Texas Commission on Environmental Quality

Waste Permits Division Correspondence Cover Sheet

Date: 11/21/2022
Facility Name: Coleto Creek Power Station
Permit or Registration No.: CCR116

Nature of Correspondence:
☐ Initial/New
☒ Response/Revision to TCEQ Tracking No.: 27262899 (from subject line of TCEQ letter regarding initial submission)

Affix this cover sheet to the front of your submission to the Waste Permits Division. Check appropriate box for type of correspondence. Contact WPD at (512) 239-2335 if you have questions regarding this form.

Table 1 - Municipal Solid Waste Correspondence

Applications	Reports and Notifications
☐ New Notice of Intent	☐ Alternative Daily Cover Report
☐ Notice of Intent Revision	☐ Closure Report
☐ New Permit (including Subchapter T)	☐ Compost Report
☐ New Registration (including Subchapter T)	☐ Groundwater Alternate Source Demonstration
☐ Major Amendment	☐ Groundwater Corrective Action
☐ Minor Amendment	☐ Groundwater Monitoring Report
☐ Limited Scope Major Amendment	☐ Groundwater Background Evaluation
☐ Notice Modification	☐ Landfill Gas Corrective Action
☐ Non-Notice Modification	☐ Landfill Gas Monitoring
☐ Transfer/Name Change Modification	☐ Liner Evaluation Report
☐ Temporary Authorization	☐ Soil Boring Plan
☐ Voluntary Revocation	☐ Special Waste Request
☐ Subchapter T Disturbance Non-Enclosed Structure	☐ Other:
☐ Other:	

Table 2 - Industrial & Hazardous Waste Correspondence

Applications	Reports and Responses
☐ New	☐ Annual/Biennial Site Activity Report
☐ Renewal	☐ CPT Plan/Result
☐ Post-Closure Order	☐ Closure Certification/Report
☐ Major Amendment	☐ Construction Certification/Report
☐ Minor Amendment	☐ CPT Plan/Result
☒ CCR Registration	☐ Extension Request
☐ CCR Registration Major Amendment	☐ Groundwater Monitoring Report
☐ CCR Registration Minor Amendment	☐ Interim Status Change
☐ Class 3 Modification	☐ Interim Status Closure Plan
☐ Class 2 Modification	☐ Soil Core Monitoring Report
☐ Class 1 ED Modification	☐ Treatability Study
☐ Class 1 Modification	☐ Trial Burn Plan/Result
☐ Endorsement	☐ Unsaturated Zone Monitoring Report
☐ Temporary Authorization	☐ Waste Minimization Report
☐ Voluntary Revocation	☐ Other:
☐ 335.6 Notification	
☐ Other:	

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Delivered Electronically via IHWPER@tceq.texas.gov

November 21, 2022

Texas Commission on Environmental Quality
Industrial and Hazardous Waste Permits Section - MC-130
12100 Park 35 Circle
Austin, TX 78753

RE: Response to EMAIL NOD New Registration No. CCR116
Coleto Creek Power LLC – Fannin, Goliad County
Industrial Solid Waste Registration No. 31911
EPA Identification No. TXD000836999
Tracking No. 27262899; RN100226919/CN605521988

Coleto Creek Power LLC has prepared written responses for the deficiencies identified in the "Email NOD - New Registration – Coleto Creek Power, LLC – Registration No. CCR116" received via email from TCEQ on September 22, 2022. The written responses are in Table 1. Updated application and appendix revisions are attached for review.

If you have any questions or require any additional information, please contact Eric Chavers at 903-389-6062 or by e-mail at eric.chavers@luminant.com.

Sincerely,

Renee Collins

Attachments: CCR116 Application-Revision 2
CCR116 Application Revision 2 REDLINE
APPENDIX E-Revision 1
APPENDIX F-Revision 1
APPENDIX G-Revision 1

cc with attachments:

Sarah Schreier (sarah.schreier@tceq.texas.gov)
Daniella Ortiz de Montellano (daniela.ortiz-demontellano@tceq.texas.gov)

Table 1 - NOD Summary and Response
Registration No. CCR116 - Coleto Creek Power LLC
Application Deficiencies - Technical NOD 2

ID[1]	App. Section	App. Sub Section	Location[2]	Citation	Deficiency Description/Resolution	Response
1	V	V.26.A.5	Section V.26.A.5	N/A	Remove the term "N/A", and reference Structural Stability Assessment.	"N/A" removed and following statement added at Section V.26.A.5. In October 2016, the initial certified Periodic Hazard Potential Classification Assessment, Periodic Structural Stability Assessment, and Periodic Safety Factor Assessmens were completed for the Primary Ash Pond as required by 40 CFR 257.73(a), 257.73(d), and 257.73(e). In October 2021, the certified 5-Year Updates to these assessments were completed as required by 40 CFR 257.73 and 30 TAC 352.731, which identified no structural deficiencies. The most recent 2021 5-Year Assessment Updates are located in APPENDIX E. Based on the conclusion in the certified 5-year updates that no structural deficiencies exist, the facility is submitting these documents in lieu of the Dike Certification.
2	V	Table V.B	Table V.B	N/A	Specify units in "Soil Liner Thickness" column.	Soil Liner Thickness units updated in Table V.B.
3	V	Table V.J	Table V.J	40 CFR 257.83(a) 30 TAC 352.831	Address the following: a.) Indicate surface impoundments, not landfills. b.) Match unit number and name. c.) Correct the rule reference in frequency column (lists landfill rules).	Surface Impoundment Inspection items updated in Table V.J.
4	V	Table V.J.	Table V.J.	40 CFR 257.83(a)(1)(iii) 30 TAC 352.831	Add "monitor all CCR unit instrumentation" at intervals not exceeding 30 days.	Table V.J. has been revised to contain the following language: "Unit instrumentation (water level gauge) is inspected and monitored at intervals not exceeding 30 days per 40 CFR 257.83(a)(1)(iii)."
5	V	Table V.J	Table V.J	40 CFR 257.83(a)(1)(i), (ii)	Revise to indicate that weekly inspection items will be conducted at intervals not exceeding 7 days.	Table V.J. has been revised to contain the following language: "Weekly inspections are performed at intervals not exceeding seven days per 40 CFR 257.83(a)."
6	V	V.26.A.5	TCEQ-20870, p. 38, Section V.26.A.5	Application Instructions 30 TAC 352.731.	Provide a dike certification (TCEQ-20870 version 09-27-2021) form.	In October 2016, the initial certified Periodic Hazard Potential Classification Assessment, Periodic Structural Stability Assessment, and Periodic Safety Factor Assessmens were completed for the Primary Ash Pond as required by 40 CFR 257.73(a), 257.73(d), and 257.73(e). In October 2021, the certified 5-Year Updates to these assessments were completed as required by 40 CFR 257.73 and 30 TAC 352.731, which identified no structural deficiencies. The most recent 2021 5-Year Assessment Updates are located in APPENDIX E. Based on the conclusion in the certified 5-year updates that no structural deficiencies exist, the facility is submitting these documents in lieu of the Dike Certification.

7	V	V.26.G	[App. E]	30 TAC 352.731(a) & 40 CFR 257.73(a)(1)	Indicate whether permanent identification markers have been placed on or adjacent to each CCR unit and designed as specified in the cited rule.	Permanent identification markers have been placed on or adjacent to each CCR unit as specified in 30 TAC 352.731(a) and 40 CFR 257.73(a)(1).
8	VI	VI.27.D	Appendix E Groundwater Hydrogeologic Monitoring Plan, 2.2 Hydrogeology	40 CFR 257.91(b)	Provide thickness, hydraulic conductivity, porosity and effective porosity of the geologic units overlying (Unit 1) and underlying (Unit3).	Additional information has been provided in the "Supplemental Geologic and Hydrogeologic Information" report found in APPENDIX E. This report is also referenced under Item VI.27.D.
9	VI	VI.27.G	Table 3 CCR Monitoring Well Construction Details Appendix E Groundwater Hydrogeologic Monitoring Plan (page 10 of 13 and 11 of 13	30 TAC 352.911; 40 CFR 257.91(e)	Provide well construction details for Up Gradient Well MW-8 and Down Gradient Monitoring wells MW-4, 5 and 6.	Well construction logs are included in Appendix B of the referenced report. Please see note on page 34 that indicated the minor name identification change in the well number. The logs are found on the following pages 35-38. The well construction logs are also located in the Ground Water Monitoring Plan also located in Appendix E of the application.
10	VI	VI.28	Appendix E Groundwater Monitoring Plan (Pages 845, 871, and 888)	Application instructions	Provide a P.G. or P.E. signed and sealed cover page and Figure 2 - site plan map.	The "Groundwater Monitoring Plan-Revision 1" has been revised to contain a signed and sealed signature page and sealed Figure 2. The revised Groundwater Monitoring Plan is located in Appendix E of the application.
11	VI	VI.29	Table VI.C-1	Application Instructions 40 CFR 257.94 Appendix III	Add and complete attached "Table VI.C-1 – Groundwater Detection Monitoring Parameters.", if applicable. This table was inadvertently omitted in the application form.	Table VI.C-1 inserted into application. Per application section VI.29, this table is not applicable since no units are in detection monitoring.
12	VI	VI.30.H	Table VI.D-2	Application Instructions	Replace title of "Table VI.D.2 – Groundwater Detection Monitoring Parameters" with "Table VI.D-2 – Groundwater Assessment Monitoring Parameters" and complete if applicable.	Table VI.D-2 has been updated with assessment monitoring parameters.
13	VI	VI.30	2021 Annual Groundwater Monitoring and Corrective Action Report	30 TAC §352.931; 40 CFR 257.90(e), 257.93;	a.) Provide analytical Data for the 2021 Groundwater Monitoring and Corrective Action Report. b.) Provide a P.E. or P.G. signed and sealed copy of Figure 1 of report.	The"2021 Annual Groundwater Monitoring and Corrective Action Report-Revision 1" has been revised to include analytical lab data and signed and sealed Figure 1. The revised report is in APPENDIX E.

16	VII	VII.31	[App. F]	30 TAC 352.1231 40 CFR 257.103(f)(2)	Provide status of EPA's review or determination of a demonstration for site-specific alternative deadlines to initiate closure application for the Primary Ash Pond.	On January 11, 2022, USEPA provided a determination that the alternative closure demonstration was complete thus tolling the waste receipt deadline for the CCR unit until USEPA issues a final decision. To date, no decision has been issued by USEPA regarding the Coleto Creek request for a site-specific alternative deadline to initiate closure. A copy of the completeness determination letter is located in APPENDIX F. This status comment also added under Section VII of the application.
17	VII	VII.32	[App. G]	30 TAC 352.131(a) and (b)	a.) Revise Post Closure Cost Estimate to be based in current dollars (2021 dollars) and include the year in terms of dollars that the estimate was made. b.) Recommend removing any information about the post-closure plan and cost estimate that is not applicable to this facility.	A) The "Post Closure Care Cost Estimate" located in APPENDIX G is based on 2021 dollars as noted in Section 2.0 and footnoted in Table 1. B) The "Post Closure Care Cost Estimate" located in APPENDIX G has been updated to only include the Coleto Creek facility.
18	VIII	VIII.33	[App. G Sec.1.3]	30 TAC 352.1241	Replace Groundwater Detection Monitoring with Groundwater Assessment.	Detection Monitoring updated to Assessment Monitoring on Post Closure Cost Estimate located in APPENDIX G..
19	VIII	VIII.34	VIII.34	30 TAC 352.1101	Provide a statement that a Financial Assurance mechanism will be provided within 90 days if a registration is issued. For assistance, contact Mr. Mark Stoebner, Financial Analyst at mark.stoebner@tceq.texas.gov.	Coleto Creek Power, LLC will provide an acceptable financial assurance mechanism per 30 TAC 352.1101 no more than 90 days after the executive director's approval of the registration.

[1] Deficiency ID – Key: Use this numbered ID to identify the NOD response.

[2] Location of deficiency in submittal/application. Items in square brackets [ ] refer to applicant's supplemental information submitted as attachments/appendices to the application form.

Texas Commission on Environmental Quality

Registration Application for Coal Combustion Residuals (CCR) Waste Management

I. General Information

1. Reason for Submittal

Type of Registration Application

☐ New ☐ Major Amendment ☐ Minor Amendment

☒ Notice of Deficiency (NOD) Response ☐ Transfer ☐ Name Change

☐ Other

2. Application Fees

☒ $150 Application Fee

Payment Method

☐ Check ☒ Online through ePay portal <www3.tceq.texas.gov/epay/>

If paid online, enter ePay Trace Number: 582EA000467502

3. Facility Information

Facility information must match regulated entity information on the Core Data Form.

Applicant: ☐ Owner ☐ Operator ☒ Owner/Operator

Facility TCEQ Solid Waste Registration No: 31911

Facility EPA ID: TXD000836999

Regulated Entity Reference No. (if issued): RN100226919

Facility Name: COLETO CREEK POWER STATION

Facility (Area Code) Telephone Number: 361-788-5100

Facility physical street address (city, state, zip code, county): 45 FM 2987, FANNIN, TX, 77960, GOLIAD

Facility mailing address (city, state, zip code, county): 6555 Sierra Drive, Irving, TX 75039

Latitude (Degrees, Minutes Seconds): 28° 42’ 49”

Longitude (Degrees, Minutes Seconds): 97° 12’ 50”

4. Publicly Accessible Website

Provide the URL address of a publicly accessible website where the owner or operator of a CCR unit will post information.
https://www.luminant.com/ccr/

5. Facility Landowner(s) Information

Facility landowner(s) name: COLETO CREEK POWER, LLC

Facility landowner mailing address: 6555 Sierra Drive

City: Irving State: TX Zip Code: 75039

(Area Code) Telephone Number: 214-875-8338

Email Address (optional):

6. CCR Waste Management Unit(s)

☐ Landfill Unit(s) ☒ Surface Impoundment(s)

For each existing landfill, new landfill and lateral expansion, existing surface impoundment, and new surface impoundment and lateral expansion(s) provide information on type of waste, the registered unit(s) in which they are managed, and sampling and analytical methods.

Submit the following tables:

Table I.6. – CCR Waste Management Units;

Table I.6.A. – Waste Management Information;

Table I.6.B. – Waste Managed in Registered Units; and

Table I.6.C. – Sampling and Analytical Methods.

7. Description of Proposed Activities or Changes to Existing Facility

Provide a brief description of the proposed activities if application is for a new facility, or the proposed changes to an existing facility or registration conditions, if the application is for an amendment.

Coleto Creek Power, LLC operates the Coleto Creek Power Station located at 45 FM 2987 near the city of Fannin in Goliad County, Texas. The boiler uses coal as the primary fuel and fuel oil as a backup fuel to generate electricity. There are two streams of coal combustion residuals (CCR) generated at this plant. Bottom ash is collected from the boiler, combined with water, and transferred in slurry form for disposal in the facility's surface impoundment, referred to as Primary Ash Pond (PAP). Fly ash is collected from the boiler exhaust and transported pneumatically to two storage silos. From there, the fly ash is loaded into enclosed dry haul hoppers for off-site beneficial use. Off-spec fly ash is currently combined with water and pumped to the facility's surface impoundment for disposal. Limited amounts of bottom ash in the surface impoundment is recovered for beneficial reuse via excavation, screening, and placement in covered dump trucks for transport off site.

8. Primary Contact Information

Contact Name: Renee Collins Title: Sr. Director Environmental Services

Contact mailing address: 6555 Sierra Drive
City: Irving County: Dallas State: TX Zip Code: 75039
(Area Code) Telephone Number: 214-875-8338

Email Address (optional):

9. Notice Publishing

Party responsible for publishing notice:
☒ Applicant ☐ Consultant ☐ Agent in Service

Contact Name: Renee Collins Title: Sr. Director, Environmental Services

Contact mailing address: 6555 Sierra Drive
City: Irving County: Dallas State: TX Zip Code: 75039
(Area Code) Telephone Number: 214-875-8338

10. Alternative Language Notice

Is an alternative language notice required for this application? For determination, refer to Alternative Language Checklist on the Public Notice Verification Form (TCEQ-20244-Waste-NORI).

☐ Yes ☒ No

11. Public Place Location of Application

Name of the Public Place: **Goliad Public Library**
Physical Address: **320 S. Commercial St**
City: **Goliad** County: **Goliad** State: **TX** Zip Code: **77963**
(Area code) Telephone Number: **361-645-2291**

12. Ownership Status of the Facility

☐ Corporation ☐ Limited Partnership

☐ Sole Proprietorship ☐ General Partnership ☒ Other (specify): Limited Liability Company

Does the Site Owner (Permittee/Registrant) own all the CCR units and all the facility property?

☒ Yes ☐ No

13. Property / Legal Description Information

Provide a legal description and supporting documents of the property where the management of CCR waste will occur; including a survey plat and a boundary metes and bounds description (30 TAC §352.231(g)).

Submit the following documents:

a. Property Legal Description
b. Property Metes and Bounds Description
c. Metes and Bounds Drawings
d. On-Site Easements Drawings

See APPENDIX A for Property/Legal Description Information and Property Owner Affidavit.

14. Operator Information

Identify the entity who will conduct facility operations, if the owner and operator are not the same.

Operator Name:

Operator mailing address:

City: State: Zip Code:

(Area Code) Telephone Number:

Email Address (optional):

15. Confidential Documents

Does the application contain confidential documents?

☐ Yes ☒ No

If "Yes", cross-reference the confidential documents throughout the application and submit as a separate attachment in a binder clearly marked "CONFIDENTIAL."

16. Permits and Construction Approvals

Permit or Approval	Received	Pending	Not Applicable
Hazardous Waste Management Program under the Texas Solid Waste Disposal Act	☒	☐	☐
Underground Injection Control Program under the Texas Injection Well Act	☐	☐	☒
National Pollutant Discharge Elimination System Program under the Clean Water Act and Waste Discharge Program under Texas Water Code, Chapter 26	☒	☐	☐
Prevention of Significant Deterioration Program under the Federal Clean Air Act (FCAA).	☒	☐	☐
National Emission Standards for Hazardous Air Pollutants Preconstruction Approval under the FCAA	☐	☐	☒
Other (describe):	☐	☐	☐

Other (describe):	☐	☐	☐
Other (describe)	☐	☐	☐

17. Legal Authority

The owner and operator of the facility shall submit verification of their legal status with the application. This shall be a one-page certificate of incorporation issued by the secretary of state. The owner or operator shall list all persons having over a 20% ownership in the facility.

See APPENDIX A for Certificate of Authority.

18. TCEQ Core Data Form

The TCEQ requires that a Core Data Form (TCEQ-10400) be submitted on all incoming applications, unless a Regulated Entity and Customer Reference Number has been issued by the TCEQ and no core data information has changed. For more information regarding the Core Data Form, call (512) 239-5175 or visit the TCEQ Website.

See APPENDIX A for TCEQ Core Data Form.

19. Other Governmental Entities Information

Coastal Management Program

Is the facility within the Coastal Management Program boundary?

☐ Yes ☒ No

Local Government Jurisdiction (If Applicable)
Within City Limits of: N/A
Within Extraterritorial Jurisdiction of: N/A

Is the facility located in an area in which the governing body of the municipality or county has prohibited the storage, processing or disposal of municipal or industrial solid waste?

☐ Yes ☒ No If "Yes", provide a copy of the ordinance or order as an attachment.

20. Attachments

Does the application include the following?

General Maps	☒ Yes	☐ No
General Topographic Map	☒ Yes	☐ No
Facility Layout Map	☒ Yes	☐ No
Surrounding Features Map	☒ Yes	☐ No
Process Flow Diagram	☒ Yes	☐ No
Land Ownership Map	☒ Yes	☐ No
Land Ownership List	☒ Yes	☐ No
Pre-printed Mailing Labels	☒ Yes	☐ No

Maps and drawings shall be legible and easily readable by eye without magnification. Scales and paper size shall be chosen based on the type of map submitted, the land area covered, and the amount of detail to be shown. See instructions for details regarding maps and drawings to be submitted in application.

See APPENDIX A for Attachments detailed in Item 20.

21. Verification of Compliance

Does the owner and operator verify that the design, construction, and operation of CCR landfill(s) and surface impoundment(s) meets the requirements of 30 TAC §352.231(f) (30 TAC §352.2; 40 CFR §257.52, and 40 CFR §§257.3-1 – 257.3-3).

☒ Yes ☐ No

As requested by TCEQ, please see "Compliance Assessment for Coleto Creek Power Station Primary Ash Pond – 40 CFR 257.52(b)" memorandum for Primary Ash Pond provided by BBA in APPENDIX A.

II. Location Restrictions and Geology

See Instructions and Technical Guidance

22. Location Restrictions

Submit certifications and technical reports demonstrating compliance of CCR unit(s) with applicable location restrictions (30 TAC 352, Subchapter E) and comply with 30 TAC §352.231(d) and 30 TAC §352.4 for submission of engineering and geoscientific information.

A. **Placement above the uppermost aquifer** (30 TAC §352.601) (40 CFR §257.60). For those CCR units whose base is less than five feet above the upper limit of the uppermost aquifer, please submit a copy of the demonstration showing evidence of compliance with 40 CFR §257.60(a) – (c).

B. **Wetlands** (30 TAC §352.611) (40 CFR §257.61). For CCR units located in wetlands, please submit a copy of the demonstration showing evidence of compliance with 40 CFR §257.61(a) – (c).

C. **Fault areas** (30 TAC §352.621) (40 CFR §257.62). For CCR units located within 200 feet of the outermost damage zone of a fault, please submit a copy of the demonstration showing evidence of compliance with 40 CFR §257.62(a) – (c).

D. **Seismic impact zones** (30 TAC §352.631) (40 CFR §257.63). For CCR units located in a seismic impact zone, please submit a copy of the demonstration showing evidence of compliance with 40 CFR §257.63(a) – (c).

E. **Unstable areas** (30 TAC §352.641) (40 CFR §257.64). For CCR units located in unstable areas, please submit a copy of the demonstration showing evidence of compliance with 40 CFR §257.64(a) – (d).

Location Restrictions Demonstration and Location Restrictions Assessment for the Primary Ash Pond located in APPENDIX B.

23. Geology Summary Report

Submit a summary of the geologic conditions at the facility, including the relation of the geologic condition to each CCR unit. The summary must include enough information and data and include sources and references for the information. Include all groundwater monitoring data required by 40 CFR Part 257, Subpart D, (30 TAC §352.241, §352.601, §352.621, §352.631, and §352.641) and submitted in accordance of 30 TAC §352.4.

Note: Previously prepared documents may be submitted but must be supplemented or updated as necessary to provide the requested information (30 TAC §352.241(b)).

For Geology Summary, please refer to "Groundwater Hydrogeologic Monitoring Plan" reports for the Primary Ash Pond located in APPENDIX E. The Geology and Hydrogeology summary is located in Section 2 of the report.

All groundwater monitoring data summarized in "2020 Annual Groundwater Monitoring and Corrective Action Report" for the Primary Ash Pond located in APPENDIX E

III. Fugitive Dust Control Plan

24. Fugitive Dust Control Plan

A. **Submit a copy of the CCR Fugitive Dust Control Plan** (30 TAC §352.801) (40 CFR §257.80(b)), or the most recently amended plan. The initial plan or subsequent amended plan must be certified by a qualified Texas licensed professional engineer (Texas P.E.) that the plan meets the requirements of 30 TAC Chapter 352.

B. **Submit the most recent Annual CCR Fugitive Dust Control Report** (30 TAC §352.801) (40 CFR §257.80(c)) and include the report information.

CCR Fugitive Dust Control Plan and 2021 Annual CCR Fugitive Dust Control Report are located in APPENDIX C.

IV. Landfill Criteria – N/A

See Instructions and Technical Guidance – No. 30 Coal Combustion Residuals Landfill

25. Landfill(s) for CCR Waste

Provide the following information below if there is a landfill; if there is more than one landfill, separate information is required for each landfill.

A. **Landfill Characteristics**

Describe the design, installation, construction, and operation of the landfill and submit a completed Table IV.A. – Landfill Characteristics.

B. **Liner Design**

1. For existing landfills, provide attachments describing how the facility will comply with 30 TAC 352, Subchapter F (Design Criteria).

2. For new landfills or lateral expansions of existing landfills, submit pages describing how the facility will comply with 30 TAC §352.261 and 30 TAC §352.701.
3. Complete Table IV.B. - Landfill Liner System and specify the type of liner used for the landfill.
4. Provide attachments describing the design, installation, and operation of the liner and leak detection system. The description must demonstrate that the liner and leak detection system will prevent discharge to the land, groundwater, and surface water. Submit a quality assurance project plan (QAPP) to ensure that each analysis is performed appropriately.

C. Leachate Collection and Removal

Submit design information and description of leachate collection and removal system in accordance with 30 TAC §352.701.

Complete Table IV.C. - Landfill Leachate Collection System

D. Design of Liner and Leachate Collection and Removal System.

For a new landfill or lateral expansion of a CCR landfill, provide a qualified Texas P.E. certification and technical report that the design of the liner and the leachate collection and removal system meets the requirements of 30 TAC §352.711.

E. Run-on and Run-off Controls

At time of application, attach pages describing how the facility will comply with the run-on and run-off system plan for an existing, new, or lateral expansion of a CCR landfill information. Provide a qualified Texas P.E. certification and technical report that the run-on and run-off control system plans meet the requirements of 30 TAC §352.811.

F. Inspection for Landfills

At time of application, attach pages describing how the facility will comply 30 TAC §352.841 and complete Table IV.D. – Inspection Schedule for Landfills. For existing CCR landfills, provide the most recent inspection report. All CCR landfills and any lateral expansions of a CCR landfill must be inspected for any structural weakness, malfunction, deterioration conditions which are disrupting or have the potential to disrupt the operation or safety of the CCR unit, or any other conditions which may cause harm to human health and environment at a frequency specified in 40 CFR §257.84(a) and (b).

V. Surface Impoundment Criteria

See Instructions and Technical Guidance – No. 31 Coal Combustion Residuals Surface Impoundment

26. Surface Impoundment(s) for CCR Waste

Provide the following information below if there is a surface impoundment; if there is more than one surface impoundment, separate information is required for each surface impoundment.

A. General Surface Impoundment(s) Characteristics

Provide information about the characteristics of the surface impoundment(s): incised, surface area (acres), storage volume (acres-feet), and depth (feet).

For all surface impoundment(s), include the following information:

1. Complete Table V.A. - Surface Impoundments Characteristics. List the surface impoundment(s) to be registered as a CCR unit(s), the wastes managed in each unit, and the rated capacity or size of each unit.
2. Describe the surface impoundment(s) and provide a plan view drawing with cross-sections, if available.

   See “History of Construction and Initial Hazard Potential Assessment, Structural Integrity Assessment, and Safety Factor Assessment” in APPENDIX D, section 2.3 for a summary description of the impoundment. For drawings, see Figures 2-4 and 2-5A.
3. Specify the minimum freeboard to be maintained and the basis of the design to prevent overtopping resulting from normal or abnormal operation; overfilling; wind and wave action; rainfall; run-on; malfunctions of level controllers, alarms, and other equipment; and human error. Show that adequate freeboard will be available to prevent overtopping from a 100-year, 24-hour storm.

   The “Inflow Design Flood Control System Plan” located in APPENDIX D indicates maximum elevation set at 136.1’ to allow sufficient freeboard for design storm and wave action. See last paragraph of section 2.0.
4. Waste Flow
   Describe the means that will be used to immediately shut off the flow of waste to the impoundment in the event of liner failure or to prevent overtopping.

   All inflows that enter the surface impoundment are pumped into the unit under controlled conditions. There are no gravity or uncontrolled inflows. Pumps will be immediately removed from service to shut off flows to the impoundment.
5. Dike Construction ☒ Yes ☐ No

   If Yes, submit the dike certification (located at the end of the application).

   In October 2016, the initial certified Periodic Hazard Potential Classification Assessment, Periodic Structural Stability Assessment, and Periodic Safety Factor Assessment were completed for the Primary Ash Pond as required by 40 CFR 257.73(a), 257.73(d), and 257.73(e). In October 2021, the certified 5-Year Updates to these assessments were completed as required by 40 CFR 257.73 and 30 TAC 352.731, which identified no structural deficiencies. The most recent 2021 5-Year Assessment Updates are located in APPENDIX E. Based on the conclusion in the certified 5-year updates that no structural deficiencies exist, the facility is submitting these documents in lieu of the Dike Certification.

   The structural integrity of the dike system must be certified by a qualified Texas P.E. before the registration is issued. If the impoundment is not being used, the dike system must be certified before it can be put into use. The certification must be sealed by a qualified Texas P.E., along with the engineering firm’s name and registration number (30 TAC §352.4).

   A report shall accompany the dike certification which summarizes the activities, calculations, and laboratory and field analyses performed in support of the dike certification. Describe the design basis used in construction of the dikes. A QAPP should be included in the report to ensure that each analysis is performed appropriately and include:

   (1) Slope Stability Analysis

   (2) Hydrostatic and Hydrodynamic Analysis

   (3) Storm Loading

   (4) Rapid Drawdown

Earthen dikes should have a protective cover to minimize wind and water erosion and to preserve the structural integrity of the dike. Describe the protective cover used and describe its installation and maintenance procedures.

B. Liner Design

For surface impoundment(s), provide information about how the facility will comply with 30 TAC §352.711 for existing CCR surface impoundments. For new and lateral expansion of CCR surface impoundments provide information on how the facility will comply with 30 TAC §352.261, and 30 TAC §352.721, see Instructions and Technical Guidance No. 31 Coal Combustion Residuals Surface Impoundment. The qualified Texas P.E. must certify that the design of the liner complies with the requirements of 30 TAC Chapter 352 and 40 CFR Part 257, Subpart D, where required.

Is the CCR surface impoundment unlined? ☒ Yes ☐ No

If "Yes", the CCR unit is subject to the closure requirements under 30 TAC Chapter 352 and 40 CFR §257.101(a) to retrofit or close. A notification must be prepared stating that an assessment of corrective measures has been initiated.

On November 30, 2020, Coleto Creek Power, LLC (CCP) submitted a request to the U.S. Environmental Protection Agency (EPA) for approval of a site-specific alternative deadline to initiate closure pursuant to 40 C.F.R. § 257.103(f)(2) for the Primary Ash Pond located at the Coleto Creek Power Plant near Fannin, Texas. CCP is requesting an extension pursuant to 40 C.F.R. § 257.103(f)(2) so that the Primary Ash Pond may continue to receive CCR and non-CCR wastestreams after April 11, 2021, and complete closure no later than October 17, 2028. On January 11, 2022, EPA issued a letter stating the site-specific alternative deadline demonstration was deemed complete thus tolling the cease receipt date until a final decision is issued on the demonstration. The "Coleto Creek CCR Surface Impoundment Demonstration for a Site-Specific Alternative to the Initiation of Closure" report submitted can be found in APPENDIX D.

1. Complete Table V.B. - Surface Impoundment Liner System for each surface impoundment to be registered.
2. Describe the design, installation and operation of liner and leak detection components. The description must demonstrate that the liner and leak detection system will prevent discharge to the land and surface water. Submit a QAPP report to ensure that each analysis is performed appropriately.

   See Section 2 in the "History of Construction and Initial Hazard Potential Assessment, Structural Integrity Assessment, and Safety Factor Assessment" report in APPENDIX D.
3. For new or laterally expansions of existing surface impoundments, provide a subsurface soil investigation report that must include:
   a. A description of all borings drilled, at the unit location, to test soils and characterize groundwater;
   b. A unit map drawn to scale showing the surveyed locations and elevations of the borings, including location of permanent identification markers ((30 TAC §352.731) and (40 CFR §257.73(a)(1));
   c. Cross-sections prepared from the borings depicting the generalized strata at the unit;
   d. Boring logs, including a description of materials encountered, and any discontinuities such as fractures, fissures, slickensides, lenses or seams;

e. A description of the geotechnical data and the geotechnical properties of the subsurface soil materials, including the suitability of the soils and strata for the intended uses; and

f. A demonstration that all geotechnical tests were performed in accordance with industry practices and recognized procedures.

C. Hazard Potential Classification

Provide the current hazard potential classification assessment and associated documentation, as required by 30 TAC §352.731 or §352.741 and 40 CFR §257.73(a)(2) or §257.74(a)(2). The qualified Texas P.E. must certify that the initial hazard potential classification and any subsequent periodic classification was conducted in accordance with the requirements of 30 TAC Chapter 352, where required.

Hazard Potential Classification: **LOW**

See "Hazard Potential Classification Assessment" located in APPENDIX D.

D. Emergency Action Plan for High or Significantly High Hazard Potential

Provide the current Emergency Action Plan that has been certified by a qualified Texas P.E. and includes the following requirements from 30 TAC 352, Subchapter F and 40 CFR §257.73(a)(3)(i)(A) - (E) or 40 CFR §257.74 (a)(3)(i)(A) - (E). The qualified Texas P.E. must certify that the written Emergency Action Plan and any subsequent amendment of the plan complies with the requirements of 30 TAC 352, Subchapter F, where required.

Complete Table V.J. - Inspection of Surface Impoundments

N/A

E. Inflow Design Flood Control System Plan

Describe how the surface impoundment(s) system will manage stormwater run-on away from the surface impoundment(s) (30 TAC §352.821 and 40 CFR §257.82(a) and (c)). Stormwater run-on must be diverted away from a surface impoundment, based on the hazard potential. Where dikes are used to divert run-on, they must be protected from erosion. Include all analyses used to calculate run-on volumes. Provide the inflow design flood control system plan. Provide qualified Texas P.E. certification that the initial and periodic inflow design flood control system plans meet the requirements of 30 TAC §352.821, where required.

See "Inflow Design Flood Control System Plan" located in APPENDIX D.

F. History of Construction for Existing CCR Surface Impoundment(s), or the Design and Construction Plans for New and Lateral Expansions

Provide information on the history of construction for each existing CCR surface impoundment (30 TAC §352.731 and 40 CFR §257.73(c)) or the design and construction plans for new and lateral expansions of each CCR surface impoundment (30 TAC §352.741) and (40 CFR §257.74(c)).

See "History of Construction" report located in APPENDIX D.

G. Structural Stability Assessment

Provide the most recent structural stability assessment of the surface impoundments. Include the combined capacity of all surface impoundment spillways with calculations; the peak discharge the unit must meet for all combined spillways; probable maximum flood-high hazard, 1,000-yr-significant high hazard, 100-yr-low hazard; identify if there were any structural stability deficiencies in last assessment; identify how these deficiencies were managed and corrected; and qualified Texas P.E. certification. The structural stability assessment must include all information required in 30 TAC §352.731 for existing surface impoundments or 30 TAC §352.741 for new or laterally expanding surface impoundments.

See "Structural Stability Assessment" located in APPENDIX D.

H. Safety Factor Assessment

The current safety factor assessment must be submitted with the application. It must include documentation that demonstrates whether the calculated factors of safety for each CCR surface impoundment achieve the minimum safety factors specified in 30 TAC 352, Subchapter F and 40 CFR §257.73(e)(1)(i) - (iv) and 40 CFR §257.74(e)(1)(i) - (iv) for the critical cross-section of the embankment. The critical cross-section is the cross-section anticipated to be the most susceptible to structural failure based on appropriate engineering considerations, including loading conditions. The safety factor assessments must be supported by appropriate engineering calculations and certified by a qualified Texas P.E.

See "Safety Factor Assessment" located in APPENDIX D.

VI. Groundwater Monitoring and Corrective Action (30 TAC 352, Subchapter H)

See Instructions and Technical Guidance – No. 32 Coal Combustion Residuals Groundwater Monitoring and Corrective Action

27. Groundwater Monitoring System

A. Complete Table VI.A. - Unit Groundwater Detection Monitoring System.

B. Provide a map showing location of wells, groundwater elevations, and groundwater flow direction.

See Figures 4 thru 7 in the "Groundwater Hydrogeologic Monitoring Plan" in APPENDIX E.

C. Provide attachments describing how the facility will comply with the requirements in 30 TAC §352.911 and provide a certification by a qualified Texas P.E or qualified Texas P.G. that the groundwater monitoring system design and construction meet the requirements of 30 TAC Chapter 352.

See Appendix A in the "Groundwater Hydrogeologic Monitoring Plan" located in APPENDIX E for the monitoring system certification.

D. Provide a figure showing the geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer, including, but not limited to, thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities.

See Figures 2 and 3 in the “Groundwater Hydrogeologic Monitoring Plan” in APPENDIX E. For additional information see the “Supplemental Geologic and Hydrogeologic Information” report also in APPENDIX E.

E. For a multiunit groundwater monitoring system, demonstrate that the groundwater monitoring system will be equally as capable of detecting monitored constituents at the waste boundary of the CCR unit as the individual groundwater monitoring system for each CCR unit by providing at minimum the following information:

1. Number, spacing, and orientation of each CCR unit;
2. Hydrogeologic setting; and
3. Site history.

F. Has there been any sampling concentrations of one or more constituents listed in Appendix IV detected at statistically significant levels above the groundwater protection standard (GWPS)? ☐ Yes ☒ No

G. Provide information on how monitoring wells have been constructed and cased in a manner that maintains the integrity of the monitoring well borehole and to prevent contamination of samples and the groundwater.

Groundwater monitoring well construction logs are located in Appendix B of the “Groundwater Hydrogeologic Monitoring Plan” found in APPENDIX E.

28. Groundwater Monitoring Sampling and Analysis Program

Provide a sampling and analysis plan that includes procedures and techniques; sampling and analytical methods that are appropriate for groundwater sampling; and that address the requirements of 30 TAC §352.931 and 40 CFR §257.93. Provide a P.E or P.G. certification that describes the statistical method selected to evaluate the groundwater monitoring data and certifies that the selected statistical method is appropriate for evaluating the groundwater monitoring data for the CCR management area. Refer to TG-32 for information and guidance.

See “Groundwater Monitoring Plan”, “Statistical Analysis Plan”, and “Statistical Method Certification” in APPENDIX E.

29. CCR Unit(s) in a Detection Monitoring Program

Does the facility have CCR unit(s) in a Detection Monitoring Program?

☐ Yes ☒ No

If “Yes”, Submit the following information:

A. Submit Table VI.C. – Facility CCR Units Under Detection Monitoring.

B. Provide a Background Evaluation Report.

C. Provide a report with the results of semiannual monitoring events.

1. Has a statistically significant increase (SSI) been detected for one or more of the constituents listed in Appendix III at any monitoring well?

   ☐ Yes ☐ No

2. Has a notification to the executive director been sent within 14 days?

   ☐ Yes ☐ No

3. Date assessment monitoring program will start:

4. Do you plan to provide an alternative source demonstration (ASD)?

   ☐ Yes ☐ No

30. CCR Unit(s) in an Assessment Monitoring Program

Does the facility have CCR unit(s) in an Assessment Monitoring Program?

☒ Yes ☐ No
If "Yes", Submit information related for units.

A. Complete Table VI.D. – CCR Units Under Assessment Monitoring.

B. Provide, for each well in assessment monitoring status, the recorded concentrations lab sheets and results in a tabulated form.

See summary Tables 3 and 4 for all results in tabulated form in the "2020 Annual Groundwater Monitoring and Corrective Action Report" in APPENDIX E.

Have the concentrations of all constituents listed in Appendices III and IV been at or below background values, using the statistical procedures in 30 TAC §352.931 and 40 CFR §257.93(g), for two consecutive sampling events for the CCR unit(s)? ☐ Yes ☒ No

If answer to above is yes, detection monitoring may resume. The owner or operator must prepare a notification stating that detection monitoring is resuming for the CCR unit and obtain written approval from the executive director.

C. Are there any concentrations of any constituent in Appendices III and IV above background values? ☒ Yes ☐ No

1. Has a notification to the executive director been sent within 14 days?

   ☒ Yes ☐ No

D. Date assessment of corrective measures will be initiated (must be within **90 days** of finding a statistically significant level above the GWPS) for the CCR unit(s):
Not required due to no SSLs to date. Unit is in assessment monitoring but has not triggered assessment of corrective measure to date.

E. Will you provide an ASD (see TG-32 for an acceptable submittal)? ☐ Yes ☒ No

F. Date assessment of corrective measures will be initiated if ASD is not accepted?
Not required.

G. Complete Table VI.D-2. - Groundwater Detection Monitoring Parameters

Note: Refer to TG-32 regarding establishing a GWPS for each constituent in Appendix IV detected in the groundwater and attach as table.

H. Have you completed the assessment of corrective measures? ☐ Yes ☒ No
If "Yes", date assessment of corrective measures was completed:
If "No", date assessment of corrective measures will be completed: Not required
Expected date of submittal of amendment (see note below):
Provide completed assessment of corrected measures materials.

Note: Within **30 days** of completing the assessment of corrective measures, and before remedy implementation, the owner or operator shall submit an application for amendment to the registration. In some circumstances, the assessment of corrective measures and selected remedy may be approved as part of the initial application for the CCR unit registration.

I. Have you selected a remedy? ☐ Yes ☐ No N/A

Provide public meeting documentation under 30 TAC §352.961 and a report under 30 TAC §352.971 and 40 CFR §257.97.

VII. Closure and Post-Closure Care

See Instructions and Technical Guidance

Submit a full closure plan and post-closure plan and all information describing how the owner or operator will comply with 30 TAC 352, Subchapter J and 40 CFR §§257.100 - 257.104. The owner of property on which an existing disposal facility is located, following the closure of a unit, must also submit documentation that a notation has been placed in the deed to the facility that will in perpetuity notify any potential purchasers of the property that the land has been used to manage CCR wastes and its use is restricted (30 TAC §352.1221 and 40 CFR §257.102(i)). For CCR units, closed after October 19, 2015, that were closed before submission of the application, the applicant should submit documentation to show that notices required under 30 TAC 352, Subchapter K and 40 CFR §257.105 or §257.106 have been filed.

See “Closure Plan” and “Post-Closure Plan” in APPENDIX F. Also included in the appendix is a “Closure Plan Addendum” that was prepared to meet the requirements of the site-specific alternative deadline to initiate closure.

On January 11, 2022, USEPA provided a determination that the alternative closure demonstration was complete thus tolling the waste receipt deadline for the CCR unit until USEPA issues a final decision. To date, no decision has been issued by USEPA regarding the Coleto Creek request for a site-specific alternative deadline to initiate closure. A copy of the completeness determination letter is located in APPENDIX F.

31. Closure Plan

This section applies to the owners and operators of all CCR units required to be registered. The applicant must close the facility in a manner that minimizes need for further maintenance and controls, or eliminates, to the extent necessary to protect human health and the environment, the post-closure release of CCR waste, chemical constituents of concern, leachate, contaminated rainfall, or waste decomposition products to the groundwater, surface waters, or to the atmosphere.

The type of unit to be closed can determine the level of detail sufficient for a closure plan. CCR units which have been certified closed after October 19, 2015, must provide documentation to demonstrate compliance with state and federal regulations.

For each unit to be registered, complete Table VII.A.1. - Unit Closure and list the CCR Unit components to be decontaminated, possible methods of decontamination, and possible methods of disposal of wastes and waste residues generated during unit closure. All ancillary components must be decontaminated, and the generated waste disposed of appropriately.

Information about CCR units closed or to be closed under alternative closure requirements must be provided in Table VII.A.2. - CCR Units Under Alternative Closure Notification.

Guidance on design of a closure cap and final cover for non-hazardous industrial solid wastes landfills is provided in EPA publication 530-SW-85-014, TCEQ Technical Guidance No. 3 and TCEQ publication, RG-534, “Guidance for Liner Construction and Testing for a Municipal Solid Waste Landfill”.

32. Post-Closure Care Plan

Provide a post-closure care plan that complies with the requirements of 30 TAC §352.1241.

See "Post-Closure Plan" in APPENDIX F.

Post-closure care of each CCR unit must continue for at least 30 years after the date of completing closure of the unit and must consist of monitoring and reporting of the groundwater monitoring systems, in addition to the maintenance and monitoring of CCR unit. Continuation of certain security requirements may be necessary after the date of closure. Post-closure use of property on or in which waste remains after closure must never be allowed to disrupt the integrity of the containment system. In addition, submit the following information:

- The name, address, and phone number of the person or office to contact about the CCR unit during the post-closure period; and

  Luminant-Environmental Services
  Renee Collins-Senior Environmental Director
  6555 Sierra Drive
  Irving, TX 75039
  214-875-8338
  CCRPostClosurePlan@Luminant.com

- A discussion of the future use of the land associated with each unit.

  Following closure of the Primary Ash Pond, a notation on the deed to the property, or some other instrument that is normally examined during title search, will be recorded in accordance with 40 CFR 257.102(i). The notation will notify potential purchasers of the property that the land has been used as a CCR unit and its use is restricted under the post-closure care requirements per 40 CFR 257.104(d)(1)(iii).

Landfills and surface impoundments which have been certified closed after October 19, 2015, must be included in post-closure care plans, unless they have been determined to have been closed by waste removal equivalent to the closure standards in 30 TAC §352.1221 and 40 CFR §257.102 or 30 TAC §352.1231 and 40 CFR §257.103. If such a demonstration has been made pursuant to 40 CFR §257.102 or §257.103, but an equivalency determination has not been made, please submit a copy of the demonstration documentation. If an equivalency determination has been made, applicant should submit a copy of this determination.

VIII. Financial Assurance

33. Post-Closure Care Cost Estimate

Financial assurance for post-closure care (30 TAC §352.1101) applies to owners or operators of all CCR units, except CCR units from which the owner or operator intends to remove wastes and perform clean closure. Provide a written cost estimate in current dollars of the total cost of the 30-year (or longer, if applicable under 30 TAC §352.1101(d)) post-closure care period to perform post-closure care requirements as prescribed in 30 TAC §352.1241. The cost estimate must be based on the costs of hiring a third party to conduct post-closure care maintenance.

Complete Table VIII.A.1 – Post-Closure Cost Summary for Existing Registered Units

See Post-Closure Care Cost Estimate in APPENDIX G. Cost estimates for the Primary Ash Pond are summarized in Table 1.

Complete Table VIII.A.2. - Post-Closure Cost Summary for Proposed Registered Units

34. Financial Assurance Mechanism

The financial assurance for post-closure care is required in accordance with 30 TAC §352.1101. The applicant shall demonstrate the financial assurance within 90 days after approval of the registration with a financial mechanism acceptable to TCEQ in compliance with 30 TAC §352.1101(c) and 30 TAC §37, Subchapters A through D, except as indicated in 30 TAC §352.1111, in an amount no less than the amount specified in the approved Post-Closure Care Cost Summary. Provide a description of the proposed financial assurance mechanism.

Coleto Creek Power LLC will provide an acceptable financial assurance mechanism per 30 TAC 352.1101 no more than 90 days after the executive director's approval of the registration.

Complete Table VIII.B. - Post-Closure Period, for the authorized post-closure period, to meet the requirements of 30 TAC §352.1241(a) through (c).

Signature Page

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Applicant Signature: ______________________________ Date: _____________

Name and Official Title (type or print): _____________________________________

Owner or Operator Signature: _______________________ Date: _____________

Name and Official Title (type or print): _____________________________________

To be completed by the owner or operator if the application is signed by an authorized representative for the operator

I, _________________________ hereby designate _____________________________
(operator) (authorized representative)

as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a CCR waste management registration. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any registration which might be issued based upon this application.

____
Printed or Typed Name of Applicant or Principal Executive Officer

____
Signature

(Note: Application Must Bear Signature & Seal of Notary Public)

Subscribed and sworn to before me by the said _______________________ on this

___________________ day of ________________, _______.

My commission expires on the ___________ day of ______________, _______

(Seal) Notary Public in and for ____________________ County, Texas

Registration Application for Coal Combustion Residuals Waste Management

(See instructions for P.E/P.G. seal requirements.)

Attachments and Tables	**Attachment No.**
General Information	Appendix A
Property/Legal Description	
Property Owner Affidavit	
Legal Authority	
Delegation of Signature Authority	
TCEQ Core Data Form	
Attachments	
Compliance Assessment for Coleto Creek Power Station Primary Ash Pond – 40 CFR 257.52(b)	
Location Restrictions & Geology	Appendix B
Location Restrictions Demonstration	
Location Restrictions Assessment	
Fugitive Dust Control Plan	Appendix C
CCR Fugitive Dust Control Plan	
2021 Annual CCR Fugitive Dust Control Report	
Surface Impoundment Design and Operating Criteria	Appendix D
Alternative Closure Plan Demonstration – §257.103(f)(2)	
Hazard Potential Classification Assessment	
Inflow Design Flood Control Plan	
History of Construction Report	
Structural Stability Assessment	
Safety Factor Assessment	
Groundwater Monitoring and Corrective Action	Appendix E
Groundwater Hydrogeologic Monitoring Plan	
Supplemental Geologic and Hydrogeologic Information	
Groundwater Monitoring Plan-Revision 1	
Statistical Analysis Plan-Revision 1	
2020 Groundwater Monitoring and Corrective Action Report	
2021 Groundwater Monitoring and Corrective Action Report-Revision 1	
Closure and Post-Closure Care	Appendix F
Closure Plan	
Closure Plan Addendum No.1	
Alternative Closure Demonstration Completeness Determination Letter	
Post-Closure Plan	
Financial Assurance	Appendix G
Post-Closure Care Cost Estimate	

Tables

Tables	Submitted	Not Applicable
Table I.6. - CCR Waste Management Units	☒	☐
Table I.6.A. - Waste Management Information	☒	☐
Table I.6.B. - Wastes Managed in Registered Units	☒	☐
Table I.6.C. - Sampling and Analytical Methods	☒	☐
Table IV.A. - Landfill Characteristics	☐	☒
Table IV.B. - Landfill Liner System	☐	☒
Table IV.C. - Landfill Leachate Collection System	☐	☒
Table IV.D. - Inspection Schedule of Landfills	☐	☒
Table V.A. - Surface Impoundments Characteristics	☒	☐
Table V.B. - Surface Impoundment Liner System	☒	☐
Table V.J. - Inspection of Surface Impoundments	☒	☐
Table VI.A. - Unit Groundwater Detection Monitoring System	☐	☐
Table VI.C. - CCR Units Under Detection Monitoring	☐	☒
Table VI.C-1. – Groundwater Detection Monitoring Parameters	☒	☐
Table VI.D. - CCR Units Under Assessment Monitoring	☒	☐
Table VI.D-2. - Groundwater Assessment Monitoring Parameters	☒	☐
Table VII.A.1. - Unit Closure	☒	☐
Table VII.A.2. - CCR Units Under Alternative Closure Notification	☒	☐
Table VIII.A.1. - Post-Closure Cost Summary for Existing Registered Units	☒	☐
Table VIII.A.2. - Post-Closure Cost Summary for Proposed Registered Units	☐	☒
Table VIII.B. - Post-Closure Period	☐	☒
Engineering Certification(s) - Dike Construction	☐	☒

Additional Attachments as Applicable - Select all those apply and add as necessary

☒ TCEQ Core Data Form(s) **Appendix A**
☒ Signatory Authority Delegation **Appendix A**
☐ Fee Payment Receipt
☐ Confidential Documents
☒ Certificate of Fact (Certificate of Incorporation) **Appendix A**
☐ Assumed Name Certificate

Table I.6. – CCR Waste Management Units

CCR Unit No.[1]	Unit Name	N.O.R. No.[1]	Unit Description[3]	Capacity	Unit Status[2]
001	Primary Ash Pond	001	Surface Impoundment	2,700 acre-feet	Active

1 Registered Unit No. and N.O.R. No. cannot be reassigned to new units or used more than once.
2 Unit Status options: Active, Closed, Inactive (built but not managing waste), Proposed (not yet built), Never Built, Transferred, Post-Closure.
3 If a unit has been transferred, the applicant should indicate which facility/permit it has been transferred to in the Unit Description column.

Table I.6.A. – Waste Management Information

Waste No.[1]	Waste Type(s)	Source	Volume (tons/year)
1	Fly Ash	Coal Combustion Byproduct	57,000 produced 425 disposed
2	Bottom Ash	Coal Combustion Byproduct	13,000 produced 400 disposed

[1] Assign waste number sequentially. Do not remove waste number wastes which are no longer generated.

Table I.6.B. – Wastes Managed in Registered Units

Waste No.[1]	Waste	TCEQ Waste Form Codes and Classification Codes
1	Fly Ash	TWC-20173192, TX Form Code-319, Class 2
2	Bottom Ash	TWC-20183192, TX Form Code-319, Class 2

1 from Table I.6.A., first column

Table I.6.C – Sampling and Analytical Methods

Waste No.[1]	Sampling Location	Sampling Method	Frequency	Parameter	Test Method	Desired Accuracy Level
1	Fly Ash	Grab	<5 years	TCLP Metals	SW1311/7470A SW1311/6020B	See below [2]
2	Bottom Ash	Grab	<5 years	TCLP Metals	SW1311/7470A SW1311/6020B	See below [2]

1 from Table I.6.A., first column

2 Analytical protocol will meet EPA quality control and accuracy specifications as published in the SW-846 Methods. The laboratory will be TCEQ accredited.

Table IV.A. – Landfills Characteristics

Registered Unit No.	Landfill	N.O.R. No.	Waste Nos.[1]	Rated Capacity	Dimensions[2]	Distance from lowest liner to groundwater	Action Leakage Rate (if required)	Unit will manage CCR Waste and non-CCR Waste (state all that apply)
N/A								

1 From Table I.6.A., first column
2 Dimensions should be provided as average length, width and depth, also include the surface acreage for the unit.

Registration No.: CCR116
Registrant: Coleto Creek Power Station

Table IV.B. – Landfill Liner System

Registered Unit No.*	Landfill	Geomembrane Liner Material	Geomembrane Liner Permeability (cm/sec)	Geomembrane Liner Thickness	Soil Liner Material	Soil Liner Permeability (cm/sec)	Soil Liner Thickness
N/A							

* This number should match the Registration Unit No. given on Table IV.A.

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Registrant: Coleto Creek Power Station

Table IV.C. – Landfill Leachate Collection System

Registered Unit No.	Landfill Name	Drainage Media	Collection Pipes (including risers)	Filter Fabric	Geofabric	Sump Material
N/A						

Table IV.D. – Inspection Schedule of Landfills

Facility Unit(s) and Basic Elements	Possible Error, Malfunction, or Deterioration	Frequency of Inspection
N/A		

Table V.A. – Surface Impoundment Characteristics

Registered Unit No.	Surface Impoundment Name	N.O.R. No.	Waste Nos.[1]	Rated Capacity	Dimensions[2]	Distance from lowest liner to groundwater	Action Leakage Rate (if required)	Unit will manage CCR Waste and non-CCR Waste (state all that apply)
001	Primary Ash Pond	001	1, 2	2,700 acre-feet	2,450 feet W x 3,375 feet L x 20 feet D 190 acres	>5 Feet	n/a	Fly Ash, Bottom Ash

1 From Table I.6.A., first column
2 Dimensions should be provided as average length, width and depth, also include the surface acreage for the unit.

Table V.B. – Surface Impoundment Liner System

Registered Unit No.*	Surface Impoundment Name	Geomembrane Liner Material	Geomembrane Liner Permeability (cm/sec)	Geomembrane Liner Thickness	Soil Liner Material	Soil Liner Permeability (cm/sec)	Soil Liner Thickness
001	Primary Ash Pond	None	None	None	In-situ clay	$<1.0 \times 10^{-7}$ cm/sec	Avg 9 feet, ranges 4 feet to 20 feet

* This number should match the Registration Unit No. given on Table V.A.

Table V.J. – Inspection Schedule of Surface Impoundments

Facility Unit(s) and Basic Elements	Possible Error, Malfunction, or Deterioration	Frequency of Inspection
001-Primary Ash Pond		Weekly inspections are performed at intervals not exceeding seven days per 40 CFR 257.83(a)
Above-grade piping	Deteriorating of piping/connections	Weekly inspections are performed at intervals not exceeding seven days per 40 CFR 257.83(a)
Truck Access Ramp	Spills, Deterioration	Weekly inspections are performed at intervals not exceeding seven days per 40 CFR 257.83(a), spills inspected and reported within 24-hrs
Containment Dike	Spills, excessive water levels, surface cracking, animal burrows, misalignments, slides, vegetative cover, rutting, erosion, seepage, slope protection/chutes	Weekly inspections are performed at intervals not exceeding seven days per 40 CFR 257.83(a), spills inspected and reported within 24-hrs
Instrumentation	Monitor water level	Unit instrumentation (water level gauge) is inspected and monitored at intervals not exceeding 30 days per 40 CFR 257.83(a)(1)(iii).
Groundwater	Deterioration of pads, bollards, missing locks, compromise of casing integrity	Semi-Annual Inspection
001-Primary Ash Pond		Annually per 40 CFR 257.83(b)
	Inspect for any changes in geometry of the structure since the previous annual inspection.	Annual Inspection
	Evaluate the approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since previous annual inspection.	Annual Inspection
	Evaluate the storage capacity at the time of the inspection.	Annual Inspection
	Estimate the approximate volume of the impounded water and CCR contained in the unit at the time of the inspection.	Annual Inspection
	Inspect for any other change(s) which have affected the stability or operation of the CCR unit since the previous inspection	Annual Inspection

Table VI.A. - Unit Groundwater Detection Monitoring Systems

Waste Management Unit/Area Name[1]	**WMU 001 - Primary Ash Pond**								
Well Number(s):	MW-4	MW-5	MW-6	MW-8	MW-9	MW-10	MW-11	BV-5	BV-21
Hydrogeologic Unit Monitored	Houston Group	Houston Group	Houston Group	Houston Group	Houston Group	Houston Group	Houston Group	Houston Group	Houston Group
Type (e.g., point of compliance, background, observation, etc.)	POC	POC	POC	POC	POC	POC	POC	POC	POC
Up or Down Gradient	Down	Down	Down	Up	Down	Down	Down	B?	Up
Casing Diameter and Material	4" PVC	4" PVC	4" PVC	4" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC
Screen Diameter and Material	4" PVC	4" PVC	4" PVC	4" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC
Screen Slot Size (in.)	0.016"	0.016"	0.016"	0.016"	0.010"	0.010"	0.010"	0.010"	0.010"
Top of Casing Elevation (Ft, Mean Sea Level *[MSL]*)	137.71	122.31	119.22	134.72	132.3	130.4	118.66	135.8	131.17
Grade or Surface Elevation (Ft, MSL)	134.3	119.57	116.35	131.78	129.3	127.6	115.8	133	128.4
Well Depth (Ft, Below Grade Surface *[BGS]*)	70.1	59.27	61.15	56.88	60	60	49	40	40
Well Depth (Ft, Below Top of Casing *[BTOC]*)	73.51	62.01	64.02	59.82	63	62.8	51.86	42.8	42.77
Screen Interval									
From (Ft, BGS)	50.5	39.47	41.25	36.98	40	40	29	30	30
To (Ft, BGS)	70.1	59.27	61.15	56.88	60	60	49	40	40
Screen Interval									
From (Ft, BTOC)	53.91	42.21	44.12	39.92	43	42.8	31.86	32.8	32.77
To (Ft, BTOC)	73.51	62.01	64.02	59.82	63	62.8	51.86	42.8	42.77

1 From Tables in Section I.; *MSL* : Mean Sea Level; *BGS* : Below Grade Surface; *BTOC* : Below Top of Casing

NOTE-Data from Table 3 from Groundwater Hydrogeologic Monitoring Plan 10/17/2017

Registration No.: CCR116
Registrant: Coleto Creek Power Station

Table VI.C. – CCR Units Under Detection Monitoring

N.O.R. Unit No.	Unit Description[1,2]	Well(s)	Constituent(s)	Date of SSI Determination	Date of Assessment Monitoring Notification[3]
N/A					

1 Indicates a unit for which a 30 TAC Chapter 352/40 CFR Part 257, Subpart D alternative closure determination has been requested pursuant to 40 CFR §257.103.

2 Indicates a unit for which a 30 TAC Chapter 352/40 CFR Part 257, Subpart D alternative closure determination has been made pursuant to 40 CFR §257.103.

3 Enter month, day, and year.

Table VI.C-1. – Groundwater Detection Monitoring Parameters

Parameter	Sampling Frequency	Analytical Method	Practical Quantification Limit (units)	Concentration Limit[1]
Boron	Semi-Annual	SW6020A	0.0100 mg/L	1.26
Calcium	Semi-Annual	SW6020A	0.10 mg/L	143
Chloride	Semi-Annual	E300	0.30 mg/L	118
Fluoride	Semi-Annual	E300	0.100 mg/L	0.61
Sulfate	Semi-Annual	E300	1.00 mg/L	148
Total Dissolved Solids	Semi-Annual	M2540C	10.0 mg/L	766
pH	Semi-Annual	Field Measured	s.u.	6.51 7.33

[1] The concentration limit is the basis for determining whether a release has occurred from the CCR unit/area.

Registration No.: CCR116
Registrant: Coleto Creek Power Station

Table VI.D. – CCR Units Under Assessment Monitoring

N.O.R. Unit No.	Unit Description[1,2]	Well(s)	Constituent(s)	Date of SSI Determination	Date of Assessment Monitoring Notification[3]
001	Primary Ash Pond	MW-6, MW-9, MW-10	B	2/12/2018	Notification made 5/9/18
001	Primary Ash Pond	MW-4, MW-5, MW-6, MW-9, MW-10, MW-11	Cl, F, SO4, pH	2/12/2018	ASD Successful for all constituents except Boron (4/11/18)

1 Indicates a unit for which a 30 TAC Chapter 352/40 CFR Part 257, Subpart D alternative closure determination has been requested pursuant to 40 CFR §257.103.
2 Indicates a unit for which a 30 TAC Chapter 352/40 CFR Part 257, Subpart D alternative closure determination has been made pursuant to 40 CFR §257.103.
3 Enter month, day, and year

Table VI.D-2. – Groundwater Assessment Monitoring Parameters

Parameter	Sampling Frequency	Analytical Method	Practical Quantification Limit (units)	Concentration Limit[1]
Antimony	Semi-Annual	SW6020B	0.000800 mg/L	0.006 mg/L
Arsenic	Semi-Annual	SW6020B	0.00200 mg/L	0.128 mg/L
Barium	Semi-Annual	SW6020B	0.00300 mg/L	2.0 mg/L
Beryllium	Semi-Annual	SW6020B	0.000300 mg/L	0.004 mg/L
Cadmium	Semi-Annual	SW6020B	0.000300 mg/L	0.005 mg/L
Chromium	Semi-Annual	SW6020B	0.00200 mg/L	0.10 mg/L
Cobalt	Semi-Annual	SW6020B	0.00300 mg/L	0.499 mg/L
Fluoride	Semi-Annual	SW6020B	0.100 mg/L	4.0 mg/L
Lead	Semi-Annual	SW6020B	0.000300 mg/L	0.015 mg/L
Lithium	Semi-Annual	SW6020B	0.00500 mg/L	0.04 mg/L
Mercury	Semi-Annual	SW7470A	0.0000800 mg/L	0.002 mg/L
Molybdenum	Semi-Annual	SW6020B	0.00200 mg/L	0.10 mg/L
Selenium	Semi-Annual	SW6020B	0.00200 mg/L	0.05 mg/L
Thallium	Semi-Annual	SW6020B	0.000500 mg/L	0.002 mg/L
Radium 226+228	Semi-Annual	904 + SM7500Ra B M	varies	5.0 pCi/L

1 The concentration limit is the basis for determining whether a release has occurred from the CCR unit/area.

Table VII.A.1. – Unit Closure

For each unit to be registered, list the unit components to be decontaminated, the possible methods of decontamination, and the possible methods of disposal of wastes and waste residues generated during unit closure.

Equipment or CCR Unit	Possible Methods of Decontamination[1]	Possible Methods of Disposal[1]
001-Primary Ash Pond Piping	Removal	Landfill
001-Primary Ash Pond	Close in Place	No Disposal

1 Applicants may list more than one appropriate method.

Table VII.A.2. – CCR Units Under Alternative Closure Notification

Registered Unit No.	N.O.R. Unit No.	Unit Description[1,2]	Date of Receipt of Last Waste[3]	Date of Closure Notification[3]
001	001	Surface Impoundment	7/17/2027	11/30/2020

1 Indicates a unit for which a 30 TAC Chapter 352/40 CFR Part 257, Subpart D alternative closure determination has been requested pursuant to 40 CFR §257.103.

2 Indicates a unit for which a 30 TAC Chapter 352/40 CFR Part 257, Subpart D alternative closure determination has been made pursuant to 40 CFR §257.103.

3 Enter month, day, and year.

Table VIII.A.1. – Post-Closure Cost Summary for Existing Registered Units

Unit	Cost
001-Primary Ash Pond	$3,117,987
Total Existing Unit Post-Closure Cost Estimate	$3,117,987 (in 2021 Dollars)[1]

Table VIII.A.2. - Post-Closure Cost Summary for Proposed Registered Units

Unit	Cost

[1] As units are added or deleted from these tables through future registration amendments, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.

Table VIII.B. – Post-Closure Period

Unit Name	Date Certified Closed	Authorized Post-Closure Period (Yrs.)	Earliest Date Post-Closure Ends (See Note 1)
[Unit Example 1]	**[1/1/1995]**	30 years	**[1/1/2025]**
[Unit Example 2]	**[1/1/1990]**	30 years	**[1/1/2020]**
[Unit Example 3]	**[1/1/1984]**	30 years	**[1/1/2014]**

Note 1 – Post-Closure Care shall continue beyond the specified date until the Executive Director has approved the applicant's request to reduce or terminate the post-closure period, consistent with 30 TAC §352.1241 – Post-Closure Care Requirements.

N/A

Texas Commission on Environmental Quality

Registration Application for Coal Combustion Residuals (CCR) Waste Management

I. General Information

1. Reason for Submittal

Type of Registration Application

☐ New ☐ Major Amendment ☐ Minor Amendment

☒ Notice of Deficiency (NOD) Response ☐ Transfer ☐ Name Change

☐ Other

2. Application Fees

☒ $150 Application Fee

Payment Method

☐ Check ☒ Online through ePay portal <www3.tceq.texas.gov/epay/>

If paid online, enter ePay Trace Number: 582EA000467502

3. Facility Information

Facility information must match regulated entity information on the Core Data Form.

Applicant: ☐ Owner ☐ Operator ☒ Owner/Operator

Facility TCEQ Solid Waste Registration No: 31911

Facility EPA ID: TXD000836999

Regulated Entity Reference No. (if issued): RN100226919

Facility Name: COLETO CREEK POWER STATION

Facility (Area Code) Telephone Number: 361-788-5100

Facility physical street address (city, state, zip code, county): 45 FM 2987, FANNIN, TX, 77960, GOLIAD

Facility mailing address (city, state, zip code, county): 6555 Sierra Drive, Irving, TX 75039

Latitude (Degrees, Minutes Seconds): 28° 42’ 49”

Longitude (Degrees, Minutes Seconds): 97° 12’ 50”

4. Publicly Accessible Website

Provide the URL address of a publicly accessible website where the owner or operator of a CCR unit will post information.
https://www.luminant.com/ccr/

5. Facility Landowner(s) Information

Facility landowner(s) name: COLETO CREEK POWER, LLC

Facility landowner mailing address: 6555 Sierra Drive

City: Irving State: TX Zip Code: 75039

(Area Code) Telephone Number: 214-875-8338

Email Address (optional):

6. CCR Waste Management Unit(s)

☐ Landfill Unit(s) ☒ Surface Impoundment(s)

For each existing landfill, new landfill and lateral expansion, existing surface impoundment, and new surface impoundment and lateral expansion(s) provide information on type of waste, the registered unit(s) in which they are managed, and sampling and analytical methods.

Submit the following tables:

Table I.6. – CCR Waste Management Units;

Table I.6.A. – Waste Management Information;

Table I.6.B. – Waste Managed in Registered Units; and

Table I.6.C. – Sampling and Analytical Methods.

7. Description of Proposed Activities or Changes to Existing Facility

Provide a brief description of the proposed activities if application is for a new facility, or the proposed changes to an existing facility or registration conditions, if the application is for an amendment.

Coleto Creek Power, LLC operates the Coleto Creek Power Station located at 45 FM 2987 near the city of Fannin in Goliad County, Texas. The boiler uses coal as the primary fuel and fuel oil as a backup fuel to generate electricity. There are two streams of coal combustion residuals (CCR) generated at this plant. Bottom ash is collected from the boiler, combined with water, and transferred in slurry form for disposal in the facility’s surface impoundment, referred to as Primary Ash Pond (PAP). Fly ash is collected from the boiler exhaust and transported pneumatically to two storage silos. From there, the fly ash is loaded into enclosed dry haul hoppers for off-site beneficial use. Off-spec fly ash is currently combined with water and pumped to the facility’s surface impoundment for disposal. Limited amounts of bottom ash in the surface impoundment is recovered for beneficial reuse via excavation, screening, and placement in covered dump trucks for transport off site.

8. Primary Contact Information

Contact Name: Renee Collins Title: Sr. Director Environmental Services

Contact mailing address: 6555 Sierra Drive
City: Irving County: Dallas State: TX Zip Code: 75039
(Area Code) Telephone Number: 214-875-8338

Email Address (optional):

9. Notice Publishing

Party responsible for publishing notice:
☒ Applicant ☐ Consultant ☐ Agent in Service

Contact Name: Renee Collins Title: Sr. Director, Environmental Services

Contact mailing address: 6555 Sierra Drive
City: Irving County: Dallas State: TX Zip Code: 75039
(Area Code) Telephone Number: 214-875-8338

10. Alternative Language Notice

Is an alternative language notice required for this application? For determination, refer to Alternative Language Checklist on the Public Notice Verification Form (TCEQ-20244-Waste-NORI).

☐ Yes ☒ No

11. Public Place Location of Application

Name of the Public Place: **Goliad Public Library**
Physical Address: **320 S. Commercial St**
City: **Goliad** County: **Goliad** State: **TX** Zip Code: **77963**
(Area code) Telephone Number: **361-645-2291**

12. Ownership Status of the Facility

☐ Corporation ☐ Limited Partnership

☐ Sole Proprietorship ☐ General Partnership ☒ Other (specify): Limited Liability Company

Does the Site Owner (Permittee/Registrant) own all the CCR units and all the facility property?

☒ Yes ☐ No

13. Property / Legal Description Information

Provide a legal description and supporting documents of the property where the management of CCR waste will occur; including a survey plat and a boundary metes and bounds description (30 TAC §352.231(g)).

Submit the following documents:

a. Property Legal Description
b. Property Metes and Bounds Description
c. Metes and Bounds Drawings
d. On-Site Easements Drawings

See APPENDIX A for Property/Legal Description Information and Property Owner Affidavit.

14. Operator Information

Identify the entity who will conduct facility operations, if the owner and operator are not the same.

Operator Name:

Operator mailing address:

City: State: Zip Code:

(Area Code) Telephone Number:

Email Address (optional):

15. Confidential Documents

Does the application contain confidential documents?

☐ Yes ☒ No

If "Yes", cross-reference the confidential documents throughout the application and submit as a separate attachment in a binder clearly marked "CONFIDENTIAL."

16. Permits and Construction Approvals

Permit or Approval	Received	Pending	Not Applicable
Hazardous Waste Management Program under the Texas Solid Waste Disposal Act	☒	☐	☐
Underground Injection Control Program under the Texas Injection Well Act	☐	☐	☒
National Pollutant Discharge Elimination System Program under the Clean Water Act and Waste Discharge Program under Texas Water Code, Chapter 26	☒	☐	☐
Prevention of Significant Deterioration Program under the Federal Clean Air Act (FCAA).	☒	☐	☐
National Emission Standards for Hazardous Air Pollutants Preconstruction Approval under the FCAA	☐	☐	☒
Other (describe):	☐	☐	☐

Other (describe):	☐	☐	☐
Other (describe)	☐	☐	☐

17. Legal Authority

The owner and operator of the facility shall submit verification of their legal status with the application. This shall be a one-page certificate of incorporation issued by the secretary of state. The owner or operator shall list all persons having over a 20% ownership in the facility.

See APPENDIX A for Certificate of Authority.

18. TCEQ Core Data Form

The TCEQ requires that a Core Data Form (TCEQ-10400) be submitted on all incoming applications, unless a Regulated Entity and Customer Reference Number has been issued by the TCEQ and no core data information has changed. For more information regarding the Core Data Form, call (512) 239-5175 or visit the TCEQ Website.

See APPENDIX A for TCEQ Core Data Form.

19. Other Governmental Entities Information

Coastal Management Program

Is the facility within the Coastal Management Program boundary?

☐ Yes ☒ No

Local Government Jurisdiction (If Applicable)
Within City Limits of: N/A
Within Extraterritorial Jurisdiction of: N/A

Is the facility located in an area in which the governing body of the municipality or county has prohibited the storage, processing or disposal of municipal or industrial solid waste?

☐ Yes ☒ No If "Yes", provide a copy of the ordinance or order as an attachment.

20. Attachments

Does the application include the following?

General Maps	☒ Yes	☐ No
General Topographic Map	☒ Yes	☐ No
Facility Layout Map	☒ Yes	☐ No
Surrounding Features Map	☒ Yes	☐ No
Process Flow Diagram	☒ Yes	☐ No
Land Ownership Map	☒ Yes	☐ No
Land Ownership List	☒ Yes	☐ No
Pre-printed Mailing Labels	☒ Yes	☐ No

Maps and drawings shall be legible and easily readable by eye without magnification. Scales and paper size shall be chosen based on the type of map submitted, the land area covered, and the amount of detail to be shown. See instructions for details regarding maps and drawings to be submitted in application.

See APPENDIX A for Attachments detailed in Item 20.

21. Verification of Compliance

Does the owner and operator verify that the design, construction, and operation of CCR landfill(s) and surface impoundment(s) meets the requirements of 30 TAC §352.231(f) (30 TAC §352.2; 40 CFR §257.52, and 40 CFR §§257.3-1 – 257.3-3).

☒ Yes ☐ No

As requested by TCEQ, please see "Compliance Assessment for Coleto Creek Power Station Primary Ash Pond – 40 CFR 257.52(b)" memorandum for Primary Ash Pond provided by BBA in APPENDIX A.

II. Location Restrictions and Geology

See Instructions and Technical Guidance

22. Location Restrictions

Submit certifications and technical reports demonstrating compliance of CCR unit(s) with applicable location restrictions (30 TAC 352, Subchapter E) and comply with 30 TAC §352.231(d) and 30 TAC §352.4 for submission of engineering and geoscientific information.

A. **Placement above the uppermost aquifer** (30 TAC §352.601) (40 CFR §257.60). For those CCR units whose base is less than five feet above the upper limit of the uppermost aquifer, please submit a copy of the demonstration showing evidence of compliance with 40 CFR §257.60(a) – (c).

B. **Wetlands** (30 TAC §352.611) (40 CFR §257.61). For CCR units located in wetlands, please submit a copy of the demonstration showing evidence of compliance with 40 CFR §257.61(a) – (c).

C. **Fault areas** (30 TAC §352.621) (40 CFR §257.62). For CCR units located within 200 feet of the outermost damage zone of a fault, please submit a copy of the demonstration showing evidence of compliance with 40 CFR §257.62(a) – (c).

D. **Seismic impact zones** (30 TAC §352.631) (40 CFR §257.63). For CCR units located in a seismic impact zone, please submit a copy of the demonstration showing evidence of compliance with 40 CFR §257.63(a) – (c).

E. **Unstable areas** (30 TAC §352.641) (40 CFR §257.64). For CCR units located in unstable areas, please submit a copy of the demonstration showing evidence of compliance with 40 CFR §257.64(a) – (d).

Location Restrictions Demonstration and Location Restrictions Assessment for the Primary Ash Pond located in APPENDIX B.

23. Geology Summary Report

Submit a summary of the geologic conditions at the facility, including the relation of the geologic condition to each CCR unit. The summary must include enough information and data and include sources and references for the information. Include all groundwater monitoring data required by 40 CFR Part 257, Subpart D, (30 TAC §352.241, §352.601, §352.621, §352.631, and §352.641) and submitted in accordance of 30 TAC §352.4.

Note: Previously prepared documents may be submitted but must be supplemented or updated as necessary to provide the requested information (30 TAC §352.241(b)).

For Geology Summary, please refer to "Groundwater Hydrogeologic Monitoring Plan" reports for the Primary Ash Pond located in APPENDIX E. The Geology and Hydrogeology summary is located in Section 2 of the report.

All groundwater monitoring data summarized in "2020 Annual Groundwater Monitoring and Corrective Action Report" for the Primary Ash Pond located in APPENDIX E

III. Fugitive Dust Control Plan

24. Fugitive Dust Control Plan

A. **Submit a copy of the CCR Fugitive Dust Control Plan** (30 TAC §352.801) (40 CFR §257.80(b)), or the most recently amended plan. The initial plan or subsequent amended plan must be certified by a qualified Texas licensed professional engineer (Texas P.E.) that the plan meets the requirements of 30 TAC Chapter 352.

B. **Submit the most recent Annual CCR Fugitive Dust Control Report** (30 TAC §352.801) (40 CFR §257.80(c)) and include the report information.

CCR Fugitive Dust Control Plan and 2021 Annual CCR Fugitive Dust Control Report are located in APPENDIX C.

IV. Landfill Criteria – N/A

See Instructions and Technical Guidance – No. 30 Coal Combustion Residuals Landfill

25. Landfill(s) for CCR Waste

Provide the following information below if there is a landfill; if there is more than one landfill, separate information is required for each landfill.

A. **Landfill Characteristics**

Describe the design, installation, construction, and operation of the landfill and submit a completed Table IV.A. – Landfill Characteristics.

B. **Liner Design**

1. For existing landfills, provide attachments describing how the facility will comply with 30 TAC 352, Subchapter F (Design Criteria).

2. For new landfills or lateral expansions of existing landfills, submit pages describing how the facility will comply with 30 TAC §352.261 and 30 TAC §352.701.
3. Complete Table IV.B. - Landfill Liner System and specify the type of liner used for the landfill.
4. Provide attachments describing the design, installation, and operation of the liner and leak detection system. The description must demonstrate that the liner and leak detection system will prevent discharge to the land, groundwater, and surface water. Submit a quality assurance project plan (QAPP) to ensure that each analysis is performed appropriately.

C. Leachate Collection and Removal

Submit design information and description of leachate collection and removal system in accordance with 30 TAC §352.701.

Complete Table IV.C. - Landfill Leachate Collection System

D. Design of Liner and Leachate Collection and Removal System.

For a new landfill or lateral expansion of a CCR landfill, provide a qualified Texas P.E. certification and technical report that the design of the liner and the leachate collection and removal system meets the requirements of 30 TAC §352.711.

E. Run-on and Run-off Controls

At time of application, attach pages describing how the facility will comply with the run-on and run-off system plan for an existing, new, or lateral expansion of a CCR landfill information. Provide a qualified Texas P.E. certification and technical report that the run-on and run-off control system plans meet the requirements of 30 TAC §352.811.

F. Inspection for Landfills

At time of application, attach pages describing how the facility will comply 30 TAC §352.841 and complete Table IV.D. – Inspection Schedule for Landfills. For existing CCR landfills, provide the most recent inspection report. All CCR landfills and any lateral expansions of a CCR landfill must be inspected for any structural weakness, malfunction, deterioration conditions which are disrupting or have the potential to disrupt the operation or safety of the CCR unit, or any other conditions which may cause harm to human health and environment at a frequency specified in 40 CFR §257.84(a) and (b).

V. Surface Impoundment Criteria

See Instructions and Technical Guidance – No. 31 Coal Combustion Residuals Surface Impoundment

26. Surface Impoundment(s) for CCR Waste

Provide the following information below if there is a surface impoundment; if there is more than one surface impoundment, separate information is required for each surface impoundment.

A. General Surface Impoundment(s) Characteristics

Provide information about the characteristics of the surface impoundment(s): incised, surface area (acres), storage volume (acres-feet), and depth (feet).

For all surface impoundment(s), include the following information:

1. Complete Table V.A. - Surface Impoundments Characteristics. List the surface impoundment(s) to be registered as a CCR unit(s), the wastes managed in each unit, and the rated capacity or size of each unit.
2. Describe the surface impoundment(s) and provide a plan view drawing with cross-sections, if available.

   See "History of Construction and Initial Hazard Potential Assessment, Structural Integrity Assessment, and Safety Factor Assessment" in APPENDIX D, section 2.3 for a summary description of the impoundment. For drawings, see Figures 2-4 and 2-5A.
3. Specify the minimum freeboard to be maintained and the basis of the design to prevent overtopping resulting from normal or abnormal operation; overfilling; wind and wave action; rainfall; run-on; malfunctions of level controllers, alarms, and other equipment; and human error. Show that adequate freeboard will be available to prevent overtopping from a 100-year, 24-hour storm.

   The "Inflow Design Flood Control System Plan" located in APPENDIX D indicates maximum elevation set at 136.1' to allow sufficient freeboard for design storm and wave action. See last paragraph of section 2.0.
4. Waste Flow
   Describe the means that will be used to immediately shut off the flow of waste to the impoundment in the event of liner failure or to prevent overtopping.

   All inflows that enter the surface impoundment are pumped into the unit under controlled conditions. There are no gravity or uncontrolled inflows. Pumps will be immediately removed from service to shut off flows to the impoundment.
5. Dike Construction ☒ Yes ☐ No

   ~~N/A-Section not required per TCEQ due to Structural Stability Assessment requirement.~~

   If Yes, submit the dike certification (located at the end of the application).

   In October 2016, the initial certified Periodic Hazard Potential Classification Assessment, Periodic Structural Stability Assessment, and Periodic Safety Factor Assessment were completed for the Primary Ash Pond as required by 40 CFR 257.73(a), 257.73(d), and 257.73(e). In October 2021, the certified 5-Year Updates to these assessments were completed as required by 40 CFR 257.73 and 30 TAC 352.731, which identified no structural deficiencies. The most recent 2021 5-Year Assessment Updates are located in APPENDIX E. Based on the conclusion in the certified 5-year updates that no structural deficiencies exist, the facility is submitting these documents in lieu of the Dike Certification.

   The structural integrity of the dike system must be certified by a qualified Texas P.E. before the registration is issued. If the impoundment is not being used, the dike system must be certified before it can be put into use. The certification must be sealed by a qualified Texas P.E., along with the engineering firm's name and registration number (30 TAC §352.4).

   A report shall accompany the dike certification which summarizes the activities, calculations, and laboratory and field analyses performed in support of the dike certification. Describe the design basis used in construction of the dikes. A QAPP should be included in the report to ensure that each analysis is performed appropriately and include:

   (1) Slope Stability Analysis

   (2) Hydrostatic and Hydrodynamic Analysis

(3) Storm Loading

(4) Rapid Drawdown

Earthen dikes should have a protective cover to minimize wind and water erosion and to preserve the structural integrity of the dike. Describe the protective cover used and describe its installation and maintenance procedures.

B. Liner Design

For surface impoundment(s), provide information about how the facility will comply with 30 TAC §352.711 for existing CCR surface impoundments. For new and lateral expansion of CCR surface impoundments provide information on how the facility will comply with 30 TAC §352.261, and 30 TAC §352.721, see Instructions and Technical Guidance No. 31 Coal Combustion Residuals Surface Impoundment. The qualified Texas P.E. must certify that the design of the liner complies with the requirements of 30 TAC Chapter 352 and 40 CFR Part 257, Subpart D, where required.

Is the CCR surface impoundment unlined? ☒ Yes ☐ No

If "Yes", the CCR unit is subject to the closure requirements under 30 TAC Chapter 352 and 40 CFR §257.101(a) to retrofit or close. A notification must be prepared stating that an assessment of corrective measures has been initiated.

On November 30, 2020, Coleto Creek Power, LLC (CCP) submitted a request to the U.S. Environmental Protection Agency (EPA) for approval of a site-specific alternative deadline to initiate closure pursuant to 40 C.F.R. § 257.103(f)(2) for the Primary Ash Pond located at the Coleto Creek Power Plant near Fannin, Texas. CCP is requesting an extension pursuant to 40 C.F.R. § 257.103(f)(2) so that the Primary Ash Pond may continue to receive CCR and non-CCR wastestreams after April 11, 2021, and complete closure no later than October 17, 2028. On January 11, 2022, EPA issued a letter stating the site-specific alternative deadline demonstration was deemed complete thus tolling the cease receipt date until a final decision is issued on the demonstration. The "Coleto Creek CCR Surface Impoundment Demonstration for a Site-Specific Alternative to the Initiation of Closure" report submitted can be found in APPENDIX D.

1. Complete Table V.B. - Surface Impoundment Liner System for each surface impoundment to be registered.
2. Describe the design, installation and operation of liner and leak detection components. The description must demonstrate that the liner and leak detection system will prevent discharge to the land and surface water. Submit a QAPP report to ensure that each analysis is performed appropriately.

   See Section 2 in the "History of Construction and Initial Hazard Potential Assessment, Structural Integrity Assessment, and Safety Factor Assessment" report in APPENDIX D.

3. For new or laterally expansions of existing surface impoundments, provide a subsurface soil investigation report that must include:
   a. A description of all borings drilled, at the unit location, to test soils and characterize groundwater;
   b. A unit map drawn to scale showing the surveyed locations and elevations of the borings, including location of permanent identification markers ((30 TAC §352.731) and (40 CFR §257.73(a)(1));

c. Cross-sections prepared from the borings depicting the generalized strata at the unit;

d. Boring logs, including a description of materials encountered, and any discontinuities such as fractures, fissures, slickensides, lenses or seams;

e. A description of the geotechnical data and the geotechnical properties of the subsurface soil materials, including the suitability of the soils and strata for the intended uses; and

f. A demonstration that all geotechnical tests were performed in accordance with industry practices and recognized procedures.

C. Hazard Potential Classification

Provide the current hazard potential classification assessment and associated documentation, as required by 30 TAC §352.731 or §352.741 and 40 CFR §257.73(a)(2) or §257.74(a)(2). The qualified Texas P.E. must certify that the initial hazard potential classification and any subsequent periodic classification was conducted in accordance with the requirements of 30 TAC Chapter 352, where required.

Hazard Potential Classification: **LOW**

See "Hazard Potential Classification Assessment" located in APPENDIX D.

D. Emergency Action Plan for High or Significantly High Hazard Potential

Provide the current Emergency Action Plan that has been certified by a qualified Texas P.E. and includes the following requirements from 30 TAC 352, Subchapter F and 40 CFR §257.73(a)(3)(i)(A) - (E) or 40 CFR §257.74 (a)(3)(i)(A) - (E). The qualified Texas P.E. must certify that the written Emergency Action Plan and any subsequent amendment of the plan complies with the requirements of 30 TAC 352, Subchapter F, where required.

Complete Table V.J. - Inspection of Surface Impoundments

N/A

E. Inflow Design Flood Control System Plan

Describe how the surface impoundment(s) system will manage stormwater run-on away from the surface impoundment(s) (30 TAC §352.821 and 40 CFR §257.82(a) and (c)). Stormwater run-on must be diverted away from a surface impoundment, based on the hazard potential. Where dikes are used to divert run-on, they must be protected from erosion. Include all analyses used to calculate run-on volumes. Provide the inflow design flood control system plan. Provide qualified Texas P.E. certification that the initial and periodic inflow design flood control system plans meet the requirements of 30 TAC §352.821, where required.

See "Inflow Design Flood Control System Plan" located in APPENDIX D.

F. History of Construction for Existing CCR Surface Impoundment(s), or the Design and Construction Plans for New and Lateral Expansions

Provide information on the history of construction for each existing CCR surface impoundment (30 TAC §352.731 and 40 CFR §257.73(c)) or the design and construction plans for new and lateral expansions of each CCR surface impoundment (30 TAC §352.741) and (40 CFR §257.74(c)).

See "History of Construction" report located in APPENDIX D.

G. Structural Stability Assessment

Provide the most recent structural stability assessment of the surface impoundments. Include the combined capacity of all surface impoundment spillways with calculations; the peak discharge the unit must meet for all combined spillways; probable maximum flood-high hazard, 1,000-yr-significant high hazard, 100-yr-low hazard; identify if there were any structural stability deficiencies in last assessment; identify how these deficiencies were managed and corrected; and qualified Texas P.E. certification. The structural stability assessment must include all information required in 30 TAC §352.731 for existing surface impoundments or 30 TAC §352.741 for new or laterally expanding surface impoundments.

See “Structural Stability Assessment” located in APPENDIX D.

H. Safety Factor Assessment

The current safety factor assessment must be submitted with the application. It must include documentation that demonstrates whether the calculated factors of safety for each CCR surface impoundment achieve the minimum safety factors specified in 30 TAC 352, Subchapter F and 40 CFR §257.73(e)(1)(i) - (iv) and 40 CFR §257.74(e)(1)(i) - (iv) for the critical cross-section of the embankment. The critical cross-section is the cross-section anticipated to be the most susceptible to structural failure based on appropriate engineering considerations, including loading conditions. The safety factor assessments must be supported by appropriate engineering calculations and certified by a qualified Texas P.E.

See “Safety Factor Assessment” located in APPENDIX D.

VI. Groundwater Monitoring and Corrective Action (30 TAC 352, Subchapter H)

See Instructions and Technical Guidance – No. 32 Coal Combustion Residuals Groundwater Monitoring and Corrective Action

27. Groundwater Monitoring System

A. Complete Table VI.A. - Unit Groundwater Detection Monitoring System.

B. Provide a map showing location of wells, groundwater elevations, and groundwater flow direction.

See Figures 4 thru 7 in the “Groundwater Hydrogeologic Monitoring Plan” in APPENDIX E.

C. Provide attachments describing how the facility will comply with the requirements in 30 TAC §352.911 and provide a certification by a qualified Texas P.E or qualified Texas P.G. that the groundwater monitoring system design and construction meet the requirements of 30 TAC Chapter 352.

See Appendix A in the “Groundwater Hydrogeologic Monitoring Plan” located in APPENDIX E for the monitoring system certification.

D. Provide a figure showing the geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer, including, but not limited to, thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities.

See Figures 2 and 3 in the "Groundwater Hydrogeologic Monitoring Plan" in APPENDIX E. For additional information see the "Supplemental Geologic and Hydrogeologic Information" report also in APPENDIX E.

E. For a multiunit groundwater monitoring system, demonstrate that the groundwater monitoring system will be equally as capable of detecting monitored constituents at the waste boundary of the CCR unit as the individual groundwater monitoring system for each CCR unit by providing at minimum the following information:

1. Number, spacing, and orientation of each CCR unit;
2. Hydrogeologic setting; and
3. Site history.

F. Has there been any sampling concentrations of one or more constituents listed in Appendix IV detected at statistically significant levels above the groundwater protection standard (GWPS)? ☐ Yes ☒ No

G. Provide information on how monitoring wells have been constructed and cased in a manner that maintains the integrity of the monitoring well borehole and to prevent contamination of samples and the groundwater.

Groundwater monitoring well construction logs are located in Appendix B of the "Groundwater Hydrogeologic Monitoring Plan" found in APPENDIX E.

28. Groundwater Monitoring Sampling and Analysis Program

Provide a sampling and analysis plan that includes procedures and techniques; sampling and analytical methods that are appropriate for groundwater sampling; and that address the requirements of 30 TAC §352.931 and 40 CFR §257.93. Provide a P.E or P.G. certification that describes the statistical method selected to evaluate the groundwater monitoring data and certifies that the selected statistical method is appropriate for evaluating the groundwater monitoring data for the CCR management area. Refer to TG-32 for information and guidance.

See "Groundwater Monitoring Plan", "Statistical Analysis Plan", and "Statistical Method Certification" in APPENDIX E.

29. CCR Unit(s) in a Detection Monitoring Program

Does the facility have CCR unit(s) in a Detection Monitoring Program?

☐ Yes ☒ No

If "Yes", Submit the following information:

A. Submit Table VI.C. – Facility CCR Units Under Detection Monitoring.

B. Provide a Background Evaluation Report.

C. Provide a report with the results of semiannual monitoring events.

1. Has a statistically significant increase (SSI) been detected for one or more of the constituents listed in Appendix III at any monitoring well?

   ☐ Yes ☐ No

2. Has a notification to the executive director been sent within 14 days?

   ☐ Yes ☐ No

3. Date assessment monitoring program will start:

4. Do you plan to provide an alternative source demonstration (ASD)?

   ☐ Yes ☐ No

30. CCR Unit(s) in an Assessment Monitoring Program

Does the facility have CCR unit(s) in an Assessment Monitoring Program?

☒ Yes ☐ No
If "Yes", Submit information related for units.

A. Complete Table VI.D. – CCR Units Under Assessment Monitoring.

B. Provide, for each well in assessment monitoring status, the recorded concentrations lab sheets and results in a tabulated form.

See summary Tables 3 and 4 for all results in tabulated form in the "2020 Annual Groundwater Monitoring and Corrective Action Report" in APPENDIX E.

Have the concentrations of all constituents listed in Appendices III and IV been at or below background values, using the statistical procedures in 30 TAC §352.931 and 40 CFR §257.93(g), for two consecutive sampling events for the CCR unit(s)? ☐ Yes ☒ No

If answer to above is yes, detection monitoring may resume. The owner or operator must prepare a notification stating that detection monitoring is resuming for the CCR unit and obtain written approval from the executive director.

C. Are there any concentrations of any constituent in Appendices III and IV above background values? ☒ Yes ☐ No

1. Has a notification to the executive director been sent within 14 days?

   ☒ Yes ☐ No

D. Date assessment of corrective measures will be initiated (must be within **90 days** of finding a statistically significant level above the GWPS) for the CCR unit(s):
Not required due to no SSLs to date. Unit is in assessment monitoring but has not triggered assessment of corrective measure to date.

E. Will you provide an ASD (see TG-32 for an acceptable submittal)? ☐ Yes ☒ No

F. Date assessment of corrective measures will be initiated if ASD is not accepted?
Not required.

G. Complete Table VI.D-2. - Groundwater Detection Monitoring Parameters

Note: Refer to TG-32 regarding establishing a GWPS for each constituent in Appendix IV detected in the groundwater and attach as table.

H. Have you completed the assessment of corrective measures? ☐ Yes ☒ No
If "Yes", date assessment of corrective measures was completed:
If "No", date assessment of corrective measures will be completed: Not required
Expected date of submittal of amendment (see note below):
Provide completed assessment of corrected measures materials.

Note: Within **30 days** of completing the assessment of corrective measures, and before remedy implementation, the owner or operator shall submit an application for amendment to the registration. In some circumstances, the assessment of corrective measures and selected remedy may be approved as part of the initial application for the CCR unit registration.

I. Have you selected a remedy? ☐ Yes ☐ No N/A

Provide public meeting documentation under 30 TAC §352.961 and a report under 30 TAC §352.971 and 40 CFR §257.97.

VII. Closure and Post-Closure Care

See Instructions and Technical Guidance

Submit a full closure plan and post-closure plan and all information describing how the owner or operator will comply with 30 TAC 352, Subchapter J and 40 CFR §§257.100 - 257.104. The owner of property on which an existing disposal facility is located, following the closure of a unit, must also submit documentation that a notation has been placed in the deed to the facility that will in perpetuity notify any potential purchasers of the property that the land has been used to manage CCR wastes and its use is restricted (30 TAC §352.1221 and 40 CFR §257.102(i)). For CCR units, closed after October 19, 2015, that were closed before submission of the application, the applicant should submit documentation to show that notices required under 30 TAC 352, Subchapter K and 40 CFR §257.105 or §257.106 have been filed.

See "Closure Plan" and "Post-Closure Plan" in APPENDIX F. Also included in the appendix is a "Closure Plan Addendum" that was prepared to meet the requirements of the site-specific alternative deadline to initiate closure.

On January 11, 2022, USEPA provided a determination that the alternative closure demonstration was complete thus tolling the waste receipt deadline for the CCR unit until USEPA issues a final decision. To date, no decision has been issued by USEPA regarding the Coleto Creek request for a site-specific alternative deadline to initiate closure. A copy of the completeness determination letter is located in APPENDIX F.

31. Closure Plan

This section applies to the owners and operators of all CCR units required to be registered. The applicant must close the facility in a manner that minimizes need for further maintenance and controls, or eliminates, to the extent necessary to protect human health and the environment, the post-closure release of CCR waste, chemical constituents of concern, leachate, contaminated rainfall, or waste decomposition products to the groundwater, surface waters, or to the atmosphere.

The type of unit to be closed can determine the level of detail sufficient for a closure plan. CCR units which have been certified closed after October 19, 2015, must provide documentation to demonstrate compliance with state and federal regulations.

For each unit to be registered, complete Table VII.A.1. - Unit Closure and list the CCR Unit components to be decontaminated, possible methods of decontamination, and possible methods of disposal of wastes and waste residues generated during unit closure. All ancillary components must be decontaminated, and the generated waste disposed of appropriately.

Information about CCR units closed or to be closed under alternative closure requirements must be provided in Table VII.A.2. - CCR Units Under Alternative Closure Notification.

Guidance on design of a closure cap and final cover for non-hazardous industrial solid wastes landfills is provided in EPA publication 530-SW-85-014, TCEQ Technical Guidance No. 3 and TCEQ publication, RG-534, "Guidance for Liner Construction and Testing for a Municipal Solid Waste Landfill".

32. Post-Closure Care Plan

Provide a post-closure care plan that complies with the requirements of 30 TAC §352.1241.

See "Post-Closure Plan" in APPENDIX F.

Post-closure care of each CCR unit must continue for at least 30 years after the date of completing closure of the unit and must consist of monitoring and reporting of the groundwater monitoring systems, in addition to the maintenance and monitoring of CCR unit. Continuation of certain security requirements may be necessary after the date of closure. Post-closure use of property on or in which waste remains after closure must never be allowed to disrupt the integrity of the containment system. In addition, submit the following information:

- The name, address, and phone number of the person or office to contact about the CCR unit during the post-closure period; and

  Luminant-Environmental Services
  Renee Collins-Senior Environmental Director
  6555 Sierra Drive
  Irving, TX 75039
  214-875-8338
  CCRPostClosurePlan@Luminant.com

- A discussion of the future use of the land associated with each unit.

  Following closure of the Primary Ash Pond, a notation on the deed to the property, or some other instrument that is normally examined during title search, will be recorded in accordance with 40 CFR 257.102(i). The notation will notify potential purchasers of the property that the land has been used as a CCR unit and its use is restricted under the post-closure care requirements per 40 CFR 257.104(d)(1)(iii).

Landfills and surface impoundments which have been certified closed after October 19, 2015, must be included in post-closure care plans, unless they have been determined to have been closed by waste removal equivalent to the closure standards in 30 TAC §352.1221 and 40 CFR §257.102 or 30 TAC §352.1231 and 40 CFR §257.103. If such a demonstration has been made pursuant to 40 CFR §257.102 or §257.103, but an equivalency determination has not been made, please submit a copy of the demonstration documentation. If an equivalency determination has been made, applicant should submit a copy of this determination.

VIII. Financial Assurance

33. Post-Closure Care Cost Estimate

Financial assurance for post-closure care (30 TAC §352.1101) applies to owners or operators of all CCR units, except CCR units from which the owner or operator intends to remove wastes and perform clean closure. Provide a written cost estimate in current dollars of the total cost of the 30-year (or longer, if applicable under 30 TAC §352.1101(d)) post-closure care period to perform post-closure care requirements as prescribed in 30 TAC §352.1241. The cost estimate must be based on the costs of hiring a third party to conduct post-closure care maintenance.

Complete Table VIII.A.1 – Post-Closure Cost Summary for Existing Registered Units

See Post-Closure Care Cost Estimate ~~Memo from Golder~~ in APPENDIX G. ~~Coleto Creek Power Station cost estimates are summarized in Table 7.~~Cost estimates for the Primary Ash Pond are summarized in Table 1.

Complete Table VIII.A.2. - Post-Closure Cost Summary for Proposed Registered Units

34. Financial Assurance Mechanism

The financial assurance for post-closure care is required in accordance with 30 TAC §352.1101. The applicant shall demonstrate the financial assurance within 90 days after approval of the registration with a financial mechanism acceptable to TCEQ in compliance with 30 TAC §352.1101(c) and 30 TAC §37, Subchapters A through D, except as indicated in 30 TAC §352.1111, in an amount no less than the amount specified in the approved Post-Closure Care Cost Summary. Provide a description of the proposed financial assurance mechanism.

Coleto Creek Power LLC will provide an acceptable financial assurance mechanism per 30 TAC 352.1101 no more than 90 days after the executive director's approval of the registration. Vistra Corporation currently uses AEGIS Insurance Services Endorsement No. 60 (TCEQ ~~Endorsement for Closure, Post-Closure or Corrective Action) as an approved financial assurance mechanism at other Vistra owned facilities. Applicant intends to add post-~~closure ~~coverage amounts detailed in Table VIII.A.1. to current policy.~~

Complete Table VIII.B. - Post-Closure Period, for the authorized post-closure period, to meet the requirements of 30 TAC §352.1241(a) through (c).

Signature Page

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Applicant Signature: ______________________________ Date: _____________

Name and Official Title (type or print): _____________________________________

Owner or Operator Signature: ________________________ Date: _____________

Name and Official Title (type or print): _____________________________________

To be completed by the owner or operator if the application is signed by an authorized representative for the operator

I, _________________________ hereby designate _____________________________
(operator) (authorized representative)

as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a CCR waste management registration. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any registration which might be issued based upon this application.

____
Printed or Typed Name of Applicant or Principal Executive Officer

____
Signature

(Note: Application Must Bear Signature & Seal of Notary Public)

Subscribed and sworn to before me by the said ________________________ on this

____________________ day of _________________, ________.

My commission expires on the ____________ day of ______________, ________

(Seal) Notary Public in and for ____________________ County, Texas

Registration Application for Coal Combustion Residuals Waste Management

(See instructions for P.E/P.G. seal requirements.)

