН	SpCond µS	6/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.2	+/- 0.2	+/- 5%	+/- 10		+/- 0.2	+/- 10
Last 5	10:51:44	1500.02	23.48	4.95	80.20	2.14	51.35	2.44	211.65
Last 5	10:56:44	1800.02	23.47	4.96	78.03	1.74	51.35	2.53	219.20
Last 5	11:01:44	2100.02	23.58	4.95	78.93	1.32	51.35	2.49	232.41
Last 5	11:06:44	2400.02	23.67	4.93	77.70	0.98	51.35	2.51	240.07
Last 5	11:11:44	2700.02	23.68	4.93	79.24	0.78	51.35	2.48	239.27
Variance 0			0.11	-0.00	0.90			-0.04	13.21
Variance 1			0.09	-0.02	-1.23			0.02	7.66
Variance 2			0.01	-0.01	1.54			-0.03	-0.80

Notes Sample time@ 1120. Sunny 48.

Date: 2019-03-05 13:15:33

Project Information:		Pump Information:	
Operator Name	Rick Hagendorfer	Pump Model/Type	QED
Company Name	RDH Env	Tubing Type	PE
Project Name	Crist CCR Delineation	Tubing Diameter	.17 in
Site Name	Crist plant	Tubing Length	195 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	632615		
Turbidity Make/Model	Hach 2100Q	Pump placement from TOC	185.7 ft
Well Information:		Pumping Information:	
Well ID	PZ-201D	Final Pumping Rate	240 mL/min
Well diameter	2 in	Total System Volume	1.090367 L
Well Total Depth	188.2 ft	Calculated Sample Rate	300 sec
Screen Length	5 ft	Stabilization Drawdown	2 in
Depth to Water	44.47 ft	Total Volume Pumped	68.4 L

Low-Flow Sa	mpling Stabiliz	zation Summary							
	Time	Elapsed	Temp C	pН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.2	+/- 0.2	+/- 5%	+/- 5		+/- 0.2	+/- 10
Last 5	12:51:52	15907.02	20.17	6.75	87.81	10.20	46.45	0.10	-15.19
Last 5	12:56:52	16207.02	19.77	6.75	87.25	9.93	46.46	0.09	-13.99
Last 5	13:01:52	16507.02	20.13	6.75	86.99	9.73	46.47	0.09	-15.27
Last 5	13:06:52	16807.02	20.03	6.74	87.30	9.69	46.47	0.10	-16.82
Last 5	13:11:52	17107.02	20.05	6.74	86.95	9.58	46.47	0.09	-18.49
Variance 0			0.36	-0.00	-0.26			0.00	-1.28
Variance 1			-0.10	-0.01	0.30			0.01	-1.54
Variance 2			0.02	-0.00	-0.35			-0.00	-1.67

Notes Sample time 1312. Sunny 52.

Date: 2019-03-05 16:21:56

Project Information:		Pump Information:	
Operator Name	Rick Hagendorfer	Pump Model/Type	peristaltic
Company Name	RDH Env	Tubing Type	PE
Project Name	Crist CCR Delineation	Tubing Diameter	.17 in
Site Name	Crist plant	Tubing Length	37 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	632615		
Turbidity Make/Model	Hach 2100Q	Pump placement from TOC	31.0 ft
Well Information:		Pumping Information:	
Well ID	PZ-200S	Final Pumping Rate	400 mL/min
Well diameter	2 in	Total System Volume	0.3851467 L
Well Total Depth	33.5 ft	Calculated Sample Rate	300 sec
Screen Length	5 ft	Stabilization Drawdown	0.02 in
Depth to Water	7.57 ft	Total Volume Pumped	12 L

Low-Flow Sa	mpling Stabiliz	zation Summary	/						
	Time	Elapsed	Temp C	рН	SpCond µS,	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.2	+/- 0.2	+/- 5%	+/- 5		+/- 0.2	+/- 10
Last 5	15:46:53	600.02	19.64	5.29	1705.89	6.38	7.60	0.32	133.28
Last 5	15:51:53	900.02	19.69	5.31	1741.56	4.60	7.60	0.30	133.61
Last 5	15:56:53	1200.02	19.84	5.32	1714.79	2.91	7.60	0.29	134.45
Last 5	16:01:53	1500.02	19.83	5.32	1749.32	2.62	7.60	0.28	136.02
Last 5	16:06:53	1800.02	19.75	5.31	1751.65	1.86	7.60	0.26	137.73
Variance 0			0.15	0.02	-26.78			-0.01	0.83
Variance 1			-0.00	-0.00	34.54			-0.01	1.58
Variance 2			-0.09	-0.01	2.32			-0.02	1.70

Notes

Sample time 1610. Dup-06 fake time 1710. Sunny 54.