Attachments and Tables	**Attachment No.**
General Information	Appendix A
Property/Legal Description	
Property Owner Affidavit	
Legal Authority	
Delegation of Signature Authority	
TCEQ Core Data Form	
Attachments	
Compliance Assessment for Coleto Creek Power Station Primary Ash Pond – 40 CFR 257.52(b)	
Location Restrictions & Geology	Appendix B
Location Restrictions Demonstration	
Location Restrictions Assessment	
Fugitive Dust Control Plan	Appendix C
CCR Fugitive Dust Control Plan	
2021 Annual CCR Fugitive Dust Control Report	
Surface Impoundment Design and Operating Criteria	Appendix D
Alternative Closure Plan Demonstration – §257.103(f)(2)	
Hazard Potential Classification Assessment	
Inflow Design Flood Control Plan	
History of Construction Report	
Structural Stability Assessment	
Safety Factor Assessment	
Groundwater Monitoring and Corrective Action	Appendix E
Groundwater Hydrogeologic Monitoring Plan	
Supplemental Geologic and Hydrogeologic Information	
Groundwater Monitoring Plan-Revision 1	
Statistical Analysis Plan-Revision 1	
~~Statistical Method Certification~~	
2020 Groundwater Monitoring and Corrective Action Report	
2021 Groundwater Monitoring and Corrective Action Report-Revision 1	
Closure and Post-Closure Care	Appendix F
Closure Plan	
Closure Plan Addendum No.1	
Alternative Closure Demonstration Completeness Determination Letter	
Post-Closure Plan	
Financial Assurance	Appendix G
Post-Closure Care Cost Estimate ~~Memo~~	

Tables

Tables	Submitted	Not Applicable
Table I.6. - CCR Waste Management Units	☒	☐
Table I.6.A. - Waste Management Information	☒	☐
Table I.6.B. - Wastes Managed in Registered Units	☒	☐
Table I.6.C. - Sampling and Analytical Methods	☒	☐
Table IV.A. - Landfill Characteristics	☐	☒
Table IV.B. - Landfill Liner System	☐	☒
Table IV.C. - Landfill Leachate Collection System	☐	☒
Table IV.D. - Inspection Schedule of Landfills	☐	☒
Table V.A. - Surface Impoundments Characteristics	☒	☐
Table V.B. - Surface Impoundment Liner System	☒	☐
Table V.J. - Inspection of Surface Impoundments	☒	☐
Table VI.A. - Unit Groundwater Detection Monitoring System	☐	☐
Table VI.C. - CCR Units Under Detection Monitoring	☐	☒
Table VI.C-1. – Groundwater Detection Monitoring Parameters	☒	☐
Table VI.D. - CCR Units Under Assessment Monitoring	☒	☐
Table VI.D-2. - Groundwater ~~Detection~~ Assessment Monitoring Parameters	☒	☐
Table VII.A.1. - Unit Closure	☒	☐
Table VII.A.2. - CCR Units Under Alternative Closure Notification	☒	☐
Table VIII.A.1. - Post-Closure Cost Summary for Existing Registered Units	☒	☐
Table VIII.A.2. - Post-Closure Cost Summary for Proposed Registered Units	☐	☒
Table VIII.B. - Post-Closure Period	☐	☒
Engineering Certification(s) - Dike Construction	☐	☒

Additional Attachments as Applicable - Select all those apply and add as necessary

☒ TCEQ Core Data Form(s) **Appendix A**
☒ Signatory Authority Delegation **Appendix A**
☐ Fee Payment Receipt
☐ Confidential Documents
☒ Certificate of Fact (Certificate of Incorporation) **Appendix A**

☐ Assumed Name Certificate

Table I.6. – CCR Waste Management Units

CCR Unit No.[1]	Unit Name	N.O.R. No.[1]	Unit Description[3]	Capacity	Unit Status[2]
001	Primary Ash Pond	001	Surface Impoundment	2,700 acre-feet	Active

1 Registered Unit No. and N.O.R. No. cannot be reassigned to new units or used more than once.
2 Unit Status options: Active, Closed, Inactive (built but not managing waste), Proposed (not yet built), Never Built, Transferred, Post-Closure.
3 If a unit has been transferred, the applicant should indicate which facility/permit it has been transferred to in the Unit Description column.

Table I.6.A. – Waste Management Information

Waste No.[1]	Waste Type(s)	Source	Volume (tons/year)
1	Fly Ash	Coal Combustion Byproduct	57,000 produced 425 disposed
2	Bottom Ash	Coal Combustion Byproduct	13,000 produced 400 disposed

[1] Assign waste number sequentially. Do not remove waste number wastes which are no longer generated.

Table I.6.B. – Wastes Managed in Registered Units

Waste No.[1]	Waste	TCEQ Waste Form Codes and Classification Codes
1	Fly Ash	TWC-20173192, TX Form Code-319, Class 2
2	Bottom Ash	TWC-20183192, TX Form Code-319, Class 2

1 from Table I.6.A., first column

Table I.6.C – Sampling and Analytical Methods

Waste No.[1]	Sampling Location	Sampling Method	Frequency	Parameter	Test Method	Desired Accuracy Level
1	Fly Ash	Grab	<5 years	TCLP Metals	SW1311/7470A SW1311/6020B	See below [2]
2	Bottom Ash	Grab	<5 years	TCLP Metals	SW1311/7470A SW1311/6020B	See below [2]

1 from Table I.6.A., first column

2 Analytical protocol will meet EPA quality control and accuracy specifications as published in the SW-846 Methods. The laboratory will be TCEQ accredited.

Table IV.A. – Landfills Characteristics

Registered Unit No.	Landfill	N.O.R. No.	Waste Nos.[1]	Rated Capacity	Dimensions[2]	Distance from lowest liner to groundwater	Action Leakage Rate (if required)	Unit will manage CCR Waste and non-CCR Waste (state all that apply)
N/A								

1 From Table I.6.A., first column

2 Dimensions should be provided as average length, width and depth, also include the surface acreage for the unit.

Registration No.: CCR116
Registrant: Coleto Creek Power Station

Table IV.B. – Landfill Liner System

Registered Unit No.*	Landfill	Geomembrane Liner Material	Geomembrane Liner Permeability (cm/sec)	Geomembrane Liner Thickness	Soil Liner Material	Soil Liner Permeability (cm/sec)	Soil Liner Thickness
N/A							

* This number should match the Registration Unit No. given on Table IV.A.

Registration No.: CCR116
Registrant: Coleto Creek Power Station

Table IV.C. – Landfill Leachate Collection System

Registered Unit No.	Landfill Name	Drainage Media	Collection Pipes (including risers)	Filter Fabric	Geofabric	Sump Material
N/A						

Table IV.D. – Inspection Schedule of Landfills

Facility Unit(s) and Basic Elements	Possible Error, Malfunction, or Deterioration	Frequency of Inspection
N/A		

Registration No.: CCR116
Registrant: Coleto Creek Power Station

Table V.A. – Surface Impoundment Characteristics

Registered Unit No.	Surface Impoundment Name	N.O.R. No.	Waste Nos.[1]	Rated Capacity	Dimensions[2]	Distance from lowest liner to groundwater	Action Leakage Rate (if required)	Unit will manage CCR Waste and non-CCR Waste (state all that apply)
001	Primary Ash Pond	001	1, 2	2,700 acre-feet	2,450 feet W x 3,375 feet L x 20 feet D 190 acres	>5 Feet	n/a	Fly Ash, Bottom Ash

1 From Table I.6.A., first column
2 Dimensions should be provided as average length, width and depth, also include the surface acreage for the unit.

Table V.B. – Surface Impoundment Liner System

Registered Unit No.*	Surface Impoundment Name	Geomembrane Liner Material	Geomembrane Liner Permeability (cm/sec)	Geomembrane Liner Thickness	Soil Liner Material	Soil Liner Permeability (cm/sec)	Soil Liner Thickness
001	Primary Ash Pond	None	None	None	In-situ clay	<1.0 x 10^{-7} cm/sec	Avg ~~9'~~9 feet, ranges ~~4'-20'~~4 feet to 20 feet

* This number should match the Registration Unit No. given on Table V.A.

Table V.J. – Inspection Schedule of Surface Impoundments

~~Facility Unit(s) and Basic Elements~~	~~Possible Error, Malfunction, or Deterioration~~	~~Frequency of Inspection~~
~~010-Ash Landfill 1~~	~~Inspect for any appearances of actual or potential structural weakness and other conditions which are disrupting of have the potential to disrupt the operation and safety of the CCR unit~~	~~Weekly Inspection per 40 CFR 257.84(a)~~
~~Embankments~~	~~Surface cracking, animal burrows, misalignments, slides, vegetative cover, rutting, erosion, seepage, slope protection/chutes~~	~~Weekly Inspection~~
~~Capped Areas~~	~~Animal burrows, vegetative cover, rutting, surface cracking~~	~~Weekly Inspection~~
~~Active Work Area~~	~~Contact water, dusting~~	~~Weekly Inspection~~
~~Groundwater Monitoring Wells~~	~~Deterioration of pads, bollards, missing locks, compromise of casing integrity~~	~~Semi-Annual Inspection~~
~~010-Ash Landfill 1~~		~~Annually per 40 CFR 257.84(b)~~
	~~Inspect for any changed in geometry of the structure since the previous annual inspection.~~	~~Annual Inspection~~
	~~Estimate the approximate volume of CCR contained in the unit at the time of the inspection.~~	~~Annual Inspection~~
	~~Inspect for any appearance of actual or potential structural weakness of the CCR unit, and any conditions that are disrupting or have the potential to disrupt the operation and safety of the unit.~~	~~Annual Inspection~~
	~~Inspect for any other change(s) which have affected the stability or operation of the CCR unit since the previous inspection~~	~~Annual Inspection~~

Table V.J. – Inspection Schedule of Surface Impoundments

Facility Unit(s) and Basic Elements	Possible Error, Malfunction, or Deterioration	Frequency of Inspection
001-Primary Ash Pond		Weekly inspections are performed at intervals not exceeding seven days per 40 CFR 257.83(a)
Above-grade piping	Deteriorating of piping/connections	Weekly inspections are performed at intervals not exceeding seven days per 40 CFR 257.83(a)
Truck Access Ramp	Spills, Deterioration	Weekly inspections are performed at intervals not exceeding seven days per 40 CFR 257.83(a), spills inspected and reported within 24-hrs
Containment Dike	Spills, excessive water levels, surface cracking, animal burrows, misalignments, slides, vegetative cover, rutting, erosion, seepage, slope protection/chutes	Weekly inspections are performed at intervals not exceeding seven days per 40 CFR 257.83(a), spills inspected and reported within 24-hrs
Instrumentation	Monitor water level	Unit instrumentation (water level gauge) is inspected and monitored at intervals not exceeding 30 days per 40 CFR 257.83(a)(1)(iii).
Groundwater	Deterioration of pads, bollards, missing locks, compromise of casing integrity	Semi-Annual Inspection
001-Primary Ash Pond		Annually per 40 CFR 257.83(b)
	Inspect for any changes in geometry of the structure since the previous annual inspection.	Annual Inspection
	Evaluate the approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since previous annual inspection.	Annual Inspection
	Evaluate the storage capacity at the time of the inspection.	Annual Inspection
	Estimate the approximate volume of the impounded water and CCR contained in the unit at the time of the inspection.	Annual Inspection
	Inspect for any other change(s) which have affected the stability or operation of the CCR unit since the previous inspection	Annual Inspection

Table VI.A. - Unit Groundwater Detection Monitoring Systems

Waste Management Unit/Area Name[1]	**WMU 001 - Primary Ash Pond**								
Well Number(s):	MW-4	MW-5	MW-6	MW-8	MW-9	MW-10	MW-11	BV-5	BV-21
Hydrogeologic Unit Monitored	Houston Group	Houston Group	Houston Group	Houston Group	Houston Group	Houston Group	Houston Group	Houston Group	Houston Group
Type (e.g., point of compliance, background, observation, etc.)	POC	POC	POC	POC	POC	POC	POC	POC	POC
Up or Down Gradient	Down	Down	Down	Up	Down	Down	Down	B?	Up
Casing Diameter and Material	4" PVC	4" PVC	4" PVC	4" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC
Screen Diameter and Material	4" PVC	4" PVC	4" PVC	4" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC
Screen Slot Size (in.)	0.016"	0.016"	0.016"	0.016"	0.010"	0.010"	0.010"	0.010"	0.010"
Top of Casing Elevation (Ft, Mean Sea Level *[MSL]*)	137.71	122.31	119.22	134.72	132.3	130.4	118.66	135.8	131.17
Grade or Surface Elevation (Ft, MSL)	134.3	119.57	116.35	131.78	129.3	127.6	115.8	133	128.4
Well Depth (Ft, Below Grade Surface *[BGS]*)	70.1	59.27	61.15	56.88	60	60	49	40	40
Well Depth (Ft, Below Top of Casing *[BTOC]*)	73.51	62.01	64.02	59.82	63	62.8	51.86	42.8	42.77
Screen Interval									
From (Ft, BGS)	50.5	39.47	41.25	36.98	40	40	29	30	30
To (Ft, BGS)	70.1	59.27	61.15	56.88	60	60	49	40	40
Screen Interval									
From (Ft, BTOC)	53.91	42.21	44.12	39.92	43	42.8	31.86	32.8	32.77
To (Ft, BTOC)	73.51	62.01	64.02	59.82	63	62.8	51.86	42.8	42.77

1 From Tables in Section I.; *MSL* : Mean Sea Level; *BGS* : Below Grade Surface; *BTOC* : Below Top of Casing

NOTE-Data from Table 3 from Groundwater Hydrogeologic Monitoring Plan 10/17/2017

Registration No.: CCR116
Registrant: Coleto Creek Power Station

Table VI.C. – CCR Units Under Detection Monitoring

N.O.R. Unit No.	Unit Description[1,2]	Well(s)	Constituent(s)	Date of SSI Determination	Date of Assessment Monitoring Notification[3]
N/A					

1 Indicates a unit for which a 30 TAC Chapter 352/40 CFR Part 257, Subpart D alternative closure determination has been requested pursuant to 40 CFR §257.103.

2 Indicates a unit for which a 30 TAC Chapter 352/40 CFR Part 257, Subpart D alternative closure determination has been made pursuant to 40 CFR §257.103.

3 Enter month, day, and year.

Table VI.C-1. – Groundwater Detection Monitoring Parameters

Parameter	Sampling Frequency	Analytical Method	Practical Quantification Limit (units)	Concentration Limit[1]
Boron	Semi-Annual	SW6020A	0.0100 mg/L	1.26
Calcium	Semi-Annual	SW6020A	0.10 mg/L	143
Chloride	Semi-Annual	E300	0.30 mg/L	118
Fluoride	Semi-Annual	E300	0.100 mg/L	0.61
Sulfate	Semi-Annual	E300	1.00 mg/L	148
Total Dissolved Solids	Semi-Annual	M2540C	10.0 mg/L	766
pH	Semi-Annual	Field Measured	s.u.	6.51 7.33

[1] The concentration limit is the basis for determining whether a release has occurred from the CCR unit/area.

Table VI.D. – CCR Units Under Assessment Monitoring

N.O.R. Unit No.	Unit Description[1,2]	Well(s)	Constituent(s)	Date of SSI Determination	Date of Assessment Monitoring Notification[3]
001	Primary Ash Pond	MW-6, MW-9, MW-10	B	2/12/2018	Notification made 5/9/18
001	Primary Ash Pond	MW-4, MW-5, MW-6, MW-9, MW-10, MW-11	Cl, F, SO4, pH	2/12/2018	ASD Successful for all constituents except Boron (4/11/18)

1 Indicates a unit for which a 30 TAC Chapter 352/40 CFR Part 257, Subpart D alternative closure determination has been requested pursuant to 40 CFR §257.103.
2 Indicates a unit for which a 30 TAC Chapter 352/40 CFR Part 257, Subpart D alternative closure determination has been made pursuant to 40 CFR §257.103.
3 Enter month, day, and year

Table VI.D-2. – Groundwater ~~Detection~~ Assessment Monitoring Parameters

Parameter	Sampling Frequency	Analytical Method	Practical Quantification Limit (units)	Concentration Limit[1]
~~Boron~~	~~Semi-Annual~~	~~SW6020A~~	~~0.03 mg/L~~	~~1.26~~
~~Calcium~~	~~Semi-Annual~~	~~SW6020A~~	~~3.0 mg/L~~	~~143~~
~~Chloride~~	~~Semi-Annual~~	~~E300~~	~~1.0 mg/L~~	~~118~~
~~Fluoride~~	~~Semi-Annual~~	~~E300~~	~~0.4 mg/L~~	~~0.61~~
~~Sulfate~~	~~Semi-Annual~~	~~E300~~	~~3.0 mg/L~~	~~148~~
~~Total Dissolved Solids~~	~~Semi-Annual~~	~~M2540C~~	~~10.0 mg/L~~	~~766~~
~~pH~~	~~Semi-Annual~~	~~Field Measured~~	~~s.u.~~	~~6.51~~ ~~7.33~~
Antimony	Semi-Annual	SW6020B	0.000800 mg/L	0.006 mg/L
Arsenic	Semi-Annual	SW6020B	0.00200 mg/L	0.128 mg/L
Barium	Semi-Annual	SW6020B	0.00300 mg/L	2.0 mg/L
Beryllium	Semi-Annual	SW6020B	0.000300 mg/L	0.004 mg/L
Cadmium	Semi-Annual	SW6020B	0.000300 mg/L	0.005 mg/L
Chromium	Semi-Annual	SW6020B	0.00200 mg/L	0.10 mg/L
Cobalt	Semi-Annual	SW6020B	0.00300 mg/L	0.499 mg/L
Fluoride	Semi-Annual	SW6020B	0.100 mg/L	4.0 mg/L
Lead	Semi-Annual	SW6020B	0.000300 mg/L	0.015 mg/L
Lithium	Semi-Annual	SW6020B	0.00500 mg/L	0.04 mg/L
Mercury	Semi-Annual	SW7470A	0.0000800 mg/L	0.002 mg/L
Molybdenum	Semi-Annual	SW6020B	0.00200 mg/L	0.10 mg/L
Selenium	Semi-Annual	SW6020B	0.00200 mg/L	0.05 mg/L
Thallium	Semi-Annual	SW6020B	0.000500 mg/L	0.002 mg/L
Radium 226+228	Semi-Annual	904 + SM7500Ra B M	varies	5.0 pCi/L

1 The concentration limit is the basis for determining whether a release has occurred from the CCR unit/area.

Table VII.A.1. – Unit Closure

For each unit to be registered, list the unit components to be decontaminated, the possible methods of decontamination, and the possible methods of disposal of wastes and waste residues generated during unit closure.

Equipment or CCR Unit	Possible Methods of Decontamination[1]	Possible Methods of Disposal[1]
001-Primary Ash Pond Piping	Removal	Landfill
001-Primary Ash Pond	Close in Place	No Disposal

1 Applicants may list more than one appropriate method.

Table VII.A.2. – CCR Units Under Alternative Closure Notification

Registered Unit No.	N.O.R. Unit No.	Unit Description[1,2]	Date of Receipt of Last Waste[3]	Date of Closure Notification[3]
001	001	Surface Impoundment	7/17/2027	11/30/2020

1 Indicates a unit for which a 30 TAC Chapter 352/40 CFR Part 257, Subpart D alternative closure determination has been requested pursuant to 40 CFR §257.103.

2 Indicates a unit for which a 30 TAC Chapter 352/40 CFR Part 257, Subpart D alternative closure determination has been made pursuant to 40 CFR §257.103.

3 Enter month, day, and year.

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Table VIII.A.1. – Post-Closure Cost Summary for Existing Registered Units

Unit	Cost
001-Primary Ash Pond	$3,117,987
Total Existing Unit Post-Closure Cost Estimate	$3,117,987 (in 2021 Dollars)[1]

Table VIII.A.2. - Post-Closure Cost Summary for Proposed Registered Units

Unit	Cost

1 As units are added or deleted from these tables through future registration amendments, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.

Table VIII.B. – Post-Closure Period

Unit Name	Date Certified Closed	Authorized Post-Closure Period (Yrs.)	Earliest Date Post-Closure Ends (See Note 1)
[Unit Example 1]	**[1/1/1995]**	30 years	**[1/1/2025]**
[Unit Example 2]	**[1/1/1990]**	30 years	**[1/1/2020]**
[Unit Example 3]	**[1/1/1984]**	30 years	**[1/1/2014]**

Note 1 – Post-Closure Care shall continue beyond the specified date until the Executive Director has approved the applicant's request to reduce or terminate the post-closure period, consistent with 30 TAC §352.1241 – Post-Closure Care Requirements.

N/A

Surface Impoundments: Dike Construction

For each surface impoundment dike complete submit the following information:

"I, ________(licensed Professional Engineer), Texas P.E. License Number _________, of Registered Firm ________(Name), Registered Firm No.________ (Registration Number), certify under penalty of law that I have personally examined and am familiar with the design and construction of the dikes that are a portion of (surface impoundment unit name).

I further certify that I have evaluated the dike design and materials of construction using accepted engineering procedures, and have determined that the dike, including the portion of the dike providing freeboard, has structural integrity, and

(1) will withstand the stress of the pressure exerted by the types and amounts of wastes to be placed in the impoundment; and

(2) will not fail due to scouring or piping, without dependence on any liner system included in the impoundment construction.

Date: ___________________"

"(Signature)"

"(Seal)"

APPENDIX E – GROUNDWATER MONITORING AND CORRECTIVE ACTION

Groundwater Hydrogeologic Monitoring Plan
Supplemental Geologic and Hydrogeologic Information
Groundwater Monitoring Plan-Revision 1
Statistical Analysis Plan-Revision 1
2020 Groundwater Monitoring and Corrective Action Report
2021 Groundwater Monitoring and Corrective Action Report-Revision 1

GROUNDWATER
HYDROGEOLOGIC MONITORING PLAN

COLETO CREEK POWER STATION
FANNIN, TEXAS

OCTOBER 17, 2017

Prepared for:

COLETO CREEK POWER, LP
Coleto Creek Power Station
Fannin, Texas

Prepared by:

BULLOCK, BENNETT & ASSOCIATES, LLC
Engineering and Geoscience
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BBA Project No. 17258

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1 INTRODUCTION

1.1 Background

This Hydrogeologic Monitoring Plan (HMP) was prepared to provide background information necessary to support the selection of the groundwater monitoring system to be used to fulfill the groundwater sampling and analysis program requirements of the United States Environmental Protection Agency (USEPA) Final Rule to regulate the disposal of Coal Combustion Residuals (CCR) as solid waste under Subtitle D of the Resource Conservation and Recovery Act [40 *CFR* 257 Subpart D; published in 80 FR 21302-21501, April 17, 2015, referred to hereafter as the CCR Rule] at Coleto Creek Power, LP's coal-fired power station.

The CCR Rule groundwater monitoring and corrective action criteria require an owner or operator of a CCR unit to install a system of monitoring wells and specify procedures for sampling these wells. The groundwater monitoring network must consist of wells that are installed at appropriate locations and depths to provide representative samples from the uppermost aquifer in the immediate vicinity of the CCR unit. The monitoring well network must include at least one (1) upgradient/background well and a minimum of three (3) downgradient wells that represent groundwater that passes the waste boundary of the CCR unit. The well configurations and locations are determined in consideration of site-specific technical information including potential contaminant pathways, and:

1. Aquifer thickness, groundwater flow rate, groundwater flow direction including seasonal and temporal fluctuations in groundwater flow; and
2. Saturated and unsaturated geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer, including, but not limited to, thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities.

This purpose of this HMP is to document the methodologies and rationale behind selection of the Coleto Creek Power Station Primary Ash Pond groundwater monitoring system. The remainder of Section 1 provides a description of the site and a summary of historical investigations. Section 2 details the site geology and hydrogeology. Section 3 provides a discussion of the selected groundwater monitoring network wells and how those wells meet the criteria established in the CCR rules. 40 *CFR* §257.91(f) requires that a qualified professional engineer (PE) certify the groundwater monitoring system. The PE certification is contained in Appendix A.

1.2 Site Location and Description

The Coleto Creek Power Station is a pulverized coal-fired power generation plant commissioned in 1980. The facility is located near the city of Fannin, Goliad County, Texas which is approximately 15 miles southwest of Victoria, Texas (Figure 1). The Coleto Creek Power Station provides electric power to South Texas. A 3,100-acre reservoir was constructed by the Guadalupe-Blanco River Authority to provide cooling water for the plant. CCR, consisting of fly ash and bottom ash, are either shipped off-site for beneficial re-use or managed in an on-site surface impoundment named the Primary Ash Pond. The Primary Ash Pond is subject to the CCR rules codified in 40 *CFR* Part 257 and is the subject of the groundwater monitoring system discussed in this HMP.

1.3 CCR Unit Description

The Primary Ash Pond is an above ground surface impoundment having an approximate surface area of 190 acres and storage capacity of approximately 2,700 acre-feet (S&L, December 1978). Impoundment dikes range from four (4) to 56 feet high with a total length of approximately 12,855 lineal feet. Fly ash from the coal-fired boiler is pneumatically conveyed to storage silos where it is loaded into hopper trucks and transported off-site for beneficial re-use. Off-spec or excess fly ash is sluiced to the Primary Ash Pond. Bottom ash is sluiced directly to the Primary Ash Pond from the boiler. Accumulated bottom ash is then mined from the pond for off-site beneficial re-use.

In the event the water level in the Primary Ash Pond nears maximum operation levels, treated water can be transferred to the adjacent Secondary Pond where it is either allowed to evaporate or is discharged to the Coleto Creek Reservoir as authorized by the facility's Texas Pollutant Discharge Elimination System (TPDES) permit.

1.4 Previous Investigations and Reports

Several groundwater monitoring wells have been installed at the Coleto Creek Power Station for the purpose of evaluating site hydrogeology. Reports that contain well construction details, subsurface geotechnical testing results, and groundwater monitoring data that were reviewed include:

- AECOM, November 2009. Groundwater Quality Assessment Plan, Coleto Creek Power Plant, Fannin, Goliad County, Texas.
- AECOM, March 2012. Geotechnical Stability and Hydraulic Analysis of the Coleto Creek Energy Facility Primary and Secondary Ash Ponds, IPR-GDF SUEZ North America, Coleto Creek Energy Facility, Fannin, Texas.
- Bullock, Bennett & Associates, LLC, October 16, 2017. Letter Report to Rick Coleman of Coleto Creek Power Plant regarding Pneumatic Slug Testing.
- Bullock, Bennett & Associates, LLC, October 10, 2017. Coleto Creek Primary Ash Pond CCR Rule Groundwater Monitoring Sampling and Analysis Plan, Revision 0.
- Sargent & Lundy Engineers, December 1, 1978. "Design and Construction Summary for Coal Pile and Wastewater Pond Facilities, Coleto Creek Power Station Unit 1."

2 GEOLOGY AND HYDROGEOLOGY

A comprehensive subsurface investigation was implemented prior to construction of the Primary Ash Pond and other industrial elements of the facility. A total of approximately 63 soil borings were advanced to depths ranging to approximately 100 ft below ground surface (bgs) at a relatively dense spacing (S&L, December 1978). Soil boring logs and results of geotechnical sampling and analyses were reviewed to identify the site-specific characteristics of the underlying geological strata.

The pre-CCR rule groundwater monitoring network for the Coleto Creek Power Station consisted of eight (8) monitoring wells (MW-1 through MW-8) that were installed in the vicinity of the Primary Ash Pond as it was constructed in 1978. Subsequent investigations in other areas of the power station included installation of additional groundwater monitoring wells that were evaluated during development of this HMP. These additional wells include BV-1, BV-5, BV-10, BV-15, BV-19, BV-21, and BV-22. Construction details and historical groundwater analytical results from these existing wells were reviewed to establish the site's geologic and hydrogeologic setting. Upon review of this information, BBA determined that an additional three wells would be required to address specific requirements outlined in the CCR rules under 40 *CFR* §251.91. Wells MW-9, MW-10, and MW-11 were installed along the downgradient edge of the Primary Ash Pond. The CCR monitoring well network is shown on Figure 2. Non-CCR monitoring wells used to assist in evaluating groundwater flow are shown on Figures 4 through 7.

Soil boring logs advanced as part of historical investigations are contained in their respective reports and available in the Coleto Creek Power Station Operating Record as required. Boring logs for wells MW-9, MW-10, and MW-11 are contained in Appendix B along with the boring logs for the other monitoring wells selected to be part of the CCR groundwater monitoring system as described in Section 3 of this report.

Geologic and hydrogeologic observations from previous and recent investigations are summarized below.

2.1 Geology

2.1.1 Regional Setting

The Coleto Creek Power Station is predominately located on an outcrop of the Lissie Formation (Geologic Atlas of Texas, Revised 1987). The Lissie Formation is approximately middle Pleistocene in age and the atlas describes the formation as “sand, silt, clay and minor amount of gravel; iron oxide and iron manganese nodules common in zone of weathering, in upper part locally calcareous, some concretions of calcium carbonate; surface fairly flat and featureless except for numerous rounded shallow depressions and pimple mounds, lower part very gently rolling.”

The Lissie Formation is generally considered a part of the Houston Group. Within the central coastal plain of Texas, the Lissie Formation's outcrop is a belt ranging from approximately 10 to 20 miles wide (Solis, 1981). Located within the western region of the Gulf Coast Basin, Lissie sediments extend into the subsurface, dipping southeast at 5 to 20 ft per mile (Doering, 1935). Maximum outcrop thickness is estimated to be about 600 ft in East Texas and 400 ft in South Texas (Plummer, 1932).

2.1.2 Site Geology

Subsurface investigations at the site identified the following three primary geologic units beneath the Primary Ash Pond surface impoundment. The following general unit descriptions are based on those presented in AECOM (2009).

Unit 1 - This lithologic stratum consists of cohesive, lower permeability soils, primarily sandy clay and clayey sand with intermittent layers of silty clay. Caliche and calcareous materials (nodules, streaks) are also present, generally in the lower portion of the unit. Unit 1 appears laterally continuous across the area and extends from the original ground surface to depths of up to 25 ft. This unit varies in thickness depending on site location. Below the Primary Ash Pond, Unit 1 varies in thickness from approximately 11 to 25 ft.

Unit 2 - This unit is the uppermost, permeable water-bearing zone below the Coleto Creek Power Station. It also appears laterally continuous below the site, with a thickness that varies from about 40 to 54 ft. Unit 2 is comprised primarily of sand and silty sand, with intermittent layers of clay bearing soils with varying thickness. The cohesive layers appear discontinuous. The presence of varying silt and clay content within the sandy soils of Unit 2 likely creates variability in the hydraulic conductivity properties of this stratum. Mineralized zones containing caliche and calcareous nodules are prominent within Unit 2.

Unit 3 - Unit 3 underlies Unit 2 forming a basal clay stratum that appears laterally continuous below the area. The soils are primarily clay and silty clay, with some sandy clay zones. Unit 3 is at least 29 ft thick and was not completely penetrated by most geotechnical borings in the area. The thickness and clayey soils of this stratum likely restrict downward migration of groundwater from Unit 2.

The relative positions of the above-described geologic units are illustrated in the generalized geologic cross sections provided in Figure 3. The locations of these cross sections in relation to the Primary Ash Pond are shown on Figure 2.

2.2 Hydrogeology

In order to supplement historical hydrogeologic data, BBA performed pneumatic slug testing at several monitoring wells across the site on June 21-22, 2017. Slug tests are single-well aquifer tests used to estimate horizontal hydraulic conductivity (K_r) and other characteristics of the uppermost aquifer beneath the Primary Ash Pond (Bennett, 2017). The results of that testing are summarized below.

2.2.1 Uppermost Aquifer

40 *CFR* §257.53 defines an aquifer as “a geologic formation, group of formations, or portion of a formation capable of yielding usable quantities of groundwater to wells or springs.” The

uppermost aquifer at the site corresponds to geologic Unit 2. As noted above, Unit 2 is characterized as consisting mostly of sand and silty sand with intermittent discontinuous layers of clay. Mineralized zones containing caliche and calcareous nodules are also prominent throughout this unit. The top of the aquifer is approximately 11 to 25 ft bgs and is 40 to 54 ft thick.

2.2.2 Lower Limit of Aquifer

The lower limit of the aquifer is confined by a stratum consisting primarily of clay and silty clay with periodic sandy clay zones corresponding to geologic Unit 3. Although none of the borings fully penetrated this unit, it is a minimum of 29 ft thick in the area of the Primary Ash Pond. The thickness and nature of this basal unit likely restrict potential downward migration of groundwater from the overlying aquifer.

2.2.3 Hydraulic Conductivity

Pneumatic slug tests were performed on June 21-22, 2017 at six monitoring wells partially penetrating the uppermost aquifer surrounding the Primary Ash Pond. Groundwater in the uppermost aquifer flows to the east and southeast toward Sulphur Creek and the Coleto Creek Reservoir. Three monitoring wells (BV-5, BV-21, BV-22) upgradient or west of the Primary Ash Pond and three wells (MW-9, MW-10, MW-11) downgradient of the Primary Ash Pond were selected for testing. Results of the slug testing from each well are listed in Table 1 for different units of equivalency.

The geometric mean K_r value from all slug tests is 9.46 ft/day (3.35×10^{-3} cm/sec). The overall minimum K_r of 1.45 ft/day (5.14×10^{-4} cm/sec) was estimated for MW-10 and the overall maximum K_r of 38.7 ft/day (1.37×10^{-2} cm/sec) for BV-22. The K_r values from wells upgradient and west of the primary ash pond are higher than the K_r values estimated downgradient of the primary ash pond. The variability in K_r values is likely due to discontinuous cohesive clay soils and varying silt and clay content within the sandy soils.

The hydraulic conductivities for each of the wells tested are within the expected range typical of unconsolidated sandy aquifers. According to Heath (1983), the expected total and effective porosities for a sandy aquifer are approximately 25% and 20%, respectively.

2.2.4 Groundwater Elevations, Flow Direction, and Velocity

Groundwater from wells MW-1 through MW-8 are monitored on a semi-annual basis and reflects seasonal variation of groundwater level and flow trends. Groundwater was originally measured at elevations ranging from 85 to 95 ft when wells MW-1 through MW-8 were first installed in the 1970s. After construction of the Coleto Creek Reservoir, the potentiometric surface rose to near current-day levels which ranged from approximately 100 ft to 115 ft NAVD88 during the most recent groundwater sampling event conducted in May 2017 (BBA, September 2017). The monitoring data indicate minimal seasonal variation of water levels; however, as would be expected water levels fluctuate based on drought conditions with levels ranging to approximately 5 ft lower. Current levels are approximately 2 ft to 5 ft lower than maximums observed in 2010.

The 40 *CFR* Part 257 monitoring well network consists of nine monitoring wells (MW-4, MW-5, MW-6, MW-8, MW-9, MW-10, MW-11, BV-5, and BV-21) installed in the uppermost aquifer as shown on Figure 2. Water levels in the 40 *CFR* Part 257 monitoring well network were measured during eight events from March to July 2017 in order to evaluate seasonal water level fluctuations across the site. A summary of groundwater level measurements for the 40 *CFR* Part 257 monitoring well network is provided in Table 2.

Groundwater flow occurs to the east and southeast across the Primary Ash Pond toward the Coleto Creek Reservoir (Figures 4 through 7). The horizontal hydraulic gradient was determined between wells MW-4 and MW-10 near the northern boundary of the Primary Ash Pond and between wells MW-8 and MW-6 near the southern boundary. The slope of the potentiometric surface between these two well pairs has averaged 0.0027 ft/ft and 0.0029 ft/ft, respectively from March 2017 through July 2017.

Groundwater velocity can be calculated using the following formula:

$$V = K_r (dh/dl)/n_e$$

where V is velocity (ft/day), K_r is hydraulic conductivity (ft/day), dh/dl is the hydraulic gradient (ft/ft), and n_e is the effective porosity of the aquifer (Heath, 1983). An effective porosity of 20% will be used in these calculations (based on typical values for clayey sand) and the calculated geometric mean hydraulic conductivity value as determined from monitoring wells surrounding the Primary Ash Pond (Bennett, 2017)

The average linear velocity through the uppermost aquifer between wells MW-4 and MW-10 is determined as follows:

$$V = 9.46 \text{ ft/day } (0.0027 \text{ ft/ft})/0.20$$

$$V = 0.13 \text{ ft/day}$$

The average linear velocity through the uppermost aquifer between wells MW-8 and MW-6 was calculated as follows:

$$V = 9.46 \text{ ft/day } (0.0029 \text{ ft/ft})/0.20$$

$$V = 0.14 \text{ ft/day}$$

Groundwater potentiometric surface maps for the above-referenced sampling events are included in this report as Figures 4, 5, 6, and 7.

3 GROUNDWATER MONITORING

In 2015, BBA began an assessment of the existing monitoring well networks at Coleto Creek Power Station with respect to the existing CCR units. Included in the assessment was a review of the current placement and number of monitoring wells with respect to the Primary Ash Pond as well as potential locations for new monitoring wells, as appropriate. The discussion below summarizes the results of the assessment and defines the CCR groundwater monitoring network.

3.1 CCR Monitoring Well Network

The 40 *CFR* Part 257 monitoring well network consists of nine monitoring wells installed in the uppermost aquifer. These wells include three upgradient/background wells (BV-5, BV-21, and MW-8) and six downgradient wells (MW-4, MW-5, MW-6, MW-9, MW-10, and MW-11) as shown on Figure 2. Boring logs and monitoring well construction reports for the groundwater monitoring system are provided in Appendix B. Details regarding the procedures and techniques used to fulfill the groundwater sampling and analysis program requirements are found in the *Sampling and Analysis Plan* for the site (BBA, October 2017). Well depths, well screen intervals, depth to groundwater, and monitored units are summarized in Table 3.

3.2 Summary of Groundwater Monitoring Systems

The groundwater monitoring system for the Coleto Creek Primary Ash Pond meets the performance standard set in §257.91 of the Final Rule. Three existing monitoring wells (MW-8, BV-5, and BV-21) have been selected that are at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that accurately represent groundwater that has not been affected by leakage from the CCR units or other aspects of plant operations. Use of three background monitoring wells exceeds the minimum of one upgradient/background well required by §257.91(c)(1).

The six downgradient monitoring wells (MW-4, MW-5, MW-6, MW-9, MW-10, and MW-11) are installed as close as possible to the perimeter of the Primary Ash Pond to ensure that samples reflect groundwater quality at the pond boundary. This number exceeds the three wells required in §257.91(c)(1).

All monitoring wells were installed with screens and casing that maintains the integrity of the borehole. Well screens were packed with sand and annular spaces above the screen between the borehole and casing were sealed to minimize potential for cross contamination of groundwater samples. Documentation of the design, installation, and development of monitoring wells included in the groundwater monitoring system are available in the operating record for the Coleto Creek Power Station. The monitoring system for the Primary Ash Pond has been certified by a qualified professional engineer (see Appendix A).

4 REFERENCES

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TABLES

Table 1. Hydraulic Conductivity Testing Results
Hydrogeologic Monitoring Plan
Coleto Creek Power, LP CCR Rule Groundwater Monitoring
CCR Unit Name: Coleto Creek Primary Ash Pond
Unit ID: 141

Monitoring Well	K_r (ft/day)	K_r (m/day)	K_r (cm/sec)	K_r (ft/sec)
BV-5	24.6	7.49	8.68E-03	2.84E-04
BV-21	37.8	11.5	1.34E-02	4.38E-04
BV-22	38.7	11.8	1.37E-02	4.48E-04
MW-9	3.3	1.01	1.17E-03	3.82E-05
MW-10	1.45	0.443	5.14E-04	1.68E-05
MW-11	4.17	1.27	1.47E-03	4.82E-05

Table 2. Groundwater Levels, March - July, 2017

Hydrogeologic Monitoring Plan
Coleto Creek Power, LP CCR Rule Groundwater Monitoring
CCR Unit Name: Coleto Creek Primary Ash Pond
Unit ID: 141

Well ID	Top of Casing Well Elevation (ft) (1)	Date Measured	Depth to Water Below Top of Casing (ft)	Water Level Elevation
MW-4	137.71	3/28/2017	29.25	108.46
		5/9/2017	28.94	108.77
		5/15/2017	28.93	108.78
		6/6/2017	28.83	108.88
		6/20/2017	28.94	108.77
		6/22/2017	29.02	108.69
		7/10/2017	29.11	108.6
		7/18/2017	29.15	108.56
MW-5	122.31	3/30/2017	20.94	101.37
		5/10/2017	20.3	102.01
		5/16/2017	20.37	101.94
		6/8/2017	20.61	101.7
		6/21/2017	20.87	101.44
		6/26/2017	21	101.31
		7/11/2017	21.21	101.1
		7/19/2017	21.47	100.84
MW-6	119.22	3/29/2017	15.76	103.46
		5/11/2017	15.7	103.52
		5/16/2017	15.68	103.54
		6/7/2017	15.92	103.3
		6/22/2017	16.34	102.88
		6/28/2017	16.33	102.89
		7/12/2017	16.76	102.46
		7/20/2017	16.92	102.3
MW-8	134.72	3/28/2017	22.6	112.12
		5/9/2017	21.29	113.43
		5/15/2017	21.3	113.42
		6/6/2017	21.25	113.47
		6/20/2017	22.08	112.64
		6/27/2017	22.12	112.6
		7/10/2017	22.5	112.22
		7/18/2017	22.67	112.05

Table 2. Groundwater Levels, March - July, 2017
Hydrogeologic Monitoring Plan
Coleto Creek Power, LP CCR Rule Groundwater Monitoring
CCR Unit Name: Coleto Creek Primary Ash Pond
Unit ID: 141

Well ID	Top of Casing Well Elevation (ft) (1)	Date Measured	Depth to Water Below Top of Casing (ft)	Water Level Elevation
MW-9	132.3	3/30/2017	28.31	103.99
		5/10/2017	27.75	104.55
		5/17/2017	29.87	102.43
		6/7/2017	28.2	104.1
		6/21/2017	28.65	103.65
		6/26/2017	28.83	103.47
		7/11/2017	29.12	103.18
		7/19/2017	29.48	102.82
MW-10	130.4	3/30/2017	27.9	102.5
		5/9/2017	27.5	102.9
		5/16/2017	27.57	102.83
		6/8/2017	27.68	102.72
		6/21/2017	27.84	102.56
		6/26/2017	27.97	102.43
		7/11/2017	28.14	102.26
		7/19/2017	28.26	102.14
MW-11	118.66	5/10/2017	14.3	104.36
		5/16/2017	14.39	104.27
		6/7/2017	14.56	104.1
		6/21/2017	14.85	103.81
		6/26/2017	14.94	103.72
		7/11/2017	15.2	103.46
		7/19/2017	15.31	103.35
BV-5	135.8	3/29/2017	29.35	106.45
		5/11/2017	29.11	106.69
		5/16/2017	29.1	106.7
		6/7/2017	29.92	105.88
		6/20/2017	29.18	106.62
		6/27/2017	29.25	106.55
		7/12/2017	29.32	106.48
		7/18/2017	29.41	106.39

Table 2. Groundwater Levels, March - July, 2017
Hydrogeologic Monitoring Plan
Coleto Creek Power, LP CCR Rule Groundwater Monitoring
CCR Unit Name: Coleto Creek Primary Ash Pond
Unit ID: 141

Well ID	Top of Casing Well Elevation (ft) (1)	Date Measured	Depth to Water Below Top of Casing (ft)	Water Level Elevation
BV-21	131.17	3/28/2017	19.25	111.92
		5/9/2017	18.54	112.63
		5/17/2017	18.52	112.65
		6/6/2017	18.44	112.73
		6/20/2017	18.76	112.41
		6/27/2017	18.71	112.46
		7/10/2017	18.86	112.31
		7/18/2017	18.9	112.27

Notes:
ft = feet
1. Top of Casing Elevations are referenced to NAVD88.

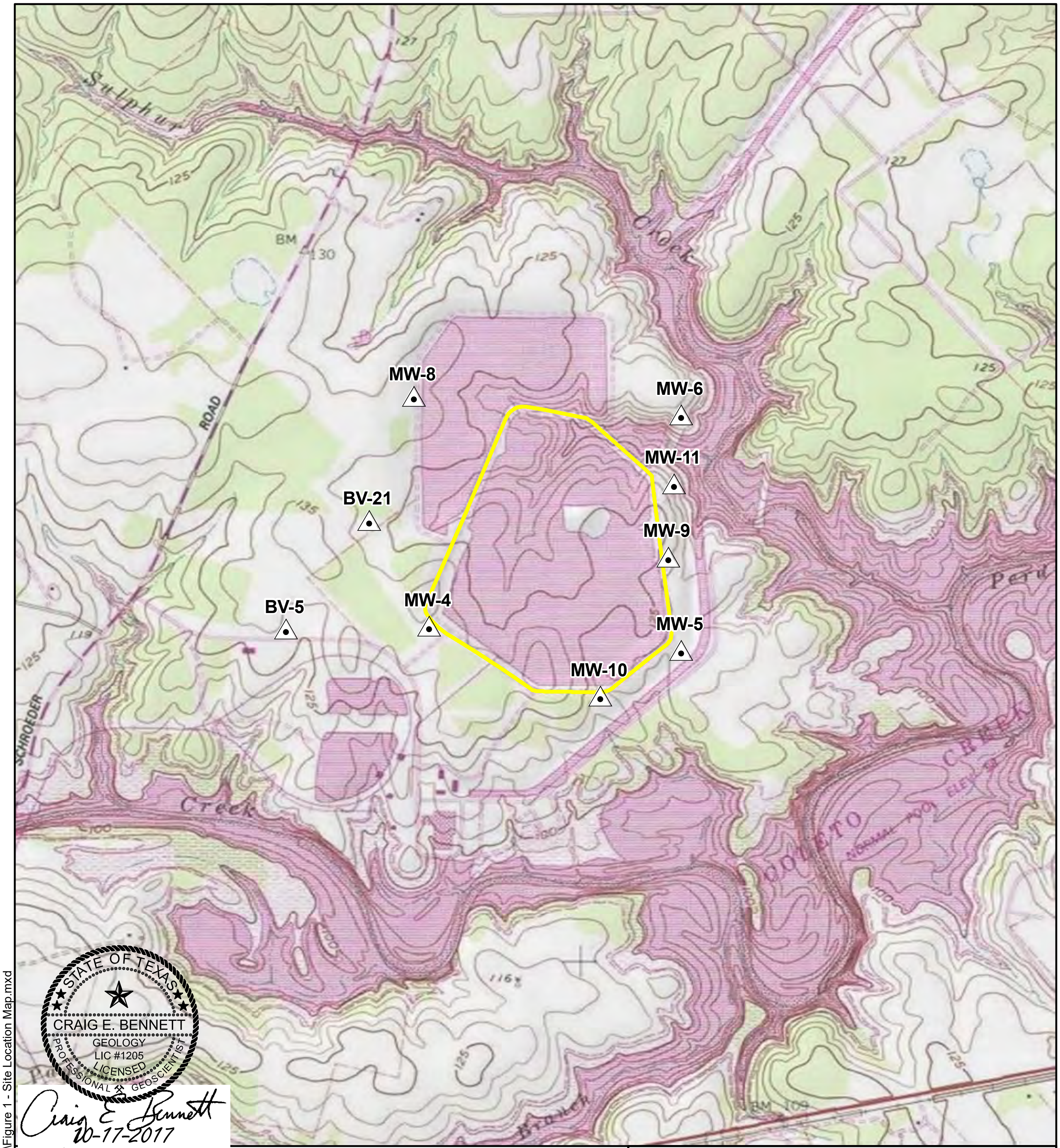
Table 3. CCR Monitoring Well Construction Details
Hydrogeologic Monitoring Plan
Coleto Creek Power, LP CCR Rule Groundwater Monitoring
CCR Unit Name: Coleto Creek Primary Ash Pond
Unit ID: 141

Well ID	MW-4	MW-5	MW-6	MW-8	MW-9	MW-10	MW-11	BV-5	BV-21
Well Location Latitude	28° 43' 17.29" N	28° 43' 13.97" N	28° 43' 46.56" N	28° 43' 49.07" N	28° 43' 26.90" N	28° 43' 07.64" N	28° 43' 37.01" N	28° 43' 16.89" N	28° 43' 31.90" N
Well Location Longitude	97° 12' 52.27" W	97° 12' 17.38" W	97° 12' 17.38" W	97° 12' 54.39" W	97° 12' 19.18" W	97° 12' 28.54" W	97° 12' 18.36" W	97° 13' 12.03" W	97° 13' 00.55" W
Well Construction Material	PVC	PVC	PVC	PVC	PVC	PVC	PVC	PVC	PVC
Well Diameter (inches)	4	4	4	4	2	2	2	2	2
Top of Casing Well Elevation (ft) (1)	137.71	122.31	119.22	134.72	132.3	130.4	118.66	135.8	131.17
Well Depth Below Ground Surface (ft) (2)	70.1	59.27	61.15	56.88	60	60	49	40	40
Screen Length (ft)	19.6	19.8	19.9	19.9	20	20	20	10	10
Top of Screen Elevation (ft) (3)	83.8	80.1	75.1	94.8	89.3	87.6	86.8	103	98.4
Bottom of Screen Elevation (ft) (3)	64.2	60.3	55.2	74.9	69.3	67.6	66.8	93	88.4
Well Stick-up Above Ground Surface (ft)	3.41	2.74	2.87	2.94	3	2.8	2.86	2.8	2.77
Hydraulic Position of Well (4)	D	D	D	U	D	D	D	B	U

Notes:
PVC = polyvinyl chloride
ft = feet
1. Top of Casing Elevations are referenced to NAVD88.
2. Well Depth Below Ground Surface referenced to ground surface at time of well construction.
3. Top and Bottom of Screen Elevations reported as listed on well construction forms.
4. Background (B), upgradient (U), or downgradient (D)

FIGURES

Plot Date: 10/12/2017 - 6:55:07 AM, Plotted by: E.Ficker
Drawing Path: D:\BBA\Coleto Creek\CCR\HMP\MXDs\Figure 1 - Site Location Map.mxd



CRAIG E. BENNETT
LIC #1205

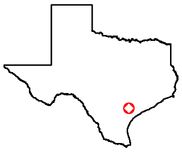
Craig E. Bennett
10-17-2017

Explanation

△ Monitoring Well

▭ CCR Monitored Unit

Refs/Notes:
DRG of USGS topo quad from
ArcGIS Online Server.



Index Map

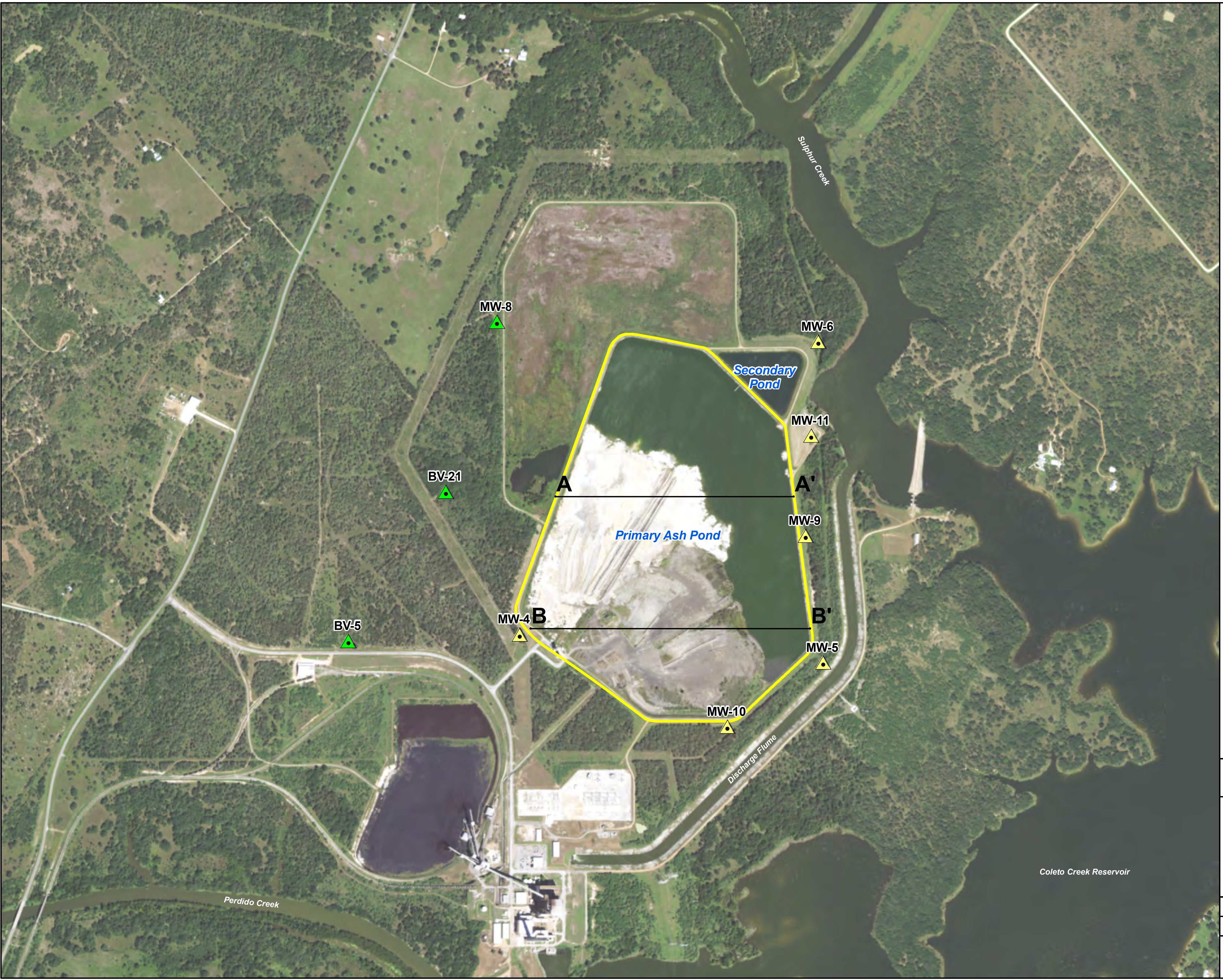
Feet
0 2,000
1:24,000

Coleto Creek Power, LP

Figure 1
Site Location Map

PROJECT: 17251A	BY: EEF	REVISIONS
DATE: Sept 2017	CHECKED: CEB	

Bullock, Bennett & Associates, LLC
Engineering and Geoscience
Texas Registrations: Engineering F-8542, Geoscience 50127



Explanation

- △ Downgradient CCR Monitoring Well
- ▲ Upgradient/Backround CCR Monitoring Well
- ▭ CCR Monitored Unit

CRAIG E. BENNETT
GEOLOGY
LIC #1205

Craig E Bennett
10-17-2017

Ref: Orthoimagery from ArGIS World Imagery Server

N

0 1:12,000 2,000 Feet

Coleto Creek Power, LP

Figure 2
Monitoring Well Locations

PROJECT: 17258	BY: EEF	REVISIONS
DATE: Oct 2017	CHECKED: CEB	

Bullock, Bennett & Associates, LLC
Engineering and Geoscience
Texas Registrations: Engineering F-8542, Geoscience 50127

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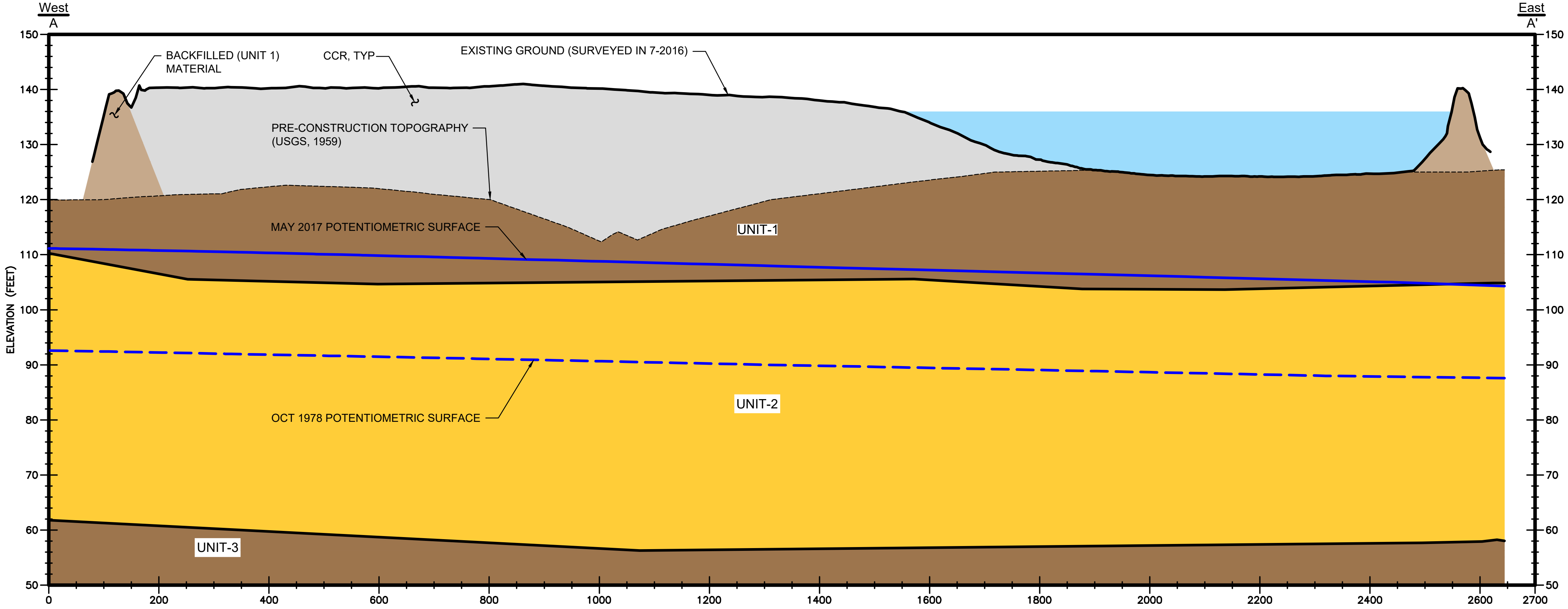
Drawing Path: D:\BBA\Coleto Creek\CCR\HMP\MXDs\Figure 2 - Monitoring Well Locations.mxd



PROFILE A-A' (LOOKING NORTH)
SCALE:1"=120'(H), 1"=12'(V)

NOTES:

July 2016 bathymetry and topographic surface data collected by Naismith Marine Services of Corpus Christi, Texas.

Unit 1 thickness based on EXHIBIT 3: BORING LOCATION PLAN AND THICKNESS CONTOURS OF INSITU COHESIVE SOILS from Sargent & Lundy (1978).

Original pond bottom depths and site stratigraphy are estimated and interpolated based on data in Sargent & Lundy (1978), 1959 USGS pre-construction topographic data, AECOM (2009), and various post-construction borings located outside of pond footprint.

October 1978 potentiometric surface estimated from data in Sargent & Lundy (1978).

May 2017 potentiometric surface based on groundwater data collected by Coleto Creek Power.

UNIT DESCRIPTIONS:

Unit 1 - Sandy CLAY and Silty CLAY. Surficial unit.

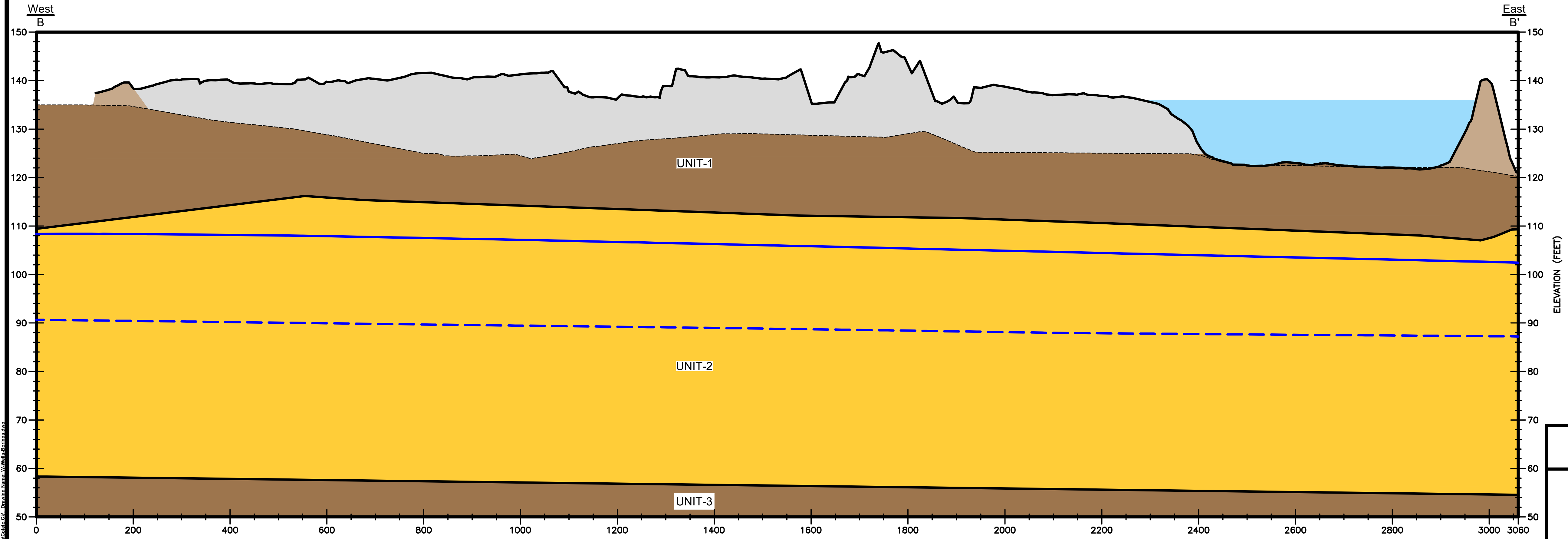
Unit 2 - Sand and Silty SAND with caliche and CLAY/Sandy CLAY lenses. First groundwater-bearing unit.

Unit 3 - CLAY and Silty CLAY. Basal unit.

Unit descriptions based on AECOM (2009).

CRAIG E. BENNETT
GEOLOGY
LIC #1205

Craig E Bennett
10-17-2017



PROFILE B-B' (LOOKING NORTH)
SCALE:1"=120'(H), 1"=12'(V)

APPENDIX E-Revision 1 November 21, 2022

Coleto Creek Power, LP

FIGURE 3

GENERALIZED GEOLOGIC
CROSS SECTIONS A-A' AND B-B'

PROJECT: 17258	DATE: OCT 2017	BY: RCAD-RR	CHECKED: CBB

Bullock, Bennett & Associates, LLC
ENGINEERING AND GEOSCIENCE
Texas Registrations: Engineering F-8542, Geoscience 50127

Plot Date: 10/16/17 - 8:43am, Plotted by: roodrj
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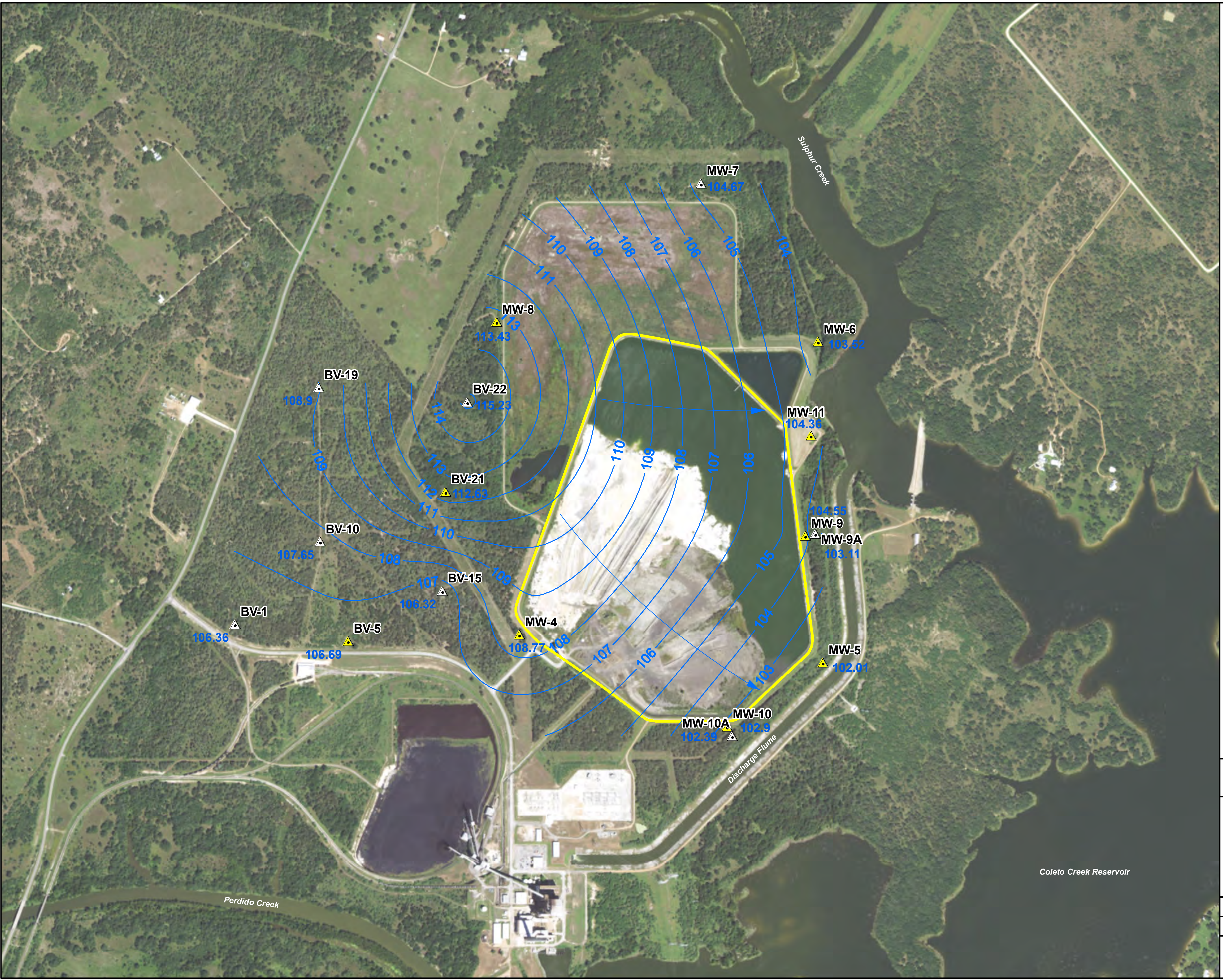


Explanation

▲ CCR Rule Monitoring Well

△ Non-CCR Rule Monitoring Well

105 May 2017 Potentiometric Surface Elevation Contour (ft. MSL)

☐ CCR Monitored Unit

→ Groundwater Flow Direction

CRAIG E. BENNETT
LIC #1205

Craig E. Bennett 10-17-2017

Ref: Orthoimagery from ArGIS World Imagery Server

N

0 1:12,000 2,000 Feet

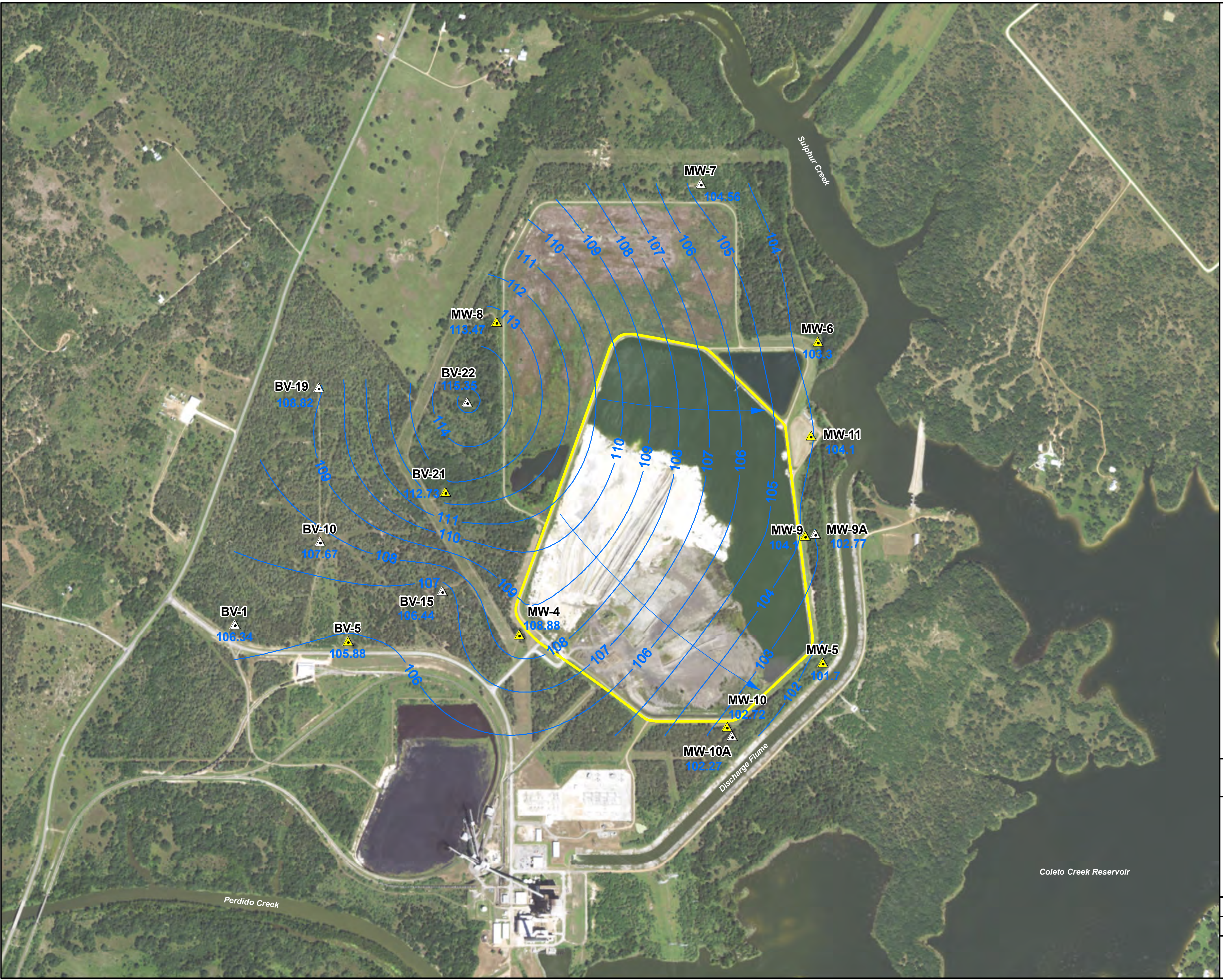
Coleto Creek Power, LP

Figure 4
May 9-11, 2017
Potentiometric Surface Map
Uppermost Aquifer Unit

PROJECT: 17258	BY: EEF	REVISIONS
DATE: Oct 2017	CHECKED: CEB	

Bullock, Bennett & Associates, LLC
Engineering and Geoscience
Texas Registrations: Engineering F-8542, Geoscience 50127

Plot Date: 10/12/2017 - 7:02:05 AM, Plotted by: E.Ficker
Drawing Path: D:\BBA\Coleto Creek\CCR\HMP\MXDs\Figure 4 - May 2017 Pot Map.mxd



Explanation

▲	CCR Rule Monitoring Well
△	Non-CCR Rule Monitoring Well
105	June 2017 Potentiometric Surface Elevation Contour (ft. MSL)
▭	CCR Monitored Unit
→	Groundwater Flow Direction

CRAIG E. BENNETT
LIC #1205

Craig E. Bennett
10-17-2017

Ref: Orthoimagery from ArGIS World Imagery Server

N

Feet
0 1:12,000 2,000

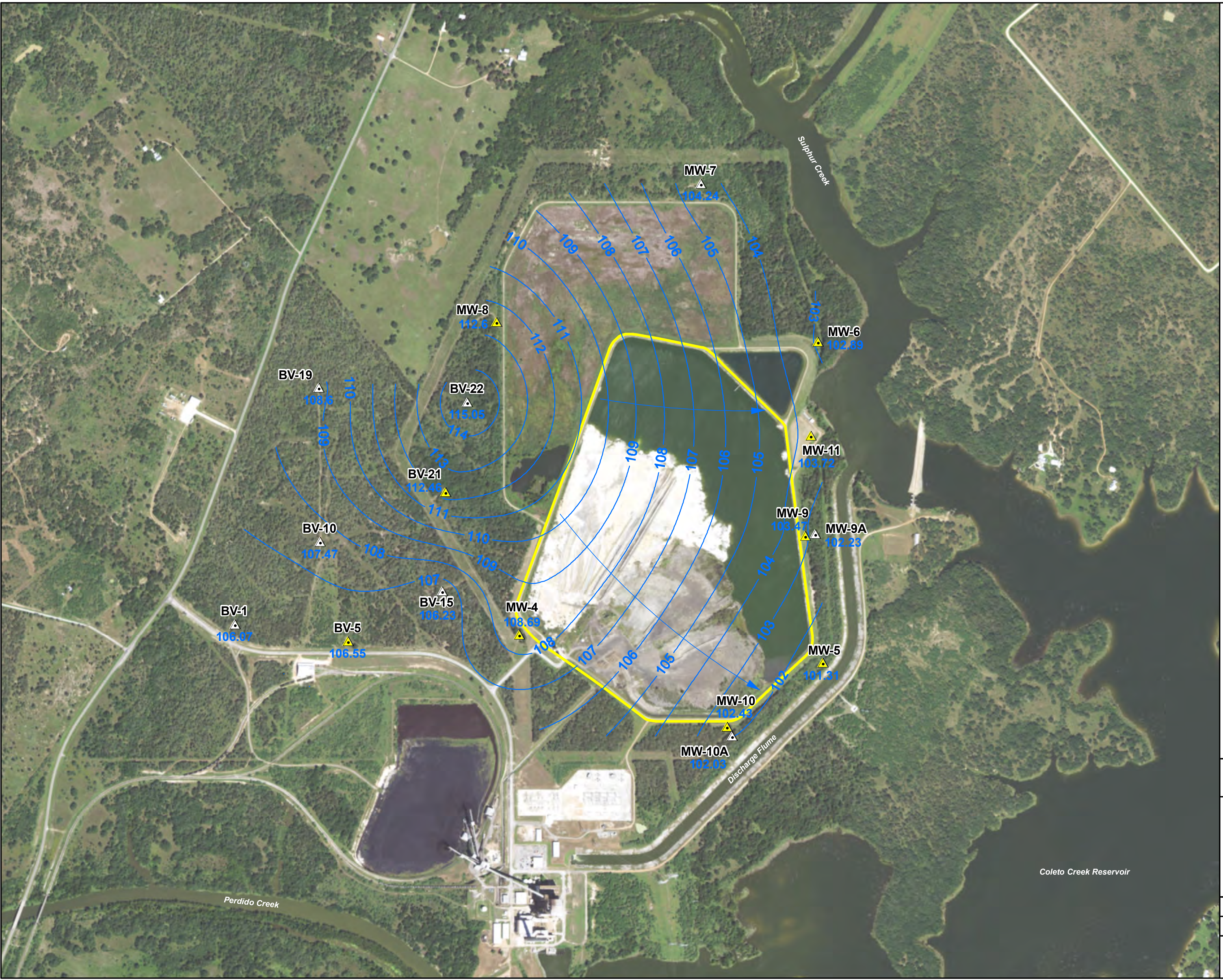
Coleto Creek Power, LP

Figure 5
June 6-8, 2017
Potentiometric Surface Map
Uppermost Aquifer Unit

PROJECT: 17258	BY: EEF	REVISIONS
DATE: Oct 2017	CHECKED: CEB	

Bullock, Bennett & Associates, LLC
Engineering and Geoscience
Texas Registrations: Engineering F-8542, Geoscience 50127

Plot Date: 10/12/2017 - 7:02:34 AM, Plotted by: E.Ficker
Drawing Path: D:\BBA\Coleto Creek\CCR\HMP\MXDs\Figure 5 - June 2017 Pot Map.mxd



Explanation

▲ CCR Rule Monitoring Well

△ Non-CCR Rule Monitoring Well

105 June 2017 Potentiometric Surface Elevation Contour (ft. MSL)

☐ CCR Monitored Unit

→ Groundwater Flow Direction

CRAIG E. BENNETT
GEOLOGY
LIC #1205

Craig E. Bennett
10-17-2017

Ref: Orthoimagery from ArGIS World Imagery Server

N

0 1:12,000 2,000 Feet

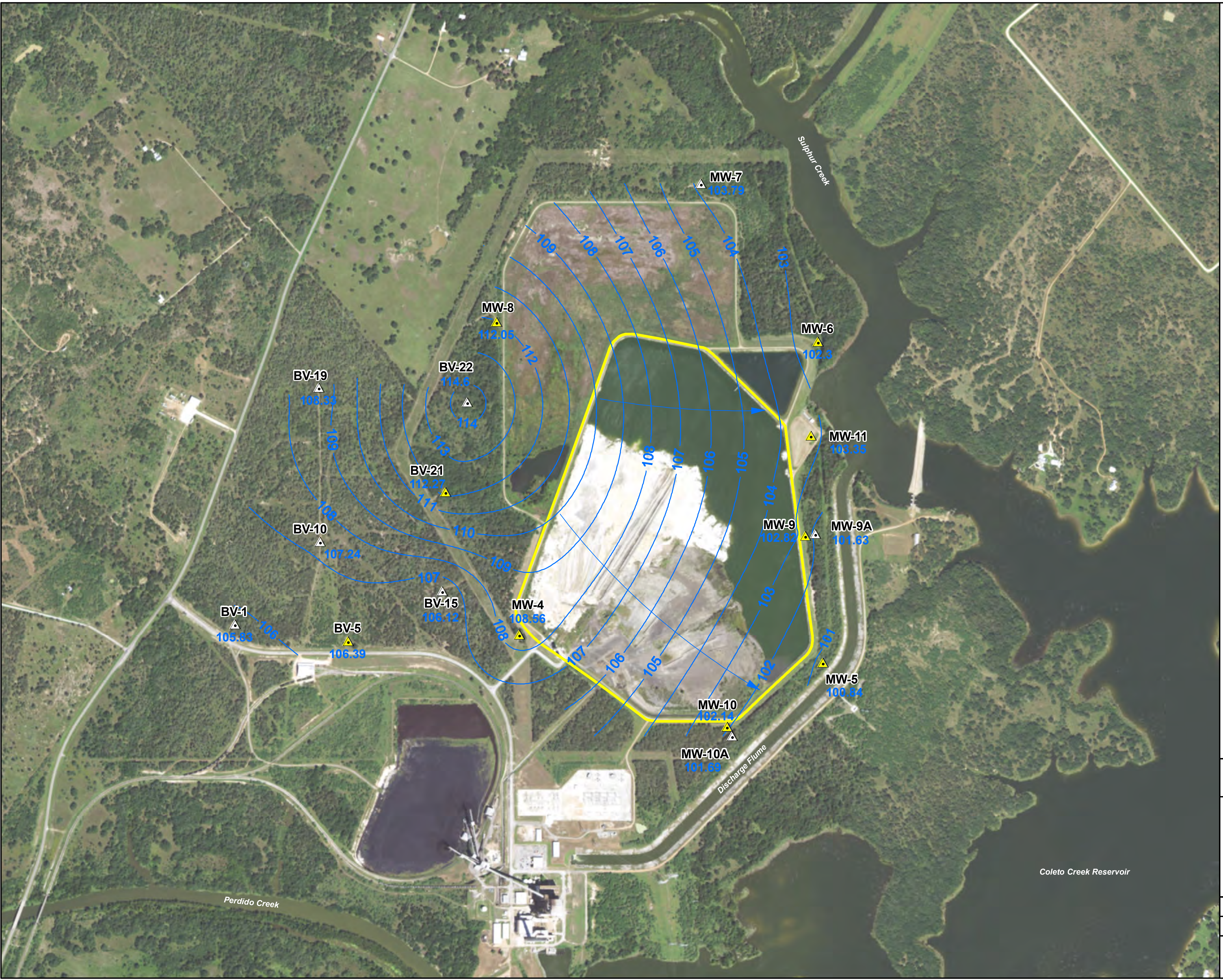
Coleto Creek Power, LP

Figure 6
June 26-28, 2017
Potentiometric Surface Map
Uppermost Aquifer Unit

PROJECT: 17258	BY: EEF	REVISIONS
DATE: Oct 2017	CHECKED: CEB	

Bullock, Bennett & Associates, LLC
Engineering and Geoscience
Texas Registrations: Engineering F-8542, Geoscience 50127

Plot Date: 10/12/2017 - 7:02:59 AM, Plotted by: E.Ficker
Drawing Path: D:\BBA\Coleto Creek\CCR\HMP\MXDs\Figure 6 - June 2017 Pot Map.mxd



Explanation

▲ CCR Rule Monitoring Well

△ Non-CCR Rule Monitoring Well

105 July 2017 Potentiometric Surface Elevation Contour (ft. MSL)

☐ CCR Monitored Unit

→ Groundwater Flow Direction

CRAIG E. BENNETT
GEOLOGY
LIC #1205

Craig E Bennett
10-17-2017

Ref: Orthoimagery from ArGIS World Imagery Server

N

0 1:12,000 2,000 Feet

Coleto Creek Power, LP

Figure 7
July 18-20, 2017
Potentiometric Surface Map
Uppermost Aquifer Unit

PROJECT: 17258	BY: EEF	REVISIONS
DATE: Oct 2017	CHECKED: CEB	

Bullock, Bennett & Associates, LLC
Engineering and Geoscience
Texas Registrations: Engineering F-8542, Geoscience 50127

Plot Date: 10/12/2017 - 7:03:30 AM, Plotted by: E.Ficker
Drawing Path: D:\BBA\Coleto Creek\CCR\HMP\MXDs\Figure 7 - July 2017 Pot Map.mxd

APPENDIX A

Monitoring Well System Certification

By A Qualified Professional Engineer

40 CFR Part 257.91(f) Groundwater Monitoring System Certification
CCR Unit: Coleto Creek Power, LP; Coleto Creek Power Station; Coleto Creek Primary Ash Pond

In accordance with Title 40 Code of Federal Regulations (40 CFR) Part 257, Subpart D, Section 257.91(f), the owner or operator of a coal combustion residual (CCR) unit must obtain a certification from a qualified professional engineer stating that the groundwater monitoring system at the CCR unit has been designed and constructed to meet the requirements of 40 CFR § 257.91. If the groundwater monitoring system includes the minimum number of monitoring wells specified in 40 CFR § 257.91(c)(1), the certification must document the basis supporting use of the minimum number of monitoring wells. Further, in accordance with 40 CFR § 257.91(e)(1), when completing the groundwater monitoring system certification, the qualified professional engineer must be given access to documentation regarding the design, installation, development, and decommissioning of any monitoring wells, piezometers and other measurement, sampling, and analytical devices.

The groundwater monitoring system designed and constructed for the Coleto Creek Primary Ash Pond includes more than the minimum number of monitoring wells specified in 40 CFR § 257.91(c)(1). The undersigned has been given access to documentation regarding the design, installation, development, and decommissioning of monitoring wells, piezometers and other measurement, sampling, and analytical devices concerning the Coleto Creek Primary Ash Pond.

I, <u>Daniel B. Bullock</u>, a qualified professional engineer in good standing in the State of Texas, certify that the groundwater monitoring system at the Coleto Creek Primary Ash Pond has been designed and constructed to meet the requirements of 40 CFR § 257.91.

DANIEL B. BULLOCK
82596

Daniel B. Bullock

10-17-2017

____

Daniel B. Bullock, P.E.
Qualified Professional Engineer
#82596
Texas
October 17, 2017

I, <u>Craig E. Bennett</u>, a licensed professional geologist in good standing in the State of Texas, certify that the groundwater monitoring system at the Coleto Creek Primary Ash Pond has been designed and constructed to meet the requirements of 40 CFR § 257.91.

CRAIG E. BENNETT
GEOLOGY
LIC #1205

Craig E Bennett

10-17-2017

____

Craig E. Bennett, P.G.
Licensed Professional Geologist
#1205
Texas
October 17, 2017

APPENDIX B

CCR Groundwater Monitoring Well

System Boring Logs

Appendix B: CCR Groundwater Monitoring Well System Boring Logs

Wells W-4 to W-6 and Well W-8
by Sargent & Lundy Engineers (March and April 1978). These monitoring wells are also designated as MW-4 to MW-6 and MW-8, respectively.

Wells W-9 and W-10
by Bullock, Bennett & Associates, LLC (May 2016). These monitoring wells are also designated as MW-9 and MW-10, respectively.

Well MW-11
by Bullock, Bennett & Associates, LLC (April 2017)

Wells BV-5 and BV-21
by Black & Veatch (August and September 2008)

BORING NO. W-4

PROJECT: Coleto Creek Power Station
CLIENT: Central Power & Light Co.
FEATURE: Monitoring Well W-4
SURFACE ELEVATION: 134.32 Ft | TOTAL DEPTH: 86.5 Ft
LOCATION: N 33+05 E0+00
DEPTH TO WATER DURING DRILLING: 42.0 Ft | DATE: 6-3-78
DRILLED BY: Trinity Testing Laboratories, Inc.
LOGGED BY: Sargent & Lundy
TESTED BY: Trinity Testing Laboratories, Inc.

DEPTH (ft.)	SAMPLE NUMBER AND TYPE	BLOWS/FT OR BLOWS/IN. (RECOVERY, %)	POCKET PENETROMETER READING (tsf)	FIELD MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	OTHER TESTS	CORE RECOVERY (%)	RQD (%)
0	DT1	(70)		16.0	40	21	SA		
5	DT2	(60)							
	DT3	(100)		13.2					
10	DT4	(80)		21.3	43	19	SA		
15	DT5	(91)		13.5			SA		
20	SS6	7-33-40 (100)							
25	SS7	14-20-41 (100)							
30	SS8	38-35-39 (100)					SA		
35	SS9	10-20-11 (100)							
40	SS10	41-30-2							
45	SS11	17-24-47 (100)					SA		
50	SS12	100/4 (100)							
55	SS13	32-40-20 (100)							
60	SS14	33-30-34 (100)					SA		
65	SS15	60-100/2 (100)							
70	SS16	10-37-100/5 (100)					SA		
75	SS17	37-46-66 (100)					SA		
80	SS18	19-61-56 (100)			46	23	SA		
85	SS19	37-53-84 (100)							
90									

20
30
40
50

SYMBOLS	DESCRIPTION	ELEVATION (ft., MSL)
		134.32
SM	SAND, silty, brown.	132.32
SC	SAND, clayey, medium to fine, brown and yellow. - seams of cemented sand between 21 Ft and 25 Ft.	113.32
SP-SM	SAND, medium to fine, trace silt, yellow.	108.32
CL	CLAY, silty, some medium to fine sand, calcareous, yellow.	103.32
SP	SAND, medium to fine, yellow.	100.32
CL	CLAY, silty and sandy, yellow.	99.32
SM	SAND, silty, coarse to fine, trace gravel, yellow. - cemented layer. - grades to no gravel, white ▽ - grades to medium to fine. - grades to coarse to fine with gravel & caliche.	98.32 94.32 93.32 92.32 89.32 86.02 84.32
CL	CLAY, sandy, yellow and gray.	76.02
SC-GC	SAND and Gravel, clayey, gray, with cemented layers.	74.32
CL	CLAY, sandy, gray. - grades to yellow	69.32 66.02
SM	SAND, silty, coarse to fine, yellow.	63.32 62.02
ML	Caliche, (Chalk)	60.02
SM	SAND, silty, coarse to fine, yellow.	
CL	CLAY, silty, little medium to fine sand, gray and brown with pockets of Caliche.	58.32
	END OF BORING - 86.5 Ft Groundwater encountered at 42.0 Ft.	47.82

86.5

ATTACHMENT 11

BORING NO. W-5

SHEET 1 OF 2

PROJECT: Coleto Creek Power Station
CLIENT: Central Power & Light Co.
FEATURE: Monitoring Well W-5
SURFACE ELEVATION: 119.57 Ft | TOTAL DEPTH: 71.5Ft
LOCATION: N 30+07.7 E 31+50.6
DEPTH TO WATER DURING DRILLING: 40.0 Ft | DATE: 3-30-78
DRILLED BY: Trinity Testing Laboratories, Inc.
LOGGED BY: Sargent & Lundy
TESTED BY: Trinity Testing Laboratories, Inc.

DEPTH (ft.)	SAMPLE NUMBER AND TYPE	BLOWS/6" ON SAMPLER (RECOVERY, %)	POCKET PENETROMETER MEASUREMENT (tsf.)	FIELD MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	OTHER TESTS	CORE RECOVERY (%)	RQD (%)	SYMBOLS	DESCRIPTION	DEPTH (ft.)	ELEVATION (ft., MSL)
0										SM	SAND, silty, brown (Topsoil)	0	119.57
										SC	SAND, clayey, medium to fine, brown.		119.07
	ST1	(75)		12.8			SA						
5												5	114.07
	ST2	(83)								CL	CLAY, silty, gray, with Caliche.		
	ST3	(83)											111.57
										SC	SAND, clayey, brown, with layers of Caliche.		
10	ST4	(83)								CL	CLAY, silty, yellow and white, with lenses and pockets of Caliche.	10	108.57
15	ST5	(78)		3.1			SA			SP-SM	SAND, medium to fine, white.	15	104.57
20	SS6	8-13-20 (100)					SA					20	
25												25	93.57
	SS7	7-47-100/4.5 (100)								SC	SAND, clayey, calcareous, white. (Caliche)		90.57
30	SS8	6-13-31 (100)								SM-SC	SAND, silty and clayey, white, with lenses and seems of Caliche – grades to gray.	30	
35	SS9	14-36-31 (100)					SA					35	
40	SS10	1-27-31 (100)								SM	SAND, silty, coarse to fine, white	▽ 40	79.57 79.07
45	SS11	16-67-100/5.5 (100)		34	15					CL	CLAY, silty, gray, with seems of Caliche.	45	73.57
50												50	

REVISION	DATE APPROVED BY	DESCRIPTION
0	10-24-78 D G B[illegible]	For Use

COLETO CREEK POWER STATION
LOG OF BORING W-5

CENTRAL POWER & LIGHT CO.

SARGENT & LUNDY
ENGINEERS

PROJECT NUMBER 4857

BORING NO. W-5 (cont'd) SHEET 2 OF 2

DEPTH (ft.)	SAMPLE NUMBER AND TYPE	BLOWS/6" ON SAMPLER (RECOVERY, %)	POCKET PENETROMETER MEASUREMENT (tsf)	FIELD MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	OTHER TESTS	CORE RECOVERY (%)	RQD (%)
50	SS12	72-100/1 (100)					SA		
55	SS13	50-74-130/5.5 (100)							
60	SS14	100/3.5 (100)			18	14	SA		
65	SS15	18-78-100/4.5 (100)							
70	SS16	9-17-21 (100)							
75									

SYMBOLS	DESCRIPTION	DEPTH (ft) / ELEVATION (ft., MSL)
SM-SC	SAND, silty and clayey, calcareous, white, very dense. (Caliche)	69.57
SM	SAND, silty, white.	66.57
SM-SC	SAND, silty and clayey, calcareous, white and brown, very dense. (Caliche)	62.57
CL	CLAY, silty, brown.	53.57
	END OF BORING - 71.5 Ft Groundwater encountered at 40.0 Ft. and rose to 32.5 Ft.	48.07

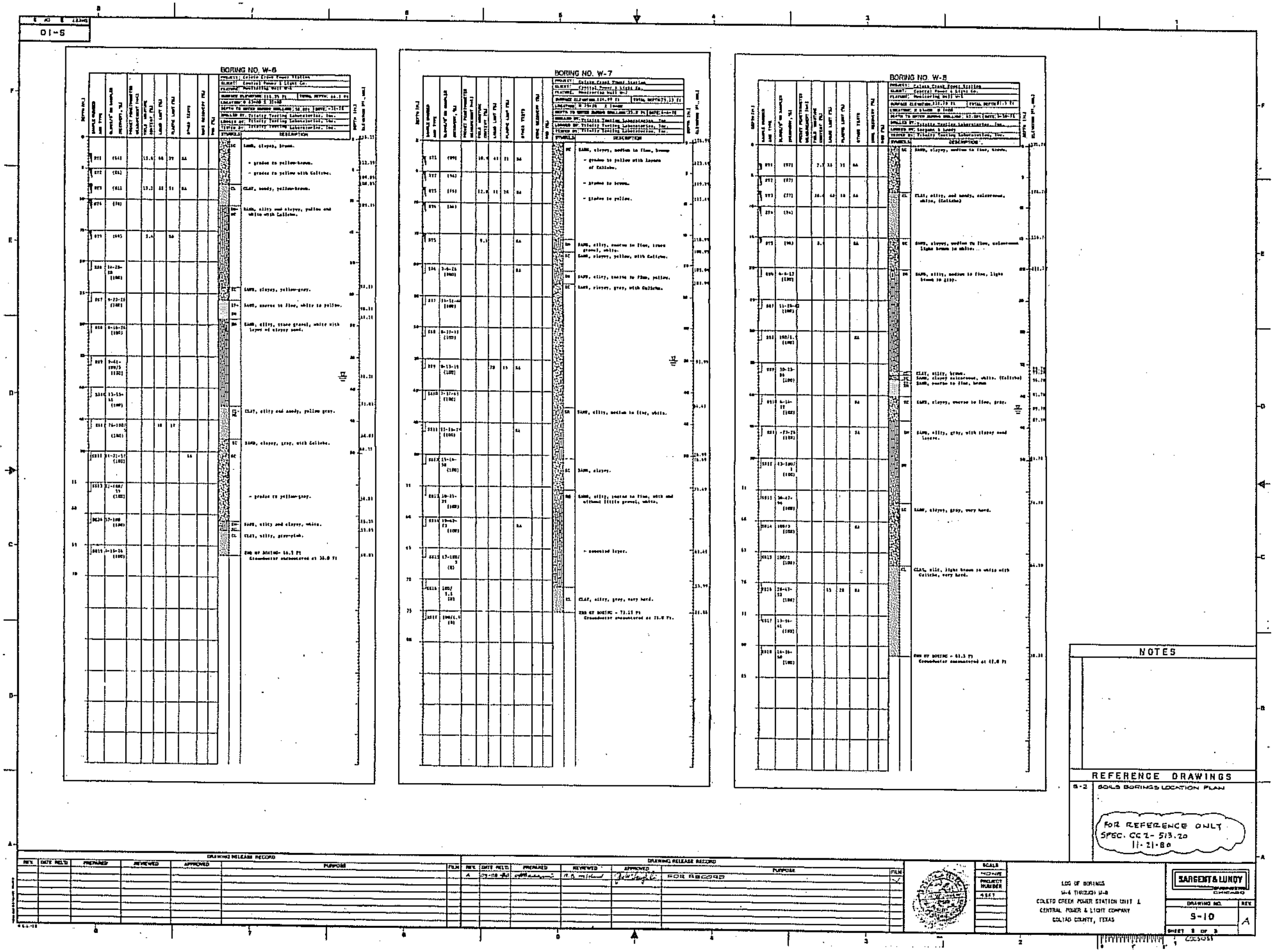
REVISION	DATE / APPROVED BY	DESCRIPTION
0	10-24-78 R.G. Bolin	For Use

COLETO CREEK POWER STATION
LOG OF BORING W-5 (cont'd)

CENTRAL POWER & LIGHT CO.

SARGENT & LUNDY
ENGINEERS

PROJECT NUMBER 4857



BORING NO. W-6

PROJECT: Coleto Creek Power Station
CLIENT: Central Power & Light Co.
FEATURE: Monitoring Well W-6
DRILLED BY: Trinity Testing Laboratories, Inc.
LOGGED BY: Trinity Testing Laboratories, Inc.
TESTED BY: Trinity Testing Laboratories, Inc.

SAND, clayey, brown.
- grades to yellow-brown.
- grades to yellow with Caliche.
CLAY, sandy, yellow-brown.
SAND, silty and clayey, yellow and white with Caliche.
SAND, clayey, yellow-gray.
SAND, coarse to fine, white to yellow.
SAND, silty, trace gravel, white with layer of clayey sand.
CLAY, silty and sandy, yellow gray.
SAND, clayey, gray, with Caliche.
- grades to yellow-gray.
SAND, silty and clayey, white.
CLAY, silty, gray-pink.
END OF BORING- [illegible] Ft
Groundwater encountered at [illegible] Ft

BORING NO. W-7

PROJECT: Coleto Creek Power Station
CLIENT: Central Power & Light Co.
FEATURE: Monitoring Well W-7
DRILLED BY: Trinity Testing Laboratories, Inc.
LOGGED BY: Trinity Testing Laboratories, Inc.
TESTED BY: Trinity Testing Laboratories, Inc.

SAND, clayey, medium to fine, brown.
- grades to yellow with layers of Caliche.
- grades to brown.
- grades to yellow.
SAND, silty, medium to fine, trace gravel, white.
SAND, clayey, yellow, with Caliche.
SAND, silty, coarse to fine, yellow.
SAND, clayey, gray, with Caliche.
SAND, silty, medium to fine, white.
SAND, clayey.
SAND, silty, coarse to fine, with and without little gravel, white.
- cemented layer.
CLAY, silty, gray, very hard.
END OF BORING - 73.11 Ft
Groundwater encountered at [illegible] Ft.

BORING NO. W-8

PROJECT: Coleto Creek Power Station
CLIENT: Central Power & Light Co.
FEATURE: Monitoring Well W-8
DRILLED BY: Trinity Testing Laboratories, Inc.
LOGGED BY: Sargent & Lundy
TESTED BY: Trinity Testing Laboratories, Inc.

SAND, clayey, medium to fine, brown.
CLAY, silty, and sandy, calcareous, white, (Caliche)
SAND, clayey, medium to fine, calcareous, light brown to white.
SAND, silty, medium to fine, light brown to gray.
CLAY, silty, brown.
SAND, clayey calcareous, white. (Caliche)
SAND, coarse to fine, brown
SAND, clayey, coarse to fine, gray.
SAND, silty, gray, with clayey sand layers.
SAND, clayey, gray, very hard.
CLAY, silt, light brown to white with Caliche, very hard.
END OF BORING - [illegible] Ft
Groundwater encountered at [illegible] Ft

NOTES

REFERENCE DRAWINGS
S-2 SOILS BORINGS LOCATION PLAN

FOR REFERENCE ONLY
SPEC. CCZ- 513.20
11-21-80

DRAWING RELEASE RECORD

REV	DATE REL'D	PREPARED	REVIEWED	APPROVED	PURPOSE	FILM
A	[illegible]	[illegible]	R.S. [illegible]	[illegible]	FOR RECORD	✓

SCALE NONE
PROJECT NUMBER 4547

LOG OF BORINGS
W-6 THROUGH W-8
COLETO CREEK POWER STATION UNIT 1
CENTRAL POWER & LIGHT COMPANY
GOLIAD COUNTY, TEXAS

SARGENT & LUNDY
ENGINEERS
CHICAGO

DRAWING NO. S-10
REV A
SHEET 3 OF 3

Bullock, Bennett & Associates, LLC
165 N. Lampasas Street
Bertram, TX 78605

LOG OF BORING W-9

(Page 1 of 1)

COLETO CREEK POWER STATION
FANNIN, TX

Project No. 15215

Date : 9/15/2015
Easting : 2543670.9
Northing : 13451651.2
Top of Casing Elevation 132.3 ft NAVD 88
Logger : EEF

Drilling Company : EnviroCore
Driller : Craig Schena (Lic. #4694)
Drill Rig : CME75
Drilling Method : Hollow Stem Auger - 6"
Sampling Method : Split-Spoon

DEPTH (feet): 0.0, 5.0, 10.0, 15.0, 20.0, 25.0, 30.0, 35.0, 40.0, 45.0, 50.0, 55.0, 60.0

Surface Elevation 129.3: 128, 124, 120, 116, 112, 108, 104, 100, 96, 92, 88, 84, 80, 76, 72

DESCRIPTION	USCS	Recovery (ft/ft)
(0-2.0) - Fill Material: CLAYEY SAND, mottled light gray and reddish brown, moist	SC	1.5/2
(2.0-5.5) - Fill Material: Silty CLAY/Clayey SAND, brownish gray to white, soft to firm, Sand is fine to coarse grained, common caliche gravel, moist	SC/CL	2/2 2/2
(5.5-10.0) - Silty CLAY, dark gray to gray with orangish brown mottling, firm to hard, medium plasticity, common caliche gravel, minor roots, moist	CL	2/2 2/2
(10.0-20.5) - Predominantly Caliche and Silty CLAY, light gray to white, Caliche is weekly cemented, low plasticity, dry	ML/CL	2/2 2/2 2/2 2/2 2/2
(20.5-22.0) - SILTY SAND, very light brownish gray, fine to coarse grained, trace of gravel, moist	SM	2/2
(22.0-44.0) - SAND, very light orangish brownish to very light gray, fine to coarse grained, slightly silty, wet	SW	2/2 2/2 2/2 2/2 2/2 2/2 2/2 2/2 2/2 2/2 2/2
(44.0-47.0) - SILTY SAND, light gray, fine to coarse grainad, wet	SM	2/2 2/2
(47.0-54.0) - Silty CLAY/Clayey SAND, light gray, soft to firm, Sand is fine to coarse grained, wet	SC/CL	2/2 2/2 2/2
(54.0-60.0) - Silty, Clayey SAND, gray, fine to coarse grained, wet	SC/SM	2/2 2/2 2/2

WELL DIAGRAM/REMARKS

Well Construction:
Riser ~3.0' AGL - 40.0' BGL
Neat Cement: 0' - 2.0' BGL
Bentonite chips seal: 2.0' - 38.0' BGL
Sand Pack: 38.0' - 60.0' BGL
Screen: 40.0' - 60.0' BGL

Water Level: 25.2' BGL

Craig E. Bennett

CRAIG E. BENNETT
GEOLOGY
LIC. # 1205

5-26-16

Total Boring Depth = 60 ft Below Ground Level; North and Easting Coordinates from NAD-83, South Central Zone

Bullock, Bennett & Associates, LLC
165 N. Lampasas Street
Bertram, TX 78605

LOG OF BORING W-10

(Page 1 of 1)

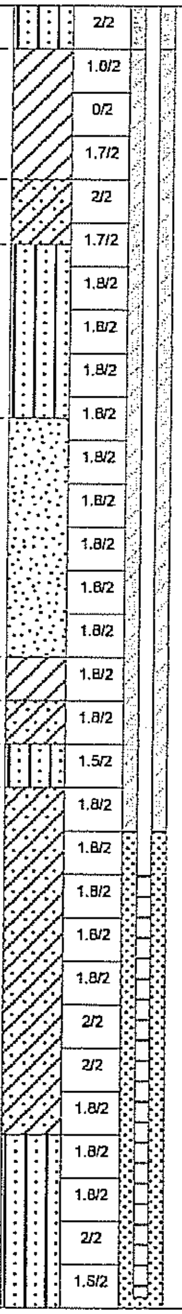
COLETO CREEK POWER STATION
FANNIN, TX

Project No. 15215

Date : 9/17/2015
Easting : 2542864.5
Northing : 13449694.0
Top of Casing Elevation 130.4 ft NAVD 88
Logger : EEF

Drilling Company : EnviroCore
Driller : Craig Schena (Lic. #4694)
Drill Rig : CME75
Drilling Method : Hollow Stem Auger - 6"
Sampling Method : Split-Spoon

DEPTH (feet)	Surface Elevation 127.6	DESCRIPTION	USCS	Recovery (ft/ft)	WELL DIAGRAM/REMARKS
0.0		(0-2.0) - Fill Material: SILTY SAND, fine to coarse grained, brown, clayey, common roots, moist	SM	2/2	
5.0	124 120	(2.0-8.0) - Silty,Sandy CLAY,mottled organish brown and light gray, firm, medium plasticity, moist	CL	1.0/2 0/2 1.7/2	
10.0		(8.0-11.0) - Silty CLAY/Clayey SAND, light gray, Sand is medium grained, moist	SC/CL	2/2 1.7/2	Well Construction: Riser ~3.0' AGL - 40.0' BGL Neat Cement: 0' - 2.0' BGL Bentonite chips seal: 2.0' - 38.0' BGL Sand Pack: 38.0' - 60.0' BGL Screen: 40.0' - 60.0' BGL
15.0	116 112	(11.0-19.0) - SILTY SAND, very light gray, medium to coarse grained, abundant caliche, moist	SM	1.8/2 1.8/2 1.8/2 1.8/2	
20.0 25.0	108 104 100	(19.0-30.0) - SAND, light gray, medium to coase grained, occasional gravel, moist	SP	1.8/2 1.8/2 1.8/2 1.8/2 1.8/2 1.8/2	Water Level: 24.8' BGL
30.0	96	(30.0-32.0) - Silty CLAY/Clayey SAND, light gray, soft to firm, occasional gravel and caliche, medium plasticity, wet	CL/SC	1.8/2	
		(32.0-34.0) - CLAYEY SAND, brownish grey, soft, very fine, wet	SC	1.8/2	
35.0	92	(34.0-36.0) - SILTY SAND, light gray, fine to medium grained, wet	SM	1.5/2	
40.0 45.0 50.0	88 84 80 76	(36.0-52.0) - Silty, Clayey SAND, light gray, fine to coarse grained, wet	SC/SM	1.8/2 1.8/2 1.8/2 1.8/2 1.8/2 2/2 2/2 1.8/2	
55.0 60.0	72 68	(52.0-60.0) - SILTY SAND, light gray, fine to coarse grained, clayey, wet	SM	1.8/2 1.8/2 2/2 1.5/2	



Craig E. Bennett

CRAIG E. BENNETT
GEOLOGY
LIC. # 1205

5-26-16

Total Boring Depth = 60 ft Below Ground Level; North and Easting Coordinates from NAD-83, South Central Zone

Bullock, Bennett & Associates, LLC
165 N. Lampasas Street
Bertram, TX 78605

LOG OF BORING MW-11

(Page 1 of 1)

COLETO CREEK POWER STATION
FANNIN, TX

Project No. 17252

Date	: 4/25/2017
Easting	: 2543727.0
Northing	: 13452676.5
Top of Casing Elevation	118.66 ft NAVD 88
Logger	: EEF
Drilling Company	: EnviroCore
Driller	: Craig Schena (Lic. #4694)
Drill Rig	: CME75
Drilling Method	: Hollow Stem Auger - 6"
Sampling Method	: Split-Spoon

DEPTH (feet) | Surface Elevation 115.8 | DESCRIPTION | USCS | GRAPHIC | Recovery (ft/ft) | WELL DIAGRAM/REMARKS

DESCRIPTION	USCS
(0-1.0) - Silty CLAY, dark brown, soft to firm, medium plasticity, minor roots, moist	CL
(1.0-6.5) - Predominantly Caliche and Silty CLAY, light gray to white, Caliche is weakly cemented, low to medium plascticity, wet	CL/ML
(6.5-13.8) - Silty, Clayey SAND, light gray to white, very fine to medium grained, wet	SM
(13.8-28.5) - SAND, very light orangish brownish to very light gray, fine to coarse grained, abundant gravel, slightly silty, wet	SW
(28.5-38.0) - Silty, Clayey SAND, gray to light brownish gray, very fine to medium grained, wet	SM/SC
(38.0-40.0) - Silty CLAY/Clayey SAND, light gray, weakly caliche cemented, Sand is fine to medium grained, wet	CL/SC
(40.0-46.0) - Silty, Clayey SAND, gray, fine to medium grained, wet	SM/SC
(46.0-49.0) - Silty CLAY/Clayey SAND, light gray, weakly caliche cemented, Sand is fine to medium grained, wet	SC

Recovery (ft/ft)
2/2
2/2
2/2
2/2
2/2
2/2
2/2
2/2
2/2
2/2
2/2
2/2
2/2
2/2
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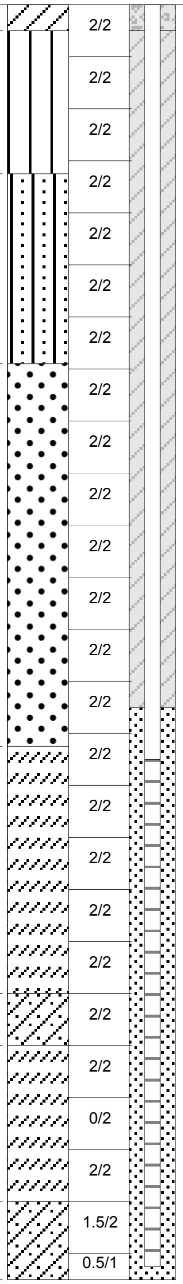
2/2
2/2
2/2
2/2
2/2
0/2
2/2
1.5/2
0.5/1



Water Level: 11.2' BGL

Well Construction:
Riser ~2.7' AGL - 29.0' BGL
Neat Cement: 0' - 1.0' BGL
Bentonite chips seal: 1.0' - 27.0' BGL
Sand Pack: 27.0' - 49.0' BGL
Screen: 29.0' - 49.0' BGL

CRAIG E. BENNETT
LIC #1205

Craig E. Bennett
04-28-2017

Total Boring Depth = 49 ft Below Ground Level; North and Easting Coordinates from NAD-83, South Central Zone

BLACK & VEATCH

PRELIMINARY BORING LOG

BORING NO. BV-5
SHEET 1 OF 3

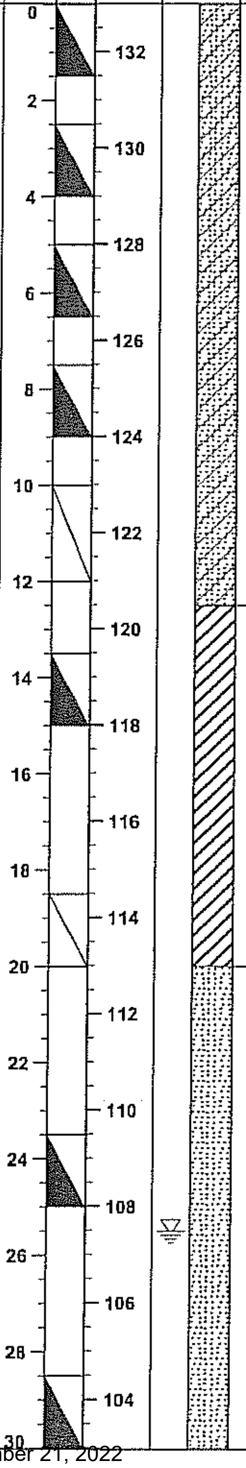
CLIENT International Power America, Inc	**PROJECT** Coleto Creek Unit Two	**PROJECT NO.** 149116

PROJECT LOCATION Victoria, Texas	**COORDINATES** N 327129.3'	E 2570579.3'	**GROUND ELEVATION (DATUM)** 133.0 ft (MSL)	**TOTAL DEPTH** 80.0 (feet)

SURFACE CONDITIONS Grassy, level, tan clayey sand	**COORDINATE SYSTEM** State Plane	**DATE START** 9/16/08	**DATE FINISHED** 9/17/08

LOGGED BY V Bhadriraju	**CHECKED BY** V Bhadriraju	**APPROVED BY**

SOIL SAMPLING						
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY
ROCK CORING						
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD
SPT	1	3	7	11	18	1.0
SPT	2	13	11	10	21	1.2
SPT	3	6	10	13	23	1.2
SPT	4	6	10	13	23	1.1
CA	5	6	14	19	33	1.4
SPT	6	13	16	20	36	1.5
CA	7	19	30	28	58	1.5
SPT	8	6	8	8	16	1.5
SPT	9	50/5"	-	-	>50	0.3



CLASSIFICATION OF MATERIALS

Clayey SAND; brownish gray; medium dense; moist; fine grained; poorly graded; some roots

@ 3.0'-3.2' yellowish brown fine to medium sand partings; roots grade out

grading light gray w/ some black mottling

grading w/some light brown staining

12.5

CLAY; white; hard; moist; low plasticity; frequent pockets of gray fine grained clayey sand

grading w/ frequent pockets of gray & light brown clay

20.0

SAND; grayish white; moist; fine to medium grained; poorly graded

grading medium dense w/trace angular gravel
@ 24.0' gravel grades out

grading very dense
@29.2' calcareous sand nodules; some white silt w/

REMARKS

Boring advanced w/ 3-1/4" ID hollow stem auger. SPT performed w/ auto hammer. Sand partings are vertical and dry.

Encountered water @ 25.5' during drilling

Sand in augers. Augers being

1/15/2009 4:19 PM Coleto Creek 2

BLACK & VEATCH

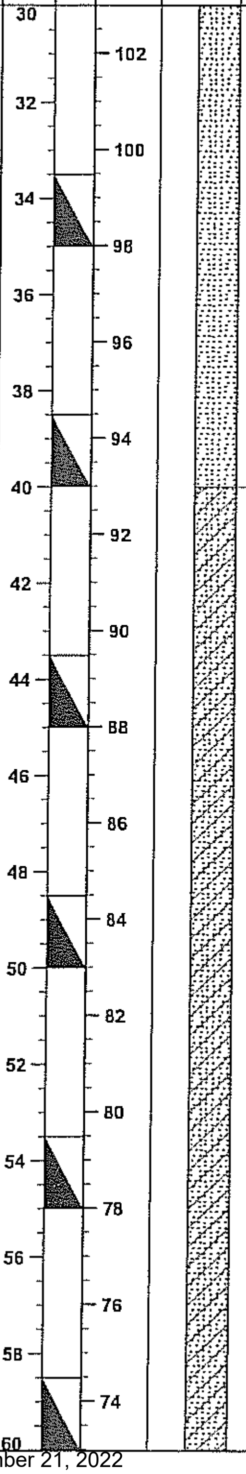
PRELIMINARY BORING LOG

BORING NO. BV-5

SHEET 2 OF 3

CLIENT International Power America, Inc
PROJECT Coleto Creek Unit Two
PROJECT NO. 149116
PROJECT LOCATION Victoria, Texas
COORDINATES N 327129.3' E 2570579.3'
GROUND ELEVATION (DATUM) 133.0 ft (MSL)
TOTAL DEPTH 80.0 (feet)
SURFACE CONDITIONS Grassy, level, tan clayey sand
COORDINATE SYSTEM State Plane
DATE START 9/16/08
DATE FINISHED 9/17/08
LOGGED BY V Bhadriraju
CHECKED BY V Bhadriraju
APPROVED BY

SOIL SAMPLING						
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY
ROCK CORING						
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD
SPT	10	6	8	10	18	0.9
SPT	11	14	33	38	71	1.5
SPT	12	12	16	21	37	1.5
SPT	13	12	17	20	37	1.5
SPT	14	17	40	33	73	0.9
SPT	15	7	50/3"	-	>50	0.3



CLASSIFICATION OF MATERIALS

chalk nodules

grading medium dense; wet; fine to medium grained; well graded

grading very dense
@ 38.5'-39.3' yellow silty clay layer
@ 39.3' grading grayish white w/ fine grained sand & some silt

— — — — — — — — — — — — — — — — 40.0

Clayey SAND; light gray; dense; moist; fine grained; poorly graded

grading light brown; silt grades out

grading fine to medium grained

some angular gravel

grading w/ white fine sand; some clay cementation

REMARKS

driven along w/ spoon.
Below 28.5' continued w/ rotary wash method using 4" drag bit & bentonite slurry as drilling fluid.
Driller reported trace gravel from 28.5'-38.5'.

Based on driller's comments.

Driller reported alternating hard and soft drilling efforts.

BLACK & VEATCH

PRELIMINARY BORING LOG

BORING NO. BV-5
SHEET 3 OF 3

CLIENT International Power America, Inc	**PROJECT** Coleto Creek Unit Two	**PROJECT NO.** 149116
PROJECT LOCATION Victoria, Texas	**COORDINATES** N 327129.3' E 2570579.3'	**GROUND ELEVATION (DATUM)** 133.0 ft (MSL)
TOTAL DEPTH 80.0 (feet)	**SURFACE CONDITIONS** Grassy, level, tan clayey sand	**COORDINATE SYSTEM** State Plane
DATE START 9/16/08	**DATE FINISHED** 9/17/08	
LOGGED BY V Bhadriraju	**CHECKED BY** V Bhadriraju	**APPROVED BY**

SOIL SAMPLING: SAMPLE TYPE ROCK CORING: CORE SIZE	SAMPLE NUMBER RUN NUMBER	SET 6 INCHES RUN LENGTH	2ND 6 INCHES RUN RECOVERY	3RD 6 INCHES RQD RECOVERY	N VALUE PERCENT RECOVERY	SAMPLE RECOVERY RQD	DEPTH (FEET)	ELEVATION (FEET)	CLASSIFICATION OF MATERIALS	REMARKS
							60.0	73	Silty SAND; white; very dense; moist; fine grained; poorly graded; some pockets of light brown clay; highly cemented	Based on driller's comments & cuttings from rotary wash.
SPT	16	50/4"	-	-	>50	0.2	64	69		
SPT	17	50/3"	-	-	>50	0.3	69	64	grading w/ trace angular to subangular gravel; clay pockets grade to trace	
							73.5	59.5	CLAY; dark tan; hard; moist; low plasticity; some sand @ 74.5' yellowish gray	No clay cuttings in drilling fluid return.
SPT	18	12	17	22	39	1.5	74	59		
SPT	19	13	17	22	39	1.5	79	54		
							80	53		Bottom of boring @ 80.0'. Water level recorded @ 24.6' after 24 hours. Boring backfilled w/ bentonite pallets to 42.5' on 09/17/08. Piezometer PZ-5 set from 30.0' to 40.0'. Boring backfilled with cement bentonite grout to ground surface.

1/15/2009 4:19 PM Coleto Creek 2

BLACK & VEATCH

PRELIMINARY BORING LOG

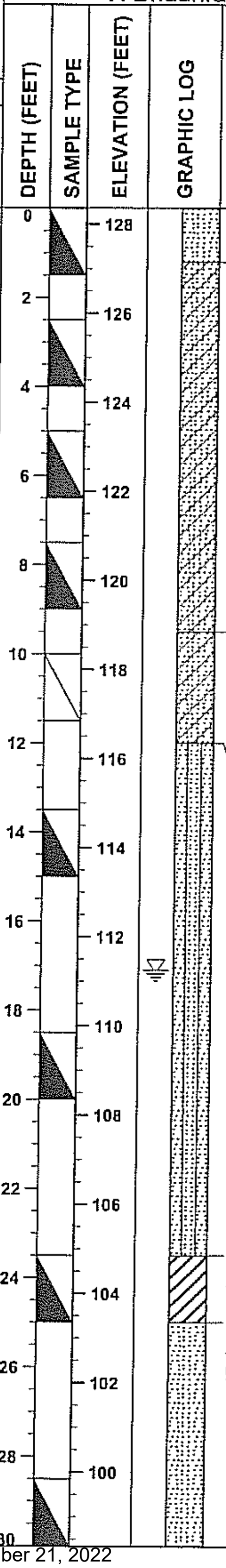
BORING NO. BV-21

SHEET 1 OF 3

CLIENT: International Power America, Inc		PROJECT: Coleto Creek Unit Two	PROJECT NO.: 149116
PROJECT LOCATION: Victoria, Texas	COORDINATES: N 328659.7' E 2571578.7'	GROUND ELEVATION (DATUM): 128.4 ft (MSL)	TOTAL DEPTH: 80.0 (feet)
SURFACE CONDITIONS: Level, loose, silty sand	COORDINATE SYSTEM: State	DATE START: 9/8/08	DATE FINISHED: 9/8/08
LOGGED BY: V. Bhadriraju	CHECKED BY: V Bhadriraju	APPROVED BY:	

SOIL SAMPLING / ROCK CORING

SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD
SPT	1	1	2	5	7	0.9
SPT	2	5	5	6	11	1.5
SPT	3	4	6	9	15	1.5
SPT	4	5	6	8	14	1.1
CA	5	3	3	4	7	1.5
SPT	6	22	50/3	-	>50	0.7
SPT	7	24	50	50/4	>50	0.9
SPT	8	5	6	14	20	1.5
SPT	9	20	48	48	96	1.5



CLASSIFICATION OF MATERIALS

SAND; dark brown; loose; moist; fine grained; poorly graded

1.2

Clayey SAND; light brown; medium dense; moist; fine grained; poorly graded

grading light gray; some black mottling & trace roots

grading w/trace chalk nodules; roots grade out

grading w/frequent seams of chalk nodules

9.5

Clayey SAND; light gray; moist; fine to medium grained; poorly graded; trace gravel

grading w/highly cemented calcareous sand

12.0

Silty SAND; grayish white; very dense; moist; fine grained; poorly graded

grading orange; wet; fine to medium grained; trace calcareous sand nodules

23.5

CLAY; light gray; very stiff; moist; high plasticity; some light brown clay pockets

25.0

SAND; light gray; very dense; wet; fine to coarse grained; well graded; w/trace gravel

REMARKS

Boring advanced w/3-1/4" ID hollow stem auger. SPT performed w/auto hammer.

Water encountered during drilling @ 17.6'. Driller reports softer drilling. Below 18.5' continued w/ rotary wash method using 4" drag bit & bentonite slurry as drilling fluid.

White silt & fine sand in bottom of SPT-8

1/15/2009 4:19 PM Coleto Creek 2

BLACK & VEATCH

PRELIMINARY
BORING LOG

BORING NO. BV-21
SHEET 2 OF 3

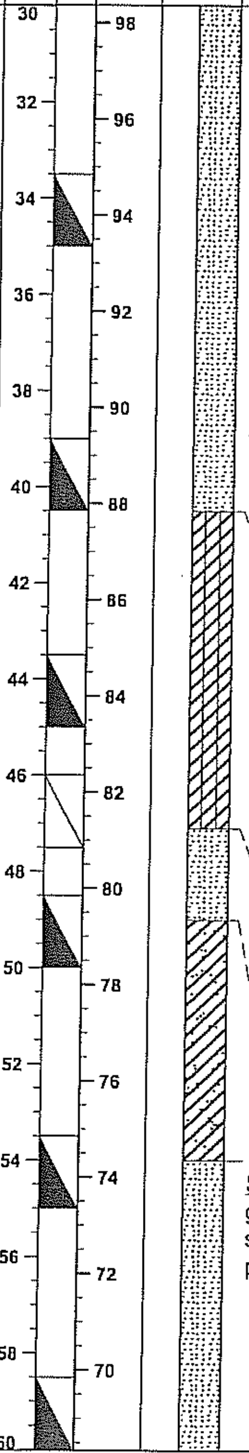
CLIENT	International Power America, Inc
PROJECT	Coleto Creek Unit Two
PROJECT NO.	149116
PROJECT LOCATION	Victoria, Texas
COORDINATES	N 328659.7' E 2571578.7'
GROUND ELEVATION (DATUM)	128.4 ft (MSL)
TOTAL DEPTH	80.0 (feet)
SURFACE CONDITIONS	Level, loose, silty sand
COORDINATE SYSTEM	State
DATE START	9/8/08
DATE FINISHED	9/8/08
LOGGED BY	V. Bhadriraju
CHECKED BY	V Bhadriraju
APPROVED BY	

SOIL SAMPLING

SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY
SPT	10	33	50/4"	-	>50	0.4
SPT	11	9	24	40	64	1.4
SPT	12	13	39	50/4"	>50	1.1
CA	13	30	45	50/5"	>50	1.0
SPT	14	36	50/5"	-	>50	1.0
SPT	15	17	30	32	62	1.5
SPT	16	50/4"	-	-	>50	0.3

ROCK CORING

CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD



CLASSIFICATION OF MATERIALS

grading grayish white; fine grained; poorly graded; w/ trace clay & some gravel

grading fine to medium grained; clay & gravel grade out

grading w/occasional light brown clay pockets

@ 40.5' white clayey silt & some chalk nodules

40.5

Silty CLAY; grayish white; hard; moist; low plasticity; w/ some light gray fine sand pockets

grading w/limestone nodules

47.1

SAND; light gray; wet; fine grained; poorly graded; highly cemented

@ 47.2' grading light brown; fine to medium grained; cementation grades out

49.0

Sandy CLAY; grayish white; hard; dry; low plasticity

54.0

SAND; light brown; very dense; wet; fine to medium grained; poorly graded; some gravel & coarse sand sized chalk nodules; occasional light brown clay pockets

REMARKS

@ 34.0'-35.0' boulder encountered. Hard drilling. Drilled through w/ 4" tricone driller bit. Driller reported limestone in cuttings. Continued w/4" paddle bit. 39.0'- 43.2' driller reported clay like drilling.

1/15/2009 4:19 PM Coleto Creek 2

BLACK & VEATCH

PRELIMINARY BORING LOG

BORING NO. BV-21

SHEET 3 OF 3

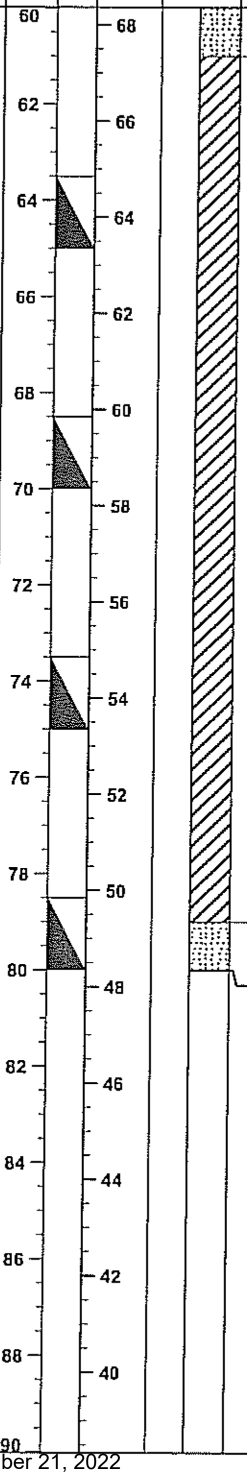
CLIENT International Power America, Inc		**PROJECT** Coleto Creek Unit Two	**PROJECT NO.** 149116
PROJECT LOCATION Victoria, Texas	**COORDINATES** N 328659.7' E 2571578.7'	**GROUND ELEVATION (DATUM)** 128.4 ft (MSL)	**TOTAL DEPTH** 80.0 (feet)
SURFACE CONDITIONS Level, loose, silty sand	**COORDINATE SYSTEM** State	**DATE START** 9/8/08	**DATE FINISHED** 9/8/08
LOGGED BY V. Bhadriraju	**CHECKED BY** V Bhadriraju	**APPROVED BY**	

SOIL SAMPLING

SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY
SPT	17	11	20	25	45	1.5
SPT	18	18	25	25	50	1.5
SPT	19	14	27	27	54	1.5
SPT	20	18	18	29	47	1.5

ROCK CORING

CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD



CLASSIFICATION OF MATERIALS

@ 60.0' white chalk layer

61.0

CLAY; yellowish gray; hard; moist; high plasticity

grading w/frequent partings of grayish white fine sand w/gravel sized chalk nodules

@ 73.5'-74.0' light brown

fine sand partings grade to occasional

79.0

SAND; grayish white; dense; moist; fine grained; poorly graded; trace clay

REMARKS

Clay cuttings from rotary wash

Bottom of boring @ 80.0'. Water level recorded @ 16.3' after 24 hours. Boring backfilled w/ bentonite pallets to 42.5' on 09/09/08. Piezometer PZ-21 set from 30.0' to 40.0'. Boring backfilled with cement bentonite grout to ground surface.

1/15/2009 4:19 PM Coleto Creek 2

REPORT

Supplemental Geologic and Hydrogeologic Information

Coleto Creek Power Station - Primary Ash Pond
Fannin, Texas

Submitted to:

Coleto Creek Power LLC

Submitted by:

WSP GOLDER

1601 S MoPac Expressway
Suite 325D
Austin, Texas, USA 78746

+1 737 703 3900

31404097.007

November 2022

Table of Contents

FIGURES

APPENDICES

1.0 INTRODUCTION

Coleto Creek Power LLC operates the Coleto Creek Power Station (Coleto Creek), a lignite-fired power plant located in Fannin, Goliad County, Texas (the Site) (Figure 1). CCRs including fly ash and bed ash are generated as part of power plant operations. The CCRs are managed/disposed in the Primary Ash Pond onsite or are transported offsite for disposal/beneficial reuse by third-parties.

This report provides geologic and hydrogeologic information to supplement the information provided in the Groundwater Hydrogeologic Monitoring Plan for Coleto Creek (BBA, 2017a).

2.0 SITE GEOLOGY AND HYDROGEOLOGY

The Site is located in the outcrop area of the Pleistocene-aged Lissie Formation, which is described in the Geologic Atlas of Texas (Barnes, 1998) as consisting of sand, silt, clay, and minor amounts of gravel. Extensive soil data collected during several geotechnical and other environmental investigations at the Site (Sargent and Lundy, 1978; AECOM, 2009; AECOM, 2012) indicate that the stratigraphy below the Site and below the Primary Ash Pond is divided into three distinct lithologic units. In order of increasing depth, they are:

- **Unit 1** – This near-surface unit is generally dry and consists primarily of low permeability sandy clay and clayey sand with intermittent layers of silty clay. Unit 1 appears laterally continuous across the Site and extends from ground surface to depths of up to 25 feet below ground surface (bgs). Unit 1 varies in thickness below the Primary Ash Pond from about 11 to 25 feet. The Primary Ash Pond is built on top of the ground surface of Unit 1 and is enclosed by above-grade dikes.

- **Unit 2** – The middle stratigraphic unit is where groundwater is commonly first encountered at the Site, And is considered the uppermost, permeable groundwater-bearing zone/aquifer at the Site. Unit 2 consists primarily of permeable sand and silty sand, with intermittent layers of less permeable clay-bearing soils with varying thickness. This unit appears laterally continuous below the Site, with a thickness that varies from about 40 to 55 feet.

- **Unit 3** – Unit 3 is a basal clay confining stratum that appears laterally continuous at the Site. Unit 3 primarily consists of low permeability clay and silty clay, with some sandy clay zones. Unit 3 is at least 29 feet thick. It was not completely penetrated by most historical soil borings completed at the Site. The clayey soils of this stratum restrict downward migration of groundwater from Unit 2.

AECOM produced geologic cross sections through the Primary Ash Pond area in their 2009 Groundwater Quality Assessment Plan for the Coleto Creek Power Plant (AECOM, 2009). These cross sections, which show the three lithologic units described above, are provided in Appendix 1.

3.0 HYDRAULIC CHARACTERISTICS OF THE SITE LITHOLOGIC UNITS

The uppermost lithologic unit (Unit 1) has low permeability and is generally dry; therefore, it is generally not suitable for groundwater monitoring.

The uppermost aquifer at the Site occurs under unconfined conditions within the middle sand unit (Unit 2). In 2017, Bullock, Bennett & Associates, LLC (BBA) completed single-well aquifer tests (slug tests) at six wells (BV-5, BV-21, BV-22, MW-9, MW-10, and MW-11), which are all screened within the uppermost groundwater-bearing unit at the Site, to evaluate the hydraulic conductivity of the unit. The hydraulic conductivities calculated from the slug test data ranged from 1.37E-02 centimeters per second (cm/s) in BV-22 to 5.14E-04 cm/s in MW-10 (BBA, 2017b). The geometric mean of all slug tests was 3.3E-03 cm/s. These hydraulic conductivity results are typical of lithologic units consisting of fine to medium sand. As described by Domenico and Schwartz (1990), fine to medium sand units typically have hydraulic conductivity values ranging from 5E-01 cm/s to 2E-4 cm/s. Other hydraulic properties of the units at the Site can be estimated based on the lithologic information from soil borings completed at the Site. Typical hydraulic properties for the characteristic lithologic materials of each of the units at the Site are summarized in the table below:

Table 1. Estimated Hydraulic Properties Based on Site-Specific Lithologic Information

HYDRAULIC PARAMETER	UNIT 1 (Sandy Clay and Clayey Sand)	Unit 2 (Sand and Silty Sand)	Unit 3 (Clay and Silty Clay
Hydraulic Conductivity: (Domenico and Schwartz 1990)	2E-01 to 1E-08	5E-01 cm/s to 2E-4 cm/s	4.7E-06 cm/s to 1E-08 cm/s
Total Porosity: (Morris and Johnson, 1967)	34% to 61%	26% to 53%	34% to 57%
Effective Porosity: (Morris and Johnson, 1967)	6% to 20%	33%	6%

4.0 CCR GROUNDWATER MONITORING SYSTEM

Unit 2 is considered the uppermost aquifer at the Site based on its stratigraphic location, groundwater availability, and characteristically higher hydraulic conductivity/permeability and effective porosity when compared to Unit 1 and Unit 3. The CCR groundwater monitoring well network for the Primary Ash Pond consists of nine monitoring wells each screened within Unit 2. The locations of the CCR monitoring wells are shown on Figure 2. Groundwater generally flows to the southeast in the vicinity of the Primary Ash Pond. This is demonstrated on the 2021 groundwater potentiometric surface maps presented in Appendix 2. The location of each CCR monitoring well relative to the Primary Ash Pond is as follows:

Upgradient/Background Wells	Downgradient Wells
BV-5 BV-8 BV-21	MW-4 MW-5 MW-6 MW-9 MW-10 MW-11

5.0 REFERENCES

AECOM, 2009. Groundwater Quality Assessment Plan, Coleto Creek Power Plant, Fannin, Goliad County, Texas.

AECOM, 2012. Geotechnical Stability and Hydraulic Analysis of the Coleto Creek Energy Facility Primary and Secondary Ash Ponds, Coleto Creek Energy Facility, Fannin, Texas.

Barnes, Virgil E., 1998. Geologic Atlas of Texas, Beeville-Bay City Sheet. Sheet. Texas Bureau of Economic Geology. 1975; revised 1987; reprinted 1998.

Bullock, Bennett & Associates, LLC (BBA), 2017a. Groundwater Hydrogeologic Monitoring Plan, Coleto Creek Power Station, Fannin, Texas.

Bullock, Bennett & Associates, LLC (BBA), 2017b. Pneumatic Slug Testing of Select Primary Ash Pond Monitoring Wells, Coleto Creek Power Station, Fannin, Texas.

Domenico, P.A. and F.W. Schwartz, 1990. *Physical and Chemical Hydrogeology*, John Wiley & Sons, New York, 824 p.

Morris, D.A. and A.I. Johnson, 1967. Summary of hydrologic and physical properties of rock and soil materials as analyzed by the Hydrologic Laboratory of the U.S. Geological Survey, U.S. Geological Survey Water-Supply Paper 1839-D, 42p.

Sargent & Lundy Engineers, 1978. Design and Construction Summary for Coal Pile and Wastewater Pond Facilities, Coleto Creek Power Station Unit 1, Report SL-3689.

Signature Page

Golder Associates USA, Inc., Member of WSP

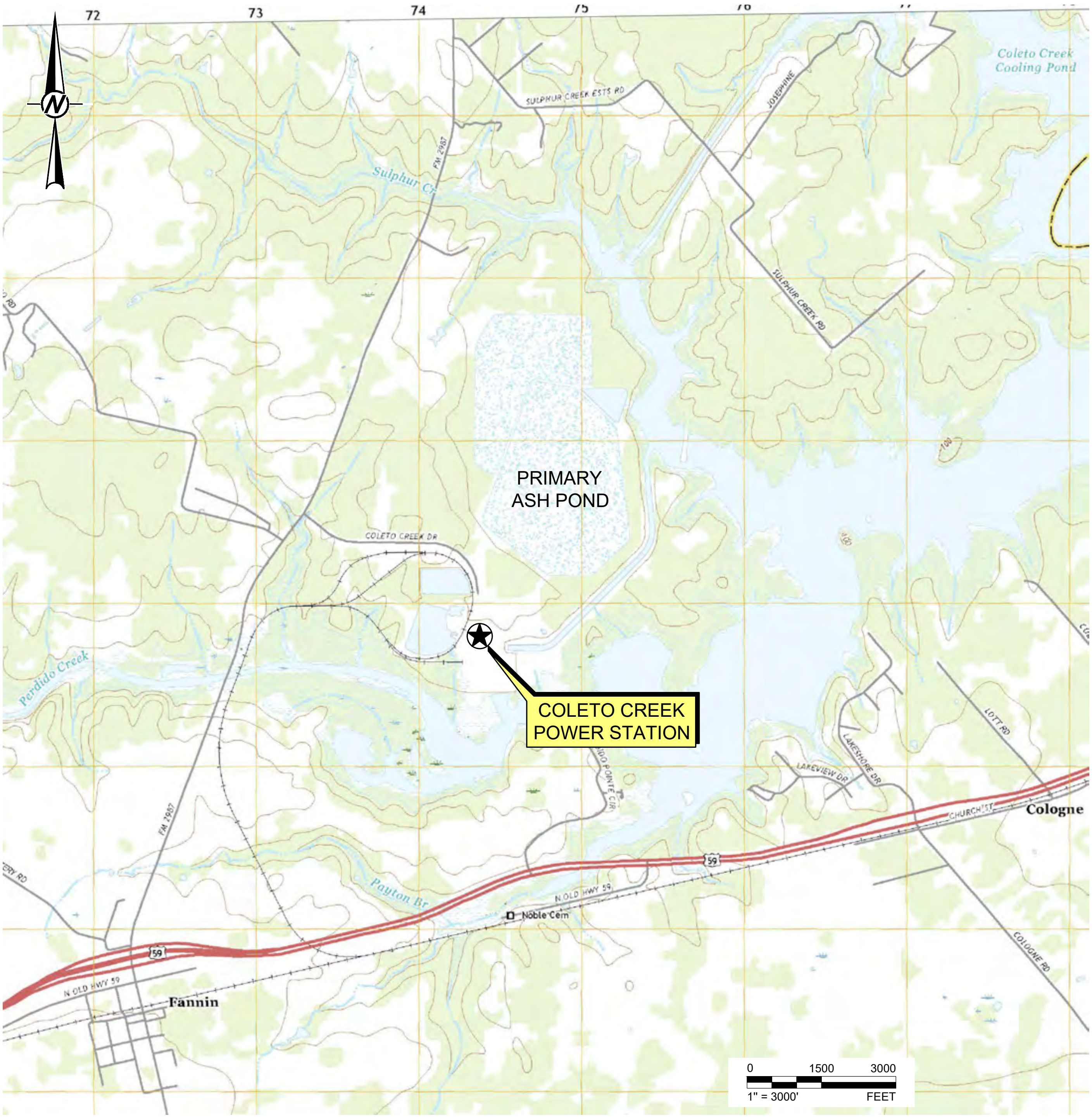
Patrick J. Behling
Principal Engineer

William F. Vienne
Senior Hydrogeologist

STATE OF TEXAS
PATRICK J. BEHLING
79872
LICENSED PROFESSIONAL ENGINEER
11/16/22

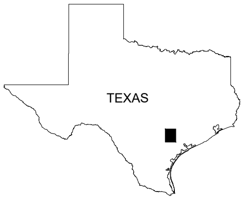
STATE OF TEXAS
WILLIAM F VIENNE
GEOLOGY
No. 10492
LICENSED PROFESSIONAL GEOSCIENTIST
11/16/2022

FIGURES



REFERENCE(S)

BASE MAP TAKEN FROM USGS.GOV, FANNIN, TX 7.5 MIN. USGS QUADRANGLE DATED 2019.



QUADRANGLE LOCATION

CLIENT

COLETO CREEK POWER LP

PROJECT

COLETO CREEK POWER STATION
FANNIN, TEXAS

TITLE

SITE LOCATION MAP

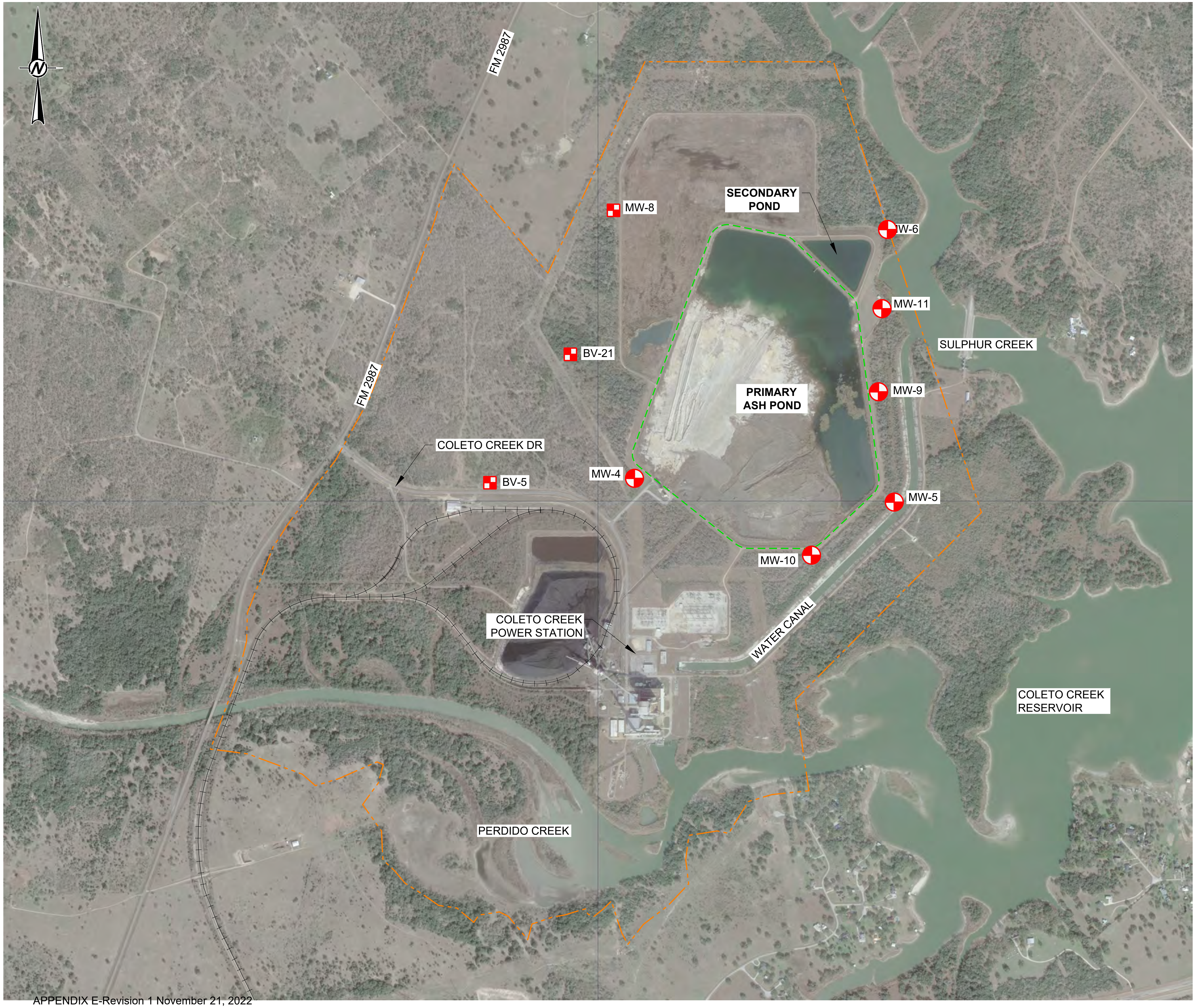
CONSULTANT

GOLDER
MEMBER OF WSP

YYYY-MM-DD	2021-12-07
DESIGNED	AJD
PREPARED	AJD
REVIEWED	WFV
APPROVED	WFV

PROJECT NO.	CONTROL	REV.	FIGURE
31404097.007		0	1

APPENDIX E-Revision 1 November 21, 2022



APPENDIX E-Revision 1 November 21, 2022

LEGEND

— · —	PROPERTY BOUNDARY
- - -	CCR MONITORING UNIT
●	DOWNGRADIENT CCR MONITORING WELL
■	UPGRADIENT CCR MONITORING WELL
┼─┼─┼	RAILROAD

WILLIAM F VIENNE
No. 10492
11/11/2022

REFERENCE(S)

BASE MAP TAKEN FROM GOOGLE EARTH, IMAGERY DATED 1/15/21.

0 600 1200
1" = 1200' FEET

CLIENT
COLETO CREEK POWER LP

PROJECT
COLETO CREEK POWER STATION
FANNIN, TEXAS

TITLE
SITE PLAN

CONSULTANT

GOLDER
MEMBER OF WSP

YYYY-MM-DD	2021-12-14
DESIGNED	RS
PREPARED	RS
REVIEWED	WFV
APPROVED	WFV

PROJECT NO.	REV.	FIGURE
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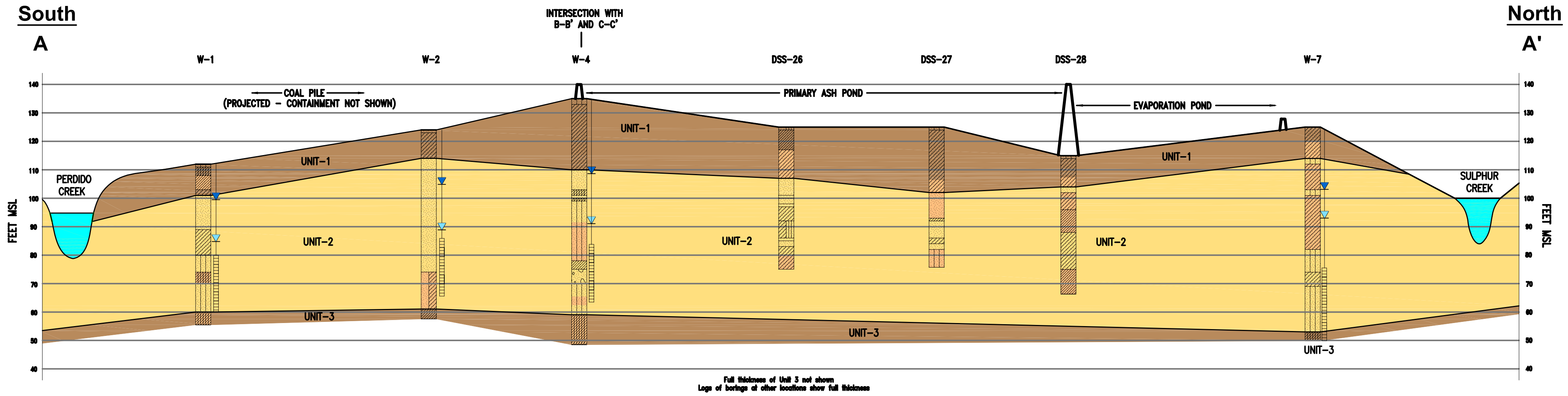
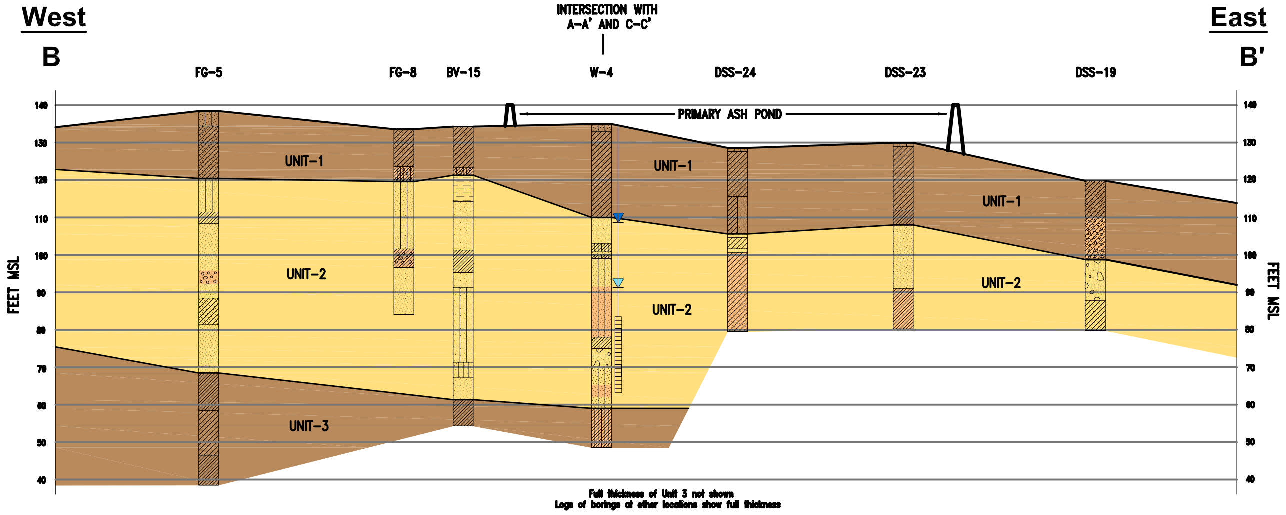
APPENDIX A

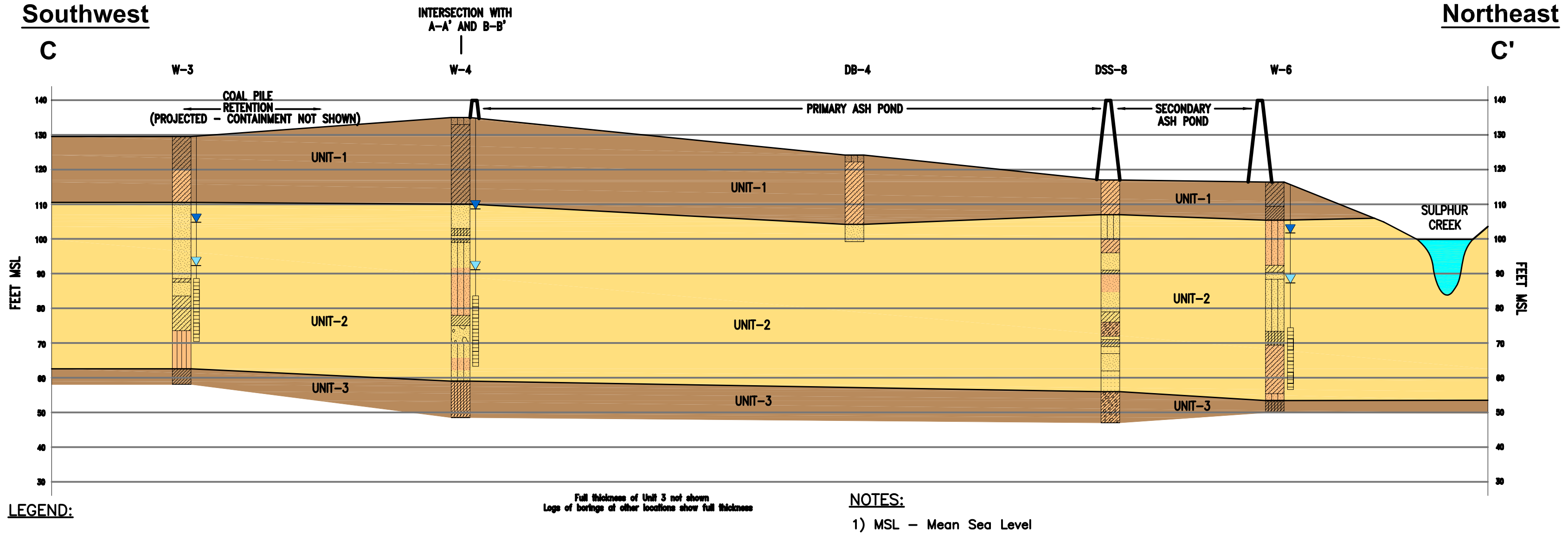
AECOM (2009) Cross Sections



Full thickness of Unit 3 not shown
Logs of borings at other locations show full thickness



Full thickness of Unit 3 not shown
Logs of borings at other locations show full thickness



Full thickness of Unit 3 not shown
Logs of borings at other locations show full thickness

LEGEND:

▨ UNIT 1 – Sandy CLAY and Silty CLAY. Surficial unit.

▨ UNIT 2 – SAND to Silty SAND with caliche and CLAY/Sandy CLAY lenses. First groundwater-bearing unit.

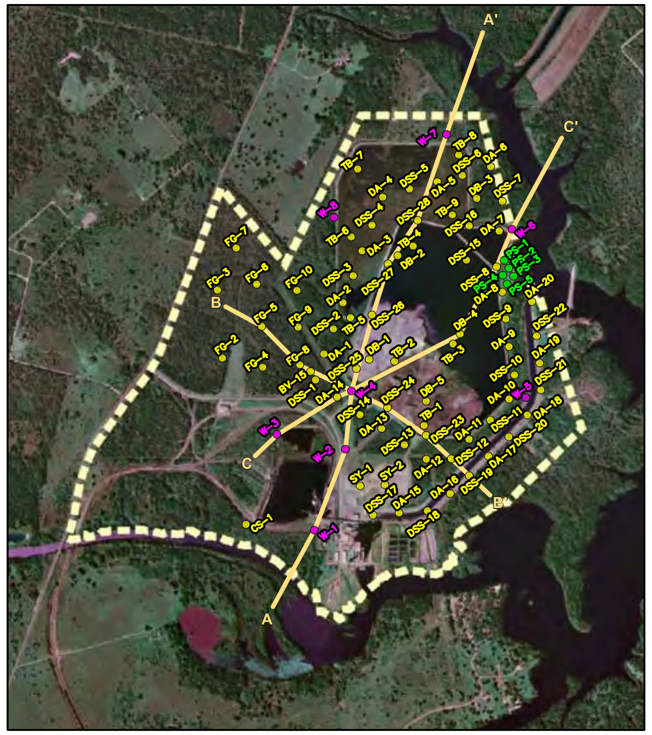
▨ UNIT 3 – CLAY to Silty CLAY. Basal unit.

▨ Caliche.

▨ With calcareous nodules.

NOTES:

1) MSL – Mean Sea Level
2) Wells gauged on 11-1-78 and 4-7-09
3) Cross sections and stratigraphy were developed based on information included in reports prepared by Sargent & Lundy Engineers and others
4) Boring locations from drawings prepared by Sargent & Lundy Engineers ("Soils Borings Location Plan, Ash Pond, Flume Channel and Switchyard, Coleto Creek Power Station, Central Power & Light Co., Goliad County, Texas," dated August 25, 1975) and Black & Veatch Corporation ("Combustion Byproduct Storage Area, Subsurface Investigation Location Plan, IPA Coleta Creek, LLC Coleta Creek Unit Two," dated March 11, 2009)
5) Ground surface elevations were interpolated based on surveyed ground surface elevations at boring and well locations
6) Geologic data were interpolated between borings and extrapolated at some locations



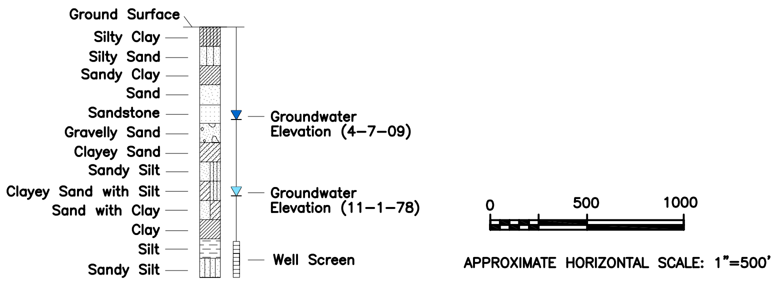
Aerial Photograph Date : 2005

LEGEND:

- B–B' – Cross Section Location
- ● – Monitor Well Location
- ● – Soil Boring Location
- ● – Piezometer Location

(Locations Are Approximate)

LEGEND



APPROXIMATE HORIZONTAL SCALE: 1"=500'

ColetoCreek2

DESIGNED BY:	NO.:	DESCRIPTION:	DATE:	BY:
TCG				
DRAWN BY:				
TCG				
CHECKED BY:				
SLS				
APPROVED BY:				
SLS				

REVISIONS

AECOM

AECOM ENVIRONMENT
4888 LOOP CENTRAL DRIVE, SUITE 600
HOUSTON, TEXAS 77081-2214
PHONE: (713) 520-9900
FAX: (713) 520-6802
WEB: HTTP://WWW.AECOM.COM

GEOLOGIC CROSS SECTIONS AND MONITOR WELL,
PIEZOMETER, AND BORING LOCATION MAP
COLETO CREEK POWER STATION
GOLIAD COUNTY, TX

SCALE:	DATE:	PROJECT NUMBER:
AS SHOWN	11/16/09	60139331.300

DRAWING NUMBER:
2

SHEET NUMBER:
1

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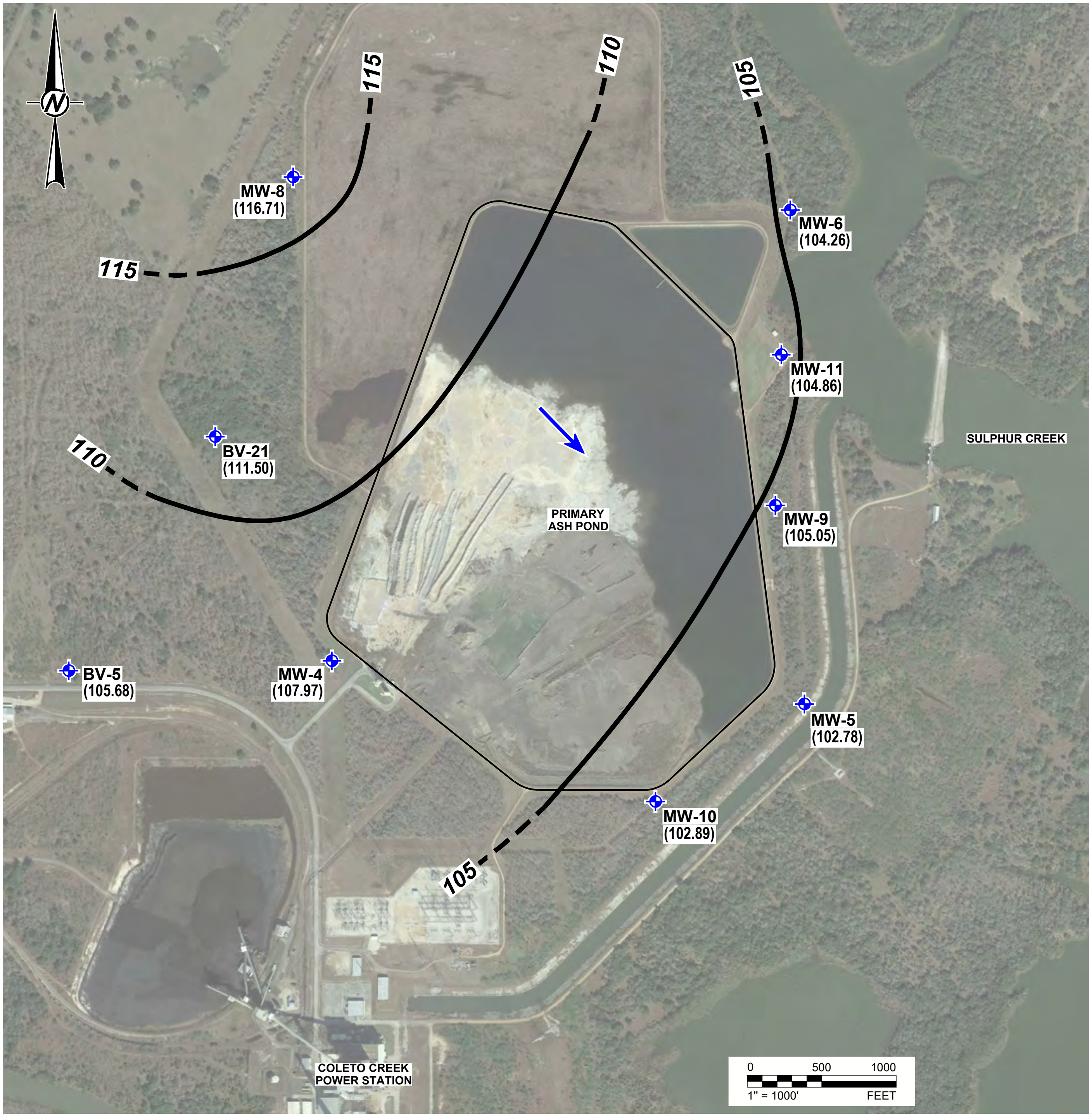
APPENDIX B

2021 Groundwater Potentiometric Surface Maps



LEGEND

⊕	CCR MONITORING WELL
(113.02)	GROUNDWATER POTENTIOMETRIC SURFACE (FT MSL)
▬	GROUNDWATER POTENTIOMETRIC SURFACE CONTOUR (C.I. = 5 FT)
→	INFERRED DIRECTION OF GROUNDWATER FLOW

STATE OF TEXAS
WILLIAM F. VIENNE
GEOLOGY
No. 10492
LICENSED
PROFESSIONAL GEOSCIENTIST
11/11/2022

REFERENCE(S)
BASE MAP TAKEN FROM GOOGLE EARTH, IMAGERY DATED 1/22/16.

APPENDIX E Revision 1 November 21, 2022

CLIENT
LUMINANT

PROJECT
COLETO CREEK POWER STATION
FANNIN, TEXAS

TITLE
PRIMARY ASH POND
POTENTIOMETRIC SURFACE MAP
JUNE 2, 2021

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2021-01-18
DESIGNED	AJD
PREPARED	AJD
REVIEWED	HD
APPROVED	WFV

PROJECT NO.	CONTROL	REV.	FIGURE
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Path: \\golder.gds\complexdata\office\Texarkana\Projects - Round Rock_2019\19122262 - Luminant\H - Coleto Creek\2021 CCR GWMR\ | File Name: FIG 1 - Pot Surface Map-Primary Ash Pond (June 2021).dwg

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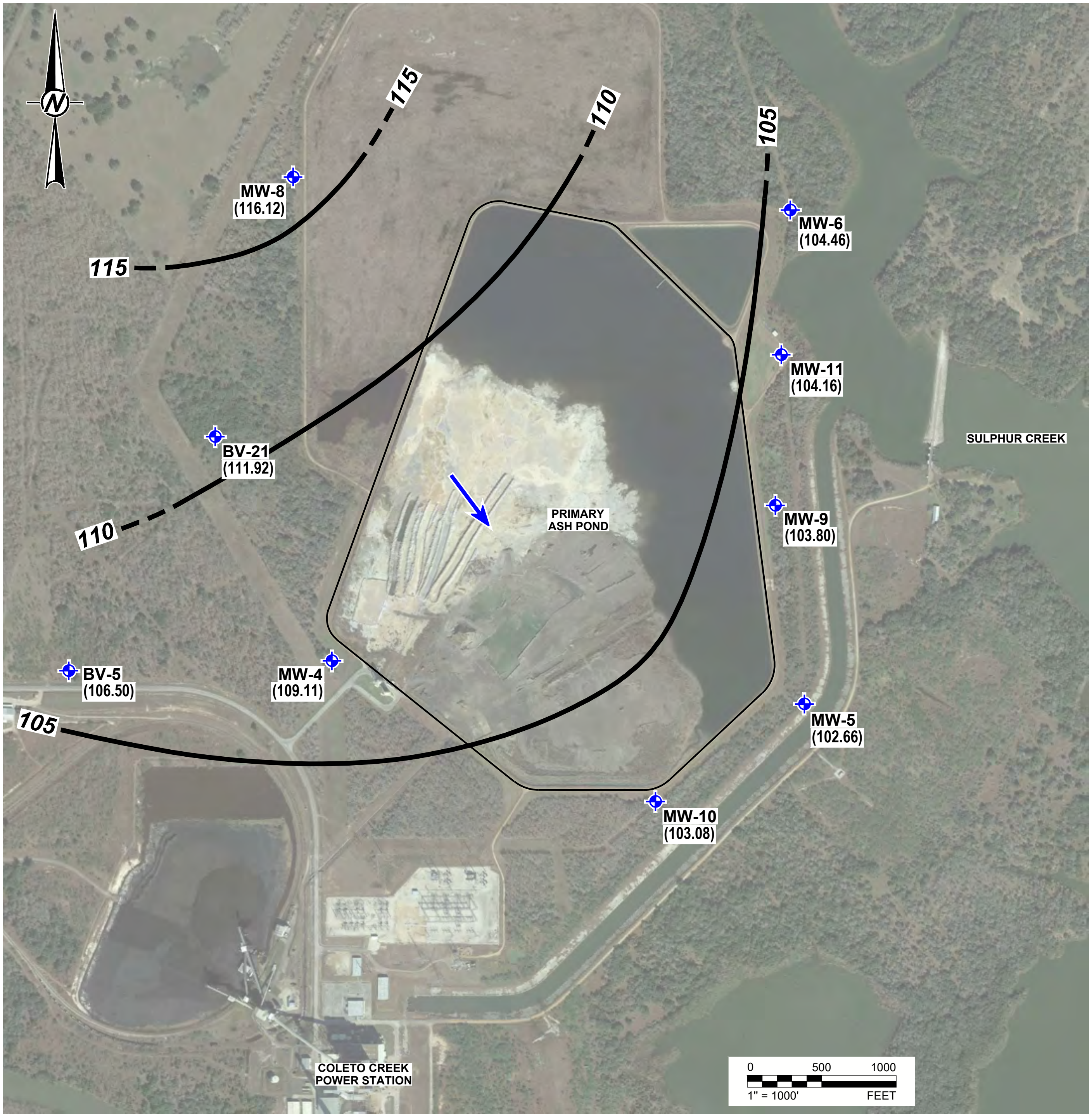

LEGEND

⌖	CCR MONITORING WELL
(113.02)	GROUNDWATER POTENTIOMETRIC SURFACE (FT MSL)
▬	GROUNDWATER POTENTIOMETRIC SURFACE CONTOUR (C.I. = 5 FT)
➔	INFERRED DIRECTION OF GROUNDWATER FLOW

STATE OF TEXAS
WILLIAM F VIENNE
GEOLOGY
No. 10492
LICENSED
PROFESSIONAL GEOSCIENTIST
11/11/2022

REFERENCE(S)
BASE MAP TAKEN FROM GOOGLE EARTH, IMAGERY DATED 1/22/16.

APPENDIX E Revision 1 November 21, 2022

CLIENT
LUMINANT

PROJECT
COLETO CREEK POWER STATION
FANNIN, TEXAS

TITLE
PRIMARY ASH POND
POTENTIOMETRIC SURFACE MAP
SEPTEMBER 28, 2021

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-01-18
DESIGNED	AJD
PREPARED	AJD
REVIEWED	HD
APPROVED	WFV

PROJECT NO.	CONTROL	REV.	FIGURE
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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
1 in
0

REPORT

Groundwater Monitoring Plan - Revision 1

Coleto Creek Power Station - Primary Ash Pond
Fannin, Texas

Submitted to:

Coleto Creek Power

Submitted by:

WSP GOLDER
1601 S MoPac Expressway
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+1 737 703 3900

31404097.007

November 2022

Table of Contents

FIGURES

APPENDICES

DOCUMENT REVISION RECORD

Issue No.	Date	Details of Revisions
Revision 0	January 2022	Original Document
Revision 1	November 2022	Signed/sealed report and added professional geoscientist seal to figures that contain geological interpretations (e.g., boring logs), addressed sample shipment and quality assurance/quality control procedures, specified that the rate and direction of groundwater flow will be determined each sampling event, provided additional information on the statistical methods used to develop background values and evaluate sample data, specified that Alternate Source Demonstrations must be certified by a professional engineer, and updated groundwater protection standard information for cobalt, lithium, molybdenum

1.0 INTRODUCTION

Coleto Creek Power operates the Coleto Creek Power Station (Coleto Creek), a lignite-fired power plant located in Fannin, Goliad County, Texas (the Site) (Figure 1). CCRs including fly ash and bed ash are generated as part of power plant operations. The CCRs are managed/disposed in the Primary Ash Pond (PAP) onsite or are transported offsite for disposal/beneficial reuse by third-parties.

The CCR Rule (40 CFR 257 Subpart D - *Standards for the Receipt of Coal Combustion Residuals in Landfills and Surface Impoundments*) has been promulgated by the EPA to regulate the management and disposal of CCRs as solid waste under Resource Conservation and Recovery Act (RCRA) Subtitle D. The CCR Rule establishes national minimum criteria for existing and new CCR landfills, existing and new CCR surface impoundments, and lateral expansions to landfills/impoundments. The PAP is considered an “existing surface impoundment” under 40 CFR 257.53.

A groundwater monitoring plan was previously developed for the Site in accordance with Sections 257.90 through 257.95 of the CCR Rule. The CCR groundwater monitoring system at the Site was certified by a professional engineer in accordance with Section 257.91 of the CCR Rule as part of a separate report. This revised groundwater monitoring plan updates and replaces the previous groundwater monitoring plan.

1.1 CCR Unit Groundwater Monitoring Applicability

Section 257.90 of the CCR Rule requires that existing CCR landfills and surface impoundments be in compliance with the following groundwater monitoring requirements:

- Install a groundwater monitoring system as required under Section 257.91;
- Develop a groundwater sampling and analysis program to include selection of the statistical procedures to be used for evaluating groundwater monitoring data as required under Section 257.93;
- Initiate a detection monitoring program to include obtaining a minimum of eight independent samples for each background and downgradient monitoring well as required under Section 257.94; and
- Begin evaluating the groundwater monitoring data for statistically significant increases over background levels for the constituents listed in Appendix III of this part as required under Section 257.94.

Once a groundwater monitoring system and groundwater monitoring program has been established at the CCR unit, the owner or operator must conduct groundwater monitoring and, if necessary, corrective action throughout the active life and post-closure care period of the CCR unit. In the event of a release from a CCR unit, the owner or operator must take all necessary measures to control the source(s) of releases so as to reduce or eliminate, to the maximum extent feasible, further releases of contaminants into the environment.

For existing CCR landfills and surface impoundments, the owner or operator must prepare an annual groundwater monitoring and corrective action report to document the status of the groundwater monitoring and corrective action program for the CCR unit for the previous calendar year.

1.2 Groundwater Sampling and Analysis Requirements

The CCR Rule establishes groundwater sampling and analysis criteria that are designed to create consistency and ensure that monitoring results provide accurate representations of groundwater quality at the CCR groundwater monitoring wells. A sampling and analysis program must be developed for each unit that includes procedures and techniques for sample collection, sample preservation and shipment, analytical procedures, chain of custody control, and quality assurance and quality control. Depending on the constituents and concentrations detected, groundwater monitoring at each CCR unit may consist of detection monitoring (Section 257.94) only or a combination of detection monitoring and assessment monitoring (Section 257.95). Selected technical groundwater sampling and analysis criteria are described in detail below; however, the complete CCR Rule should be referenced for notification requirements and other criteria.

1.2.1 Groundwater Elevations

Groundwater elevations must be measured in each well immediately prior to purging, each time groundwater is sampled.

1.2.2 General Groundwater Analytical Requirements

The CCR groundwater monitoring program must include sampling and analytical methods that are appropriate for groundwater sampling and that accurately measure hazardous constituents and other monitoring parameters in groundwater samples. The EPA publication *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846)*, is EPA'S official compendium of analytical and sampling methods that have been evaluated and approved for use in complying with the RCRA regulations (EPA, 2015).

Groundwater monitoring under the CCR Rule includes analyses for inorganic parameters and metals. All metals analyses must be reported as “total recoverable metals” to capture both the particulate fraction and dissolved fraction of metals in the groundwater. The CCR Rule stipulates that groundwater samples cannot be field filtered prior to analysis.

1.2.3 Background Groundwater Quality Determination

Background groundwater quality must be established in a hydraulically upgradient or background well(s) for each of the groundwater constituents required in the detection monitoring or assessment monitoring program that applies to the CCR unit. Background groundwater quality may be established at wells that are not located hydraulically upgradient from the CCR unit if the samples accurately represent the quality of background groundwater that has not been affected by leakage from the CCR unit.

1.2.4 Detection Monitoring Requirements

Groundwater detection monitoring must be performed at each CCR unit (CCR Rule Section 257.94). The following constituents must be included in the detection monitoring program (from Appendix III to the CCR Rule):

- Boron
- Calcium
- Chloride
- Fluoride
- pH
- Sulfate
- Total Dissolved Solids (TDS)

The monitoring frequency for these constituents must be at least semi-annual during the active life of the

CCR unit and post-closure period. The reported concentrations of the detection monitoring constituents must be compared to the respective CCR unit background concentration developed for each constituent. If a statistically significant increase over background levels is determined for one or more of the constituents listed above at any monitoring well at the CCR unit waste boundary, within 90 days the owner or operator must:

- Establish an assessment monitoring program as described in Section 257.95 of the Rule, or

- Demonstrate that a source other than the CCR unit caused the statistically significant increase over background levels for a constituent or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. If a successful demonstration is completed within the 90-day period, the owner or operator of the CCR unit may continue with the detection monitoring program.

1.2.5 Assessment Monitoring Requirements

Assessment monitoring is required under the CCR Rule whenever a statistically significant increase over background levels has been detected for one or more of the detection monitoring constituents listed above (CCR Rule Section 257.95). The following constituents must be included in the assessment monitoring program (from Appendix IV to the CCR Rule):

- Antimony
- Arsenic
- Barium
- Beryllium
- Cadmium
- Chromium
- Cobalt
- Fluoride
- Lead
- Lithium
- Mercury
- Molybdenum
- Selenium
- Thallium
- Radium 226 and 228 combined

Within 90 days of triggering an assessment monitoring program, and annually thereafter, the owner or operator of the CCR unit must sample and analyze the groundwater for all assessment monitoring constituents (Appendix IV) listed above. At least one sample must be collected from each well associated with the CCR unit.

Within 90 days of obtaining the results from the initial assessment monitoring sampling event, the owner or operator of the CCR unit must resample all wells associated with the CCR unit, conduct analyses for all detection monitoring parameters (Appendix III) and for those assessment monitoring constituents (Appendix IV) that have been detected as part of assessment monitoring. At least one sample must be collected from each well associated with the CCR unit. This monitoring must be performed on at least a semi-annual basis thereafter. The owner or operator of a CCR unit may demonstrate the need for an alternative monitoring frequency for repeated sampling and analysis for these constituents during the active life and the post-closure care period based on the availability of groundwater. If there is not adequate groundwater flow to sample wells semi-annually, the alternative frequency shall be no less than annual.

Within 90 days of obtaining the results from the initial assessment monitoring sampling event, groundwater protection standards (GWPSs) must be established for all assessment monitoring constituents (Appendix IV) detected in the CCR unit monitoring wells. The GWPS shall be:

- For constituents for which a federal maximum contaminant level (MCL) has been established under 40 CFR 141.62 and 141.66, the MCL for that constituent; or
- For constituents for which an MCL has not been established, the background concentration or approved regional screening level for the constituent established in accordance with CCR Rule Section 257.91; or
- For constituents for which the background level is higher than the MCL, the background concentration.

Following are the GWPSs have been established for the assessment monitoring constituents (Appendix IV) at the Site:

Constituent	**GWPS (mg/L)**
Antimony	0.006
Arsenic	0.128
Barium	2.0
Beryllium	0.004
Cadmium	0.005
Chromium	0.10
Cobalt	0.0499
Fluoride	4.0
Lead	0.015
Lithium	0.04
Mercury	0.002
Molybdenum	0.10
Selenium	0.05

Constituent	GWPS (mg/L)
Thallium	0.002
Radium 226/228 Combined	5 pCi/L*

* pCi/L = picocuries per liter

If the concentrations of all detection monitoring constituents (Appendix III) and assessment monitoring constituents (Appendix IV) are shown to be statistically at or below background values for two consecutive sampling events, the owner or operator may return to performing only detection monitoring of the CCR unit. If the concentrations of any detection monitoring constituents (Appendix III) and assessment monitoring constituents (Appendix IV) are shown to be statistically above background values, but all concentrations are below their respective GWPS, the owner or operator must continue assessment monitoring of the CCR Unit.

Within 90 days of finding that any of the assessment monitoring constituents (Appendix IV) have been detected at a statistically significant level exceeding their respective GWPS, the owner or operator of the CCR unit must either:

- Initiate an assessment of corrective measures for the CCR unit (CCR Rule Section 257.96); or
- Demonstrate that a source other than the CCR unit caused the contamination, or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. If a successful demonstration is made, the owner or operator must continue assessment monitoring. If a successful demonstration has not been made at the end of the 90 day period, the owner or operator of the CCR unit must initiate an assessment of corrective measures for the CCR unit.

If one or more assessment monitoring constituents (Appendix IV) are detected at statistically significant levels above their respective GWPS, the owner or operator of the CCR unit must characterize the nature and extent of the release. Characterization of the release includes the following minimum measures:

- Install additional monitoring wells necessary to define the contaminant plume(s);
- Collect data on the nature and estimated quantity of material released including specific information on the assessment monitoring constituents (Appendix IV) and the levels at which they are present in the material released;
- Install at least one additional monitoring well at the facility boundary in the direction of contaminant migration and sample this well for all detection monitoring parameters (Appendix

III) and for those assessment monitoring constituents (Appendix IV) that have been detected as part of assessment monitoring. This monitoring must be performed on at least a semi-annual basis thereafter.

- Sample all CCR unit wells for all detection monitoring parameters (Appendix III) and for those assessment monitoring constituents (Appendix IV) that have been detected as part of assessment monitoring. This monitoring must be performed on at least a semi-annual basis thereafter.

If an assessment of corrective measures is required as a result of assessment monitoring, and if the CCR unit being monitored is considered an existing unlined CCR surface impoundment under the CCR Rule, then the CCR unit is required to retrofit or close in accordance with the applicable parts of the CCR Rule.

1.3 Groundwater Statistical Evaluation Procedures

Statistical analysis of the groundwater monitoring data is required as part of detection monitoring and assessment monitoring under the CCR Rule. One of the following statistical methods must be used to evaluate groundwater monitoring data for each monitored constituent:

- A parametric analysis of variance followed by multiple comparison procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's mean and the background mean levels for each constituent; or
- An analysis of variance based on ranks followed by multiple comparison procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the background median levels for each constituent; or
- A tolerance or prediction interval procedure in which an interval for each constituent is established from the distribution of the background data. The level of each constituent in each compliance well is compared to the upper tolerance or prediction limit established from the background data; or
- A control chart approach that gives control limits for each constituent; or
- Another statistical test method that meets the performance standards.

Any statistical method chosen must comply with the following performance standards:

- The statistical method used to evaluate groundwater monitoring data shall be appropriate for the distribution of constituents. Probability distributions of data values shall use parametric methods, and non-probability distributions of data values shall use non-parametric methods. If the distribution of the constituents is shown to be inappropriate for a probability theory test, the data must be transformed or a distribution-free (non-parametric) theory test must be used. If the distributions for the constituents differ, more than one statistical method may be needed;

- If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a GWPS the test shall be done at a Type I error level no less than 0.01 for each testing period. If a multiple comparison procedure is used, the Type I experiment wise error rate for each testing period shall be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparison must be maintained. This performance standard does not apply to tolerance intervals, prediction intervals, or control charts;

- If a control chart approach is used to evaluate groundwater monitoring data, the specific type of chart and its associated parameter values shall be such that this approach is at least as effective as any other approach in this section for evaluating groundwater data. The parameter values shall be determined after considering the number of samples in the background database, the data distribution, and the range of the concentration values for each constituent of concern;

- If a tolerance interval or a prediction interval is used to evaluate groundwater monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be such that this approach is at least as effective as any other approach in this section for evaluating groundwater data. These parameters shall be determined after considering the number of samples in the background database, the data distribution, and the range of the concentration values for each constituent of concern;

- The statistical method must account for data below the limit of detection with one or more statistical procedures that shall be at least as effective as any other approach in this section for evaluating groundwater data. Any practical quantitation limit that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility; and

- If necessary, the statistical method must include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

The owner/operator of the CCR unit must determine if there has been a statistically significant increase over background (detection monitoring) or GWPSs (assessment monitoring) for each constituent required in the particular groundwater monitoring program that applies to the CCR unit. The determination of statistical increase over GWPSs for each constituent at each monitoring well must be made within 90 days after completing sampling and analysis.

2.0 GROUNDWATER MONITORING PROCEDURES

This section describes groundwater sampling and analysis procedures for monitoring the CCR unit wells to comply with the requirements of 40 CFR 257.90 - 257.95 of the CCR Rule.

2.1 Primary Ash Pond Groundwater Monitoring System

The CCR groundwater monitoring system at the Primary Ash Pond consists of the following monitoring wells:

Upgradient/Background Wells	Downgradient Wells
BV-5 BV-8 BV-21	MW-4 MW-5 MW-6 MW-9 MW-10 MW-11

A detailed Site Plan showing the locations of the CCR monitoring wells is provided on Figure 2. Boring logs for the wells are provided in Appendix A.

2.2 Groundwater Sampling Procedures

2.2.1 Equipment Assembly and Preparation

Activities that occur during groundwater sampling are summarized as follows:

- pre-arrangement of sample analytical requests with analytical testing laboratory;
- assembly and preparation of sampling equipment and supplies;
- groundwater sampling;
- water-level measurements;
- well purging;
- field parameter measurements;
- sample collection;
- sample preservation;
- sample labeling;
- completion of sample records;
- completion of chain-of-custody records; and
- sample shipment.

Prior to each sampling event, equipment to be used is assembled, properly cleaned and its operating condition verified. In addition, all record-keeping materials are prepared. Sampling procedures are conducted in general accordance with EPA SW-846 methods.

Decontamination of all non-disposable or non-dedicated field measurement, purging, and sampling equipment are performed for each sampling event before any purging/sampling activities begin, after each well is sampled, and at the end of the sampling event. Decontamination procedures are summarized below:

(1) Wash equipment with low-residue soap and/or detergent solution.
(2) Rinse with distilled water; and
(3) Repeat steps (1) and (2) above, as necessary.

2.2.2 General Groundwater Sampling Procedures

Prior to collecting samples, each well is inspected for signs of damage to the well protective casing and well pad. Each field instrument is calibrated according to the manufacturer's instructions prior to use.

Special care should be exercised to prevent contamination of the groundwater and extracted samples during the sampling activities. The primary way in which such contamination can occur is contact with improperly cleaned equipment. To prevent such contamination, all non-dedicated sampling equipment is thoroughly cleaned before and between uses at different sampling locations. In addition to the use of properly cleaned equipment, a new pair of disposable latex (or similar) gloves is worn for each well.

2.2.3 Groundwater Level Measurements

Groundwater levels are measured prior to purging the wells. Using a pre-cleaned water level meter, the groundwater surface is measured from the casing datum to the nearest 0.01-foot. Total depth measurements are also collected on, at least, an annual basis. The rate and direction of groundwater flow should be determined for each groundwater monitoring event.

2.2.4 Well Purging and Sampling

Well purging and sampling is conducted using either a submersible pump or peristaltic pump in accordance with standard low flow sampling procedures. The sampler withdraws water in a manner that minimized stress (drawdown) to the system to the extent practicable. When the pump intake is located within the screened interval, the water pumped is drawn in directly from the formation with little mixing of casing water or disturbance to the sampling zone. Thus, sample results are more representative of the constituents present in the groundwater.

Purging rates during sample collection are generally performed at 0.5 liters per minute (L/min) or less. Field parameters (pH, temperature, conductivity and turbidity) are measured to evaluate when the well is adequately purged. Turbidity in the samples should be minimized as much as possible. By using minimal pumping rates, dedicated equipment whenever possible, and positioning the intake for the sample tubing or submersible pump off of the bottom of the well.

For groundwater samples, at least three field measurements should be taken during the course of purging the well. If the parameters have not stabilized at that time, field measurements and purging will continue until two consecutive readings have stabilized to within the following limits:

- Temperature: +/-1° C
- pH: +/-0.1 pH units
- Specific conductance: +/-10%
- Turbidity: +/- 10%

Sample extraction is accomplished by using the pump that was previously used to purge the well. The sample bottle is filled directly from the pump line. The pumping rate and parameter measurements are recorded on groundwater sampling forms in the field. If a well goes dry during purging, sampling is performed after the well has sufficiently recharged to allow sample collection.

Groundwater samples will not be filtered in the field prior to collection in accordance with Section 257.93(i) of the CCR Rule.

2.2.5 Container, Labels, and Shipment

Samples are collected in laboratory-supplied containers. The following information is legibly and indelibly written on the label:

- project identification;
- sample identification;
- name or initials of collector;
- date and time of collection;
- analysis requested; and
- sample preservative, if applicable.

After the samples are collected, the sample containers are placed in a cooler or similar container, preserved with ice, and shipped to the laboratory for analysis.

2.2.6 Chain-of-Custody Control

After samples are collected, chain-of-custody procedures are followed to establish a written record concerning sample movement between the sampling site and the testing laboratory. Each shipping container has a chain-of-custody form completed by the sampling personnel packing the samples. The chain-of-custody form for each container is completed and sealed in the shipping container.

2.3 Analytical Procedures

The laboratory analytical methods utilized for the analysis of detection monitoring and assessment monitoring programs are appropriate and commonly utilized EPA methodologies, or other similar standard methodologies. Typical methodologies used to analyze the detection and assessment program constituents are presented below:

Detection Monitoring Program (Appendix III Constituents)

- Boron and calcium by EPA Method SW6020;
- Chloride, fluoride, and sulfate by EPA Method E300;
- pH by Standard Method M4500-H + B (field measurement); and
- TDS by Standard Method M2540.

Assessment Monitoring Program (Appendix IV Constituents)

- Antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, lithium, molybdenum, selenium, and thallium by EPA Method SW6020;
- Fluoride EPA Method E300;
- Mercury by EPA Method SW7470; and
- Radium 226 and 228 by EPA Methods 904.0/SW9320 Modified and 903.1 Modified.

All metals analyses shall be reported as “total recoverable metals” in accordance with Section 257.93(1) of the CCR Rule. Filtering of samples prior to analysis is not permitted.

2.3.1 Data Quality Assurance/Quality Control

A quality assurance/quality control (QA/QC) program will be implemented to confirm the validity of the analytical results. Laboratory QC samples will include method blanks, laboratory control samples, and matrix spike/matrix spike duplicates. Field QC samples will include one field duplicate per sampling event. The selected laboratory must have in place documented quality assurance protocols and quality control checks to demonstrate the laboratory’s procedures and practices are consistent with the National Environmental Laboratory Accreditation Conference (NELAC) standards. Potential issues regarding the quality of the data should be evaluated through the examination of:

- The project objectives;
- Laboratory review checklist and associated exceptions report;
- The reportable data; and
- The field notes and data associated with the sampling event(s).

In the case where quality control criteria are outside applicable limits, a summary must be presented that indicates the affected samples, the quality control parameter reviewed, the qualifiers and bias code(s) applied to the data point, and the determination made concerning the usability of data.

3.0 STATISTICAL EVALUATION PROCEDURES

The following statistical evaluation approaches were selected to demonstrate groundwater compliance under the CCR Rule:

- Use of interwell data evaluations, which compare new sample data to data from upgradient or background monitoring wells.
- Use of upper prediction limits (UPLs) to develop site-specific background concentrations for all Appendix III and Appendix IV constituents. This approach is a common statistical method used to evaluate groundwater compliance for Subtitle D landfill facilities and is one of the approved options for groundwater quality data statistical evaluation under the CCR Rule.
- After every detection monitoring event, Appendix III constituent concentrations from each well are compared to background UPLs to ascertain if a statistically significant increase above background exists. Background UPLs are based on a 1-of-2 resampling approach, meaning that if zero or one concentration measurement from a series of two independent samples collected from a well do not exceed the appropriate UPL, then a statistically significant increase over background has not occurred at a CCR unit.
- If in assessment monitoring, the 95% lower confidence limit of the mean (LCL) is calculated after each assessment monitoring event for each Appendix IV constituent. The set of data used to calculate LCLs is based on current and historical constituent concentrations. A statistically significant increase over the GWPS has occurred at a CCR unit when the LCL for at least one assessment monitoring constituent at a well is greater than the appropriate GWPS.

The statistical evaluation procedures proposed for the groundwater data conforms with the Rule requirements described in Section 1.3, as well as the Statistical Analysis Plan for the Site (Golder, 2022), EPA's *Unified Guidance: Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities* (EPA, 2009), and the American Society for Testing and Materials (ASTM) standard D6312-17, *Developing Appropriate Statistical Approaches for Groundwater Detection Monitoring Programs at waste Disposal Facilities* (ASTM, 2017).

Eight independent groundwater samples were evaluated for each Appendix III parameter at each well to statistically establish detection monitoring prediction limits. Eight independent groundwater samples were also evaluated for each Appendix IV parameter at each well to establish assessment monitoring GWPSs.

- For constituents for which a federal maximum contaminant level (MCL) has been established, the MCL for that constituent; or
- For constituents for which an MCL has not been established, the background concentration (prediction limit) or approved regional screening standard for the constituent; or

- For constituents for which the background level (prediction limit) is higher than the MCL, the background concentration (prediction limit) for the constituent.

4.0 DETECTION MONITORING DATA EVALUATION

CCR groundwater detection monitoring will be performed on a semi-annual basis during the active life of the CCR units and during the post-closure period. Each CCR monitoring well will be sampled for the following Appendix III constituents as part of the detection monitoring program:

- Boron
- Calcium
- Chloride
- Fluoride
- pH
- Sulfate
- Total Dissolved Solids (TDS)

Sampling and analytical procedures will be as described in previous sections of this plan.

After each detection monitoring event, the reported concentrations of the detection monitoring constituents at each well will be compared to the background concentration prediction limits developed for each constituent as described in Section 3 of this plan to ascertain if a statistically significant increase above background concentrations does or no does not exist. Possible outcomes from comparing the detection monitoring constituent concentrations in each well to their respective background concentration prediction limits are as follows:

- All detection monitoring constituent concentrations in each well are less than or equal to their respective background concentration prediction limits in the well; or

- One or more detection monitoring constituent concentrations in each well are above their respective background concentration prediction limits in the well.

4.1 No Statistically Significant Increase Over Background Concentrations

The background concentration prediction limits were developed based on a one-of-two resampling approach, meaning that if concentrations in at least one sample in a series of two independent samples collected from a well do not exceed their prediction limits, then a statistically significant increase over background concentrations has not occurred. This conclusion will be reached if the data indicate either of the following:

- All detection monitoring constituent concentrations in each well are less than or equal to their respective background concentration prediction limits; or

- One or more detection monitoring constituent concentration in any well is above the respective background concentration prediction limits. If this occurs, the well or wells with concentrations above the prediction limits will be resampled and analyzed for the detection monitoring constituent or constituents that exceed the prediction limits. If the resample indicates that the target detection monitoring constituent concentrations in the well or wells are less than or equal to their respective background concentration prediction limits, then it can be concluded that a statistically significant increase over background concentrations for all detection monitoring constituents does not exist, since concentrations in one sample of the two independent samples do not exceed their prediction limits.

If the groundwater monitoring data indicate that a statistically significant increase over background does not exist at the CCR wells, detection monitoring at all CCR wells will continue on a semi-annual basis.

4.2 Statistically Significant Increase Over Background Concentrations

If one or more detection monitoring constituent concentrations in any well is above the respective background concentration prediction limit in both the original detection monitoring sample and the resample, then a statistically significant increase over background concentrations for the target detection monitoring constituents can be concluded. If a statistically significant increase is indicated, within 90 days the owner/operator must:

- Establish an assessment monitoring program as described in this plan, or

- Demonstrate that a source other than the CCR unit caused the statistically significant increase over background levels for a constituent, or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. The demonstration must be summarized in a report that is certified by a professional engineer. If a successful demonstration is completed within the 90-day period, the owner or operator of the CCR unit may continue with the detection monitoring program.

5.0 ASSESSMENT MONITORING DATA EVALUATION

CCR groundwater assessment monitoring will be performed at the groundwater monitoring system whenever a statistically significant increase over GWPS has been confirmed for one or more of the detection monitoring constituents listed in this plan. Within 90 days of triggering the assessment monitoring program, and annually thereafter, each CCR monitoring well in the groundwater monitoring system will be sampled for the following Appendix IV parameters as part of the assessment monitoring program:

- Antimony
- Arsenic
- Barium
- Beryllium
- Cadmium
- Chromium
- Cobalt
- Fluoride
- Lead
- Lithium
- Mercury
- Molybdenum
- Selenium
- Thallium
- Radium 226 and 228 combined

Sampling and analytical procedures will be as described in previous sections of this plan.

Within 90 days of obtaining the results from the initial assessment monitoring sampling event, all wells in the groundwater monitoring system will be resampled and analyzed for:

- All Appendix III detection monitoring parameters; and

- The Appendix IV assessment monitoring parameters that were detected as part of the assessment monitoring event.

This monitoring will be performed on at least a semi-annual basis thereafter, unless the owner/operator can demonstrate the need for an alternative monitoring frequency for repeated sampling and analysis for these constituents during the active life and the post-closure care period based on the availability of groundwater. If there is not adequate groundwater flow to sample wells semi-annually, the alternative frequency shall be no less than annual.

Within 90 days of obtaining the results from the initial assessment monitoring sampling event, GWPSs will be established for all Appendix IV assessment monitoring constituents that were detected in the groundwater monitoring system wells as follows:

- For constituents for which a federal maximum contaminant level (MCL) has been established, the MCL for that constituent; or
- For constituents for which an MCL has not been established, the background concentration or approved regional background levels for the constituent; or
- For constituents for which the background level is higher than the MCL, the background concentration for the constituent.

The 95% LCL of each Appendix IV constituent concentration at each well will be compared to the GWPSs established for each constituent to ascertain if a statistically significant increase above the GWPS does or does not exist.

5.1 No Statistically Significant Increase Over Groundwater Protection Standards

If the groundwater monitoring data indicate that a statistically significant increase over GWPS does not exist at the CCR wells, all wells in the groundwater monitoring system will be sampled on a semi-annual basis and analyzed for:

- All Appendix III detection monitoring parameters; and
- The Appendix IV assessment monitoring parameters that were detected as part of the initial assessment monitoring event.

This monitoring will be performed on at least a semi-annual basis unless the owner/operator can demonstrate the need for an alternative monitoring frequency for repeated sampling and analysis for these constituents during the active life and the post-closure care period based on the availability of groundwater.

If the concentrations of all Appendix III detection monitoring constituents and Appendix IV assessment monitoring constituents are shown to be statistically at or below background values for two consecutive assessment monitoring sampling events, assessment monitoring will be terminated and detection monitoring as described in this plan will resume. If the concentrations of any Appendix III detection monitoring constituents and Appendix IV assessment monitoring constituents are shown to be statistically above background values, but all concentrations are below their respective GWPSs, assessment monitoring will continue.

5.2 Statistically Significant Increase Over Groundwater Protection Standards

If a statistically significant increase over GWPSs for any Appendix IV assessment monitoring constituent is confirmed, within 90 days of the initial assessment monitoring event, the owner/operator will either:

- Initiate an assessment of corrective measures for the CCR unit in accordance with CCR Rule Section 257.96; or

- Demonstrate that a source other than the CCR unit caused the contamination, or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. The demonstration must be summarized in a report that is certified by a professional engineer. If a successful demonstration is made, the owner or operator must continue assessment monitoring. If a successful demonstration has not been made at the end of the 90 day period, the owner or operator of the CCR unit must initiate an assessment of corrective measures for the CCR unit.

If one or more Appendix IV assessment monitoring constituents are detected at statistically significant levels above their respective GWPS in any sampling event, and if a source other than the CCR unit cannot be demonstrated to have caused the contamination, a release from the CCR unit is likely and the nature and extent of the release will be further characterized as follows:

- Install additional monitoring wells necessary to define the contaminant plume(s);

- Collect data on the nature and estimated quantity of material released including specific information on the Appendix IV assessment monitoring constituents and the levels at which they are present in the material released;

- Install at least one additional monitoring well at the facility boundary in the direction of contaminant migration and sample this well for all Appendix III detection monitoring parameters and for those Appendix IV assessment monitoring constituents that have been detected as part of assessment monitoring. This monitoring must be performed on at least a semi-annual basis thereafter.

- Sample all CCR unit wells for all Appendix III detection monitoring parameters and for those Appendix IV assessment monitoring constituents hat have been detected as part of assessment monitoring. This monitoring must be performed on at least a semi-annual basis thereafter.

6.0 REPORTING REQUIREMENTS

The results of the CCR groundwater monitoring program will be reported each year in an Annual Groundwater Monitoring and Corrective Action Report. The annual report will document the status of the groundwater monitoring and corrective action program, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. At a minimum, the Annual Groundwater Monitoring and Corrective Action Report will contain the following information:

- A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;

- Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;

- In addition to all the monitoring data obtained under CCR Rule Sections 257.90 through 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;

- A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels); and

- Other information required to be included in the annual report as specified in CCR Rule Sections 257.90 through 257.98.

The Groundwater Monitoring and Corrective Action Reports must be placed in the facility operating record no later than January 31 of the year following completion of the groundwater monitoring program from the preceding calendar year.

7.0 REFERENCES

ASTM, 2017. Standard Guide for Developing Appropriate Statistical Approaches for Groundwater Detection Monitoring Programs at Waste Disposal Facilities - D6312-17.

EPA, 2015. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846). On-Line.

EPA, 2009. Unified Guidance Document: Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, EPA 530/R-09-007, March.

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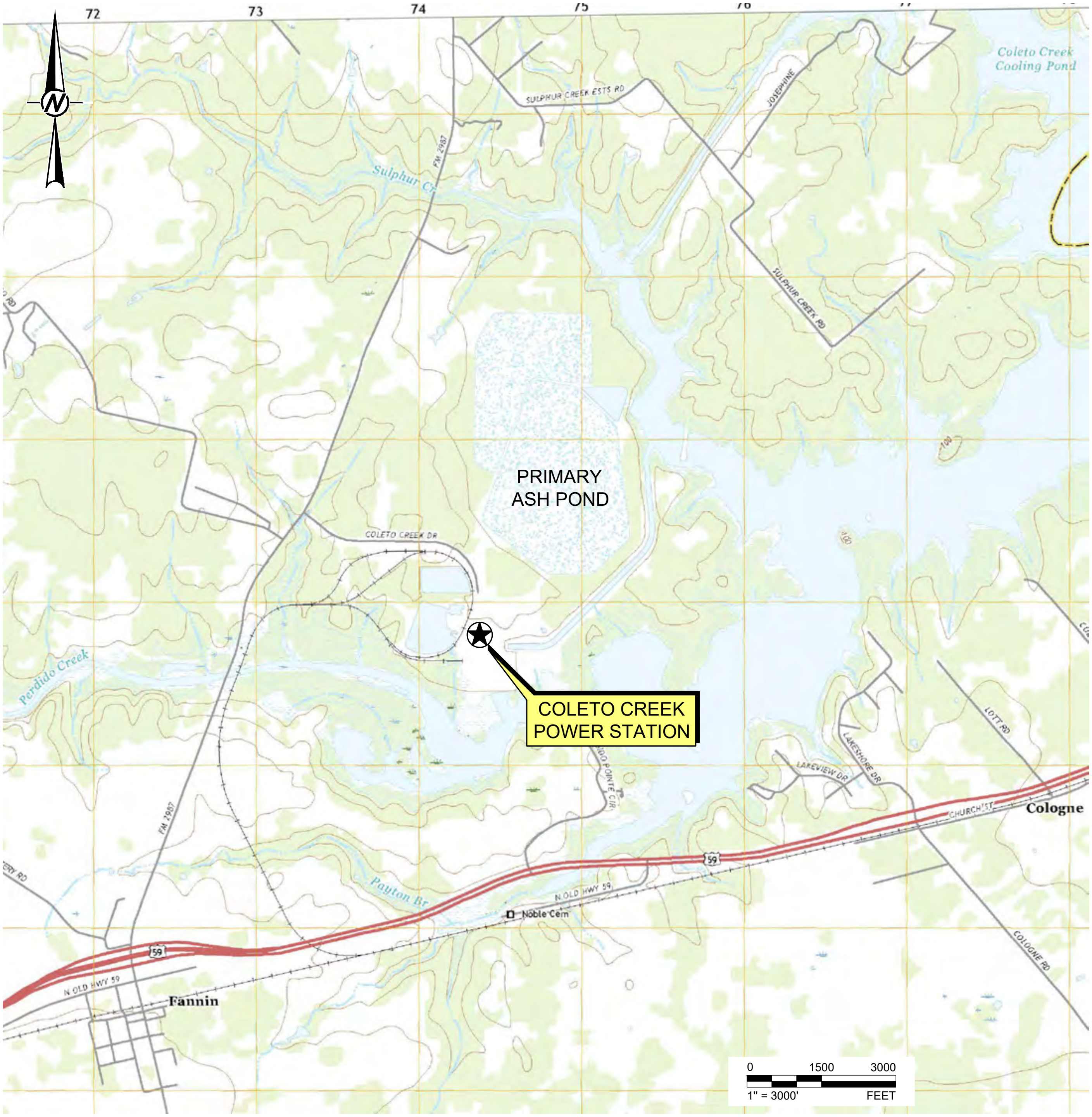
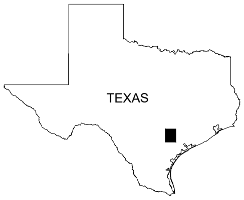
FIGURES



REFERENCE(S)
BASE MAP TAKEN FROM USGS.GOV, FANNIN, TX 7.5 MIN. USGS QUADRANGLE DATED 2019.



QUADRANGLE LOCATION

CLIENT
COLETO CREEK POWER LP

PROJECT
COLETO CREEK POWER STATION
FANNIN, TEXAS

TITLE
SITE LOCATION MAP

CONSULTANT

GOLDER
MEMBER OF WSP

YYYY-MM-DD	2021-12-07
DESIGNED	AJD
PREPARED	AJD
REVIEWED	WFV
APPROVED	WFV

PROJECT NO.	CONTROL	REV.	FIGURE
20142034		0	1

Last Edited By: adiamond Date: 2021-12-08 Time:11:06:46 AM | Printed By: TBookout Date: 2021-12-13 Time:2:57:34 PM
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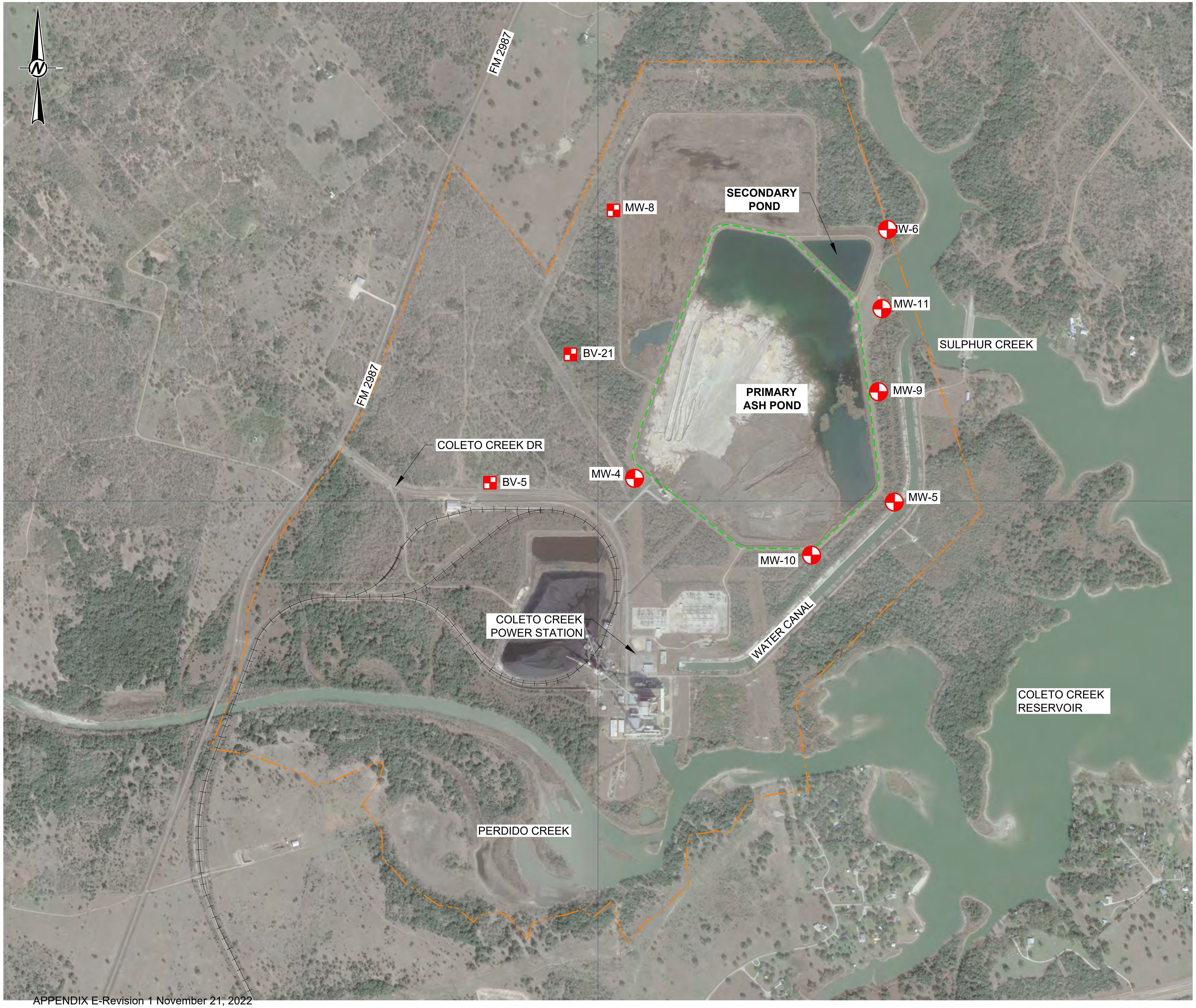


LEGEND

— · — · —	PROPERTY BOUNDARY
- - - - -	CCR MONITORING UNIT
◐	DOWNGRADIENT CCR MONITORING WELL
▚	UPGRADIENT CCR MONITORING WELL
—+—+—+—	RAILROAD

WILLIAM F VIENNE
GEOLOGY
No 10492
11/16/2022

REFERENCE(S)

BASE MAP TAKEN FROM GOOGLE EARTH, IMAGERY DATED 1/15/21.

0 600 1200
1" = 1200' FEET

CLIENT
COLETO CREEK POWER LP

PROJECT
COLETO CREEK POWER STATION
FANNIN, TEXAS

TITLE
SITE PLAN

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2021-12-14
DESIGNED	RS
PREPARED	RS
REVIEWED	WFV
APPROVED	WFV

PROJECT NO.	REV.	FIGURE
20142034	0	2

Path: \\golder.gds\complexdata\office\texarkana\projects - round rock_2020\20142034 - luminant\production\C - COLETO CREEK\ | File Name: 2 - Facility Layout Map.dwg | Last Edited By: rsalazar Date: 2021-12-10 Time:12:38:55 PM | Printed By: RSalazar Date: 2021-12-14 Time:4:55:59 PM

1 in 0 IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

APPENDIX A

CCR Monitoring Well Logs

PRELIMINARY BORING LOG

BORING NO. BV-5
SHEET 1 OF 3

CLIENT International Power America, Inc	**PROJECT** Coleto Creek Unit Two	**PROJECT NO.** 149116
PROJECT LOCATION Victoria, Texas	**COORDINATES** N 327129.3' E 2570579.3'	**GROUND ELEVATION (DATUM)** 133.0 ft (MSL)
TOTAL DEPTH 80.0 (feet)	**SURFACE CONDITIONS** Grassy, level, tan clayey sand	**COORDINATE SYSTEM** State Plane
DATE START 9/16/08	**DATE FINISHED** 9/17/08	**LOGGED BY** V Bhadriraju
CHECKED BY V Bhadriraju	**APPROVED BY**	

SOIL SAMPLING

SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY
SPT	1	3	7	11	18	1.0
SPT	2	13	11	10	21	1.2
SPT	3	6	10	13	23	1.2
SPT	4	6	10	13	23	1.1
CA	5	6	14	19	33	1.4
SPT	6	13	16	20	36	1.5
CA	7	19	30	28	58	1.5
SPT	8	6	8	8	16	1.5
SPT	9	50/5"			>50	0.3

ROCK CORING: CORE SIZE, RUN NUMBER, RUN LENGTH, RUN RECOVERY, RQD RECOVERY, PERCENT RECOVERY, RQD

DEPTH (FEET) 0–30; ELEVATION (FEET) 132–104

CLASSIFICATION OF MATERIALS

Clayey SAND; brownish gray; medium dense; moist; fine grained; poorly graded; some roots

@ 3.0'-3.2' yellowish brown fine to medium sand partings; roots grade out

grading light gray w/ some black mottling

grading w/some light brown staining

12.5

CLAY; white; hard; moist; low plasticity; frequent pockets of gray fine grained clayey sand

grading w/ frequent pockets of gray & light brown clay

20.0

SAND; grayish white; moist; fine to medium grained; poorly graded

grading medium dense w/trace angular gravel
@ 24.0' gravel grades out

grading very dense
@29.2' calcareous sand nodules; some white silt w/

REMARKS

Boring advanced w/ 3-1/4" ID hollow stem auger. SPT performed w/ auto hammer. Sand partings are vertical and dry.