Date: 2019-03-06 12:07:26

Project Information:		Pump Information:	
Operator Name	Philip Evans	Pump Model/Type	PP
Company Name	RDH Environmental	Tubing Type	PE
Project Name	Crist GSA	Tubing Diameter	.17 in
Site Name	Crist Plant	Tubing Length	60 ft
Latitude	00 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	417744		
Turbidity Make/Model	HACH 2100Q	Pump placement from TOC	49.55 ft
Well Information:		Pumping Information:	
Well ID	GSA-2s	Final Pumping Rate	400 mL/min
Well diameter	2 in	Total System Volume	0.3578054 L
Well Total Depth	54.55 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0.05 in
Depth to Water	22.95 ft	Total Volume Pumped	30 L

Low-Flow Sa	ampling Stabiliz	zation Summary	/						
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization	1		+/- 0.2	+/- 0.2	+/- 5%	+/- 10		+/- 0.2	+/- 10
Last 5	11:45:37	3304.03	23.59	4.48	355.55	0.38	23.00	1.31	108.62
Last 5	11:50:37	3604.03	23.53	4.64	342.59	0.35	23.00	1.56	108.81
Last 5	11:55:37	3904.03	23.74	4.49	356.36	0.40	23.00	1.38	107.62
Last 5	12:00:37	4204.03	23.61	4.49	357.48	0.45	23.00	1.32	107.00
Last 5	12:05:37	4504.03	23.61	4.48	357.78	0.42	23.00	1.29	106.70
Variance 0			0.21	-0.16	13.77			-0.18	-1.19
Variance 1			-0.13	-0.00	1.12			-0.06	-0.62
Variance 2			0.00	-0.00	0.30			-0.02	-0.31

Notes Sample time @ 4500. Sunny 50.

Date: 2019-04-02 16:24:06

Project Information:		Pump Information:	
Operator Name	Trevor Braddock	Pump Model/Type	BO
Company Name	RDH Environmental	Tubing Type	PE
Project Name	Smith CCR	Tubing Diameter	.17 in
Site Name	Smith Plant	Tubing Length	153 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	625126		
Turbidity Make/Model	2100q	Pump placement from TOC	146.5 ft
Well Information:		Pumping Information:	
Well ID	PZ200D	Final Pumping Rate	400 mL/min
Well diameter	2 in	Total System Volume	0.7729037 L
Well Total Depth	151.5 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0 in
Depth to Water	5.68 ft	Total Volume Pumped	184 L

Low-Flow Sa	mpling Stabiliz	ation Summary							
	Time	Elapsed	Temp C	pН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.2	+/- 0.2	+/- 5%	+/- 5		+/- 0.2	+/- 10
Last 5	16:00:41	26410.15	21.13	6.74	113.47	167.00	5.65	0.04	-90.57
Last 5	16:05:49	26718.14	21.16	6.71	113.49	165.00	5.65	0.04	-90.46
Last 5	16:10:55	27024.14	21.13	6.74	113.38	167.00	5.65	0.04	-92.82
Last 5	16:15:55	27324.14	21.14	6.73	113.55	164.00	5.65	0.04	-89.87
Last 5	16:20:55	27624.14	21.12	6.69	113.23	164.00	5.65	0.04	-90.16
Variance 0			-0.03	0.03	-0.11			-0.00	-2.35
Variance 1			0.01	-0.01	0.17			-0.00	2.95
Variance 2			-0.02	-0.04	-0.32			-0.00	-0.29

Notes

Sample time 1625. Sunny 72. Two sets taken one total and one F.F. At .45um

Date: 2019-03-06 14:34:33

Project Information:		Pump Information:	
Operator Name	Rick Hagendorfer	Pump Model/Type	QED
Company Name	RDH Env	Tubing Type	PE
Project Name	Crist CCR Delineation	Tubing Diameter	.17 in
Site Name	Crist plant	Tubing Length	107 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	632615		
Turbidity Make/Model	Hach 2100Q	Pump placement from TOC	100.1 ft
Well Information:		Pumping Information:	
Well ID	GE-1D	Final Pumping Rate	400 mL/min
Well diameter	2 in	Total System Volume	0.6975863 L
Well Total Depth	102.6 ft	Calculated Sample Rate	300 sec
Screen Length	5 ft	Stabilization Drawdown	1.49 in
Depth to Water	16.90 ft	Total Volume Pumped	128 L

Low-Flow Sa	mpling Stabiliz	zation Summary							
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.2	+/- 0.2	+/- 5%	+/- 5		+/- 0.2	+/- 10
Last 5	14:03:30	18005.02	21.30	4.83	94.14	13.50	18.39	3.72	289.65
Last 5	14:08:30	18305.02	21.33	4.91	105.85	12.30	18.39	3.65	289.39
Last 5	14:13:32	18607.02	21.33	4.87	98.63	10.50	18.39	3.69	298.57
Last 5	14:18:32	18907.02	21.20	4.84	95.52	10.10	18.39	3.69	301.94
Last 5	14:23:32	19207.02	21.22	4.87	99.54	9.75	18.39	3.71	298.09
Variance 0			0.01	-0.04	-7.21			0.04	9.18
Variance 1			-0.14	-0.03	-3.12			-0.00	3.38
Variance 2			0.03	0.03	4.02			0.02	-3.85

Notes

Sample time 1432. Dup-07 fake time 1332. Sunny 57.