Encountered water @ 25.5' during drilling

Sand in augers. Augers being

PRELIMINARY BORING LOG

BORING NO. BV-5
SHEET 2 OF 3

CLIENT International Power America, Inc	**PROJECT** Coleto Creek Unit Two	**PROJECT NO.** 149116

PROJECT LOCATION Victoria, Texas	**COORDINATES** N 327129.3' E 2570579.3'	**GROUND ELEVATION (DATUM)** 133.0 ft (MSL)	**TOTAL DEPTH** 80.0 (feet)

SURFACE CONDITIONS Grassy, level, tan clayey sand	**COORDINATE SYSTEM** State Plane	**DATE START** 9/16/08	**DATE FINISHED** 9/17/08

LOGGED BY V Bhadriraju	**CHECKED BY** V Bhadriraju	**APPROVED BY**

SOIL SAMPLING

SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY
SPT	10	6	8	10	18	0.9
SPT	11	14	33	38	71	1.5
SPT	12	12	16	21	37	1.5
SPT	13	12	17	20	37	1.5
SPT	14	17	40	33	73	0.9
SPT	15	7	50/3"	-	>50	0.3

ROCK CORING

CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD

DEPTH (FEET): 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60
ELEVATION (FEET): 102, 100, 98, 96, 94, 92, 90, 88, 86, 84, 82, 80, 78, 76, 74

CLASSIFICATION OF MATERIALS

chalk nodules

grading medium dense; wet; fine to medium grained; well graded

grading very dense
@ 38.5'-39.3' yellow silty clay layer
@ 39.3' grading grayish white w/ fine grained sand & some silt

40.0

Clayey SAND; light gray; dense; moist; fine grained; poorly graded

grading light brown; silt grades out

grading fine to medium grained

some angular gravel

grading w/ white fine sand; some clay cementation

REMARKS

driven along w/ spoon.
Below 28.5' continued w/ rotary wash method using 4" drag bit & bentonite slurry as drilling fluid.
Driller reported trace gravel from 28.5'-38.5'.

Based on driller's comments.

Driller reported alternating hard and soft drilling efforts.

1/15/2009 4:19 PM Coleto Creek 2

BLACK & VEATCH

PRELIMINARY BORING LOG

BORING NO. BV-5
SHEET 3 OF 3

CLIENT	PROJECT	PROJECT NO.
International Power America, Inc	Coleto Creek Unit Two	149116

PROJECT LOCATION	COORDINATES		GROUND ELEVATION (DATUM)	TOTAL DEPTH
Victoria, Texas	N 327129.3'	E 2570579.3'	133.0 ft (MSL)	80.0 (feet)

SURFACE CONDITIONS	COORDINATE SYSTEM	DATE START	DATE FINISHED
Grassy, level, tan clayey sand	State Plane	9/16/08	9/17/08

LOGGED BY	CHECKED BY	APPROVED BY
V Bhadriraju	V Bhadriraju	

SOIL SAMPLING: SAMPLE TYPE ROCK CORING: CORE SIZE	SAMPLE NUMBER RUN NUMBER	SET 6 INCHES RUN LENGTH	2ND 6 INCHES RUN RECOVERY	3RD 6 INCHES RQD RECOVERY	N VALUE PERCENT RECOVERY	SAMPLE RECOVERY RQD	DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
							60.0				Silty SAND; white; very dense; moist; fine grained; poorly graded; some pockets of light brown clay; highly cemented	Based on driller's comments & cuttings from rotary wash.
SPT	16	50/4"	-	-	>50	0.2						
SPT	17	50/3"	-	-	>50	0.3					grading w/ trace angular to subangular gravel; clay pockets grade to trace	
							73.5				CLAY; dark tan; hard; moist; low plasticity; some sand @ 74.5' yellowish gray	No clay cuttings in drilling fluid return.
SPT	18	12	17	22	39	1.5						
SPT	19	13	17	22	39	1.5						
							80					Bottom of boring @ 80.0'. Water level recorded @ 24.6' after 24 hours. Boring backfilled w/ bentonite pallets to 42.5' on 09/17/08. Piezometer PZ-5 set from 30.0' to 40.0'. Boring backfilled with cement bentonite grout to ground surface.

PRELIMINARY BORING LOG

BORING NO. BV-21

SHEET 1 OF 3

CLIENT International Power America, Inc	**PROJECT** Coleto Creek Unit Two	**PROJECT NO.** 149116

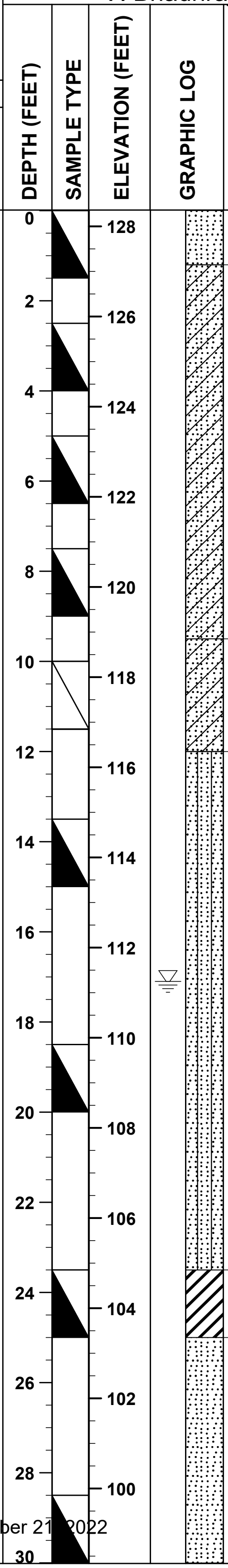
PROJECT LOCATION Victoria, Texas	**COORDINATES** N 328659.7' E 2571578.7'	**GROUND ELEVATION (DATUM)** 128.4 ft (MSL)	**TOTAL DEPTH** 80.0 (feet)
SURFACE CONDITIONS Level, loose, silty sand	**COORDINATE SYSTEM** State	**DATE START** 9/8/08	**DATE FINISHED** 9/8/08
LOGGED BY V. Bhadriraju	**CHECKED BY** V Bhadriraju	**APPROVED BY**	

SOIL SAMPLING

SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY
SPT	1	1	2	5	7	0.9
SPT	2	5	5	6	11	1.5
SPT	3	4	6	9	15	1.5
SPT	4	5	6	8	14	1.1
CA	5	3	3	4	7	1.5
SPT	6	22	50/3	-	>50	0.7
SPT	7	24	50	50/4	>50	0.9
SPT	8	5	6	14	20	1.5
SPT	9	20	48	48	96	1.5

ROCK CORING

CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD



CLASSIFICATION OF MATERIALS

SAND; dark brown; loose; moist; fine grained; poorly graded

1.2

Clayey SAND; light brown; medium dense; moist; fine grained; poorly graded

grading light gray; some black mottling & trace roots

grading w/trace chalk nodules; roots grade out

grading w/frequent seams of chalk nodules

9.5

Clayey SAND; light gray; moist; fine to medium grained; poorly graded; trace gravel

grading w/highly cemented calcareous sand

12.0

Silty SAND; grayish white; very dense; moist; fine grained; poorly graded

grading orange; wet; fine to medium grained; trace calcareous sand nodules

23.5

CLAY; light gray; very stiff; moist; high plasticity; some light brown clay pockets

25.0

SAND; light gray; very dense; wet; fine to coarse grained; well graded; w/trace gravel

REMARKS

Boring advanced w/3-1/4" ID hollow stem auger. SPT performed w/auto hammer.

Water encountered during drilling @ 17.6'.

Driller reports softer drilling. Below 18.5' continued w/ rotary wash method using 4" drag bit & bentonite slurry as drilling fluid.

White silt & fine sand in bottom of SPT-8

BLACK & VEATCH

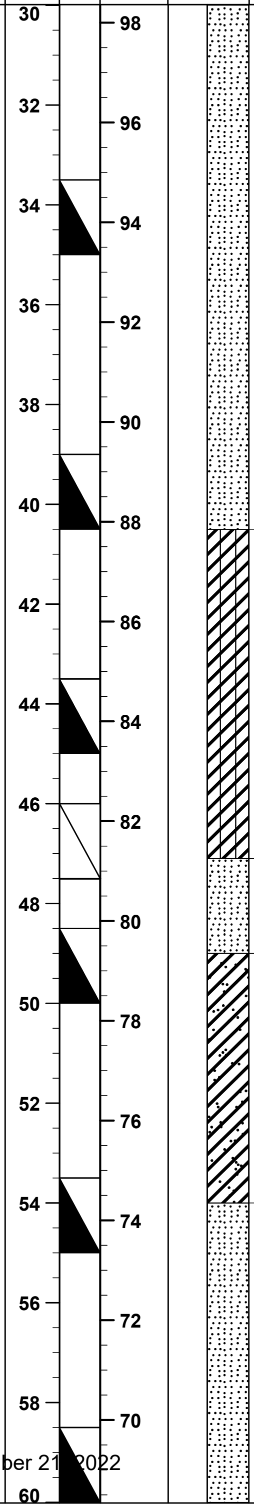
PRELIMINARY BORING LOG

BORING NO. BV-21
SHEET 2 OF 3

CLIENT International Power America, Inc		**PROJECT** Coleto Creek Unit Two			**PROJECT NO.** 149116
PROJECT LOCATION Victoria, Texas	**COORDINATES** N 328659.7'	E 2571578.7'	**GROUND ELEVATION (DATUM)** 128.4 ft (MSL)		**TOTAL DEPTH** 80.0 (feet)
SURFACE CONDITIONS Level, loose, silty sand		**COORDINATE SYSTEM** State		**DATE START** 9/8/08	**DATE FINISHED** 9/8/08
LOGGED BY V. Bhadriraju		**CHECKED BY** V Bhadriraju		**APPROVED BY**	

SOIL SAMPLING: SAMPLE TYPE, SAMPLE NUMBER, SET 6 INCHES, 2ND 6 INCHES, 3RD 6 INCHES, N VALUE, SAMPLE RECOVERY

ROCK CORING: CORE SIZE, RUN NUMBER, RUN LENGTH, RUN RECOVERY, RQD RECOVERY, PERCENT RECOVERY, RQD



SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY	CLASSIFICATION OF MATERIALS	REMARKS
							grading grayish white; fine grained; poorly graded; w/ trace clay & some gravel	
							grading fine to medium grained; clay & gravel grade out	
SPT	10	33	50/4"	-	>50	0.4		@ 34.0'-35.0' boulder encountered. Hard drilling. Drilled through w/ 4" tricone driller bit. Driller reported limestone in cuttings. Continued w/4" paddle bit.
							grading w/occasional light brown clay pockets	39.0'- 43.2' driller reported clay like drilling.
SPT	11	9	24	40	64	1.4	@ 40.5' white clayey silt & some chalk nodules	
							—40.5—	
							Silty CLAY; grayish white; hard; moist; low plasticity; w/ some light gray fine sand pockets	
SPT	12	13	39	50/4"	>50	1.1		
CA	13	30	45	50/5"	>50	1.0	grading w/limestone nodules	
							—47.1—	
							SAND; light gray; wet; fine grained; poorly graded; highly cemented	
							@ 47.2' grading light brown; fine to medium grained; cementation grades out	
SPT	14	36	50/5"	-	>50	1.0		
							—49.0—	
							Sandy CLAY; grayish white; hard; dry; low plasticity	
							—54.0—	
SPT	15	17	30	32	62	1.5	SAND; light brown; very dense; wet; fine to medium grained; poorly graded; some gravel & coarse sand sized chalk nodules; occasional light brown clay pockets	
SPT	16	50/4"	-	-	>50	0.3		

BLACK & VEATCH

PRELIMINARY
BORING LOG

BORING NO. BV-21
SHEET 3 OF 3

CLIENT International Power America, Inc	**PROJECT** Coleto Creek Unit Two	**PROJECT NO.** 149116
PROJECT LOCATION Victoria, Texas	**COORDINATES** N 328659.7' E 2571578.7'	**GROUND ELEVATION (DATUM)** 128.4 ft (MSL)
TOTAL DEPTH 80.0 (feet)	**SURFACE CONDITIONS** Level, loose, silty sand	**COORDINATE SYSTEM** State
DATE START 9/8/08	**DATE FINISHED** 9/8/08	**LOGGED BY** V. Bhadriraju
CHECKED BY V Bhadriraju	**APPROVED BY**	

ROCK CORING

CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD

SOIL SAMPLING

SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY	DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
							60		68	░	@ 60.0' white chalk layer	
							62		66	▨	61.0 CLAY; yellowish gray; hard; moist; high plasticity	Clay cuttings from rotary wash
SPT	17	11	20	25	45	1.5	64	◣	64	▨		
							66		62	▨		
SPT	18	18	25	25	50	1.5	68	◣	60	▨	grading w/frequent partings of grayish white fine sand w/gravel sized chalk nodules	
							70		58	▨		
							72		56	▨		
SPT	19	14	27	27	54	1.5	74	◣	54	▨	@ 73.5'-74.0' light brown fine sand partings grade to occasional	
							76		52	▨		
SPT	20	18	18	29	47	1.5	78	◣	50	░	79.0 SAND; grayish white; dense; moist; fine grained; poorly graded; trace clay	
							80		48			Bottom of boring @ 80.0'. Water level recorded @ 16.3' after 24 hours. Boring backfilled w/ bentonite pallets to 42.5' on 09/09/08. Piezometer PZ-21 set from 30.0' to 40.0'. Boring backfilled with cement bentonite grout to ground surface.
							82		46			
							84		44			
							86		42			
							88		40			
							90					

BORING NO. W-4

PROJECT: Coleto Creek Power Station
CLIENT: Central Power & Light Co.
FEATURE: Monitoring Well W-4
SURFACE ELEVATION: 134.32Ft | TOTAL DEPTH: 86.5 Ft
LOCATION: S 33+00 E0+00
DEPTH TO WATER DURING DRILLING: 42.0Ft | DATE: 6-3-78
DRILLED BY: Trinity Testing Laboratories, Inc.
LOGGED BY: Sargent & Lundy
TESTED BY: Trinity Testing Laboratories, Inc.

DEPTH (FT.)	SAMPLE NUMBER AND TYPE	BLOWS/6" ON SAMPLER (RECOVERY, %)	POCKET PENETROMETER READING (tsf)	FIELD MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	OTHER TESTS	CORE RECOVERY (%)	RQD (%)
0	ST1	(78)		16.0	40	23	SA		
5	ST2	(89)							
	ST3	(100)		13.2					
10	ST4	(80)		11.3	43	20	SA		
15	ST5	(89)		13.5			SA		
20	SS6	7-33-40 (100)							
25	SS7	34-29-4 (100)							
30	SS8	38-30-3 (100)					SA		
35	SS9	10-20-1 (100)							
40	SS10	41-39-2							
45	SS11	19-26-42 (100)					SA		
50	SS12	105/6 (100)							
55	SS13	32-40-20 (100)							
60	SS14	33-30-34 (100)					SA		
65	SS15	40-100/2 (100)							
70	SS16	10-37-109/5 (100)					SA		
75	SS17	22-46-66 (100)					SA		
80	SS18	19-42-56 (100)			46	23	SA		
85	SS19	32-53-86 (100)							
90									

SYMBOLS	DESCRIPTION	ELEVATION (FT., MSL)
		134.32
SM	SAND, silty, brown.	132.32
SC	SAND, clayey, medium to fine, brown and yellow. - seams of cemented sand between 21 Ft and 25 Ft.	113.32
SP-SM	SAND, medium to fine, trace silt, yellow.	109.32
CL	CLAY, silty, some medium to fine sand, calcareous, yellow.	103.32
SP	SAND, medium to fine, yellow.	100.32
CL	CLAY, silty and sandy, yellow.	99.32
SM	SAND, silty, coarse to fine, trace gravel, yellow. - cemented layer. - grades to no gravel, white - grades to medium to fine. - grades to coarse to fine with gravel & caliche.	98.32 94.32 93.32 92.32 89.32 88.02 86.32
CL	CLAY, sandy, yellow and grey.	78.02
SC-GC	SAND and Gravel, clayey, grey, with cemented layers.	74.32
CL	CLAY, sandy, grey. - grades to yellow	69.32 66.02
SM	SAND, silty, coarse to fine, yellow.	63.32 63.02
ML	Caliche, (Chalk)	60.02
SM	SAND, silty, coarse to fine, yellow.	
CL	CLAY, silty, little medium to fine sand, grey and brown with pockets of Caliche.	58.32
	END OF BORING - 86.5 Ft Groundwater encountered at 42.0 Ft.	47.82

20
30
40
50

86.5

ATTACHMENT 11

BORING NO. W-5

SHEET 1 OF 2

PROJECT: Coleto Creek Power Station
CLIENT: Central Power & Light Co.
FEATURE: Monitoring Well W-5
SURFACE ELEVATION: 119.57 Ft
TOTAL DEPTH: 71.5Ft
LOCATION: N 30+07.7 E 31+50.6
DEPTH TO WATER DURING DRILLING: 40.0 Ft
DATE: 3-30-78
DRILLED BY: Trinity Testing Laboratories, Inc.
LOGGED BY: Sargent & Lundy
TESTED BY: Trinity Testing Laboratories, Inc.

DEPTH (ft.)	SAMPLE NUMBER AND TYPE	BLOWS/6" ON SAMPLER (RECOVERY, %)	POCKET PENETROMETER MEASUREMENT (tsf)	FIELD MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	OTHER TESTS	CORE RECOVERY (%)	RQD (%)	SYMBOLS	DESCRIPTION	DEPTH (ft.)	ELEVATION (ft., MSL)
0										SM	SAND, silty, brown (Topsoil)	0	119.57
										SC	SAND, clayey, medium to fine, brown.		119.07
	ST1	(75)		12.8			SA						
5	ST2	(83)								CL	CLAY, silty, gray, with Caliche.	5	114.07
	ST3	(83)											
										SC	SAND, clayey, brown, with layers of Caliche.		111.57
10	ST4	(83)										10	
										CL	CLAY, silty, yellow and white, with lenses and pockets of Caliche.		108.57
15	ST5	(78)		3.1			SA			SP-SM	SAND, medium to fine, white.	15	104.57
20	SS6	8-13-20 (100)					SA					20	
25	SS7	7-47-100 /4.5 (100)										25	3.57
										SC	SAND, clayey, calcareous, white. (Caliche)		0.57
30	SS8	6-13-31 (100)								SM-SC	SAND, silty and clayey, white, with lenses and seems of Caliche - grades to gray.	30	
35	SS9	14-36-31 (100)					SA					35	
40												∇ 40	9.57
	SS10	1-27-31 (100)								SM	SAND, silty, coarse to fine, white		9.07
45	SS11	16-67- 100/5.5 (100)		34	15							45	3.57
										CL	CLAY, silty, gray, with seems of Caliche.		
50												50	

REVISION	DATE APPROVED BY	DESCRIPTION
0	10-24-78 D.G. Birkin	For Use

COLETO CREEK POWER STATION
LOG OF BORING W-5

CENTRAL POWER & LIGHT CO.

SARGENT & LUNDY
ENGINEERS

PROJECT NUMBER 4857

BORING NO. W-5 (cont'd) SHEET 2 OF 2

DEPTH (ft.)	SAMPLE NUMBER AND TYPE	BLOWS/6" ON SAMPLER (RECOVERY, %)	POCKET PENETROMETER MEASUREMENT (tsf)	FIELD MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	OTHER TESTS	CORE RECOVERY (%)	RQD (%)	SYMBOLS	DESCRIPTION	ELEVATION (ft., MSL)
50	SS12	72-100/1 (100)					SA			SM-SC	SAND, silty and clayey, calcareous, white, very dense. (Caliche)	69.57
										SM	SAND, silty, white.	66.57
55	SS13	50-74-130/5.5 (100)										
										SM-SC	SAND, silty and clayey, calcareous, white and brown, very dense. (Caliche)	62.57
60	SS14	100/3.5 (100)			18	14	SA					
65	SS15	18-78-100/4.5 (100)										
										CL	CLAY, silty, brown.	53.57
70	SS16	9-17-21 (100)										
											END OF BORING - 71.5 Ft Groundwater encountered at 40.0 Ft. and rose to 32.5 Ft.	48.07
75												

REVISION	DATE APPROVED BY	DESCRIPTION
0	10-24-78 D.G. Bodin	For Use

COLETO CREEK POWER STATION
LOG OF BORING W-5 (cont'd)

CENTRAL POWER & LIGHT CO.

SARGENT & LUNDY
ENGINEERS

PROJECT NUMBER 4857

SHEET 3 OF 3
S-10

MW-6

PROJECT: Coleto Creek Power Station
CLIENT: Central Power & Light Co.
FEATURE: Monitoring Well W-6
SURFACE ELEVATION: 116.35 Ft | TOTAL DEPTH: 66.5 Ft
LOCATION: N 63+00 E 31+00
DEPTH TO WATER DURING DRILLING: 38.0Ft | DATE: -31-78
DRILLED BY: Trinity Testing Laboratories, Inc.
LOGGED BY: Trinity Testing Laboratories, Inc.
TESTED BY: Trinity Testing Laboratories, Inc.

SAMPLE NUMBER AND TYPE	BLOWS/6" ON SAMPLER (RECOVERY, %)	POCKET PENETROMETER MEASUREMENT (tsf.)	FIELD MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	OTHER TESTS	CORE RECOVERY (%)	RQD (%)
ST1	(64)		13.6	60	29	SA		
ST2	(86)							
ST3	(81)		13.2	32	21	SA		
ST4	(78)							
ST5	(69)		3.4		SA			
SS6	14-20-20 (100)							
SS7	9-22-28 (100)							
SS8	8-16-26 (100)							
SS9	9-41-100/5 (100)							
SS10	13-55-44 (100)							
SS11	76-100/5 (100)			18	12			
SS12	11-21-57 (100)					SA		
SS13	21-100/55 (100)							
SS14	37-100 (100)							
SS15	7-16-26 (100)							

SYMBOLS	DESCRIPTION
SC	SAND, clayey, brown. - grades to yellow-brown. - grades to yellow with Caliche.
CL	CLAY, sandy, yellow-brown.
SM-SC	SAND, silty and clayey, yellow and white with Caliche.
SC	SAND, clayey, yellow-gray.
SP-SM	SAND, coarse to fine, white to yellow.
SM	SAND, silty, trace gravel, white with layer of clayey sand.
CL-ML	CLAY, silty and sandy, yellow gray.
SC	SAND, clayey, gray, with Caliche.
SC	- grades to yellow-gray.
SM-SC	SAND, silty and clayey, white.
CL	CLAY, silty, gray-pink.
	END OF BORING- 66.5 Ft Groundwater encountered at 38.0 Ft

ELEVATION (ft., MSL): 116.35, 112.35, 109.85, 108.85, 105.35, 92.35, 90.35, 87.35, 78.35, 73.85, 68.85, 66.35, 58.85, 55.35, 53.85, 49.85

BORING NO. W-7

PROJECT: Coleto Creek Power Station
CLIENT: Central Power & Light Co.
FEATURE: Monitoring Well W-7
SURFACE ELEVATION: 126.99 Ft | TOTAL DEPTH: 75.13 Ft
LOCATION: N 79+20 E 19+00
DEPTH TO WATER DURING DRILLING: 35.0 Ft | DATE: 4-4-78
DRILLED BY: Trinity Testing Laboratories, Inc.
LOGGED BY: Trinity Testing Laboratories, Inc.
TESTED BY: Trinity Testing Laboratories, Inc.

SAMPLE NUMBER AND TYPE	BLOWS/6" ON SAMPLER (RECOVERY, %)	POCKET PENETROMETER MEASUREMENT (tsf.)	FIELD MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	OTHER TESTS	CORE RECOVERY (%)	RQD (%)
ST1	(89)		10.9	45	21	SA		
ST2	(96)							
ST3	(78)		12.8	41	20	SA		
ST4	(86)							
ST5			9.1			SA		
SS6	3-6-26 (100)					SA		
SS7	14-51-68 (100)							
SS8	8-37-52 (100)							
SS9	8-13-19 (100)			28	15	SA		
SS10	7-37-43 (100)							
SS11	12-26-26 (100)					SA		
SS12	15-16-50 (100)							
SS13	10-21-29 (100)							
SS14	19-42-73 (100)					SA		
SS15	17-100/5 (0)							
SS16	100/2.5 (0)							
SS17	100/1.5 (0)							

SYMBOLS	DESCRIPTION
SC	SAND, clayey, medium to fine, brown - grades to yellow with layers of Caliche. - grades to brown. - grades to yellow.
SM	SAND, silty, coarse to fine, trace gravel, white.
SC	SAND, clayey, yellow, with Caliche.
SM	SAND, silty, coarse to fine, yellow.
SC	SAND, clayey, gray, with Caliche.
SM	SAND, silty, medium to fine, white.
SC	SAND, clayey.
SM	SAND, silty, coarse to fine, with and without little gravel, white. - cemented layer.
CL	CLAY, silty, gray, very hard.
	END OF BORING - 75.13 Ft Groundwater encountered at 35.0 Ft.

ELEVATION (ft., MSL): 126.99, 123.49, 119.99, 117.49, 110.99, 108.99, 105.99, 103.99, 91.99, 84.49, 76.99, 76.49, 71.49, 61.49, 55.99, 51.86

MW-8

PROJECT: Coleto Creek Power Station
CLIENT: Central Power & Light Co.
FEATURE: Monitoring Well W-8
SURFACE ELEVATION: 131.78 Ft | TOTAL DEPTH: 81.5 Ft
LOCATION: N 65+00 W 2+00
DEPTH TO WATER DURING DRILLING: 42.0Ft | DATE: 3-30-78
DRILLED BY: Trinity Testing Laboratories, Inc.
LOGGED BY: Sargent & Lundy
TESTED BY: Trinity Testing Laboratories, Inc.

SAMPLE NUMBER AND TYPE	BLOWS/6" ON SAMPLER (RECOVERY, %)	POCKET PENETROMETER MEASUREMENT (tsf.)	FIELD MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	OTHER TESTS	CORE RECOVERY (%)	RQD (%)
ST1	(92)		7.2	33	15	SA		
ST2	(97)							
ST3	(77)		16.8	48	18	SA		
ST4	(94)							
ST5	(96)		8.4			SA		
SS6	6-9-12 (100)							
SS7	11-28-42 (100)							
SS8	100/6.5 (100)					SA		
SS9	30-25-86 (100)							
SS10	6-14-22 (100)					SA		
SS11	-23-26 (100)					SA		
SS12	43-100/1 (100)							
SS13	30-47-96 (100)							
SS14	100/3 (100)					SA		
SS15	100/1 (100)							
SS16	28-47-52 (100)			45	20	SA		
SS17	17-54-41 (100)							
SS18	14-36-50 (100)							

SYMBOLS	DESCRIPTION
SC	SAND, clayey, medium to fine, brown.
CL	CLAY, silty, and sandy, calcareous, white, (Caliche)
SC	SAND, clayey, medium to fine, calcureous light brown to white.
SM	SAND, silty, medium to fine, light brown to gray.
CL	CLAY, silty, brown.
SC	SAND, clayey calcareous, white. (Caliche)
SP-SM	SAND, coarse to fine, brown
SC	SAND, clayey, coarse to fine, gray.
SM	SAND, silty, gray, with clayey sand layers.
SM	
SC	SAND, clayey, gray, vary hard.
CL	CLAY, silt, light brown to white with Caliche, very hard.
	END OF BORING - 81.5 Ft Groundwater encountered at 42.0 Ft

ELEVATION (ft., MSL): 131.78, 124.78, 116.7, 111.7, 95.78, 95.28, 94.78, 91.78, 89.78, 87.78, 81.78, 74.78, 64.78, 50.28

NOTES

REFERENCE DRAWINGS

S-2	SOILS BORINGS LOCATION PLAN

FOR REFERENCE ONLY
SPEC. CC2-513.20
11-21-80

DRAWING RELEASE RECORD

REV.	DATE REL'D.	PREPARED	REVIEWED	APPROVED	PURPOSE	FILM

DRAWING RELEASE RECORD

REV.	DATE REL'D.	PREPARED	REVIEWED	APPROVED	PURPOSE	FILM
A	09-08-80	MBasani	R.B. Heiland	McLaughlin	FOR RECORD	✓

R.C.L.-78

SCALE: NONE
PROJECT NUMBER: 4857

LOG OF BORINGS
W-6 THROUGH W-8
COLETO CREEK POWER STATION UNIT 1
CENTRAL POWER & LIGHT COMPANY
GOLIAD COUNTY, TEXAS

SARGENT & LUNDY
ENGINEERS
CHICAGO

DRAWING NO. S-10 | REV. A
SHEET 3 OF 3

COCS1053

Bullock, Bennett & Associates, LLC
165 N. Lampasas Street
Bertram, TX 78605

LOG OF BORING W-9

(Page 1 of 1)

COLETO CREEK POWER STATION
FANNIN, TX

Project No. 15215

Date : 9/15/2015
Easting : 2543670.9
Northing : 13451651.2
Top of Casing Elevation 132.3 ft NAVD 88
Logger : EEF

Drilling Company : EnviroCore
Driller : Craig Schena (Lic. #4694)
Drill Rig : CME75
Drilling Method : Hollow Stem Auger - 6"
Sampling Method : Split-Spoon

DEPTH (feet)	Surface Elevation 129.3	DESCRIPTION	USCS	GRAPHIC	Recovery (ft/ft)	WELL DIAGRAM/REMARKS
0.0	128	(0-2.0) - Fill Material: CLAYEY SAND, mottled light gray and reddish brown, moist	SC		1.5/2	
5.0	124	(2.0-5.5) - Fill Material: Silty CLAY/Clayey SAND, brownish gray to white, soft to firm, Sand is fine to coarse grained, common caliche gravel, moist	SC/CL		2/2 2/2	
	120	(5.5-10.0) - Silty CLAY, dark gray to gray with orangish brown mottling, firm to hard, medium plasticity, common caliche gravel, minor roots, moist	CL		2/2 2/2	
10.0 15.0 20.0	116 112	(10.0-20.5) - Predominantly Caliche and Silty CLAY, light gray to white, Caliche is weekly cemented, low plascticity, dry	ML/CL		2/2 2/2 2/2 2/2 2/2	Well Construction: Riser ~3.0' AGL - 40.0' BGL Neat Cement: 0' - 2.0' BGL Bentonite chips seal: 2.0' - 38.0' BGL Sand Pack: 38.0' - 60.0' BGL Screen: 40.0' - 60.0' BGL
	108	(20.5-22.0) - SILTY SAND, very light brownish gray, fine to coarse grained, trace of gravel, moist	SM		2/2	
25.0 30.0 35.0 40.0	104 100 96 92 88	(22.0-44.0) - SAND, very light orangish brownish to very light gray, fine to coarse grained, slightly silty, wet	SW		2/2 2/2 2/2 2/2 2/2 2/2 2/2 2/2 2/2 2/2 2/2	Water Level: 25.2' BGL
45.0	84	(44.0-47.0) - SILTY SAND, light gray, fine to coarse grainad, wet	SM		2/2 2/2	
50.0	80 76	(47.0-54.0) - Silty CLAY/Clayey SAND, light gray, soft to firm, Sand is fine to coarse grained, wet	SC/CL		2/2 2/2 2/2	
55.0 60.0	72	(54.0-60.0) - Silty, Clayey SAND, gray, fine to coarse grained, wet	SC/SM		2/2 2/2 2/2	

Craig E. Bennett

CRAIG E. BENNETT
GEOLOGY
LIC. # 1205

5-26-16

Total Boring Depth = 60 ft Below Ground Level; North and Easting Coordinates from NAD-83, South Central Zone

Bullock, Bennett & Associates, LLC
165 N. Lampasas Street
Bertram, TX 78605

LOG OF BORING W-10

(Page 1 of 1)

COLETO CREEK POWER STATION
FANNIN, TX

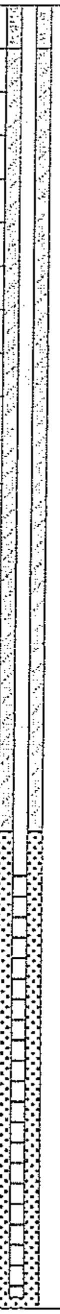
Project No. 15215

Date : 9/17/2015
Easting : 2542864.5
Northing : 13449694.0
Top of Casing Elevation 130.4 ft NAVD 88
Logger : EEF

Drilling Company : EnviroCore
Driller : Craig Schena (Lic. #4694)
Drill Rig : CME75
Drilling Method : Hollow Stem Auger - 6"
Sampling Method : Split-Spoon

DEPTH (feet)	Surface Elevation 127.6	DESCRIPTION	USCS	Recovery (ft/ft)
0.0		(0-2.0) - Fill Material: SILTY SAND, fine to coarse grained, brown, clayey, common roots, moist	SM	2/2
	124	(2.0-8.0) - Silty,Sandy CLAY,mottled organish brown and light gray, firm, medium plasticity, moist	CL	1.0/2
5.0				0/2
	120			1.7/2
		(8.0-11.0) - Silty CLAY/Clayey SAND, light gray, Sand is medium grained, moist	SC/CL	2/2
10.0	116			1.7/2
		(11.0-19.0) - SILTY SAND, very light gray, medium to coarse grained, abundant caliche, moist	SM	1.8/2
15.0	112			1.8/2
				1.8/2
	108			1.8/2
20.0		(19.0-30.0) - SAND, light gray, medium to coase grained, occasional gravel, moist	SP	1.8/2
	104			1.8/2
25.0				1.8/2
	100			1.8/2
				1.8/2
30.0	96	(30.0-32.0) - Silty CLAY/Clayey SAND, light gray, soft to firm, occasional gravel and caliche, medium plasticity, wet	CL/SC	1.8/2
		(32.0-34.0) - CLAYEY SAND, brownish gray, soft, very fine, wet	SC	1.8/2
35.0	92	(34.0-36.0) - SILTY SAND, light gray, fine to medium grained, wet	SM	1.5/2
		(36.0-52.0) - Silty, Clayey SAND, light gray, fine to coarse grained, wet	SC/SM	1.8/2
	88			1.8/2
40.0				1.8/2
	84			1.8/2
45.0				1.8/2
	80			2/2
				2/2
50.0	76			1.8/2
		(52.0-60.0) - SILTY SAND, light gray, fine to coarse grained, clayey, wet	SM	1.8/2
55.0	72			1.8/2
				2/2
60.0	68			1.5/2

WELL DIAGRAM/REMARKS



Well Construction:
Riser ~3.0' AGL - 40.0' BGL
Neat Cement: 0' - 2.0' BGL
Bentonite chips seal: 2.0' - 38.0' BGL
Sand Pack: 38.0' - 60.0' BGL
Screen: 40.0' - 60.0' BGL

Water Level: 24.8' BGL

Craig E. Bennett

CRAIG E. BENNETT
GEOLOGY
LIC. # 1205

5-26-16

Total Boring Depth = 60 ft Below Ground Level; North and Easting Coordinates from NAD-83, South Central Zone

Bullock, Bennett & Associates, LLC
165 N. Lampasas Street
Bertram, TX 78605

LOG OF BORING MW-11

(Page 1 of 1)

COLETO CREEK POWER STATION
FANNIN, TX

Project No. 17252

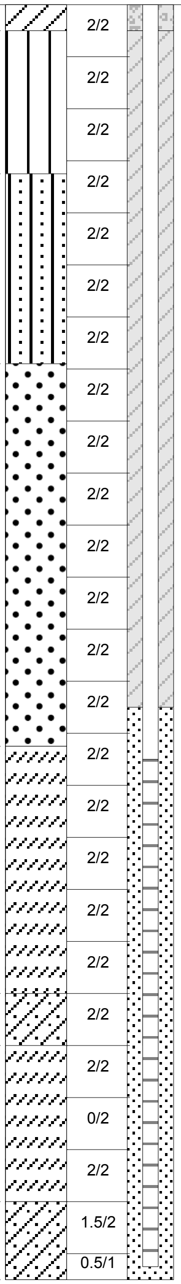
Date : 4/25/2017
Easting : 2543727.0
Northing : 13452676.5
Top of Casing Elevation 118.66 ft NAVD 88
Logger : EEF

Drilling Company : EnviroCore
Driller : Craig Schena (Lic. #4694)
Drill Rig : CME75
Drilling Method : Hollow Stem Auger - 6"
Sampling Method : Split-Spoon

DEPTH (feet)	Surface Elevation 115.8	DESCRIPTION	USCS	Recovery (ft/ft)
0.0		(0-1.0) - Silty CLAY, dark brown, soft to firm, medium plasticity, minor roots, moist	CL	2/2
5.0	112	(1.0-6.5) - Predominantly Caliche and Silty CLAY, light gray to white, Caliche is weakly cemented, low to medium plascticity, wet	CL/ML	2/2 2/2 2/2
10.0	108 104	(6.5-13.8) - Silty, Clayey SAND, light gray to white, very fine to medium grained, wet	SM	2/2 2/2 2/2
15.0 20.0 25.0	100 96 92 88	(13.8-28.5) - SAND, very light orangish brownish to very light gray, fine to coarse grained, abundant gravel, slightly silty, wet	SW	2/2 2/2 2/2 2/2 2/2 2/2 2/2 2/2
30.0 35.0	84 80	(28.5-38.0) - Silty, Clayey SAND, gray to light brownish gray, very fine to medium grained, wet	SM/SC	2/2 2/2 2/2 2/2
	76	(38.0-40.0) - Silty CLAY/Clayey SAND, light gray, weakly caliche cemented, Sand is fine to medium grained, wet	CL/SC	2/2
40.0 45.0	72	(40.0-46.0) - Silty, Clayey SAND, gray, fine to medium grained, wet	SM/SC	2/2 0/2 2/2
	68	(46.0-49.0) - Silty CLAY/Clayey SAND, light gray, weakly caliche cemented, Sand is fine to medium grained, wet	SC	1.5/2 0.5/1

GRAPHIC

WELL DIAGRAM/REMARKS



Water Level: 11.2' BGL

Well Construction:
Riser ~2.7' AGL - 29.0' BGL
Neat Cement: 0' - 1.0' BGL
Bentonite chips seal: 1.0' - 27.0' BGL
Sand Pack: 27.0' - 49.0' BGL
Screen: 29.0' - 49.0' BGL

CRAIG E. BENNETT
GEOLOGY
LIC #1205

Craig E Bennett
04-28-2017

Total Boring Depth = 49 ft Below Ground Level; North and Easting Coordinates from NAD-83, South Central Zone

COAL COMBUSTION RESIDUAL RULE
STATISTICAL ANALYSIS PLAN
REVISION NO. 1

COLETO CREEK PRIMARY ASH POND
FANNIN COUNTY, TEXAS

NOVEMBER 16, 2022

Prepared For:

Luminant Generation Company LLC

Prepared By:

Golder Associates USA , Inc.
1601 S. Mopac Expy, Suite 325D
Austin, Texas 78746
Texas Engineering Firm Registration No. 22771

PROFESSIONAL CERTIFICATION

This document and all attachments were prepared by Golder Associates USA, Inc. under my direction or supervision. I hereby certify that the proposed statistical method is appropriate for evaluating groundwater data in accordance with the requirements of Sections 257.93 through 257.95 of the CCR Rule.

Patrick J. Behling

Patrick J. Behling, P.E.
Principal Engineer
GOLDER ASSOCIATES USA, INC.

STATE OF TEXAS
PATRICK J. BEHLING
79872
LICENSED PROFESSIONAL ENGINEER
11/21/22

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

ANOVA	analysis of variance
CCR	coal combustion residuals
EPA	United States Environmental Protection Agency
GWPS	groundwater protection standard
LCL	lower confidence limit of the mean
MCL	maximum contaminant level
PPCC	Filliben’s probability plot correlation coefficient test
RROS	robust regression order statistics
SAP	statistical analysis plan
SWFPR	site-wide false positive rate
UPL	upper prediction limit

1.0 INTRODUCTION

The United States Environmental Protection Agency (EPA) issued regulations regarding the disposal of coal combustion residuals (CCR) in certain landfills and impoundments in April 2015. These regulations, found under 40 CFR 257, Subpart D and referred to as the "CCR Rule" require facilities to design a groundwater monitoring program to monitor if landfills or impoundments with CCR materials, called CCR units, are impacting downgradient groundwater quality.

Section 257.90 of the CCR Rule requires that all existing CCR landfills and surface impoundments comply with the following groundwater monitoring requirements no later than October 17, 2017:

- Install a groundwater monitoring system as required under Section 257.91;
- Develop a groundwater sampling and analysis program to include selection of the statistical procedures to be used for evaluating groundwater monitoring data as required under Section 257.93;
- Initiate a detection monitoring program to include obtaining a minimum of eight independent samples for each background upgradient and downgradient monitoring well as required under Section 257.94; and
- Begin evaluating the groundwater monitoring data for statistically significant increases over background levels for the constituents listed in Appendix III of this part as required under Section 257.94.

Statistical analysis of groundwater monitoring data is required as part of detection monitoring and assessment monitoring under Section 257.93 of the CCR Rule. Section 257.93 of the CCR Rule provides several options for statistically evaluating groundwater data. The owner or operator of the CCR unit must select one of the statistical methods specified in paragraphs (f)(1) through (5) of Section 257.93 when evaluating constituent concentrations from the groundwater monitoring. EPA's *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* (EPA, 2009), also called the "Unified Guidance", presents acceptable statistical approaches for such evaluations and analyses. However, neither the CCR Rule nor the Unified Guidance outlines a step-by-step process to consistently evaluate groundwater monitoring data in order to satisfy the CCR Rule.

The purpose of this statistical analysis plan (SAP) is to develop a standard set of statistical approaches to follow when demonstrating groundwater compliance for each CCR unit in accordance with the CCR Rule and the Unified Guidance. Depending on the CCR unit and the evaluation of groundwater data for the CCR unit, CCR groundwater compliance may be evaluated using either an interwell or an intrawell approach—the interwell approach being a comparison of water quality data upgradient of the CCR unit to water quality data downgradient of the CCR unit, and the intrawell approach being a comparison of water quality data of a well against background values established from that well's own historical water quality data.

This SAP describes and summarizes the statistical approach for establishing and evaluating baseline conditions to use for detection monitoring and assessment monitoring. The plan is designed to detect a release from a CCR facility. The plan conforms with EPA "Unified Guidance Document: Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities," March 2009, and the American Society for Testing and Materials (ASTM) Standard D6312-17, Developing Appropriate Statistical Approaches for Groundwater Detection Monitoring Programs at Waste Disposal Facilities.

2.0 DATA PREPARATION

Analytical data from wells in the groundwater monitoring network at a CCR unit during each sampling event are first reviewed for usability after final data packages are received from the laboratory. The analytical data are then prepared for statistical analysis. Methods for handling duplicate and non-detect data are implemented during this data preparation phase in order to comply with the performance standards outlined in 40 CFR 257.93. During the data preparation, anomalously low or high constituent concentrations are also considered for usability. The following subsections provide further details.

2.1 Handling Duplicate Data

Field duplicates and data rejected after data validation are removed from the data set. Only the primary samples are retained for the statistical evaluation.

2.2 Handling Non-Detect Data

A non-detected constituent concentration is defined as any analytical result that either has an instrument response but is below a sample detection limit or that has no instrument response. A non-detected concentration is handled by using one of two approaches, depending on the percentage of detections in the data set:

- If a data set has at least 85% of samples detected, half of the sample detection limit is substituted as a proxy concentration. In these cases, substituting a proxy concentration will not alter the results of statistical tests or summary statistics (EPA, 2009; EPA, 2000).

- If a data set has at least 50% but no more than 85% of the samples detected, the robust regression order statistics (RROS) method is used to estimate summary statistics such as the mean and standard deviation (EPA, 2009).

- If a data set has fewer than 50% of the samples detected, then nonparametric statistical approaches are used to evaluate the data and to prepare summary statistics (EPA, 2009; EPA, 2000).

It should be noted that J-flagged data (estimated concentrations between the sample detection limit and the reporting limit) are defined as detected concentrations.

2.3 Handling Anomalous Detections

There may be infrequent cases when an anomalously high or low detection cannot be confirmed after resampling a well. In such cases, the anomalous detection should be considered for removal from the data set and should be replaced by the resampled concentration so that current conditions are not over- or under-estimated. This is particularly important when estimating a baseline or background value to use to compare to future constituent concentrations from the network of groundwater monitoring wells. An anomalous detection may be identified at any point after analytical laboratory results are available, based on professional judgment or based on the outlier evaluation (see Section 3.4 for more details about testing for outliers). If an analytical result is removed, documentation should be provided in the annual report stating which analytical result was removed and justifying its removal.

3.0 STATISTICAL ASSUMPTIONS

Before baseline or background values can be established, a number of statistical assumptions are evaluated to determine if concentrations are independent and identically distributed. A sample's constituent concentration is independent when no other sample concentrations influence its measurement, regardless of when or where the sample was collected. Statistical independence is indicated by a set of random data. But randomness is only demonstrated by the presence of mean and variance stationarity and the lack of evidence for effects such as spatial and temporal variation, autocorrelation, and trends (EPA, 2009).

The validity of statistical independence is checked by testing for:

- Spatial stationarity,
- Temporal stationarity,
- Lack of autocorrelation, and
- Lack of statistical data outliers.

For the purpose of this SAP, the statistical software R (The R Foundation, 2017) is assumed to be used to perform the statistical tests used for checking the validity of independent samples. Other applicable programs may be used as necessary.

3.1 Spatial Stationarity

Spatial stationarity is defined as the lack of variability across well locations. Spatial variation may be naturally occurring and unaffected by human activity, or may be caused by human activity. The presence of spatial variability does not necessarily mean that contamination is present. If spatial variability is present, regardless whether it's naturally-occurring or not, it may hinder attempts to identify the cause of a statistically significant increase in constituent concentrations between current and baseline or background conditions (EPA, 2009). In some cases, spatial variability may make upgradient-to-downgradient comparisons (also called interwell comparisons) difficult (EPA, 2009).

One way to identify spatial stationarity is to observe whether spatial variability does or does not exist across multiple wells. This is particularly true when a CCR unit has more than one upgradient well and when interwell comparisons are used for detection or assessment monitoring. Constituent concentrations from each upgradient well are taken as a single data set and then upgradient well data sets are compared. Before establishing baseline or background values for the detection monitoring or assessment monitoring programs, two steps are taken to check for spatial stationarity for each constituent and groundwater monitoring well (recommended by the Unified Guidance):

1. Side-by-side box plots are created, and
2. The one-way analysis of variance (ANOVA) or Kruskal-Wallis test is used.

Box plots provide a quick screen for possible spatial variation. The ANOVA and Kruskal-Wallis test are more formal tests for identifying spatial variability. All of the statistical tests are performed and the box plots are generated using the statistical software R (The R Foundation, 2017) or similar software.

In some cases, spatial variability, where substantial differences in average constituent concentrations are present among upgradient wells, can make interwell comparisons difficult (EPA, 2009). Professional judgment should be used to determine whether the set of constituent concentrations from all upgradient wells appropriately represent baseline or background conditions and whether the spatial variability will prevent the detection or assessment monitoring from identifying a potential release at a CCR unit. If the spatial variability were to indicate that analytical data from a set of upgradient wells do not appropriately represent background conditions or if the spatial variability were to hinder the detection or assessment monitoring, then the data set should be adjusted accordingly.

3.1.1 Box Plots

A box plot is a graphical representation of the pattern and distribution of concentrations for a single constituent data set. Visually comparing box plots for upgradient well's constituent concentrations, side-by-side, is one way to identify similarities or differences across upgradient well concentrations. If box plots contain similar range of concentrations, then the concentrations for the upgradient wells are similar (spatial stationarity). Likewise, if box plots do not contain similar range of concentrations, then the concentrations for the upgradient wells are different: spatial variability. Section 3.4.1 provides more details about how to create box plots.

3.1.2 ANOVA and Kruskal-Wallis Tests

The ANOVA and Kruskal-Wallis tests are similar statistical tests; both tests indicate significant spatial variability by indicating whether a statistically significant difference exists among average, upgradient well concentrations. The ANOVA is a parametric approach for comparing average concentrations across two or more wells. The Kruskal-Wallis test is a non-parametric approach to the ANOVA using the ranks of concentrations, rather than using the actual concentration measurements. Neither test can be performed if the variances across upgradient wells are unequal. A Type I error rate (α), or level of significance, is set to α=0.05 for identifying a statistical significant different among well averages.

Determining which test to perform, either the ANOVA or Kruskal-Wallis tests, depends upon the frequency of detected results, the validity of assuming normality or lognormality for residuals, and the validity of assuming upgradient wells have equal variances. More details about these dependencies are provided in the subsections below (Sections 3.1.2.1-3.1.2.3). Figure 1 outlines the steps taken to define which statistical test (ANOVA or Kruskal-Wallis) should be used. The method used to determine the appropriate statistical test is based on the Unified Guidance recommendations. Tests of normality and equal variances use a 0.01 level of significance, rather than a 0.05 level of significance, because the ANOVA is reasonably robust to small departures of normality and equal variances (EPA, 2009).

No statistical test is performed when there are no detected concentration measurements in any of the upgradient wells.

If there are at least 85% detected concentrations in every upgradient well, then the ANOVA may be considered. For any non-detected concentration, half of the sample detection limit is used as a proxy concentration (see Section 2.2 for more details). The assumptions of normality and equal variances are checked. To test the normality assumption, residuals are tested using two distributional tests, the Shapiro-Wilk test and Filliben's probability plot correlation coefficient (PPCC) test. The Levene's test is used to check for equal variances. Only when evidence exists that both assumptions are valid is the ANOVA using the raw concentration measurements used. If either assumption is not met, then the assumptions of normality and equal variances are checked using the log-transformed data. Only when evidence exists that both assumptions are valid is the ANOVA using the log-transformed concentration measurements used. If either assumption is not met, then an ANOVA cannot be considered.

If there are fewer than 85% detected concentrations or if the ANOVA cannot be considered, then the Kruskal-Wallis may be considered. Non-detected data are treated differently for the Kruskal-Wallis test since the ranks of the data are used rather than the concentration measurements: all data below the maximum sample detection limit are set to the same value, lower than the maximum sample detection limit (Helsel, 2012). Since the Kruskal-Wallis tests uses ranks of the data, the actual value used for data below the maximum sample detection limit is not relevant. The assumption of equal variances is checked using the Fligner’s test. If the Fligner’s test indicates that the assumption of equal variances is valid, then the Kruskal-Wallis test is used. Otherwise, no test can be performed because variances are heterogeneous among upgradient well concentration measurements.

3.2 Temporal Stationarity

Temporal stationarity is the lack of temporal variability. Temporal variability refers to the concept that concentration measurements vary over time. Temporal variability may be present across a group of wells and/or constituents. Temporal variability can also be present at an individual well or for a single constituent. By definition, temporal variability also includes autocorrelation, which is discussed separately in Section 3.3.

Any temporal pattern can invalidate or weaken the results of statistical testing (EPA, 2009). Plotting concentrations over time for a given constituent and for a given well is one way to identify possible trends. The Mann-Kendall trend test is another way to identify possible temporal variation for a given constituent and well. The Mann-Kendall is a nonparametric method to test for an increasing or decreasing linear trend over time. The Mann-Kendall doesn’t require any special treatment for non-detects, other than all non-detects should be set to a common value lower than any of the detected concentrations (EPA, 2009 p.8-32). The Mann-Kendall is performed for any set of data with at least one detected concentration.

Before establishing baseline or background values for the detection monitoring or assessment monitoring programs, two steps are taken to check for temporal stationarity for each constituent and groundwater monitoring well:

1. A time plot is created, and
2. The Mann-Kendall trend test is used.

The time plots are generated and the Mann-Kendall trend test is performed using the statistical software R (The R Foundation, 2017) and the EnvStats package (Package ‘EnvStats’, 2017) or similar software.

Statistically significant increasing or decreasing temporal trends are not expected for any upgradient well since, by definition, an upgradient well should not be impacted by a release at the CCR unit. If, however, there is evidence of a temporal trend, then professional judgment should be used to determine whether constituent concentrations from that upgradient well appropriately represent baseline or background conditions and whether the trend will prevent the detection or assessment monitoring from identifying a potential release at a CCR unit. If the trend were to indicate that an upgradient well does not appropriately represent baseline or background conditions or if the trend were to hinder the detection or assessment monitoring, then the data set should be adjusted accordingly.

To identify a statistically significant temporal trend, a Type I experiment wise error rate (α) is set to $\alpha = 0.05$. That means, a single test error rate is defined for each well across the detected Appendix III or Appendix IV constituents. Each well's single test error rate is based on the number of detected constituents, d, for a given constituent list. For example, a well with five detected Appendix IV constituents $(d = 5)$ has a single test error rate equal to $1 - (1 - \alpha)^{1/d^*} = 1 - (1 - 0.05)^{1/5} = 0.0102$. A statistically significant linear trend is identified when the p-value for the Mann-Kendall test is less than the single test error rate.

3.3 Lack of Autocorrelation

Autocorrelation is the statistical dependence between pairs of constituent concentrations across a sequence of time. That is, pairs of consecutive concentrations will exhibit stronger similarity in concentration measurements than expected from pairs collected at random times (p.6-25, EPA, 2009). To identify autocorrelation, the Unified Guidance recommends using the rank von Neumann ratio test for its ease of use and robustness when applied to either normal or non-normal distributions (p.14-17 EPA, 2009). Since this test has not been designed to handle tied values such as non-detect concentrations, this test is only performed for those wells and constituents with at least 50% detected concentrations.

The rank von Neumann ratio test statistic and associated p-value are computed using the statistical software R (The R Foundation, 2017) and the EnvStats package (Package 'EnvStats', 2017) or similar software.

Before baseline or background values are established for the detection monitoring or assessment monitoring programs, the rank von Neumann ratio test is used. Statistically significant autocorrelation is not expected for any well since, by definition, constituent concentration measurements from a well should be collected with far enough time between sampling events that a more recent sample does not include the same volume of groundwater as any previous sample. If, however, there is evidence of autocorrelation, then professional judgment should be used to determine whether constituent concentrations from a well appropriately represent baseline or background conditions and whether the trend will prevent the detection or assessment monitoring from identifying a potential release at a CCR unit. If the trend were to indicate that a well does not appropriately represent baseline or background conditions or if the trend were to hinder the detection or assessment monitoring, then the data set should be adjusted accordingly.

To identify a statistically significant autocorrelation, a Type I experiment wise error rate, α, of 0.05 is used for each well across the detected Appendix III or Appendix IV constituents. Each well's single test error rate is based on the number of constituents detected at least 50% of the time, d^*, for a given constituent list. For example, a well with five detected Appendix IV constituents ($d^* = 5$), has a single test error rate equal to $1 - (1 - \alpha)^{1/d^*} = 1 - (1 - 0.05)^{1/5} = 0.0102$. A statistically significant autocorrelation is identified when the p-value for the rank von Neumann test is less than the single test error rate.

3.4 Lack of Statistical Outliers

Based on the Unified Guidance, outliers are "extreme, unusual-looking measurements". An outlier may be an invalid concentration measurement due to a typographical error, an equipment error, a sampling error, etc. Or an outlier may be a valid concentration measurement that reflects a "...temporary, local 'hot spot' of higher concentration" (EPA, 2009). Furthermore, outliers are "measurements (larger or smaller than other data values) that are not representative of the sample population from which they were drawn" (EPA, 2002).

The Unified Guidance recommends testing for outliers to attempt to determine whether a suspect outlier may have been drawn from the same sample population as the rest of the data. "The basic problem with including statistical outliers in analyzing groundwater data is that they do not come from the same distribution as the other measurements in the sample and so fail the identically distributed presumption of most tests" (EPA, 2009).

The consequences of keeping statistical outliers when developing a baseline or background value may lead to an unreasonably high value that will be unable to identify potential releases at a CCR unit. Professional judgment should be used to determine whether to retain or remove any outlier. The Unified Guidance states that outliers generally should not be removed unless some basis for a likely error or discrepancy can be identified. Possible errors or discrepancies include "...values significantly outside the historical ranges of background data" (EPA, 2009). "The decision to discard an outlier should be based on some scientific or quality assurance basis" (EPA, 2000). "A data point should not be eliminated from the background data set simply because it is the highest value that was observed" (EPA, 2002). EPA recommends "…that all data not known to be in error should be considered valid" (EPA, 1989). Furthermore, "[t]he general rule is that a measurement should never be deleted from a data set solely on the basis of an outlier test" (SWDIV, 1999).

Before baseline or background values are established for the detection monitoring or assessment monitoring programs, two steps are taken to check for suspect outliers for each constituent with at least 50% detected concentrations and at each well or set of upgradient wells:

1. A box plot is created to identify suspect outliers, and
2. The Dixon's test or Rosner's test is used.

Possible, or suspect, outliers are identified using a box plot. The statistical outlier tests, the Dixon's test and Rosner's test, are tests to check whether any suspect outlier is a statistical outlier. The box plots are generated and the Dixon's or Rosner's test is performed using the statistical software R (The R Foundation, 2017) or similar software.

3.4.1 Box Plots

Creating a box plot is a visual technique used to identify suspect outliers. Box plots can also demonstrate the pattern and distribution of constituent concentrations for a data set. The size of the vertical box in a box plot indicates where the middle half of the data fall (i.e., the interquartile range, IQR). Concentration measurements that plot further away from the others indicate suspect outliers; for a box plot, these measurements are called mild or extreme outliers (EPA, 2009).

Box plots are constructed to identify two types of suspect outliers: mild and extreme outliers. Suspect outliers are defined in terms of the IQR, represented by the range of the middle half of the data and indicated by the vertical 'box' in a box plot. The IQR is the difference between the upper quartile and the lower quartile of the data. Mild and extreme outliers are identified for small or large sample detected concentration measurements. A high, mild outlier is any detected concentration that exceeds 1.5 times the IQR, but no more than 3 times the IQR, from the upper quartile. A small, mild outlier is any detected concentration that is below 1.5 times the IQR, but no less than 3 times the IQR, from the lower quartile. A high, extreme outlier is any detected concentration greater than 3 times the IQR from the upper quartile. A low, extreme outlier is any detected concentration less than 3 times the IQR from the lower quartile. EPA, 2009 and EPA, 2017 state that mild and extreme outliers should be considered suspect outliers. Computational details for box plots are found in EPA guidance documents (EPA, 2000; EPA, 2009).

3.4.2 Statistical Outlier Tests

A statistical outlier test, either the Dixon’s test or Rosner’s test, is performed for each data set having at least one suspect outlier in order to determine if the suspect outlier is also a statistical outlier. For a data set with no more than 25 samples, the Dixon’s test is used. For a data set with at least 20 samples, the Rosner’s test is used. Dixon’s test can only test if one detected concentration (i.e., the minimum or the maximum) is a statistical outlier. The Rosner’s test can test if one or more detected concentrations are statistical outliers (EPA, 2000; EPA, 2002; EPA, 2009). Computational details for these outlier tests are outlined in EPA documents (EPA, 2000; EPA, 2009). Based on results from the statistical outlier tests, mild and extreme outliers are classified as statistical outliers.

Both statistical outlier tests assume that the data set with the suspect outlier(s) removed is normally distributed (or lognormally distributed if the data are transformed to the natural-log scale). Section 4.1.2 below discusses how to test distributional assumptions of normality or lognormality.

Any extreme, suspect outlier that is also identified as a statistical outlier is evaluated for possible errors or data discrepancies before a baseline or background value is established. Suspect outliers, including those also classified as statistical outliers, should be reviewed for having possible analytical or other quality errors. Professional judgment should be used to determine whether constituent concentrations defined as suspect or statistical outliers should be removed so that baseline or background conditions are properly represented so that detection or assessment monitoring can identify a potential release at a CCR unit. If an outlier does not represent baseline or background conditions or if the outlier hinders the detection or assessment monitoring, then the data set should be adjusted accordingly.

4.0 STATISTICAL APPROACH FOR DETECTION AND ASSESSMENT MONITORING

Section 257.93 of the CCR rule provides several options for statistically evaluating the groundwater data and the performance standards to follow at CCR facilities. At each CCR unit, upper prediction limits (UPLs) are calculated for each detected constituent to establish baseline or background values. To achieve UPLs with sufficient statistical power, the UPLs are designed to include retesting procedures based on the 1-of-2 approach (one assigned sample and one resample—see Section 4.1.3). Using UPLs is one of the preferred methods for comparing groundwater based on the Unified Guidance (EPA, 2009).

UPLs are computed using baseline or background data. The source of the baseline or background data may differ, depending whether interwell or intrawell comparisons are appropriate. "With interwell tests, background is derived from distinct, initially upgradient background wells" (EPA, 2009). "Future data from each of these compliance wells are then tested against this common background. On the other hand, intrawell background [also called baseline] is derived from and represents historical groundwater conditions in each individual compliance well." (EPA, 2009)

There are several considerations to make when determining whether interwell or intrawell comparisons should be performed. To consider interwell comparisons for a CCR unit, the groundwater monitoring data should meet the statistical assumptions of spatial stationarity, temporal stationarity, lack of autocorrelation, and lack of statistical outliers (see Section 3). Furthermore, the CCR unit should

- have at least one upgradient well,
- have a clearly defined groundwater flow direction without any radial flow, and
- not contain highly variable mine spoil.

If any of these conditions cannot be met or if the statistical assumptions cannot be met, then intrawell comparisons should be considered for a CCR unit. Both Gibbons and EPA's Unified guidance recommend using intrawell analyses when spatial variability exists. Both Gibbons and the Unified Guidance caution that intrawell analyses are appropriate in the absence of contamination. Since a CCR unit may be an existing landfill or impoundment that is now under the CCR rule, there is a possibility that contamination may be present. Professional judgment should be used for such CCR units to determine if contamination is likely present, and to determine which type of comparison is more appropriate.

4.1 Calculating UPLs

UPLs are estimated with constituent concentrations that are independent and identically distributed, as described in Section 3. The set of data used to calculate UPLs are based on constituent concentrations from the eight background sampling events and from either:

- upgradient wells for the CCR unit (for interwell comparisons), or
- individual compliance well (for intrawell comparisons).

UPLs must be calculated using a single-test error rate that accounts for the site-wide false positive rate (SWFPR) associated with all of the detection or assessment monitoring comparisons. The SWFPR is set based on the Unified Guidance recommendations and is discussed in more detail in Section 4.1.1.

After assumptions have been checked and outliers have been identified for the appropriate set of data, the data distribution is defined in accordance with EPA guidance (EPA, 2000; EPA, 2002; EPA, 2009; EPA, 2017; SWDIV, 1998). UPLs are then calculated based on the defined data distribution. Distributions are defined using the methodology outlined in Section 4.1.2, and the UPLs are calculated using the methodology described in Section 4.1.3.

The statistical software R (The R Foundation, 2017) or similar software is used to perform all statistical distribution tests and to calculate UPLs.

4.1.1 Defining Single-test error rate

Based on 40 CFR 257.93 (g)(2) and the Unified Guidance, the cumulative SWFPR or Type I experiment wise error rate for yearly monitoring shall be no more than 0.10. That means, a single test error rate must be considerably lower than 0.10. The single test error rate depends on the number of detected constituents and number of compliance wells evaluated in a CCR unit's monitoring program, defined as:
$1-(1-\alpha)^{1/cw}$, where:

- α=0.10, the SWFPR;
- c=the number detected constituents for the monitoring program (the Appendix III constituents for detection monitoring or Appendix IV constituents for assessment monitoring); and
- w=the number of compliance wells at the CCR unit.

Sampling frequency is not included in this single-test error rate because UPL calculations are designed to account for the number of sampling events per year.

4.1.2 Defining a Distribution for Background

The type of UPL calculated is based on a data set's defined distribution. Figure 2 outlines the steps to take to define whether a data set follows a normal, gamma, lognormal, or nonparametric distribution. If there are no detections for a data set, no distribution is defined. For a constituent with fewer than 50% detected concentrations, the distribution is defined as nonparametric (EPA, 2000; EPA, 2009).

For each data set with at least 50% detected concentrations and at least 4 samples, the data's distribution is tested using up to three distributional tests, which include the Shapiro-Wilk test, Kolmogorov-Smirnov test, and PPCC test. A test for the gamma distribution is included because EPA, 2017 generally recommends using summary statistics from a gamma distribution before using statistics from a lognormal distribution when both the gamma and lognormal distributional assumptions are valid. All of these distributional tests are recommended by EPA (EPA, 2000; EPA, 2002; EPA, 2009; EPA, 2017). Each distributional test is performed with only the detected data, which reflects how ProUCL performs distributional tests (EPA, 2017).

The method used to define a distribution, using the largest p-value from all of the appropriate tests and comparing it to a 0.05 level of significance, is designed to follow ProUCL's distributional recommendations. It should be noted that for a data set with fewer than five detected samples, the Kolmogorov-Smirnov test and the PPCC test cannot be performed. And, the Kolmogorov-Smirnov test is not used to test for gamma distributions.

If results from any of these three tests indicate the data are normally distributed (when the largest p-value is greater than 0.05), the distribution is defined as normal. If none of the test results indicate normality, the detected data set is tested for the gamma distribution by running the Shapiro-Wilk and PPCC tests. If either test indicates the data set follow a gamma distribution (when the larger p-value is greater than 0.05), the distribution is defined as a gamma distribution. If none of the test results indicate a gamma distribution, the data set is tested for lognormality by running the Shapiro-Wilk, Kolmogorov-Smirnov, and PPCC tests with the log-transformed detected data. If results from any of these tests indicate the data set is lognormally distributed (when the largest p-value is greater than 0.05), the distribution is defined as lognormal. If none of the distributional test results indicate normality, a gamma distribution, or lognormality, the data's distribution is defined as nonparametric.

4.1.3 Calculating UPLs

UPLs are calculated using a 1-of-2 retesting strategy to ensure comparisons are statistically powerful and to minimize the SWFPR. A 1-of-2 retesting strategy means that if one or more constituent concentrations in a compliance well are above their respective background concentration, a resample is collected to validate or invalidate the background concentration exceedance. According to the Unified Guidance, "A *1-of-m* retesting plan implies that up to *m* groundwater measurements may have to be collected at each compliance well, including the initial observation and *(m-1)* possible resamples. For the test to be valid, all of these sample measurements need to be statistically independent" (EPA, 2009). An independent resample may be collected between sampling events if necessary.

The Unified Guidance defines when a well is in-compliance and out-of-compliance: "If the initial groundwater observation is in-bounds [in compliance with the designed standard], the test is complete and no resamples need to be collected. Only when the first concentration exceeds the UPL, does additional sampling come into play" (EPA, 2009). If all *m* samples (the initial sample plus *m-1* resamples) exceed, then the well is considered out-of-compliance. If none of the *(m-1)* resamples exceed after the initial sample exceeded, then the well can still be considered to be in-compliance (EPA, 2009).

The type of UPL computed (e.g., parametric or nonparametric) is based on the detection frequency and the defined data distribution for each data set, as described in Section 4.1.2. For a constituent with no detected concentration measurements in the baseline or background data, the UPL is set to the reporting limit (EPA, 2009). For a constituent with at least 50% detections, the UPL calculation adjusts for non-detected concentration(s) as described in Section 2.2, and the appropriate UPL calculation is used based on results from the distributional tests. If no parametric distribution (normal, lognormal, or gamma) can be defined for a data set, then a nonparametric UPL is estimated. Since J-flagged data are defined as detected, a calculated UPL may be less than the reporting limit; in such cases, the UPL is set to the reporting limit.

4.2 Establishing Background Values

Background values used for detection monitoring or assessment monitoring are based on UPLs. For detection monitoring (Appendix III constituents), background values are defined as the higher of the UPL and reporting limit. For assessment monitoring (Appendix IV constituents) background values are defined as the highest of the maximum concentration level (MCL), UPL, reporting limit, or other accepted screening level for constituents without MCLs. The reporting limit is included so that a constituent having an UPL below the reporting limit does not have an unfair limitation because most or all of the baseline or background constituent concentrations are below the reporting limit. For each CCR unit, tables of statistically-derived background values will be prepared for each Appendix III and Appendix IV constituent. For interwell comparisons, background values will be developed using upgradient well data. For intrawell comparisons, background values will be developed for each monitoring well using historical data from the well.

4.3 Updating Background Values

As detection or assessment monitoring continues, it is recommended to update baseline or background data sets periodically with valid monitoring concentrations that are representative of groundwater unimpacted by leakage from the CCR unit. The Unified Guidance recommends reviewing and possibly updating background values when enough new concentrations have been collected to perform statistical comparisons. That means, background values should be reviewed about every two or three years during. Failure to update background will exclude factors such as natural temporal variation, changes in field or laboratory methodologies, and changes in the water table due to meteorological conditions or other influences.

5.0 DETECTION MONITORING DATA EVALUATION

Detection monitoring will be performed at each CCR unit's groundwater monitoring system on a semi-annual basis during the active life of the CCR unit and during the post-closure period. Each CCR monitoring well will be sampled for the following Appendix III constituents as part of the detection monitoring program:

- Boron
- Calcium
- Chloride
- Fluoride
- field-measured pH
- Sulfate
- Total Dissolved Solids (TDS)

After every detection monitoring event, the constituent concentrations from each well will be compared to the background values, as described in Section 3 of this plan, to ascertain if a statistically significant increase above background exists. Possible outcomes from comparing the detection monitoring constituent concentrations in each well to their respective background values are as follows:

- All detection monitoring constituent concentrations in a compliance well are less than or equal to their respective background values; or

- One or more detection monitoring constituent concentrations in a compliance well are above their respective background values.

5.1 No Statistically Significant Increase over Background Values

Baseline and background UPLs are based on a 1-of-2 resampling approach, meaning that if zero or one concentration measurements from a series of two independent samples collected from a well do not exceed the appropriate UPL, then a statistically significant increase over baseline or background has not occurred at a CCR unit. This conclusion will be reached if the data indicate either of the following:

- All detection monitoring constituent concentrations in a compliance well are less than or equal to their respective background values; or

- At least one detection monitoring constituent concentration in a well is above the respective background value. If this occurs, the well or wells with constituent concentration(s) above the background value(s) will be resampled and analyzed for the detection monitoring constituent(s) with exceedances. If the resample indicates that the target detection monitoring constituent concentration(s) in the well or wells is less than or equal to their respective background value(s), then it can be concluded that a statistically significant increase over background for all detection monitoring constituents has not occurred, since concentrations in one sample of the two independent samples do not exceed the appropriate baseline or background value(s).

If the groundwater monitoring data indicates that a statistically significant increase over background has not occurred at the CCR wells, then detection monitoring at all CCR wells will continue on a semi-annual basis.

5.2 Statistically Significant Increase over Background Values

If one or more detection monitoring constituent concentrations in any well is above the respective background value in both the original detection monitoring sample and the resample, then a statistically significant increase over background for the target detection monitoring constituents can be concluded. If a statistically significant increase is indicated, within 90 days Luminant will:

- Establish an assessment monitoring program as described in this plan, or
- Demonstrate that a source other than the CCR unit caused the statistically significant increase over the baseline or background value for a constituent, or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. If a successful demonstration is completed within the 90-day period, the owner or operator of the CCR unit may continue with the detection monitoring program.

6.0 ASSESSMENT MONITORING DATA EVALUATION

Assessment monitoring will be performed at a CCR unit's groundwater monitoring system after a statistically significant increase over background values has been confirmed in that well for one or more of the detection monitoring constituents. Within 90 days of triggering the assessment monitoring program, and annually thereafter, each CCR monitoring well requiring assessment monitoring will be sampled for the following Appendix IV parameters as part of the assessment monitoring program:

- Antimony
- Arsenic
- Barium
- Beryllium
- Cadmium
- Chromium
- Cobalt
- Fluoride
- Lead
- Lithium
- Mercury
- Molybdenum
- Selenium
- Thallium
- Radium 226 and 228 combined

Within 90 days of obtaining the results from the initial assessment monitoring sampling event, all wells in a CCR unit's groundwater monitoring system will be resampled and analyzed for:

- All Appendix III detection monitoring parameters; and

- The Appendix IV assessment monitoring parameters that were detected as part of the assessment monitoring event.

This monitoring will be performed on at least an annual basis thereafter, unless Luminant can demonstrate the need for an alternative monitoring frequency for repeated sampling and analysis for these constituents during the active life and the post-closure care period based on the availability of groundwater.

Within 90 days of obtaining the results from the initial assessment monitoring sampling event, a GWPS will be established for each of the Appendix IV assessment monitoring constituents that were detected in the groundwater monitoring system wells as follows:

- For constituents for which an MCL has been established, the highest of the MCL, UPL, and reporting limit for that constituent; or

- For constituents for which an MCL has not been established, the higher of the UPL, reporting limit, or levels that are equivalent to specified regional screening level (RSL) for that constituent (note: future revisions to the Rule may allow additional flexibility in establishing GWPS for states with EPA-approved CCR permit programs for Appendix IV constituents that do not have a MCL).

Each assessment monitoring constituent will be evaluated to ascertain if a statistically significant increase above the GWPS exists. Possible outcomes are as follows:

- All averages from assessment monitoring constituent concentrations at a well are <u>not</u> statistically greater than to their respective GWPS; or
- One or more averages from assessment monitoring constituent concentrations at a well are statistically greater than their respective GWPS.

6.1 Calculating LCLs

For each assessment monitoring constituent, the 95% lower confidence limit of the mean (LCL) is estimated. The set of data used to calculate LCLs are based on the constituent concentrations from the current year's sampling events and enough previous sampling events to reasonably estimate each LCL (the goal should be to have around eight to ten samples).

LCLs are calculated based on the defined data distribution. The data distribution is defined in accordance with EPA guidance (EPA, 2000; EPA, 2002; EPA, 2009; EPA, 2017; SWDIV, 1998). Distributions are defined using the methodology outlined in Section 6.1.1. The LCLs are calculated using the methodology described in Section 6.1.2.

The statistical software R (The R Foundation, 2017) or similar software is used to perform all statistical distribution tests and to calculate LCLs.

6.1.1 Defining a Distribution for LCLs

The type of LCL calculated is based on a data set's defined distribution. The same methodology for defining a distribution for background, described in Section 4.1.2 and outlined in Figure 2, is used to define the distribution for each assessment monitoring constituent data set as normal, gamma, lognormal, or nonparametric.

6.1.2 Calculating LCLs

The type of LCL computed (e.g., parametric or nonparametric) is based on the detection frequency and the defined data distribution for each data set, as described in Section 6.1.1. For a constituent with no detected concentration measurements, the LCL is set to the reporting limit (EPA, 2009). For a constituent with at least 50% detections, the LCL calculation adjusts for non-detected concentration(s) as described in Section 2.2, and the appropriate LCL calculation is used based on results from the distributional tests. If no parametric distribution (normal, lognormal, or gamma) can be defined for a data set or there are fewer than 50% detections, then a nonparametric, approximate 95% lower confidence limit of the median is estimated.

6.2 No Statistically Significant Increase Over GWPS

A statistically significant increase over the groundwater protection standard has not occurred at a CCR unit when the LCL for every assessment monitoring constituent at a well is less than or equal to the appropriate GWPS.

Assessment monitoring will continue on an annual basis. If for two consecutive assessment monitoring sampling events, the constituent concentrations for all Appendix III constituents are at or below background values and all Appendix IV constituents are shown to be statistically at or below their appropriate GWPS, then assessment monitoring will be terminated and detection monitoring as described in this plan will resume. If the constituent concentrations of any Appendix III constituents are shown to be statistically above background values, but all Appendix IV constituents have no statistically significant increase over their respective GWPS, then assessment monitoring will continue.

6.3 Statistically Significant Increase Over GWPS

A statistically significant increase over the groundwater protection standard has occurred at a CCR unit when the LCL for at least one assessment monitoring constituent at a well is greater than the appropriate GWPS. If a statistically significant increase over groundwater protection standards for any Appendix IV assessment monitoring constituent is confirmed, within 90 days of the initial assessment monitoring event, Luminant will either:

- Initiate an assessment of corrective measures for the CCR unit in accordance with CCR Rule Section 257.96; or

- Demonstrate that a source other than the CCR unit caused the contamination, or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. If a successful demonstration is made, the owner or operator must continue assessment monitoring. If a successful demonstration has not been made at the end of the 90 day period, the owner or operator of the CCR unit must initiate an assessment of corrective measures for the CCR unit.

If one or more Appendix IV assessment monitoring constituent concentrations are statistically above the respective groundwater protection standards, and if a source other than the CCR unit cannot be demonstrated to have caused the contamination, a release from the CCR unit is likely and the nature and extent of the release will be further characterized as follows:

- Install additional monitoring wells necessary to define the contaminant plume(s);
- Collect data on the nature and estimated quantity of material released including specific information on the Appendix IV assessment monitoring constituents and the levels at which they are present in the material released;
- Install at least one additional monitoring well at the facility boundary in the direction of contaminant migration and sample this well for all Appendix III detection monitoring parameters and for those Appendix IV assessment monitoring constituents that have been detected as part of assessment monitoring. This monitoring must be performed on at least an annual basis thereafter.
- Sample all CCR unit wells for all Appendix III detection monitoring parameters and for those Appendix IV assessment monitoring constituents that have been detected as part of assessment monitoring. This monitoring must be performed on at least an annual basis thereafter.

7.0 REPORTING REQUIREMENTS

The results of the CCR groundwater monitoring program performed at each CCR unit will be reported yearly in an Annual Groundwater Monitoring and Corrective Action Report. A separate annual report for each CCR unit will document the status of the groundwater monitoring and corrective action program, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. At a minimum, the Annual Groundwater Monitoring and Corrective Action Report will contain the following information:

- A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;

- Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;

- In addition to all the monitoring data obtained under CCR Rule Sections 257.90 through 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs, as well as the basis for the background values and the statistical methods employed to establish the background values;

- A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels); and

- Other information required to be included in the annual report as specified in CCR Rule Sections 257.90 through 257.98.

The Groundwater Monitoring and Corrective Action Report for the 2017 monitoring program must be placed in each facility operating record no later than January 31, 2018. Subsequent reports must be placed in the facility operating records no later than January 31 of the year following completion of the groundwater monitoring program from the preceding calendar year. The reports must also be posted to the owner or operator's CCR Rule Compliance Data and Information internet site within 30 days of placing the reports in the operating record.

8.0 REFERENCES

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FIGURES

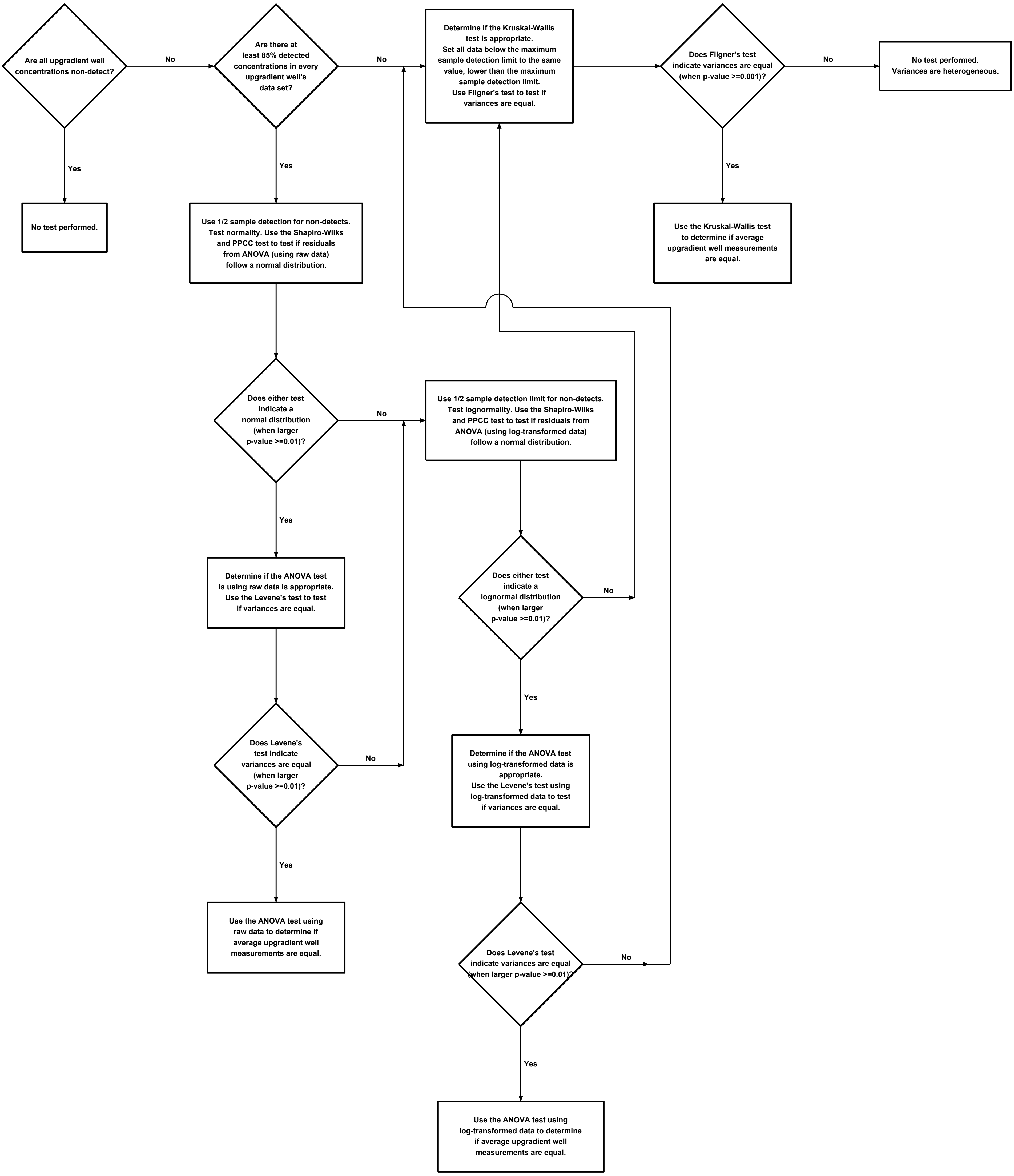
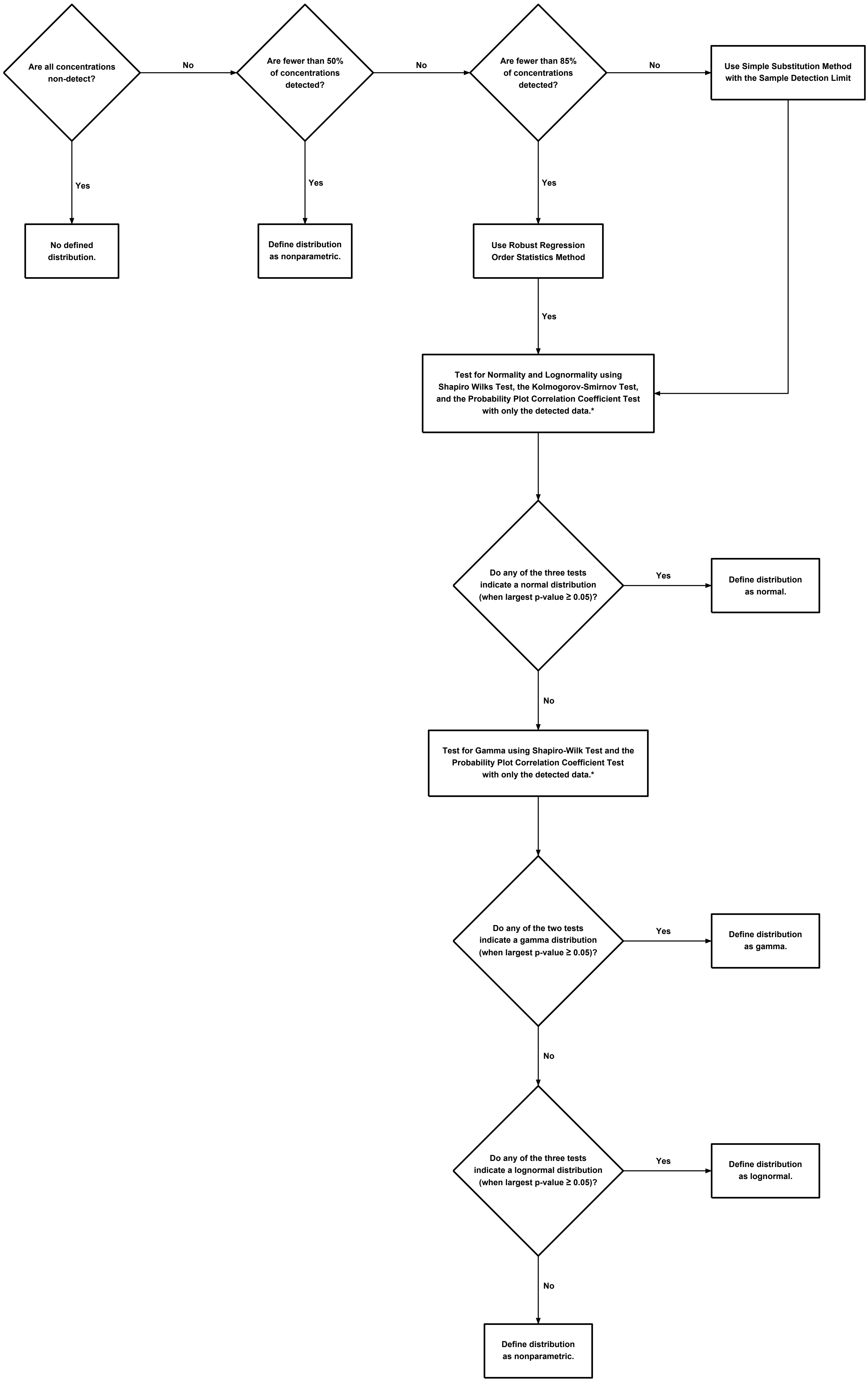


Figure 1

PROCESS FOR SELECTING ANOVA OR KRUSKAL-WALLIS TEST TO COMPARE UPGRADIENT WELL AVERAGES

PROJECT: 5164E	BY: AJD	REVISIONS
DATE: jAN. 2019	CHECKED: PJB	

GOLDER ASSOCIATES USA, INC.



Note:

* - Distributional tests can not be performed for the following cases:

1. For a data group with fewer than five detected samples, the Kolmogorov-Smirnov Test and the Probability Plot Correlation Coefficient Test can not be performed using only the detected concentrations.
2. For a data group with fewer than four detected samples, the Shapiro-Wilks Test can not be performed using only the detected concentrations.

Figure 2

PROCESS FOR DEFINING A DISTRIBUTION FOR A DATA SET

PROJECT: 5164E
BY: AJD
REVISIONS
DATE: jAN. 2019
CHECKED: PJB

GOLDER ASSOCIATES USA, INC.

2020 Annual Groundwater Monitoring and Corrective Action Report

Coleto Creek Primary Ash Pond - Fannin, Texas

Prepared for:

Coleto Creek Power, LLC

Prepared by:

Golder Associates Inc.

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January 29, 2021

APPENDIX E-Revision 1 November 21, 2022

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ACRONYMS AND ABBREVIATIONS

CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
GWPS	Groundwater Protection Standard
MCL	Maximum Concentration Level
mg/L	Milligrams per Liter
NA	Not Applicable
OBG	O’Brien & Gere Engineers, Inc.
SSI	Statistically Significant Increase
SSL	Statistically Significant Level
USEPA	United States Environmental Protection Agency

EXECUTIVE SUMMARY

Golder Associates, Inc. (Golder) has prepared this report on behalf of Coleto Creek Power, LLC to satisfy the 2020 annual groundwater monitoring and corrective action reporting requirements of the Coal Combustion Residuals (CCR) Rule (40 CFR 257, Subpart D) for the Primary Ash Pond (the “CCR unit”) at the Coleto Creek Power Station in Fannin, Texas. The CCR unit and CCR monitoring well network are shown on Figure 1.

At the beginning and end of the 2020 reporting period, the CCR unit was operating under an Assessment Monitoring Program as described in 40 CFR § 257.95. The Assessment Monitoring Program was established on May 9, 2018. No constituents listed in Appendix IV to Part 257 were detected at statistically significant levels (SSLs) above groundwater protection standards during 2020. The Assessment Monitoring Program will continue during 2021 in accordance with § 257.95.

1.0 INTRODUCTION

The CCR Rule (40 CFR 257 Subpart D - *Standards for the Receipt of Coal Combustion Residuals in Landfills and Surface Impoundments*) was promulgated by the United States Environmental Protection Agency (USEPA) to regulate the management and disposal of CCRs as solid waste under Resource Conservation and Recovery Act (RCRA) Subtitle D. For existing CCR landfills and surface impoundments, the CCR Rule requires that the owner or operator prepare an annual groundwater monitoring and corrective action report to document the status of the groundwater monitoring and corrective action program for the CCR unit for the previous calendar year. Per 40 CFR 257.90(e) of the CCR Rule, the report should contain the following information, to the extent available:

(1) A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;

(2) Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;

(3) In addition to all the monitoring data obtained under §§ 257.90 through 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;

(4) A narrative discussion of any transition between monitoring programs (*e.g.,* the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels); and

(5) Other information required to be included in the annual report as specified in §§ 257.90 through 257.98.

(6) A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit. At a minimum, the summary must specify all of the following:

   (i) At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95;

   (ii) At the end of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95;

   (iii) If it was determined that there was a statistically significant increase over background for one or more constituents listed in appendix III to this part pursuant to § 257.94(e):

      (A) Identify those constituents listed in appendix III to this part and the names of the monitoring wells associated with such an increase; and

      (B) Provide the date when the assessment monitoring program was initiated for the CCR unit.

(iv) If it was determined that there was a SSL above the groundwater protection standard for one or more constituents listed in appendix IV to this part pursuant to § 257.95(g) include all of the following:

  (A) Identify those constituents listed in appendix IV to this part and the names of the monitoring wells associated with such an increase;

  (B) Provide the date when the assessment of corrective measures was initiated for the CCR unit;

  (C) Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit; and

  (D) Provide the date when the assessment of corrective measures was completed for the CCR unit.

(v) Whether a remedy was selected pursuant to § 257.97 during the current annual reporting period, and if so, the date of remedy selection; and

(vi) Whether remedial activities were initiated or are ongoing pursuant to § 257.98 during the current annual reporting period.

2.0 MONITORING AND CORRECTIVE ACTION PROGRAM STATUS

O'Brien & Gere Engineers, Inc. (OBG) collected the initial Detection Monitoring Program groundwater samples from the Primary Ash Pond CCR monitoring well network in November 2017. OBG completed an evaluation of those data in 2018 to identify statistically significant increases (SSIs) of Appendix III parameters over background concentrations. The Detection Monitoring Program sampling dates and parameters are summarized in the following table:

Detection Monitoring Program Summary

Sampling Dates	Parameters	SSIs	Assessment Monitoring Program Established
November 7-8, 2017	Appendix III	Yes	May 9, 2018

Alternate source evaluations were inconclusive for one or more of the SSIs. Consequently, an Assessment Monitoring Program was initiated and established for the Primary Ash Pond CCR unit in 2018 in accordance with 40 CFR § 257.94(e)(2).

Assessment Monitoring Program groundwater samples were collected from the CCR groundwater monitoring network in 2018, as required by the CCR Rule. OBG collected the initial 2018 Assessment Monitoring Program groundwater samples in June 2018. Subsequent Assessment Monitoring Program sampling events have been conducted by Golder on a semi-annual basis, as required by the CCR Rule. All CCR groundwater monitoring wells were sampled for Appendix III and Appendix IV constituents during the first and second semi-annual sampling events of each year. The Assessment Monitoring Program sampling dates and results are summarized in the following table:

Assessment Monitoring Program Summary

Sampling Dates	Analytical Data Receipt Date	Parameters Collected	SSL(s)	SSL(s) Determination Date	Corrective Measures Assessment Initiated
June 19-25, 2018	August 7, 2018	Appendix III Appendix IV	No	NA	NA
Sept. 18, 2018	October 12, 2018	Appendix III Appendix IV	No	NA	NA
June 3-5, 2019	July 12, 2019	Appendix III Appendix IV	No	NA	NA
October 2-3, 2019	November 5, 2019	Appendix III Appendix IV	No	NA	NA
June 9, 2020	July 15, 2020	Appendix III Appendix IV	No	NA	NA
October 6, 2020	November 9, 2020	Appendix III Appendix IV	No	NA	NA

Notes:
NA - not applicable

The statistical background prediction limits used to assess Appendix III data and the Groundwater Protection Standards (GWPSs) used to assess Appendix IV data are summarized in Tables 1 and 2, respectively. Appendix III and Appendix IV sample analytical data are summarized in Tables 3 and 4, respectively. Statistical analysis of the 2020 sample data was performed in accordance with the Statistical Analysis Plan for CCR Groundwater Monitoring (PBW 2017) and the USEPA Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities-Unified Guidance (USEPA 2009). The statistical analysis included an evaluation of statistical confidence intervals based on Appendix IV sample data collected from downgradient monitoring wells. Statistically significant levels (SSLs) above GWPSs are indicated if the 95% lower confidence limit of a particular parameter's data population exceeds the GWPS. Based on the current Appendix IV sample data, none of the Appendix IV parameters are currently present at SSLs above GWPSs.

3.0 KEY ACTIONS COMPLETED IN 2020

Assessment Monitoring Program groundwater monitoring events were completed in June and October 2020. The number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and the analytical results for the groundwater samples are summarized in Table 3 (Appendix III parameters) and Table 4 (Appendix IV parameters).

No CCR wells were installed or decommissioned in 2020.

4.0 PROBLEMS ENCOUNTERED AND ACTIONS TO RESOLVE THE PROBLEMS

No problems were encountered with the CCR groundwater monitoring program in 2020.

5.0 KEY ACTIVITIES PLANNED FOR 2021

The following key activities are planned for 2021:

- Continue the Assessment Monitoring Program in accordance with 40 CFR § 257.95.
- Complete statistical evaluation of Appendix IV analytical data from the downgradient wells and compare results to GWPSs to determine whether an SSL has occurred.
- If an SSL is identified, notification will be prepared as required under 40 CFR § 257.95(g). The notification will be placed in the operating record per 40 CFR § 257.105(h)(8) and will be subsequently placed on the public website per 40 CFR § 257.107(d). Potential alternate sources (i.e., a source other than the CCR unit caused the SSL or that the SSL resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality) will be evaluated. If an alternate source is identified to be the cause of the SSL, a written demonstration will be completed within 90 days of SSL determination and included in the subsequent Annual Groundwater Monitoring and Corrective Action Report.
- If an alternate source is not identified to be the cause of the SSL, the applicable requirements of 40 CFR §§ 257.94 through 257.98 (e.g., assessment of corrective measures) will be met, including associated recordkeeping/notifications required by 40 CFR §§ 257.105 through 257.108.

6.0 REFERENCES

O’Brien and Gere Engineers, Inc. (OBG), 2017. Statistical Analysis Plan, Coleto Creek Power Station.

Signature Page

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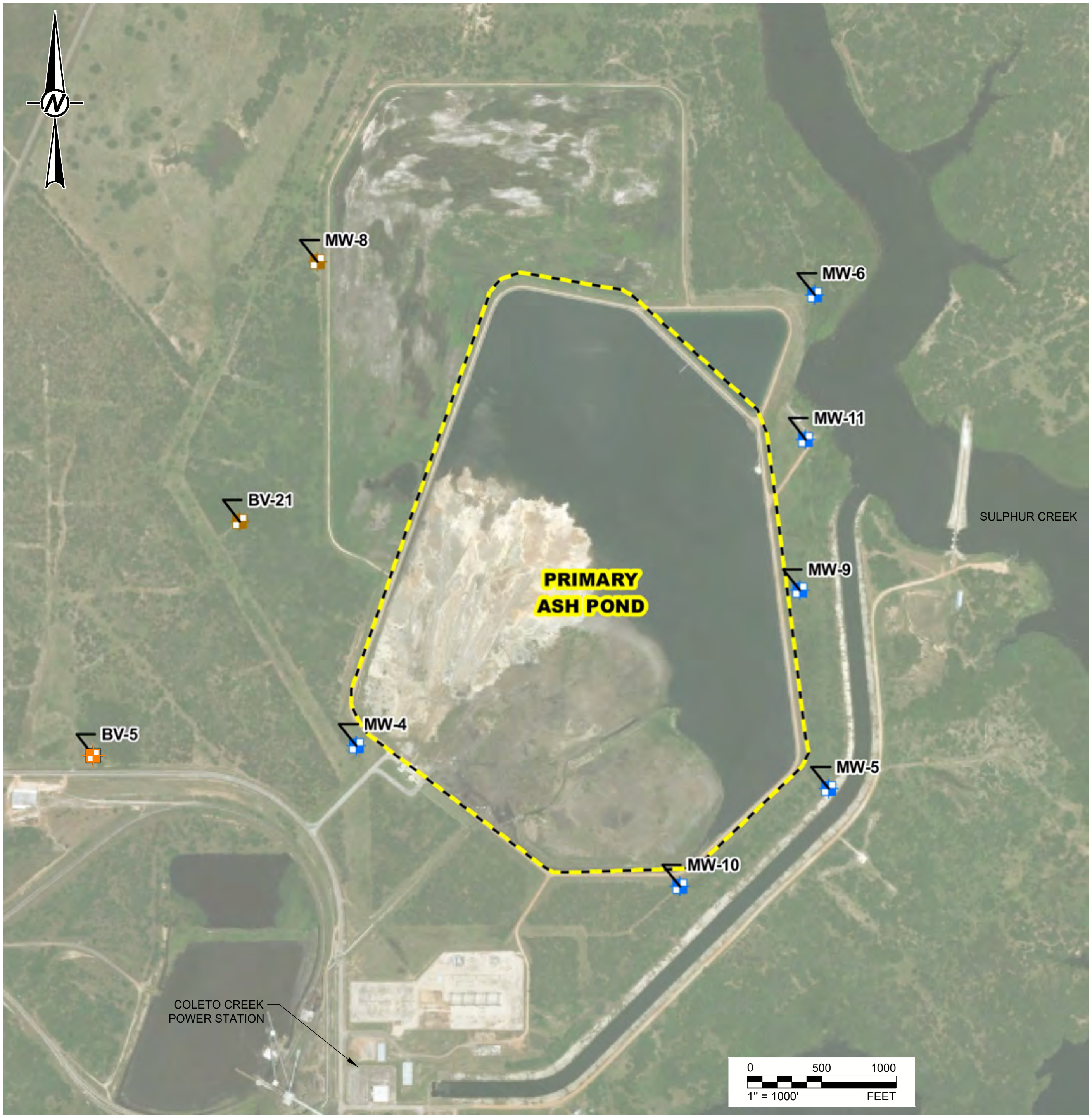
FIGURES



LEGEND

✚	DOWNGRADIENT MONITORING WELL LOCATION
✚	UPGRADIENT MONITORING WELL LOCATION
▭	CCR MONITORING UNIT

CLIENT
COLETO CREEK POWER LP

PROJECT
COLETO CREEK POWER STATION
FANNIN, TEXAS

TITLE
DETAILED SITE PLAN - COLETO CREEK PRIMARY ASH POND

CONSULTANT

GOLDER

YYYY-MM-DD	2019-01-14
DESIGNED	AJD
PREPARED	AJD
REVIEWED	WFV
APPROVED	WFV

PROJECT NO.	REV.	FIGURE
18106453	0	1

APPENDIX E-Revision 1 November 21, 2022

Last Edited By: adiamond Date: 2019-01-14 Time:1:54:25 PM | Printed By: adiamond Date: 2019-01-14 Time:1:54:58 PM
Path: \\texarkana\data\Projects - Round Rock\18106453 - Coleto Creek\2019-1 Jan\ | File Name: FIG 1 - Detailed Site Plan.dwg

TABLES

Table 1
Appendix III Statistical Background Values
Coleto Creek Primary Ash Pond

Parameter	Statistical Background Value
Boron (mg/L)	1.26
Calcium (mg/L)	143
Chloride (mg/L)	118
Fluoride (mg/L)	0.61
field pH (s.u.)	6.51 7.33
Sulfate (mg/L)	148
Total Dissolved Solids (mg/L)	966

Table 2
Groundwater Protection Standards
Coleto Creek Primary Ash Pond

Parameter	Groundwater Protection Standard
Antimony (mg/L)	0.006
Arsenic (mg/L)	0.128
Barium (mg/L)	2.0
Beryllium (mg/L)	0.004
Cadmium (mg/L)	0.005
Chromium (mg/L)	0.10
Cobalt (mg/L)	0.0499
Fluoride (mg/L)	4.0
Lead (mg/L)	0.015
Lithium (mg/L)	0.04
Mercury (mg/L)	0.002
Molybdenum (mg/L)	0.10
Selenium (mg/L)	0.05
Thallium (mg/L)	0.002
Radium 226+228 (pCi/L)	5.0

TABLE 3
APPENDIX III ANALYTICAL RESULTS
COLETO CREEK PRIMARY ASH POND

Sample Location	Date Sampled	B	Ca	Cl	Fl	field pH	SO$_4$	TDS
Upgradient Wells								
BV-5	03/29/17	1.15	90.5	118	0.54	7.01	147	860
	05/11/17	1.03	81.6	106	0.57	6.89	148	862
	05/16/17	1.17	99	107	0.55	6.9	145	832
	06/07/17	1.11	88.8	109	0.56	6.64	147	810
	06/20/17	1.02	90.7	106	0.58	6.54	145	716
	06/27/17	1.14	100	114	0.55	6.76	144	743
	07/12/17	1.07	96.8	112	0.56	6.88	140	430
	07/18/17	1.17	143	117	0.56	6.68	142	817
	11/07/17	1.10	94.2	109	0.62	6.96	136	850
	06/19/18	1.18	56.4	112	0.97	--	147	775
	09/18/18	1.27	86.2	145	0.667	6.53	146	904
	06/05/19	1.26	82.9	123	0.769	6.89	146	828
	10/03/19	1.31	72.2	141	0.753	7.11	145	806
	06/09/20	1.35	90.4	171	0.498	6.97	159	951
	10/06/20	1.26	80.2	133	1.01	6.54	155	843
BV-21	03/28/17	0.651	6.89	36	0.61	7.09	69	490
	05/09/17	0.687	65.2	38	0.61	7.04	55	410
	05/17/17	0.709	74.3	39	0.58	7.05	53	454
	06/06/17	0.657	69	40	0.59	7.11	49	452
	06/20/17	0.642	77	40	0.61	6.7	45	356
	06/27/17	0.727	84.9	40	0.6	6.97	46	420
	07/10/17	0.674	90.6	39	0.58	7.22	45	427
	07/18/17	0.618	84.4	39	0.6	6.91	44	380
	11/07/17	0.515	73.6	42	0.64	7.12	46	423
	06/25/18	0.543	69.3	38.4	0.62	--	38.4	380
	09/18/18	0.624	72.1	33.3	0.479	6.64	36.4	416
	06/05/19	0.576	61.3	30.3	0.602	7.1	34.2	379
	10/03/19	0.534	63.4	23.9	0.588	6.82	33.2	342
	06/09/20	0.447	72.5	34.2	0.522	6.96	18.5	362
	10/06/20	0.480	84.0	40.4	0.677	6.72	14.5	390
MW-8	03/28/17	1.2	7.76	79	0.49	7.06	76	626
	05/09/17	1.21	77.5	77	0.44	7.15	79	564
	05/15/17	1.16	81.2	76	0.44	7.01	79	558
	06/06/17	1.26	78.1	72	0.45	6.92	83.5	570
	06/20/17	1.24	86.5	67	0.43	6.7	89	476
	06/27/17	1.23	89.6	66	0.44	6.85	97	533
	07/10/17	1.24	92.6	63	0.44	7.13	97	533
	07/18/17	1.25	92.9	61	0.46	6.91	100	533
	11/07/17	1.21	78.8	61	0.49	7.08	100	540
	06/25/18	1.25	80.3	65.9	0.52	--	95.2	565
	09/18/18	1.29	76.5	53.7	0.402	6.70	94.8	543
	06/05/19	1.11	65.2	51.4	0.497	7.10	79	515
	10/03/19	1.2	76.7	58.3	0.419	6.76	90.1	541
	06/09/20	1.33	73.1	46.4	0.392 J	7.04	72.3	511
	10/06/20	1.18	81.1	49.5	0.652	6.84	72.2	510

TABLE 3
APPENDIX III ANALYTICAL RESULTS
COLETO CREEK PRIMARY ASH POND

Sample Location	Date Sampled	B	Ca	Cl	Fl	field pH	SO_4	TDS
Downgradient Wells								
MW-4	03/28/17	0.287	9.14	102	0.61	9.81	157	794
	05/09/17	0.395	88.7	101	0.61	7.27	156	668
	05/17/17	0.251	92.1	101	0.6	6.93	157	702
	06/06/17	0.243	90.7	101	0.63	7.13	157	728
	06/20/17	0.254	99.3	101	0.62	6.71	157	626
	06/27/17	0.254	102	101	0.63	6.87	157	690
	07/10/17	0.271	111	101	0.62	7.16	158	670
	07/18/17	0.292	108	101	0.63	6.82	157	717
	11/07/17	0.255	94.5	99	0.62	7.12	155	700
	06/21/18	0.267	92.5	104	0.6	--	159	665
	09/18/18	0.28	91.8	102	0.582	6.63	155	720
	06/05/19	0.379	85.3	108	0.67	6.92	161	718
	10/03/19	0.367	93.1	102	0.559	6.7	155	693
	06/09/20	0.241	94.9	24.6	0.205 J	6.88	26.8	400
	10/06/20	0.328	103	101	0.736	6.75	151	731
MW-5	03/30/17	0.11	110	140	0.51	6.85	184	830
	05/10/17	0.115	114	139	0.54	6.86	183	900
	05/16/17	0.215	121	139	0.5	6.81	183	848
	06/08/17	0.122	118	139	0.55	6.8	182	862
	06/21/17	0.122	124	138	0.53	6.6	182	813
	06/26/17	0.121	129	139	0.54	6.79	184	900
	07/11/17	0.111	120	138	0.52	6.91	184	797
	07/19/17	0.001	0.005	137	0.53	6.84	181	857
	11/08/17	0.149	116	138	0.52	6.92	183	883
	06/25/18	0.119	114	140	0.56	--	183	820
	09/18/18	0.146	114	136	0.493	6.70	183	824
	06/03/19	0.146	113	143	0.596	7.06	187	864
	10/02/19	0.179	111	147	0.543	7.06	202	842
	09/06/20	0.152	117	138	0.370 J	6.84	182	858
	10/6/2020	0.160	125	133	0.662	6.91	178	841
MW-6	03/29/17	1.67	73.9	69	0.38	7.34	99	510
	05/11/17	1.94	70.6	70	0.37	7.1	110	490
	05/16/17	1.84	76.3	70	0.36	7.23	107	506
	06/07/17	1.8	73.8	70	0.37	6.97	103	492
	06/22/17	1.97	79.9	69	0.37	7.11	100	510
	06/28/17	1.74	81.8	69	0.37	7.16	99	570
	07/12/17	1.76	81.6	69	0.35	7.24	98	557
	07/20/17	0.005	0.0002	69	0.39	6.9	97	530
	11/07/17	1.72	76.4	69	0.39	7.41	101	483
	06/22/18	0.0171	76.6	70.7	0.41	--	107	490
	09/18/18	2.09	70.8	72.5	0.353 J	6.97	114	505
	06/03/19	1.9	73.9	73	0.043	7.31	103	514
	10/02/19	1.83	73.6	76.4	0.357 J	7.29	115	507
	06/09/20	2.51	69.7	80.9	0.4	6.95	122	507
	10/06/20	1.92	81.9	73.4	0.512	6.97	87.9	510

TABLE 3
APPENDIX III ANALYTICAL RESULTS
COLETO CREEK PRIMARY ASH POND

Sample Location	Date Sampled	B	Ca	Cl	Fl	field pH	SO_4	TDS
MW-9	03/30/17	3.38	54.5	71	1.13	7.35	62	406
	05/10/17	3.16	52.7	66	1.29	7.48	59	410
	05/17/17	3.18	53.3	67	1.26	7.34	58	440
	06/07/17	3.12	52	67	1.26	7.03	57	380
	06/21/17	3.44	60.7	66	1.39	7.09	60	393
	06/26/17	3.31	60.6	67	1.4	7.23	61	407
	07/11/17	3.35	52.1	64	1.3	7.51	60	927
	07/19/17	3.4	50.2	63	1.4	7.29	62	407
	11/08/17	2.84	49.4	62	1.56	7.54	50	397
	06/21/18	2.94	46.9	71.5	1.5	--	35.7	370
	09/18/18	2.79	51.7	71.4	1.1	6.99	49.1	394
	06/05/19	4.26	48	74.7	1.38	7.4	66.3	421
	10/03/19	3.97	71.3	70.9	1.41	7.37	63.6	462
	09/06/20	4.10	47.4	63.7	1.58	7.21	54.9	397
	10/06/20	3.78	50.1	49.6	1.73	7.47	51.7	366
MW-10	03/30/17	3.74	92.1	151	0.54	6.99	130	804
	05/10/17	7.32	56.1	82	0.83	7.23	96	582
	05/16/17	7.45	62.7	81	0.81	7.28	95	612
	06/08/17	7.54	58.1	77	0.84	7.23	92	604
	06/21/17	9.22	60.7	77	0.84	6.97	92	550
	06/26/17	8.21	63.4	78	0.84	7.14	92	530
	07/11/17	7.99	49.5	76	0.84	7.4	88	617
	07/19/17	8.74	56.6	74	0.86	7.25	86	533
	11/08/17	8.72	77.7	74	0.88	7.35	81	590
	06/22/18	8.47	84.4	76.7	0.88	--		550
	09/18/18	8.45	51.9	81.4	0.759	6.98	95.1	577
	06/03/19	8.28	43.1	87.2	0.953	7.52	97.7	587
	10/02/19	8.28	44.2	85.5	0.891	7.46	104	575
	06/09/20	7.58	46.9	76.9	0.818	7.13	96.5	575
	10/06/20	6.94	49.0	73.7	1.05	7.35	92.3	575
MW-11	05/10/17	1.35	64.1	55	0.82	7.27	61	394
	05/16/17	1.39	62.3	52	0.85	7.29	58	362
	05/18/17	1.27	61.6	47.8	0.94	--	52.4	390
	06/07/17	1.23	59.8	48	0.93	7.25	50	372
	06/21/17	1.19	73.1	43.7	1.04	7.15	44	373
	06/26/17	1.15	82	44	1	7.3	43	407
	07/11/17	1.23	44.7	44	1	7.55	42	603
	07/19/17	1.17	48.6	43	1.01	7.21	42	360
	11/08/17	1.13	52.2	43	1.02	7.61	56	367
	06/21/18	1.07	69.6	44.3	0.96	--	61.4	355
	09/18/18	1.12	39.3	44.6	0.754	7.00	44.4	354
	06/03/19	1.27	43.4	42.2	0.837	7.55	44.8	372
	10/02/19	1.22	43.4	41.4	0.768	7.43	10.8	355
	06/09/20	1.20	56.6	44.4	0.571	6.88	67.7	414
	10/06/20	1.05	66.8	58.6	0.767	7.05	85.9	453

Notes:
1. All concentrations in mg/L. pH in standard units.
2. J - concentration is below sample quantitation limit; result is an estimate.

TABLE 4
APPENDIX IV ANALYTICAL RESULTS
COLETO CREEK PRIMARY ASH POND

Sample Location	Date Sampled	Sb	As	Ba	Be	Cd	Cr	Co	Fl	Pb	Li	Hg	Mo	Se	Tl	Ra 226	Ra 228	Ra 226/228 Combined
Upgradient Wells																		
BV-5	03/29/17	<0.0025	0.00856	0.04510	<0.001	<0.001	<0.005	0.0497	0.540	<0.001	0.0206	<0.0002	0.00925	<0.005	<0.0015	--	--	1.503
	05/11/17	<0.0025	0.00786	0.03680	<0.001	<0.001	<0.005	0.0462	0.570	<0.001	0.018	<0.0002	0.0101	<0.005	<0.0015	--	--	1.555
	05/16/17	<0.0025	0.00885	0.04520	<0.001	<0.001	<0.005	0.0495	0.550	0.00151	0.0171	<0.0002	0.0102	<0.005	<0.0015	--	--	0.7550
	06/07/17	<0.0025	0.00829	0.03760	<0.001	<0.001	<0.005	0.0483	0.560	<0.001	0.0207	<0.0002	0.01	<0.005	<0.0015	--	--	1.457
	06/20/17	<0.0025	0.00841	0.04010	<0.001	<0.001	<0.005	0.0499	0.580	<0.001	0.0208	<0.0002	0.0114	<0.005	<0.0015	--	--	0.4920
	06/27/17	<0.0025	0.0083	0.04120	<0.001	<0.001	<0.005	0.046	0.550	<0.001	0.0198	<0.0002	0.00942	<0.005	<0.0015	--	--	2.247
	07/12/17	<0.0025	0.00849	0.04160	<0.001	<0.001	<0.005	0.0484	0.560	<0.001	0.0188	<0.0002	0.0096	<0.005	<0.0015	--	--	2.139
	07/18/17	<0.0025	0.00951	0.05780	<0.001	<0.001	0.00739	0.0453	0.560	0.00288	0.022	<0.0002	0.0083	<0.005	<0.0015	--	--	1.260
	06/19/18	<0.0025	0.0106	0.0336	<0.001	<0.001	0.0022 J	0.0513 J	0.970	<0.00074 J	0.016	<0.0002	0.0139	<0.005	<0.0015	0.327	<1.680	2.01
	09/18/18	NA	0.00949	0.0436	NA	NA	0.00228 J	0.0487	0.667	0.00039 J	0.0206	NA	0.0102	NA	NA	0.302	<0.608	0.91
	06/05/19	<0.0008	0.0092	0.042	<0.0003	0.00092 J	<0.002	0.0466	0.769	0.00144	0.0201	<0.00008	0.0109	<0.0020	<0.0005	<0.687	<1.130	<1.82
	10/03/19	<0.0008	0.00941	0.0441	<0.0003	<0.0003	0.00285 J	0.0437	0.753	0.0039	0.0172	<0.00008	0.0122	<0.0020	<0.0005	0.928	1.35	2.28
	06/09/20	<0.0008	0.00879	0.0462	<0.0003	<0.0003	0.00818	0.0486	0.498	0.00162	0.0201	<0.0000800	0.0120	<0.00200	<0.000500	0.363	0	0.363
	10/06/20	<0.000800	0.00982	0.0387	<0.000300	<0.000300	0.00226	0.0449	1.01	<0.000300	0.0174	<0.0000800	0.0105	<0.00200	<0.000500	0.293	0.709	1
BV-21	03/28/17	<0.0025	0.0954	0.09630	<0.001	<0.001	<0.005	0.0083	0.610	<0.001	<0.010	<0.0002	<0.005	<0.005	<0.0015	--	--	1.390
	05/09/17	<0.0025	0.108	0.09720	<0.001	<0.001	<0.005	0.00852	0.610	<0.001	<0.010	<0.0002	<0.005	<0.005	<0.0015	--	--	0.7460
	05/17/17	<0.0025	0.117	0.09440	<0.001	<0.001	<0.005	0.00878	0.580	<0.001	<0.010	<0.0002	<0.005	<0.005	<0.0015	--	--	0.9190
	06/06/17	<0.0025	0.118	0.09540	<0.001	<0.001	<0.005	0.00806	0.590	<0.001	<0.010	<0.0002	<0.005	<0.005	<0.0015	--	--	0.6710
	06/20/17	<0.0025	0.121	0.1010	<0.001	<0.001	<0.005	0.00744	0.610	<0.001	<0.010	<0.0002	<0.005	<0.005	<0.0015	--	--	1.672
	06/27/17	<0.0025	0.128	0.1040	<0.001	<0.001	<0.005	0.00841	0.600	<0.001	<0.010	<0.0002	<0.005	<0.005	<0.0015	--	--	0.5200
	07/10/17	<0.0025	0.123	0.1100	<0.001	<0.001	<0.005	0.0086	0.580	<0.001	<0.010	<0.0002	<0.005	<0.005	<0.0015	--	--	0.8050
	07/18/17	<0.0025	0.115	0.1010	<0.001	<0.001	<0.005	0.00784	0.600	<0.001	<0.010	<0.0002	<0.005	<0.005	<0.0015	--	--	4.812
	06/25/18	<0.0025	0.0697	0.104	<0.001	<0.001	<0.005	0.00682	0.620	<0.00074 J	0.00513 J	<0.0002	0.00428 J	<0.005	<0.0015	0.267	<1.417	1.68
	09/18/18	NA	0.0625	0.109	NA	NA	<0.002	0.0064	0.479	0.000555 J	0.00624 J	NA	0.00450 J	NA	NA	<0.31	<0.528	<0.838
	06/05/19	<0.0008	0.0531	0.105	<0.0003	<0.0003	<0.002	0.00574	0.602	0.000354	0.00558 J	<0.00008	0.00685	<0.0020	<0.0005	0.65	<0.687	1.337
	10/03/19	<0.0008	0.049	0.0963	<0.0003	<0.0003	<0.002	0.00542	0.588	0.000333 J	<0.005	<0.00008	0.00784	<0.0020	<0.0005	0.346	1.54	1.89
	06/09/20	<0.0008	0.0793	0.132	<0.0003	<0.0003	0.007	0.00437 J	0.522	0.00033 J	<0.005	<0.00008	0.00698	<0.0020	<0.0005	0.211	1.15	1.36
	10/6/2020	<0.000800	0.0815	0.157	<0.000300	<0.000300	<0.00200	0.00411 J	0.677	<0.000300	0.00532 J	<0.0000800	0.00523	<0.00200	<0.000500	0.37	-0.112	0.37
MW-8	03/28/17	<0.0025	0.00839	0.0623	<0.001	<0.001	<0.005	0.0236	0.490	<0.001	0.0111	<0.0002	0.0154	<0.005	<0.0015	--	--	0.4520
	05/09/17	<0.0025	0.00848	0.064	<0.001	<0.001	<0.005	0.0272	0.440	<0.001	0.0111	<0.0002	0.0157	<0.005	<0.0015	--	--	0.4740
	05/15/17	<0.0025	0.00926	0.064	<0.001	<0.001	<0.005	0.0311	0.440	<0.001	0.0112	<0.0002	0.016	<0.005	<0.0015	--	--	0.6140
	06/06/17	<0.0025	0.00912	0.0616	<0.001	<0.001	0.00744	0.0308	0.450	<0.001	0.0107	<0.0002	0.0157	<0.005	<0.0015	--	--	0.1320
	06/20/17	<0.0025	0.00885	0.0669	<0.001	<0.001	<0.005	0.0297	0.430	<0.001	0.0121	<0.0002	0.0171	<0.005	<0.0015	--	--	0.5380
	06/27/17	<0.0025	0.00939	0.0633	<0.001	<0.001	<0.005	0.0314	0.440	<0.001	0.0115	<0.0002	0.0163	<0.005	<0.0015	--	--	0.9390
	07/10/17	<0.0025	0.00902	0.0631	<0.001	<0.001	<0.005	0.031	0.440	<0.001	0.0112	<0.0002	0.0165	<0.005	<0.0015	--	--	0.8040
	07/18/17	<0.0025	0.00937	0.0635	<0.001	<0.001	<0.005	0.0352	0.460	<0.001	0.0118	<0.0002	0.0185	<0.005	<0.0015	--	--	2.113
	06/25/18	<0.0025	0.0101	0.0632	<0.001	<0.001	<0.005	0.029	0.520	0.0011	0.0107	<0.0002	0.017	<0.005	<0.0015	<0.234	<1.204	<1.44
	09/18/18	NA	0.00896	0.0582	NA	NA	<0.00200	0.0237	0.402	<0.0003	0.0117	NA	0.0178	NA	NA	<0.281	<0.558	<0.84
	06/05/19	<0.0008	0.00946	0.0596	<0.0003	<0.0003	<0.002	0.0217	0.497	0.000355 J	0.011	<0.00008	0.0156	<0.0020	<0.0005	0.528	<0.619	1.147
	10/03/19	<0.0008	0.0083	0.0607	<0.0003	<0.0003	<0.002	0.231	0.419	<0.0003	0.0106	<0.00008	0.0144	<0.0020	<0.0005	0.224	0.241	0.465
	06/09/20	<0.0008	0.00856	0.0599	<0.0003	<0.0003	<0.002	0.0174	0.392 J	0.000479 J	0.0104	<0.00008	0.0158	<0.002	<0.0005	0.304	2.64	2.94
	10/6/2020	<0.000800	0.00862	0.0647	<0.000300	<0.000300	<0.00200	0.0162	0.652	<0.000300	0.0107	<0.0000800	0.0148	<0.00200	<0.000500	1.08	1.65	2.73

TABLE 4
APPENDIX IV ANALYTICAL RESULTS
COLETO CREEK PRIMARY ASH POND

Sample Location	Date Sampled	Sb	As	Ba	Be	Cd	Cr	Co	Fl	Pb	Li	Hg	Mo	Se	Tl	Ra 226	Ra 228	Ra 226/228 Combined
Downgradient Wells																		
MW-4	03/28/17	<0.0025	0.00738	0.0575	<0.001	<0.001	<0.005	0.007	0.610	<0.001	0.0192	<0.0002	<0.005	<0.005	<0.0015	--	--	0.4600
	05/09/17	<0.0025	0.00733	0.0576	<0.001	<0.001	<0.005	0.007	0.610	<0.001	0.0182	<0.0002	<0.005	<0.005	<0.0015	--	--	0.6940
	05/15/17	<0.0025	0.00794	0.0556	<0.001	<0.001	<0.005	0.007	0.600	<0.001	0.0166	<0.0002	<0.005	<0.005	<0.0015	--	--	1.451
	06/06/17	<0.0025	0.0077	0.0556	<0.001	<0.001	<0.005	0.007	0.630	<0.001	0.0179	<0.0002	<0.005	<0.005	<0.0015	--	--	0.1740
	06/20/17	<0.0025	0.0081	0.0596	<0.001	<0.001	0.00877	0.008	0.620	<0.001	0.0195	<0.0002	<0.005	<0.005	<0.0015	--	--	0.5430
	06/27/17	<0.0025	0.00786	0.0554	<0.001	<0.001	<0.005	0.007	0.630	<0.001	0.0185	<0.0002	<0.005	<0.005	<0.0015	--	--	0.6390
	07/10/17	<0.0025	0.00846	0.0582	<0.001	<0.001	<0.005	0.009	0.620	<0.001	0.0187	<0.0002	<0.005	<0.005	<0.0015	--	--	1.069
	07/18/17	<0.0025	0.00815	0.0549	<0.001	<0.001	<0.005	0.008	0.630	<0.001	0.0183	<0.0002	<0.005	<0.005	<0.0015	--	--	0.1910
	06/21/18	<0.0025	0.00843	0.0591	<0.001	<0.001	<0.005	0.00711	0.600	<0.00072 J	0.0175	<0.0002	<0.005	<0.005	<0.0015	0.370	1.705	2.08
	09/18/18	NA	0.00793	0.0577	NA	NA	<0.002	0.00673	0.582	<0.0003	0.019	NA	<0.002	NA	NA	1.610	<0.543	2.15
	06/05/19	<0.0008	0.0079	0.0571	<0.0003	<0.0003	<0.002	0.00729	0.670	<0.0003	0.0195	<0.00008	<0.002	<0.0020	<0.0005	0.436	<0.547	0.98
	10/03/19	<0.0008	0.00764	0.0532	<0.0003	<0.0003	<0.002	0.00699	0.559	0.00101	0.017	<0.00008	<0.002	<0.002	<0.0005	1.85	-0.102	1.85
	06/09/20	<0.0008	<0.002	0.0376	<0.0003	<0.0003	<0.002	<0.003	0.205 J	<0.0003	0.00751 J	<0.00008	0.0021 J	<0.002	<0.0005	0.0553	0.264	0.319
	10/06/20	<0.000800	0.00754	0.0586	<0.000300	<0.000300	<0.00200	0.00862	0.736	0.000375 J	0.0186	<0.0000800	<0.00200	<0.00200	<0.000500	0.0684	-0.16	0.0684
MW-5	03/30/17	<0.0025	0.00953	0.0748	<0.001	<0.001	<0.005	<0.005	0.510	<0.001	0.0192	<0.0002	<0.005	<0.005	<0.0015	--	--	1.443
	05/10/17	<0.0025	0.00955	0.0706	<0.001	<0.001	<0.005	<0.005	0.540	<0.001	0.0179	<0.0002	<0.005	<0.005	<0.0015	--	--	0.6150
	05/16/17	<0.0025	0.00967	0.0708	<0.001	<0.001	<0.005	<0.005	0.500	<0.001	0.0181	<0.0002	<0.005	<0.005	<0.0015	--	--	0.6410
	06/08/17	<0.0025	0.00908	0.0701	<0.001	<0.001	<0.005	<0.005	0.550	<0.001	0.0200	<0.0002	<0.005	<0.005	<0.0015	--	--	0.1790
	06/21/17	<0.0025	0.00917	0.0767	<0.001	<0.001	<0.005	<0.005	0.530	<0.001	0.0197	<0.0002	<0.005	<0.005	<0.0015	--	--	0.1060
	06/26/17	<0.0025	0.00955	0.0735	<0.001	<0.001	<0.005	<0.005	0.540	<0.001	0.0204	<0.0002	<0.005	<0.005	<0.0015	--	--	1.112
	07/11/17	<0.0025	0.00945	0.0712	<0.001	<0.001	<0.005	<0.005	0.520	<0.001	0.0183	<0.0002	<0.005	<0.005	<0.0015	--	--	0.5120
	07/19/17	<0.0025	0.00941	0.0735	<0.001	<0.001	<0.005	<0.005	0.530	<0.001	0.0186	<0.0002	<0.005	<0.005	<0.0015	--	--	0.1910
	06/25/18	<0.0025	0.00998	0.0733	<0.001	<0.001	<0.005	<0.005	0.560	<0.001	0.0182	<0.0002	<0.005	<0.005	<0.0015	<0.251	<1.369	<1.62
	09/18/18	NA	0.00945	0.0697	NA	NA	<0.002	<0.003	0.493	<0.0003	0.0195	NA	<0.002	NA	NA	<0.282	<0.606	<0.89
	06/03/19	<0.0008	0.00948	0.0678	<0.0003	<0.0003	<0.002	<0.003	0.596	<0.0003	0.0206	<0.00008	<0.002	<0.002	<0.0005	<0.619	<0.917	<1.54
	10/02/19	<0.0008	0.00918	0.067	<0.0003	<0.0003	<0.002	<0.003	0.543	<0.0003	0.0187	<0.00008	<0.002	<0.002	<0.0005	0.47	0.117	0.587
	06/09/20	<0.0008	0.00891	0.0689	<0.0003	<0.0003	<0.002	<0.003	0.370 J	<0.0003	0.0192	<0.00008	<0.002	<0.002	<0.0005	0.171	0.211	0.382
	10/6/2020	<0.000800	0.00927	0.0708	<0.000300	<0.000300	<0.00200	<0.00300	0.662	<0.000300	0.0190	<0.0000800	<0.00200	<0.00200	<0.000500	0.0604	0.0798	0.14
MW-6	03/29/17	<0.0025	0.00827	0.0900	<0.001	<0.001	<0.005	<0.005	0.380	<0.001	<0.010	<0.0002	0.00749	<0.005	<0.0015	--	--	1.009
	05/11/17	<0.0025	0.00738	0.0758	<0.001	<0.001	<0.005	<0.005	0.370	<0.001	0.0101	<0.0002	0.0176	<0.005	<0.0015	--	--	0.8250
	05/16/17	<0.0025	0.00803	0.0784	<0.001	<0.001	<0.005	<0.005	0.360	<0.001	<0.010	<0.0002	0.0131	<0.005	<0.0015	--	--	0.7740
	06/07/17	<0.0025	0.00772	0.0798	<0.001	<0.001	<0.005	<0.005	0.370	<0.001	<0.010	<0.0002	0.00949	<0.005	<0.0015	--	--	0.6640
	06/22/17	<0.0025	0.00764	0.083	<0.001	<0.001	<0.005	<0.005	0.370	<0.001	0.0109	<0.0002	0.0084	<0.005	<0.0015	--	--	0.2150
	06/28/17	<0.0025	0.00779	0.0842	<0.001	<0.001	<0.005	<0.005	0.370	<0.001	<0.010	<0.0002	0.00806	<0.005	<0.0015	--	--	1.730
	07/12/17	<0.0025	0.0077	0.0819	<0.001	<0.001	<0.005	<0.005	0.350	<0.001	<0.010	<0.0002	0.0076	<0.005	<0.0015	--	--	1.012
	07/20/17	<0.0025	0.001	0.0010	<0.001	<0.001	<0.005	<0.005	0.390	<0.001	<0.010	<0.0002	0.001	<0.005	<0.0015	--	--	0.3660
	06/22/18	<0.0025	0.00861	0.0912	<0.001	<0.001	<0.005	<0.005	0.410	<0.001	0.00924 J	<0.0002	0.00837	<0.005	<0.0015	<0.309	<1.243	<1.55
	09/18/18	NA	0.008	0.0828	NA	NA	<0.002	<0.003	0.353 J	0.000349 J	0.0107	NA	0.0274	NA	NA	<0.196	1.06	1.256
	06/03/19	<0.0008	0.00799	0.0894	<0.0003	<0.0003	<0.002	<0.003	0.438	<0.0003	0.00968 J	<0.00008	0.00884	<0.0020	<0.0005	<0.407	<0.623	<1.03
	10/02/19	<0.0008	0.00775	0.0876	<0.0003	<0.0003	<0.002	<0.003	0.357 J	<0.0003	0.00875 J	<0.00008	0.00875	<0.0020	<0.0005	0.715	1.23	1.94
	06/09/20	<0.0008	0.00799	0.078	<0.0003	<0.0003	<0.002	<0.003	0.4	<0.0003	0.0113	<0.00008	0.0357	<0.002	<0.0005	0.00643	0.127	0.134
	10/6/2020	<0.000800	0.00768	0.0912	<0.000300	<0.000300	<0.00200	0.00319 J	0.512	<0.000300	0.00900 J	<0.0000800	0.00924	<0.00200	<0.000500	1.02	0.621	1.64

TABLE 4
APPENDIX IV ANALYTICAL RESULTS
COLETO CREEK PRIMARY ASH POND

Sample Location	Date Sampled	Sb	As	Ba	Be	Cd	Cr	Co	Fl	Pb	Li	Hg	Mo	Se	Tl	Ra 226	Ra 228	Ra 226/228 Combined
MW-9	03/30/17	<0.0025	0.00909	0.121	<0.001	<0.001	<0.005	<0.005	1.130	0.00217	<0.010	<0.0002	0.0747	<0.005	<0.0015	--	--	1.353
	05/10/17	<0.0025	0.00996	0.105	<0.001	<0.001	<0.005	<0.005	1.290	0.00433	<0.010	<0.0002	0.0900	<0.005	<0.0015	--	--	0.4800
	05/17/17	<0.0025	0.00958	0.101	<0.001	<0.001	<0.005	<0.005	1.260	0.00377	<0.010	<0.0002	0.0899	<0.005	<0.0015	--	--	0.3600
	06/07/17	<0.0025	0.0093	0.100	<0.001	<0.001	<0.005	<0.005	1.260	<0.001000	<0.010	<0.0002	0.0926	<0.005	<0.0015	--	--	0.4760
	06/21/17	<0.0025	0.00937	0.119	<0.001	<0.001	<0.005	<0.005	1.390	0.00136	<0.010	<0.0002	0.1020	<0.005	<0.0015	--	--	1.579
	06/26/17	<0.0025	0.0107	0.114	<0.001	<0.001	0.0102	<0.005	1.400	0.00217	<0.010	<0.0002	0.1060	<0.005	<0.0015	--	--	1.023
	07/11/17	<0.0025	0.0105	0.103	<0.001	<0.001	0.00566	<0.005	1.300	0.00124	<0.010	<0.0002	0.1050	<0.005	<0.0015	--	--	0.8630
	07/19/17	<0.0025	0.0103	0.101	<0.001	<0.001	<0.005	<0.005	1.400	<0.001000	<0.010	<0.0002	0.1130	<0.005	<0.0015	--	--	0.5840
	06/21/18	<0.0025	0.0104	0.100	<0.001	<0.001	<0.005	<0.005	1.500	<0.00072 J	<0.01	<0.0002	0.0617	<0.005	<0.0015	0.608	<1.303	1.91
	09/18/18	NA	0.0103	0.0985	NA	NA	<0.002	<0.003	1.100	<0.000300	0.00639 J	NA	0.0502	NA	NA	0.618	<0.638	1.26
	06/05/19	<0.0008	0.0109	0.102	<0.0003	<0.0003	<0.002	<0.003	1.380	<0.0003	0.00545 J	<0.00008	0.0683	<0.002	<0.0005	<0.402	<0.683	<1.085
	10/03/19	<0.0008	0.0109	0.128	0.00069 J	<0.0003	<0.002	0.00337 J	1.410	0.00876	0.0064 J	<0.00008	0.0507	0.0041 J	<0.0005	0.577	0.747	1.32
	06/09/20	<0.0008	0.0126	0.0865	<0.0003	<0.0003	<0.002	<0.003	1.58	0.000577 J	<0.005	<0.00008	0.0774	<0.002	<0.0005	0.132	-0.0432	0.132
	10/6/2020	<0.000800	0.0225	0.0786	<0.000300	<0.000300	<0.00200	<0.00300	1.73	<0.000300	<0.00500	<0.0000800	0.0616	<0.00200	<0.000500	0.14	1.51	1.65
MW-10	03/30/17	<0.0025	0.0110	0.0844	<0.001	<0.001	<0.005	<0.005	0.540	<0.001	0.0179	<0.0002	0.0342	<0.005	<0.0015	--	--	1.439
	05/10/17	<0.0025	0.0146	0.0554	<0.001	<0.001	0.00533	<0.005	0.830	<0.001	0.0122	<0.0002	0.102	<0.005	<0.0015	--	--	0.8880
	05/16/17	<0.0025	0.0150	0.0598	<0.001	<0.001	<0.005	<0.005	0.810	<0.001	0.0123	<0.0002	0.0987	<0.005	<0.0015	--	--	0.1830
	06/08/17	<0.0025	0.0144	0.0544	<0.001	<0.001	<0.005	<0.005	0.840	<0.001	0.0115	<0.0002	0.106	<0.005	<0.0015	--	--	0.06700
	06/21/17	<0.0025	0.0149	0.054	<0.001	<0.001	<0.005	<0.005	0.840	<0.001	0.0133	<0.0002	0.113	<0.005	<0.0015	--	--	0.7090
	06/26/17	<0.0025	0.0160	0.0587	<0.001	<0.001	0.0177	<0.005	0.840	<0.001	0.0137	<0.0002	0.116	<0.005	<0.0015	--	--	0.7180
	07/11/17	<0.0025	0.0149	0.0508	<0.001	<0.001	<0.005	<0.005	0.840	<0.001	0.0119	<0.0002	0.114	<0.005	<0.0015	--	--	1.713
	07/19/17	<0.0025	0.0146	0.0633	<0.001	<0.001	0.00963	<0.005	0.860	<0.001	0.0127	<0.0002	0.121	<0.005	<0.0015	--	--	2.132
	06/22/18	<0.0025	0.0154	0.0692	<0.001	<0.001	<0.005	<0.005	0.88	<0.00095 J	0.0122	<0.0002	0.134	<0.005	<0.0015	<0.212	<1.192	<1.40
	09/18/18	NA	0.0140	0.0446	NA	NA	<0.002	<0.003	0.759	<0.0003	0.0141	NA	0.125	NA	NA	0.151	<0.848	0.999
	06/03/19	<0.0008	0.0142	0.0420	<0.0003	<0.0003	<0.002	<0.003	0.953	<0.0003	0.0139	<0.00008	0.109	<0.002	<0.0005	<0.203	0.814	1.017
	10/02/19	<0.0008	0.0139	0.0406	<0.0003	<0.0003	<0.002	<0.003	0.891	<0.0003	0.0127	<0.00008	0.106	<0.002	<0.0005	-0.0288	0.901	0.901
	06/09/20	<0.0008	0.014	0.0444	<0.0003	<0.0003	<0.002	0.00334 J	0.818	<0.0003	0.013	<0.00008	0.088	<0.002	<0.0005	0.0959	1.22	1.31
	10/6/2020	<0.000800	0.0139	0.0411	<0.000300	<0.000300	<0.00200	0.00390 J	1.05	<0.000300	0.0127	<0.0000800	0.0865	<0.00200	<0.000500	0.0332	1.68	1.71
MW-11	05/10/17	<0.0025	0.0156	0.0899	<0.001	<0.001	<0.005	<0.005	0.82	0.00239	0.0125	<0.0002	0.0082	<0.005	<0.0015	--	--	0.4560
	05/16/17	<0.0025	0.018	0.0869	<0.001	<0.001	0.00731	<0.005	0.85	0.0113	0.0144	<0.0002	0.00841	<0.005	<0.0015	--	--	1.418
	05/18/17	<0.0025	0.0188	0.0779	<0.001	<0.001	<0.005	<0.005	0.94	0.00204	0.0122	<0.0002	0.00781	<0.005	<0.0015	--	--	0.6390
	06/07/17	<0.0025	0.0175	0.0835	<0.001	<0.001	<0.005	<0.005	0.93	0.00171	0.0137	<0.0002	0.00744	<0.005	<0.0015	--	--	0.5020
	06/21/17	<0.0025	0.0203	0.0822	<0.001	<0.001	<0.005	<0.005	1.04	0.00322	0.0136	<0.0002	0.00659	<0.005	<0.0015	--	--	1.084
	06/26/17	<0.0025	0.0237	0.0954	<0.001	<0.001	0.0131	<0.005	1.00	0.00593	0.0176	<0.0002	0.00796	<0.005	<0.0015	--	--	3.067
	07/11/17	<0.0025	0.0212	0.0725	<0.001	<0.001	<0.005	<0.005	1.00	<0.001	0.012	<0.0002	0.00765	<0.005	<0.0015	--	--	0.7530
	07/19/17	<0.0025	0.0224	0.0709	<0.001	<0.001	0.00762	<0.005	1.01	0.0018	0.0137	<0.0002	0.00783	<0.005	<0.0015	--	--	1.551
	06/21/18	<0.0025	0.0367	0.0805	<0.001	<0.001	<0.005	<0.005	0.96	0.00241	0.0135	<0.0002	0.00465	<0.005	<0.0015	<0.234	<1.312	<1.55
	09/18/18	NA	0.0382	0.0645	NA	NA	<0.002	<0.003	0.754	<0.0003	0.0139	NA	0.00445 J	NA	NA	<0.188	0.597	0.785
	06/03/19	<0.0008	0.0379	0.0834	<0.0003	<0.0003	<0.002	<0.003	0.0837	<0.0003	0.0154	<0.00008	0.00316 J	<0.002	<0.0005	<0.481	0.991	1.472
	10/02/19	<0.0008	0.0379	0.0744	<0.0003	<0.0003	<0.002	<0.003	0.768	0.000391 J	0.014	<0.00008	0.00259 J	<0.002	<0.0005	1.57	0.478	2.040
	06/09/20	<0.0008	0.0293	0.0948	<0.0003	<0.0003	<0.002	<0.003	0.571	0.000675 J	0.0156	<0.00008	0.00215 J	<0.002	<0.0005	0.163	1.31	1.480
	10/6/2020	<0.000800	0.0159	0.105	<0.000300	<0.000300	<0.00200	<0.00300	0.767	0.000320 J	0.0165	<0.0000800	0.00340 J	<0.00200	<0.000500	0.354	0.53	0.884

Notes:
1. Ra 226/228 concentrations in pCi/L. All other concentrations in mg/L.
2. J - concentration is below sample quantitation limit; result is an estimate.
3. Non-detect Ra isotope results were assigned a value equal to the minimum detectable concentration.
4. NA = Not analyzed (groundwater sample analyses for the second semi-annual sampling events were limited to Appendix IV parameters detected during the preceding first semi-annual sampling event in accordance with 40 CFR § 257.95(d)(1)).

GOLDER

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2021 Annual Groundwater Monitoring and Corrective Action Report - Revision 1

Coleto Creek Primary Ash Pond - Fannin, Texas

Prepared for:

Coleto Creek Power LLC

Prepared by:

Golder Associates Inc., Member of WSP

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November 2022

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ACRONYMS AND ABBREVIATIONS

CCR	Coal Combustion Residuals
C.F.R.	Code of Federal Regulations
GWPS	Groundwater Protection Standard
MCL	Maximum Concentration Level
mg/L	Milligrams per Liter
NA	Not Applicable
OBG	O'Brien & Gere Engineers, Inc.
SSI	Statistically Significant Increase
SSL	Statistically Significant Level
T.A.C.	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
USEPA	United States Environmental Protection Agency

DOCUMENT REVISION RECORD

Issue No.	Date	Details of Revisions
Revision 0	January 31, 2022	Original Document
Revision 1	November 2022	Added laboratory analytical reports, documentation on statistical evaluation of Appendix IV groundwater data, groundwater potentiometric surface maps, and professional seals to figures where applicable

EXECUTIVE SUMMARY

Golder Associates USA Inc. (Golder), Member of WSP, has prepared this report on behalf of Coleto Creek Power LLC to satisfy the 2021 annual groundwater monitoring and corrective action reporting requirements of 40 C.F.R. Part 257 and 30 T.A.C. Chapter 352 for the Primary Ash Pond (the “CCR unit”) at the Coleto Creek Power Station in Fannin, Texas. The CCR unit and CCR monitoring well network are shown on Figure 1.

At the beginning and end of the 2021 reporting period, the CCR unit was operating under an Assessment Monitoring Program as described in § 257.95. The Assessment Monitoring Program was established on May 9, 2018. No constituents listed in Appendix IV to Part 257 were detected at statistically significant levels (SSLs) above groundwater protection standards (GWPSs) during 2021. The Assessment Monitoring Program will continue during 2022 in accordance with § 257.95.

1.0 INTRODUCTION

The CCR Rule (40 C.F.R. 257 Subpart D - *Standards for the Receipt of Coal Combustion Residuals in Landfills and Surface Impoundments*) was promulgated by the United States Environmental Protection Agency (USEPA) to regulate the management and disposal of CCRs as solid waste under Resource Conservation and Recovery Act (RCRA) Subtitle D. TCEQ has adopted portions of the federal CCR rule at 30 T.A.C. Chapter 352 (Texas CCR Rule), and USEPA published its final approval of the Texas CCR rule on June 28, 2021. *See* 86 Fed. Reg. 33,892 (June 28, 2021). The Texas CCR Rule became effective on July 28, 2021, and it adopts and incorporates by reference the requirements for the annual groundwater monitoring report located at 40 C.F.R. §257.90. *See* 30 T.A.C. § 352.901. It further adopts and incorporates by reference the Federal CCR Program requirements for detection and assessment monitoring in 30 T.A.C. §352.941 and 30 T.A.C. §352.951, respectively. Pursuant to 30 T.A.C. § 352.902, this report will be submitted to TCEQ for review no later than 30 days after the report has been placed in the facility's operating record. For existing CCR landfills and surface impoundments, the CCR Rule requires that the owner or operator prepare an annual groundwater monitoring and corrective action report to document the status of the groundwater monitoring and corrective action program for the CCR unit for the previous calendar year. Per §257.90(e) of the CCR Rule, the report should contain the following information, to the extent available:

(1) A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;

(2) Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;

(3) In addition to all the monitoring data obtained under §§ 257.90 through 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;

(4) A narrative discussion of any transition between monitoring programs (*e.g.,* the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels); and

(5) Other information required to be included in the annual report as specified in §§ 257.90 through 257.98.

(6) A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit. At a minimum, the summary must specify all of the following:

  (i) At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in §257.94 or the assessment monitoring program in §257.95;

(ii) At the end of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95;

(iii) If it was determined that there was a statistically significant increase over background for one or more constituents listed in appendix III to this part pursuant to § 257.94(e):

 (A) Identify those constituents listed in appendix III to this part and the names of the monitoring wells associated with such an increase; and

 (B) Provide the date when the assessment monitoring program was initiated for the CCR unit.

(iv) If it was determined that there was a SSL above the groundwater protection standard for one or more constituents listed in appendix IV to this part pursuant to § 257.95(g) include all of the following:

 (A) Identify those constituents listed in appendix IV to this part and the names of the monitoring wells associated with such an increase;

 (B) Provide the date when the assessment of corrective measures was initiated for the CCR unit;

 (C) Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit; and

 (D) Provide the date when the assessment of corrective measures was completed for the CCR unit.

(v) Whether a remedy was selected pursuant to § 257.97 during the current annual reporting period, and if so, the date of remedy selection; and

(vi) Whether remedial activities were initiated or are ongoing pursuant to § 257.98 during the current annual reporting period.

2.0 MONITORING AND CORRECTIVE ACTION PROGRAM STATUS

O'Brien & Gere Engineers, Inc. (OBG) collected the initial Detection Monitoring Program groundwater samples from the Primary Ash Pond CCR monitoring well network in November 2017. OBG completed an evaluation of those data in 2018 using procedures described in the Statistical Analysis Plan (OBG, 2017) to identify statistically significant increases (SSIs) of Appendix III parameters over background concentrations. The Detection Monitoring Program sampling dates and parameters are summarized in the following table:

Detection Monitoring Program Summary

Sampling Dates	Parameters	SSIs	Assessment Monitoring Program Established
November 7-8, 2017	Appendix III	Yes	May 9, 2018

Alternate source evaluations were inconclusive for one or more of the SSIs. Consequently, an Assessment Monitoring Program was initiated and established for the Primary Ash Pond CCR unit in 2018 in accordance with § 257.94(e)(2).

Assessment Monitoring Program groundwater samples were collected from the CCR groundwater monitoring network in 2018, as required by the CCR Rule. OBG collected the initial 2018 Assessment Monitoring Program groundwater samples in June 2018. Subsequent Assessment Monitoring Program sampling events have been conducted by Golder on a semi-annual basis, as required by the CCR Rule. All CCR groundwater monitoring wells were sampled for Appendix III and Appendix IV constituents during the first and second semi-annual sampling events of each year. The Assessment Monitoring Program sampling dates and results are summarized in the following table:

Assessment Monitoring Program Summary

Sampling Dates	Analytical Data Receipt Date	Parameters	SSL(s)	SSL(s) Determination Date	Corrective Measures Assessment Initiated
June 19-25, 2018	August 7, 2018	Appendix III Appendix IV	No	NA	NA
Sept. 18, 2018	October 12, 2018	Appendix III Appendix IV	No	NA	NA
June 3-5, 2019	July 12, 2019	Appendix III Appendix IV	No	NA	NA
October 2-3, 2019	November 5, 2019	Appendix III Appendix IV	No	NA	NA
June 9, 2020	July 15, 2020	Appendix III Appendix IV	No	NA	NA
October 6, 2020	November 9, 2020	Appendix III Appendix IV	No	NA	NA
June 2 and June 25, 2021	July 30, 2021	Appendix III Appendix IV	No	NA	NA
September 28, 2021	November 9, 2021	Appendix III Appendix IV	No	NA	NA

Notes:
NA - not applicable

The statistical background prediction limits used to assess Appendix III data and the GWPSs used to assess Appendix IV data are summarized in Tables 1 and 2, respectively. Appendix III and Appendix IV sample analytical data are summarized in Tables 3 and 4, respectively, and the laboratory analytical reports are provided in Attachment 1. Statistical analysis of the 2021 sample data was performed in accordance with the USEPA Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities-Unified Guidance (USEPA 2009). The statistical analysis included an evaluation of statistical confidence intervals based on Appendix IV sample data collected from downgradient monitoring wells. Statistically significant levels (SSLs) above GWPSs are indicated if the 95% lower confidence limit of a particular parameter's data population exceeds the GWPS. Based on the Appendix IV sample data, none of the Appendix IV parameters are currently present at SSLs above GWPSs. Graphical representations of the statistical analysis performed on the 2021 data are provided in Attachment 2.

3.0 KEY ACTIONS COMPLETED IN 2021

Assessment Monitoring Program groundwater monitoring events were completed in June and September 2021. The number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and the analytical results for the groundwater samples are summarized in Table 3 (Appendix III parameters) and Table 4 (Appendix IV parameters).

No CCR wells were installed or decommissioned in 2021.

Water elevations measured in the CCR wells during the semi-annual groundwater sampling events were used to develop groundwater potentiometric surface maps, which are presented in Attachment 3. The inferred direction of groundwater flow was generally to the southeast during both semi-annual ground sampling events in 2021.

4.0 PROBLEMS ENCOUNTERED AND ACTIONS TO RESOLVE THE PROBLEMS

No problems were encountered with the CCR groundwater monitoring program in 2021.

5.0 KEY ACTIVITIES PLANNED FOR 2022

The following key activities are planned for 2022:

- Luminant submitted a registration application to TCEQ under the Texas CCR Rule for the Coleto Creek Primary Ash Pond on January 24, 2022.
- Continue the Assessment Monitoring Program in accordance with applicable provisions of 40 C.F.R. §257.95 and 30 T.A.C. §352.951.

6.0 REFERENCES

O’Brien & Gere Engineers, Inc. (OBG), 2017. Statistical Method Certification, CCR Unit: Coleto Creek Power, LP; Coleto Creek Power Station; Coleto Creek Primary Ash Pond.

USEPA, 2009. Unified Guidance Document: Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, EPA 530/R-09-007, March.

Signature Page

Golder Associates Inc.

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11/16/2022

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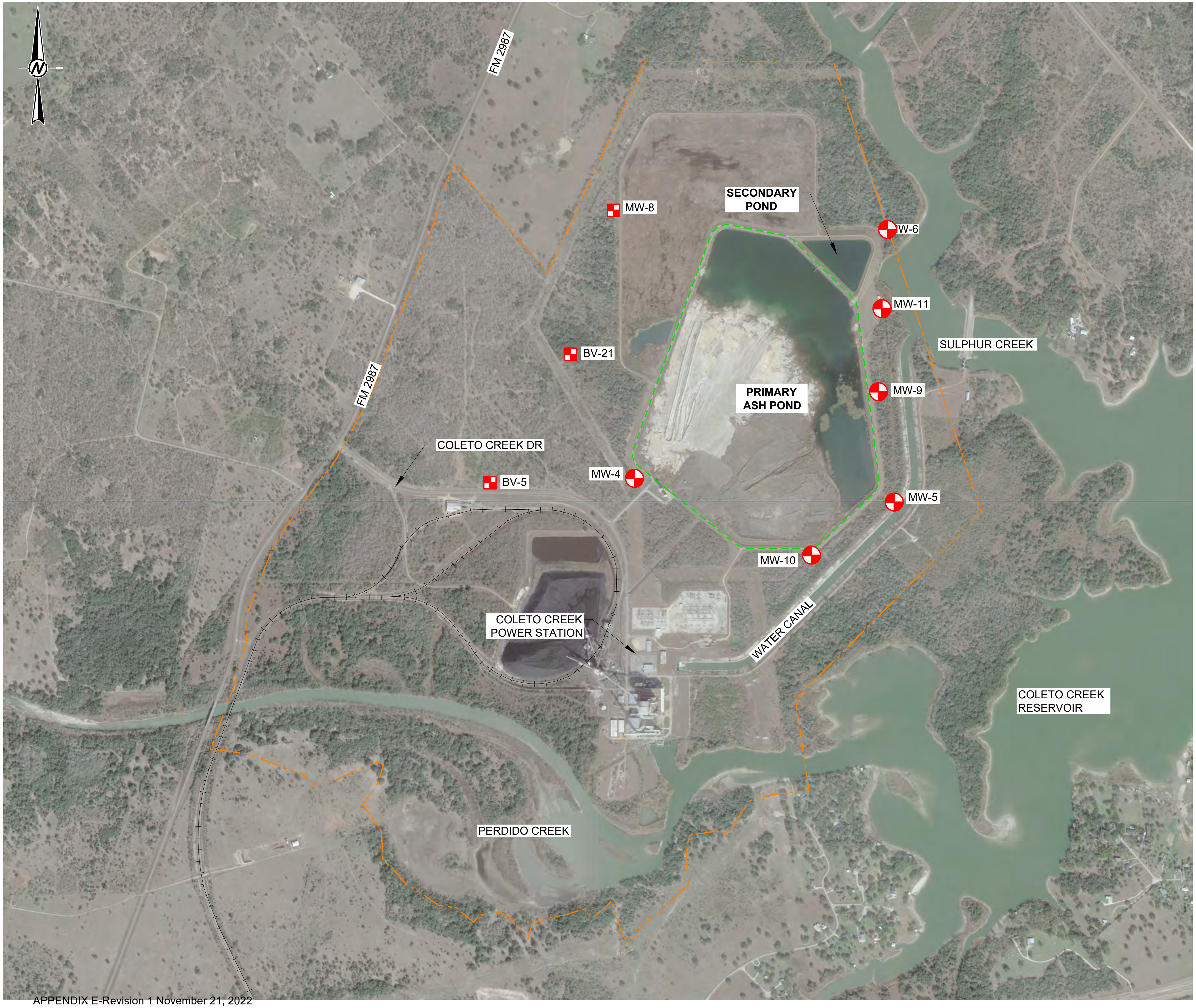
FIGURES



LEGEND

— · — · —	PROPERTY BOUNDARY
- - - - -	CCR MONITORING UNIT
◐	DOWNGRADIENT CCR MONITORING WELL
▚	UPGRADIENT CCR MONITORING WELL
┼┼┼┼┼	RAILROAD

STATE OF TEXAS
WILLIAM F. VIENNE
GEOLOGY
No. 10492
LICENSED
PROFESSIONAL GEOSCIENTIST
11/16/2022

REFERENCE(S)

BASE MAP TAKEN FROM GOOGLE EARTH, IMAGERY DATED 1/15/21.

0 600 1200
1" = 1200' FEET

CLIENT
COLETO CREEK POWER LP

PROJECT
COLETO CREEK POWER STATION
FANNIN, TEXAS

TITLE
FACILITY LAYOUT MAP

CONSULTANT

GOLDER
MEMBER OF WSP

YYYY-MM-DD	2021-12-14
DESIGNED	RS
PREPARED	RS
REVIEWED	WFV
APPROVED	WFV

PROJECT NO.	REV.	FIGURE
20142034	0	1

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0 1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

TABLES

Table 1
Appendix III Statistical Background Values
Coleto Creek Primary Ash Pond

Parameter	Statistical Background Value
Boron (mg/L)	1.26
Calcium (mg/L)	143
Chloride (mg/L)	118
Fluoride (mg/L)	0.61
field pH (s.u.)	6.51 7.33
Sulfate (mg/L)	148
Total Dissolved Solids (mg/L)	966

Table 2
Groundwater Protection Standards
Coleto Creek Primary Ash Pond

Parameter	Groundwater Protection Standard
Antimony (mg/L)	0.006
Arsenic (mg/L)	0.128
Barium (mg/L)	2.0
Beryllium (mg/L)	0.004
Cadmium (mg/L)	0.005
Chromium (mg/L)	0.10
Cobalt (mg/L)	0.0499
Fluoride (mg/L)	4.0
Lead (mg/L)	0.015
Lithium (mg/L)	0.04
Mercury (mg/L)	0.002
Molybdenum (mg/L)	0.10
Selenium (mg/L)	0.05
Thallium (mg/L)	0.002
Radium 226+228 (pCi/L)	5.0

TABLE 3
APPENDIX III ANALYTICAL RESULTS
COLETO CREEK PRIMARY ASH POND

Sample Location	Date Sampled	B	Ca	Cl	F	field pH	SO_4	TDS
Upgradient Wells								
BV-5	03/29/17	1.15	90.5	118	0.54	7.01	147	860
	05/11/17	1.03	81.6	106	0.57	6.89	148	862
	05/16/17	1.17	99	107	0.55	6.9	145	832
	06/07/17	1.11	88.8	109	0.56	6.64	147	810
	06/20/17	1.02	90.7	106	0.58	6.54	145	716
	06/27/17	1.14	100	114	0.55	6.76	144	743
	07/12/17	1.07	96.8	112	0.56	6.88	140	430
	07/18/17	1.17	143	117	0.56	6.68	142	817
	11/07/17	1.10	94.2	109	0.62	6.96	136	850
	06/19/18	1.18	56.4	112	0.97	--	147	775
	09/18/18	1.27	86.2	145	0.667	6.53	146	904
	06/05/19	1.26	82.9	123	0.769	6.89	146	828
	10/03/19	1.31	72.2	141	0.753	7.11	145	806
	06/09/20	1.35	90.4	171	0.498	6.97	159	951
	10/06/20	1.26	80.2	133	1.01	6.54	155	843
	06/02/21	1.35	108	201	0.699	6.62	190	1110
	09/28/21	1.12	75.6	146	0.687	6.74	169	925
BV-21	03/28/17	0.651	6.89	36	0.61	7.09	69	490
	05/09/17	0.687	65.2	38	0.61	7.04	55	410
	05/17/17	0.709	74.3	39	0.58	7.05	53	454
	06/06/17	0.657	69	40	0.59	7.11	49	452
	06/20/17	0.642	77	40	0.61	6.7	45	356
	06/27/17	0.727	84.9	40	0.6	6.97	46	420
	07/10/17	0.674	90.6	39	0.58	7.22	45	427
	07/18/17	0.618	84.4	39	0.6	6.91	44	380
	11/07/17	0.515	73.6	42	0.64	7.12	46	423
	06/25/18	0.543	69.3	38.4	0.62	--	38.4	380
	09/18/18	0.624	72.1	33.3	0.479	6.64	36.4	416
	06/05/19	0.576	61.3	30.3	0.602	7.1	34.2	379
	10/03/19	0.534	63.4	23.9	0.588	6.82	33.2	342
	06/09/20	0.447	72.5	34.2	0.522	6.96	18.5	362
	10/06/20	0.480	84.0	40.4	0.677	6.72	14.5	390
	06/02/21	0.399	79.8	49.5	0.705	6.91	32.9	404
	09/28/21	0.385	77.3	61.7	0.496	7.02	31.3	426
MW-8	03/28/17	1.2	7.76	79	0.49	7.06	76	626
	05/09/17	1.21	77.5	77	0.44	7.15	79	564
	05/15/17	1.16	81.2	76	0.44	7.01	79	558
	06/06/17	1.26	78.1	72	0.45	6.92	83.5	570
	06/20/17	1.24	86.5	67	0.43	6.7	89	476
	06/27/17	1.23	89.6	66	0.44	6.85	97	533
	07/10/17	1.24	92.6	63	0.44	7.13	97	533
	07/18/17	1.25	92.9	61	0.46	6.91	100	533
	11/07/17	1.21	78.8	61	0.49	7.08	100	540
	06/25/18	1.25	80.3	65.9	0.52	--	95.2	565
	09/18/18	1.29	76.5	53.7	0.402	6.70	94.8	543
	06/05/19	1.11	65.2	51.4	0.497	7.10	79	515
	10/03/19	1.2	76.7	58.3	0.419	6.76	90.1	541
	06/09/20	1.33	73.1	46.4	0.392 J	7.04	72.3	511
	10/06/20	1.18	81.1	49.5	0.652	6.84	72.2	510
	06/25/21	0.863	80.1	53.2	0.673	6.81	58.8	489
	09/28/21	0.830	59.9	49.5	0.473	7.17	56.8	476

TABLE 3
APPENDIX III ANALYTICAL RESULTS
COLETO CREEK PRIMARY ASH POND

Sample Location	Date Sampled	B	Ca	Cl	F	field pH	SO$_4$	TDS
Downgradient Wells								
MW-4	03/28/17	0.287	9.14	102	0.61	9.81	157	794
	05/09/17	0.395	88.7	101	0.61	7.27	156	668
	05/17/17	0.251	92.1	101	0.6	6.93	157	702
	06/06/17	0.243	90.7	101	0.63	7.13	157	728
	06/20/17	0.254	99.3	101	0.62	6.71	157	626
	06/27/17	0.254	102	101	0.63	6.87	157	690
	07/10/17	0.271	111	101	0.62	7.16	158	670
	07/18/17	0.292	108	101	0.63	6.82	157	717
	11/07/17	0.255	94.5	99	0.62	7.12	155	700
	06/21/18	0.267	92.5	104	0.6	--	159	665
	09/18/18	0.28	91.8	102	0.582	6.63	155	720
	06/05/19	0.379	85.3	108	0.67	6.92	161	718
	10/03/19	0.367	93.1	102	0.559	6.7	155	693
	06/09/20	0.241	94.9	24.6	0.205 J	6.88	26.8	400
	10/06/20	0.328	103	101	0.736	6.75	151	731
	06/02/21	0.33	94.1	98.3	0.769	6.64	153	727
	09/28/21	0.288	88.3	98.7	0.647	6.94	164	714
MW-5	03/30/17	0.11	110	140	0.51	6.85	184	830
	05/10/17	0.115	114	139	0.54	6.86	183	900
	05/16/17	0.215	121	139	0.5	6.81	183	848
	06/08/17	0.122	118	139	0.55	6.8	182	862
	06/21/17	0.122	124	138	0.53	6.6	182	813
	06/26/17	0.121	129	139	0.54	6.79	184	900
	07/11/17	0.111	120	138	0.52	6.91	184	797
	07/19/17	0.001	0.005	137	0.53	6.84	181	857
	11/08/17	0.149	116	138	0.52	6.92	183	883
	06/25/18	0.119	114	140	0.56	--	183	820
	09/18/18	0.146	114	136	0.493	6.70	183	824
	06/03/19	0.146	113	143	0.596	7.06	187	864
	10/02/19	0.179	111	147	0.543	7.06	202	842
	06/09/20	0.152	117	138	0.370 J	6.84	182	858
	10/6/2020	0.160	125	133	0.662	6.91	178	841
	6/25/2021	0.181	120	135	0.661	6.91	173	813
	9/28/2021	0.150	103	127	0.559	7.15	190	831
MW-6	03/29/17	1.67	73.9	69	0.38	7.34	99	510
	05/11/17	1.94	70.6	70	0.37	7.1	110	490
	05/16/17	1.84	76.3	70	0.36	7.23	107	506
	06/07/17	1.8	73.8	70	0.37	6.97	103	492
	06/22/17	1.97	79.9	69	0.37	7.11	100	510
	06/28/17	1.74	81.8	69	0.37	7.16	99	570
	07/12/17	1.76	81.6	69	0.35	7.24	98	557
	07/20/17	0.005	0.0002	69	0.39	6.9	97	530
	11/07/17	1.72	76.4	69	0.39	7.41	101	483
	06/22/18	0.0171	76.6	70.7	0.41	--	107	490
	09/18/18	2.09	70.8	72.5	0.353 J	6.97	114	505
	06/03/19	1.9	73.9	73	0.438	7.31	103	514
	10/02/19	1.83	73.6	76.4	0.357 J	7.29	115	507
	06/09/20	2.51	69.7	80.9	0.4	6.95	122	507
	10/06/20	1.92	81.9	73.4	0.512	6.97	87.9	510
	06/25/21	1.75	79.1	72.7	0.542	7.02	89.2	503
	09/28/21	1.64	67.3	70.1	0.386 J	7.26	92.7	500

TABLE 3
APPENDIX III ANALYTICAL RESULTS
COLETO CREEK PRIMARY ASH POND

Sample Location	Date Sampled	B	Ca	Cl	F	field pH	SO_4	TDS
MW-9	03/30/17	3.38	54.5	71	1.13	7.35	62	406
	05/10/17	3.16	52.7	66	1.29	7.48	59	410
	05/17/17	3.18	53.3	67	1.26	7.34	58	440
	06/07/17	3.12	52	67	1.26	7.03	57	380
	06/21/17	3.44	60.7	66	1.39	7.09	60	393
	06/26/17	3.31	60.6	67	1.4	7.23	61	407
	07/11/17	3.35	52.1	64	1.3	7.51	60	927
	07/19/17	3.4	50.2	63	1.4	7.29	62	407
	11/08/17	2.84	49.4	62	1.56	7.54	50	397
	06/21/18	2.94	46.9	71.5	1.5	--	35.7	370
	09/18/18	2.79	51.7	71.4	1.1	6.99	49.1	394
	06/05/19	4.26	48	74.7	1.38	7.4	66.3	421
	10/03/19	3.97	71.3	70.9	1.41	7.37	63.6	462
	06/09/20	4.10	47.4	63.7	1.58	7.21	54.9	397
	10/06/20	3.78	50.1	49.6	1.73	7.47	51.7	366
	06/25/21	0.882	83.6	77.6	0.907	7.10	100	508
	09/28/21	1.23	74.3	62.9	0.629	7.21	79.0	507
MW-10	03/30/17	3.74	92.1	151	0.54	6.99	130	804
	05/10/17	7.32	56.1	82	0.83	7.23	96	582
	05/16/17	7.45	62.7	81	0.81	7.28	95	612
	06/08/17	7.54	58.1	77	0.84	7.23	92	604
	06/21/17	9.22	60.7	77	0.84	6.97	92	550
	06/26/17	8.21	63.4	78	0.84	7.14	92	530
	07/11/17	7.99	49.5	76	0.84	7.4	88	617
	07/19/17	8.74	56.6	74	0.86	7.25	86	533
	11/08/17	8.72	77.7	74	0.88	7.35	81	590
	06/22/18	8.47	84.4	76.7	0.88	--	--	550
	09/18/18	8.45	51.9	81.4	0.759	6.98	95.1	577
	06/03/19	8.28	43.1	87.2	0.953	7.52	97.7	587
	10/02/19	8.28	44.2	85.5	0.891	7.46	104	575
	06/09/20	7.58	46.9	76.9	0.818	7.13	96.5	575
	10/06/20	6.94	49.0	73.7	1.05	7.35	92.3	575
	06/25/21	1.97	107	154	0.717	6.91	141	806
	09/28/21	7.48	32.9	54.2	0.96	7.49	76.8	507
MW-11	05/10/17	1.35	64.1	55	0.82	7.27	61	394
	05/16/17	1.39	62.3	52	0.85	7.29	58	362
	05/18/17	1.27	61.6	47.8	0.94	--	52.4	390
	06/26/17	1.15	82	44	1	7.3	43	407
	07/11/17	1.23	44.7	44	1	7.55	42	603
	07/19/17	1.17	48.6	43	1.01	7.21	42	360
	11/08/17	1.13	52.2	43	1.02	7.61	56	367
	06/21/18	1.07	69.6	44.3	0.96	--	61.4	355
	09/18/18	1.12	39.3	44.6	0.754	7.00	44.4	354
	06/03/19	1.27	43.4	42.2	0.837	7.55	44.8	372
	10/02/19	1.22	43.4	41.4	0.768	7.43	10.8	355
	06/09/20	1.20	56.6	44.4	0.571	6.88	67.7	414
	10/06/20	1.05	66.8	58.6	0.767	7.05	85.9	453
	06/25/21	0.925	59.1	74.6	0.876	7.09	55.9	400
	6/25/21 DUP	0.98	59.3	74.8	0.865	7.09	56.2	397
	09/28/21	0.869	56.6	71.7	0.742	7.29	68.4	415
	9/28/21 DUP	0.397	77.4	55.7	0.498	7.29	31.2	441

Notes:

1. All concentrations in mg/L. pH in standard units.
2. J - concentration is below sample quantitation limit; result is an estimate.

TABLE 4
APPENDIX IV ANALYTICAL RESULTS
COLETO CREEK PRIMARY ASH POND

Sample Location	Date Sampled	Sb	As	Ba	Be	Cd	Cr	Co	F	Pb	Li	Hg	Mo	Se	Tl	Ra 226	Ra 228	Ra 226/228 Combined
Upgradient Wells																		
BV-5	03/29/17	<0.0025	0.00856	0.04510	<0.001	<0.001	<0.005	0.0497	0.540	<0.001	0.0206	<0.0002	0.00925	<0.005	<0.0015	--	--	1.503
	05/11/17	<0.0025	0.00786	0.03680	<0.001	<0.001	<0.005	0.0462	0.570	<0.001	0.018	<0.0002	0.0101	<0.005	<0.0015	--	--	1.555
	05/16/17	<0.0025	0.00885	0.04520	<0.001	<0.001	<0.005	0.0495	0.550	0.00151	0.0171	<0.0002	0.0102	<0.005	<0.0015	--	--	0.7550
	06/07/17	<0.0025	0.00829	0.03760	<0.001	<0.001	<0.005	0.0483	0.560	<0.001	0.0207	<0.0002	0.01	<0.005	<0.0015	--	--	1.457
	06/20/17	<0.0025	0.00841	0.04010	<0.001	<0.001	<0.005	0.0499	0.580	<0.001	0.0208	<0.0002	0.0114	<0.005	<0.0015	--	--	0.4920
	06/27/17	<0.0025	0.0083	0.04120	<0.001	<0.001	<0.005	0.046	0.550	<0.001	0.0198	<0.0002	0.00942	<0.005	<0.0015	--	--	2.247
	07/12/17	<0.0025	0.00849	0.04160	<0.001	<0.001	<0.005	0.0484	0.560	<0.001	0.0188	<0.0002	0.0096	<0.005	<0.0015	--	--	2.139
	07/18/17	<0.0025	0.00951	0.05780	<0.001	<0.001	0.00739	0.0453	0.560	0.00288	0.022	<0.0002	0.0083	<0.005	<0.0015	--	--	1.260
	06/19/18	<0.0025	0.0106	0.0336	<0.001	<0.001	0.0022 J	0.0513 J	0.970	<0.00074 J	0.016	<0.0002	0.0139	<0.005	<0.0015	0.327	<1.680	2.01
	09/18/18	NA	0.0095	0.0436	NA	NA	0.00228 J	0.0487	0.667	0.00039 J	0.0206	NA	0.0102	NA	NA	0.302	<0.608	0.91
	06/05/19	<0.0008	0.0092	0.042	<0.0003	0.00092 J	<0.002	0.0466	0.769	0.00144	0.0201	<0.00008	0.0109	<0.0020	<0.0005	<0.687	<1.130	<1.82
	10/03/19	<0.0008	0.0094	0.0441	<0.0003	<0.0003	0.0029 J	0.0437	0.753	0.0039	0.0172	<0.00008	0.0122	<0.0020	<0.0005	0.928	1.35	2.28
	06/09/20	<0.0008	0.0088	0.0462	<0.0003	<0.0003	0.00818	0.0486	0.498	0.00162	0.0201	<0.0000800	0.0120	<0.00200	<0.000500	0.363	<1.26	0.363
	10/06/20	<0.000800	0.0098	0.0387	<0.000300	<0.000300	0.00226	0.0449	1.01	<0.000300	0.0174	<0.0000800	0.0105	<0.00200	<0.000500	0.293	0.709	1
	6/2/2021	<0.000800	0.00882	0.053	<0.000300	<0.000300	0.00262 J	0.0437	0.699	0.000588 J	0.0239	<0.0000800	0.00768	<0.00200	<0.000500	0.325	<0.578	0.325
	09/28/21	<0.000800	0.0087	0.0365	<0.000300	<0.000300	<0.00200	0.0433	0.687	0.000415 J	0.0194	<0.0000800	0.0102	<0.00200	<0.000500	0.239 J	2.06	2.29
BV-21	03/28/17	<0.0025	0.0954	0.09630	<0.001	<0.001	<0.005	0.0083	0.610	<0.001	<0.010	<0.0002	<0.005	<0.005	<0.0015	--	--	1.390
	05/09/17	<0.0025	0.108	0.09720	<0.001	<0.001	<0.005	0.00852	0.610	<0.001	<0.010	<0.0002	<0.005	<0.005	<0.0015	--	--	0.7460
	05/17/17	<0.0025	0.117	0.09440	<0.001	<0.001	<0.005	0.00878	0.580	<0.001	<0.010	<0.0002	<0.005	<0.005	<0.0015	--	--	0.9190
	06/06/17	<0.0025	0.118	0.09540	<0.001	<0.001	<0.005	0.00806	0.590	<0.001	<0.010	<0.0002	<0.005	<0.005	<0.0015	--	--	0.6710
	06/20/17	<0.0025	0.121	0.1010	<0.001	<0.001	<0.005	0.00744	0.610	<0.001	<0.010	<0.0002	<0.005	<0.005	<0.0015	--	--	1.672
	06/27/17	<0.0025	0.128	0.1040	<0.001	<0.001	<0.005	0.00841	0.600	<0.001	<0.010	<0.0002	<0.005	<0.005	<0.0015	--	--	0.5200
	07/10/17	<0.0025	0.123	0.1100	<0.001	<0.001	<0.005	0.0086	0.580	<0.001	<0.010	<0.0002	<0.005	<0.005	<0.0015	--	--	0.8050
	07/18/17	<0.0025	0.115	0.1010	<0.001	<0.001	<0.005	0.00784	0.600	<0.001	<0.010	<0.0002	<0.005	<0.005	<0.0015	--	--	4.812
	06/25/18	<0.0025	0.0697	0.104	<0.001	<0.001	<0.005	0.00682	0.620	<0.00074 J	0.00513 J	<0.0002	0.00428 J	<0.005	<0.0015	0.267	<1.417	1.68
	09/18/18	NA	0.0625	0.109	NA	NA	<0.002	0.0064	0.479	0.000555 J	0.00624 J	NA	0.00450 J	NA	NA	<0.31	<0.528	<0.838
	06/05/19	<0.0008	0.0531	0.105	<0.0003	<0.0003	<0.002	0.00574	0.602	0.000354	0.0056 J	<0.00008	0.00685	<0.0020	<0.0005	0.65	<0.687	1.337
	10/03/19	<0.0008	0.049	0.0963	<0.0003	<0.0003	<0.002	0.00542	0.588	0.000333 J	<0.005	<0.00008	0.00784	<0.0020	<0.0005	0.346	1.54	1.89
	06/09/20	<0.0008	0.0793	0.132	<0.0003	<0.0003	0.007	0.00437 J	0.522	0.00033 J	<0.005	<0.00008	0.00698	<0.0020	<0.0005	0.211	1.15	1.36
	10/06/20	<0.000800	0.0815	0.157	<0.000300	<0.000300	<0.00200	0.00411 J	0.677	<0.000300	0.00532 J	<0.0000800	0.00523	<0.00200	<0.000500	0.37	<1.38	0.37
	6/2/2021	<0.000800	0.0663	0.176	<0.000300	<0.000300	<0.00200	0.00441 J	0.705	0.000336 J	0.00532 J	<0.0000800	0.00547	<0.00200	<0.000500	0.0424	0.392	0.434
	09/28/21	<0.000800	0.0603	0.186	<0.000300	<0.000300	<0.00200	0.00387 J	0.496	<0.000300	0.00539 J	<0.0000800	0.00481 J	<0.00200	<0.000500	1.02	1.81	2.83
MW-8	03/28/17	<0.0025	0.00839	0.0623	<0.001	<0.001	<0.005	0.0236	0.490	<0.001	0.0111	<0.0002	0.0154	<0.005	<0.0015	--	--	0.4520
	05/09/17	<0.0025	0.00848	0.064	<0.001	<0.001	<0.005	0.0272	0.440	<0.001	0.0111	<0.0002	0.0157	<0.005	<0.0015	--	--	0.4740
	05/15/17	<0.0025	0.00926	0.064	<0.001	<0.001	<0.005	0.0311	0.440	<0.001	0.0112	<0.0002	0.016	<0.005	<0.0015	--	--	0.6140
	06/06/17	<0.0025	0.00912	0.0616	<0.001	<0.001	0.00744	0.0308	0.450	<0.001	0.0107	<0.0002	0.0157	<0.005	<0.0015	--	--	0.1320
	06/20/17	<0.0025	0.00885	0.0669	<0.001	<0.001	<0.005	0.0297	0.430	<0.001	0.0121	<0.0002	0.0171	<0.005	<0.0015	--	--	0.5380
	06/27/17	<0.0025	0.00939	0.0633	<0.001	<0.001	<0.005	0.0314	0.440	<0.001	0.0115	<0.0002	0.0163	<0.005	<0.0015	--	--	0.9390
	07/10/17	<0.0025	0.00902	0.0631	<0.001	<0.001	<0.005	0.031	0.440	<0.001	0.0112	<0.0002	0.0165	<0.005	<0.0015	--	--	0.8040
	07/18/17	<0.0025	0.00937	0.0635	<0.001	<0.001	<0.005	0.0352	0.460	<0.001	0.0118	<0.0002	0.0185	<0.005	<0.0015	--	--	2.113
	06/25/18	<0.0025	0.0101	0.0632	<0.001	<0.001	<0.005	0.029	0.520	0.0011	0.0107	<0.0002	0.017	<0.005	<0.0015	<0.234	<1.204	<1.44
	09/18/18	NA	0.009	0.0582	NA	NA	<0.00200	0.0237	0.402	<0.0003	0.0117	NA	0.0178	NA	NA	<0.281	<0.558	<0.84
	06/05/19	<0.0008	0.0095	0.0596	<0.0003	<0.0003	<0.002	0.0217	0.497	0.000355 J	0.011	<0.00008	0.0156	<0.0020	<0.0005	0.528	<0.619	1.147
	10/03/19	<0.0008	0.0083	0.0607	<0.0003	<0.0003	<0.002	0.231	0.419	<0.0003	0.0106	<0.00008	0.0144	<0.0020	<0.0005	0.224	0.241	0.465
	06/09/20	<0.0008	0.0086	0.0599	<0.0003	<0.0003	<0.002	0.0174	0.392 J	0.000479 J	0.0104	<0.00008	0.0158	<0.002	<0.0005	0.304	2.64	2.94
	10/6/2020	<0.000800	0.0086	0.0647	<0.000300	<0.000300	<0.00200	0.0162	0.652	<0.000300	0.0107	<0.0000800	0.0148	<0.00200	<0.000500	1.08	1.65	2.73
	6/25/2021	<0.000800	0.0104	0.0806	<0.000300	<0.000300	<0.00200	0.013	0.673	0.000761 J	0.0105	<0.0000800	0.0118	<0.00200	<0.000500	0.148	0.639	0.787
	09/28/21	<0.000800	0.0086	0.0690	<0.000300	<0.000300	<0.00200	0.0110	0.473	0.000697 J	0.0102	<0.0000800	0.0124	<0.00200	<0.000500	0.0886	1.23	1.32

TABLE 4
APPENDIX IV ANALYTICAL RESULTS
COLETO CREEK PRIMARY ASH POND

Sample Location	Date Sampled	Sb	As	Ba	Be	Cd	Cr	Co	F	Pb	Li	Hg	Mo	Se	Tl	Ra 226	Ra 228	Ra 226/228 Combined
Downgradient Wells																		
MW-4	03/28/17	<0.0025	0.00738	0.0575	<0.001	<0.001	<0.005	0.007	0.610	<0.001	0.0192	<0.0002	<0.005	<0.005	<0.0015	--	--	0.4600
	05/09/17	<0.0025	0.00733	0.0576	<0.001	<0.001	<0.005	0.007	0.610	<0.001	0.0182	<0.0002	<0.005	<0.005	<0.0015	--	--	0.6940
	05/15/17	<0.0025	0.00794	0.0556	<0.001	<0.001	<0.005	0.007	0.600	<0.001	0.0166	<0.0002	<0.005	<0.005	<0.0015	--	--	1.451
	06/06/17	<0.0025	0.0077	0.0556	<0.001	<0.001	<0.005	0.007	0.630	<0.001	0.0179	<0.0002	<0.005	<0.005	<0.0015	--	--	0.1740
	06/20/17	<0.0025	0.0081	0.0596	<0.001	<0.001	0.00877	0.008	0.620	<0.001	0.0195	<0.0002	<0.005	<0.005	<0.0015	--	--	0.5430
	06/27/17	<0.0025	0.00786	0.0554	<0.001	<0.001	<0.005	0.007	0.630	<0.001	0.0185	<0.0002	<0.005	<0.005	<0.0015	--	--	0.6390
	07/10/17	<0.0025	0.00846	0.0582	<0.001	<0.001	<0.005	0.009	0.620	<0.001	0.0187	<0.0002	<0.005	<0.005	<0.0015	--	--	1.069
	07/18/17	<0.0025	0.00815	0.0549	<0.001	<0.001	<0.005	0.008	0.630	<0.001	0.0183	<0.0002	<0.005	<0.005	<0.0015	--	--	0.1910
	06/21/18	<0.0025	0.0084	0.0591	<0.001	<0.001	<0.005	0.00711	0.600	<0.00072 J	0.0175	<0.0002	<0.005	<0.005	<0.0015	0.370	1.705	2.08
	09/18/18	NA	0.0079	0.0577	NA	NA	<0.002	0.00673	0.582	<0.0003	0.019	NA	<0.002	NA	NA	1.610	<0.543	2.15
	06/05/19	<0.0008	0.0079	0.0571	<0.0003	<0.0003	<0.002	0.00729	0.670	<0.0003	0.0195	<0.00008	<0.002	<0.0020	<0.0005	0.436	<0.547	0.98
	10/03/19	<0.0008	0.0076	0.0532	<0.0003	<0.0003	<0.002	0.00699	0.559	0.00101	0.017	<0.00008	<0.002	<0.002	<0.0005	1.85	<0.739	1.85
	06/09/20	<0.0008	<0.002	0.0376	<0.0003	<0.0003	<0.002	<0.003	0.205 J	<0.0003	0.00751 J	<0.00008	0.0021 J	<0.002	<0.0005	0.0553	0.264	0.319
	10/06/20	<0.000800	0.0075	0.0586	<0.0003	<0.000300	<0.00200	0.00862	0.736	0.000375 J	0.0186	<0.0000800	<0.00200	<0.00200	<0.000500	0.0684	<1.23	0.0684
	6/2/2021	<0.000800	0.00808	0.0582	<0.0003	<0.000300	<0.00200	0.00934	0.769	0.000418 J	0.0176	<0.0000800	<0.00200	<0.00200	<0.000500	0.298	0.726	1.02
	09/28/21	<0.000800	0.0086	0.0543	<0.0003	<0.000300	<0.00200	0.0104	0.647	0.00139	0.0181	<0.0000800	<0.00200	<0.00200	<0.000500	0.151 J	1.91	2.06
MW-5	03/30/17	<0.0025	0.00953	0.0748	<0.001	<0.001	<0.005	<0.005	0.510	<0.001	0.0192	<0.0002	<0.005	<0.005	<0.0015	--	--	1.443
	05/10/17	<0.0025	0.00955	0.0706	<0.001	<0.001	<0.005	<0.005	0.540	<0.001	0.0179	<0.0002	<0.005	<0.005	<0.0015	--	--	0.6150
	05/16/17	<0.0025	0.00967	0.0708	<0.001	<0.001	<0.005	<0.005	0.500	<0.001	0.0181	<0.0002	<0.005	<0.005	<0.0015	--	--	0.6410
	06/08/17	<0.0025	0.00908	0.0701	<0.001	<0.001	<0.005	<0.005	0.550	<0.001	0.0200	<0.0002	<0.005	<0.005	<0.0015	--	--	0.1790
	06/21/17	<0.0025	0.00917	0.0767	<0.001	<0.001	<0.005	<0.005	0.530	<0.001	0.0197	<0.0002	<0.005	<0.005	<0.0015	--	--	0.1060
	06/26/17	<0.0025	0.00955	0.0735	<0.001	<0.001	<0.005	<0.005	0.540	<0.001	0.0204	<0.0002	<0.005	<0.005	<0.0015	--	--	1.112
	07/11/17	<0.0025	0.00945	0.0712	<0.001	<0.001	<0.005	<0.005	0.520	<0.001	0.0183	<0.0002	<0.005	<0.005	<0.0015	--	--	0.5120
	07/19/17	<0.0025	0.00941	0.0735	<0.001	<0.001	<0.005	<0.005	0.530	<0.001	0.0186	<0.0002	<0.005	<0.005	<0.0015	--	--	0.1910
	06/25/18	<0.0025	0.01	0.0733	0.001	<0.001	<0.005	<0.005	0.560	<0.001	0.0182	<0.0002	<0.005	<0.005	<0.0015	<0.251	<1.369	<1.62
	09/18/18	NA	0.0095	0.0697	NA	NA	<0.002	<0.003	0.493	<0.0003	0.0195	NA	<0.002	NA	NA	<0.282	<0.606	<0.89
	06/03/19	<0.0008	0.0095	0.0678	0.0003	<0.0003	<0.002	<0.003	0.596	<0.0003	0.0206	<0.00008	<0.002	<0.002	<0.0005	<0.619	<0.917	<1.54
	10/02/19	<0.0008	0.0092	0.067	0.0003	<0.0003	<0.002	<0.003	0.543	<0.0003	0.0187	<0.00008	<0.002	<0.002	<0.0005	0.47	0.117	0.587
	06/09/20	<0.0008	0.0089	0.0689	<0.0003	<0.0003	<0.002	<0.003	0.370 J	<0.0003	0.0192	<0.00008	<0.002	<0.002	<0.0005	0.171	0.211	0.382
	10/06/20	<0.000800	0.0093	0.0708	<0.0003	<0.000300	<0.00200	<0.00300	0.662	<0.000300	0.0190	<0.0000800	<0.00200	<0.00200	<0.000500	0.0604	0.08	0.14
	6/25/2021	<0.000800	0.00918	0.0652	<0.0003	<0.000300	0.00913	<0.00300	0.661	<0.000300	0.0189	<0.0000800	<0.00200	<0.00200	<0.000500	0.0362	0.2	0.236
	09/28/21	<0.000800	0.0089	0.0639	<0.0003	<0.000300	<0.00200	<0.00300	0.559	<0.000300	0.0194	<0.0000800	<0.00200	<0.00200	<0.000500	0.311	1.74	2.05
MW-6	03/29/17	<0.0025	0.00827	0.0900	<0.001	<0.001	<0.005	<0.005	0.380	<0.001	<0.010	<0.0002	0.00749	<0.005	<0.0015	--	--	1.009
	05/11/17	<0.0025	0.00738	0.0758	<0.001	<0.001	<0.005	<0.005	0.370	<0.001	0.0101	<0.0002	0.0176	<0.005	<0.0015	--	--	0.8250
	05/16/17	<0.0025	0.00803	0.0784	<0.001	<0.001	<0.005	<0.005	0.360	<0.001	<0.010	<0.0002	0.0131	<0.005	<0.0015	--	--	0.7740
	06/07/17	<0.0025	0.00772	0.0798	<0.001	<0.001	<0.005	<0.005	0.370	<0.001	<0.010	<0.0002	0.00949	<0.005	<0.0015	--	--	0.6640
	06/22/17	<0.0025	0.00764	0.083	<0.001	<0.001	<0.005	<0.005	0.370	<0.001	0.0109	<0.0002	0.0084	<0.005	<0.0015	--	--	0.2150
	06/28/17	<0.0025	0.00779	0.0842	<0.001	<0.001	<0.005	<0.005	0.370	<0.001	<0.010	<0.0002	0.00806	<0.005	<0.0015	--	--	1.730
	07/12/17	<0.0025	0.0077	0.0819	<0.001	<0.001	<0.005	<0.005	0.350	<0.001	<0.010	<0.0002	0.0076	<0.005	<0.0015	--	--	1.012
	07/20/17	<0.0025	0.001	0.0010	<0.001	<0.001	<0.005	<0.005	0.390	<0.001	<0.010	<0.0002	0.001	<0.005	<0.0015	--	--	0.3660
	06/22/18	<0.0025	0.0086	0.0912	<0.001	<0.001	<0.005	<0.005	0.410	<0.001	0.00924 J	<0.0002	0.00837	<0.005	<0.0015	<0.309	<1.243	<1.55
	09/18/18	NA	0.008	0.0828	NA	NA	<0.002	<0.003	0.353 J	0.000349 J	0.0107	NA	0.0274	NA	NA	<0.196	1.06	1.256
	06/03/19	<0.0008	0.008	0.0894	<0.0003	<0.0003	<0.002	<0.003	0.438	<0.0003	0.0097 J	<0.00008	0.00884	<0.0020	<0.0005	<0.407	<0.62	<1.03
	10/02/19	<0.0008	0.0078	0.0876	<0.0003	<0.0003	<0.002	<0.003	0.357 J	<0.0003	0.0088 J	<0.00008	0.00875	<0.0020	<0.0005	0.715	1.23	1.94
	06/09/20	<0.0008	0.008	0.078	<0.0003	<0.0003	<0.002	<0.003	0.4	<0.0003	0.0113	<0.00008	0.0357	<0.002	<0.0005	0.0064	0.127	0.134
	10/06/20	<0.000800	0.0077	0.0912	<0.0003	<0.000300	<0.00200	0.00319 J	0.512	<0.000300	0.00900 J	<0.0000800	0.00924	<0.00200	<0.000500	1.02	0.621	1.64
	06/25/21	<0.000800	0.00778	0.086	<0.0003	<0.000300	<0.00200	<0.00300	0.542	<0.000300	0.0101	<0.0000800	0.00823	<0.00200	<0.000500	0.206	1.03	1.24
	09/28/21	<0.000800	0.0079	0.0896	<0.0003	<0.000300	<0.00200	<0.00300	0.386 J	<0.000300	0.00911 J	<0.0000800	0.00801	<0.00200	<0.000500	0.334	1.6	1.94

TABLE 4
APPENDIX IV ANALYTICAL RESULTS
COLETO CREEK PRIMARY ASH POND

Sample Location	Date Sampled	Sb	As	Ba	Be	Cd	Cr	Co	F	Pb	Li	Hg	Mo	Se	Tl	Ra 226	Ra 228	Ra 226/228 Combined
MW-9	03/30/17	<0.0025	0.00909	0.121	<0.001	<0.001	<0.005	<0.005	1.130	0.00217	<0.010	<0.0002	0.0747	<0.005	<0.0015	--	--	1.353
	05/10/17	<0.0025	0.00996	0.105	<0.001	<0.001	<0.005	<0.005	1.290	0.00433	<0.010	<0.0002	0.0900	<0.005	<0.0015	--	--	0.4800
	05/17/17	<0.0025	0.00958	0.101	<0.001	<0.001	<0.005	<0.005	1.260	0.00377	<0.010	<0.0002	0.0899	<0.005	<0.0015	--	--	0.3600
	06/07/17	<0.0025	0.0093	0.100	<0.001	<0.001	<0.005	<0.005	1.260	<0.001000	<0.010	<0.0002	0.0926	<0.005	<0.0015	--	--	0.4760
	06/21/17	<0.0025	0.00937	0.119	<0.001	<0.001	<0.005	<0.005	1.390	0.00136	<0.010	<0.0002	0.1020	<0.005	<0.0015	--	--	1.579
	06/26/17	<0.0025	0.0107	0.114	<0.001	<0.001	0.0102	<0.005	1.400	0.00217	<0.010	<0.0002	0.1060	<0.005	<0.0015	--	--	1.023
	07/11/17	<0.0025	0.0105	0.103	<0.001	<0.001	0.00566	<0.005	1.300	0.00124	<0.010	<0.0002	0.1050	<0.005	<0.0015	--	--	0.8630
	07/19/17	<0.0025	0.0103	0.101	<0.001	<0.001	<0.005	<0.005	1.400	<0.001000	<0.010	<0.0002	0.1130	<0.005	<0.0015	--	--	0.5840
	06/21/18	<0.0025	0.0104	0.100	<0.001	<0.001	<0.005	<0.005	1.500	<0.00072 J	<0.01	<0.0002	0.0617	<0.005	<0.0015	0.608	<1.303	1.91
	09/18/18	NA	0.0103	0.0985	NA	NA	<0.002	<0.003	1.100	<0.000300	0.00639 J	NA	0.0502	NA	NA	0.618	<0.638	1.26
	06/05/19	<0.0008	0.0109	0.102	<0.0003	<0.0003	<0.002	<0.003	1.380	<0.0003	0.0055 J	<0.00008	0.0683	<0.002	<0.0005	<0.402	<0.683	<1.085
	10/03/19	<0.0008	0.0109	0.128	0.00069 J	<0.0003	<0.002	0.00337 J	1.410	0.00876	0.0064 J	<0.00008	0.0507	0.0041 J	<0.0005	0.577	0.747	1.32
	06/09/20	<0.0008	0.0126	0.0865	<0.0003	<0.0003	<0.002	<0.003	1.58	0.000577 J	<0.005	<0.00008	0.0774	<0.002	<0.0005	0.132	<0.96	0.132
	10/06/20	<0.000800	0.0225	0.0786	<0.0003	<0.000300	<0.00200	<0.00300	1.73	<0.000300	<0.00500	<0.0000800	0.0616	<0.00200	<0.000500	0.14	1.51	1.65
	06/25/21	<0.000800	0.0151	0.163	<0.0003	<0.000300	<0.00200	<0.00300	0.907	0.000408 J	0.0103	<0.0000800	0.0199	<0.00200	<0.000500	0.38	0.665	1.04
	09/28/21	<0.000800	0.0197	0.163	<0.0003	<0.000300	<0.00200	<0.00300	0.629	<0.000300	0.00865 J	<0.0000800	0.0158	<0.00200	<0.000500	0.278	1.75	2.03
MW-10	03/30/17	<0.0025	0.0110	0.0844	<0.001	<0.001	<0.005	<0.005	0.540	<0.001	0.0179	<0.0002	0.0342	<0.005	<0.0015	--	--	1.439
	05/10/17	<0.0025	0.0146	0.0554	<0.001	<0.001	0.00533	<0.005	0.830	<0.001	0.0122	<0.0002	0.102	<0.005	<0.0015	--	--	0.8880
	05/16/17	<0.0025	0.0150	0.0598	<0.001	<0.001	<0.005	<0.005	0.810	<0.001	0.0123	<0.0002	0.0987	<0.005	<0.0015	--	--	0.1830
	06/08/17	<0.0025	0.0144	0.0544	<0.001	<0.001	<0.005	<0.005	0.840	<0.001	0.0115	<0.0002	0.106	<0.005	<0.0015	--	--	0.06700
	06/21/17	<0.0025	0.0149	0.054	<0.001	<0.001	<0.005	<0.005	0.840	<0.001	0.0133	<0.0002	0.113	<0.005	<0.0015	--	--	0.7090
	06/26/17	<0.0025	0.0160	0.0587	<0.001	<0.001	0.0177	<0.005	0.840	<0.001	0.0137	<0.0002	0.116	<0.005	<0.0015	--	--	0.7180
	07/11/17	<0.0025	0.0149	0.0508	<0.001	<0.001	<0.005	<0.005	0.840	<0.001	0.0119	<0.0002	0.114	<0.005	<0.0015	--	--	1.713
	07/19/17	<0.0025	0.0146	0.0633	<0.001	<0.001	0.00963	<0.005	0.860	<0.001	0.0127	<0.0002	0.121	<0.005	<0.0015	--	--	2.132
	06/22/18	<0.0025	0.0154	0.0692	<0.001	<0.001	<0.005	<0.005	0.88	<0.00095 J	0.0122	<0.0002	0.134	<0.005	<0.0015	<0.212	<1.192	<1.40
	09/18/18	NA	0.0140	0.0446	NA	NA	<0.002	<0.003	0.759	<0.0003	0.0141	NA	0.125	NA	NA	0.151	<0.848	0.999
	06/03/19	<0.0008	0.0142	0.0420	<0.0003	<0.0003	<0.002	<0.003	0.953	<0.0003	0.0139	<0.00008	0.109	<0.002	<0.0005	<0.203	0.814	1.017
	10/02/19	<0.0008	0.0139	0.0406	<0.0003	<0.0003	<0.002	<0.003	0.891	<0.0003	0.0127	<0.00008	0.106	<0.002	<0.0005	<0.325	0.901	0.901
	06/09/20	<0.0008	0.014	0.0444	<0.0003	<0.0003	<0.002	0.00334 J	0.818	<0.0003	0.013	<0.00008	0.088	<0.002	<0.0005	0.0959	1.22	1.31
	10/06/20	<0.000800	0.0139	0.0411	<0.0003	<0.000300	<0.00200	0.00390 J	1.05	<0.000300	0.0127	<0.0000800	0.0865	<0.00200	<0.000500	0.0332	1.68	1.71
	6/25/2021	<0.000800	0.00942	0.0792	<0.0003	<0.000300	<0.00200	<0.00300	0.717	<0.000300	0.018	<0.0000800	0.0181	<0.00200	<0.000500	0.179	1.13	1.3
	09/28/21	<0.000800	0.0143	0.0477	<0.0003	<0.000300	<0.00200	0.00607	0.96	<0.000300	0.0109	<0.0000800	0.108	<0.00200	<0.000500	0.182	0.472	0.654
MW-11	05/10/17	<0.0025	0.0156	0.0899	<0.001	<0.001	<0.005	<0.005	0.82	0.00239	0.0125	<0.0002	0.0082	<0.005	<0.0015	--	--	0.4560
	05/16/17	<0.0025	0.018	0.0869	<0.001	<0.001	0.00731	<0.005	0.85	0.0113	0.0144	<0.0002	0.00841	<0.005	<0.0015	--	--	1.418
	05/18/17	<0.0025	0.0188	0.0779	<0.001	<0.001	<0.005	<0.005	0.94	0.00204	0.0122	<0.0002	0.00781	<0.005	<0.0015	--	--	0.6390
	06/07/17	<0.0025	0.0175	0.0835	<0.001	<0.001	<0.005	<0.005	0.93	0.00171	0.0137	<0.0002	0.00744	<0.005	<0.0015	--	--	0.5020
	06/21/17	<0.0025	0.0203	0.0822	<0.001	<0.001	<0.005	<0.005	1.04	0.00322	0.0136	<0.0002	0.00659	<0.005	<0.0015	--	--	1.084
	06/26/17	<0.0025	0.0237	0.0954	<0.001	<0.001	0.0131	<0.005	1.00	0.00593	0.0176	<0.0002	0.00796	<0.005	<0.0015	--	--	3.067
	07/11/17	<0.0025	0.0212	0.0725	<0.001	<0.001	<0.005	<0.005	1.00	<0.001	0.012	<0.0002	0.00765	<0.005	<0.0015	--	--	0.7530
	07/19/17	<0.0025	0.0224	0.0709	<0.001	<0.001	0.00762	<0.005	1.01	0.0018	0.0137	<0.0002	0.00783	<0.005	<0.0015	--	--	1.551
	06/21/18	<0.0025	0.0367	0.0805	<0.001	<0.001	<0.005	<0.005	0.96	0.00241	0.0135	<0.0002	0.00465	<0.005	<0.0015	<0.234	<1.312	<1.55
	09/18/18	NA	0.0382	0.0645	NA	NA	<0.002	<0.003	0.754	<0.0003	0.0139	NA	0.00445 J	NA	NA	<0.188	0.597	0.785
	06/03/19	<0.0008	0.0379	0.0834	<0.0003	<0.0003	<0.002	<0.003	0.837	<0.0003	0.0154	<0.00008	0.00316 J	<0.002	<0.0005	<0.481	0.991	1.472
	10/02/19	<0.0008	0.0379	0.0744	<0.0003	<0.0003	<0.002	<0.003	0.768	0.000391 J	0.014	<0.00008	0.00259 J	<0.002	<0.0005	1.57	0.478	2.040
	06/09/20	<0.0008	0.0293	0.0948	<0.0003	<0.0003	<0.002	<0.003	0.571	0.000675 J	0.0156	<0.00008	0.00215 J	<0.002	<0.0005	0.163	1.31	1.480
	10/06/20	<0.000800	0.0159	0.105	<0.0003	<0.000300	<0.00200	<0.00300	0.767	0.000320 J	0.0165	<0.0000800	0.00340 J	<0.00200	<0.000500	0.354	0.53	0.884
	6/25/2021	<0.000800	0.0136	0.09	<0.0003	<0.000300	<0.00200	<0.00300	0.876	<0.000300	0.0162	<0.0000800	0.019	<0.00200	<0.000500	0.237	0.824	1.060
	6/25/21 DUP	<0.000800	0.0134	0.0905	<0.0003	<0.000300	<0.00200	<0.00300	0.865	<0.000300	0.148	<0.0000800	0.0194	<0.00200	<0.000500	0.173 J	1.64	1.81
	09/28/21	<0.000800	0.0137	0.101	<0.0003	<0.000300	<0.00200	<0.00300	0.742	0.000475 J	0.0161	<0.0000800	0.0189	<0.00200	<0.000500	0.0336	2.74	2.77
	9/28/21 DUP	<0.000800	0.0586	0.181	<0.0003	<0.000300	<0.00200	0.00362 J	0.498	<0.0003	0.00656	<0.0000800	0.00467	<0.00200	<0.000500	0.426	1.28	1.71

Notes:

1. All concentrations in mg/L. Ra 226/228 Combined in pCi/L.
2. J - concentration is below sample quantitation limit; result is an estimate.
3. NA = Not analyzed.

ATTACHMENT 1

LABORATORY ANALYTICAL REPORTS

DHL
ANALYTICAL

July 09, 2021

Will Vienne
Golder
2201 Double Creek Dr #4004
Round Rock, Texas 78664
TEL: (512) 671-3434
FAX (512) 671-3446

Order No.: 2106017

RE: 1H21 Coleto Creek GW

Dear Will Vienne:

DHL Analytical, Inc. received 3 sample(s) on 6/3/2021 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAP except where noted in the Case Narrative. All non-NELAP methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-21-27

Table of Contents

DHL ANALYTICAL

2300 Double Creek Dr. Round Rock, TX 78664
Phone 512.388.8222
Web: **www.dhlanalytical.com**
Email: **login@dhlanalytical.com**

CHAIN-OF-CUSTODY

PAGE l OF 1

CLIENT: Golder Associates
ADDRESS: 620 E. Airline Victoria TX 77901
PHONE:
EMAIL:
DATA REPORTED TO: Will Vienne
ADDITIONAL REPORT COPIES TO: Greg Logan Jr.

PO#:
PROJECT LOCATION OR NAME: IN21 Coleto Creek GW
CLIENT PROJECT # 19122262 - B2021

LABORATORY USE ONLY
DHL WORKORDER #: 2106017
COLLECTOR: Greg Logan Jr.

Authorize 5% surcharge for TRRP report?
☒ Yes ☐ No

Lab Use Only

W=WATER SE=SEDIMENT
L=LIQUID P=PAINT
S=SOIL SL=SLUDGE
SO=SOLID

Field Sample I.D.	**DHL Lab #**	Collection Date	Collection Time	Matrix	Container Type	# of Containers	**PRESERVATION** HCL	HNO$_3$	H$_2$SO$_4$	NaOH ☐ Zn Acetate ☐	ICE ☐ UNPRESERVED ☐	**ANALYSES**	BTEX ☐ MTBE ☐ [METHOD 8260]	TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐	GRO 8015 ☐ DRO 8015 ☐	VOC 8260 ☐ VOC 624.1 ☐	SVOC 8270 ☐ SVOC 625.1 ☐	PAH 8270 ☐ HOLD PAH ☐	PEST 8270 ☐ 625.1 ☐ O-P PEST 8270 ☐	PCB 8082 ☐ 608.3 ☐ PCB 8270 ☐ 625.1 ☐	HERB 8321 ☐ T PHOS ☐ AMMONIA ☐	METALS 6020 ☐ 200.8 ☐ DISS. METALS ☐	RCRA 8 ☐ TX11 ☐ ____	pH☐ HEX CHROM☐ ALKALINITY☐ COD☐	ANIONS 300 ☐ 9056 ☐ ____	TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐	TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐	RCI ☐ IGN ☐ DGAS ☐ OIL&GREASE ☐	TDS ☐ TSS ☐ % MOIST ☐ CYANIDE ☐	Appendix 3	Appendix 4		FIELD NOTES
BV-5	01	6-2-21	9:73	w	P	4		X																						X	X		
MW-4	02	↓	10:30	↓	↓	↓		↓																						X	X		
BV-21	03	↓	11:25	↓	↓	↓		↓																						X	X		

Relinquished By: (Sign)	DATE/TIME	Received by:
	6-2-21/18:00	FedEx
Fed Ex	6/3/21 0929	

TURN AROUND TIME
(CALL FIRST FOR RUSH)
RUSH-1 DAY☐ RUSH-2 DAY☐
RUSH-3 DAY☐
NORMAL ☒ OTHER ☐
DUE DATE ____________ ☐

LABORATORY USE ONLY
RECEIVING TEMP (°C): 2.5 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LSO ☒ FEDEX ☐ UPS ☐ COURIER ☐ OTHER ☐ HAND DELIVERED

☐ **DHL DISPOSAL @ 5.00 each** ☐ **Return**

DHL COC REV 3 | MAR 2021

Eric Lau

From: John DuPont
Sent: Tuesday, May 28, 2019 11:35 AM
To: Eric Lau
Subject: FW: CCR Analysis

Appendix III Parameters:
Metals (Ca and B)
Anions (Cl, F, and SO4)
TDS

Appendix IV Parameters:

Metals (As, Ba, Be, Cd, Co, Cr, Hg, Li, Mo, Pb, Sb, Se, and Tl)
Ra-226
Ra-228

From: Vienne, Will [mailto:William_Vienne@golder.com]
Sent: Tuesday, April 09, 2019 12:48 PM
To: John DuPont <dupont@dhlanalytical.com>
Subject: CCR Analysis

ORIGIN ID:VCTA (361) 573-6442
GREG LOGAN JR.
GOLDER ASSOCIATES INC.
620 E. AIRLINE

VICTORIA, TX 77901
UNITED STATES US

SHIP DATE: 02JUN21
ACTWGT: 25.00 LB
CAD: 280663/INET4340
DIMS: 24x13x14 IN

BILL SENDER

TO **SAMPLE RECEIVING**
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF: 19122262 B2021
INV:
PO: DEPT:

56DJ3/B387/FE4A

J211321033101uv

THU - 03 JUN 10:30A
PRIORITY OVERNIGHT

TRK# **7738 9098 7825**
0201

78664
TX-US **AUS**

44 BSMA

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

CUSTODY SEAL

DATE 6-2-21

SIGNATURE GML

DHL
ANALYTICAL

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Golder**

Date Received: **6/3/2021**

Work Order Number **2106017**

Received by: **EL**

Checklist completed by: 6/3/2021
Signature Date

Reviewed by DL 6/3/2021
Initials Date

Carrier name: FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐		
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐		
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑		
Chain of custody present?	Yes ☑	No ☐			
Chain of custody signed when relinquished and received?	Yes ☑	No ☐			
Chain of custody agrees with sample labels?	Yes ☑	No ☐			
Samples in proper container/bottle?	Yes ☑	No ☐			
Sample containers intact?	Yes ☑	No ☐			
Sufficient sample volume for indicated test?	Yes ☑	No ☐			
All samples received within holding time?	Yes ☑	No ☐			
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	**2.5** °C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑		
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐	LOT # 13171	
	Adjusted? NO		Checked by R 1A -		
Water - ph>9 (S) or ph>10 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑	LOT #	
	Adjusted?		Checked by		

Any No response must be detailed in the comments section below.

Client contacted: Date contacted: Person contacted

Contacted by: Regarding:

Comments:

Corrective Action:

Page 1 of 1

Laboratory Name: DHL Analytical, Inc.

Laboratory Review Checklist: Reportable Data

Project Name: 1H21 Coleto Creek GW	**LRC Date:** 7/9/21
Reviewer Name: Carlos Castro	**Laboratory Work Order:** 2106017
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-Custody (C-O-C)**					
		1) Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	**X**				**R1-01**
		2) Were all departures from standard conditions described in an exception report?			**X**		
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	**X**				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	**X**				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	**X**				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	**X**				
		3) Were calculations checked by a peer or supervisor?	**X**				
		4) Were all analyte identifications checked by a peer or supervisor?	**X**				
		5) Were sample detection limits reported for all analytes not detected?	**X**				
		6) Were all results for soil and sediment samples reported on a dry weight basis?			**X**		
		7) Were % moisture (or solids) reported for all soil and sediment samples?			**X**		
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			**X**		
		9) If required for the project, TICs reported?			**X**		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?			**X**		
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?			**X**		
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	**X**				
		2) Were blanks analyzed at the appropriate frequency?	**X**				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	**X**				
		4) Were blank concentrations < MDL?	**X**				
		5) For analyte(s) detected in a blank sample, was the concentration, unadjusted for sample specific factors, in all associated field samples, **greater** than 10 times the concentration in the blank sample?			**X**		
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	**X**				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	**X**				
		3) Were LCSs analyzed at the required frequency?	**X**				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	**X**				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	**X**				
		6) Was the LCSD RPD within QC limits (if applicable)?	**X**				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	**X**				
		2) Were MS/MSD analyzed at the appropriate frequency?	**X**				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		**X**			**R7-03**
		4) Were MS/MSD RPDs within laboratory QC limits?	**X**				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?	**X**				
		2) Were analytical duplicates analyzed at the appropriate frequency?	**X**				
		3) Were RPDs or relative standard deviations within the laboratory QC limits?	**X**				
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	**X**				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	**X**				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	**X**				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	**X**				
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	**X**				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	**X**				

Laboratory Name: DHL Analytical, Inc.

Laboratory Review Checklist (continued): Supporting Data

Project Name: 1H21 Coleto Creek GW	**LRC Date:** 7/9/21
Reviewer Name: Carlos Castro	**Laboratory Work Order:** 2106017
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	X				
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	X				
		2) Were percent differences for each analyte within the method-required QC limits?	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	X				
		2) Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?	X				
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?		X			**S9-01**
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	X				
		2) Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	X				

---

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5,
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - c) The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) The amount of analyte measured in the duplicate,
  - b) The calculated RPD, and
  - c) The laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
- R10 Other problems or anomalies.

The Exception Report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory is not accredited under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on February 23-26, 2021. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Name: John DuPont
Official Title: General Manager

Signature

07/09/21
Date

Name: Dr. Derhsing Luu
Official Title: Technical Director

CLIENT: Golder
Project: 1H21 Coleto Creek GW
Lab Order: 2106017

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Method SW6020B - Metals Analysis
Method SW7470A - Mercury Analysis
Method E300 - Anions Analysis
Method M2540C - TDS Analysis
Sub-contract - Radium-228 and Radium-226 analyses by methods E904 and SM 7500 Ra B M. Analyzed at Pace Analytical.

Exception Report R1-01

The samples were received and log-in performed on 6/3/21. A total of 3 samples were received. The samples arrived in good condition and were properly packaged.

Exception Report R7-03

For Metals analysis performed on 6/7/21 the matrix spike and matrix spike duplicate recoveries were below control limits for Calcium. These are flagged accordingly in the QC summary report. The sample selected for the matrix spike and matrix spike duplicate was not from this work order. The LCS was within control limits for this analyte. No further corrective actions were taken.

For Anions analysis performed on 6/3/21 the matrix spike and matrix spike duplicate recoveries were below control limits for Sulfate. These are flagged accordingly. The sample selected for the matrix spike and matrix spike duplicate was not from this work order. The LCS was within control limits for this analyte. No further corrective actions were taken.

Exception Report S9-01

For Metals analysis performed on 6/7/21 the PDS recovery was out of control limits for Calcium. This is flagged accordingly in the QC summary report. The serial dilution was within control limits for this analyte. No further corrective actions were taken.

DHL Analytical, Inc.

Date: *09-Jul-21*

CLIENT: Golder
Project: 1H21 Coleto Creek GW
Lab Order: 2106017

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
2106017-01	BV-5		06/02/21 09:13 AM	6/3/2021
2106017-02	MW-4		06/02/21 10:30 AM	6/3/2021
2106017-03	BV-21		06/02/21 11:25 AM	6/3/2021

DHL Analytical, Inc. *09-Jul-21*

Lab Order: 2106017
Client: Golder
Project: 1H21 Coleto Creek GW

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
2106017-01A	BV-5	06/02/21 09:13 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/04/21 08:33 AM	100822
	BV-5	06/02/21 09:13 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/04/21 08:33 AM	100822
	BV-5	06/02/21 09:13 AM	Aqueous	SW7470A	Mercury Aq Prep	06/08/21 02:43 PM	100857
2106017-01B	BV-5	06/02/21 09:13 AM	Aqueous	E300	Anion Preparation	06/03/21 09:00 AM	100816
	BV-5	06/02/21 09:13 AM	Aqueous	E300	Anion Preparation	06/03/21 09:00 AM	100816
	BV-5	06/02/21 09:13 AM	Aqueous	M2540C	TDS Preparation	06/04/21 01:46 PM	100830
2106017-02A	MW-4	06/02/21 10:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/04/21 08:33 AM	100822
	MW-4	06/02/21 10:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/04/21 08:33 AM	100822
	MW-4	06/02/21 10:30 AM	Aqueous	SW7470A	Mercury Aq Prep	06/08/21 02:43 PM	100857
2106017-02B	MW-4	06/02/21 10:30 AM	Aqueous	E300	Anion Preparation	06/03/21 09:00 AM	100816
	MW-4	06/02/21 10:30 AM	Aqueous	E300	Anion Preparation	06/03/21 09:00 AM	100816
	MW-4	06/02/21 10:30 AM	Aqueous	M2540C	TDS Preparation	06/04/21 01:46 PM	100830
2106017-03A	BV-21	06/02/21 11:25 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/04/21 08:33 AM	100822
	BV-21	06/02/21 11:25 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/04/21 08:33 AM	100822
	BV-21	06/02/21 11:25 AM	Aqueous	SW7470A	Mercury Aq Prep	06/08/21 02:43 PM	100857
2106017-03B	BV-21	06/02/21 11:25 AM	Aqueous	E300	Anion Preparation	06/03/21 09:00 AM	100816
	BV-21	06/02/21 11:25 AM	Aqueous	M2540C	TDS Preparation	06/04/21 01:46 PM	100830

Lab Order: 2106017
Client: Golder
Project: 1H21 Coleto Creek GW

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
2106017-01A	BV-5	Aqueous	SW7470A	Mercury Total: Aqueous	100857	1	06/09/21 03:20 PM	CETAC2_HG_210609B
	BV-5	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	100822	10	06/07/21 02:36 PM	ICP-MS4_210607B
	BV-5	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	100822	1	06/07/21 12:31 PM	ICP-MS5_210607B
2106017-01B	BV-5	Aqueous	E300	Anions by IC method - Water	100816	10	06/03/21 03:43 PM	IC2_210603A
	BV-5	Aqueous	E300	Anions by IC method - Water	100816	1	06/03/21 04:31 PM	IC2_210603A
	BV-5	Aqueous	M2540C	Total Dissolved Solids	100830	1	06/04/21 05:00 PM	WC_210604A
2106017-02A	MW-4	Aqueous	SW7470A	Mercury Total: Aqueous	100857	1	06/09/21 03:22 PM	CETAC2_HG_210609B
	MW-4	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	100822	1	06/07/21 12:34 PM	ICP-MS5_210607B
	MW-4	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	100822	5	06/07/21 02:38 PM	ICP-MS4_210607B
2106017-02B	MW-4	Aqueous	E300	Anions by IC method - Water	100816	1	06/03/21 04:47 PM	IC2_210603A
	MW-4	Aqueous	E300	Anions by IC method - Water	100816	10	06/03/21 03:59 PM	IC2_210603A
	MW-4	Aqueous	M2540C	Total Dissolved Solids	100830	1	06/04/21 05:00 PM	WC_210604A
2106017-03A	BV-21	Aqueous	SW7470A	Mercury Total: Aqueous	100857	1	06/09/21 03:24 PM	CETAC2_HG_210609B
	BV-21	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	100822	5	06/07/21 02:40 PM	ICP-MS4_210607B
	BV-21	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	100822	1	06/07/21 12:36 PM	ICP-MS5_210607B
2106017-03B	BV-21	Aqueous	E300	Anions by IC method - Water	100816	1	06/03/21 05:03 PM	IC2_210603A
	BV-21	Aqueous	M2540C	Total Dissolved Solids	100830	1	06/04/21 05:00 PM	WC_210604A

DHL Analytical, Inc.

Date: *09-Jul-21*

CLIENT: Golder
Project: 1H21 Coleto Creek GW
Project No: 19122262-82021
Lab Order: 2106017

Client Sample ID: BV-5
Lab ID: 2106017-01
Collection Date: 06/02/21 09:13 AM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020B**					Analyst: **SP**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/07/21 12:31 PM
Arsenic	0.00882	0.00200	0.00500		mg/L	1	06/07/21 12:31 PM
Barium	0.0530	0.00300	0.0100		mg/L	1	06/07/21 12:31 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	06/07/21 12:31 PM
Boron	1.35	0.100	0.300		mg/L	10	06/07/21 02:36 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	06/07/21 12:31 PM
Calcium	108	1.00	3.00		mg/L	10	06/07/21 02:36 PM
Chromium	0.00262	0.00200	0.00500	J	mg/L	1	06/07/21 12:31 PM
Cobalt	0.0437	0.00300	0.00500		mg/L	1	06/07/21 12:31 PM
Lead	0.000588	0.000300	0.00100	J	mg/L	1	06/07/21 12:31 PM
Lithium	0.0239	0.00500	0.0100		mg/L	1	06/07/21 12:31 PM
Molybdenum	0.00768	0.00200	0.00500		mg/L	1	06/07/21 12:31 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	06/07/21 12:31 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	06/07/21 12:31 PM
MERCURY TOTAL: AQUEOUS		**SW7470A**					Analyst: **JVR**
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	06/09/21 03:20 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **SNM**
Chloride	201	3.00	10.0		mg/L	10	06/03/21 03:43 PM
Fluoride	0.699	0.100	0.400		mg/L	1	06/03/21 04:31 PM
Sulfate	190	10.0	30.0		mg/L	10	06/03/21 03:43 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	1110	50.0	50.0		mg/L	1	06/04/21 05:00 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAP certified
See Final Page of Report for MQLs and MDLs

S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	Golder	**Client Sample ID:**	MW-4
Project:	1H21 Coleto Creek GW	**Lab ID:**	2106017-02
Project No:	19122262-82021	**Collection Date:**	06/02/21 10:30 AM
Lab Order:	2106017	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020B**					Analyst: **SP**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/07/21 12:34 PM
Arsenic	0.00808	0.00200	0.00500		mg/L	1	06/07/21 12:34 PM
Barium	0.0582	0.00300	0.0100		mg/L	1	06/07/21 12:34 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	06/07/21 12:34 PM
Boron	0.330	0.0500	0.150		mg/L	5	06/07/21 02:38 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	06/07/21 12:34 PM
Calcium	94.1	0.500	1.50		mg/L	5	06/07/21 02:38 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	06/07/21 12:34 PM
Cobalt	0.00934	0.00300	0.00500		mg/L	1	06/07/21 12:34 PM
Lead	0.000418	0.000300	0.00100	J	mg/L	1	06/07/21 12:34 PM
Lithium	0.0176	0.00500	0.0100		mg/L	1	06/07/21 12:34 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	06/07/21 12:34 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	06/07/21 12:34 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	06/07/21 12:34 PM
MERCURY TOTAL: AQUEOUS		**SW7470A**					Analyst: **JVR**
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	06/09/21 03:22 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **SNM**
Chloride	98.3	3.00	10.0		mg/L	10	06/03/21 03:59 PM
Fluoride	0.769	0.100	0.400		mg/L	1	06/03/21 04:47 PM
Sulfate	153	10.0	30.0		mg/L	10	06/03/21 03:59 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	727	10.0	10.0		mg/L	1	06/04/21 05:00 PM

Qualifiers:

ND - Not Detected at the SDL	S - Spike Recovery outside control limits
J - Analyte detected between SDL and RL	C - Sample Result or QC discussed in Case Narrative
B - Analyte detected in the associated Method Blank	RL - Reporting Limit (MQL adjusted for moisture and sample size)
DF- Dilution Factor	SDL - Sample Detection Limit
N - Parameter not NELAP certified	E - TPH pattern not Gas or Diesel Range Pattern
See Final Page of Report for MQLs and MDLs	

DHL Analytical, Inc.

Date: *09-Jul-21*

CLIENT:	Golder	**Client Sample ID:**	BV-21
Project:	1H21 Coleto Creek GW	**Lab ID:**	2106017-03
Project No:	19122262-82021	**Collection Date:**	06/02/21 11:25 AM
Lab Order:	2106017	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020B**					Analyst: **SP**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/07/21 12:36 PM
Arsenic	0.0663	0.00200	0.00500		mg/L	1	06/07/21 12:36 PM
Barium	0.176	0.00300	0.0100		mg/L	1	06/07/21 12:36 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	06/07/21 12:36 PM
Boron	0.399	0.0500	0.150		mg/L	5	06/07/21 02:40 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	06/07/21 12:36 PM
Calcium	79.8	0.500	1.50		mg/L	5	06/07/21 02:40 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	06/07/21 12:36 PM
Cobalt	0.00441	0.00300	0.00500	J	mg/L	1	06/07/21 12:36 PM
Lead	0.000336	0.000300	0.00100	J	mg/L	1	06/07/21 12:36 PM
Lithium	0.00532	0.00500	0.0100	J	mg/L	1	06/07/21 12:36 PM
Molybdenum	0.00547	0.00200	0.00500		mg/L	1	06/07/21 12:36 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	06/07/21 12:36 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	06/07/21 12:36 PM
MERCURY TOTAL: AQUEOUS		**SW7470A**					Analyst: **JVR**
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	06/09/21 03:24 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **SNM**
Chloride	49.5	0.300	1.00		mg/L	1	06/03/21 05:03 PM
Fluoride	0.705	0.100	0.400		mg/L	1	06/03/21 05:03 PM
Sulfate	32.9	1.00	3.00		mg/L	1	06/03/21 05:03 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	404	10.0	10.0		mg/L	1	06/04/21 05:00 PM

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAP certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

CLIENT: Golder
Work Order: 2106017
Project: 1H21 Coleto Creek GW

ANALYTICAL QC SUMMARY REPORT

RunID: **CETAC2_HG_210511A**

Sample ID: **DCS-100518** Batch ID: **100518** TestNo: **SW7470A** Units: **mg/L**
SampType: **DCS** Run ID: **CETAC2_HG_210511A** Analysis Date: **5/11/2021 1:32:27 PM** Prep Date: **5/10/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.000165	0.000200	0.000200	0	82.5	82	119	0	0	

Qualifiers:				
	B	Analyte detected in the associated Method Blank	DF	Dilution Factor
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
	RL	Reporting Limit	S	Spike Recovery outside control limits
	J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106017
Project: 1H21 Coleto Creek GW

ANALYTICAL QC SUMMARY REPORT

RunID: **CETAC2_HG_210609B**

The QC data in batch 100857 applies to the following samples: 2106017-01A, 2106017-02A, 2106017-03A

Sample ID: **MB-100857** Batch ID: **100857** TestNo: **SW7470A** Units: **mg/L**
SampType: **MBLK** Run ID: **CETAC2_HG_210609B** Analysis Date: **6/9/2021 3:09:04 PM** Prep Date: **6/8/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.0000800	0.000200								

Sample ID: **LCS-100857** Batch ID: **100857** TestNo: **SW7470A** Units: **mg/L**
SampType: **LCS** Run ID: **CETAC2_HG_210609B** Analysis Date: **6/9/2021 3:13:36 PM** Prep Date: **6/8/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00207	0.000200	0.00200	0	104	85	115			

Sample ID: **LCSD-100857** Batch ID: **100857** TestNo: **SW7470A** Units: **mg/L**
SampType: **LCSD** Run ID: **CETAC2_HG_210609B** Analysis Date: **6/9/2021 3:15:52 PM** Prep Date: **6/8/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00205	0.000200	0.00200	0	103	85	115	0.971	15	

Sample ID: **2106029-02C MS** Batch ID: **100857** TestNo: **SW7470A** Units: **mg/L**
SampType: **MS** Run ID: **CETAC2_HG_210609B** Analysis Date: **6/9/2021 3:31:44 PM** Prep Date: **6/8/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0103	0.00100	0.0100	0	103	80	120			

Sample ID: **2106029-02C MSD** Batch ID: **100857** TestNo: **SW7470A** Units: **mg/L**
SampType: **MSD** Run ID: **CETAC2_HG_210609B** Analysis Date: **6/9/2021 3:33:59 PM** Prep Date: **6/8/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0103	0.00100	0.0100	0	103	80	120	0	15	

Sample ID: **2106029-02C SD** Batch ID: **100857** TestNo: **SW7470A** Units: **mg/L**
SampType: **SD** Run ID: **CETAC2_HG_210609B** Analysis Date: **6/9/2021 3:36:15 PM** Prep Date: **6/8/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.00200	0.00500	0	0				0	10	

Sample ID: **2106029-02C PDS** Batch ID: **100857** TestNo: **SW7470A** Units: **mg/L**
SampType: **PDS** Run ID: **CETAC2_HG_210609B** Analysis Date: **6/9/2021 3:38:31 PM** Prep Date: **6/8/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0122	0.00100	0.0125	0	98.0	85	115			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106017
Project: 1H21 Coleto Creek GW

ANALYTICAL QC SUMMARY REPORT

RunID: **CETAC2_HG_210609B**

Sample ID: **ICV-210609** Batch ID: **R115747** TestNo: **SW7470A** Units: **mg/L**
SampType: **ICV** Run ID: **CETAC2_HG_210609B** Analysis Date: **6/9/2021 3:04:30 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00412	0.000200	0.00400	0	103	90	110			

Sample ID: **CCV1-210609** Batch ID: **R115747** TestNo: **SW7470A** Units: **mg/L**
SampType: **CCV** Run ID: **CETAC2_HG_210609B** Analysis Date: **6/9/2021 4:00:43 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00200	0.000200	0.00200	0	100	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

Sample ID: **DCS2-100323** Batch ID: **100323** TestNo: **SW6020B** Units: **mg/L**
SampType: **DCS2** Run ID: **ICP-MS4_210428A** Analysis Date: **4/28/2021 10:34:00 AM** Prep Date: **4/27/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.302	0.300	0.300	0	101	70	130	0	0	

Sample ID: **DCS4-100323** Batch ID: **100323** TestNo: **SW6020B** Units: **mg/L**
SampType: **DCS4** Run ID: **ICP-MS4_210428A** Analysis Date: **4/28/2021 10:39:00 AM** Prep Date: **4/27/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0310	0.0300	0.0300	0	103	70	130	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106017
Project: 1H21 Coleto Creek GW

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_210607B**

The QC data in batch 100822 applies to the following samples: 2106017-01A, 2106017-02A, 2106017-03A

Sample ID: **MB-100822** Batch ID: **100822** TestNo: **SW6020B** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS4_210607B** Analysis Date: **6/7/2021 2:24:00 PM** Prep Date: **6/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	<0.0100	0.0300								

Sample ID: **LCS-100822** Batch ID: **100822** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS4_210607B** Analysis Date: **6/7/2021 2:26:00 PM** Prep Date: **6/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.194	0.0300	0.200	0	97.1	80	120			

Sample ID: **LCSD-100822** Batch ID: **100822** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS4_210607B** Analysis Date: **6/7/2021 2:28:00 PM** Prep Date: **6/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.197	0.0300	0.200	0	98.4	80	120	1.33	15	

Sample ID: **2106021-01C SD** Batch ID: **100822** TestNo: **SW6020B** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS4_210607B** Analysis Date: **6/7/2021 2:34:00 PM** Prep Date: **6/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	<1.00	3.00	0	0.588				0	20	

Sample ID: **2106021-01C PDS** Batch ID: **100822** TestNo: **SW6020B** Units: **mg/L**
SampType: **PDS** Run ID: **ICP-MS4_210607B** Analysis Date: **6/7/2021 2:44:00 PM** Prep Date: **6/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	4.50	0.600	4.00	0.588	97.8	75	125			

Sample ID: **2106021-01C MS** Batch ID: **100822** TestNo: **SW6020B** Units: **mg/L**
SampType: **MS** Run ID: **ICP-MS4_210607B** Analysis Date: **6/7/2021 2:46:00 PM** Prep Date: **6/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.801	0.600	0.200	0.588	106	75	125			

Sample ID: **2106021-01C MSD** Batch ID: **100822** TestNo: **SW6020B** Units: **mg/L**
SampType: **MSD** Run ID: **ICP-MS4_210607B** Analysis Date: **6/7/2021 2:48:00 PM** Prep Date: **6/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.824	0.600	0.200	0.588	118	75	125	2.82	15	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106017
Project: 1H21 Coleto Creek GW

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_210607B**

Sample ID: **ICV-210607** Batch ID: **R115717** TestNo: **SW6020B** Units: **mg/L**
SampType: **ICV** Run ID: **ICP-MS4_210607B** Analysis Date: **6/7/2021 11:31:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.103	0.0300	0.100	0	103	90	110			
Calcium	2.34	0.300	2.50	0	93.7	90	110			

Sample ID: **LCVL-210607** Batch ID: **R115717** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS4_210607B** Analysis Date: **6/7/2021 11:40:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0227	0.0300	0.0200	0	114	80	120			
Calcium	0.0970	0.300	0.100	0	97.0	80	120			

Sample ID: **CCV1-210607** Batch ID: **R115717** TestNo: **SW6020B** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS4_210607B** Analysis Date: **6/7/2021 12:23:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.202	0.0300	0.200	0	101	90	110			
Calcium	4.85	0.300	5.00	0	97.1	90	110			

Sample ID: **CCV2-210607** Batch ID: **R115717** TestNo: **SW6020B** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS4_210607B** Analysis Date: **6/7/2021 2:50:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.197	0.0300	0.200	0	98.3	90	110			
Calcium	4.73	0.300	5.00	0	94.6	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106017
Project: 1H21 Coleto Creek GW

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS5_210428A**

Sample ID: **DCS1-100323** Batch ID: **100323** TestNo: **SW6020B** Units: **mg/L**
SampType: **DCS** Run ID: **ICP-MS5_210428A** Analysis Date: **4/28/2021 10:49:00 AM** Prep Date: **4/27/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00105	0.00250	0.00100	0	105	70	130	0	0	
Beryllium	0.000505	0.00100	0.000500	0	101	70	130	0	0	
Cadmium	0.000461	0.00100	0.000500	0	92.2	70	130	0	0	
Lead	0.000474	0.00100	0.000500	0	94.8	70	130	0	0	
Thallium	0.000452	0.00150	0.000500	0	90.4	70	130	0	0	

Sample ID: **DCS2-100323** Batch ID: **100323** TestNo: **SW6020B** Units: **mg/L**
SampType: **DCS2** Run ID: **ICP-MS5_210428A** Analysis Date: **4/28/2021 10:53:00 AM** Prep Date: **4/27/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.302	0.300	0.300	0	101	70	130	0	0	

Sample ID: **DCS3-100323** Batch ID: **100323** TestNo: **SW6020B** Units: **mg/L**
SampType: **DCS3** Run ID: **ICP-MS5_210428A** Analysis Date: **4/28/2021 10:56:00 AM** Prep Date: **4/27/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00467	0.00500	0.00500	0	93.3	70	130	0	0	
Barium	0.00472	0.0100	0.00500	0	94.4	70	130	0	0	
Chromium	0.00490	0.00500	0.00500	0	97.9	70	130	0	0	
Cobalt	0.00473	0.00500	0.00500	0	94.5	70	130	0	0	
Lithium	0.00495	0.0100	0.00500	0	99.0	70	130	0	0	
Molybdenum	0.00482	0.00500	0.00500	0	96.4	70	130	0	0	
Selenium	0.00498	0.00500	0.00500	0	99.5	70	130	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106017
Project: 1H21 Coleto Creek GW

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS5_210607B**

The QC data in batch 100822 applies to the following samples: 2106017-01A, 2106017-02A, 2106017-03A

Sample ID: **MB-100822** Batch ID: **100822** TestNo: **SW6020B** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS5_210607B** Analysis Date: **6/7/2021 12:14:00 PM** Prep Date: **6/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Barium	<0.00300	0.0100								
Beryllium	<0.000300	0.00100								
Cadmium	<0.000300	0.00100								
Calcium	<0.100	0.300								
Chromium	<0.00200	0.00500								
Cobalt	<0.00300	0.00500								
Lead	<0.000300	0.00100								
Lithium	<0.00500	0.0100								
Molybdenum	<0.00200	0.00500								
Selenium	<0.00200	0.00500								
Thallium	<0.000500	0.00150								

Sample ID: **LCS-100822** Batch ID: **100822** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS5_210607B** Analysis Date: **6/7/2021 12:18:00 PM** Prep Date: **6/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.196	0.00250	0.200	0	98.2	80	120			
Arsenic	0.198	0.00500	0.200	0	98.9	80	120			
Barium	0.195	0.0100	0.200	0	97.6	80	120			
Beryllium	0.188	0.00100	0.200	0	94.1	80	120			
Cadmium	0.197	0.00100	0.200	0	98.5	80	120			
Calcium	4.80	0.300	5.00	0	95.9	80	120			
Chromium	0.198	0.00500	0.200	0	98.8	80	120			
Cobalt	0.196	0.00500	0.200	0	98.2	80	120			
Lead	0.190	0.00100	0.200	0	94.8	80	120			
Lithium	0.195	0.0100	0.200	0	97.7	80	120			
Molybdenum	0.197	0.00500	0.200	0	98.7	80	120			
Selenium	0.198	0.00500	0.200	0	98.8	80	120			
Thallium	0.189	0.00150	0.200	0	94.6	80	120			

Sample ID: **LCSD-100822** Batch ID: **100822** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS5_210607B** Analysis Date: **6/7/2021 12:21:00 PM** Prep Date: **6/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.196	0.00250	0.200	0	98.2	80	120	0.084	15	
Arsenic	0.198	0.00500	0.200	0	99.1	80	120	0.194	15	
Barium	0.198	0.0100	0.200	0	99.2	80	120	1.65	15	
Beryllium	0.185	0.00100	0.200	0	92.5	80	120	1.76	15	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106017
Project: 1H21 Coleto Creek GW

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS5_210607B**

Sample ID: **LCSD-100822** Batch ID: **100822** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS5_210607B** Analysis Date: **6/7/2021 12:21:00 PM** Prep Date: **6/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.198	0.00100	0.200	0	98.9	80	120	0.413	15	
Calcium	4.83	0.300	5.00	0	96.5	80	120	0.589	15	
Chromium	0.201	0.00500	0.200	0	100	80	120	1.58	15	
Cobalt	0.196	0.00500	0.200	0	97.9	80	120	0.312	15	
Lead	0.191	0.00100	0.200	0	95.7	80	120	0.971	15	
Lithium	0.191	0.0100	0.200	0	95.6	80	120	2.20	15	
Molybdenum	0.200	0.00500	0.200	0	99.9	80	120	1.19	15	
Selenium	0.197	0.00500	0.200	0	98.6	80	120	0.232	15	
Thallium	0.192	0.00150	0.200	0	95.8	80	120	1.28	15	

Sample ID: **2106021-01C SD** Batch ID: **100822** TestNo: **SW6020B** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS5_210607B** Analysis Date: **6/7/2021 12:29:00 PM** Prep Date: **6/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.00400	0.0125	0	0.00114				0	20	
Arsenic	0.0201	0.0250	0	0.0196				2.49	20	
Barium	0.0232	0.0500	0	0.0235				1.52	20	
Beryllium	<0.00150	0.00500	0	0.00180				0	20	
Cadmium	<0.00150	0.00500	0	0.000981				0	20	
Calcium	136	1.50	0	130				4.53	20	
Chromium	<0.0100	0.0250	0	0				0	20	
Cobalt	<0.0150	0.0250	0	0				0	20	
Lead	<0.00150	0.00500	0	0.000950				0	20	
Lithium	0.212	0.0500	0	0.196				8.13	20	
Molybdenum	0.0125	0.0250	0	0.0123				1.97	20	
Selenium	<0.0100	0.0250	0	0.00912				0	20	
Thallium	<0.00250	0.00750	0	0.00106				0	20	

Sample ID: **2106021-01C PDS** Batch ID: **100822** TestNo: **SW6020B** Units: **mg/L**
SampType: **PDS** Run ID: **ICP-MS5_210607B** Analysis Date: **6/7/2021 12:41:00 PM** Prep Date: **6/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.197	0.00250	0.200	0.00114	97.8	75	125			
Arsenic	0.204	0.00500	0.200	0.0196	92.0	75	125			
Barium	0.225	0.0100	0.200	0.0235	101	75	125			
Beryllium	0.182	0.00100	0.200	0.00180	89.9	75	125			
Cadmium	0.196	0.00100	0.200	0.000981	97.8	75	125			
Calcium	127	0.300	5.00	130	-53.6	75	125			S
Chromium	0.204	0.00500	0.200	0	102	75	125			
Cobalt	0.188	0.00500	0.200	0	94.2	75	125			
Lead	0.197	0.00100	0.200	0.000950	97.9	75	125			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106017
Project: 1H21 Coleto Creek GW

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS5_210607B**

Sample ID: **2106021-01C PDS** Batch ID: **100822** TestNo: **SW6020B** Units: **mg/L**
SampType: **PDS** Run ID: **ICP-MS5_210607B** Analysis Date: **6/7/2021 12:41:00 PM** Prep Date: **6/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lithium	0.376	0.0100	0.200	0.196	89.9	75	125			
Molybdenum	0.213	0.00500	0.200	0.0123	100	75	125			
Selenium	0.213	0.00500	0.200	0.00912	102	75	125			
Thallium	0.195	0.00150	0.200	0.00106	96.8	75	125			

Sample ID: **2106021-01C MS** Batch ID: **100822** TestNo: **SW6020B** Units: **mg/L**
SampType: **MS** Run ID: **ICP-MS5_210607B** Analysis Date: **6/7/2021 12:44:00 PM** Prep Date: **6/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.198	0.00250	0.200	0.00114	98.6	75	125			
Arsenic	0.206	0.00500	0.200	0.0196	93.4	75	125			
Barium	0.222	0.0100	0.200	0.0235	99.1	75	125			
Beryllium	0.179	0.00100	0.200	0.00180	88.7	75	125			
Cadmium	0.194	0.00100	0.200	0.000981	96.3	75	125			
Calcium	132	0.300	5.00	130	44.4	75	125			S
Chromium	0.198	0.00500	0.200	0	99.0	75	125			
Cobalt	0.184	0.00500	0.200	0	91.9	75	125			
Lead	0.194	0.00100	0.200	0.000950	96.4	75	125			
Lithium	0.387	0.0100	0.200	0.196	95.6	75	125			
Molybdenum	0.215	0.00500	0.200	0.0123	101	75	125			
Selenium	0.212	0.00500	0.200	0.00912	101	75	125			
Thallium	0.195	0.00150	0.200	0.00106	96.9	75	125			

Sample ID: **2106021-01C MSD** Batch ID: **100822** TestNo: **SW6020B** Units: **mg/L**
SampType: **MSD** Run ID: **ICP-MS5_210607B** Analysis Date: **6/7/2021 12:47:00 PM** Prep Date: **6/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.195	0.00250	0.200	0.00114	97.0	75	125	1.54	15	
Arsenic	0.203	0.00500	0.200	0.0196	91.7	75	125	1.61	15	
Barium	0.217	0.0100	0.200	0.0235	96.6	75	125	2.27	15	
Beryllium	0.179	0.00100	0.200	0.00180	88.5	75	125	0.248	15	
Cadmium	0.190	0.00100	0.200	0.000981	94.7	75	125	1.74	15	
Calcium	130	0.300	5.00	130	2.49	75	125	1.60	15	S
Chromium	0.195	0.00500	0.200	0	97.4	75	125	1.68	15	
Cobalt	0.180	0.00500	0.200	0	90.0	75	125	2.15	15	
Lead	0.191	0.00100	0.200	0.000950	95.1	75	125	1.33	15	
Lithium	0.387	0.0100	0.200	0.196	95.9	75	125	0.113	15	
Molybdenum	0.212	0.00500	0.200	0.0123	99.9	75	125	1.41	15	
Selenium	0.211	0.00500	0.200	0.00912	101	75	125	0.488	15	
Thallium	0.193	0.00150	0.200	0.00106	95.8	75	125	1.18	15	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106017
Project: 1H21 Coleto Creek GW

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS5_210607B**

Sample ID: **ICV-210607** Batch ID: **R115706** TestNo: **SW6020B** Units: **mg/L**
SampType: **ICV** Run ID: **ICP-MS5_210607B** Analysis Date: **6/7/2021 10:35:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0982	0.00250	0.100	0	98.2	90	110			
Arsenic	0.0968	0.00500	0.100	0	96.8	90	110			
Barium	0.0980	0.0100	0.100	0	98.0	90	110			
Beryllium	0.0936	0.00100	0.100	0	93.6	90	110			
Cadmium	0.0995	0.00100	0.100	0	99.5	90	110			
Calcium	2.39	0.300	2.50	0	95.7	90	110			
Chromium	0.102	0.00500	0.100	0	102	90	110			
Cobalt	0.0974	0.00500	0.100	0	97.4	90	110			
Lead	0.0973	0.00100	0.100	0	97.3	90	110			
Lithium	0.0951	0.0100	0.100	0	95.1	90	110			
Molybdenum	0.0966	0.00500	0.100	0	96.6	90	110			
Selenium	0.0973	0.00500	0.100	0	97.3	90	110			
Thallium	0.0961	0.00150	0.100	0	96.1	90	110			

Sample ID: **LCVL-210607** Batch ID: **R115706** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS5_210607B** Analysis Date: **6/7/2021 10:40:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00195	0.00250	0.00200	0	97.3	80	120			
Arsenic	0.00471	0.00500	0.00500	0	94.2	80	120			
Barium	0.00523	0.0100	0.00500	0	105	80	120			
Beryllium	0.00101	0.00100	0.00100	0	101	80	120			
Cadmium	0.00103	0.00100	0.00100	0	103	80	120			
Calcium	0.0969	0.300	0.100	0	96.9	80	120			
Chromium	0.00510	0.00500	0.00500	0	102	80	120			
Cobalt	0.00477	0.00500	0.00500	0	95.4	80	120			
Lead	0.00102	0.00100	0.00100	0	102	80	120			
Lithium	0.00978	0.0100	0.0100	0	97.8	80	120			
Molybdenum	0.00517	0.00500	0.00500	0	103	80	120			
Selenium	0.00492	0.00500	0.00500	0	98.5	80	120			
Thallium	0.000981	0.00150	0.00100	0	98.1	80	120			

Sample ID: **CCV2-210607** Batch ID: **R115706** TestNo: **SW6020B** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS5_210607B** Analysis Date: **6/7/2021 11:58:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.194	0.00250	0.200	0	97.2	90	110			
Arsenic	0.198	0.00500	0.200	0	99.0	90	110			
Barium	0.196	0.0100	0.200	0	97.8	90	110			
Beryllium	0.185	0.00100	0.200	0	92.4	90	110			
Cadmium	0.197	0.00100	0.200	0	98.3	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

ANALYTICAL QC SUMMARY REPORT

Sample ID: **CCV2-210607** Batch ID: **R115706** TestNo: **SW6020B** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS5_210607B** Analysis Date: **6/7/2021 11:58:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	5.28	0.300	5.00	0	106	90	110			
Chromium	0.198	0.00500	0.200	0	98.9	90	110			
Cobalt	0.196	0.00500	0.200	0	97.9	90	110			
Lead	0.193	0.00100	0.200	0	96.7	90	110			
Lithium	0.188	0.0100	0.200	0	93.9	90	110			
Molybdenum	0.197	0.00500	0.200	0	98.5	90	110			
Selenium	0.200	0.00500	0.200	0	100	90	110			
Thallium	0.190	0.00150	0.200	0	94.8	90	110			

Sample ID: **CCV3-210607** Batch ID: **R115706** TestNo: **SW6020B** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS5_210607B** Analysis Date: **6/7/2021 12:49:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.199	0.00250	0.200	0	99.5	90	110			
Arsenic	0.200	0.00500	0.200	0	99.9	90	110			
Barium	0.201	0.0100	0.200	0	100	90	110			
Beryllium	0.190	0.00100	0.200	0	94.8	90	110			
Cadmium	0.201	0.00100	0.200	0	101	90	110			
Calcium	5.49	0.300	5.00	0	110	90	110			
Chromium	0.203	0.00500	0.200	0	102	90	110			
Cobalt	0.200	0.00500	0.200	0	99.8	90	110			
Lead	0.197	0.00100	0.200	0	98.4	90	110			
Lithium	0.198	0.0100	0.200	0	99.2	90	110			
Molybdenum	0.204	0.00500	0.200	0	102	90	110			
Selenium	0.200	0.00500	0.200	0	99.8	90	110			
Thallium	0.195	0.00150	0.200	0	97.4	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

ANALYTICAL QC SUMMARY REPORT

RunID: **IC2_210527A**

Sample ID: **DCS3-100738** Batch ID: **100738** TestNo: **E300** Units: **mg/L**
SampType: **DCS3** Run ID: **IC2_210527A** Analysis Date: **5/27/2021 4:13:05 PM** Prep Date: **5/27/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	1.25	1.00	1.000	0	125	70	130	0	0	
Fluoride	0.408	0.400	0.4000	0	102	70	130	0	0	
Sulfate	3.03	3.00	3.000	0	101	70	130	0	0	

CLIENT: Golder
Work Order: 2106017
Project: 1H21 Coleto Creek GW

ANALYTICAL QC SUMMARY REPORT

RunID: **IC2_210603A**

The QC data in batch 100816 applies to the following samples: 2106017-01B, 2106017-02B, 2106017-03B

Sample ID: **MB-100816** Batch ID: **100816** TestNo: **E300** Units: **mg/L**
SampType: **MBLK** Run ID: **IC2_210603A** Analysis Date: **6/3/2021 11:47:09 AM** Prep Date: **6/3/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	<0.300	1.00								
Fluoride	<0.100	0.400								
Sulfate	<1.00	3.00								

Sample ID: **LCS-100816** Batch ID: **100816** TestNo: **E300** Units: **mg/L**
SampType: **LCS** Run ID: **IC2_210603A** Analysis Date: **6/3/2021 12:03:09 PM** Prep Date: **6/3/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.51	1.00	10.00	0	95.1	90	110			
Fluoride	3.80	0.400	4.000	0	95.0	90	110			
Sulfate	29.5	3.00	30.00	0	98.2	90	110			

Sample ID: **LCSD-100816** Batch ID: **100816** TestNo: **E300** Units: **mg/L**
SampType: **LCSD** Run ID: **IC2_210603A** Analysis Date: **6/3/2021 12:19:09 PM** Prep Date: **6/3/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.54	1.00	10.00	0	95.4	90	110	0.304	20	
Fluoride	3.82	0.400	4.000	0	95.4	90	110	0.496	20	
Sulfate	29.6	3.00	30.00	0	98.5	90	110	0.320	20	

Sample ID: **2106010-01BMS** Batch ID: **100816** TestNo: **E300** Units: **mg/L**
SampType: **MS** Run ID: **IC2_210603A** Analysis Date: **6/3/2021 2:55:12 PM** Prep Date: **6/3/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	222	10.0	200.0	23.89	98.8	90	110			
Fluoride	216	4.00	200.0	20.91	97.4	90	110			
Sulfate	848	30.0	200.0	690.1	79.1	90	110			S

Sample ID: **2106010-01BMSD** Batch ID: **100816** TestNo: **E300** Units: **mg/L**
SampType: **MSD** Run ID: **IC2_210603A** Analysis Date: **6/3/2021 3:11:11 PM** Prep Date: **6/3/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	222	10.0	200.0	23.89	99.1	90	110	0.264	20	
Fluoride	218	4.00	200.0	20.91	98.3	90	110	0.848	20	
Sulfate	856	30.0	200.0	690.1	82.8	90	110	0.862	20	S

Qualifiers:	B	Analyte detected in the associated Method Blank	DF	Dilution Factor
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
	RL	Reporting Limit	S	Spike Recovery outside control limits
	J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106017
Project: 1H21 Coleto Creek GW

ANALYTICAL QC SUMMARY REPORT

RunID: **IC2_210603A**

Sample ID: **ICV-210603** Batch ID: **R115680** TestNo: **E300** Units: **mg/L**
SampType: **ICV** Run ID: **IC2_210603A** Analysis Date: **6/3/2021 11:15:09 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	25.1	1.00	25.00	0	100	90	110			
Fluoride	9.92	0.400	10.00	0	99.2	90	110			
Sulfate	77.8	3.00	75.00	0	104	90	110			

Sample ID: **CCV1-210603** Batch ID: **R115680** TestNo: **E300** Units: **mg/L**
SampType: **CCV** Run ID: **IC2_210603A** Analysis Date: **6/3/2021 6:07:11 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.67	1.00	10.00	0	96.7	90	110			
Fluoride	3.91	0.400	4.000	0	97.8	90	110			
Sulfate	29.9	3.00	30.00	0	99.8	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106017
Project: 1H21 Coleto Creek GW

ANALYTICAL QC SUMMARY REPORT

RunID: **WC_210604A**

The QC data in batch 100830 applies to the following samples: 2106017-01B, 2106017-02B, 2106017-03B

Sample ID: **MB-100830** Batch ID: **100830** TestNo: **M2540C** Units: **mg/L**
SampType: **MBLK** Run ID: **WC_210604A** Analysis Date: **6/4/2021 5:00:00 PM** Prep Date: **6/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	<10.0	10.0								

Sample ID: **LCS-100830** Batch ID: **100830** TestNo: **M2540C** Units: **mg/L**
SampType: **LCS** Run ID: **WC_210604A** Analysis Date: **6/4/2021 5:00:00 PM** Prep Date: **6/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	751	10.0	745.6	0	101	90	113			

Sample ID: **2106009-01A-DUP** Batch ID: **100830** TestNo: **M2540C** Units: **mg/L**
SampType: **DUP** Run ID: **WC_210604A** Analysis Date: **6/4/2021 5:00:00 PM** Prep Date: **6/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	1110	50.0	0	1115				0.901	5	

Sample ID: **2106009-02A-DUP** Batch ID: **100830** TestNo: **M2540C** Units: **mg/L**
SampType: **DUP** Run ID: **WC_210604A** Analysis Date: **6/4/2021 5:00:00 PM** Prep Date: **6/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	1200	50.0	0	1235				2.87	5	

Qualifiers:	B	Analyte detected in the associated Method Blank	DF	Dilution Factor
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
	RL	Reporting Limit	S	Spike Recovery outside control limits
	J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106017
Project: 1H21 Coleto Creek GW

MQL SUMMARY REPORT

TestNo: E300	**MDL**	**MQL**
Analyte	**mg/L**	**mg/L**
Chloride	0.300	1.00
Fluoride	0.100	0.400
Sulfate	1.00	3.00

TestNo: SW6020B	**MDL**	**MQL**
Analyte	**mg/L**	**mg/L**
Antimony	0.000800	0.00250
Arsenic	0.00200	0.00500
Barium	0.00300	0.0100
Beryllium	0.000300	0.00100
Boron	0.0100	0.0300
Cadmium	0.000300	0.00100
Calcium	0.100	0.300
Chromium	0.00200	0.00500
Cobalt	0.00300	0.00500
Lead	0.000300	0.00100
Lithium	0.00500	0.0100
Molybdenum	0.00200	0.00500
Selenium	0.00200	0.00500
Thallium	0.000500	0.00150

TestNo: SW7470A	**MDL**	**MQL**
Analyte	**mg/L**	**mg/L**
Mercury	0.0000800	0.000200

TestNo: M2540C	**MDL**	**MQL**
Analyte	**mg/L**	**mg/L**
Total Dissolved Solids (Residue, Filt	10.0	10.0

Qualifiers: MQL -Method Quantitation Limit as defined by TRRP
MDL -Method Detection Limit as defined by TRRP

Pace Analytical®

ANALYTICAL REPORT

July 09, 2021

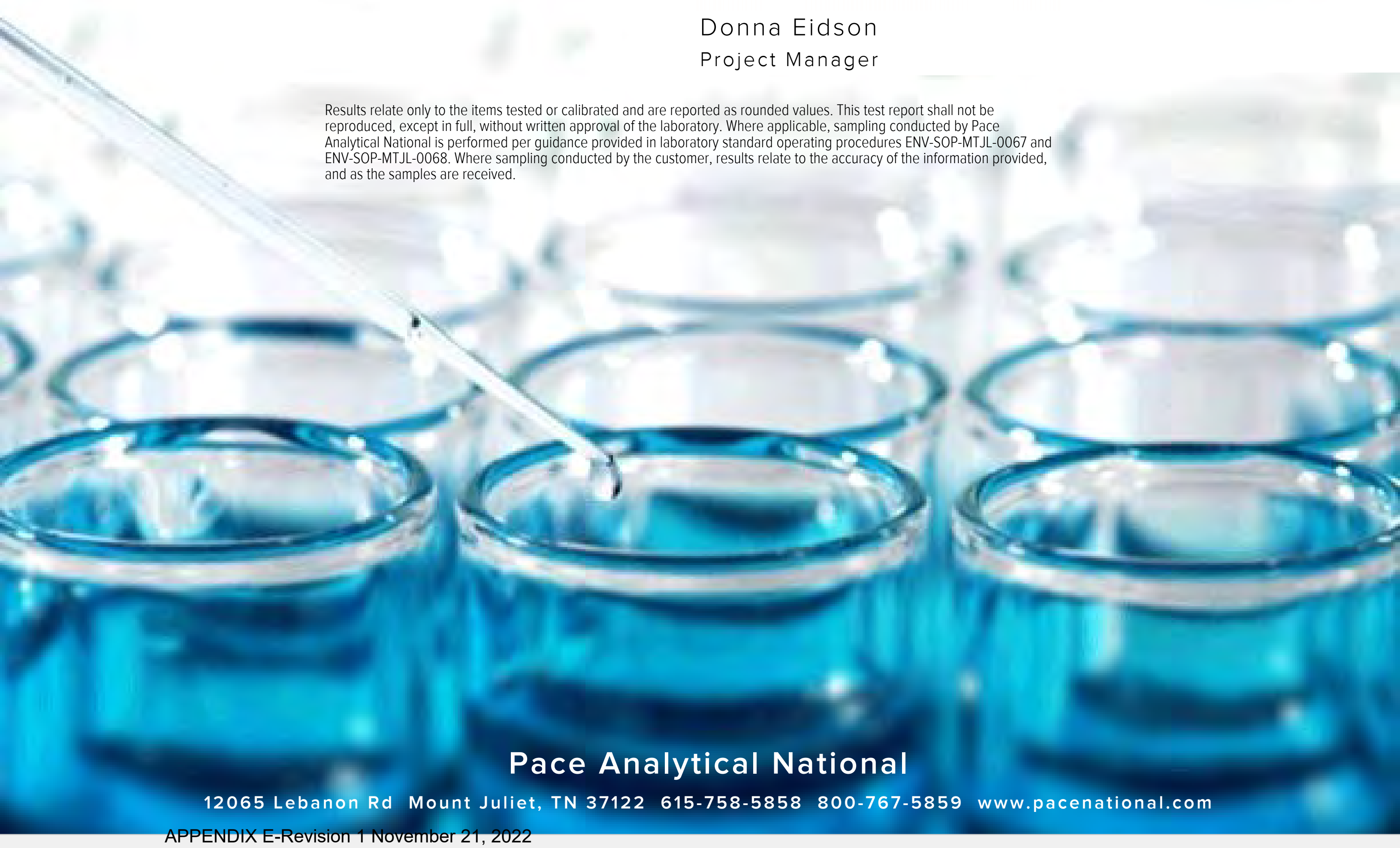
DHL Analytical, Inc.

Sample Delivery Group: L1363044
Samples Received: 06/08/2021
Project Number:
Description:

Report To: John DuPont
2300 Double Creek Drive
Round Rock, TX 78664

Entire Report Reviewed By: DEidson

Donna Eidson
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

BV-5 L1363044-01 Non-Potable Water

Collected by	Collected date/time	Received date/time
	06/02/21 09:13	06/08/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1695321	1	06/26/21 13:10	07/02/21 13:15	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1688247	1	07/01/21 09:59	07/02/21 16:15	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1688247	1	07/01/21 09:59	07/02/21 16:15	RGT	Mt. Juliet, TN

MW-4 L1363044-02 Non-Potable Water

Collected by	Collected date/time	Received date/time
	06/02/21 10:30	06/08/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1695321	1	06/26/21 13:10	07/02/21 13:15	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1688247	1	07/01/21 09:59	07/02/21 16:15	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1688247	1	07/01/21 09:59	07/02/21 16:15	RGT	Mt. Juliet, TN

BV-21 L1363044-03 Non-Potable Water

Collected by	Collected date/time	Received date/time
	06/02/21 11:25	06/08/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1695321	1	06/26/21 13:10	07/02/21 13:15	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1688247	1	07/01/21 09:59	07/02/21 16:15	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1688247	1	07/01/21 09:59	07/02/21 16:15	RGT	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

DEidson

Donna Eidson
Project Manager

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	-0.700	U	0.636	0.578	07/02/2021 13:15	WG1695321
(T) Barium	*93.3*			*62.0-143*	*07/02/2021 13:15*	WG1695321
(T) Yttrium	*97.8*			*79.0-136*	*07/02/2021 13:15*	WG1695321

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.325	J	0.856	0.801	07/02/2021 16:15	WG1688247

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.325		0.220	0.223	07/02/2021 16:15	WG1688247
(T) Barium-133	*96.7*			*30.0-143*	*07/02/2021 16:15*	WG1688247

Radiochemistry by Method 904

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
Analyte	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.726		0.516	0.452	07/02/2021 13:15	WG1695321
(T) Barium	*99.6*			*62.0-143*	*07/02/2021 13:15*	WG1695321
(T) Yttrium	*90.8*			*79.0-136*	*07/02/2021 13:15*	WG1695321

Radiochemistry by Method Calculation

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
Analyte	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.02		0.725	0.654	07/02/2021 16:15	WG1688247

Radiochemistry by Method SM7500Ra B M

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
Analyte	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.298		0.209	0.202	07/02/2021 16:15	WG1688247
(T) Barium-133	*97.0*			*30.0-143*	*07/02/2021 16:15*	WG1688247

BV-21

Collected date/time: 06/02/21 11:25

SAMPLE RESULTS - 03

L1363044

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Radiochemistry by Method 904

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
Analyte	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.392	J	0.501	0.443	07/02/2021 13:15	WG1695321
(T) Barium	*106*			*62.0-143*	*07/02/2021 13:15*	WG1695321
(T) Yttrium	*88.4*			*79.0-136*	*07/02/2021 13:15*	WG1695321

Radiochemistry by Method Calculation

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
Analyte	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.434	J	0.707	0.798	07/02/2021 16:15	WG1688247

Radiochemistry by Method SM7500Ra B M

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
Analyte	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.0424	U	0.206	0.355	07/02/2021 16:15	WG1688247
(T) Barium-133	*100*			*30.0-143*	*07/02/2021 16:15*	WG1688247

Method Blank (MB)

(MB) R3676079-1 07/02/21 13:15

	MB Result	MB Qualifier	MB MDA
Analyte	pCi/l		pCi/l
Radium-228	-0.388	U	0.302
(T) Barium	*117*		
(T) Yttrium	*89.7*		

L1369884-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1369884-04 07/02/21 13:15 • (DUP) R3676079-5 07/02/21 13:15

	Original Result	DUP Result	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
Analyte	pCi/l	pCi/l		%			%	
Radium-228	-0.198	-0.243	1	0.000	0.0542	U	20	3
(T) Barium	*101*	*112*						
(T) Yttrium	*93.8*	*94.7*						

Laboratory Control Sample (LCS)

(LCS) R3676079-2 07/02/21 13:15

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	pCi/l	pCi/l	%	%	
Radium-228	5.00	5.46	109	80.0-120	
(T) Barium			*116*		
(T) Yttrium			*99.2*		

L1369872-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1369872-01 07/02/21 13:15 • (MS) R3676079-3 07/02/21 13:15 • (MSD) R3676079-4 07/02/21 13:15

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
Analyte	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-228	10.0	0.101	10.6	11.5	105	114	1	70.0-130			7.68		20
(T) Barium		*107*			*116*	*106*							
(T) Yttrium		*98.2*			*94.1*	*91.2*							

QUALITY CONTROL SUMMARY

L1363044-01,02,03

Method Blank (MB)

(MB) R3676480-1 07/02/21 15:48

Analyte	MB Result pCi/l	MB Qualifier	MB MDA pCi/l
Radium-226	0.000	U	0.0244
(T) Barium-133	*91.6*		

L1372093-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1372093-01 07/02/21 16:15 • (DUP) R3676480-5 07/02/21 16:15

Analyte	Original Result pCi/l	DUP Result pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.0241	0.0137	1	55.2	0.0621	U	20	3
(T) Barium-133	*96.0*	*97.0*						

Laboratory Control Sample (LCS)

(LCS) R3676480-2 07/02/21 16:15

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.02	4.68	93.2	80.0-120	
(T) Barium-133			*103*		

L1363039-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1363039-01 07/02/21 16:15 • (MS) R3676480-3 07/02/21 16:15 • (MSD) R3676480-4 07/02/21 16:15

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.1	0.158	19.5	19.1	96.4	94.4	1	75.0-125			2.12		20
(T) Barium-133		*98.1*			*99.3*	*90.0*							

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.

ACCREDITATIONS & LOCATIONS

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1,6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1,4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

DHL Analytical, Inc.
2300 Double Creek Drive
Round Rock, TX 78664
TEL: *(512) 388-8222* FAX: *(512) 388-8229*
Work Order: 2106017

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

A127

Subcontractor:

Pace Analytical
12065 Lebanon Rd
Mt. Juliet, TN 37122

TEL: (615) 773-5923
FAX:
Acct #: DHLRRTX

L1363044

03-Jun-21

Sample ID	Matrix	DHL#	Date Collected	Bottle Type	Requested Tests						
					Ra-228	Ra-226					
					E904.0	M7500 Ra B M					
BV-5	Aqueous	01C	06/02/21 09:13 AM	1LHDPE		1					-01
BV-5	Aqueous	01D	06/02/21 09:13 AM	1LHDPE	1						-01
MW-4	Aqueous	02C	06/02/21 10:30 AM	1LHDPE		1					-02
MW-4	Aqueous	02D	06/02/21 10:30 AM	1LHDPE	1						-02
BV-21	Aqueous	03C	06/02/21 11:25 AM	1LHDPE		1					-03
BV-21	Aqueous	03D	06/02/21 11:25 AM	1LHDPE	1						-03

Sample Receipt Checklist
COC Seal Present/Intact: [✓ Y] N
COC Signed/Accurate: [✓ Y] N
Bottles arrive intact: [✓ Y] N
Correct bottles used: [✓ Y] N
Sufficient volume sent: [✓ Y] N
RAD Screen <0.5 mR/hr: Y N
If Applicable
VOA Zero Headspace: [✓ Y] N
Pres.Correct/Check: [✓ Y] N

General Comments:

Please analyze these samples with Normal Turnaround Time.
Report Ra-226, Ra-228 & Combined per Specs.
Quality Control Package Needed: Standard - NELAC Rad Test compliant
Email to cac@dhlanalytical.com & dupont@dhlanalytical.com

210-1=20.9
AGOT

	Date/Time		Date/Time
Relinquished by:	6/4/21 ~~6/3/21~~ 1700 ⓇD 6/4/21	**Received by:**	
Relinquished by:		**Received by:**	6/8/21 1000

DHL
ANALYTICAL

July 30, 2021

Will Vienne
Golder
2201 Double Creek Dr #4004
Round Rock, Texas 78664
TEL: (512) 671-3434
FAX (512) 671-3446

Order No.: 2106204

RE: 1H21 Coleto Creek

Dear Will Vienne:

DHL Analytical, Inc. received 7 sample(s) on 6/26/2021 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAP except where noted in the Case Narrative. All non-NELAP methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-21-27

Table of Contents

DHL ANALYTICAL

New Address

2300 Double Creek Dr. Round Rock, TX 78664
Phone 512.388.8222
Web: **www.dhlanalytical.com**
Email: **login@dhlanalytical.com**

CHAIN-OF-CUSTODY

PAGE 1 OF 1

CLIENT: Golder Associates
ADDRESS: 1501 E. Mockingbird Ln Victoria, TX. 77904
PHONE: 361-573-6442 EMAIL: '
DATA REPORTED TO: Will Vienne
ADDITIONAL REPORT COPIES TO: Greg Logan Jr.

PO#: 19122262-B2021
PROJECT LOCATION OR NAME: 1K121 Coleto Creek
CLIENT PROJECT # 19122262-B2021

LABORATORY USE ONLY
DHL WORKORDER #: 2106204
COLLECTOR: Greg Logan Jr.

Authorize 5% surcharge for TRRP report?
☒ Yes ☐ No

W=WATER SE=SEDIMENT
L=LIQUID P=PAINT
S=SOIL SL=SLUDGE
SO=SOLID

Field Sample I.D.	Lab Use Only DHL Lab #	Collection Date	Collection Time	Matrix	Container Type	# of Containers	PRESERVATION HCL	HNO$_3$	H$_2$SO$_4$	NaOH ☐ Zn Acetate ☐	ICE ☐ UNPRESERVED ☐	ANALYSES	BTEX ☐ MTBE ☐ [METHOD 8260]	TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐	GRO 8015 ☐ DRO 8015 ☐	VOC 8260 ☐ VOC 624.1 ☐	SVOC 8270 ☐ SVOC 625.1 ☐	PAH 8270 ☐ HOLD PAH ☐	PEST 8270 ☐ 625.1 ☐ O-P PEST 8270 ☐	PCB 8082 ☐ 608.3 ☐ PCB 8270 ☐ 625.1 ☐	HERB 8321 ☐ T PHOS ☐ AMMONIA ☐	METALS 6020 ☐ 200.8 ☐ DISS. METALS ☐	RCRA 8 ☐ TX11 ☐ ____	pH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐	ANIONS 300 ☐ 9056 ☐ ____	TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐	TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐	RCI ☐ IGN ☐ DGAS ☐ OIL&GREASE ☐	TDS ☐ TSS ☐ % MOIST ☐ CYANIDE ☐	Appendix III	Appendix IV		FIELD NOTES
mw-8	01	6-25-21	9:30	W	P	4		X																						X	X		
mw-6	02	↓	10:55	W	P	4		X																						X	X		
MW-11	03	↓	12:00	↓	↓	↓		↓																						X	X		
MW-101	04	↓	12:10	↓	↓	↓		↓																						X	X		
MW-9	05	↓	13:00	↓	↓	↓		↓																						X	X		
MW-10	06	↓	13:50	↓	↓	↓		↓																						X	X		
mw-5	07	↓	15:00	↓	↓	↓		↓																						X	X		
~~mw-9~~ GL																																	

Relinquished By: (Sign)	DATE/TIME	Received by:
GL	6-25-21/18:00	Fed Ex
FEDEX	6/26/21 3:30PM	Alex

TURN AROUND TIME
(CALL FIRST FOR RUSH)
RUSH-1 DAY☐ RUSH-2 DAY☐
RUSH-3 DAY☐
NORMAL ☒ OTHER ☐
DUE DATE ________ ☐

LABORATORY USE ONLY
RECEIVING TEMP (°C): 4.5 4.5 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LSO ☒ FEDEX ☐ UPS ☐ COURIER ☐ OTHER ☐ HAND DELIVERED

☐ **DHL DISPOSAL @ $5.00 each** ☐ **Return**

DHL COC REV 3 | MAR 2021

Eric Lau

From: John DuPont
Sent: Tuesday, May 28, 2019 11:35 AM
To: Eric Lau
Subject: FW: CCR Analysis

Appendix III Parameters:
Metals (Ca and B)
Anions (Cl, F, and SO4)
TDS

Appendix IV Parameters:

Metals (As, Ba, Be, Cd, Co, Cr, Hg, Li, Mo, Pb, Sb, Se, and Tl)
Ra-226
Ra-228

From: Vienne, Will [mailto:William_Vienne@golder.com]
Sent: Tuesday, April 09, 2019 12:48 PM
To: John DuPont <dupont@dhlanalytical.com>
Subject: CCR Analysis

FedEx Ship Manager - Print Your Label(s)

ORIGIN ID:VCTA (361) 573-6442
GREG LOGAN JR.
GOLDER ASSOCIATES INC.
1501 E. MOCKINGBIRD LN

VICTORIA, TX 77904
UNITED STATES US

SHIP DATE: 25JUN21
ACTWGT: 30.00 LB
CAD: 2806631/INET4340
DIMS: 24x13x14 IN

BILL SENDER

TO SAMPLE RECEIVING
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF: 19122262-B2021
INV:
PO: DEPT:

56DJ3/B387/FE4A

FedEx Express

E

J211321033101uv

SATURDAY 12:00P
PRIORITY OVERNIGHT

1 of 2
TRK# 0201 7740 9931 4402
MASTER

X0 BSMA

78664
TX-US AUS

6/25/2021

CUSTODY SEAL

DATE ______________________

SIGNATURE ______________________

DHL ANALYTICAL

____

____

FedEx Ship Manager - Print Your Label(s)

ORIGIN ID:VCTA (361) 573-6442
GREG LOGAN JR.
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BILL SENDER

TO **SAMPLE RECEIVING**
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF: 19122262-B2021
INV:
PO: DEPT:

56DJ3/B387/FE4A

FedEx Express

E

J211321033101uv

SATURDAY 12:00P
PRIORITY OVERNIGHT

2 of 2
MPS# 0263 **7740 9931 4078**
Mstr# 7740 9931 4402

0201

X0 BSMA

78664
TX-US **AUS**

6/25/2021

CUSTODY SEA
DATE
SIGNATURE

DHL ANALYTICAL

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Golder**

Date Received: **6/28/2021**

Work Order Number **2106204**

Received by: **AH**

Checklist completed by: Signature 6/28/2021 Date

Reviewed by Initials 6/28/2021 Date

Carrier name: FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	**4.5** °C
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 13171
	Adjusted? NO		Checked by R.A.
Water - ph>9 (S) or ph>10 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by

Any No response must be detailed in the comments section below.

Client contacted: ____ Date contacted: ____ Person contacted ____

Contacted by: ____ Regarding: ____

Comments: ____

Corrective Action: ____

Laboratory Name: DHL Analytical, Inc.
Laboratory Review Checklist: Reportable Data

Project Name: 1H21 Coleto Creek

LRC Date: 7/30/21

Reviewer Name: Carlos Castro

Laboratory Work Order: 2106204

Prep Batch Number(s): See Prep Dates Report

Run Batch: See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-Custody (C-O-C)**					
		1) Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	**X**				**R1-01**
		2) Were all departures from standard conditions described in an exception report?			**X**		
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	**X**				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	**X**				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	**X**				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	**X**				
		3) Were calculations checked by a peer or supervisor?	**X**				
		4) Were all analyte identifications checked by a peer or supervisor?	**X**				
		5) Were sample detection limits reported for all analytes not detected?	**X**				
		6) Were all results for soil and sediment samples reported on a dry weight basis?			**X**		
		7) Were % moisture (or solids) reported for all soil and sediment samples?			**X**		
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			**X**		
		9) If required for the project, TICs reported?			**X**		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?	**X**				
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?	**X**				
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	**X**				
		2) Were blanks analyzed at the appropriate frequency?	**X**				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	**X**				
		4) Were blank concentrations < MDL?	**X**				
		5) For analyte(s) detected in a blank sample, was the concentration, unadjusted for sample specific factors, in all associated field samples, **greater** than 10 times the concentration in the blank sample?			**X**		
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	**X**				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	**X**				
		3) Were LCSs analyzed at the required frequency?	**X**				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	**X**				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	**X**				
		6) Was the LCSD RPD within QC limits (if applicable)?	**X**				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	**X**				
		2) Were MS/MSD analyzed at the appropriate frequency?	**X**				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		**X**			**R7-03**
		4) Were MS/MSD RPDs within laboratory QC limits?	**X**				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?	**X**				
		2) Were analytical duplicates analyzed at the appropriate frequency?	**X**				
		3) Were RPDs or relative standard deviations within the laboratory QC limits?	**X**				
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	**X**				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	**X**				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	**X**				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	**X**				
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	**X**				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	**X**				

Laboratory Name: DHL Analytical, Inc.

Laboratory Review Checklist (continued): Supporting Data

Project Name: 1H21 Coleto Creek

LRC Date: 7/30/21

Reviewer Name: Carlos Castro

Laboratory Work Order: 2106204

Prep Batch Number(s): See Prep Dates Report

Run Batch: See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	X				
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	X				
		2) Were percent differences for each analyte within the method-required QC limits?...	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	X				
		2) Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?	X				
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?		X			**S9-01**
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	X				
		2) Is documentation of the analyst’s competency up-to-date and on file?	X				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	X				

---

[1] Items identified by the letter “R” should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period.

[2] O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).

[3] NA = Not applicable.

[4] NR = Not Reviewed.

[5] ER# = Exception Report identification number (an Exception Report should be completed for an item if “NR” or “No” is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5,
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - c) The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) The amount of analyte measured in the duplicate,
  - b) The calculated RPD, and
  - c) The laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
- R10 Other problems or anomalies.

The Exception Report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory is not accredited under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on February 23-26, 2021. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Name: John DuPont
Official Title: General Manager

John DuPont
Signature

07/30/21
Date

Name: Dr. Derhsing Luu
Official Title: Technical Director

DHL Analytical, Inc. **Date:** *30-Jul-21*

CLIENT:	Golder	
Project:	1H21 Coleto Creek	**CASE NARRATIVE**
Lab Order:	2106204	

Samples were analyzed using the methods outlined in the following references:

Method SW6020B - Metals Analysis
Method SW7470A - Mercury Analysis
Method E300 - Anions Analysis
Method M2540C - TDS Analysis
Sub-contract - Radium-228 and Radium-226 analyses by methods E904 and SM 7500 Ra B M. Analyzed at Pace Analytical.

Exception Report R1-01

The samples were received and log-in performed on 6/26/21. A total of 7 samples were received. The samples arrived in good condition and were properly packaged.

Exception Report R7-03

For Anions analysis performed on 7/1/21 the matrix spikes and matrix spike duplicate recoveries (2106204-01MS/MSD & 2106204-02 MS/MSD) were slightly below control limits for Sulfate. These are flagged accordingly in the QC summary report. The samples selected for the matrix spikes and matrix spike duplicates (2106204-01MS/MSD & 2106204-02 MS/MSD) were from this work order. The LCS was within control limits for this analyte. No further corrective actions were taken.

For Metals analysis performed on 6/30/21 the matrix spike and matrix spike duplicate recoveries were below control limits for Boron and/or Lithium. These are flagged accordingly. The sample selected for the matrix spike and matrix spike duplicate was not from this work order. The LCS was within control limits for these analytes. No further corrective actions were taken.

Exception Report S9-01

For Metals analysis performed on 6/30/21 the PDS recovery was slightly below control limits for Lithium. This is flagged accordingly in the QC summary report. The serial dilution was within control limits for this analyte. No further corrective actions were taken.

CLIENT: Golder
Project: 1H21 Coleto Creek
Lab Order: 2106204

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
2106204-01	MW-8		06/25/21 09:30 AM	6/26/2021
2106204-02	MW-6		06/25/21 10:55 AM	6/26/2021
2106204-03	MW-11		06/25/21 12:00 PM	6/26/2021
2106204-04	MW-101		06/25/21 12:10 PM	6/26/2021
2106204-05	MW-9		06/25/21 01:00 PM	6/26/2021
2106204-06	MW-10		06/25/21 01:50 PM	6/26/2021
2106204-07	MW-5		06/25/21 03:00 PM	6/26/2021

Lab Order: 2106204
Client: Golder
Project: 1H21 Coleto Creek

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
2106204-01A	MW-8	06/25/21 09:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-8	06/25/21 09:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-8	06/25/21 09:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-8	06/25/21 09:30 AM	Aqueous	SW7470A	Mercury Aq Prep	06/29/21 11:08 AM	101070
2106204-01B	MW-8	06/25/21 09:30 AM	Aqueous	E300	Anion Preparation	07/01/21 10:49 AM	101094
	MW-8	06/25/21 09:30 AM	Aqueous	E300	Anion Preparation	07/01/21 10:49 AM	101094
	MW-8	06/25/21 09:30 AM	Aqueous	M2540C	TDS Preparation	06/28/21 11:30 AM	101038
2106204-02A	MW-6	06/25/21 10:55 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-6	06/25/21 10:55 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-6	06/25/21 10:55 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-6	06/25/21 10:55 AM	Aqueous	SW7470A	Mercury Aq Prep	06/29/21 11:08 AM	101070
2106204-02B	MW-6	06/25/21 10:55 AM	Aqueous	E300	Anion Preparation	07/01/21 10:49 AM	101094
	MW-6	06/25/21 10:55 AM	Aqueous	E300	Anion Preparation	07/01/21 10:49 AM	101094
	MW-6	06/25/21 10:55 AM	Aqueous	M2540C	TDS Preparation	06/28/21 11:30 AM	101038
2106204-03A	MW-11	06/25/21 12:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-11	06/25/21 12:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-11	06/25/21 12:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-11	06/25/21 12:00 PM	Aqueous	SW7470A	Mercury Aq Prep	06/29/21 11:08 AM	101070
2106204-03B	MW-11	06/25/21 12:00 PM	Aqueous	E300	Anion Preparation	07/01/21 10:49 AM	101094
	MW-11	06/25/21 12:00 PM	Aqueous	E300	Anion Preparation	07/01/21 10:49 AM	101094
	MW-11	06/25/21 12:00 PM	Aqueous	M2540C	TDS Preparation	06/28/21 11:30 AM	101038
2106204-04A	MW-101	06/25/21 12:10 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-101	06/25/21 12:10 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-101	06/25/21 12:10 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-101	06/25/21 12:10 PM	Aqueous	SW7470A	Mercury Aq Prep	06/29/21 11:08 AM	101070
2106204-04B	MW-101	06/25/21 12:10 PM	Aqueous	E300	Anion Preparation	07/01/21 10:49 AM	101094
	MW-101	06/25/21 12:10 PM	Aqueous	E300	Anion Preparation	07/01/21 10:49 AM	101094
	MW-101	06/25/21 12:10 PM	Aqueous	M2540C	TDS Preparation	06/28/21 11:30 AM	101038

Lab Order: 2106204
Client: Golder
Project: 1H21 Coleto Creek

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
2106204-05A	MW-9	06/25/21 01:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-9	06/25/21 01:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-9	06/25/21 01:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-9	06/25/21 01:00 PM	Aqueous	SW7470A	Mercury Aq Prep	06/29/21 11:08 AM	101070
2106204-05B	MW-9	06/25/21 01:00 PM	Aqueous	E300	Anion Preparation	07/01/21 10:49 AM	101094
	MW-9	06/25/21 01:00 PM	Aqueous	E300	Anion Preparation	07/01/21 10:49 AM	101094
	MW-9	06/25/21 01:00 PM	Aqueous	M2540C	TDS Preparation	06/28/21 11:30 AM	101038
2106204-06A	MW-10	06/25/21 01:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-10	06/25/21 01:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-10	06/25/21 01:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-10	06/25/21 01:50 PM	Aqueous	SW7470A	Mercury Aq Prep	06/29/21 11:08 AM	101070
2106204-06B	MW-10	06/25/21 01:50 PM	Aqueous	E300	Anion Preparation	07/01/21 10:49 AM	101094
	MW-10	06/25/21 01:50 PM	Aqueous	E300	Anion Preparation	07/01/21 10:49 AM	101094
	MW-10	06/25/21 01:50 PM	Aqueous	M2540C	TDS Preparation	06/28/21 11:30 AM	101038
2106204-07A	MW-5	06/25/21 03:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-5	06/25/21 03:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-5	06/25/21 03:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	06/29/21 09:15 AM	101062
	MW-5	06/25/21 03:00 PM	Aqueous	SW7470A	Mercury Aq Prep	06/29/21 11:08 AM	101070
2106204-07B	MW-5	06/25/21 03:00 PM	Aqueous	E300	Anion Preparation	07/01/21 10:49 AM	101094
	MW-5	06/25/21 03:00 PM	Aqueous	E300	Anion Preparation	07/01/21 10:49 AM	101094
	MW-5	06/25/21 03:00 PM	Aqueous	M2540C	TDS Preparation	06/28/21 11:30 AM	101038

DHL Analytical, Inc.

30-Jul-21

Lab Order: 2106204
Client: Golder
Project: 1H21 Coleto Creek

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
2106204-01A	MW-8	Aqueous	SW7470A	Mercury Total: Aqueous	101070	1	07/01/21 10:56 AM	CETAC2_HG_210701B
	MW-8	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	5	06/30/21 02:36 PM	ICP-MS4_210630A
	MW-8	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	1	06/30/21 03:28 PM	ICP-MS4_210630A
	MW-8	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	1	06/30/21 01:13 PM	ICP-MS5_210630A
2106204-01B	MW-8	Aqueous	E300	Anions by IC method - Water	101094	10	07/01/21 04:47 PM	IC2_210701B
	MW-8	Aqueous	E300	Anions by IC method - Water	101094	1	07/01/21 11:27 PM	IC2_210701B
	MW-8	Aqueous	M2540C	Total Dissolved Solids	101038	1	06/28/21 04:30 PM	WC_210628C
2106204-02A	MW-6	Aqueous	SW7470A	Mercury Total: Aqueous	101070	1	07/01/21 10:59 AM	CETAC2_HG_210701B
	MW-6	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	5	06/30/21 02:38 PM	ICP-MS4_210630A
	MW-6	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	1	06/30/21 03:30 PM	ICP-MS4_210630A
	MW-6	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	1	06/30/21 01:16 PM	ICP-MS5_210630A
2106204-02B	MW-6	Aqueous	E300	Anions by IC method - Water	101094	10	07/01/21 05:35 PM	IC2_210701B
	MW-6	Aqueous	E300	Anions by IC method - Water	101094	1	07/01/21 11:43 PM	IC2_210701B
	MW-6	Aqueous	M2540C	Total Dissolved Solids	101038	1	06/28/21 04:30 PM	WC_210628C
2106204-03A	MW-11	Aqueous	SW7470A	Mercury Total: Aqueous	101070	1	07/01/21 11:10 AM	CETAC2_HG_210701B
	MW-11	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	5	06/30/21 02:57 PM	ICP-MS4_210630A
	MW-11	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	1	06/30/21 03:32 PM	ICP-MS4_210630A
	MW-11	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	1	06/30/21 01:18 PM	ICP-MS5_210630A
2106204-03B	MW-11	Aqueous	E300	Anions by IC method - Water	101094	10	07/01/21 06:23 PM	IC2_210701B
	MW-11	Aqueous	E300	Anions by IC method - Water	101094	1	07/01/21 11:59 PM	IC2_210701B
	MW-11	Aqueous	M2540C	Total Dissolved Solids	101038	1	06/28/21 04:30 PM	WC_210628C
2106204-04A	MW-101	Aqueous	SW7470A	Mercury Total: Aqueous	101070	1	07/01/21 11:12 AM	CETAC2_HG_210701B
	MW-101	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	1	06/30/21 01:21 PM	ICP-MS5_210630A
	MW-101	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	5	06/30/21 02:59 PM	ICP-MS4_210630A
	MW-101	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	1	06/30/21 03:34 PM	ICP-MS4_210630A
2106204-04B	MW-101	Aqueous	E300	Anions by IC method - Water	101094	1	07/02/21 01:35 AM	IC2_210701B

Lab Order: 2106204
Client: Golder
Project: 1H21 Coleto Creek

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
2106204-04B	MW-101	Aqueous	E300	Anions by IC method - Water	101094	10	07/01/21 06:39 PM	IC2_210701B
	MW-101	Aqueous	M2540C	Total Dissolved Solids	101038	1	06/28/21 04:30 PM	WC_210628C
2106204-05A	MW-9	Aqueous	SW7470A	Mercury Total: Aqueous	101070	1	07/01/21 11:14 AM	CETAC2_HG_210701B
	MW-9	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	5	06/30/21 03:01 PM	ICP-MS4_210630A
	MW-9	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	1	06/30/21 03:36 PM	ICP-MS4_210630A
	MW-9	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	1	06/30/21 02:16 PM	ICP-MS5_210630A
2106204-05B	MW-9	Aqueous	E300	Anions by IC method - Water	101094	10	07/01/21 06:55 PM	IC2_210701B
	MW-9	Aqueous	E300	Anions by IC method - Water	101094	1	07/02/21 01:51 AM	IC2_210701B
	MW-9	Aqueous	M2540C	Total Dissolved Solids	101038	1	06/28/21 04:30 PM	WC_210628C
2106204-06A	MW-10	Aqueous	SW7470A	Mercury Total: Aqueous	101070	1	07/01/21 11:21 AM	CETAC2_HG_210701B
	MW-10	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	1	06/30/21 02:19 PM	ICP-MS5_210630A
	MW-10	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	5	06/30/21 03:03 PM	ICP-MS4_210630A
	MW-10	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	1	06/30/21 03:38 PM	ICP-MS4_210630A
2106204-06B	MW-10	Aqueous	E300	Anions by IC method - Water	101094	10	07/01/21 07:11 PM	IC2_210701B
	MW-10	Aqueous	E300	Anions by IC method - Water	101094	1	07/02/21 02:07 AM	IC2_210701B
	MW-10	Aqueous	M2540C	Total Dissolved Solids	101038	1	06/28/21 04:30 PM	WC_210628C
2106204-07A	MW-5	Aqueous	SW7470A	Mercury Total: Aqueous	101070	1	07/01/21 11:24 AM	CETAC2_HG_210701B
	MW-5	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	5	06/30/21 03:05 PM	ICP-MS4_210630A
	MW-5	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	1	06/30/21 03:40 PM	ICP-MS4_210630A
	MW-5	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	101062	1	06/30/21 02:21 PM	ICP-MS5_210630A
2106204-07B	MW-5	Aqueous	E300	Anions by IC method - Water	101094	10	07/01/21 07:27 PM	IC2_210701B
	MW-5	Aqueous	E300	Anions by IC method - Water	101094	1	07/02/21 02:23 AM	IC2_210701B
	MW-5	Aqueous	M2540C	Total Dissolved Solids	101038	1	06/28/21 04:30 PM	WC_210628C

DHL Analytical, Inc.

Date: *30-Jul-21*

CLIENT: Golder
Project: 1H21 Coleto Creek
Project No: 19122262-B2021
Lab Order: 2106204

Client Sample ID: MW-8
Lab ID: 2106204-01
Collection Date: 06/25/21 09:30 AM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020B**					Analyst: **SP**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/30/21 01:13 PM
Arsenic	0.0104	0.00200	0.00500		mg/L	1	06/30/21 01:13 PM
Barium	0.0806	0.00300	0.0100		mg/L	1	06/30/21 01:13 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	06/30/21 03:28 PM
Boron	0.863	0.0500	0.150		mg/L	5	06/30/21 02:36 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	06/30/21 01:13 PM
Calcium	80.1	0.500	1.50		mg/L	5	06/30/21 02:36 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	06/30/21 01:13 PM
Cobalt	0.0130	0.00300	0.00500		mg/L	1	06/30/21 01:13 PM
Lead	0.000761	0.000300	0.00100	J	mg/L	1	06/30/21 01:13 PM
Lithium	0.0105	0.00500	0.0100		mg/L	1	06/30/21 03:28 PM
Molybdenum	0.0118	0.00200	0.00500		mg/L	1	06/30/21 01:13 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	06/30/21 01:13 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	06/30/21 01:13 PM
MERCURY TOTAL: AQUEOUS		**SW7470A**					Analyst: **JVR**
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	07/01/21 10:56 AM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **BM**
Chloride	53.2	3.00	10.0		mg/L	10	07/01/21 04:47 PM
Fluoride	0.673	0.100	0.400		mg/L	1	07/01/21 11:27 PM
Sulfate	58.8	1.00	3.00		mg/L	1	07/01/21 11:27 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	489	10.0	10.0		mg/L	1	06/28/21 04:30 PM

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAP certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

CLIENT: Golder
Project: 1H21 Coleto Creek
Project No: 19122262-B2021
Lab Order: 2106204

Client Sample ID: MW-6
Lab ID: 2106204-02
Collection Date: 06/25/21 10:55 AM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020B**					Analyst: **SP**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/30/21 01:16 PM
Arsenic	0.00778	0.00200	0.00500		mg/L	1	06/30/21 01:16 PM
Barium	0.0860	0.00300	0.0100		mg/L	1	06/30/21 01:16 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	06/30/21 03:30 PM
Boron	1.75	0.0500	0.150		mg/L	5	06/30/21 02:38 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	06/30/21 01:16 PM
Calcium	79.1	0.500	1.50		mg/L	5	06/30/21 02:38 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	06/30/21 01:16 PM
Cobalt	<0.00300	0.00300	0.00500		mg/L	1	06/30/21 01:16 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/30/21 01:16 PM
Lithium	0.0101	0.00500	0.0100		mg/L	1	06/30/21 03:30 PM
Molybdenum	0.00823	0.00200	0.00500		mg/L	1	06/30/21 01:16 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	06/30/21 01:16 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	06/30/21 01:16 PM
MERCURY TOTAL: AQUEOUS		**SW7470A**					Analyst: **JVR**
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	07/01/21 10:59 AM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **BM**
Chloride	72.7	3.00	10.0		mg/L	10	07/01/21 05:35 PM
Fluoride	0.542	0.100	0.400		mg/L	1	07/01/21 11:43 PM
Sulfate	89.2	1.00	3.00		mg/L	1	07/01/21 11:43 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	503	10.0	10.0		mg/L	1	06/28/21 04:30 PM

Qualifiers:
ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAP certified
See Final Page of Report for MQLs and MDLs

S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	Golder	**Client Sample ID:**	MW-11
Project:	1H21 Coleto Creek	**Lab ID:**	2106204-03
Project No:	19122262-B2021	**Collection Date:**	06/25/21 12:00 PM
Lab Order:	2106204	**Matrix:**	AQUEOUS

Analyses	**Result**	**SDL**	**RL**	**Qual**	**Units**	**DF**	**Date Analyzed**
TRACE METALS: ICP-MS - WATER		**SW6020B**					Analyst: **SP**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/30/21 01:18 PM
Arsenic	0.0136	0.00200	0.00500		mg/L	1	06/30/21 01:18 PM
Barium	0.0900	0.00300	0.0100		mg/L	1	06/30/21 01:18 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	06/30/21 03:32 PM
Boron	0.925	0.0500	0.150		mg/L	5	06/30/21 02:57 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	06/30/21 01:18 PM
Calcium	59.1	0.500	1.50		mg/L	5	06/30/21 02:57 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	06/30/21 01:18 PM
Cobalt	<0.00300	0.00300	0.00500		mg/L	1	06/30/21 01:18 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/30/21 01:18 PM
Lithium	0.0162	0.00500	0.0100		mg/L	1	06/30/21 03:32 PM
Molybdenum	0.0190	0.00200	0.00500		mg/L	1	06/30/21 01:18 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	06/30/21 01:18 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	06/30/21 01:18 PM
MERCURY TOTAL: AQUEOUS		**SW7470A**					Analyst: **JVR**
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	07/01/21 11:10 AM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **BM**
Chloride	74.6	3.00	10.0		mg/L	10	07/01/21 06:23 PM
Fluoride	0.876	0.100	0.400		mg/L	1	07/01/21 11:59 PM
Sulfate	55.9	1.00	3.00		mg/L	1	07/01/21 11:59 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	400	10.0	10.0		mg/L	1	06/28/21 04:30 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAP certified
See Final Page of Report for MQLs and MDLs

S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT: Golder
Project: 1H21 Coleto Creek
Project No: 19122262-B2021
Lab Order: 2106204

Client Sample ID: MW-101
Lab ID: 2106204-04
Collection Date: 06/25/21 12:10 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020B**					Analyst: **SP**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/30/21 01:21 PM
Arsenic	0.0134	0.00200	0.00500		mg/L	1	06/30/21 01:21 PM
Barium	0.0905	0.00300	0.0100		mg/L	1	06/30/21 01:21 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	06/30/21 03:34 PM
Boron	0.980	0.0500	0.150		mg/L	5	06/30/21 02:59 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	06/30/21 01:21 PM
Calcium	59.3	0.500	1.50		mg/L	5	06/30/21 02:59 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	06/30/21 01:21 PM
Cobalt	<0.00300	0.00300	0.00500		mg/L	1	06/30/21 01:21 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/30/21 01:21 PM
Lithium	0.0148	0.00500	0.0100		mg/L	1	06/30/21 03:34 PM
Molybdenum	0.0194	0.00200	0.00500		mg/L	1	06/30/21 01:21 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	06/30/21 01:21 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	06/30/21 01:21 PM
MERCURY TOTAL: AQUEOUS		**SW7470A**					Analyst: **JVR**
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	07/01/21 11:12 AM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **BM**
Chloride	74.8	3.00	10.0		mg/L	10	07/01/21 06:39 PM
Fluoride	0.865	0.100	0.400		mg/L	1	07/02/21 01:35 AM
Sulfate	56.2	1.00	3.00		mg/L	1	07/02/21 01:35 AM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	397	10.0	10.0		mg/L	1	06/28/21 04:30 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAP certified
See Final Page of Report for MQLs and MDLs

S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT: Golder
Project: 1H21 Coleto Creek
Project No: 19122262-B2021
Lab Order: 2106204

Client Sample ID: MW-9
Lab ID: 2106204-05
Collection Date: 06/25/21 01:00 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020B**					Analyst: **SP**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/30/21 02:16 PM
Arsenic	0.0151	0.00200	0.00500		mg/L	1	06/30/21 02:16 PM
Barium	0.163	0.00300	0.0100		mg/L	1	06/30/21 02:16 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	06/30/21 03:36 PM
Boron	0.882	0.0500	0.150		mg/L	5	06/30/21 03:01 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	06/30/21 02:16 PM
Calcium	83.6	0.500	1.50		mg/L	5	06/30/21 03:01 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	06/30/21 02:16 PM
Cobalt	<0.00300	0.00300	0.00500		mg/L	1	06/30/21 02:16 PM
Lead	0.000408	0.000300	0.00100	J	mg/L	1	06/30/21 02:16 PM
Lithium	0.0103	0.00500	0.0100		mg/L	1	06/30/21 03:36 PM
Molybdenum	0.0199	0.00200	0.00500		mg/L	1	06/30/21 02:16 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	06/30/21 02:16 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	06/30/21 02:16 PM
MERCURY TOTAL: AQUEOUS		**SW7470A**					Analyst: **JVR**
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	07/01/21 11:14 AM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **BM**
Chloride	77.6	3.00	10.0		mg/L	10	07/01/21 06:55 PM
Fluoride	0.907	0.100	0.400		mg/L	1	07/02/21 01:51 AM
Sulfate	100	1.00	3.00		mg/L	1	07/02/21 01:51 AM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	508	10.0	10.0		mg/L	1	06/28/21 04:30 PM

Qualifiers:	ND - Not Detected at the SDL	S - Spike Recovery outside control limits
	J - Analyte detected between SDL and RL	C - Sample Result or QC discussed in Case Narrative
	B - Analyte detected in the associated Method Blank	RL - Reporting Limit (MQL adjusted for moisture and sample size)
	DF- Dilution Factor	SDL - Sample Detection Limit
	N - Parameter not NELAP certified	E - TPH pattern not Gas or Diesel Range Pattern
	See Final Page of Report for MQLs and MDLs	

DHL Analytical, Inc.

Date: *30-Jul-21*

CLIENT:	Golder	**Client Sample ID:**	MW-10
Project:	1H21 Coleto Creek	**Lab ID:**	2106204-06
Project No:	19122262-B2021	**Collection Date:**	06/25/21 01:50 PM
Lab Order:	2106204	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020B**					Analyst: **SP**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/30/21 02:19 PM
Arsenic	0.00942	0.00200	0.00500		mg/L	1	06/30/21 02:19 PM
Barium	0.0792	0.00300	0.0100		mg/L	1	06/30/21 02:19 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	06/30/21 03:38 PM
Boron	1.97	0.0500	0.150		mg/L	5	06/30/21 03:03 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	06/30/21 02:19 PM
Calcium	107	0.500	1.50		mg/L	5	06/30/21 03:03 PM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	06/30/21 02:19 PM
Cobalt	<0.00300	0.00300	0.00500		mg/L	1	06/30/21 02:19 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/30/21 02:19 PM
Lithium	0.0180	0.00500	0.0100		mg/L	1	06/30/21 03:38 PM
Molybdenum	0.0181	0.00200	0.00500		mg/L	1	06/30/21 02:19 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	06/30/21 02:19 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	06/30/21 02:19 PM
MERCURY TOTAL: AQUEOUS		**SW7470A**					Analyst: **JVR**
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	07/01/21 11:21 AM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **BM**
Chloride	154	3.00	10.0		mg/L	10	07/01/21 07:11 PM
Fluoride	0.717	0.100	0.400		mg/L	1	07/02/21 02:07 AM
Sulfate	141	1.00	3.00		mg/L	1	07/02/21 02:07 AM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	806	10.0	10.0		mg/L	1	06/28/21 04:30 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAP certified
See Final Page of Report for MQLs and MDLs

S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *30-Jul-21*

CLIENT: Golder
Project: 1H21 Coleto Creek
Project No: 19122262-B2021
Lab Order: 2106204

Client Sample ID: MW-5
Lab ID: 2106204-07
Collection Date: 06/25/21 03:00 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020B**					Analyst: **SP**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/30/21 02:21 PM
Arsenic	0.00918	0.00200	0.00500		mg/L	1	06/30/21 02:21 PM
Barium	0.0652	0.00300	0.0100		mg/L	1	06/30/21 02:21 PM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	06/30/21 03:40 PM
Boron	0.181	0.0500	0.150		mg/L	5	06/30/21 03:05 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	06/30/21 02:21 PM
Calcium	120	0.500	1.50		mg/L	5	06/30/21 03:05 PM
Chromium	0.00913	0.00200	0.00500		mg/L	1	06/30/21 02:21 PM
Cobalt	<0.00300	0.00300	0.00500		mg/L	1	06/30/21 02:21 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/30/21 02:21 PM
Lithium	0.0189	0.00500	0.0100		mg/L	1	06/30/21 03:40 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	06/30/21 02:21 PM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	06/30/21 02:21 PM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	06/30/21 02:21 PM
MERCURY TOTAL: AQUEOUS		**SW7470A**					Analyst: **JVR**
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	07/01/21 11:24 AM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **BM**
Chloride	135	3.00	10.0		mg/L	10	07/01/21 07:27 PM
Fluoride	0.661	0.100	0.400		mg/L	1	07/02/21 02:23 AM
Sulfate	173	10.0	30.0		mg/L	10	07/01/21 07:27 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	813	10.0	10.0		mg/L	1	06/28/21 04:30 PM

Qualifiers:	ND - Not Detected at the SDL	S - Spike Recovery outside control limits
	J - Analyte detected between SDL and RL	C - Sample Result or QC discussed in Case Narrative
	B - Analyte detected in the associated Method Blank	RL - Reporting Limit (MQL adjusted for moisture and sample size)
	DF- Dilution Factor	SDL - Sample Detection Limit
	N - Parameter not NELAP certified	E - TPH pattern not Gas or Diesel Range Pattern
	See Final Page of Report for MQLs and MDLs	

CLIENT: Golder
Work Order: 2106204
Project: 1H21 Coleto Creek

ANALYTICAL QC SUMMARY REPORT

RunID: **CETAC2_HG_210511A**

Sample ID: **DCS-100518** Batch ID: **100518** TestNo: **SW7470A** Units: **mg/L**
SampType: **DCS** Run ID: **CETAC2_HG_210511A** Analysis Date: **5/11/2021 1:32:27 PM** Prep Date: **5/10/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.000165	0.000200	0.000200	0	82.5	82	119	0	0	

Qualifiers:				
	B	Analyte detected in the associated Method Blank	DF	Dilution Factor
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
	RL	Reporting Limit	S	Spike Recovery outside control limits
	J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106204
Project: 1H21 Coleto Creek

ANALYTICAL QC SUMMARY REPORT

RunID: **CETAC2_HG_210701B**

The QC data in batch 101070 applies to the following samples: 2106204-01A, 2106204-02A, 2106204-03A, 2106204-04A, 2106204-05A, 2106204-06A, 2106204-07A

Sample ID: **MB-101070** Batch ID: **101070** TestNo: **SW7470A** Units: **mg/L**
SampType: **MBLK** Run ID: **CETAC2_HG_210701B** Analysis Date: **7/1/2021 10:38:41 AM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.0000800	0.000200								

Sample ID: **LCS-101070** Batch ID: **101070** TestNo: **SW7470A** Units: **mg/L**
SampType: **LCS** Run ID: **CETAC2_HG_210701B** Analysis Date: **7/1/2021 10:40:57 AM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00205	0.000200	0.00200	0	103	85	115			

Sample ID: **LCSD-101070** Batch ID: **101070** TestNo: **SW7470A** Units: **mg/L**
SampType: **LCSD** Run ID: **CETAC2_HG_210701B** Analysis Date: **7/1/2021 10:43:13 AM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00201	0.000200	0.00200	0	101	85	115	1.97	15	

Sample ID: **2106204-02A MS** Batch ID: **101070** TestNo: **SW7470A** Units: **mg/L**
SampType: **MS** Run ID: **CETAC2_HG_210701B** Analysis Date: **7/1/2021 11:01:21 AM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00194	0.000200	0.00200	0	97.0	80	120			

Sample ID: **2106204-02A MSD** Batch ID: **101070** TestNo: **SW7470A** Units: **mg/L**
SampType: **MSD** Run ID: **CETAC2_HG_210701B** Analysis Date: **7/1/2021 11:03:36 AM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00195	0.000200	0.00200	0	97.5	80	120	0.514	15	

Sample ID: **2106204-02A SD** Batch ID: **101070** TestNo: **SW7470A** Units: **mg/L**
SampType: **SD** Run ID: **CETAC2_HG_210701B** Analysis Date: **7/1/2021 11:05:52 AM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.000400	0.00100	0	0				0	10	

Sample ID: **2106204-02A PDS** Batch ID: **101070** TestNo: **SW7470A** Units: **mg/L**
SampType: **PDS** Run ID: **CETAC2_HG_210701B** Analysis Date: **7/1/2021 11:08:08 AM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00251	0.000200	0.00250	0	100	85	115			

Qualifiers:	B	Analyte detected in the associated Method Blank	DF	Dilution Factor
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
	RL	Reporting Limit	S	Spike Recovery outside control limits
	J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106204
Project: 1H21 Coleto Creek

ANALYTICAL QC SUMMARY REPORT

RunID: **CETAC2_HG_210701B**

Sample ID: **ICV-210701** Batch ID: **R116024** TestNo: **SW7470A** Units: **mg/L**
SampType: **ICV** Run ID: **CETAC2_HG_210701B** Analysis Date: **7/1/2021 10:34:07 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00390	0.000200	0.00400	0	97.5	90	110			

Sample ID: **CCV1-210701** Batch ID: **R116024** TestNo: **SW7470A** Units: **mg/L**
SampType: **CCV** Run ID: **CETAC2_HG_210701B** Analysis Date: **7/1/2021 11:17:14 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00193	0.000200	0.00200	0	96.5	90	110			

Sample ID: **CCV2-210701** Batch ID: **R116024** TestNo: **SW7470A** Units: **mg/L**
SampType: **CCV** Run ID: **CETAC2_HG_210701B** Analysis Date: **7/1/2021 11:44:33 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00202	0.000200	0.00200	0	101	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106204
Project: 1H21 Coleto Creek

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_210428A**

Sample ID: **DCS1-100323** Batch ID: **100323** TestNo: **SW6020B** Units: **mg/L**
SampType: **DCS** Run ID: **ICP-MS4_210428A** Analysis Date: **4/28/2021 10:32:00 AM** Prep Date: **4/27/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.000512	0.00100	0.000500	0	102	70	130	0	0	

Sample ID: **DCS2-100323** Batch ID: **100323** TestNo: **SW6020B** Units: **mg/L**
SampType: **DCS2** Run ID: **ICP-MS4_210428A** Analysis Date: **4/28/2021 10:34:00 AM** Prep Date: **4/27/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.302	0.300	0.300	0	101	70	130	0	0	

Sample ID: **DCS3-100323** Batch ID: **100323** TestNo: **SW6020B** Units: **mg/L**
SampType: **DCS3** Run ID: **ICP-MS4_210428A** Analysis Date: **4/28/2021 10:36:00 AM** Prep Date: **4/27/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lithium	0.00533	0.0100	0.00500	0	107	70	130	0	0	

Sample ID: **DCS4-100323** Batch ID: **100323** TestNo: **SW6020B** Units: **mg/L**
SampType: **DCS4** Run ID: **ICP-MS4_210428A** Analysis Date: **4/28/2021 10:39:00 AM** Prep Date: **4/27/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0310	0.0300	0.0300	0	103	70	130	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106204
Project: 1H21 Coleto Creek

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_210630A**

The QC data in batch 101062 applies to the following samples: 2106204-01A, 2106204-02A, 2106204-03A, 2106204-04A, 2106204-05A, 2106204-06A, 2106204-07A

Sample ID: **MB-101062** Batch ID: **101062** TestNo: **SW6020B** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS4_210630A** Analysis Date: **6/30/2021 2:10:00 PM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	<0.000300	0.00100								
Boron	<0.0100	0.0300								
Calcium	<0.100	0.300								
Lithium	<0.00500	0.0100								

Sample ID: **LCS-101062** Batch ID: **101062** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS4_210630A** Analysis Date: **6/30/2021 2:12:00 PM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.204	0.00100	0.200	0	102	80	120			
Boron	0.197	0.0300	0.200	0	98.3	80	120			
Calcium	5.21	0.300	5.00	0	104	80	120			
Lithium	0.204	0.0100	0.200	0	102	80	120			

Sample ID: **LCSD-101062** Batch ID: **101062** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS4_210630A** Analysis Date: **6/30/2021 2:14:00 PM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.207	0.00100	0.200	0	103	80	120	1.16	15	
Boron	0.205	0.0300	0.200	0	103	80	120	4.26	15	
Calcium	5.12	0.300	5.00	0	102	80	120	1.75	15	
Lithium	0.208	0.0100	0.200	0	104	80	120	1.86	15	

Sample ID: **2106175-03A SD** Batch ID: **101062** TestNo: **SW6020B** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS4_210630A** Analysis Date: **6/30/2021 2:55:00 PM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	4.68	3.00	0	3.91				18.0	20	
Calcium	60.2	30.0	0	60.3				0.044	20	

Sample ID: **2106175-03A PDS** Batch ID: **101062** TestNo: **SW6020B** Units: **mg/L**
SampType: **PDS** Run ID: **ICP-MS4_210630A** Analysis Date: **6/30/2021 3:08:00 PM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	7.47	0.600	4.00	3.91	89.1	75	125			
Calcium	161	6.00	100	60.3	101	75	125			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

Sample ID: **2106175-03A MS** Batch ID: **101062** TestNo: **SW6020B** Units: **mg/L**
SampType: **MS** Run ID: **ICP-MS4_210630A** Analysis Date: **6/30/2021 3:10:00 PM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	3.97	0.600	0.200	3.91	32.7	75	125			S
Calcium	65.2	6.00	5.00	60.3	99.6	75	125			

Sample ID: **2106175-03A MSD** Batch ID: **101062** TestNo: **SW6020B** Units: **mg/L**
SampType: **MSD** Run ID: **ICP-MS4_210630A** Analysis Date: **6/30/2021 3:12:00 PM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	4.02	0.600	0.200	3.91	56.2	75	125	1.18	15	S
Calcium	65.1	6.00	5.00	60.3	96.0	75	125	0.276	15	

Sample ID: **2106175-03A SD** Batch ID: **101062** TestNo: **SW6020B** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS4_210630A** Analysis Date: **6/30/2021 3:26:00 PM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	<0.00150	0.00500	0	0				0	20	
Lithium	0.386	0.0500	0	0.338				13.3	20	

Sample ID: **2106175-03A PDS** Batch ID: **101062** TestNo: **SW6020B** Units: **mg/L**
SampType: **PDS** Run ID: **ICP-MS4_210630A** Analysis Date: **6/30/2021 3:42:00 PM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.164	0.00100	0.200	0	81.9	75	125			
Lithium	0.472	0.0100	0.200	0.338	67.2	75	125			S

Sample ID: **2106175-03A MS** Batch ID: **101062** TestNo: **SW6020B** Units: **mg/L**
SampType: **MS** Run ID: **ICP-MS4_210630A** Analysis Date: **6/30/2021 3:44:00 PM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.168	0.00100	0.200	0	84.2	75	125			
Lithium	0.481	0.0100	0.200	0.338	71.5	75	125			S

Sample ID: **2106175-03A MSD** Batch ID: **101062** TestNo: **SW6020B** Units: **mg/L**
SampType: **MSD** Run ID: **ICP-MS4_210630A** Analysis Date: **6/30/2021 3:46:00 PM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.168	0.00100	0.200	0	84.2	75	125	0.076	15	
Lithium	0.500	0.0100	0.200	0.338	80.8	75	125	3.80	15	

Qualifiers:	B	Analyte detected in the associated Method Blank	DF	Dilution Factor
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
	RL	Reporting Limit	S	Spike Recovery outside control limits
	J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106204
Project: 1H21 Coleto Creek

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_210630A**

Sample ID: **ICV-210630** Batch ID: **R116018** TestNo: **SW6020B** Units: **mg/L**
SampType: **ICV** Run ID: **ICP-MS4_210630A** Analysis Date: **6/30/2021 12:54:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.102	0.00100	0.100	0	102	90	110			
Boron	0.104	0.0300	0.100	0	104	90	110			
Calcium	2.57	0.300	2.50	0	103	90	110			
Lithium	0.103	0.0100	0.100	0	103	90	110			

Sample ID: **LCVL-210630** Batch ID: **R116018** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS4_210630A** Analysis Date: **6/30/2021 1:07:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.00107	0.00100	0.00100	0	107	80	120			
Boron	0.0220	0.0300	0.0200	0	110	80	120			
Calcium	0.0893	0.300	0.100	0	89.3	80	120			
Lithium	0.0103	0.0100	0.0100	0	103	80	120			

Sample ID: **CCV1-210630** Batch ID: **R116018** TestNo: **SW6020B** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS4_210630A** Analysis Date: **6/30/2021 2:46:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.199	0.00100	0.200	0	99.6	90	110			
Boron	0.197	0.0300	0.200	0	98.7	90	110			
Calcium	5.19	0.300	5.00	0	104	90	110			
Lithium	0.203	0.0100	0.200	0	102	90	110			

Sample ID: **CCV2-210630** Batch ID: **R116018** TestNo: **SW6020B** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS4_210630A** Analysis Date: **6/30/2021 3:16:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.194	0.00100	0.200	0	97.1	90	110			
Boron	0.196	0.0300	0.200	0	98.1	90	110			
Calcium	5.12	0.300	5.00	0	102	90	110			
Lithium	0.195	0.0100	0.200	0	97.4	90	110			

Sample ID: **CCV3-210630** Batch ID: **R116018** TestNo: **SW6020B** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS4_210630A** Analysis Date: **6/30/2021 3:51:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.194	0.00100	0.200	0	97.0	90	110			
Lithium	0.198	0.0100	0.200	0	98.8	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

Sample ID: **CCV6-210630** Batch ID: **R116018** TestNo: **SW6020B** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS4_210630A** Analysis Date: **6/30/2021 5:03:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.195	0.00250	0.200	0	97.3	90	110			
Arsenic	0.198	0.00500	0.200	0	99.0	90	110			
Barium	0.198	0.0100	0.200	0	99.0	90	110			
Beryllium	0.194	0.00100	0.200	0	97.2	90	110			
Cadmium	0.202	0.00100	0.200	0	101	90	110			
Chromium	0.207	0.00500	0.200	0	104	90	110			
Cobalt	0.191	0.00500	0.200	0	95.4	90	110			
Lead	0.199	0.00100	0.200	0	99.3	90	110			
Selenium	0.203	0.00500	0.200	0	102	90	110			
Thallium	0.200	0.00150	0.200	0	99.8	90	110			

CLIENT: Golder
Work Order: 2106204
Project: 1H21 Coleto Creek

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS5_210428A**

Sample ID: **DCS1-100323** Batch ID: **100323** TestNo: **SW6020B** Units: **mg/L**
SampType: **DCS** Run ID: **ICP-MS5_210428A** Analysis Date: **4/28/2021 10:49:00 AM** Prep Date: **4/27/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00105	0.00250	0.00100	0	105	70	130	0	0	
Cadmium	0.000461	0.00100	0.000500	0	92.2	70	130	0	0	
Lead	0.000474	0.00100	0.000500	0	94.8	70	130	0	0	
Thallium	0.000452	0.00150	0.000500	0	90.4	70	130	0	0	

Sample ID: **DCS3-100323** Batch ID: **100323** TestNo: **SW6020B** Units: **mg/L**
SampType: **DCS3** Run ID: **ICP-MS5_210428A** Analysis Date: **4/28/2021 10:56:00 AM** Prep Date: **4/27/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00467	0.00500	0.00500	0	93.3	70	130	0	0	
Barium	0.00472	0.0100	0.00500	0	94.4	70	130	0	0	
Chromium	0.00490	0.00500	0.00500	0	97.9	70	130	0	0	
Cobalt	0.00473	0.00500	0.00500	0	94.5	70	130	0	0	
Molybdenum	0.00482	0.00500	0.00500	0	96.4	70	130	0	0	
Selenium	0.00498	0.00500	0.00500	0	99.5	70	130	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106204
Project: 1H21 Coleto Creek

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS5_210630A**

The QC data in batch 101062 applies to the following samples: 2106204-01A, 2106204-02A, 2106204-03A, 2106204-04A, 2106204-05A, 2106204-06A, 2106204-07A

Sample ID: **MB-101062** Batch ID: **101062** TestNo: **SW6020B** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS5_210630A** Analysis Date: **6/30/2021 12:45:00 PM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Barium	<0.00300	0.0100								
Cadmium	<0.000300	0.00100								
Chromium	<0.00200	0.00500								
Cobalt	<0.00300	0.00500								
Lead	<0.000300	0.00100								
Molybdenum	<0.00200	0.00500								
Selenium	<0.00200	0.00500								
Thallium	<0.000500	0.00150								

Sample ID: **LCS-101062** Batch ID: **101062** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS5_210630A** Analysis Date: **6/30/2021 12:48:00 PM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.202	0.00250	0.200	0	101	80	120			
Arsenic	0.208	0.00500	0.200	0	104	80	120			
Barium	0.203	0.0100	0.200	0	101	80	120			
Cadmium	0.203	0.00100	0.200	0	101	80	120			
Chromium	0.202	0.00500	0.200	0	101	80	120			
Cobalt	0.208	0.00500	0.200	0	104	80	120			
Lead	0.197	0.00100	0.200	0	98.5	80	120			
Molybdenum	0.210	0.00500	0.200	0	105	80	120			
Selenium	0.205	0.00500	0.200	0	102	80	120			
Thallium	0.194	0.00150	0.200	0	97.0	80	120			

Sample ID: **LCSD-101062** Batch ID: **101062** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS5_210630A** Analysis Date: **6/30/2021 12:50:00 PM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.204	0.00250	0.200	0	102	80	120	0.972	15	
Arsenic	0.207	0.00500	0.200	0	103	80	120	0.734	15	
Barium	0.203	0.0100	0.200	0	102	80	120	0.146	15	
Cadmium	0.205	0.00100	0.200	0	102	80	120	0.992	15	
Chromium	0.203	0.00500	0.200	0	102	80	120	0.738	15	
Cobalt	0.208	0.00500	0.200	0	104	80	120	0.003	15	
Lead	0.201	0.00100	0.200	0	100	80	120	1.91	15	
Molybdenum	0.211	0.00500	0.200	0	106	80	120	0.646	15	
Selenium	0.206	0.00500	0.200	0	103	80	120	0.448	15	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

ANALYTICAL QC SUMMARY REPORT

Sample ID: **LCSD-101062** Batch ID: **101062** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS5_210630A** Analysis Date: **6/30/2021 12:50:00 PM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	0.197	0.00150	0.200	0	98.6	80	120	1.59	15	

Sample ID: **2106175-03A SD** Batch ID: **101062** TestNo: **SW6020B** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS5_210630A** Analysis Date: **6/30/2021 12:58:00 PM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.00400	0.0125	0	0				0	20	
Arsenic	<0.0100	0.0250	0	0				0	20	
Barium	0.0152	0.0500	0	0.0158				3.94	20	
Cadmium	<0.00150	0.00500	0	0				0	20	
Chromium	<0.0100	0.0250	0	0				0	20	
Cobalt	<0.0150	0.0250	0	0				0	20	
Lead	<0.00150	0.00500	0	0				0	20	
Molybdenum	<0.0100	0.0250	0	0				0	20	
Selenium	<0.0100	0.0250	0	0				0	20	
Thallium	<0.00250	0.00750	0	0				0	20	

Sample ID: **2106175-03A PDS** Batch ID: **101062** TestNo: **SW6020B** Units: **mg/L**
SampType: **PDS** Run ID: **ICP-MS5_210630A** Analysis Date: **6/30/2021 1:34:00 PM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.196	0.00250	0.200	0	97.8	75	125			
Arsenic	0.184	0.00500	0.200	0	92.1	75	125			
Barium	0.216	0.0100	0.200	0.0158	100	75	125			
Cadmium	0.183	0.00100	0.200	0	91.6	75	125			
Chromium	0.190	0.00500	0.200	0	95.0	75	125			
Cobalt	0.187	0.00500	0.200	0	93.7	75	125			
Lead	0.200	0.00100	0.200	0	100	75	125			
Molybdenum	0.207	0.00500	0.200	0	103	75	125			
Selenium	0.213	0.00500	0.200	0	107	75	125			
Thallium	0.196	0.00150	0.200	0	98.1	75	125			

Sample ID: **2106175-03A MS** Batch ID: **101062** TestNo: **SW6020B** Units: **mg/L**
SampType: **MS** Run ID: **ICP-MS5_210630A** Analysis Date: **6/30/2021 1:37:00 PM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.200	0.00250	0.200	0	99.8	75	125			
Arsenic	0.195	0.00500	0.200	0	97.7	75	125			
Barium	0.219	0.0100	0.200	0.0158	102	75	125			
Cadmium	0.188	0.00100	0.200	0	93.8	75	125			
Chromium	0.192	0.00500	0.200	0	96.0	75	125			

CLIENT: Golder
Work Order: 2106204
Project: 1H21 Coleto Creek

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS5_210630A**

Sample ID: **2106175-03A MS** Batch ID: **101062** TestNo: **SW6020B** Units: **mg/L**
SampType: **MS** Run ID: **ICP-MS5_210630A** Analysis Date: **6/30/2021 1:37:00 PM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cobalt	0.192	0.00500	0.200	0	95.9	75	125			
Lead	0.206	0.00100	0.200	0	103	75	125			
Molybdenum	0.218	0.00500	0.200	0	109	75	125			
Selenium	0.221	0.00500	0.200	0	111	75	125			
Thallium	0.203	0.00150	0.200	0	102	75	125			

Sample ID: **2106175-03A MSD** Batch ID: **101062** TestNo: **SW6020B** Units: **mg/L**
SampType: **MSD** Run ID: **ICP-MS5_210630A** Analysis Date: **6/30/2021 1:40:00 PM** Prep Date: **6/29/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.198	0.00250	0.200	0	99.2	75	125	0.597	15	
Arsenic	0.195	0.00500	0.200	0	97.3	75	125	0.458	15	
Barium	0.218	0.0100	0.200	0.0158	101	75	125	0.792	15	
Cadmium	0.186	0.00100	0.200	0	92.8	75	125	1.09	15	
Chromium	0.188	0.00500	0.200	0	93.9	75	125	2.21	15	
Cobalt	0.191	0.00500	0.200	0	95.4	75	125	0.482	15	
Lead	0.204	0.00100	0.200	0	102	75	125	0.912	15	
Molybdenum	0.216	0.00500	0.200	0	108	75	125	0.902	15	
Selenium	0.220	0.00500	0.200	0	110	75	125	0.632	15	
Thallium	0.202	0.00150	0.200	0	101	75	125	0.628	15	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106204
Project: 1H21 Coleto Creek

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS5_210630A**

Sample ID: **ICV-210630** Batch ID: **R116016** TestNo: **SW6020B** Units: **mg/L**
SampType: **ICV** Run ID: **ICP-MS5_210630A** Analysis Date: **6/30/2021 10:59:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.101	0.00250	0.100	0	101	90	110			
Arsenic	0.0998	0.00500	0.100	0	99.8	90	110			
Barium	0.103	0.0100	0.100	0	103	90	110			
Cadmium	0.100	0.00100	0.100	0	100	90	110			
Chromium	0.101	0.00500	0.100	0	101	90	110			
Cobalt	0.102	0.00500	0.100	0	102	90	110			
Lead	0.0994	0.00100	0.100	0	99.4	90	110			
Molybdenum	0.0977	0.00500	0.100	0	97.7	90	110			
Selenium	0.101	0.00500	0.100	0	101	90	110			
Thallium	0.0966	0.00150	0.100	0	96.6	90	110			

Sample ID: **LCVL-210630** Batch ID: **R116016** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS5_210630A** Analysis Date: **6/30/2021 11:08:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00188	0.00250	0.00200	0	94.0	80	120			
Arsenic	0.00480	0.00500	0.00500	0	96.1	80	120			
Barium	0.00498	0.0100	0.00500	0	99.7	80	120			
Cadmium	0.000935	0.00100	0.00100	0	93.5	80	120			
Chromium	0.00488	0.00500	0.00500	0	97.5	80	120			
Cobalt	0.00471	0.00500	0.00500	0	94.3	80	120			
Lead	0.00102	0.00100	0.00100	0	102	80	120			
Molybdenum	0.00499	0.00500	0.00500	0	99.9	80	120			
Selenium	0.00473	0.00500	0.00500	0	94.7	80	120			
Thallium	0.000960	0.00150	0.00100	0	96.0	80	120			

Sample ID: **CCV2-210630** Batch ID: **R116016** TestNo: **SW6020B** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS5_210630A** Analysis Date: **6/30/2021 12:29:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.203	0.00250	0.200	0	101	90	110			
Arsenic	0.201	0.00500	0.200	0	100	90	110			
Barium	0.198	0.0100	0.200	0	98.9	90	110			
Cadmium	0.199	0.00100	0.200	0	99.6	90	110			
Chromium	0.199	0.00500	0.200	0	99.7	90	110			
Cobalt	0.202	0.00500	0.200	0	101	90	110			
Lead	0.197	0.00100	0.200	0	98.6	90	110			
Molybdenum	0.204	0.00500	0.200	0	102	90	110			
Selenium	0.200	0.00500	0.200	0	99.8	90	110			
Thallium	0.191	0.00150	0.200	0	95.4	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106204
Project: 1H21 Coleto Creek

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS5_210630A**

Sample ID: **CCV3-210630** Batch ID: **R116016** TestNo: **SW6020B** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS5_210630A** Analysis Date: **6/30/2021 2:09:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.199	0.00250	0.200	0	99.5	90	110			
Arsenic	0.198	0.00500	0.200	0	98.9	90	110			
Barium	0.195	0.0100	0.200	0	97.7	90	110			
Cadmium	0.199	0.00100	0.200	0	99.3	90	110			
Chromium	0.198	0.00500	0.200	0	98.9	90	110			
Cobalt	0.199	0.00500	0.200	0	99.5	90	110			
Lead	0.194	0.00100	0.200	0	96.8	90	110			
Molybdenum	0.202	0.00500	0.200	0	101	90	110			
Selenium	0.195	0.00500	0.200	0	97.3	90	110			
Thallium	0.189	0.00150	0.200	0	94.7	90	110			

Sample ID: **CCV4-210630** Batch ID: **R116016** TestNo: **SW6020B** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS5_210630A** Analysis Date: **6/30/2021 2:26:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.201	0.00250	0.200	0	100	90	110			
Arsenic	0.200	0.00500	0.200	0	100	90	110			
Barium	0.200	0.0100	0.200	0	99.8	90	110			
Cadmium	0.201	0.00100	0.200	0	101	90	110			
Chromium	0.199	0.00500	0.200	0	99.4	90	110			
Cobalt	0.203	0.00500	0.200	0	101	90	110			
Lead	0.196	0.00100	0.200	0	97.8	90	110			
Molybdenum	0.207	0.00500	0.200	0	103	90	110			
Selenium	0.194	0.00500	0.200	0	96.9	90	110			
Thallium	0.190	0.00150	0.200	0	95.1	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106204
Project: 1H21 Coleto Creek

ANALYTICAL QC SUMMARY REPORT

RunID: **IC2_210624A**

Sample ID: **DCS2-101017** Batch ID: **101017** TestNo: **E300** Units: **mg/L**
SampType: **DCS2** Run ID: **IC2_210624A** Analysis Date: **6/24/2021 3:27:47 PM** Prep Date: **6/24/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	0.445	1.00	0.5000	0	89.0	70	130	0	0	
Fluoride	0.226	0.400	0.2000	0	113	70	130	0	0	
Sulfate	1.60	3.00	1.500	0	107	70	130	0	0	

Qualifiers:				
	B	Analyte detected in the associated Method Blank	DF	Dilution Factor
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
	RL	Reporting Limit	S	Spike Recovery outside control limits
	J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106204
Project: 1H21 Coleto Creek

ANALYTICAL QC SUMMARY REPORT

RunID: **IC2_210701B**

The QC data in batch 101094 applies to the following samples: 2106204-01B, 2106204-02B, 2106204-03B, 2106204-04B, 2106204-05B, 2106204-06B, 2106204-07B

Sample ID: **MB-101094** Batch ID: **101094** TestNo: **E300** Units: **mg/L**
SampType: **MBLK** Run ID: **IC2_210701B** Analysis Date: **7/1/2021 12:58:49 PM** Prep Date: **7/1/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	<0.300	1.00								
Fluoride	<0.100	0.400								
Sulfate	<1.00	3.00								

Sample ID: **LCS-101094** Batch ID: **101094** TestNo: **E300** Units: **mg/L**
SampType: **LCS** Run ID: **IC2_210701B** Analysis Date: **7/1/2021 1:14:49 PM** Prep Date: **7/1/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.86	1.00	10.00	0	98.6	90	110			
Fluoride	3.90	0.400	4.000	0	97.5	90	110			
Sulfate	29.3	3.00	30.00	0	97.7	90	110			

Sample ID: **LCSD-101094** Batch ID: **101094** TestNo: **E300** Units: **mg/L**
SampType: **LCSD** Run ID: **IC2_210701B** Analysis Date: **7/1/2021 1:30:49 PM** Prep Date: **7/1/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.85	1.00	10.00	0	98.5	90	110	0.103	20	
Fluoride	3.94	0.400	4.000	0	98.5	90	110	1.00	20	
Sulfate	29.2	3.00	30.00	0	97.4	90	110	0.327	20	

Sample ID: **2106204-01BMS** Batch ID: **101094** TestNo: **E300** Units: **mg/L**
SampType: **MS** Run ID: **IC2_210701B** Analysis Date: **7/1/2021 5:03:34 PM** Prep Date: **7/1/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	247	10.0	200.0	53.18	96.9	90	110			
Fluoride	194	4.00	200.0	0	97.1	90	110			
Sulfate	222	30.0	200.0	54.52	83.5	90	110			S

Sample ID: **2106204-01BMSD** Batch ID: **101094** TestNo: **E300** Units: **mg/L**
SampType: **MSD** Run ID: **IC2_210701B** Analysis Date: **7/1/2021 5:19:34 PM** Prep Date: **7/1/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	246	10.0	200.0	53.18	96.6	90	110	0.201	20	
Fluoride	194	4.00	200.0	0	97.1	90	110	0.021	20	
Sulfate	221	30.0	200.0	54.52	83.5	90	110	0.083	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106204
Project: 1H21 Coleto Creek

ANALYTICAL QC SUMMARY REPORT

RunID: **IC2_210701B**

Sample ID:	**2106204-02BMS**	Batch ID:	**101094**	TestNo:	**E300**	Units:	**mg/L**
SampType:	**MS**	Run ID:	**IC2_210701B**	Analysis Date:	**7/1/2021 5:51:34 PM**	Prep Date:	**7/1/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	263	10.0	200.0	72.74	95.1	90	110			
Fluoride	191	4.00	200.0	0	95.6	90	110			
Sulfate	245	30.0	200.0	78.71	83.3	90	110			S

Sample ID:	**2106204-02BMSD**	Batch ID:	**101094**	TestNo:	**E300**	Units:	**mg/L**
SampType:	**MSD**	Run ID:	**IC2_210701B**	Analysis Date:	**7/1/2021 6:07:34 PM**	Prep Date:	**7/1/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	266	10.0	200.0	72.74	96.5	90	110	1.09	20	
Fluoride	193	4.00	200.0	0	96.6	90	110	1.05	20	
Sulfate	248	30.0	200.0	78.71	84.8	90	110	1.23	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106204
Project: 1H21 Coleto Creek

ANALYTICAL QC SUMMARY REPORT

RunID: **IC2_210701B**

Sample ID: **ICV-210701** Batch ID: **R116034** TestNo: **E300** Units: **mg/L**
SampType: **ICV** Run ID: **IC2_210701B** Analysis Date: **7/1/2021 12:26:48 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	25.0	1.00	25.00	0	100	90	110			
Fluoride	9.93	0.400	10.00	0	99.3	90	110			
Sulfate	76.3	3.00	75.00	0	102	90	110			

Sample ID: **CCV1-210701** Batch ID: **R116034** TestNo: **E300** Units: **mg/L**
SampType: **CCV** Run ID: **IC2_210701B** Analysis Date: **7/1/2021 9:03:34 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.93	1.00	10.00	0	99.3	90	110			
Fluoride	4.04	0.400	4.000	0	101	90	110			
Sulfate	29.4	3.00	30.00	0	98.1	90	110			

Sample ID: **CCV2-210701** Batch ID: **R116034** TestNo: **E300** Units: **mg/L**
SampType: **CCV** Run ID: **IC2_210701B** Analysis Date: **7/2/2021 1:03:34 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	4.06	0.400	4.000	0	102	90	110			
Sulfate	29.2	3.00	30.00	0	97.2	90	110			

Sample ID: **CCV3-210701** Batch ID: **R116034** TestNo: **E300** Units: **mg/L**
SampType: **CCV** Run ID: **IC2_210701B** Analysis Date: **7/2/2021 4:31:34 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	4.09	0.400	4.000	0	102	90	110			
Sulfate	29.5	3.00	30.00	0	98.5	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2106204
Project: 1H21 Coleto Creek

ANALYTICAL QC SUMMARY REPORT

RunID: **WC_210628C**

The QC data in batch 101038 applies to the following samples: 2106204-01B, 2106204-02B, 2106204-03B, 2106204-04B, 2106204-05B, 2106204-06B, 2106204-07B

Sample ID: **MB-101038** Batch ID: **101038** TestNo: **M2540C** Units: **mg/L**
SampType: **MBLK** Run ID: **WC_210628C** Analysis Date: **6/28/2021 4:30:00 PM** Prep Date: **6/28/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	<10.0	10.0								

Sample ID: **LCS-101038** Batch ID: **101038** TestNo: **M2540C** Units: **mg/L**
SampType: **LCS** Run ID: **WC_210628C** Analysis Date: **6/28/2021 4:30:00 PM** Prep Date: **6/28/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	744	10.0	745.6	0	99.8	90	113			

Sample ID: **2106175-01C-DUP** Batch ID: **101038** TestNo: **M2540C** Units: **mg/L**
SampType: **DUP** Run ID: **WC_210628C** Analysis Date: **6/28/2021 4:30:00 PM** Prep Date: **6/28/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4130	50.0	0	4185				1.44	5	

Sample ID: **2106175-02C-DUP** Batch ID: **101038** TestNo: **M2540C** Units: **mg/L**
SampType: **DUP** Run ID: **WC_210628C** Analysis Date: **6/28/2021 4:30:00 PM** Prep Date: **6/28/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	5540	50.0	0	5560				0.360	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

DHL Analytical, Inc.

Date: *30-Jul-21*

CLIENT: Golder
Work Order: 2106204
Project: 1H21 Coleto Creek

MQL SUMMARY REPORT

TestNo: E300	**MDL**	**MQL**
Analyte	**mg/L**	**mg/L**
Chloride	0.300	1.00
Fluoride	0.100	0.400
Sulfate	1.00	3.00

TestNo: SW6020B	**MDL**	**MQL**
Analyte	**mg/L**	**mg/L**
Antimony	0.000800	0.00250
Arsenic	0.00200	0.00500
Barium	0.00300	0.0100
Beryllium	0.000300	0.00100
Boron	0.0100	0.0300
Cadmium	0.000300	0.00100
Calcium	0.100	0.300
Chromium	0.00200	0.00500
Cobalt	0.00300	0.00500
Lead	0.000300	0.00100
Lithium	0.00500	0.0100
Molybdenum	0.00200	0.00500
Selenium	0.00200	0.00500
Thallium	0.000500	0.00150

TestNo: SW7470A	**MDL**	**MQL**
Analyte	**mg/L**	**mg/L**
Mercury	0.0000800	0.000200

TestNo: M2540C	**MDL**	**MQL**
Analyte	**mg/L**	**mg/L**
Total Dissolved Solids (Residue, Filt	10.0	10.0

Qualifiers: MQL -Method Quantitation Limit as defined by TRRP
MDL -Method Detection Limit as defined by TRRP

ANALYTICAL REPORT

July 29, 2021

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

DHL Analytical, Inc.

Sample Delivery Group:	L1373251
Samples Received:	07/01/2021
Project Number:	
Description:	
Report To:	John DuPont 2300 Double Creek Drive Round Rock, TX 78664

Entire Report Reviewed By: DEidson

Donna Eidson
Project Manager

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

MW-8 L1373251-01 Non-Potable Water

Collected by	Collected date/time	Received date/time
	06/25/21 09:30	07/01/21 10:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1708601	1	07/21/21 14:40	07/27/21 13:45	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1700230	1	07/26/21 10:47	07/27/21 13:45	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1700230	1	07/26/21 10:47	07/27/21 10:59	RGT	Mt. Juliet, TN

MW-6 L1373251-02 Non-Potable Water

Collected by	Collected date/time	Received date/time
	06/25/21 10:55	07/01/21 10:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1708601	1	07/21/21 14:40	07/27/21 13:45	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1700230	1	07/26/21 10:47	07/27/21 13:45	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1700230	1	07/26/21 10:47	07/27/21 10:59	RGT	Mt. Juliet, TN

MW-11 L1373251-03 Non-Potable Water

Collected by	Collected date/time	Received date/time
	06/25/21 12:00	07/01/21 10:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1708601	1	07/21/21 14:40	07/27/21 13:45	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1700230	1	07/26/21 10:47	07/27/21 13:45	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1700230	1	07/26/21 10:47	07/27/21 10:59	RGT	Mt. Juliet, TN

MW-101 L1373251-04 Non-Potable Water

Collected by	Collected date/time	Received date/time
	06/25/21 12:10	07/01/21 10:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1708601	1	07/21/21 14:40	07/27/21 13:45	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1700230	1	07/26/21 10:47	07/27/21 13:45	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1700230	1	07/26/21 10:47	07/27/21 10:59	RGT	Mt. Juliet, TN

MW-9 L1373251-05 Non-Potable Water

Collected by	Collected date/time	Received date/time
	06/25/21 13:00	07/01/21 10:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1708601	1	07/21/21 14:40	07/27/21 13:45	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1700230	1	07/26/21 10:47	07/27/21 13:45	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1700230	1	07/26/21 10:47	07/27/21 10:59	RGT	Mt. Juliet, TN

MW-10 L1373251-06 Non-Potable Water

Collected by	Collected date/time	Received date/time
	06/25/21 13:50	07/01/21 10:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1708601	1	07/21/21 14:40	07/27/21 13:45	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1700230	1	07/26/21 10:47	07/27/21 13:45	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1700230	1	07/26/21 10:47	07/27/21 10:59	RGT	Mt. Juliet, TN

SAMPLE SUMMARY

	Collected by	Collected date/time	Received date/time
MW-5 L1373251-07 Non-Potable Water		06/25/21 15:00	07/01/21 10:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1708601	1	07/21/21 14:40	07/27/21 13:45	JMR	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1700230	1	07/26/21 10:47	07/27/21 13:45	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1700230	1	07/26/21 10:47	07/27/21 10:59	RGT	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

DEidson

Donna Eidson
Project Manager

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.639	J	0.427	0.79	07/27/2021 13:45	WG1708601
(T) Barium	*105*			*62.0-143*	*07/27/2021 13:45*	WG1708601
(T) Yttrium	*108*			*79.0-136*	*07/27/2021 13:45*	WG1708601

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.787	J	0.583	0.985	07/27/2021 13:45	WG1700230

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.148	J	0.156	0.195	07/27/2021 10:59	WG1700230
(T) Barium-133	*106*			*30.0-143*	*07/27/2021 10:59*	WG1700230

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.03		0.357	0.646	07/27/2021 13:45	WG1708601
(T) Barium	*104*			*62.0-143*	*07/27/2021 13:45*	WG1708601
(T) Yttrium	*100*			*79.0-136*	*07/27/2021 13:45*	WG1708601

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.24		0.545	0.873	07/27/2021 13:45	WG1700230

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.206	J	0.188	0.227	07/27/2021 10:59	WG1700230
(T) Barium-133	*107*			*30.0-143*	*07/27/2021 10:59*	WG1700230

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.824		0.371	0.678	07/27/2021 13:45	WG1708601
(T) Barium	*95.5*			*62.0-143*	*07/27/2021 13:45*	WG1708601
(T) Yttrium	*110*			*79.0-136*	*07/27/2021 13:45*	WG1708601

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.06		0.594	0.96	07/27/2021 13:45	WG1700230

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.237	J	0.223	0.282	07/27/2021 10:59	WG1700230
(T) Barium-133	*105*			*30.0-143*	*07/27/2021 10:59*	WG1700230

Radiochemistry by Method 904

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
Analyte	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	1.64		0.317	0.549	07/27/2021 13:45	WG1708601
(T) Barium	*98.1*			*62.0-143*	*07/27/2021 13:45*	WG1708601
(T) Yttrium	*103*			*79.0-136*	*07/27/2021 13:45*	WG1708601

Radiochemistry by Method Calculation

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
Analyte	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.81		0.531	0.85	07/27/2021 13:45	WG1700230

Radiochemistry by Method SM7500Ra B M

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
Analyte	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.173	J	0.214	0.301	07/27/2021 10:59	WG1700230
(T) Barium-133	*105*			*30.0-143*	*07/27/2021 10:59*	WG1700230

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.665		0.327	0.599	07/27/2021 13:45	WG1708601
(T) Barium	*100*			*62.0-143*	*07/27/2021 13:45*	WG1708601
(T) Yttrium	*108*			*79.0-136*	*07/27/2021 13:45*	WG1708601

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.04		0.590	0.891	07/27/2021 13:45	WG1700230

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.380		0.263	0.292	07/27/2021 10:59	WG1700230
(T) Barium-133	*105*			*30.0-143*	*07/27/2021 10:59*	WG1700230

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.13		0.276	0.485	07/27/2021 13:45	WG1708601
(T) Barium	*103*			*62.0-143*	*07/27/2021 13:45*	WG1708601
(T) Yttrium	*113*			*79.0-136*	*07/27/2021 13:45*	WG1708601

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.30		0.443	0.677	07/27/2021 13:45	WG1700230

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.179	J	0.167	0.192	07/27/2021 10:59	WG1700230
(T) Barium-133	*102*			*30.0-143*	*07/27/2021 10:59*	WG1700230

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.200	U	0.313	0.587	07/27/2021 13:45	WG1708601
(T) Barium	*104*			*62.0-143*	*07/27/2021 13:45*	WG1708601
(T) Yttrium	*112*			*79.0-136*	*07/27/2021 13:45*	WG1708601

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.236	U	0.442	0.823	07/27/2021 13:45	WG1700230

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0362	U	0.129	0.236	07/27/2021 10:59	WG1700230
(T) Barium-133	*98.9*			*30.0-143*	*07/27/2021 10:59*	WG1700230

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3684922-1 07/27/21 13:45

	MB Result	MB Qualifier	MB MDA
Analyte	pCi/l		pCi/l
Radium-228	0.0757	U	0.422
(T) Barium	*104*		
(T) Yttrium	*109*		

L1377989-18 Original Sample (OS) • Duplicate (DUP)

(OS) L1377989-18 07/27/21 13:45 • (DUP) R3684922-5 07/27/21 13:45

	Original Result	DUP Result	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
Analyte	pCi/l	pCi/l		%			%	
Radium-228	1.09	0.418	1	88.7	1.14	U	20	3
(T) Barium	*96.3*	*101*						
(T) Yttrium	*111*	*108*						

Laboratory Control Sample (LCS)

(LCS) R3684922-2 07/27/21 13:45

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	pCi/l	pCi/l	%	%	
Radium-228	5.00	5.37	107	80.0-120	
(T) Barium			*96.7*		
(T) Yttrium			*106*		

L1377989-18 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1377989-18 07/27/21 13:45 • (MS) R3684922-3 07/27/21 13:45 • (MSD) R3684922-4 07/27/21 13:45

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
Analyte	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-228	10.0	1.09	11.9	10.4	108	92.9	1	70.0-130			13.3		20
(T) Barium		*96.3*			*104*	*102*							
(T) Yttrium		*111*			*112*	*98.0*							

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3684921-1 07/27/21 10:59

Analyte	MB Result pCi/l	MB Qualifier	MB MDA pCi/l
Radium-226	0.00785	U	0.0518
(T) Barium-133	*98.7*		

L1373878-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1373878-04 07/27/21 10:59 • (DUP) R3684921-5 07/27/21 10:59

Analyte	Original Result pCi/l	DUP Result pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	-0.0637	0.0113	1	200	0.414	U	20	3
(T) Barium-133	*102*	*105*						

Laboratory Control Sample (LCS)

(LCS) R3684921-2 07/27/21 10:59

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.02	4.66	92.9	80.0-120	
(T) Barium-133			*102*		

L1373251-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1373251-01 07/27/21 10:59 • (MS) R3684921-3 07/27/21 10:59 • (MSD) R3684921-4 07/27/21 10:59

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.1	0.148	19.9	21.9	98.1	108	1	75.0-125			9.72		20
(T) Barium-133		*106*			*101*	*103*							

GLOSSARY OF TERMS

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico[1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina[1]	DW21704
Georgia	NELAP	North Carolina[3]	41
Georgia[1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky[1,6]	KY90010	South Carolina	84004002
Kentucky[2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee[1,4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas[5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025[5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

DHL Analytical, Inc.
2300 Double Creek Drive
Round Rock, TX 78664
TEL: *(512) 388-8222* FAX: *(512) 388-8229*
Work Order: 2106204

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Subcontractor:

Pace Analytical
12065 Lebanon Rd
Mt. Juliet, TN 37122

TEL: (615) 773-5923
FAX:
Acct #: DHLRRTX

A190

L1373251

28-Jun-21

Sample ID	Matrix	DHL#	Date Collected	Bottle Type	Requested Tests					
					Ra-228	Ra-226				
					E904.0	M7500 Ra B M				
MW-8	Aqueous	01C	06/25/21 09:30 AM	1LHDPEHNO3		1				-01
MW-8	Aqueous	01D	06/25/21 09:30 AM	1LHDPEHNO3	1					-01
MW-6	Aqueous	02C	06/25/21 10:55 AM	1LHDPEHNO3		1				-02
MW-6	Aqueous	02D	06/25/21 10:55 AM	1LHDPEHNO3	1					-02
MW-11	Aqueous	03C	06/25/21 12:00 PM	1LHDPEHNO3		1				-03
MW-11	Aqueous	03D	06/25/21 12:00 PM	1LHDPEHNO3	1					-03
MW-101	Aqueous	04C	06/25/21 12:10 PM	1LHDPEHNO3		1				-04
MW-101	Aqueous	04D	06/25/21 12:10 PM	1LHDPEHNO3	1					-04
MW-9	Aqueous	05C	06/25/21 01:00 PM	1LHDPEHNO3		1				-05
MW-9	Aqueous	05D	06/25/21 01:00 PM	1LHDPEHNO3	1					-05
MW-10	Aqueous	06C	06/25/21 01:50 PM	1LHDPEHNO3		1				-06
MW-10	Aqueous	06D	06/25/21 01:50 PM	1LHDPEHNO3	1					-06
MW-5	Aqueous	07C	06/25/21 03:00 PM	1LHDPEHNO3		1				-07
MW-5	Aqueous	07D	06/25/21 03:00 PM	1LHDPEHNO3	1					-07

General Comments:

Please analyze these samples with Normal Turnaround Time.
Report Ra-226, Ra-228 & Combined per Specs.
Quality Control Package Needed: Standard - NELAC Rad Test compliant
Email to cac@dhlanalytical.com & dupont@dhlanalytical.com

Sample Receipt Checklist
COC Seal Present/Intact: Y [✓ N]
COC Signed/Accurate: [✓ Y] N
Bottles arrive intact: [✓ Y] N
Correct bottles used: [✓ Y] N
Sufficient volume sent: [✓ Y] N
RAD Screen <0.5 mR/hr: [✓ Y] N

If Applicable
VOA Zero Headspace: Y N
Pres.Correct/Check: [✓ Y] N

		Date/Time			Date/Time
Relinquished by:		6/28/21 1800	**Received by:**		
Relinquished by:			**Received by:**		

DHL ANALYTICAL

November 09, 2021

Will Vienne
Golder
2201 Double Creek Dr #4004
Round Rock, Texas 78664
TEL: (512) 671-3434
FAX (512) 671-3446

Order No.: 2109210

RE: 2H21 Coleto Creek Power Plant

Dear Will Vienne:

DHL Analytical, Inc. received 10 sample(s) on 9/29/2021 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAP except where noted in the Case Narrative. All non-NELAP methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-21-27

Table of Contents

DHL ANALYTICAL

2300 Double Creek Dr. Round Rock, TX 78664
Phone 512.388.8222
Web: **www.dhlanalytical.com**
Email: **login@dhlanalytical.com**

CHAIN-OF-CUSTODY

PAGE 1 OF 1

CLIENT: Golder Associates
ADDRESS: 1501 E Mockingbird Ln Victoria TX 77904
PHONE: 361-573-6442 EMAIL: Will Vienne
DATA REPORTED TO: Will Vienne
ADDITIONAL REPORT COPIES TO: Greg Logan

PO#:

PROJECT LOCATION OR NAME: 2H21 Coleto Creek Power Plant
CLIENT PROJECT # 19122262-B2021
COLLECTOR: Greg Logan

LABORATORY USE ONLY
DHL WORKORDER #: 2109210

Authorize 5% surcharge for TRRP report? ☐ Yes ☒ No

W=WATER SE=SEDIMENT
L=LIQUID P=PAINT
S=SOIL SL=SLUDGE
SO=SOLID

Field Sample I.D.	Lab Use Only DHL Lab #	Collection Date	Collection Time	Matrix	Container Type	# of Containers	PRESERVATION HCL	HNO$_3$	H$_2$SO$_4$	NaOH ☐ Zn Acetate ☐	ICE ☒ UNPRESERVED ☒	ANALYSES	BTEX ☐ MTBE ☐ [METHOD 8260]	TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐	GRO 8015 ☐ DRO 8015 ☐	VOC 8260 ☐ VOC 624.1 ☐	SVOC 8270 ☐ SVOC 625.1 ☐	PAH 8270 ☐ HOLD PAH ☐	PEST 8270 ☐ 625.1 ☐ O-P PEST 8270 ☐	PCB 8082 ☐ 608.3 ☐ PCB 8270 ☐ 625.1 ☐	HERB 8321 ☐ T PHOS ☐ AMMONIA ☐	METALS 6020 ☐ 200.8 ☐ DISS. METALS ☐	RCRA 8 ☐ TX11 ☐ ___	pH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐	ANIONS 300 ☐ 9056 ☐ ___	TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐	TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐	RCI ☐ IGN ☐ DGAS ☐ OIL&GREASE ☐	TDS ☐ TSS ☐ % MOIST ☐ CYANIDE ☐	APPENDIX III	APPENDIX IV		FIELD NOTES
BV-5	01	9/28/21	8:20	W	P	4		X			X																			X	X		
MW-4	02	9-28-21	9:20	W	P	4		X			X																			X	X		
BV-21	03	''	10:20	|	|	|		|			|																		X	X		
Dup 101	04	''	10:30	|	|	|		|			|																		X	X		
MW-8	05	''	11:20	|	|	|		|			|																		X	X		
MW-6	06	''	12:15	|	|	|		|			|																		X	X		
MW-11	07	''	13:15	|	|	|		|			|																		X	X		
MW-9	08	''	14:00	|	|	|		|			|																		X	X		
MW-5	09	''	14:45	|	|	|		|			|																		X	X		
MW-10	10	''	15:25	↓	↓	↓		↓			↓																			X	X		

Relinquished By: (Sign)	DATE/TIME	Received by:
	9-28-21 / 18:00	Fed Ex
Fed Ex	9/29/21 0935	

TURN AROUND TIME
(CALL FIRST FOR RUSH)
RUSH-1 DAY☐ RUSH-2 DAY☐
RUSH-3 DAY☐
NORMAL ☒ OTHER ☐
DUE DATE ___________ ☐

LABORATORY USE ONLY
RECEIVING TEMP (°C): 2.8/0.9/2.1 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LSO ☒ FEDEX ☐ UPS ☐ COURIER ☐ OTHER
☐ HAND DELIVERED

☐ **DHL DISPOSAL @ 5.00 each** ☐ **Return**

DHL COC REV 3 | MAR 2021

From:	John DuPont
Sent:	Tuesday, May 28, 2019 11:35 AM
To:	Eric Lau
Subject:	FW: CCR Analysis

Appendix III Parameters:
Metals (Ca and B)
Anions (Cl, F, and SO4)
TDS

Appendix IV Parameters:

Metals (As, Ba, Be, Cd, Co, Cr, Hg, Li, Mo, Pb, Sb, Se, and Tl)
Ra-226
Ra-228

From: Vienne, Will [mailto:William_Vienne@golder.com]
Sent: Tuesday, April 09, 2019 12:48 PM
To: John DuPont <dupont@dhlanalytical.com>
Subject: CCR Analysis

ORIGIN ID:VCTA (361) 573-6442
GREG LOGAN JR.
GOLDER ASSOCIATES INC.
1501 E. MOCKINGBIRD LN
SUITE 420
VICTORIA, TX 77904
UNITED STATES US

SHIP DATE: 28SEP21
ACTWGT: 20.00 LB
CAD: 2806631/INET4400
DIMS: 24x12x15 IN

BILL SENDER

TO **SAMPLE RECEIVING**
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF: 19122262-B2021
INV:
PO: DEPT:

56DJ3/169A/FE4A

FedEx Express

E

J212021070901uv

1 of 3
TRK# 0201 **7748 2466 5265**
MASTER

WED - 29 SEP 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US **AUS**

After printing this label:
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Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

CUSTODY SEAL

DATE 9-28-21

SIGNATURE GML

DHL ANALYTICAL

ORIGIN ID:VCTA (361) 573-6442
GREG LOGAN JR.
GOLDER ASSOCIATES INC.
1501 E. MOCKINGBIRD LN
SUITE 420
VICTORIA, TX 77904
UNITED STATES US

SHIP DATE: 28SEP21
ACTWGT: 20.00 LB
CAD: 2806631/INET4400
DIMS: 24x12x15 IN
BILL SENDER

TO **SAMPLE RECEIVING**
DHL ANALYTICAL
2300 DOUBLE CREEK DR
ROUND ROCK TX 78664
(512) 388-8222 REF: 1912262-B2021
INV:
PO: DEPT:

56DJ3/169A/FE4A

FedEx Express

E

J212021070901uv

WED - 29 SEP 10:30A
PRIORITY OVERNIGHT

2 of 3
MPS# 0263 **7748 2466 5471**
Mstr# 7748 2466 5265 0201

78664
TX-US **AUS**

44 BSMA

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ORIGIN ID:VCTA (361) 573-6442
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UNITED STATES US

SHIP DATE: 28SEP21
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DIMS: 24x12x15 IN

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TO **SAMPLE RECEIVING**
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF: 19122262-B2021
INV:
PO: DEPT:

56DJ3/169A/FE4A

FedEx Express

E

J212021070901uv

WED - 29 SEP 10:30A
PRIORITY OVERNIGHT

3 of 3

MPS# 7748 2466 5780 0201
0263 **Mstr# 7748 2466 5265**

78664
TX-US **AUS**

44 BSMA

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CUSTODY SEAL

DATE 9-28-21

SIGNATURE GML

DHL ANALYTICAL

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Golder**

Work Order Number **2109210**

Date Received: **9/29/2021**

Received by: **EL**

Checklist completed by: Signature 9/29/2021 Date

Reviewed by SH Initials 9/29/2021 Date

Carrier name: FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	2.8 °C/0.9°c/2.1°c
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 13171
	Adjusted? No		Checked by R.A.
Water - ph>9 (S) or ph>10 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by

Any No response must be detailed in the comments section below.

Client contacted: ______ Date contacted: ______ Person contacted ______

Contacted by: ______ Regarding: ______

Comments: ______

Corrective Action: ______

Laboratory Name: DHL Analytical, Inc.
Laboratory Review Checklist: Reportable Data

Project Name: 2H21 Coleto Creek Power Plant	**LRC Date:** 11/9/21
Reviewer Name: Carlos Castro	**Laboratory Work Order:** 2109210
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-Custody (C-O-C)**					
		1) Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				R1-01
		2) Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	X				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		3) Were calculations checked by a peer or supervisor?	X				
		4) Were all analyte identifications checked by a peer or supervisor?	X				
		5) Were sample detection limits reported for all analytes not detected?	X				
		6) Were all results for soil and sediment samples reported on a dry weight basis?			X		
		7) Were % moisture (or solids) reported for all soil and sediment samples?			X		
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			X		
		9) If required for the project, TICs reported?			X		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?			X		
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	X				
		2) Were blanks analyzed at the appropriate frequency?	X				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		4) Were blank concentrations < MDL?	X				
		5) For analyte(s) detected in a blank sample, was the concentration, unadjusted for sample specific factors, in all associated field samples, **greater** than 10 times the concentration in the blank sample?			X		
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	X				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		3) Were LCSs analyzed at the required frequency?	X				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		6) Was the LCSD RPD within QC limits (if applicable)?	X				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	X				
		2) Were MS/MSD analyzed at the appropriate frequency?	X				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			R7-03
		4) Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?	X				
		2) Were analytical duplicates analyzed at the appropriate frequency?	X				
		3) Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	X				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

Laboratory Name: DHL Analytical, Inc.

Laboratory Review Checklist (continued): Supporting Data

Project Name: 2H21 Coleto Creek Power Plant

LRC Date: 11/9/21

Reviewer Name: Carlos Castro

Laboratory Work Order: 2109210

Prep Batch Number(s): See Prep Dates Report

Run Batch: See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	X				
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	X				
		2) Were percent differences for each analyte within the method-required QC limits?	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	X				
		2) Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?	X				
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?		X			**S9-01**
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	X				
		2) Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	X				

---

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5,
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - c) The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) The amount of analyte measured in the duplicate,
  - b) The calculated RPD, and
  - c) The laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
- R10 Other problems or anomalies.

The Exception Report for each "No" or "Not Reviewed (NR)" item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory is not accredited under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on February 23-26 2021. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Name: John DuPont
Official Title: General Manager

Signature

11/09/21
Date

Name: Dr. Derhsing Luu
Official Title: Technical Director

DHL Analytical, Inc. **Date:** *09-Nov-21*

CLIENT: Golder
Project: 2H21 Coleto Creek Power Plant
Lab Order: 2109210

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Method SW6020B - Metals Analysis
Method SW7470A - Mercury Analysis
Method E300 - Anions Analysis
Method M2540C - TDS Analysis
Sub-contract - Radium-228 and Radium-226 analyses by methods E904 and SM 7500 Ra B M. Analyzed at Pace Analytical.

Exception Report R1-01

The samples were received and log-in performed on 9/29/21. A total of 10 samples were received. The samples arrived in good condition and were properly packaged.

Exception Report R7-03

For Anions analysis performed on 10/5/21 the matrix spikes and matrix spike duplicate recoveries (2109210-01 MS/MSD & 2109228-07 MS) were slightly below control limits for Chloride. These are flagged accordingly in the QC summary report. The sample selected for the matrix spike and matrix spike duplicate (2109210-01 MS/MSD) was from this work order. The sample selected for the matrix spike and matrix spike duplicate (2109228-07 MS/MSD) was not from this work order. The LCS was within control limits for this analyte. No further corrective actions were taken.

For Metals analysis performed on 10/4/21 the matrix spike and matrix spike duplicate recoveries were out of control limits for Boron. These are flagged accordingly. The sample selected for the matrix spike and matrix spike duplicate was not from this work order. The LCS was within control limits for this analyte. No further corrective actions were taken.

Exception Report S9-01

For Metals analysis performed on 10/1/21 the PDS recovery was slightly below control limits for Calcium. This is flagged accordingly in the QC summary report. The serial dilution was within control limits for this analyte. No further corrective actions were taken.

CLIENT: Golder
Project: 2H21 Coleto Creek Power Plant
Lab Order: 2109210

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
2109210-01	BV-5		09/28/21 08:20 AM	9/29/2021
2109210-02	MW-4		09/28/21 09:20 AM	9/29/2021
2109210-03	BV-21		09/28/21 10:20 AM	9/29/2021
2109210-04	Dup 101		09/28/21 10:30 AM	9/29/2021
2109210-05	MW-8		09/28/21 11:20 AM	9/29/2021
2109210-06	MW-6		09/28/21 12:15 PM	9/29/2021
2109210-07	MW-11		09/28/21 01:15 PM	9/29/2021
2109210-08	MW-9		09/28/21 02:00 PM	9/29/2021
2109210-09	MW-5		09/28/21 02:45 PM	9/29/2021
2109210-10	MW-10		09/28/21 03:25 PM	9/29/2021

Lab Order: 2109210
Client: Golder
Project: 2H21 Coleto Creek Power Plant

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
2109210-01A	BV-5	09/28/21 08:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	BV-5	09/28/21 08:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	BV-5	09/28/21 08:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	BV-5	09/28/21 08:20 AM	Aqueous	SW7470A	Mercury Aq Prep	10/04/21 09:06 AM	102255
2109210-01B	BV-5	09/28/21 08:20 AM	Aqueous	E300	Anion Preparation	10/05/21 01:47 PM	102275
	BV-5	09/28/21 08:20 AM	Aqueous	E300	Anion Preparation	10/05/21 01:47 PM	102275
	BV-5	09/28/21 08:20 AM	Aqueous	M2540C	TDS Preparation	09/30/21 09:19 AM	102241
2109210-02A	MW-4	09/28/21 09:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-4	09/28/21 09:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-4	09/28/21 09:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-4	09/28/21 09:20 AM	Aqueous	SW7470A	Mercury Aq Prep	10/04/21 09:06 AM	102255
2109210-02B	MW-4	09/28/21 09:20 AM	Aqueous	E300	Anion Preparation	10/05/21 01:47 PM	102275
	MW-4	09/28/21 09:20 AM	Aqueous	E300	Anion Preparation	10/05/21 01:47 PM	102275
	MW-4	09/28/21 09:20 AM	Aqueous	M2540C	TDS Preparation	09/30/21 09:19 AM	102241
2109210-03A	BV-21	09/28/21 10:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	BV-21	09/28/21 10:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	BV-21	09/28/21 10:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	BV-21	09/28/21 10:20 AM	Aqueous	SW7470A	Mercury Aq Prep	10/04/21 09:06 AM	102255
2109210-03B	BV-21	09/28/21 10:20 AM	Aqueous	E300	Anion Preparation	10/05/21 01:47 PM	102275
	BV-21	09/28/21 10:20 AM	Aqueous	E300	Anion Preparation	10/05/21 01:47 PM	102298
	BV-21	09/28/21 10:20 AM	Aqueous	M2540C	TDS Preparation	09/30/21 09:19 AM	102241
2109210-04A	Dup 101	09/28/21 10:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	Dup 101	09/28/21 10:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	Dup 101	09/28/21 10:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	Dup 101	09/28/21 10:30 AM	Aqueous	SW7470A	Mercury Aq Prep	10/04/21 09:06 AM	102255
2109210-04B	Dup 101	09/28/21 10:30 AM	Aqueous	E300	Anion Preparation	10/05/21 01:47 PM	102275
	Dup 101	09/28/21 10:30 AM	Aqueous	E300	Anion Preparation	10/05/21 01:47 PM	102275
	Dup 101	09/28/21 10:30 AM	Aqueous	M2540C	TDS Preparation	09/30/21 09:19 AM	102241

Lab Order: 2109210
Client: Golder
Project: 2H21 Coleto Creek Power Plant

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
2109210-05A	MW-8	09/28/21 11:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-8	09/28/21 11:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-8	09/28/21 11:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-8	09/28/21 11:20 AM	Aqueous	SW7470A	Mercury Aq Prep	10/04/21 09:06 AM	102255
2109210-05B	MW-8	09/28/21 11:20 AM	Aqueous	E300	Anion Preparation	10/05/21 01:47 PM	102275
	MW-8	09/28/21 11:20 AM	Aqueous	E300	Anion Preparation	10/05/21 01:47 PM	102275
	MW-8	09/28/21 11:20 AM	Aqueous	M2540C	TDS Preparation	09/30/21 09:19 AM	102241
2109210-06A	MW-6	09/28/21 12:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-6	09/28/21 12:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-6	09/28/21 12:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-6	09/28/21 12:15 PM	Aqueous	SW7470A	Mercury Aq Prep	10/04/21 09:06 AM	102255
2109210-06B	MW-6	09/28/21 12:15 PM	Aqueous	E300	Anion Preparation	10/05/21 01:47 PM	102275
	MW-6	09/28/21 12:15 PM	Aqueous	E300	Anion Preparation	10/05/21 01:47 PM	102275
	MW-6	09/28/21 12:15 PM	Aqueous	M2540C	TDS Preparation	09/30/21 09:19 AM	102241
2109210-07A	MW-11	09/28/21 01:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-11	09/28/21 01:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-11	09/28/21 01:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-11	09/28/21 01:15 PM	Aqueous	SW7470A	Mercury Aq Prep	10/04/21 09:06 AM	102255
2109210-07B	MW-11	09/28/21 01:15 PM	Aqueous	E300	Anion Preparation	10/05/21 01:47 PM	102275
	MW-11	09/28/21 01:15 PM	Aqueous	E300	Anion Preparation	10/05/21 01:47 PM	102275
	MW-11	09/28/21 01:15 PM	Aqueous	M2540C	TDS Preparation	09/30/21 09:19 AM	102241
2109210-08A	MW-9	09/28/21 02:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-9	09/28/21 02:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-9	09/28/21 02:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-9	09/28/21 02:00 PM	Aqueous	SW7470A	Mercury Aq Prep	10/04/21 09:06 AM	102255
2109210-08B	MW-9	09/28/21 02:00 PM	Aqueous	E300	Anion Preparation	10/05/21 01:47 PM	102275
	MW-9	09/28/21 02:00 PM	Aqueous	E300	Anion Preparation	10/05/21 01:47 PM	102275
	MW-9	09/28/21 02:00 PM	Aqueous	M2540C	TDS Preparation	09/30/21 09:19 AM	102241

Lab Order: 2109210
Client: Golder
Project: 2H21 Coleto Creek Power Plant

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
2109210-09A	MW-5	09/28/21 02:45 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-5	09/28/21 02:45 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-5	09/28/21 02:45 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-5	09/28/21 02:45 PM	Aqueous	SW7470A	Mercury Aq Prep	10/04/21 09:06 AM	102255
2109210-09B	MW-5	09/28/21 02:45 PM	Aqueous	E300	Anion Preparation	10/05/21 01:47 PM	102275
	MW-5	09/28/21 02:45 PM	Aqueous	E300	Anion Preparation	10/05/21 01:47 PM	102275
	MW-5	09/28/21 02:45 PM	Aqueous	M2540C	TDS Preparation	09/30/21 09:19 AM	102241
2109210-10A	MW-10	09/28/21 03:25 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-10	09/28/21 03:25 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-10	09/28/21 03:25 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	09/30/21 09:32 AM	102242
	MW-10	09/28/21 03:25 PM	Aqueous	SW7470A	Mercury Aq Prep	10/04/21 09:06 AM	102255
2109210-10B	MW-10	09/28/21 03:25 PM	Aqueous	E300	Anion Preparation	10/05/21 01:47 PM	102275
	MW-10	09/28/21 03:25 PM	Aqueous	E300	Anion Preparation	10/05/21 01:47 PM	102275
	MW-10	09/28/21 03:25 PM	Aqueous	M2540C	TDS Preparation	09/30/21 09:19 AM	102241

Lab Order: 2109210
Client: Golder
Project: 2H21 Coleto Creek Power Plant

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
2109210-01A	BV-5	Aqueous	SW7470A	Mercury Total: Aqueous	102255	1	10/07/21 02:46 PM	CETAC2_HG_211007C
	BV-5	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	10	10/04/21 11:29 AM	ICP-MS4_211004A
	BV-5	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	1	10/04/21 12:15 PM	ICP-MS4_211004A
	BV-5	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	1	10/01/21 11:14 AM	ICP-MS5_211001A
2109210-01B	BV-5	Aqueous	E300	Anions by IC method - Water	102275	10	10/05/21 10:43 PM	IC4_211005B
	BV-5	Aqueous	E300	Anions by IC method - Water	102275	1	10/06/21 05:03 AM	IC4_211005B
	BV-5	Aqueous	M2540C	Total Dissolved Solids	102241	1	09/30/21 04:05 PM	WC_210930E
2109210-02A	MW-4	Aqueous	SW7470A	Mercury Total: Aqueous	102255	1	10/07/21 02:49 PM	CETAC2_HG_211007C
	MW-4	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	1	10/01/21 11:16 AM	ICP-MS5_211001A
	MW-4	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	10	10/04/21 11:31 AM	ICP-MS4_211004A
	MW-4	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	1	10/04/21 11:56 AM	ICP-MS4_211004A
2109210-02B	MW-4	Aqueous	E300	Anions by IC method - Water	102275	10	10/05/21 11:40 PM	IC4_211005B
	MW-4	Aqueous	E300	Anions by IC method - Water	102275	1	10/06/21 05:22 AM	IC4_211005B
	MW-4	Aqueous	M2540C	Total Dissolved Solids	102241	1	09/30/21 04:05 PM	WC_210930E
2109210-03A	BV-21	Aqueous	SW7470A	Mercury Total: Aqueous	102255	1	10/07/21 02:51 PM	CETAC2_HG_211007C
	BV-21	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	1	10/01/21 11:19 AM	ICP-MS5_211001A
	BV-21	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	1	10/04/21 11:58 AM	ICP-MS4_211004A
	BV-21	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	10	10/04/21 11:33 AM	ICP-MS4_211004A
2109210-03B	BV-21	Aqueous	E300	Anions by IC method - Water	102275	1	10/06/21 05:41 AM	IC4_211005B
	BV-21	Aqueous	E300	Anions by IC method - Water	102298	10	10/06/21 09:56 PM	IC2_211006B
	BV-21	Aqueous	M2540C	Total Dissolved Solids	102241	1	09/30/21 04:05 PM	WC_210930E
2109210-04A	Dup 101	Aqueous	SW7470A	Mercury Total: Aqueous	102255	1	10/07/21 02:53 PM	CETAC2_HG_211007C
	Dup 101	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	10	10/04/21 11:35 AM	ICP-MS4_211004A
	Dup 101	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	1	10/04/21 12:00 PM	ICP-MS4_211004A
	Dup 101	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	1	10/01/21 11:22 AM	ICP-MS5_211001A
2109210-04B	Dup 101	Aqueous	E300	Anions by IC method - Water	102275	10	10/05/21 11:59 PM	IC4_211005B

Lab Order: 2109210
Client: Golder
Project: 2H21 Coleto Creek Power Plant

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
2109210-04B	Dup 101	Aqueous	E300	Anions by IC method - Water	102275	1	10/06/21 06:00 AM	IC4_211005B
	Dup 101	Aqueous	M2540C	Total Dissolved Solids	102241	1	09/30/21 04:05 PM	WC_210930E
2109210-05A	MW-8	Aqueous	SW7470A	Mercury Total: Aqueous	102255	1	10/07/21 02:56 PM	CETAC2_HG_211007C
	MW-8	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	10	10/04/21 11:37 AM	ICP-MS4_211004A
	MW-8	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	1	10/04/21 12:17 PM	ICP-MS4_211004A
	MW-8	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	1	10/01/21 11:24 AM	ICP-MS5_211001A
2109210-05B	MW-8	Aqueous	E300	Anions by IC method - Water	102275	1	10/06/21 06:19 AM	IC4_211005B
	MW-8	Aqueous	E300	Anions by IC method - Water	102275	10	10/06/21 12:18 AM	IC4_211005B
	MW-8	Aqueous	M2540C	Total Dissolved Solids	102241	1	09/30/21 04:05 PM	WC_210930E
2109210-06A	MW-6	Aqueous	SW7470A	Mercury Total: Aqueous	102255	1	10/07/21 03:02 PM	CETAC2_HG_211007C
	MW-6	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	10	10/04/21 11:39 AM	ICP-MS4_211004A
	MW-6	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	1	10/04/21 12:19 PM	ICP-MS4_211004A
	MW-6	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	1	10/01/21 11:43 AM	ICP-MS5_211001A
2109210-06B	MW-6	Aqueous	E300	Anions by IC method - Water	102275	10	10/06/21 12:37 AM	IC4_211005B
	MW-6	Aqueous	E300	Anions by IC method - Water	102275	1	10/06/21 06:38 AM	IC4_211005B
	MW-6	Aqueous	M2540C	Total Dissolved Solids	102241	1	09/30/21 04:05 PM	WC_210930E
2109210-07A	MW-11	Aqueous	SW7470A	Mercury Total: Aqueous	102255	1	10/07/21 03:05 PM	CETAC2_HG_211007C
	MW-11	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	1	10/01/21 11:45 AM	ICP-MS5_211001A
	MW-11	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	10	10/04/21 11:41 AM	ICP-MS4_211004A
	MW-11	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	1	10/04/21 12:21 PM	ICP-MS4_211004A
2109210-07B	MW-11	Aqueous	E300	Anions by IC method - Water	102275	10	10/06/21 12:56 AM	IC4_211005B
	MW-11	Aqueous	E300	Anions by IC method - Water	102275	1	10/06/21 06:57 AM	IC4_211005B
	MW-11	Aqueous	M2540C	Total Dissolved Solids	102241	1	09/30/21 04:05 PM	WC_210930E
2109210-08A	MW-9	Aqueous	SW7470A	Mercury Total: Aqueous	102255	1	10/07/21 03:07 PM	CETAC2_HG_211007C
	MW-9	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	1	10/01/21 11:48 AM	ICP-MS5_211001A
	MW-9	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	1	10/04/21 12:23 PM	ICP-MS4_211004A

Lab Order: 2109210
Client: Golder
Project: 2H21 Coleto Creek Power Plant

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
2109210-08A	MW-9	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	10	10/04/21 11:43 AM	ICP-MS4_211004A
2109210-08B	MW-9	Aqueous	E300	Anions by IC method - Water	102275	1	10/06/21 07:16 AM	IC4_211005B
	MW-9	Aqueous	E300	Anions by IC method - Water	102275	10	10/06/21 01:15 AM	IC4_211005B
	MW-9	Aqueous	M2540C	Total Dissolved Solids	102241	1	09/30/21 04:05 PM	WC_210930E
2109210-09A	MW-5	Aqueous	SW7470A	Mercury Total: Aqueous	102255	1	10/07/21 03:09 PM	CETAC2_HG_211007C
	MW-5	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	10	10/04/21 11:45 AM	ICP-MS4_211004A
	MW-5	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	1	10/04/21 12:02 PM	ICP-MS4_211004A
	MW-5	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	1	10/01/21 11:50 AM	ICP-MS5_211001A
2109210-09B	MW-5	Aqueous	E300	Anions by IC method - Water	102275	10	10/06/21 01:34 AM	IC4_211005B
	MW-5	Aqueous	E300	Anions by IC method - Water	102275	1	10/06/21 08:51 AM	IC4_211005B
	MW-5	Aqueous	M2540C	Total Dissolved Solids	102241	1	09/30/21 04:05 PM	WC_210930E
2109210-10A	MW-10	Aqueous	SW7470A	Mercury Total: Aqueous	102255	1	10/07/21 03:11 PM	CETAC2_HG_211007C
	MW-10	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	10	10/04/21 11:47 AM	ICP-MS4_211004A
	MW-10	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	1	10/04/21 12:25 PM	ICP-MS4_211004A
	MW-10	Aqueous	SW6020B	Trace Metals: ICP-MS - Water	102242	1	10/01/21 11:53 AM	ICP-MS5_211001A
2109210-10B	MW-10	Aqueous	E300	Anions by IC method - Water	102275	10	10/06/21 01:53 AM	IC4_211005B
	MW-10	Aqueous	E300	Anions by IC method - Water	102275	1	10/06/21 09:10 AM	IC4_211005B
	MW-10	Aqueous	M2540C	Total Dissolved Solids	102241	1	09/30/21 04:05 PM	WC_210930E

DHL Analytical, Inc.

Date: *09-Nov-21*

CLIENT:	Golder	**Client Sample ID:**	BV-5
Project:	2H21 Coleto Creek Power Plant	**Lab ID:**	2109210-01
Project No:	19122262-B2021	**Collection Date:**	09/28/21 08:20 AM
Lab Order:	2109210	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020B**					Analyst: **SP**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	10/01/21 11:14 AM
Arsenic	0.00868	0.00200	0.00500		mg/L	1	10/01/21 11:14 AM
Barium	0.0365	0.00300	0.0100		mg/L	1	10/01/21 11:14 AM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:14 AM
Boron	1.12	0.100	0.300		mg/L	10	10/04/21 11:29 AM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:14 AM
Calcium	75.6	1.00	3.00		mg/L	10	10/04/21 11:29 AM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:14 AM
Cobalt	0.0433	0.00300	0.00500		mg/L	1	10/01/21 11:14 AM
Lead	0.000415	0.000300	0.00100	J	mg/L	1	10/01/21 11:14 AM
Lithium	0.0194	0.00500	0.0100		mg/L	1	10/04/21 12:15 PM
Molybdenum	0.0102	0.00200	0.00500		mg/L	1	10/01/21 11:14 AM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:14 AM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	10/01/21 11:14 AM
MERCURY TOTAL: AQUEOUS		**SW7470A**					Analyst: **JVR**
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/07/21 02:46 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **BM**
Chloride	146	3.00	10.0		mg/L	10	10/05/21 10:43 PM
Fluoride	0.687	0.100	0.400		mg/L	1	10/06/21 05:03 AM
Sulfate	169	10.0	30.0		mg/L	10	10/05/21 10:43 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	925	10.0	10.0		mg/L	1	09/30/21 04:05 PM

Qualifiers:	ND - Not Detected at the SDL	S - Spike Recovery outside control limits
	J - Analyte detected between SDL and RL	C - Sample Result or QC discussed in Case Narrative
	B - Analyte detected in the associated Method Blank	RL - Reporting Limit (MQL adjusted for moisture and sample size)
	DF- Dilution Factor	SDL - Sample Detection Limit
	N - Parameter not NELAP certified	E - TPH pattern not Gas or Diesel Range Pattern
	See Final Page of Report for MQLs and MDLs	

CLIENT:	Golder	**Client Sample ID:**	MW-4
Project:	2H21 Coleto Creek Power Plant	**Lab ID:**	2109210-02
Project No:	19122262-B2021	**Collection Date:**	09/28/21 09:20 AM
Lab Order:	2109210	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020B**					Analyst: **SP**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	10/01/21 11:16 AM
Arsenic	0.00856	0.00200	0.00500		mg/L	1	10/01/21 11:16 AM
Barium	0.0543	0.00300	0.0100		mg/L	1	10/01/21 11:16 AM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:16 AM
Boron	0.288	0.0100	0.0300		mg/L	1	10/04/21 11:56 AM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:16 AM
Calcium	88.3	1.00	3.00		mg/L	10	10/04/21 11:31 AM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:16 AM
Cobalt	0.0104	0.00300	0.00500		mg/L	1	10/01/21 11:16 AM
Lead	0.00139	0.000300	0.00100		mg/L	1	10/01/21 11:16 AM
Lithium	0.0181	0.00500	0.0100		mg/L	1	10/04/21 11:56 AM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:16 AM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:16 AM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	10/01/21 11:16 AM
MERCURY TOTAL: AQUEOUS		**SW7470A**					Analyst: **JVR**
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/07/21 02:49 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **BM**
Chloride	98.7	3.00	10.0		mg/L	10	10/05/21 11:40 PM
Fluoride	0.647	0.100	0.400		mg/L	1	10/06/21 05:22 AM
Sulfate	164	10.0	30.0		mg/L	10	10/05/21 11:40 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	714	10.0	10.0		mg/L	1	09/30/21 04:05 PM

Qualifiers:

ND - Not Detected at the SDL	S - Spike Recovery outside control limits
J - Analyte detected between SDL and RL	C - Sample Result or QC discussed in Case Narrative
B - Analyte detected in the associated Method Blank	RL - Reporting Limit (MQL adjusted for moisture and sample size)
DF- Dilution Factor	SDL - Sample Detection Limit
N - Parameter not NELAP certified	E - TPH pattern not Gas or Diesel Range Pattern
See Final Page of Report for MQLs and MDLs	

CLIENT:	Golder	**Client Sample ID:**	BV-21
Project:	2H21 Coleto Creek Power Plant	**Lab ID:**	2109210-03
Project No:	19122262-B2021	**Collection Date:**	09/28/21 10:20 AM
Lab Order:	2109210	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020B**					Analyst: **SP**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	10/01/21 11:19 AM
Arsenic	0.0603	0.00200	0.00500		mg/L	1	10/01/21 11:19 AM
Barium	0.186	0.00300	0.0100		mg/L	1	10/01/21 11:19 AM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:19 AM
Boron	0.385	0.0100	0.0300		mg/L	1	10/04/21 11:58 AM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:19 AM
Calcium	77.3	1.00	3.00		mg/L	10	10/04/21 11:33 AM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:19 AM
Cobalt	0.00387	0.00300	0.00500	J	mg/L	1	10/01/21 11:19 AM
Lead	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:19 AM
Lithium	0.00539	0.00500	0.0100	J	mg/L	1	10/04/21 11:58 AM
Molybdenum	0.00481	0.00200	0.00500	J	mg/L	1	10/01/21 11:19 AM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:19 AM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	10/01/21 11:19 AM
MERCURY TOTAL: AQUEOUS		**SW7470A**					Analyst: **JVR**
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/07/21 02:51 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **BM**
Chloride	61.7	3.00	10.0		mg/L	10	10/06/21 09:56 PM
Fluoride	0.496	0.100	0.400		mg/L	1	10/06/21 05:41 AM
Sulfate	31.3	1.00	3.00		mg/L	1	10/06/21 05:41 AM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	426	10.0	10.0		mg/L	1	09/30/21 04:05 PM

Qualifiers:

ND - Not Detected at the SDL	S - Spike Recovery outside control limits
J - Analyte detected between SDL and RL	C - Sample Result or QC discussed in Case Narrative
B - Analyte detected in the associated Method Blank	RL - Reporting Limit (MQL adjusted for moisture and sample size)
DF- Dilution Factor	SDL - Sample Detection Limit
N - Parameter not NELAP certified	E - TPH pattern not Gas or Diesel Range Pattern
See Final Page of Report for MQLs and MDLs	

CLIENT:	Golder	**Client Sample ID:**	Dup 101
Project:	2H21 Coleto Creek Power Plant	**Lab ID:**	2109210-04
Project No:	19122262-B2021	**Collection Date:**	09/28/21 10:30 AM
Lab Order:	2109210	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020B**					Analyst: **SP**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	10/01/21 11:22 AM
Arsenic	0.0586	0.00200	0.00500		mg/L	1	10/01/21 11:22 AM
Barium	0.181	0.00300	0.0100		mg/L	1	10/01/21 11:22 AM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:22 AM
Boron	0.397	0.0100	0.0300		mg/L	1	10/04/21 12:00 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:22 AM
Calcium	77.4	1.00	3.00		mg/L	10	10/04/21 11:35 AM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:22 AM
Cobalt	0.00362	0.00300	0.00500	J	mg/L	1	10/01/21 11:22 AM
Lead	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:22 AM
Lithium	0.00656	0.00500	0.0100	J	mg/L	1	10/04/21 12:00 PM
Molybdenum	0.00467	0.00200	0.00500	J	mg/L	1	10/01/21 11:22 AM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:22 AM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	10/01/21 11:22 AM
MERCURY TOTAL: AQUEOUS		**SW7470A**					Analyst: **JVR**
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/07/21 02:53 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **BM**
Chloride	55.7	3.00	10.0		mg/L	10	10/05/21 11:59 PM
Fluoride	0.498	0.100	0.400		mg/L	1	10/06/21 06:00 AM
Sulfate	31.2	1.00	3.00		mg/L	1	10/06/21 06:00 AM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	441	10.0	10.0		mg/L	1	09/30/21 04:05 PM

Qualifiers:

ND - Not Detected at the SDL	S - Spike Recovery outside control limits
J - Analyte detected between SDL and RL	C - Sample Result or QC discussed in Case Narrative
B - Analyte detected in the associated Method Blank	RL - Reporting Limit (MQL adjusted for moisture and sample size)
DF- Dilution Factor	SDL - Sample Detection Limit
N - Parameter not NELAP certified	E - TPH pattern not Gas or Diesel Range Pattern
See Final Page of Report for MQLs and MDLs	

CLIENT:	Golder	**Client Sample ID:**	MW-8
Project:	2H21 Coleto Creek Power Plant	**Lab ID:**	2109210-05
Project No:	19122262-B2021	**Collection Date:**	09/28/21 11:20 AM
Lab Order:	2109210	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020B**					Analyst: **SP**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	10/01/21 11:24 AM
Arsenic	0.00856	0.00200	0.00500		mg/L	1	10/01/21 11:24 AM
Barium	0.0690	0.00300	0.0100		mg/L	1	10/01/21 11:24 AM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:24 AM
Boron	0.830	0.100	0.300		mg/L	10	10/04/21 11:37 AM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:24 AM
Calcium	59.9	1.00	3.00		mg/L	10	10/04/21 11:37 AM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:24 AM
Cobalt	0.0110	0.00300	0.00500		mg/L	1	10/01/21 11:24 AM
Lead	0.000697	0.000300	0.00100	J	mg/L	1	10/01/21 11:24 AM
Lithium	0.0102	0.00500	0.0100		mg/L	1	10/04/21 12:17 PM
Molybdenum	0.0124	0.00200	0.00500		mg/L	1	10/01/21 11:24 AM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:24 AM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	10/01/21 11:24 AM
MERCURY TOTAL: AQUEOUS		**SW7470A**					Analyst: **JVR**
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/07/21 02:56 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **BM**
Chloride	49.5	0.300	1.00		mg/L	1	10/06/21 06:19 AM
Fluoride	0.473	0.100	0.400		mg/L	1	10/06/21 06:19 AM
Sulfate	56.8	1.00	3.00		mg/L	1	10/06/21 06:19 AM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	476	10.0	10.0		mg/L	1	09/30/21 04:05 PM

Qualifiers:		
	ND - Not Detected at the SDL	S - Spike Recovery outside control limits
	J - Analyte detected between SDL and RL	C - Sample Result or QC discussed in Case Narrative
	B - Analyte detected in the associated Method Blank	RL - Reporting Limit (MQL adjusted for moisture and sample size)
	DF- Dilution Factor	SDL - Sample Detection Limit
	N - Parameter not NELAP certified	E - TPH pattern not Gas or Diesel Range Pattern
	See Final Page of Report for MQLs and MDLs	

DHL Analytical, Inc.

Date: *09-Nov-21*

CLIENT: Golder
Project: 2H21 Coleto Creek Power Plant
Project No: 19122262-B2021
Lab Order: 2109210

Client Sample ID: MW-6
Lab ID: 2109210-06
Collection Date: 09/28/21 12:15 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020B**					Analyst: **SP**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	10/01/21 11:43 AM
Arsenic	0.00793	0.00200	0.00500		mg/L	1	10/01/21 11:43 AM
Barium	0.0896	0.00300	0.0100		mg/L	1	10/01/21 11:43 AM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:43 AM
Boron	1.64	0.100	0.300		mg/L	10	10/04/21 11:39 AM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:43 AM
Calcium	67.3	1.00	3.00		mg/L	10	10/04/21 11:39 AM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:43 AM
Cobalt	<0.00300	0.00300	0.00500		mg/L	1	10/01/21 11:43 AM
Lead	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:43 AM
Lithium	0.00911	0.00500	0.0100	J	mg/L	1	10/04/21 12:19 PM
Molybdenum	0.00801	0.00200	0.00500		mg/L	1	10/01/21 11:43 AM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:43 AM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	10/01/21 11:43 AM
MERCURY TOTAL: AQUEOUS		**SW7470A**					Analyst: **JVR**
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/07/21 03:02 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **BM**
Chloride	70.1	3.00	10.0		mg/L	10	10/06/21 12:37 AM
Fluoride	0.386	0.100	0.400	J	mg/L	1	10/06/21 06:38 AM
Sulfate	92.7	1.00	3.00		mg/L	1	10/06/21 06:38 AM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	500	10.0	10.0		mg/L	1	09/30/21 04:05 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAP certified
See Final Page of Report for MQLs and MDLs

S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT: Golder
Project: 2H21 Coleto Creek Power Plant
Project No: 19122262-B2021
Lab Order: 2109210

Client Sample ID: MW-11
Lab ID: 2109210-07
Collection Date: 09/28/21 01:15 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020B**					Analyst: **SP**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	10/01/21 11:45 AM
Arsenic	0.0137	0.00200	0.00500		mg/L	1	10/01/21 11:45 AM
Barium	0.101	0.00300	0.0100		mg/L	1	10/01/21 11:45 AM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:45 AM
Boron	0.869	0.100	0.300		mg/L	10	10/04/21 11:41 AM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:45 AM
Calcium	56.6	1.00	3.00		mg/L	10	10/04/21 11:41 AM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:45 AM
Cobalt	<0.00300	0.00300	0.00500		mg/L	1	10/01/21 11:45 AM
Lead	0.000475	0.000300	0.00100	J	mg/L	1	10/01/21 11:45 AM
Lithium	0.0161	0.00500	0.0100		mg/L	1	10/04/21 12:21 PM
Molybdenum	0.0189	0.00200	0.00500		mg/L	1	10/01/21 11:45 AM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:45 AM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	10/01/21 11:45 AM
MERCURY TOTAL: AQUEOUS		**SW7470A**					Analyst: **JVR**
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/07/21 03:05 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **BM**
Chloride	71.7	3.00	10.0		mg/L	10	10/06/21 12:56 AM
Fluoride	0.742	0.100	0.400		mg/L	1	10/06/21 06:57 AM
Sulfate	68.4	1.00	3.00		mg/L	1	10/06/21 06:57 AM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	415	10.0	10.0		mg/L	1	09/30/21 04:05 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAP certified
See Final Page of Report for MQLs and MDLs

S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	Golder	**Client Sample ID:**	MW-9
Project:	2H21 Coleto Creek Power Plant	**Lab ID:**	2109210-08
Project No:	19122262-B2021	**Collection Date:**	09/28/21 02:00 PM
Lab Order:	2109210	**Matrix:**	AQUEOUS

Analyses	**Result**	**SDL**	**RL**	**Qual**	**Units**	**DF**	**Date Analyzed**
TRACE METALS: ICP-MS - WATER		**SW6020B**					Analyst: **SP**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	10/01/21 11:48 AM
Arsenic	0.0197	0.00200	0.00500		mg/L	1	10/01/21 11:48 AM
Barium	0.163	0.00300	0.0100		mg/L	1	10/01/21 11:48 AM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:48 AM
Boron	1.23	0.100	0.300		mg/L	10	10/04/21 11:43 AM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:48 AM
Calcium	74.3	1.00	3.00		mg/L	10	10/04/21 11:43 AM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:48 AM
Cobalt	<0.00300	0.00300	0.00500		mg/L	1	10/01/21 11:48 AM
Lead	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:48 AM
Lithium	0.00865	0.00500	0.0100	J	mg/L	1	10/04/21 12:23 PM
Molybdenum	0.0158	0.00200	0.00500		mg/L	1	10/01/21 11:48 AM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:48 AM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	10/01/21 11:48 AM
MERCURY TOTAL: AQUEOUS		**SW7470A**					Analyst: **JVR**
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/07/21 03:07 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **BM**
Chloride	62.9	3.00	10.0		mg/L	10	10/06/21 01:15 AM
Fluoride	0.629	0.100	0.400		mg/L	1	10/06/21 07:16 AM
Sulfate	79.0	1.00	3.00		mg/L	1	10/06/21 07:16 AM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	507	10.0	10.0		mg/L	1	09/30/21 04:05 PM

Qualifiers:

ND - Not Detected at the SDL	S - Spike Recovery outside control limits
J - Analyte detected between SDL and RL	C - Sample Result or QC discussed in Case Narrative
B - Analyte detected in the associated Method Blank	RL - Reporting Limit (MQL adjusted for moisture and sample size)
DF- Dilution Factor	SDL - Sample Detection Limit
N - Parameter not NELAP certified	E - TPH pattern not Gas or Diesel Range Pattern
See Final Page of Report for MQLs and MDLs	

DHL Analytical, Inc. **Date:** *09-Nov-21*

CLIENT: Golder
Project: 2H21 Coleto Creek Power Plant
Project No: 19122262-B2021
Lab Order: 2109210

Client Sample ID: MW-5
Lab ID: 2109210-09
Collection Date: 09/28/21 02:45 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020B**					Analyst: **SP**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	10/01/21 11:50 AM
Arsenic	0.00892	0.00200	0.00500		mg/L	1	10/01/21 11:50 AM
Barium	0.0639	0.00300	0.0100		mg/L	1	10/01/21 11:50 AM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:50 AM
Boron	0.150	0.0100	0.0300		mg/L	1	10/04/21 12:02 PM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:50 AM
Calcium	103	1.00	3.00		mg/L	10	10/04/21 11:45 AM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:50 AM
Cobalt	<0.00300	0.00300	0.00500		mg/L	1	10/01/21 11:50 AM
Lead	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:50 AM
Lithium	0.0194	0.00500	0.0100		mg/L	1	10/04/21 12:02 PM
Molybdenum	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:50 AM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:50 AM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	10/01/21 11:50 AM
MERCURY TOTAL: AQUEOUS		**SW7470A**					Analyst: **JVR**
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/07/21 03:09 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **BM**
Chloride	127	3.00	10.0		mg/L	10	10/06/21 01:34 AM
Fluoride	0.559	0.100	0.400		mg/L	1	10/06/21 08:51 AM
Sulfate	190	10.0	30.0		mg/L	10	10/06/21 01:34 AM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	831	10.0	10.0		mg/L	1	09/30/21 04:05 PM

Qualifiers:

ND - Not Detected at the SDL	S - Spike Recovery outside control limits
J - Analyte detected between SDL and RL	C - Sample Result or QC discussed in Case Narrative
B - Analyte detected in the associated Method Blank	RL - Reporting Limit (MQL adjusted for moisture and sample size)
DF- Dilution Factor	SDL - Sample Detection Limit
N - Parameter not NELAP certified	E - TPH pattern not Gas or Diesel Range Pattern
See Final Page of Report for MQLs and MDLs	

CLIENT:	Golder	**Client Sample ID:**	MW-10
Project:	2H21 Coleto Creek Power Plant	**Lab ID:**	2109210-10
Project No:	19122262-B2021	**Collection Date:**	09/28/21 03:25 PM
Lab Order:	2109210	**Matrix:**	AQUEOUS

Analyses	**Result**	**SDL**	**RL**	**Qual**	**Units**	**DF**	**Date Analyzed**
TRACE METALS: ICP-MS - WATER		**SW6020B**					Analyst: **SP**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	10/01/21 11:53 AM
Arsenic	0.0143	0.00200	0.00500		mg/L	1	10/01/21 11:53 AM
Barium	0.0477	0.00300	0.0100		mg/L	1	10/01/21 11:53 AM
Beryllium	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:53 AM
Boron	7.48	0.100	0.300		mg/L	10	10/04/21 11:47 AM
Cadmium	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:53 AM
Calcium	32.9	1.00	3.00		mg/L	10	10/04/21 11:47 AM
Chromium	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:53 AM
Cobalt	0.00607	0.00300	0.00500		mg/L	1	10/01/21 11:53 AM
Lead	<0.000300	0.000300	0.00100		mg/L	1	10/01/21 11:53 AM
Lithium	0.0109	0.00500	0.0100		mg/L	1	10/04/21 12:25 PM
Molybdenum	0.108	0.00200	0.00500		mg/L	1	10/01/21 11:53 AM
Selenium	<0.00200	0.00200	0.00500		mg/L	1	10/01/21 11:53 AM
Thallium	<0.000500	0.000500	0.00150		mg/L	1	10/01/21 11:53 AM
MERCURY TOTAL: AQUEOUS		**SW7470A**					Analyst: **JVR**
Mercury	<0.0000800	0.0000800	0.000200		mg/L	1	10/07/21 03:11 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **BM**
Chloride	54.2	3.00	10.0		mg/L	10	10/06/21 01:53 AM
Fluoride	0.960	0.100	0.400		mg/L	1	10/06/21 09:10 AM
Sulfate	76.8	1.00	3.00		mg/L	1	10/06/21 09:10 AM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	507	10.0	10.0		mg/L	1	09/30/21 04:05 PM

Qualifiers:

ND - Not Detected at the SDL

J - Analyte detected between SDL and RL

B - Analyte detected in the associated Method Blank

DF- Dilution Factor

N - Parameter not NELAP certified

See Final Page of Report for MQLs and MDLs

S - Spike Recovery outside control limits

C - Sample Result or QC discussed in Case Narrative

RL - Reporting Limit (MQL adjusted for moisture and sample size)

SDL - Sample Detection Limit

E - TPH pattern not Gas or Diesel Range Pattern

CLIENT: Golder
Work Order: 2109210
Project: 2H21 Coleto Creek Power Plant

ANALYTICAL QC SUMMARY REPORT

RunID: **CETAC2_HG_210728C**

Sample ID: **DCS-101411** Batch ID: **101411** TestNo: **SW7470A** Units: **mg/L**
SampType: **DCS** Run ID: **CETAC2_HG_210728C** Analysis Date: **7/28/2021 1:24:11 PM** Prep Date: **7/27/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.000189	0.000200	0.000200	0	94.5	82	119	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2109210
Project: 2H21 Coleto Creek Power Plant

ANALYTICAL QC SUMMARY REPORT

RunID: **CETAC2_HG_211007C**

The QC data in batch 102255 applies to the following samples: 2109210-01A, 2109210-02A, 2109210-03A, 2109210-04A, 2109210-05A, 2109210-06A, 2109210-07A, 2109210-08A, 2109210-09A, 2109210-10A

Sample ID:	**MB-102255**	Batch ID:	**102255**	TestNo:	**SW7470A**	Units:	**mg/L**
SampType:	**MBLK**	Run ID:	**CETAC2_HG_211007C**	Analysis Date:	**10/7/2021 2:26:30 PM**	Prep Date:	**10/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.0000800	0.000200								

Sample ID:	**LCS-102255**	Batch ID:	**102255**	TestNo:	**SW7470A**	Units:	**mg/L**
SampType:	**LCS**	Run ID:	**CETAC2_HG_211007C**	Analysis Date:	**10/7/2021 2:31:03 PM**	Prep Date:	**10/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00204	0.000200	0.00200	0	102	85	115			

Sample ID:	**LCSD-102255**	Batch ID:	**102255**	TestNo:	**SW7470A**	Units:	**mg/L**
SampType:	**LCSD**	Run ID:	**CETAC2_HG_211007C**	Analysis Date:	**10/7/2021 2:33:19 PM**	Prep Date:	**10/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00205	0.000200	0.00200	0	103	85	115	0.489	15	

Sample ID:	**2109206-01C MS**	Batch ID:	**102255**	TestNo:	**SW7470A**	Units:	**mg/L**
SampType:	**MS**	Run ID:	**CETAC2_HG_211007C**	Analysis Date:	**10/7/2021 2:37:51 PM**	Prep Date:	**10/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0101	0.00100	0.0100	0	101	80	120			

Sample ID:	**2109206-01C MSD**	Batch ID:	**102255**	TestNo:	**SW7470A**	Units:	**mg/L**
SampType:	**MSD**	Run ID:	**CETAC2_HG_211007C**	Analysis Date:	**10/7/2021 2:40:07 PM**	Prep Date:	**10/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0102	0.00100	0.0100	0	102	80	120	0.494	15	

Sample ID:	**2109206-01C SD**	Batch ID:	**102255**	TestNo:	**SW7470A**	Units:	**mg/L**
SampType:	**SD**	Run ID:	**CETAC2_HG_211007C**	Analysis Date:	**10/7/2021 2:42:23 PM**	Prep Date:	**10/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.00200	0.00500	0	0				0	10	

Sample ID:	**2109206-01C PDS**	Batch ID:	**102255**	TestNo:	**SW7470A**	Units:	**mg/L**
SampType:	**PDS**	Run ID:	**CETAC2_HG_211007C**	Analysis Date:	**10/7/2021 2:44:39 PM**	Prep Date:	**10/4/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0123	0.00100	0.0125	0	98.4	85	115			

Qualifiers:	B	Analyte detected in the associated Method Blank	DF	Dilution Factor
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
	RL	Reporting Limit	S	Spike Recovery outside control limits
	J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2109210
Project: 2H21 Coleto Creek Power Plant

ANALYTICAL QC SUMMARY REPORT

RunID: **CETAC2_HG_211007C**

Sample ID: **ICV-211007**	Batch ID: **R117417**	TestNo:	**SW7470A**	Units:	**mg/L**
SampType: **ICV**	Run ID: **CETAC2_HG_211007C**	Analysis Date:	**10/7/2021 1:57:01 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00409	0.000200	0.00400	0	102	90	110			

Sample ID: **CCV1-211007**	Batch ID: **R117417**	TestNo:	**SW7470A**	Units:	**mg/L**
SampType: **CCV**	Run ID: **CETAC2_HG_211007C**	Analysis Date:	**10/7/2021 2:58:18 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00201	0.000200	0.00200	0	101	90	110			

Sample ID: **CCV2-211007**	Batch ID: **R117417**	TestNo:	**SW7470A**	Units:	**mg/L**
SampType: **CCV**	Run ID: **CETAC2_HG_211007C**	Analysis Date:	**10/7/2021 3:14:17 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00197	0.000200	0.00200	0	98.5	90	110			

Qualifiers:				
	B	Analyte detected in the associated Method Blank	DF	Dilution Factor
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
	RL	Reporting Limit	S	Spike Recovery outside control limits
	J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_210803A**

Sample ID: **DCS2-101483** Batch ID: **101483** TestNo: **SW6020B** Units: **mg/L**
SampType: **DCS2** Run ID: **ICP-MS4_210803A** Analysis Date: **8/3/2021 1:21:00 PM** Prep Date: **8/2/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.278	0.300	0.300	0	92.6	70	130	0	0	

Sample ID: **DCS3-101483** Batch ID: **101483** TestNo: **SW6020B** Units: **mg/L**
SampType: **DCS3** Run ID: **ICP-MS4_210803A** Analysis Date: **8/3/2021 1:24:00 PM** Prep Date: **8/2/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lithium	0.00475	0.0100	0.00500	0	95.0	70	130	0	0	

Sample ID: **DCS4-101483** Batch ID: **101483** TestNo: **SW6020B** Units: **mg/L**
SampType: **DCS4** Run ID: **ICP-MS4_210803A** Analysis Date: **8/3/2021 1:27:00 PM** Prep Date: **8/2/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0315	0.0300	0.0300	0	105	70	130	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2109210
Project: 2H21 Coleto Creek Power Plant

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_211004A**

The QC data in batch 102242 applies to the following samples: 2109210-01A, 2109210-02A, 2109210-03A, 2109210-04A, 2109210-05A, 2109210-06A, 2109210-07A, 2109210-08A, 2109210-09A, 2109210-10A

Sample ID: **MB-102242** Batch ID: **102242** TestNo: **SW6020B** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS4_211004A** Analysis Date: **10/4/2021 10:48:00 AM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	<0.0100	0.0300								
Lithium	<0.00500	0.0100								

Sample ID: **LCS-102242** Batch ID: **102242** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS4_211004A** Analysis Date: **10/4/2021 10:50:00 AM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.188	0.0300	0.200	0	93.9	80	120			
Lithium	0.205	0.0100	0.200	0	103	80	120			

Sample ID: **LCSD-102242** Batch ID: **102242** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS4_211004A** Analysis Date: **10/4/2021 10:52:00 AM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.202	0.0300	0.200	0	101	80	120	7.13	15	
Lithium	0.206	0.0100	0.200	0	103	80	120	0.176	15	

Sample ID: **2109173-01A SD** Batch ID: **102242** TestNo: **SW6020B** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS4_211004A** Analysis Date: **10/4/2021 10:58:00 AM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	3.49	7.50	0	3.58				2.51	20	

Sample ID: **2109173-01A PDS** Batch ID: **102242** TestNo: **SW6020B** Units: **mg/L**
SampType: **PDS** Run ID: **ICP-MS4_211004A** Analysis Date: **10/4/2021 11:16:00 AM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	13.1	1.50	10.0	3.58	95.4	75	125			

Sample ID: **2109173-01A MS** Batch ID: **102242** TestNo: **SW6020B** Units: **mg/L**
SampType: **MS** Run ID: **ICP-MS4_211004A** Analysis Date: **10/4/2021 11:20:00 AM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	3.57	1.50	0.200	3.58	-5.12	75	125			S

Sample ID: **2109173-01A MSD** Batch ID: **102242** TestNo: **SW6020B** Units: **mg/L**
SampType: **MSD** Run ID: **ICP-MS4_211004A** Analysis Date: **10/4/2021 11:22:00 AM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_211004A**

Sample ID: **2109173-01A MSD** Batch ID: **102242** TestNo: **SW6020B** Units: **mg/L**
SampType: **MSD** Run ID: **ICP-MS4_211004A** Analysis Date: **10/4/2021 11:22:00 AM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	3.71	1.50	0.200	3.58	67.9	75	125	4.01	15	S

Sample ID: **2109173-01A SD** Batch ID: **102242** TestNo: **SW6020B** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS4_211004A** Analysis Date: **10/4/2021 12:13:00 PM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lithium	0.140	0.0500	0	0.128				8.54	20	

Sample ID: **2109173-01A PDS** Batch ID: **102242** TestNo: **SW6020B** Units: **mg/L**
SampType: **PDS** Run ID: **ICP-MS4_211004A** Analysis Date: **10/4/2021 12:27:00 PM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lithium	0.287	0.0100	0.200	0.129	79.4	75	125			

Sample ID: **2109173-01A MS** Batch ID: **102242** TestNo: **SW6020B** Units: **mg/L**
SampType: **MS** Run ID: **ICP-MS4_211004A** Analysis Date: **10/4/2021 12:30:00 PM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lithium	0.293	0.0100	0.200	0.129	82.3	75	125			

Sample ID: **2109173-01A MSD** Batch ID: **102242** TestNo: **SW6020B** Units: **mg/L**
SampType: **MSD** Run ID: **ICP-MS4_211004A** Analysis Date: **10/4/2021 12:31:00 PM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lithium	0.282	0.0100	0.200	0.129	76.6	75	125	3.94	15	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2109210
Project: 2H21 Coleto Creek Power Plant

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_211004A**

Sample ID: **ICV-211004** Batch ID: **R117370** TestNo: **SW6020B** Units: **mg/L**
SampType: **ICV** Run ID: **ICP-MS4_211004A** Analysis Date: **10/4/2021 10:34:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0959	0.0300	0.100	0	95.9	90	110			
Calcium	2.49	0.300	2.50	0	99.6	90	110			
Lithium	0.0962	0.0100	0.100	0	96.2	90	110			

Sample ID: **LCVL-211004** Batch ID: **R117370** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS4_211004A** Analysis Date: **10/4/2021 10:42:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0184	0.0300	0.0200	0	92.1	80	120			
Calcium	0.0987	0.300	0.100	0	98.7	80	120			
Lithium	0.0107	0.0100	0.0100	0	107	80	120			

Sample ID: **CCV1-211004** Batch ID: **R117370** TestNo: **SW6020B** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS4_211004A** Analysis Date: **10/4/2021 11:24:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.205	0.0300	0.200	0	103	90	110			
Calcium	4.80	0.300	5.00	0	96.0	90	110			
Lithium	0.213	0.0100	0.200	0	107	90	110			

Sample ID: **CCV2-211004** Batch ID: **R117370** TestNo: **SW6020B** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS4_211004A** Analysis Date: **10/4/2021 11:52:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.195	0.0300	0.200	0	97.6	90	110			
Calcium	4.69	0.300	5.00	0	93.9	90	110			
Lithium	0.220	0.0100	0.200	0	110	90	110			

Sample ID: **CCV3-211004** Batch ID: **R117370** TestNo: **SW6020B** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS4_211004A** Analysis Date: **10/4/2021 12:07:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.199	0.0300	0.200	0	99.3	90	110			
Lithium	0.217	0.0100	0.200	0	108	90	110			

Sample ID: **CCV4-211004** Batch ID: **R117370** TestNo: **SW6020B** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS4_211004A** Analysis Date: **10/4/2021 12:37:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lithium	0.193	0.0100	0.200	0	96.7	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2109210
Project: 2H21 Coleto Creek Power Plant

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS5_210803A**

Sample ID: **DCS1-101483** Batch ID: **101483** TestNo: **SW6020B** Units: **mg/L**
SampType: **DCS** Run ID: **ICP-MS5_210803A** Analysis Date: **8/3/2021 11:08:00 AM** Prep Date: **8/2/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00124	0.00250	0.00100	0	124	70	130	0	0	
Beryllium	0.000576	0.00100	0.000500	0	115	70	130	0	0	
Cadmium	0.000583	0.00100	0.000500	0	117	70	130	0	0	
Lead	0.000564	0.00100	0.000500	0	113	70	130	0	0	
Thallium	0.000544	0.00150	0.000500	0	109	70	130	0	0	

Sample ID: **DCS2-101483** Batch ID: **101483** TestNo: **SW6020B** Units: **mg/L**
SampType: **DCS2** Run ID: **ICP-MS5_210803A** Analysis Date: **8/3/2021 11:11:00 AM** Prep Date: **8/2/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.277	0.300	0.300	0	92.2	70	130	0	0	

Sample ID: **DCS3-101483** Batch ID: **101483** TestNo: **SW6020B** Units: **mg/L**
SampType: **DCS3** Run ID: **ICP-MS5_210803A** Analysis Date: **8/3/2021 11:14:00 AM** Prep Date: **8/2/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00538	0.00500	0.00500	0	108	70	130	0	0	
Barium	0.00505	0.0100	0.00500	0	101	70	130	0	0	
Chromium	0.00554	0.00500	0.00500	0	111	70	130	0	0	
Cobalt	0.00552	0.00500	0.00500	0	110	70	130	0	0	
Molybdenum	0.00525	0.00500	0.00500	0	105	70	130	0	0	
Selenium	0.00540	0.00500	0.00500	0	108	70	130	0	0	

Qualifiers:				
	B	Analyte detected in the associated Method Blank	DF	Dilution Factor
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
	RL	Reporting Limit	S	Spike Recovery outside control limits
	J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2109210
Project: 2H21 Coleto Creek Power Plant

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS5_211001A**

The QC data in batch 102242 applies to the following samples: 2109210-01A, 2109210-02A, 2109210-03A, 2109210-04A, 2109210-05A, 2109210-06A, 2109210-07A, 2109210-08A, 2109210-09A, 2109210-10A

Sample ID: **MB-102242** Batch ID: **102242** TestNo: **SW6020B** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS5_211001A** Analysis Date: **10/1/2021 10:48:00 AM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Barium	<0.00300	0.0100								
Beryllium	<0.000300	0.00100								
Cadmium	<0.000300	0.00100								
Calcium	<0.100	0.300								
Chromium	<0.00200	0.00500								
Cobalt	<0.00300	0.00500								
Lead	<0.000300	0.00100								
Molybdenum	<0.00200	0.00500								
Selenium	<0.00200	0.00500								
Thallium	<0.000500	0.00150								

Sample ID: **LCS-102242** Batch ID: **102242** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS5_211001A** Analysis Date: **10/1/2021 10:51:00 AM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.191	0.00250	0.200	0	95.7	80	120			
Arsenic	0.199	0.00500	0.200	0	99.3	80	120			
Barium	0.195	0.0100	0.200	0	97.3	80	120			
Beryllium	0.189	0.00100	0.200	0	94.3	80	120			
Cadmium	0.199	0.00100	0.200	0	99.6	80	120			
Calcium	4.87	0.300	5.00	0	97.4	80	120			
Chromium	0.198	0.00500	0.200	0	99.1	80	120			
Cobalt	0.205	0.00500	0.200	0	102	80	120			
Lead	0.194	0.00100	0.200	0	97.2	80	120			
Molybdenum	0.194	0.00500	0.200	0	97.0	80	120			
Selenium	0.204	0.00500	0.200	0	102	80	120			
Thallium	0.195	0.00150	0.200	0	97.3	80	120			

Sample ID: **LCSD-102242** Batch ID: **102242** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS5_211001A** Analysis Date: **10/1/2021 10:54:00 AM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.195	0.00250	0.200	0	97.7	80	120	2.10	15	
Arsenic	0.203	0.00500	0.200	0	101	80	120	2.19	15	
Barium	0.197	0.0100	0.200	0	98.6	80	120	1.34	15	
Beryllium	0.192	0.00100	0.200	0	95.9	80	120	1.76	15	
Cadmium	0.201	0.00100	0.200	0	101	80	120	1.07	15	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

Sample ID: **LCSD-102242** Batch ID: **102242** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS5_211001A** Analysis Date: **10/1/2021 10:54:00 AM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	4.87	0.300	5.00	0	97.5	80	120	0.116	15	
Chromium	0.202	0.00500	0.200	0	101	80	120	1.95	15	
Cobalt	0.208	0.00500	0.200	0	104	80	120	1.35	15	
Lead	0.198	0.00100	0.200	0	99.2	80	120	2.04	15	
Molybdenum	0.196	0.00500	0.200	0	98.1	80	120	1.19	15	
Selenium	0.203	0.00500	0.200	0	102	80	120	0.081	15	
Thallium	0.198	0.00150	0.200	0	99.0	80	120	1.69	15	

Sample ID: **2109173-01A SD** Batch ID: **102242** TestNo: **SW6020B** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS5_211001A** Analysis Date: **10/1/2021 11:01:00 AM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.00400	0.0125	0	0.00130				0	20	
Arsenic	<0.0100	0.0250	0	0				0	20	
Barium	0.0513	0.0500	0	0.0518				0.929	20	
Beryllium	<0.00150	0.00500	0	0				0	20	
Cadmium	<0.00150	0.00500	0	0				0	20	
Calcium	14.3	1.50	0	14.1				1.80	20	
Chromium	<0.0100	0.0250	0	0				0	20	
Cobalt	<0.0150	0.0250	0	0				0	20	
Lead	<0.00150	0.00500	0	0				0	20	
Molybdenum	0.0256	0.0250	0	0.0253				0.959	20	
Selenium	<0.0100	0.0250	0	0				0	20	
Thallium	<0.00250	0.00750	0	0				0	20	

Sample ID: **2109173-01A PDS** Batch ID: **102242** TestNo: **SW6020B** Units: **mg/L**
SampType: **PDS** Run ID: **ICP-MS5_211001A** Analysis Date: **10/1/2021 11:27:00 AM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.191	0.00250	0.200	0.00130	94.9	75	125			
Arsenic	0.182	0.00500	0.200	0	90.8	75	125			
Barium	0.241	0.0100	0.200	0.0518	94.6	75	125			
Beryllium	0.178	0.00100	0.200	0	88.9	75	125			
Cadmium	0.189	0.00100	0.200	0	94.5	75	125			
Calcium	17.4	0.300	5.00	14.1	66.6	75	125			S
Chromium	0.191	0.00500	0.200	0	95.3	75	125			
Cobalt	0.189	0.00500	0.200	0	94.5	75	125			
Lead	0.192	0.00100	0.200	0	96.2	75	125			
Molybdenum	0.211	0.00500	0.200	0.0253	93.1	75	125			
Selenium	0.173	0.00500	0.200	0	86.5	75	125			
Thallium	0.191	0.00150	0.200	0	95.6	75	125			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2109210
Project: 2H21 Coleto Creek Power Plant

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS5_211001A**

Sample ID: **2109173-01A MS** Batch ID: **102242** TestNo: **SW6020B** Units: **mg/L**
SampType: **MS** Run ID: **ICP-MS5_211001A** Analysis Date: **10/1/2021 11:31:00 AM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.193	0.00250	0.200	0.00130	95.9	75	125			
Arsenic	0.189	0.00500	0.200	0	94.5	75	125			
Barium	0.246	0.0100	0.200	0.0518	96.9	75	125			
Beryllium	0.187	0.00100	0.200	0	93.7	75	125			
Cadmium	0.191	0.00100	0.200	0	95.3	75	125			
Calcium	18.6	0.300	5.00	14.1	91.6	75	125			
Chromium	0.191	0.00500	0.200	0	95.4	75	125			
Cobalt	0.191	0.00500	0.200	0	95.4	75	125			
Lead	0.194	0.00100	0.200	0	96.9	75	125			
Molybdenum	0.220	0.00500	0.200	0.0253	97.3	75	125			
Selenium	0.174	0.00500	0.200	0	87.2	75	125			
Thallium	0.193	0.00150	0.200	0	96.5	75	125			

Sample ID: **2109173-01A MSD** Batch ID: **102242** TestNo: **SW6020B** Units: **mg/L**
SampType: **MSD** Run ID: **ICP-MS5_211001A** Analysis Date: **10/1/2021 11:34:00 AM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.194	0.00250	0.200	0.00130	96.5	75	125	0.686	15	
Arsenic	0.190	0.00500	0.200	0	95.0	75	125	0.584	15	
Barium	0.250	0.0100	0.200	0.0518	99.4	75	125	1.95	15	
Beryllium	0.184	0.00100	0.200	0	92.1	75	125	1.72	15	
Cadmium	0.192	0.00100	0.200	0	95.9	75	125	0.588	15	
Calcium	19.3	0.300	5.00	14.1	104	75	125	3.25	15	
Chromium	0.191	0.00500	0.200	0	95.3	75	125	0.085	15	
Cobalt	0.191	0.00500	0.200	0	95.4	75	125	0.060	15	
Lead	0.195	0.00100	0.200	0	97.7	75	125	0.800	15	
Molybdenum	0.221	0.00500	0.200	0.0253	98.1	75	125	0.644	15	
Selenium	0.170	0.00500	0.200	0	84.9	75	125	2.68	15	
Thallium	0.195	0.00150	0.200	0	97.5	75	125	0.971	15	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2109210
Project: 2H21 Coleto Creek Power Plant

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS5_211001A**

Sample ID: **ICV-211001** Batch ID: **R117365** TestNo: **SW6020B** Units: **mg/L**
SampType: **ICV** Run ID: **ICP-MS5_211001A** Analysis Date: **10/1/2021 10:34:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.101	0.00250	0.100	0	101	90	110			
Arsenic	0.101	0.00500	0.100	0	101	90	110			
Barium	0.102	0.0100	0.100	0	102	90	110			
Beryllium	0.0932	0.00100	0.100	0	93.2	90	110			
Cadmium	0.103	0.00100	0.100	0	103	90	110			
Calcium	2.39	0.300	2.50	0	95.4	90	110			
Chromium	0.104	0.00500	0.100	0	104	90	110			
Cobalt	0.107	0.00500	0.100	0	107	90	110			
Lead	0.101	0.00100	0.100	0	101	90	110			
Molybdenum	0.0978	0.00500	0.100	0	97.8	90	110			
Selenium	0.104	0.00500	0.100	0	104	90	110			
Thallium	0.100	0.00150	0.100	0	100	90	110			

Sample ID: **LCVL-211001** Batch ID: **R117365** TestNo: **SW6020B** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS5_211001A** Analysis Date: **10/1/2021 10:39:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00200	0.00250	0.00200	0	100	80	120			
Arsenic	0.00532	0.00500	0.00500	0	106	80	120			
Barium	0.00485	0.0100	0.00500	0	97.0	80	120			
Beryllium	0.000999	0.00100	0.00100	0	99.9	80	120			
Cadmium	0.00111	0.00100	0.00100	0	111	80	120			
Calcium	0.103	0.300	0.100	0	103	80	120			
Chromium	0.00519	0.00500	0.00500	0	104	80	120			
Cobalt	0.00520	0.00500	0.00500	0	104	80	120			
Lead	0.00102	0.00100	0.00100	0	102	80	120			
Molybdenum	0.00494	0.00500	0.00500	0	98.7	80	120			
Selenium	0.00515	0.00500	0.00500	0	103	80	120			
Thallium	0.00103	0.00150	0.00100	0	103	80	120			

Sample ID: **CCV1-211001** Batch ID: **R117365** TestNo: **SW6020B** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS5_211001A** Analysis Date: **10/1/2021 11:36:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.196	0.00250	0.200	0	98.2	90	110			
Arsenic	0.200	0.00500	0.200	0	99.8	90	110			
Barium	0.199	0.0100	0.200	0	99.6	90	110			
Beryllium	0.201	0.00100	0.200	0	100	90	110			
Cadmium	0.197	0.00100	0.200	0	98.7	90	110			
Calcium	4.93	0.300	5.00	0	98.6	90	110			
Chromium	0.200	0.00500	0.200	0	100	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS5_211001A**

Sample ID: **CCV1-211001** Batch ID: **R117365** TestNo: **SW6020B** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS5_211001A** Analysis Date: **10/1/2021 11:36:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cobalt	0.208	0.00500	0.200	0	104	90	110			
Lead	0.198	0.00100	0.200	0	98.9	90	110			
Molybdenum	0.196	0.00500	0.200	0	98.0	90	110			
Selenium	0.208	0.00500	0.200	0	104	90	110			
Thallium	0.198	0.00150	0.200	0	99.1	90	110			

Sample ID: **CCV2-211001** Batch ID: **R117365** TestNo: **SW6020B** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS5_211001A** Analysis Date: **10/1/2021 11:56:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.204	0.00250	0.200	0	102	90	110			
Arsenic	0.208	0.00500	0.200	0	104	90	110			
Barium	0.203	0.0100	0.200	0	101	90	110			
Beryllium	0.199	0.00100	0.200	0	99.7	90	110			
Cadmium	0.209	0.00100	0.200	0	105	90	110			
Chromium	0.211	0.00500	0.200	0	105	90	110			
Cobalt	0.219	0.00500	0.200	0	110	90	110			
Lead	0.203	0.00100	0.200	0	102	90	110			
Molybdenum	0.203	0.00500	0.200	0	101	90	110			
Selenium	0.212	0.00500	0.200	0	106	90	110			
Thallium	0.204	0.00150	0.200	0	102	90	110			

CLIENT:	Golder
Work Order:	2109210
Project:	2H21 Coleto Creek Power Plant

ANALYTICAL QC SUMMARY REPORT

RunID: **IC2_210928A**

Sample ID:	**DCS2-102216**	Batch ID:	**102216**	TestNo:	**E300**	Units:	**mg/L**
SampType:	**DCS2**	Run ID:	**IC2_210928A**	Analysis Date:	**9/28/2021 1:38:01 PM**	Prep Date:	**9/28/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	0.533	1.00	0.5000	0	107	70	130	0	0	

Qualifiers:				
	B	Analyte detected in the associated Method Blank	DF	Dilution Factor
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
	RL	Reporting Limit	S	Spike Recovery outside control limits
	J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2109210
Project: 2H21 Coleto Creek Power Plant

ANALYTICAL QC SUMMARY REPORT

RunID: **IC2_211006B**

The QC data in batch 102298 applies to the following samples: 2109210-03B

Sample ID: **MB-102298** Batch ID: **102298** TestNo: **E300** Units: **mg/L**
SampType: **MBLK** Run ID: **IC2_211006B** Analysis Date: **10/6/2021 4:52:16 PM** Prep Date: **10/6/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	<0.300	1.00								

Sample ID: **LCS-102298** Batch ID: **102298** TestNo: **E300** Units: **mg/L**
SampType: **LCS** Run ID: **IC2_211006B** Analysis Date: **10/6/2021 5:08:16 PM** Prep Date: **10/6/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.1	1.00	10.00	0	101	90	110			

Sample ID: **LCSD-102298** Batch ID: **102298** TestNo: **E300** Units: **mg/L**
SampType: **LCSD** Run ID: **IC2_211006B** Analysis Date: **10/6/2021 5:24:16 PM** Prep Date: **10/6/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.99	1.00	10.00	0	99.9	90	110	0.782	20	

Sample ID: **2110019-01BMS** Batch ID: **102298** TestNo: **E300** Units: **mg/L**
SampType: **MS** Run ID: **IC2_211006B** Analysis Date: **10/6/2021 8:20:16 PM** Prep Date: **10/6/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	1940	100	2000	0	96.8	90	110			

Sample ID: **2110019-01BMSD** Batch ID: **102298** TestNo: **E300** Units: **mg/L**
SampType: **MSD** Run ID: **IC2_211006B** Analysis Date: **10/6/2021 8:36:16 PM** Prep Date: **10/6/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	1920	100	2000	0	96.2	90	110	0.634	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2109210
Project: 2H21 Coleto Creek Power Plant

ANALYTICAL QC SUMMARY REPORT

RunID: **IC2_211006B**

Sample ID: **ICV-211006** Batch ID: **R117406** TestNo: **E300** Units: **mg/L**
SampType: **ICV** Run ID: **IC2_211006B** Analysis Date: **10/6/2021 12:08:08 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	24.6	1.00	25.00	0	98.5	90	110			

Sample ID: **CCV1-211006** Batch ID: **R117406** TestNo: **E300** Units: **mg/L**
SampType: **CCV** Run ID: **IC2_211006B** Analysis Date: **10/6/2021 3:52:08 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.94	1.00	10.00	0	99.4	90	110			

Sample ID: **CCV2-211006** Batch ID: **R117406** TestNo: **E300** Units: **mg/L**
SampType: **CCV** Run ID: **IC2_211006B** Analysis Date: **10/6/2021 9:24:15 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.2	1.00	10.00	0	102	90	110			

Sample ID: **CCV3-211006** Batch ID: **R117406** TestNo: **E300** Units: **mg/L**
SampType: **CCV** Run ID: **IC2_211006B** Analysis Date: **10/6/2021 11:16:15 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.3	1.00	10.00	0	103	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

ANALYTICAL QC SUMMARY REPORT

RunID: **IC4_210930A**

Sample ID: **DCS2-102243** Batch ID: **102243** TestNo: **E300** Units: **mg/L**
SampType: **DCS2** Run ID: **IC4_210930A** Analysis Date: **9/30/2021 4:11:30 PM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	0.505	1.00	0.5000	0	101	70	130	0	0	
Fluoride	0.163	0.400	0.2000	0	81.3	70	130	0	0	

Sample ID: **DCS3-102243** Batch ID: **102243** TestNo: **E300** Units: **mg/L**
SampType: **DCS3** Run ID: **IC4_210930A** Analysis Date: **9/30/2021 4:30:30 PM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	3.08	3.00	3.000	0	103	70	130	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2109210
Project: 2H21 Coleto Creek Power Plant

ANALYTICAL QC SUMMARY REPORT

RunID: **IC4_211005B**

The QC data in batch 102275 applies to the following samples: 2109210-01B, 2109210-02B, 2109210-03B, 2109210-04B, 2109210-05B, 2109210-06B, 2109210-07B, 2109210-08B, 2109210-09B, 2109210-10B

Sample ID: **MB-102275** Batch ID: **102275** TestNo: **E300** Units: **mg/L**
SampType: **MBLK** Run ID: **IC4_211005B** Analysis Date: **10/5/2021 9:46:19 PM** Prep Date: **10/5/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	<0.300	1.00								
Fluoride	<0.100	0.400								
Sulfate	<1.00	3.00								

Sample ID: **LCS-102275** Batch ID: **102275** TestNo: **E300** Units: **mg/L**
SampType: **LCS** Run ID: **IC4_211005B** Analysis Date: **10/5/2021 10:05:19 PM** Prep Date: **10/5/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.62	1.00	10.00	0	96.2	90	110			
Fluoride	4.01	0.400	4.000	0	100	90	110			
Sulfate	30.8	3.00	30.00	0	103	90	110			

Sample ID: **LCSD-102275** Batch ID: **102275** TestNo: **E300** Units: **mg/L**
SampType: **LCSD** Run ID: **IC4_211005B** Analysis Date: **10/5/2021 10:24:19 PM** Prep Date: **10/5/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.59	1.00	10.00	0	95.9	90	110	0.235	20	
Fluoride	4.02	0.400	4.000	0	100	90	110	0.168	20	
Sulfate	31.1	3.00	30.00	0	104	90	110	1.02	20	

Sample ID: **2109210-01BMS** Batch ID: **102275** TestNo: **E300** Units: **mg/L**
SampType: **MS** Run ID: **IC4_211005B** Analysis Date: **10/5/2021 11:02:19 PM** Prep Date: **10/5/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	321	10.0	200.0	146.1	87.3	90	110			S
Fluoride	194	4.00	200.0	2.073	96.1	90	110			
Sulfate	356	30.0	200.0	168.9	93.6	90	110			

Sample ID: **2109210-01BMSD** Batch ID: **102275** TestNo: **E300** Units: **mg/L**
SampType: **MSD** Run ID: **IC4_211005B** Analysis Date: **10/5/2021 11:21:19 PM** Prep Date: **10/5/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	320	10.0	200.0	146.1	87.2	90	110	0.064	20	S
Fluoride	194	4.00	200.0	2.073	96.0	90	110	0.047	20	
Sulfate	356	30.0	200.0	168.9	93.6	90	110	0.042	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2109210
Project: 2H21 Coleto Creek Power Plant

ANALYTICAL QC SUMMARY REPORT

RunID: **IC4_211005B**

Sample ID: **2109228-07BMS** Batch ID: **102275** TestNo: **E300** Units: **mg/L**
SampType: **MS** Run ID: **IC4_211005B** Analysis Date: **10/6/2021 4:06:18 AM** Prep Date: **10/5/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	235	10.0	200.0	59.61	87.8	90	110			S
Fluoride	195	4.00	200.0	0	97.3	90	110			
Sulfate	205	30.0	200.0	0	103	90	110			

Sample ID: **2109228-07BMSD** Batch ID: **102275** TestNo: **E300** Units: **mg/L**
SampType: **MSD** Run ID: **IC4_211005B** Analysis Date: **10/6/2021 4:25:18 AM** Prep Date: **10/5/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	239	10.0	200.0	59.61	89.8	90	110	1.68	20	
Fluoride	199	4.00	200.0	0	99.5	90	110	2.21	20	
Sulfate	209	30.0	200.0	0	105	90	110	1.91	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

ANALYTICAL QC SUMMARY REPORT

RunID: **IC4_211005B**

Sample ID: **ICV-211005** Batch ID: **R117396** TestNo: **E300** Units: **mg/L**
SampType: **ICV** Run ID: **IC4_211005B** Analysis Date: **10/5/2021 1:42:32 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	25.2	1.00	25.00	0	101	90	110			
Fluoride	10.3	0.400	10.00	0	103	90	110			
Sulfate	79.5	3.00	75.00	0	106	90	110			

Sample ID: **CCV1-211005** Batch ID: **R117396** TestNo: **E300** Units: **mg/L**
SampType: **CCV** Run ID: **IC4_211005B** Analysis Date: **10/5/2021 9:08:19 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.63	1.00	10.00	0	96.3	90	110			
Fluoride	4.01	0.400	4.000	0	100	90	110			
Sulfate	30.9	3.00	30.00	0	103	90	110			

Sample ID: **CCV2-211005** Batch ID: **R117396** TestNo: **E300** Units: **mg/L**
SampType: **CCV** Run ID: **IC4_211005B** Analysis Date: **10/6/2021 3:09:18 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.58	1.00	10.00	0	95.8	90	110			
Fluoride	4.02	0.400	4.000	0	101	90	110			
Sulfate	30.8	3.00	30.00	0	103	90	110			

Sample ID: **CCV3-211005** Batch ID: **R117396** TestNo: **E300** Units: **mg/L**
SampType: **CCV** Run ID: **IC4_211005B** Analysis Date: **10/6/2021 8:13:18 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.62	1.00	10.00	0	96.2	90	110			
Fluoride	4.05	0.400	4.000	0	101	90	110			
Sulfate	31.2	3.00	30.00	0	104	90	110			

Sample ID: **CCV4-211005** Batch ID: **R117396** TestNo: **E300** Units: **mg/L**
SampType: **CCV** Run ID: **IC4_211005B** Analysis Date: **10/6/2021 12:39:18 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	4.03	0.400	4.000	0	101	90	110			
Sulfate	31.2	3.00	30.00	0	104	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 2109210
Project: 2H21 Coleto Creek Power Plant

ANALYTICAL QC SUMMARY REPORT

RunID: **WC_210930E**

The QC data in batch 102241 applies to the following samples: 2109210-01B, 2109210-02B, 2109210-03B, 2109210-04B, 2109210-05B, 2109210-06B, 2109210-07B, 2109210-08B, 2109210-09B, 2109210-10B

Sample ID: **MB-102241** Batch ID: **102241** TestNo: **M2540C** Units: **mg/L**
SampType: **MBLK** Run ID: **WC_210930E** Analysis Date: **9/30/2021 4:05:00 PM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	<10.0	10.0								

Sample ID: **LCS-102241** Batch ID: **102241** TestNo: **M2540C** Units: **mg/L**
SampType: **LCS** Run ID: **WC_210930E** Analysis Date: **9/30/2021 4:05:00 PM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	749	10.0	745.6	0	100	90	113			

Sample ID: **2109214-01A-DUP** Batch ID: **102241** TestNo: **M2540C** Units: **mg/L**
SampType: **DUP** Run ID: **WC_210930E** Analysis Date: **9/30/2021 4:05:00 PM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	1080	50.0	0	1110				3.20	5	

Sample ID: **2109214-02A-DUP** Batch ID: **102241** TestNo: **M2540C** Units: **mg/L**
SampType: **DUP** Run ID: **WC_210930E** Analysis Date: **9/30/2021 4:05:00 PM** Prep Date: **9/30/2021**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	1120	50.0	0	1150				2.64	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

Date: *09-Nov-21*

CLIENT: Golder
Work Order: 2109210
Project: 2H21 Coleto Creek Power Plant

MQL SUMMARY REPORT

TestNo: E300 **Analyte**	**MDL** **mg/L**	**MQL** **mg/L**
Chloride	0.300	1.00
Fluoride	0.100	0.400
Sulfate	1.00	3.00

TestNo: SW6020B **Analyte**	**MDL** **mg/L**	**MQL** **mg/L**
Antimony	0.000800	0.00250
Arsenic	0.00200	0.00500
Barium	0.00300	0.0100
Beryllium	0.000300	0.00100
Boron	0.0100	0.0300
Cadmium	0.000300	0.00100
Calcium	0.100	0.300
Chromium	0.00200	0.00500
Cobalt	0.00300	0.00500
Lead	0.000300	0.00100
Lithium	0.00500	0.0100
Molybdenum	0.00200	0.00500
Selenium	0.00200	0.00500
Thallium	0.000500	0.00150

TestNo: SW7470A **Analyte**	**MDL** **mg/L**	**MQL** **mg/L**
Mercury	0.0000800	0.000200

TestNo: M2540C **Analyte**	**MDL** **mg/L**	**MQL** **mg/L**
Total Dissolved Solids (Residue, Filt	10.0	10.0

Qualifiers: MQL -Method Quantitation Limit as defined by TRRP

MDL -Method Detection Limit as defined by TRRP

ANALYTICAL REPORT

November 01, 2021

1 Cp
2 Tc
3 Ss
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9 Sc

DHL Analytical, Inc.

Sample Delivery Group:	L1411846
Samples Received:	10/01/2021
Project Number:	2109210
Description:	
Report To:	John DuPont 2300 Double Creek Drive Round Rock, TX 78664

Entire Report Reviewed By:

Donna Eidson
Project Manager

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

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BU-5 L1411846-01 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/28/21 08:20	10/01/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1754687	1	10/26/21 10:35	10/28/21 17:40	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1754687	1	10/26/21 10:35	10/28/21 17:40	RGT	Mt. Juliet, TN

MW-4 L1411846-02 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/28/21 09:20	10/01/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1754687	1	10/26/21 10:35	10/28/21 17:40	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1754687	1	10/26/21 10:35	10/28/21 17:40	RGT	Mt. Juliet, TN

BU-21 L1411846-03 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/28/21 10:20	10/01/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1754687	1	10/26/21 10:35	10/28/21 17:40	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1754687	1	10/26/21 10:35	10/28/21 17:40	RGT	Mt. Juliet, TN

DUP 101 L1411846-04 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/28/21 10:30	10/01/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1754687	1	10/26/21 10:35	10/28/21 17:40	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1754687	1	10/26/21 10:35	10/28/21 17:40	RGT	Mt. Juliet, TN

MW-8 L1411846-05 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/28/21 11:20	10/01/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1754687	1	10/26/21 10:35	10/28/21 17:40	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1754687	1	10/26/21 10:35	10/28/21 17:40	RGT	Mt. Juliet, TN

MW-6 L1411846-06 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/28/21 12:15	10/01/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1754687	1	10/26/21 10:35	10/28/21 17:40	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1754687	1	10/26/21 10:35	10/28/21 17:40	RGT	Mt. Juliet, TN

MW-11 L1411846-07 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/28/21 13:15	10/01/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1754687	1	10/26/21 10:35	10/28/21 17:40	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1754687	1	10/26/21 10:35	10/28/21 17:40	RGT	Mt. Juliet, TN

	Collected by	Collected date/time	Received date/time
		09/28/21 14:00	10/01/21 10:00

MW-9 L1411846-08 Non-Potable Water

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1754687	1	10/26/21 10:35	10/28/21 17:40	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1754687	1	10/26/21 10:35	10/28/21 17:40	RGT	Mt. Juliet, TN

	Collected by	Collected date/time	Received date/time
		09/28/21 14:45	10/01/21 10:00

MW-5 L1411846-09 Non-Potable Water

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1754687	1	10/26/21 10:35	10/28/21 17:40	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1754687	1	10/26/21 10:35	10/28/21 17:40	RGT	Mt. Juliet, TN

	Collected by	Collected date/time	Received date/time
		09/28/21 15:25	10/01/21 10:00

MW-10 L1411846-10 Non-Potable Water

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method Calculation	WG1754687	1	10/26/21 10:35	10/28/21 17:40	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1754687	1	10/26/21 10:35	10/28/21 17:40	RGT	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

DEidson

Donna Eidson
Project Manager

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	2.06		0.315	0.532	10/27/2021 12:05	WG1759106
(T) Barium	*99.9*			*62.0-143*	*10/27/2021 12:05*	WG1759106
(T) Yttrium	*102*			*79.0-136*	*10/27/2021 12:05*	WG1759106

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	2.29		0.546	0.815	10/28/2021 17:40	WG1754687

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.239	J	0.231	0.283	10/28/2021 17:40	WG1754687
(T) Barium-133	*96.9*			*30.0-143*	*10/28/2021 17:40*	WG1754687

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.91		0.312	0.53	10/27/2021 12:05	WG1759106
(T) Barium	*94.5*			*62.0-143*	*10/27/2021 12:05*	WG1759106
(T) Yttrium	*96.1*			*79.0-136*	*10/27/2021 12:05*	WG1759106

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	2.06		0.510	0.811	10/28/2021 17:40	WG1754687

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.151	J	0.198	0.281	10/28/2021 17:40	WG1754687
(T) Barium-133	*91.4*			*30.0-143*	*10/28/2021 17:40*	WG1754687

BU-21

Collected date/time: 09/28/21 10:20

SAMPLE RESULTS - 03

L1411846

Radiochemistry by Method 904/9320

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
Analyte	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	1.81		0.367	0.641	10/27/2021 12:05	WG1759106
(T) Barium	*93.0*			*62.0-143*	*10/27/2021 12:05*	WG1759106
(T) Yttrium	*96.9*			*79.0-136*	*10/27/2021 12:05*	WG1759106

Radiochemistry by Method Calculation

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
Analyte	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	2.83		0.851	0.997	10/28/2021 17:40	WG1754687

Radiochemistry by Method SM7500Ra B M

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
Analyte	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	1.02		0.484	0.356	10/28/2021 17:40	WG1754687
(T) Barium-133	*88.2*			*30.0-143*	*10/28/2021 17:40*	WG1754687

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.28		0.346	0.618	10/27/2021 12:05	WG1759106
(T) Barium	*92.2*			*62.0-143*	*10/27/2021 12:05*	WG1759106
(T) Yttrium	*101*			*79.0-136*	*10/27/2021 12:05*	WG1759106

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.71		0.639	0.86	10/28/2021 17:40	WG1754687

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.426		0.293	0.242	10/28/2021 17:40	WG1754687
(T) Barium-133	*83.0*			*30.0-143*	*10/28/2021 17:40*	WG1754687

MW-8

Collected date/time: 09/28/21 11:20

SAMPLE RESULTS - 05

L1411846

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Radiochemistry by Method 904/9320

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
Analyte	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	1.23		0.373	0.67	10/27/2021 12:05	WG1759106
(T) Barium	*94.7*			*62.0-143*	*10/27/2021 12:05*	WG1759106
(T) Yttrium	*100*			*79.0-136*	*10/27/2021 12:05*	WG1759106

Radiochemistry by Method Calculation

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
Analyte	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.32		0.528	0.927	10/28/2021 17:40	WG1754687

Radiochemistry by Method SM7500Ra B M

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
Analyte	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.0886	U	0.155	0.257	10/28/2021 17:40	WG1754687
(T) Barium-133	*70.0*			*30.0-143*	*10/28/2021 17:40*	WG1754687

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.60		0.547	0.991	10/27/2021 12:05	WG1759106
(T) Barium	*94.8*			*62.0-143*	*10/27/2021 12:05*	WG1759106
(T) Yttrium	*89.9*			*79.0-136*	*10/27/2021 12:05*	WG1759106

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	1.94		0.835	1.28	10/28/2021 17:40	WG1754687

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.334		0.288	0.289	10/28/2021 17:40	WG1754687
(T) Barium-133	*68.7*			*30.0-143*	*10/28/2021 17:40*	WG1754687

SAMPLE RESULTS - 07

L1411846

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	2.74		0.471	0.813	10/27/2021 12:05	WG1759106
(T) Barium	*87.8*			*62.0-143*	*10/27/2021 12:05*	WG1759106
(T) Yttrium	*94.0*			*79.0-136*	*10/27/2021 12:05*	WG1759106

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	2.77		0.578	1.05	10/28/2021 17:40	WG1754687

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0336	U	0.107	0.236	10/28/2021 17:40	WG1754687
(T) Barium-133	*81.9*			*30.0-143*	*10/28/2021 17:40*	WG1754687

MW-9

Collected date/time: 09/28/21 14:00

SAMPLE RESULTS - 08

L1411846

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.75		0.392	0.693	10/27/2021 12:05	WG1759106
(T) Barium	*98.3*			*62.0-143*	*10/27/2021 12:05*	WG1759106
(T) Yttrium	*95.4*			*79.0-136*	*10/27/2021 12:05*	WG1759106

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	2.03		0.651	0.988	10/28/2021 17:40	WG1754687

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.278	J	0.259	0.295	10/28/2021 17:40	WG1754687
(T) Barium-133	*83.7*			*30.0-143*	*10/28/2021 17:40*	WG1754687

SAMPLE RESULTS - 09

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.74		0.322	0.556	10/27/2021 12:05	WG1759106
(T) Barium	*90.9*			*62.0-143*	*10/27/2021 12:05*	WG1759106
(T) Yttrium	*102*			*79.0-136*	*10/27/2021 12:05*	WG1759106

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	2.05		0.576	0.811	10/28/2021 17:40	WG1754687

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.311		0.254	0.255	10/28/2021 17:40	WG1754687
(T) Barium-133	*88.0*			*30.0-143*	*10/28/2021 17:40*	WG1754687

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.472	J	0.307	0.571	10/27/2021 12:05	WG1759106
(T) Barium	*101*			*62.0-143*	*10/27/2021 12:05*	WG1759106
(T) Yttrium	*98.1*			*79.0-136*	*10/27/2021 12:05*	WG1759106

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.654	J	0.618	1.06	10/28/2021 17:40	WG1754687

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.182	J	0.311	0.487	10/28/2021 17:40	WG1754687
(T) Barium-133	*67.3*			*30.0-143*	*10/28/2021 17:40*	WG1754687

Method Blank (MB)

(MB) R3723031-1 10/27/21 12:05

Analyte	MB Result pCi/l	MB Qualifier	MB Uncertainty + / -	MB MDA pCi/l
Radium-228	-0.174	U	0.245	0.472
(T) Barium	*90.5*		*90.5*	
(T) Yttrium	*100*		*100*	

L1411370-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1411370-01 10/27/21 12:05 • (DUP) R3723031-5 10/27/21 12:05

Analyte	Original Result pCi/l	Original Uncertainty + / -	DUP Result pCi/l	DUP Uncertainty + / -	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	3.81	0.371	2.81	0.890	1	30.2	1.04		20	3
(T) Barium	*113*		*103*	*103*						
(T) Yttrium	*96.7*		*94.3*	*94.3*						

Laboratory Control Sample (LCS)

(LCS) R3723031-2 10/27/21 12:05

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.94	98.7	80.0-120	
(T) Barium			*95.4*		
(T) Yttrium			*97.9*		

L1411846-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1411846-03 10/27/21 12:05 • (MS) R3723031-3 10/27/21 12:05 • (MSD) R3723031-4 10/27/21 12:05

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	1.81	19.6	20.8	106	113	1	70.0-130			5.90		20
(T) Barium		*93.0*			*101*	*97.6*							
(T) Yttrium		*96.9*			*103*	*96.6*							

Method Blank (MB)

(MB) R3723817-1 10/28/21 17:40

Analyte	MB Result pCi/l	MB Qualifier	MB Uncertainty + / -	MB MDA pCi/l
Radium-226	0.0205	J	0.0318	0.0484
(T) Barium-133	*110*		*110*	

L1411846-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1411846-10 10/28/21 17:40 • (DUP) R3723817-5 10/28/21 17:40

Analyte	Original Result pCi/l	Original Uncertainty + / -	DUP Result pCi/l	DUP Uncertainty + / -	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.182	0.311	0.0968	0.150	1	60.9	0.246	J	20	3
(T) Barium-133	*67.3*		*80.3*	*80.3*						

Laboratory Control Sample (LCS)

(LCS) R3723817-2 10/28/21 17:40

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.02	4.12	82.1	80.0-120	
(T) Barium-133			*80.3*		

L1411846-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1411846-01 10/28/21 17:40 • (MS) R3723817-3 10/28/21 17:40 • (MSD) R3723817-4 10/28/21 17:40

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.1	0.239	17.6	17.0	86.4	83.2	1	75.0-125			3.70		20
(T) Barium-133		*96.9*			*110*	*101*							

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1,6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1,4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

DHL Analytical, Inc.
2300 Double Creek Drive
Round Rock, TX 78664

CHAIN-OF-CUSTODY RECORD

Page 1 of 2

B053

TEL: *(512) 388-8222* FAX:

Work Order: 2109210

Subcontractor:

Pace Analytical
12065 Lebanon Rd
Mt. Juliet, TN 37122

TEL: (615) 773-5923
FAX:
Acct #: DHLRRTX

L1411846

29-Sep-21

Sample ID	Matrix	DHL#	Date Collected	Bottle Type	Requested Tests					
					Ra-228	Ra-226				
					E904.0	M7500 Ra B M				
BU-5	Aqueous	01C	09/28/21 08:20 AM	1LHDPEHNO3		1				-01
BU-5	Aqueous	01D	09/28/21 08:20 AM	1LHDPEHNO3	1					-01
MW-4	Aqueous	02C	09/28/21 09:20 AM	1LHDPEHNO3		1				-02
MW-4	Aqueous	02D	09/28/21 09:20 AM	1LHDPEHNO3	1					-02
BU-21	Aqueous	03C	09/28/21 10:20 AM	1LHDPEHNO3		1				-03
BU-21	Aqueous	03D	09/28/21 10:20 AM	1LHDPEHNO3	1					-03
Dup 101	Aqueous	04C	09/28/21 10:30 AM	1LHDPEHNO3		1				-04
Dup 101	Aqueous	04D	09/28/21 10:30 AM	1LHDPEHNO3	1					-04
MW-8	Aqueous	05C	09/28/21 11:20 AM	1LHDPEHNO3		1				-05
MW-8	Aqueous	05D	09/28/21 11:20 AM	1LHDPEHNO3	1					-05
MW-6	Aqueous	06C	09/28/21 12:15 PM	1LHDPEHNO3		1				-06
MW-6	Aqueous	06D	09/28/21 12:15 PM	1LHDPEHNO3	1					-06
MW-11	Aqueous	07C	09/28/21 01:15 PM	1LHDPEHNO3		1				-07
MW-11	Aqueous	07D	09/28/21 01:15 PM	1LHDPEHNO3	1					-07
MW-9	Aqueous	08C	09/28/21 02:00 PM	1LHDPEHNO3		1				-08
MW-9	Aqueous	08D	09/28/21 02:00 PM	1LHDPEHNO3	1					-08
MW-5	Aqueous	09C	09/28/21 02:45 PM	1LHDPEHNO3		1				-09

General Comments:

Please analyze these samples with Normal Turnaround Time.
Report Ra-226, Ra-228 & Combined per Specs.
Quality Control Package Needed: Standard - NELAC Rad Test compliant
Email to cac@dhlanalytical.com & dupont@dhlanalytical.com

	Date/Time		Date/Time
Relinquished by:	9/29/21 1800	**Received by:**	
Relinquished by:		**Received by:**	10/01/21 10:00

23.3+0=23.3 A7R

DHL Analytical, Inc.
2300 Double Creek Drive
Round Rock, TX 78664

CHAIN-OF-CUSTODY RECORD

Page 2 of 2

TEL: *(512) 388-8222* FAX:

Work Order: 2109210

Subcontractor:

Pace Analytical
12065 Lebanon Rd
Mt. Juliet, TN 37122

TEL: (615) 773-5923
FAX:
Acct #: DHLRRTX

L1411846
29-Sep-21

Sample ID	Matrix	DHL#	Date Collected	Bottle Type	Requested Tests					
					Ra-228	Ra-226				
					E904.0	M7500 Ra B M				
MW-5	Aqueous	09D	09/28/21 02:45 PM	1LHDPEHNO3	1					-09
MW-10	Aqueous	10C	09/28/21 03:25 PM	1LHDPEHNO3		1				-10
MW-10	Aqueous	10D	09/28/21 03:25 PM	1LHDPEHNO3	1					-10

Sample Receipt Checklist

COC Seal Present/Intact: [✓ Y] N
COC Signed/Accurate: [✓ Y] N
Bottles arrive intact: [✓ Y] N
Correct bottles used: [✓ Y] N
Sufficient volume sent: [✓ Y] N
RAD Screen <0.5 mR/hr: [✓ Y] N

If Applicable
VOA Zero Headspace: Y [✓ N]
Pres.Correct/Check: [✓ Y] N

General Comments:

Please analyze these samples with Normal Turnaround Time.
Report Ra-226, Ra-228 & Combined per Specs.
Quality Control Package Needed: Standard - NELAC Rad Test compliant
Email to cac@dhlanalytical.com & dupont@dhlanalytical.com

			Date/Time
Relinquished by:	9/29/21 1800	**Received by:**	
Relinquished by:		**Received by:**	10/01/21 10:00

23.3+0=23.3
A9R

ATTACHMENT 2

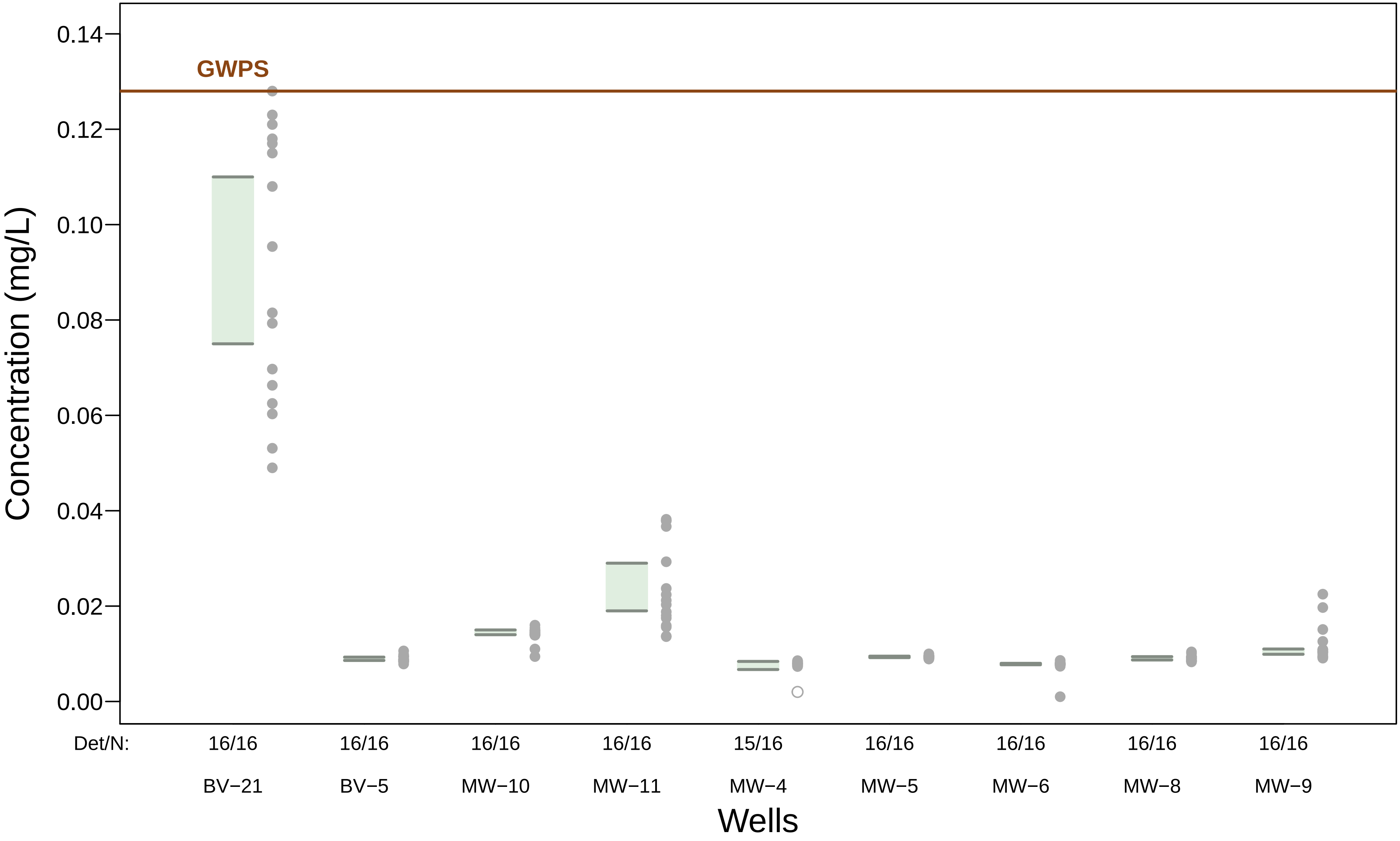
2021 APPENDIX IV CONFIDENCE INTERVAL GRAPHS

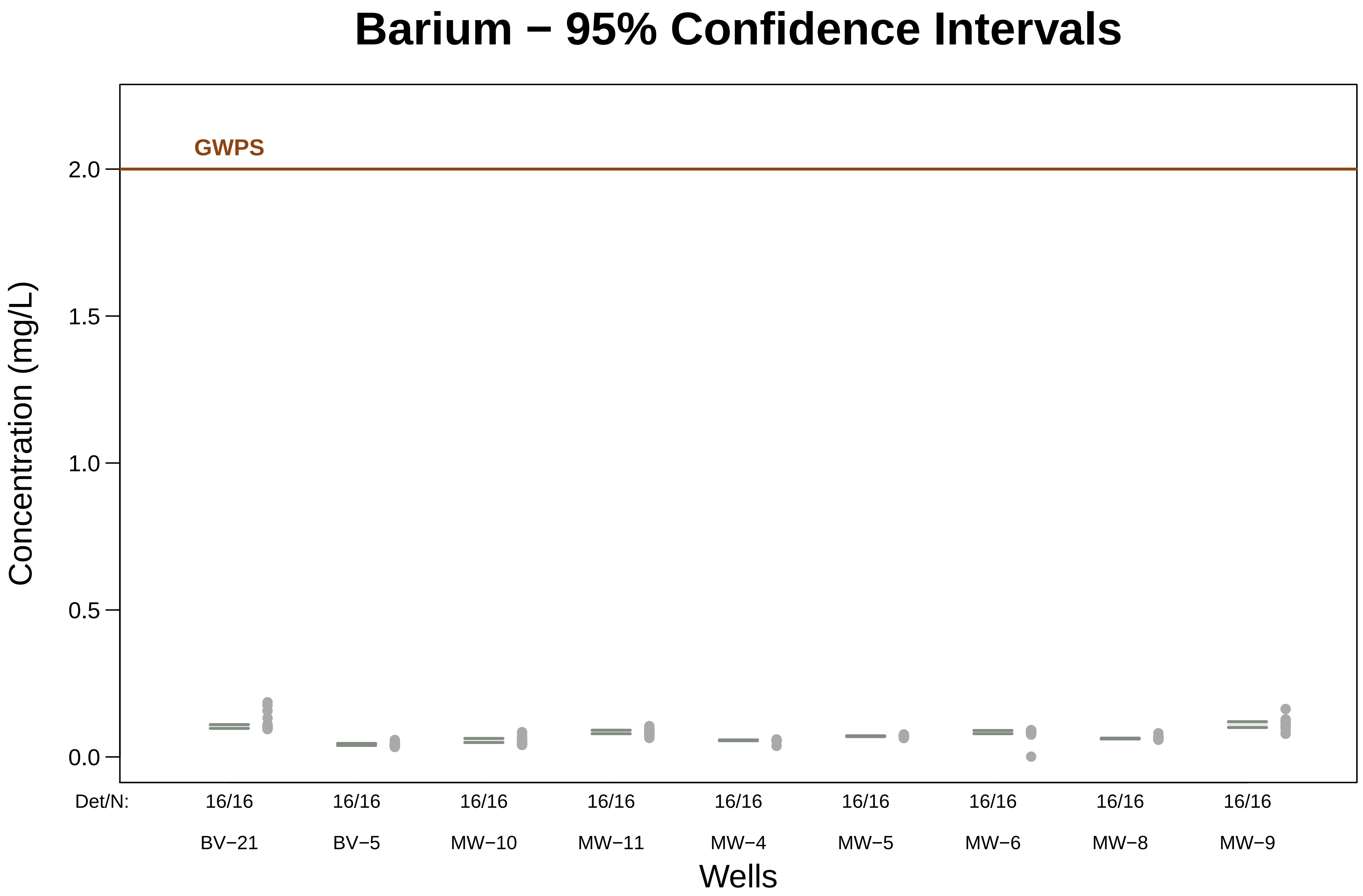
EXPLANATION

🟩	95% Upper confidence limit 95% Lower confidence limit
●	Detected sample concentration
○	Non-detect sample result (concentration set to laboratory reporting limit)

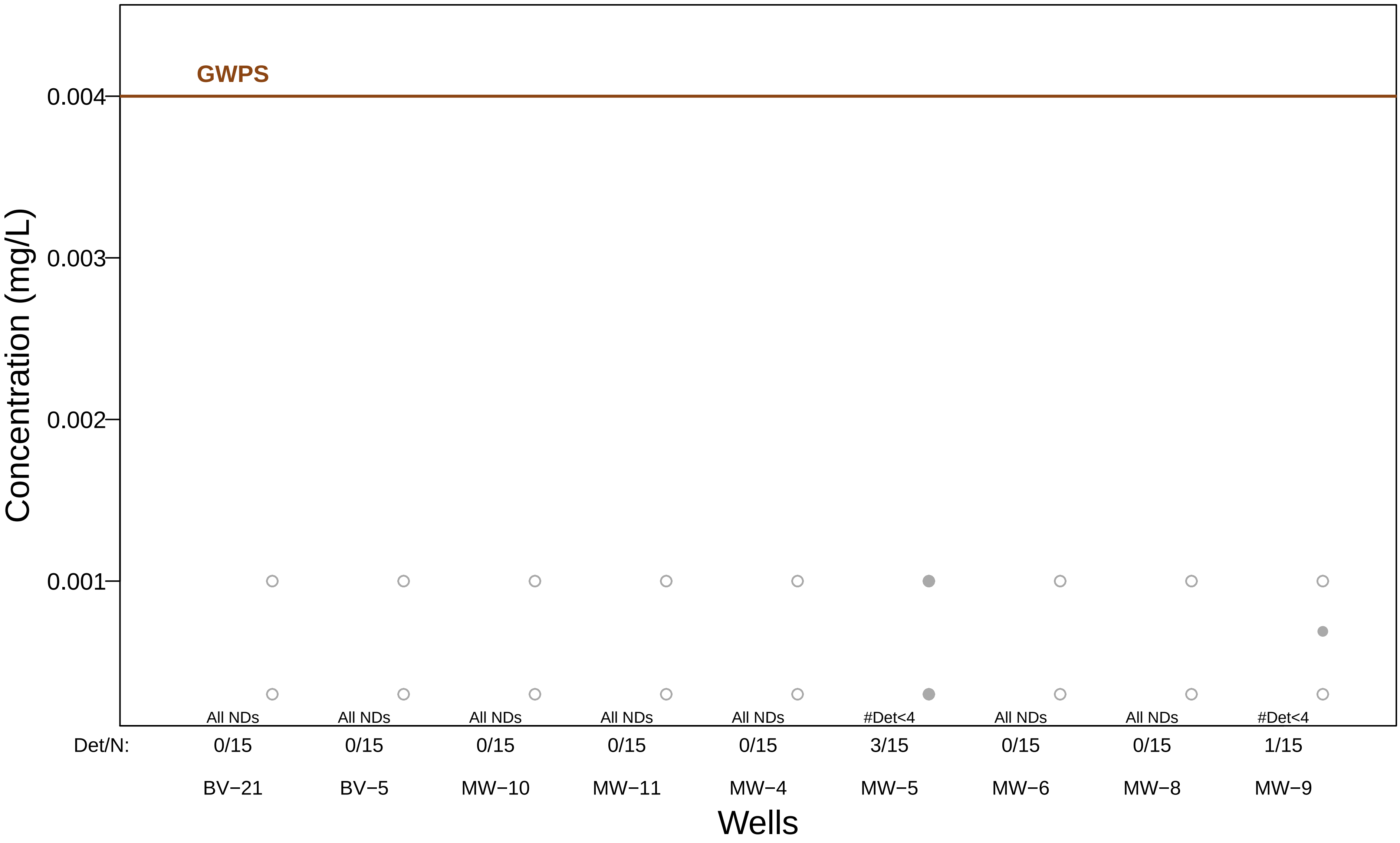
Note: An SSL is indicated if the lower confidence interval exceeds the GWPS (SSLs are not indicated).

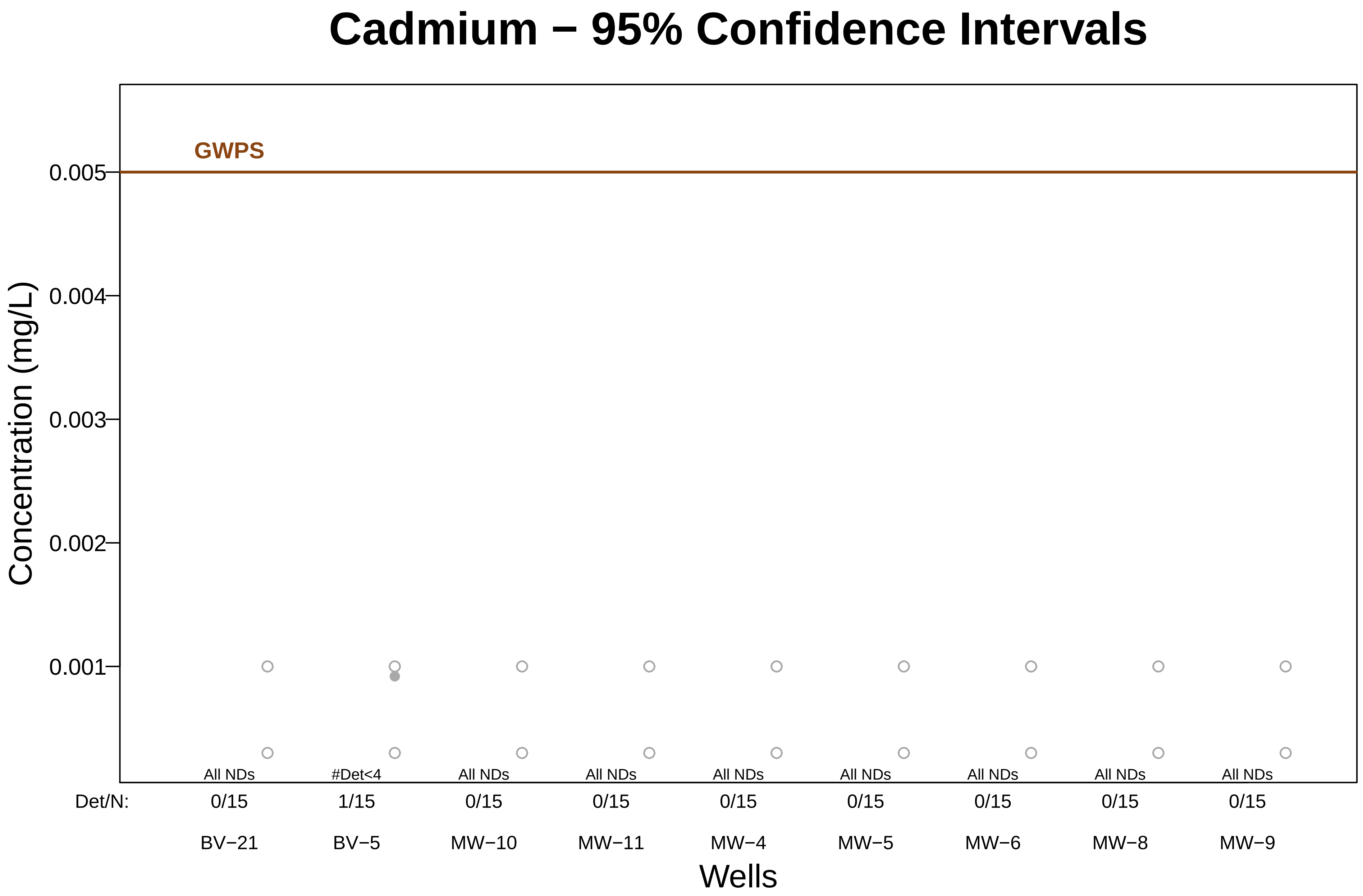
Arsenic − 95% Confidence Intervals




Barium − 95% Confidence Intervals
GWPS
2.0
1.5
1.0
0.5
0.0
Concentration (mg/L)
Det/N:
16/16
16/16
16/16
16/16
16/16
16/16
16/16
16/16
16/16
BV−21
BV−5
MW−10
MW−11
MW−4
MW−5
MW−6
MW−8
MW−9
Wells

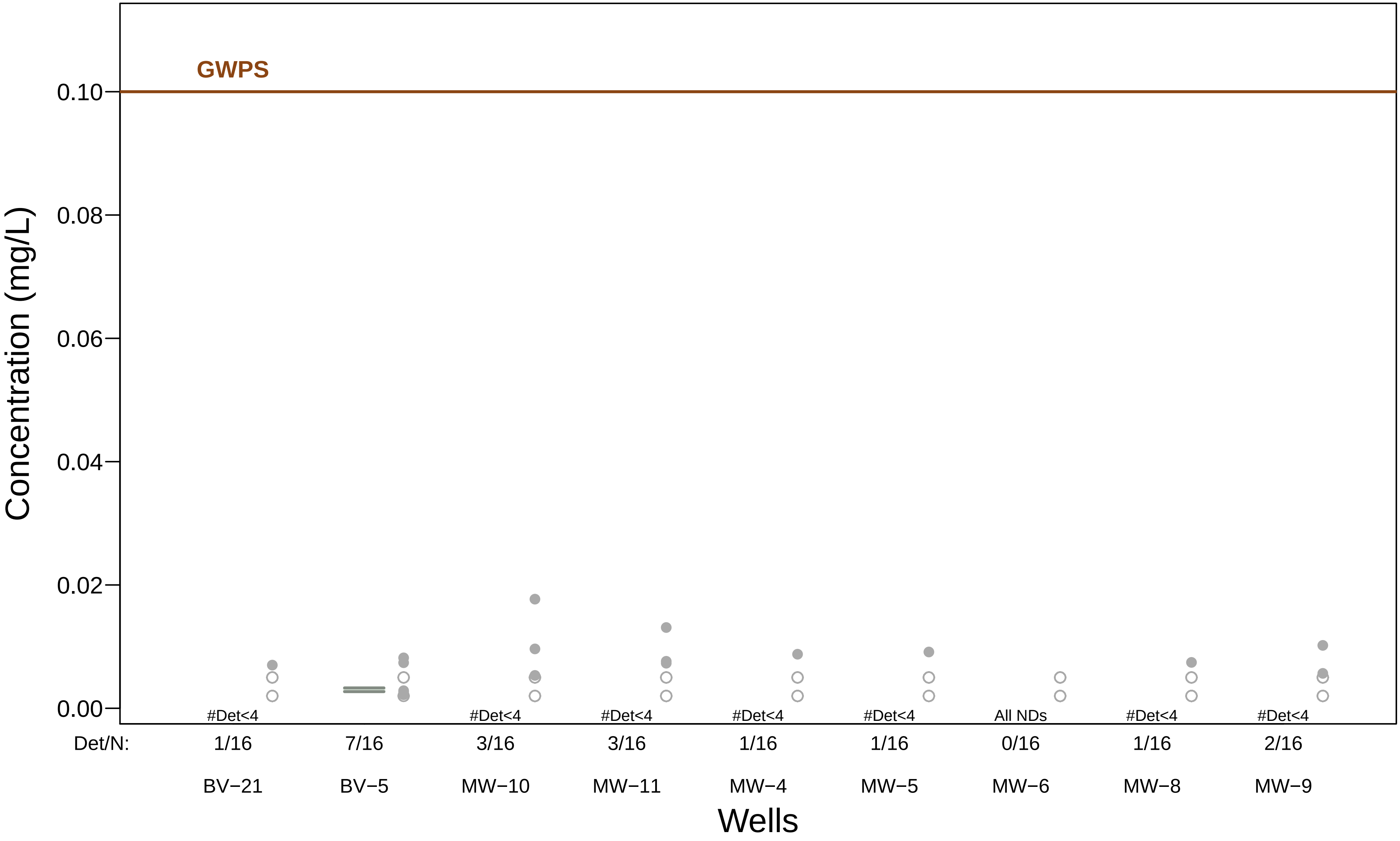
Beryllium − 95% Confidence Intervals



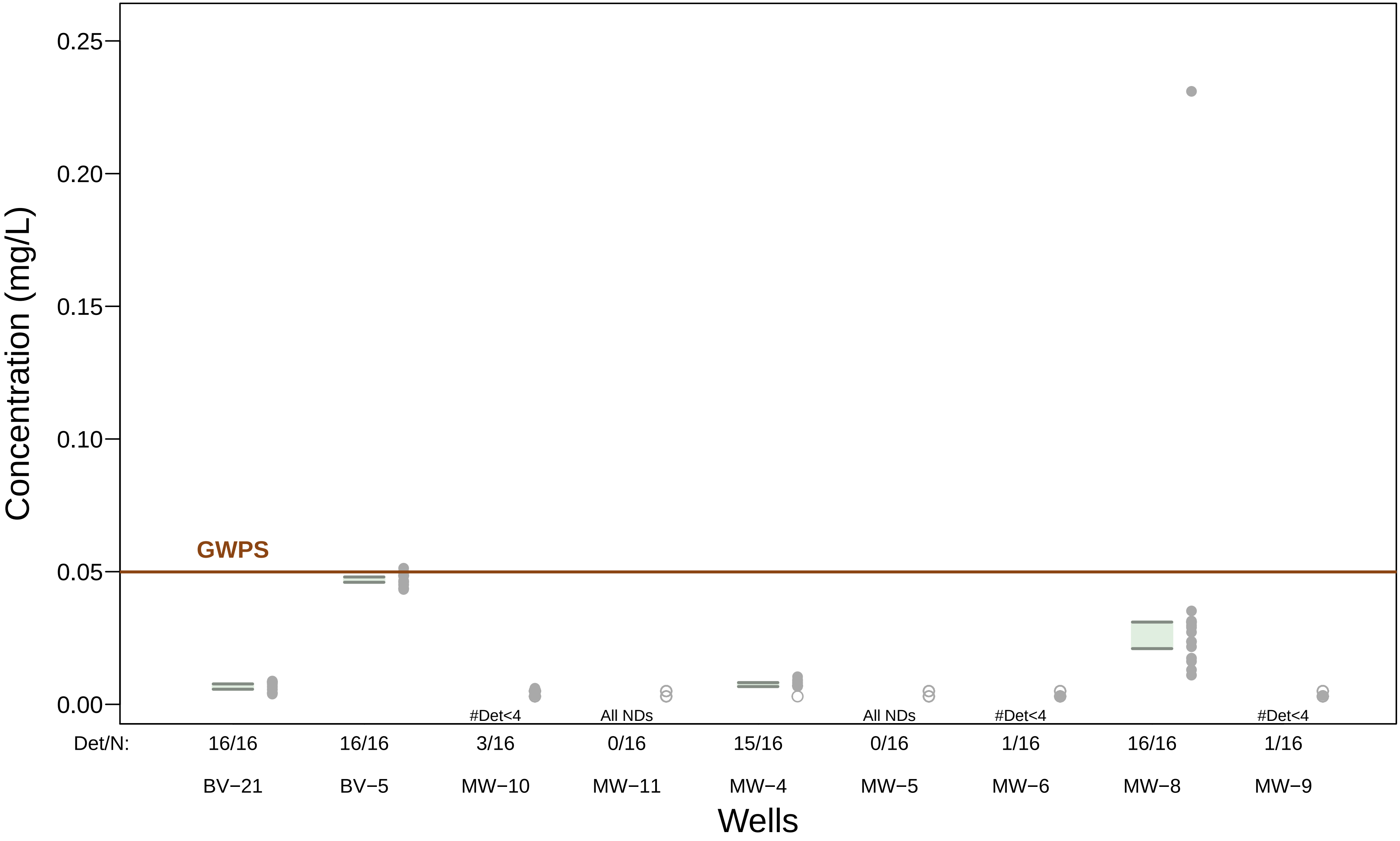


Cadmium – 95% Confidence Intervals
GWPS
0.005
0.004
0.003
0.002
0.001
Concentration (mg/L)
All NDs
#Det<4
All NDs
All NDs
All NDs
All NDs
All NDs
All NDs
All NDs
Det/N:
0/15
1/15
0/15
0/15
0/15
0/15
0/15
0/15
0/15
BV−21
BV−5
MW−10
MW−11
MW−4
MW−5
MW−6
MW−8
MW−9
Wells

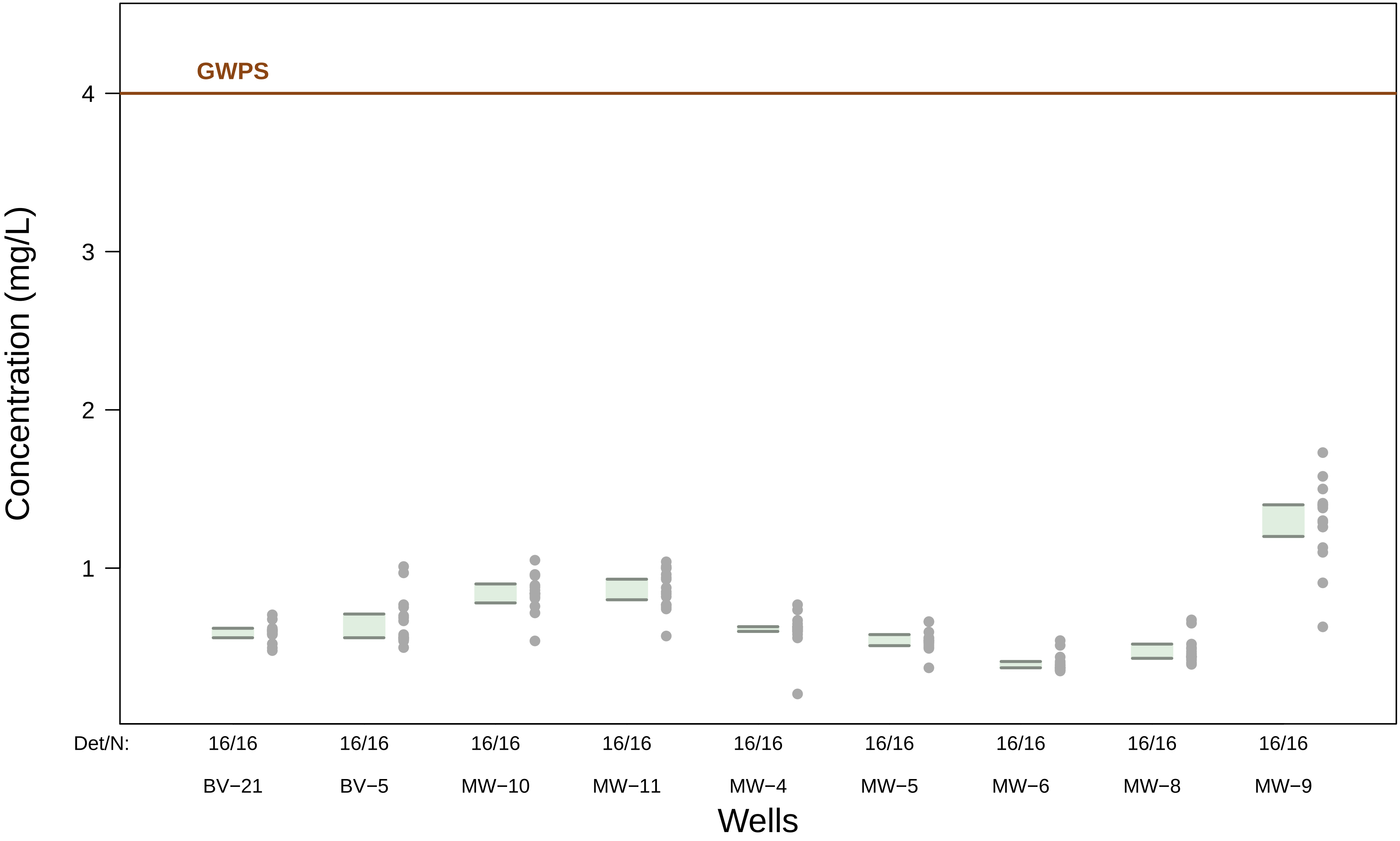
Chromium – 95% Confidence Intervals



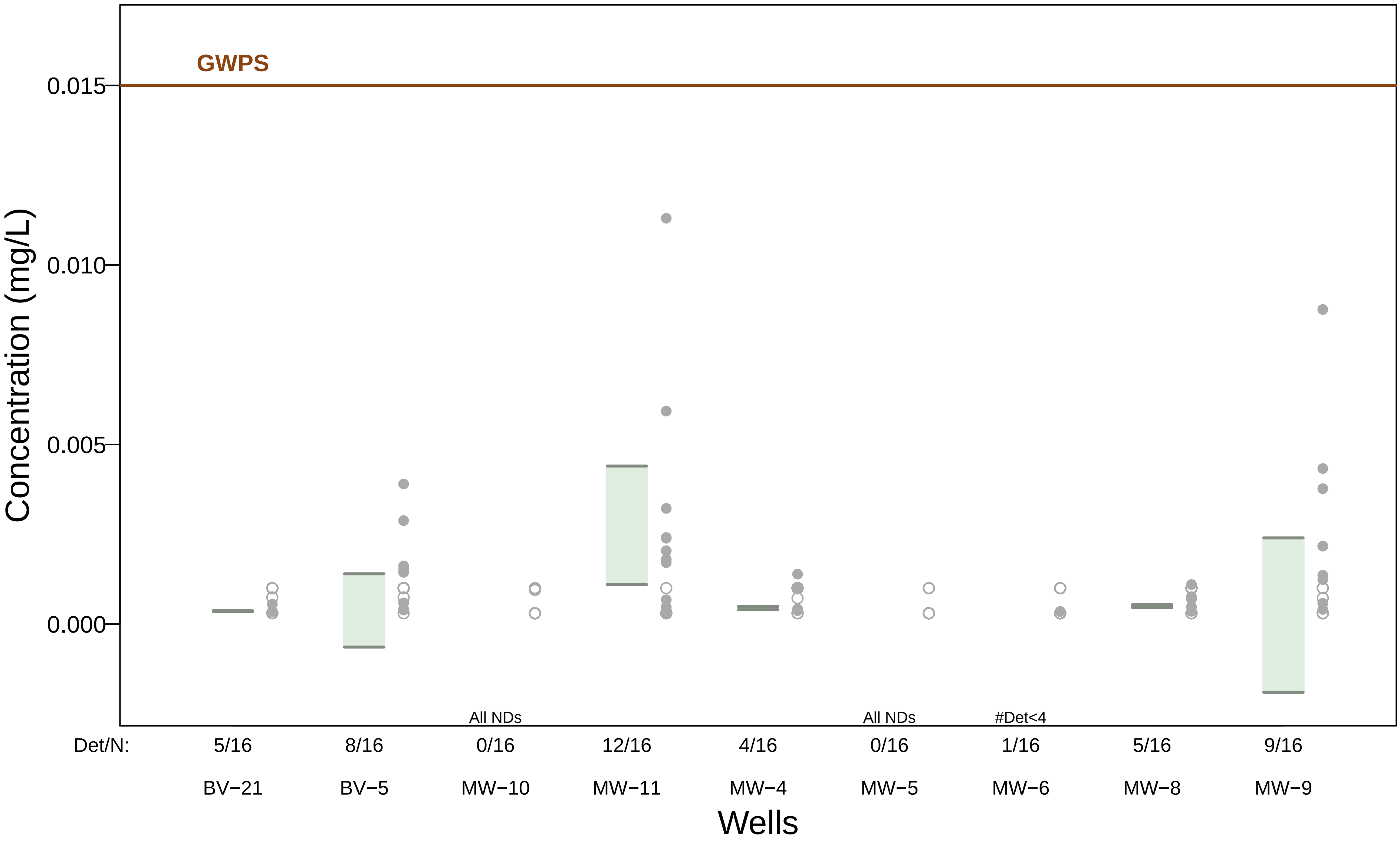
Cobalt − 95% Confidence Intervals



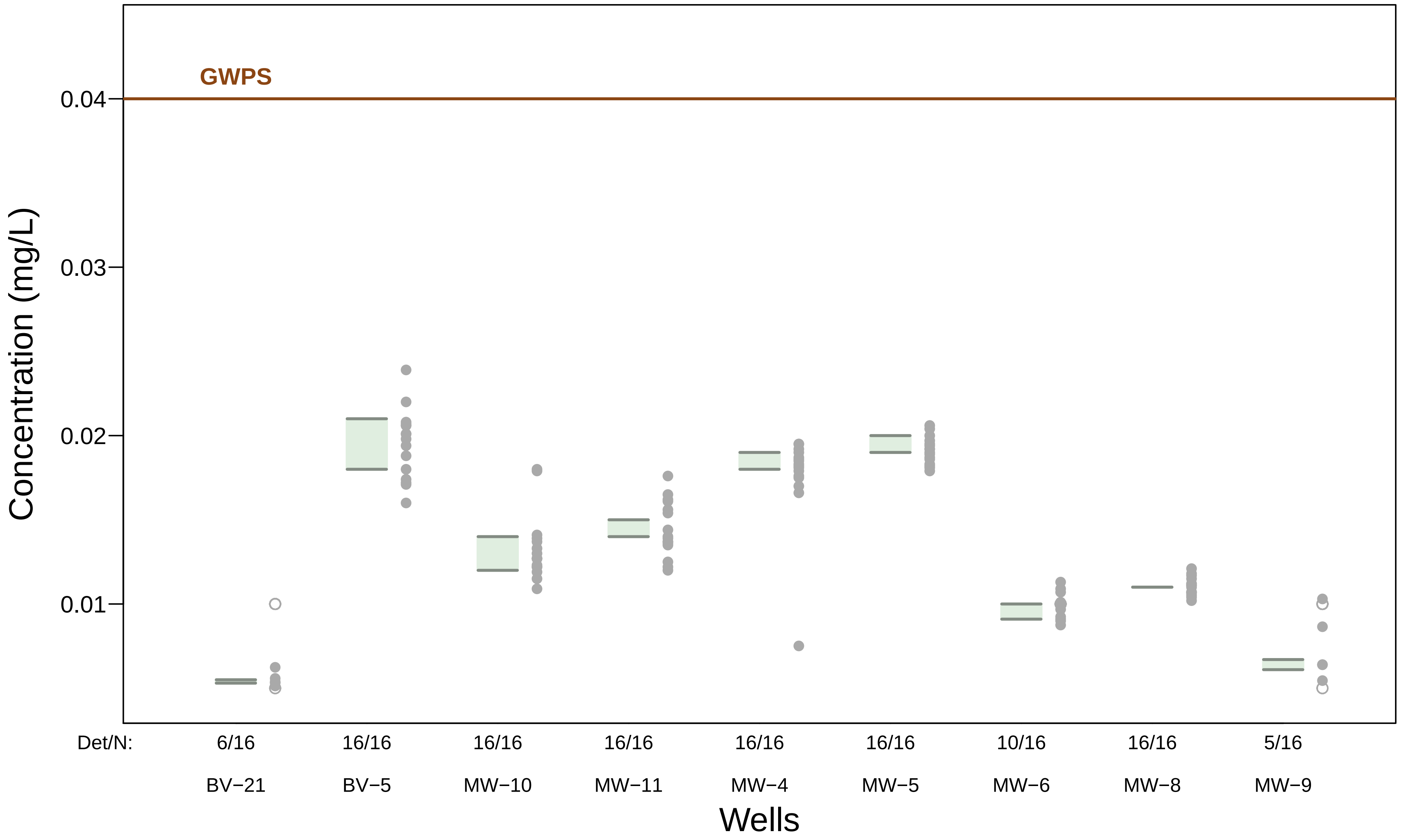
Fluoride (Appendix IV) − 95% Confidence Intervals



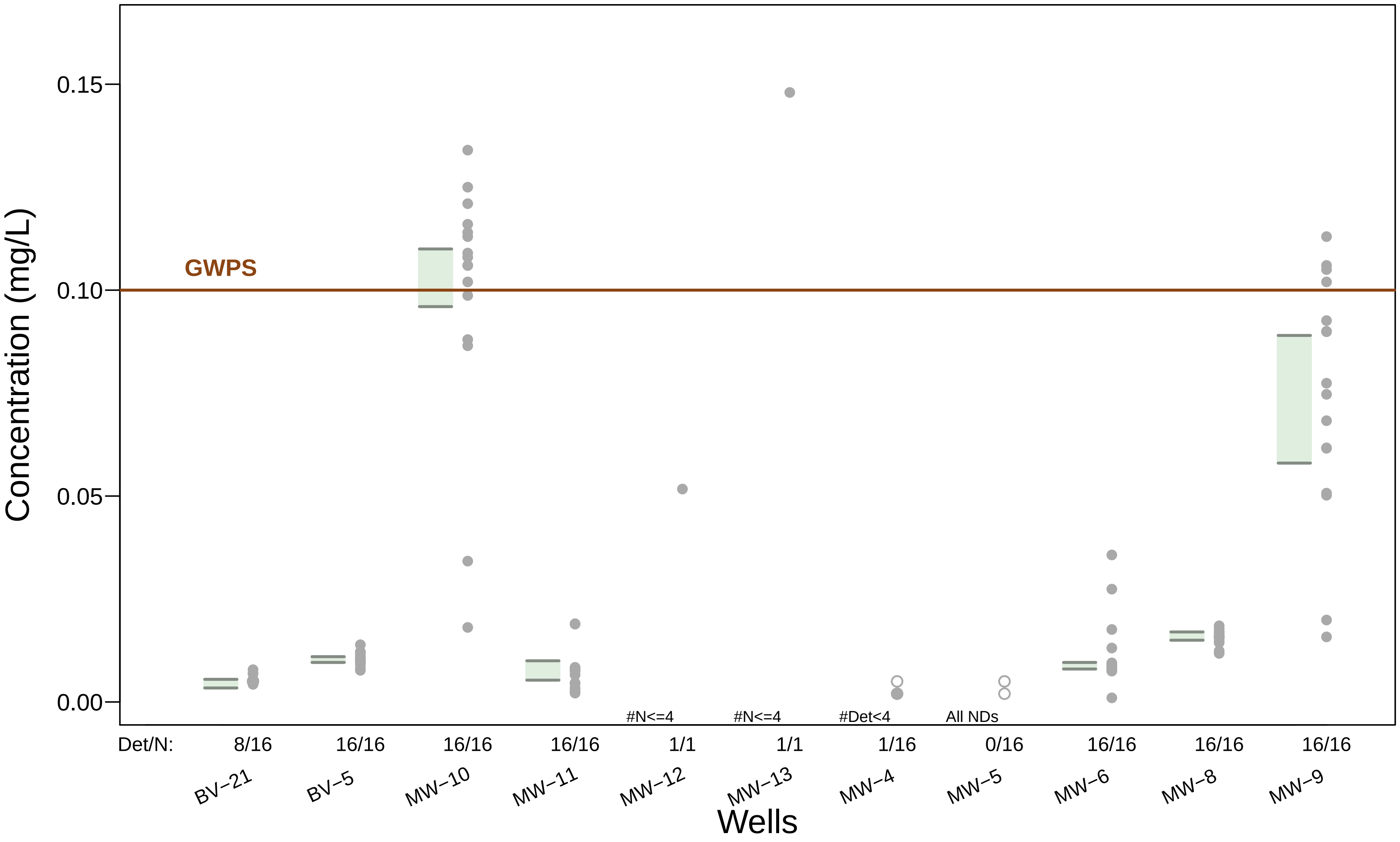
Lead – 95% Confidence Intervals

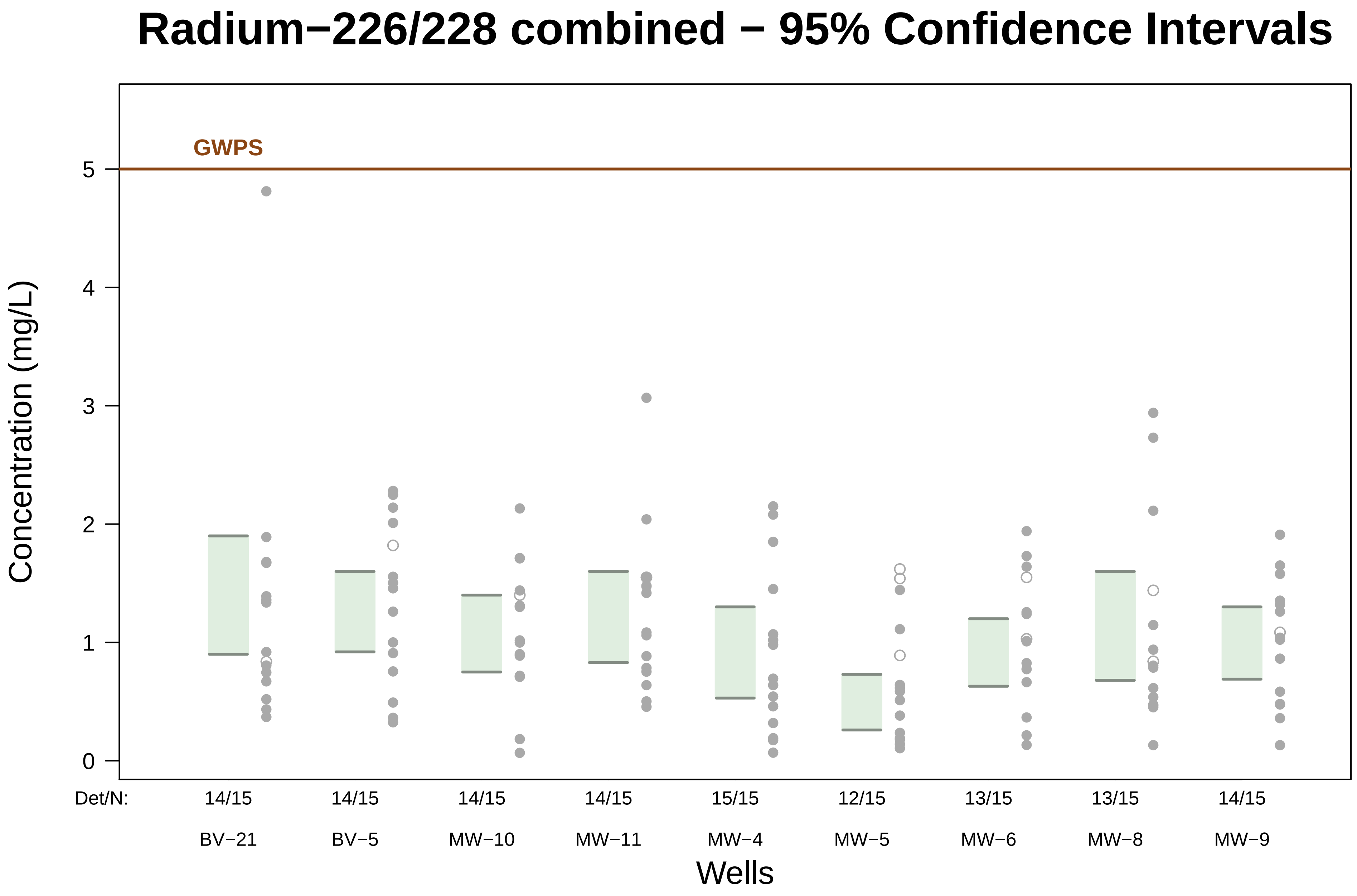


Lithium − 95% Confidence Intervals

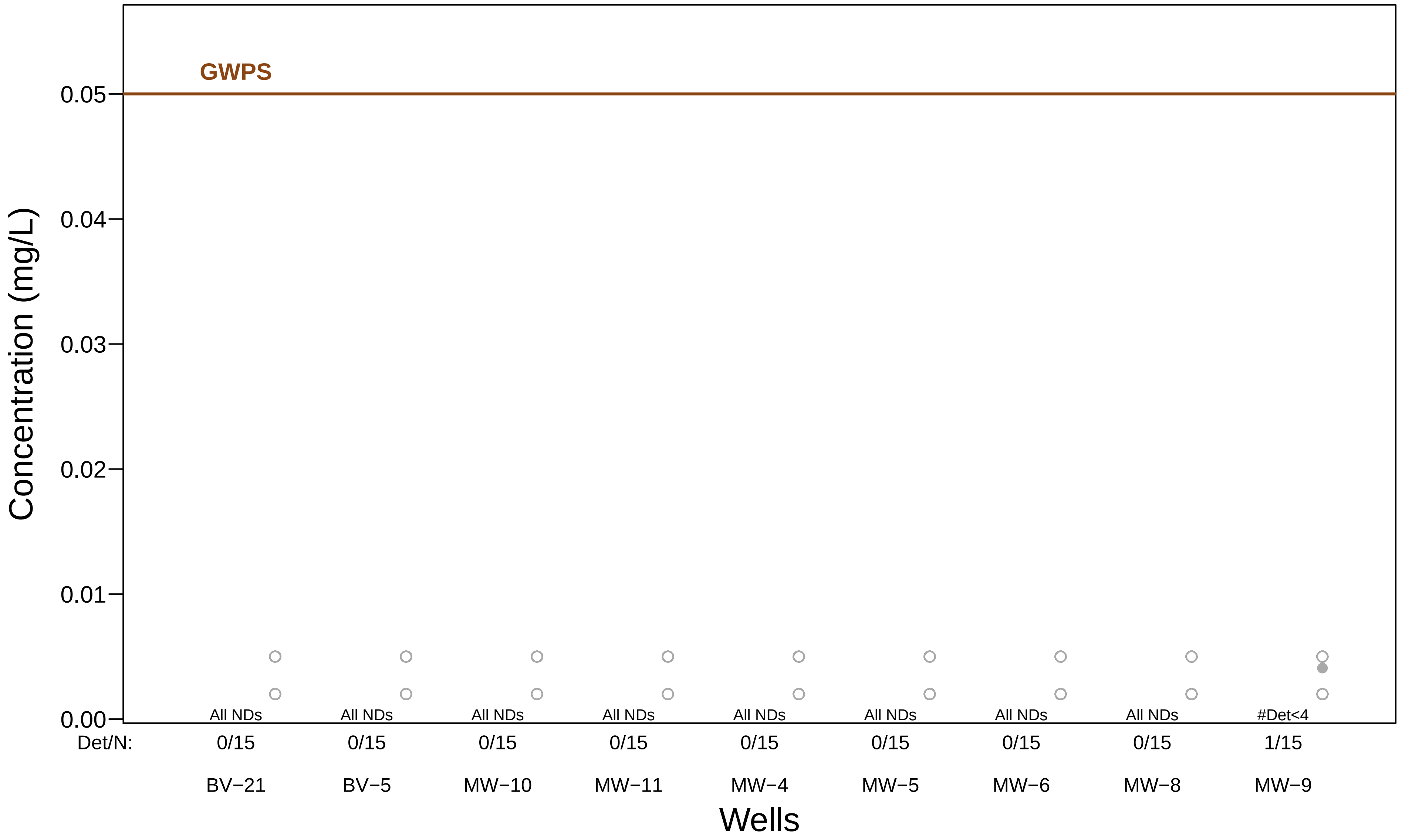


Molybdenum − 95% Confidence Intervals



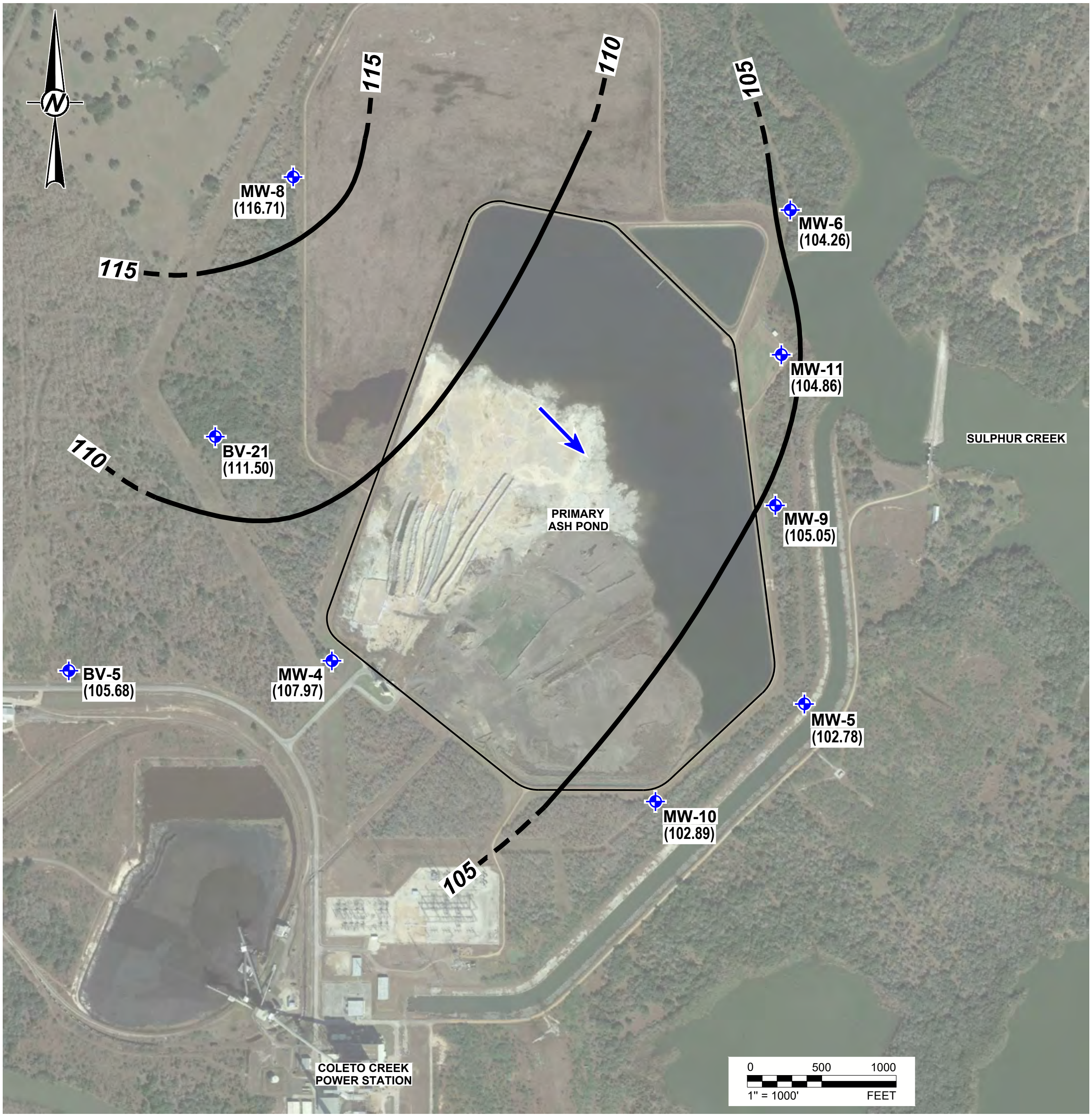

Radium−226/228 combined − 95% Confidence Intervals
GWPS
Concentration (mg/L)
0
1
2
3
4
5
Det/N:
14/15
14/15
14/15
14/15
15/15
12/15
13/15
13/15
14/15
BV−21
BV−5
MW−10
MW−11
MW−4
MW−5
MW−6
MW−8
MW−9
Wells

Selenium – 95% Confidence Intervals



ATTACHMENT 3

2021 GROUNDWATER POTENTIOMETRIC SURFACE MAPS



LEGEND

⌖	CCR MONITORING WELL
(113.02)	GROUNDWATER POTENTIOMETRIC SURFACE (FT MSL)
▬	GROUNDWATER POTENTIOMETRIC SURFACE CONTOUR (C.I. = 5 FT)
→	INFERRED DIRECTION OF GROUNDWATER FLOW

WILLIAM F. VIENNE
GEOLOGY
No. 10492

11/11/2022

REFERENCE(S)

BASE MAP TAKEN FROM GOOGLE EARTH, IMAGERY DATED 1/22/16.

APPENDIX E Revision 1 November 21, 2022

CLIENT
LUMINANT

PROJECT
COLETO CREEK POWER STATION
FANNIN, TEXAS

TITLE
PRIMARY ASH POND
POTENTIOMETRIC SURFACE MAP
JUNE 2, 2021

CONSULTANT

WSP GOLDER

YYYY-MM-DD	2021-01-18
DESIGNED	AJD
PREPARED	AJD
REVIEWED	HD
APPROVED	WFV

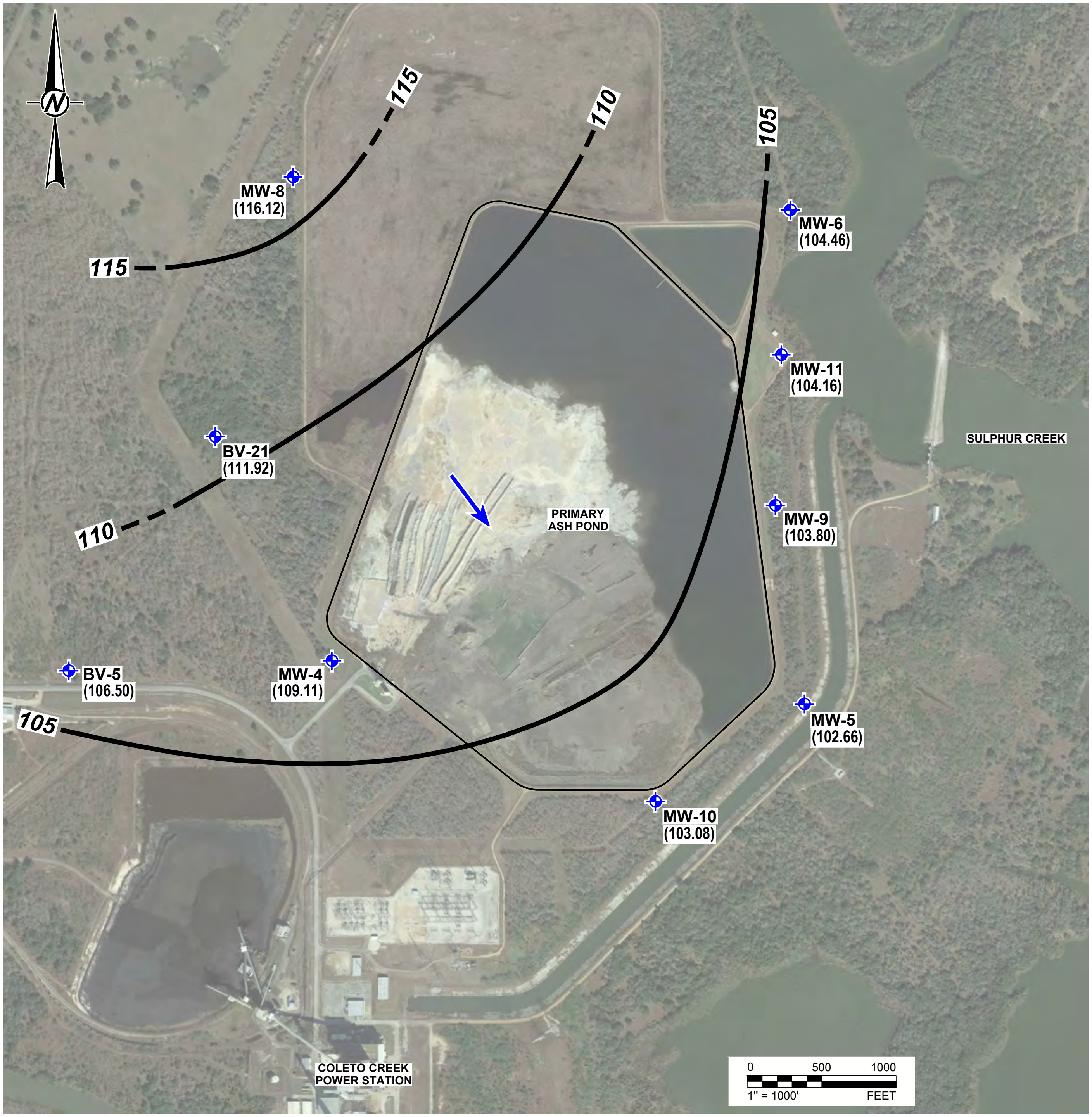
PROJECT NO.	CONTROL	REV.	FIGURE
19122262		0	1

Last Edited By: adiamond Date: 2022-01-18 Time:2:30:03 PM | Printed By: adiamond Date: 2022-01-18 Time:2:31:52 PM
Path: \\golder.gds\complexdata\office\Texarkana\Projects - Round Rock_2019\19122262 - Luminant\H - Coleto Creek\2021 CCR GWMR\ | File Name: FIG 1 - Pot Surface Map-Primary Ash Pond (June 2021).dwg

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

1 in

0



LEGEND

⌖	CCR MONITORING WELL
(113.02)	GROUNDWATER POTENTIOMETRIC SURFACE (FT MSL)
▬	GROUNDWATER POTENTIOMETRIC SURFACE CONTOUR (C.I. = 5 FT)
➔	INFERRED DIRECTION OF GROUNDWATER FLOW

WILLIAM F VIENNE
GEOLOGY
No. 10492

11/11/2022

REFERENCE(S)

BASE MAP TAKEN FROM GOOGLE EARTH, IMAGERY DATED 1/22/16.

APPENDIX E Revision 1 November 21, 2022

CLIENT
LUMINANT

PROJECT
COLETO CREEK POWER STATION
FANNIN, TEXAS

TITLE
PRIMARY ASH POND
POTENTIOMETRIC SURFACE MAP
SEPTEMBER 28, 2021

CONSULTANT

WSP GOLDER

YYYY-MM-DD	2022-01-18
DESIGNED	AJD
PREPARED	AJD
REVIEWED	HD
APPROVED	WFV

PROJECT NO.	CONTROL	REV.	FIGURE
19122262		0	2

Last Edited By: adiamond Date: 2022-01-18 Time:2:34:04 PM | Printed By: adiamond Date: 2022-01-18 Time:2:48:00 PM
Path: \\golder.gds\complexdata\office\Texarkana\Projects - Round Rock_2019\19122262 - Luminant\H - Coleto Creek\2021 CCR GWMR\ | File Name: FIG 2 - Pot Surface Map-Primary Ash Pond (September 2021).dwg

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
1 in
0

APPENDIX F – CLOSURE AND POST-CLOSURE CARE

Closure Plan
Closure Plan Addendum No. 1
Post-Closure Plan

CLOSURE PLAN FOR EXISTING CCR SURFACE IMPOUNDMENT
40 *CFR* §257.102 (b)

Rev 1 Page 1 of 2
January 24, 2018

SITE INFORMATION

Site Name / Address	Coleto Creek Power Station, 45 FM 2987 Fannin, Goliad County, TX		
Owner Name / Address	Coleto Creek Power, LP 1500 Eastport Plaza Drive Collinsville, IL 62234		
CCR Unit	Primary Ash Pond	Final Cover Type	Soil/Synthetic Liner System
Reason for Initiating Closure	Known final receipt of waste/Final removal of beneficial reuse materials	Closure Method	Close In-Place

CLOSURE PLAN DESCRIPTION

(b)(1)(i) – Narrative description of how the CCR unit will be closed in accordance with this section.	The Primary Ash Pond will be closed such that contained CCR solids will remain in-place. In accordance with §257.102(b)(3), this written closure plan will be amended to provide additional details after the final engineering design for the grading and cover system is completed. This closure plan reflects the best information available to date, and the plan may be amended in the future.
(b)(1)(iii) – If closure of the CCR unit will be accomplished by leaving CCR in place, a description of the final cover system and methods and procedures used to install the final cover.	First, the Primary Ash Pond will be dewatered with the resulting water to be discharged through existing TPDES Outfall No. 003. CCR solids will be graded and leveled, then covered with a final cover system as described below. Existing perimeter dikes will remain intact and the final cover system will tie into these dikes. The cover system will consist of the following elements, listed in order from contact with the CCR to the top: 1) subgrade leveling fill (as needed); 2) 1 foot thick soil liner with a permeability not to exceed the permeability of 1 x 10^{-5} cm/sec; 3) Synthetic Liner System consisting of: Geosynthetic Clay Liner (GCL), Textured (both sides) 40 Mil Linear-Low Density Polyethylene Flexible Membrane Liner (LLDPE-FML), Double Sided (geotextile fabric on both sides) Geonet Drainage Layer; and 4) 24-inch Protective/Vegetative Soil Layer. The top of the final cover system will be vegetated to minimize erosion. The final cover will be sloped to promote drainage and storm water runoff.

(b)(1)(iii) – How the final cover system will achieve the performance standards in §257.102(d).

(d)(1)(i) Control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere.	The permeability of the final cover will be equal to or less than the permeability of the bottom liner or a permeability no greater than 1 x 10^{-5} cm/sec, whichever is less, and will be graded to prevent ponding and promote drainage.
(d)(1)(ii) – Preclude the probability of future impoundment of water, sediment, or slurry.	The final cover will be sloped across the unit as needed to preclude the probability of future impoundment of water, sediment, or slurry.
(d)(1)(iii) – Include measures that provide for major slope stability to prevent the sloughing or movement of the final cover system during the closure and post-closure care period.	The top of the vegetated final cover system will be sloped and the outsides of the perimeter dikes will be vegetated as necessary to minimize the potential for erosion. The cap system will be designed by a Qualified Professional Engineer in a manner to prevent sloughing or movement of the final cover system and geotechnical testing and evaluation will be performed as needed during and after construction to confirm that engineering slope stability standards have been achieved.
(d)(1)(iv) – Minimize the need for further maintenance of the CCR unit.	The vegetative cover will be regularly mowed and maintained to minimize the potential for erosion or other structural issues that would cause more extensive and long-term maintenance issues. The storm water control system will be regularly inspected for proper operation.
(d)(1)(v) – Be completed in the shortest amount of time consistent with recognized and generally accepted good engineering practices.	Construction would occur in a phased approach as sections of the impoundment are prepared, enabling expedited capping of portions of the CCR impoundment.
(d)(2)(i) – Free liquids must be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residue.	The unit will be dewatered sufficiently to remove the free liquids to provide a stable base for the construction of the final cover system.
(d)(2)(ii) – Remaining wastes must be stabilized sufficiently to support the final cover system.	Dewatering and regrading of existing in-place CCR will sufficiently stabilize the waste such that the final cover will be supported.
(d)(3) – A final cover system must be installed to minimize infiltration and erosion, and at minimum, meets the requirements of (d)(3)(i).	The final cover system will be constructed as described above in accordance with (d)(3)(i) and will minimize infiltration and erosion.
(d)(3)(i) – The design of the final cover system must be included in the written closure plan.	When the final design of the final cover system is completed, the written closure plan will be amended to include the detailed final design.
(d)(3)(i)(A) – The permeability of the final cover system must be less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than 1x10^{-5} cm/sec, whichever is less.	The permeability of the final cover will be equal to or less than the permeability of the existing bottom liner or no greater than 1x10^{-5} cm/sec, whichever is less. This will be verified during construction per the construction quality assurance plan to be developed in conjunction with the detailed amended closure plan.
(d)(3)(i)(B) – The infiltration of liquids through the closed CCR unit must be minimized by the use of an infiltration layer than contains a minimum of 18 inches of earthen material.	Infiltration of liquids through the closed CCR unit will be minimized by the placement of a 24-inch thick protective/vegetated soil layer over the Geonet drainage layer.
(d)(3)(i)(C) – The erosion of the final cover system must be minimized by the use of an erosion layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant growth.	The final cover will include a minimum 24-inch protective/vegetated soil layer that is capable of sustaining native plant growth. The vegetative cover will be regularly maintained to prevent erosion.
(d)(3)(i)(D) – The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.	The final cover system will be designed to account for expected settlement and subsidence.

INVENTORY AND AREA ESTIMATES

(b)(1)(iv) – Estimate of the maximum inventory of CCR ever on-site over the active life of the CCR unit	Approx. 10 million cubic yards
(b)(1)(v) – Estimate of the largest area of the CCR unit ever requiring a final cover	Approx. 190 acres

CLOSURE SCHEDULE

(b)(1)(vi) – Schedule for completing all activities necessary to satisfy the closure criteria in this section, including an estimate of the year in which all closure activities for the CCR unit will be completed. The schedule should provide sufficient information to describe the sequential steps that will be taken to close the CCR unit, including major milestones …and the estimated timeframes to complete each step or phase of CCR unit closure.

Note: At the time of this Written Closure Plan, there are no immediate plans to close the Primary Ash Pond. The Primary Ash Pond is currently actively managing CCR wastes generated during operation of the coal-fired power plant. CCR waste is also actively removed from the Primary Ash Pond for off-site beneficial use. This practice is expected to continue after the pond no longer accepts CCR solids. The milestones presented in this plan, therefore, provide an overview of major tasks associated with final closure of the Primary Ash Pond and a schedule relative to the timeframes specified in the rule. This Closure Plan will be amended with more specific information once closure activities have been initiated.

(b)(2) - Initial Written Closure Plan Placed in Permanent Record	By October 17, 2016

(e)(1)(ii) – The owner or operator must commence closure of the CCR unit no later than 30 days after the date on which the CCR unit…: Removed the known final volume of CCR from the CCR unit for the purpose of beneficial use of CCR.	Closure activities will commence 30 days after known final receipt of CCR waste and removal of the last known quantity of CCR from the Primary Ash Pond for the purpose of beneficial reuse, which for the purposes of this plan is assumed to be the year 2045. Closure activities will consist of the following components which will be implemented between 2045 and 2050: 1) §257.102(g) Preparation of Notice of Intent to close a CCR Unit 2) Agency coordination 3) Mobilization 4) Reroute plant process water pipes and dewater and stabilize CCR 5) Grading of CCR material to final design grades 6) Installation of cap system 7) §257.102(h) Preparation of Notification of Closure of a CCR Unit 8) §257.102(h)(i) Deed Notation
f(2)(ii) – …the owner or operator must complete closure of the CCR unit: For existing and new CCR surface impoundments and any lateral expansion of a CCR surface impoundment, within five years of commencing closure activities pursuant to…paragraph (e)(2) of this section.	Final closure of the Primary Ash Pond will occur within 5 years of commencing closure activities.

Certification by qualified professional engineer appended to this plan.

Certification Statement 40 *CFR* § 257.102 (b)(4) – Written Closure Plan for a CCR Surface Impoundment or Landfill

CCR Unit: Coleto Creek Power, LP; Coleto Creek Power Station; Coleto Creek Primary Ash Pond

I, Daniel Bullock, being a Registered Professional Engineer in good standing in the State of Texas, do hereby certify, to the best of my knowledge, information, and belief that the information contained in this certification has been prepared in accordance with the accepted practice of engineering. I certify, for the above referenced CCR Unit, that the information contained in the written closure plan, dated January 24, 2018, meets the requirements of 40 *CFR* § 257.102.

DANIEL B. BULLOCK
82596

Daniel B. Bullock 1/24/2018

Daniel Bullock, P.E. (TX 82596)
Bullock, Bennett & Associates, LLC
Firm Registrations: Engineering F-8542, Geoscience 50127

Certification Statement 40 *CFR* § 257.102 (d)(3)(iii) – Design of the Final Cover System for a CCR Surface Impoundment or Landfill

CCR Unit: Coleto Creek Power, LP; Coleto Creek Power Station; Coleto Creek Primary Ash Pond

I, Daniel Bullock, being a Registered Professional Engineer in good standing in the State of Texas, do hereby certify, to the best of my knowledge, information, and belief that the information contained in this certification has been prepared in accordance with the accepted practice of engineering. I certify, for the above referenced CCR Unit, that the conceptual-level design of the final cover system as included in the written closure plan, dated January 24, 2018, meets the requirements of 40 *CFR* § 257.102.

DANIEL B. BULLOCK
82596

Daniel B. Bullock

1/24/2018

Daniel Bullock, P.E. (TX 82596)
Bullock, Bennett & Associates, LLC
Firm Registrations: Engineering F-8542, Geoscience 50127

RAMBOLL

ENVIRONMENT
& HEALTH

40 C.F.R. § 257.102(B)(3): Closure Plan Addendum
Coleto Creek Existing CCR Surface Impoundment
November 30, 2020

ADDENDUM NO. 1 COLETO CREEK EXISTING CCR SURFACE IMPOUNDMENT CLOSURE PLAN

This Addendum No. 1 to the Closure Plan for Existing Coal Combustion Residuals (CCR) Impoundment for the Coleto Creek Primary Ash Pond at the Coleto Creek Power Station, Revision 1 - January 24, 2018 has been prepared to meet the requirements of Title 40 of the Code of Federal Regulations (40 C.F.R. Section 257.103(f)(2)(v)(D)) as a component of the demonstration that the Coleto Creek Primary Ash Pond qualifies for a site-specific alternative deadline to initiate closure due to permanent cessation of a coal-fired boiler by a certain date.

The Coleto Creek Primary Ash Pond will begin construction of closure by April 17, 2025 and cease receipt and placement of CCR and non-CCR wastestreams by no later than September 17, 2027 as indicated in the Coleto Creek Power Plant Alternative Closure Demonstration dated November 30, 2020. Closure will be completed by October 17, 2028 within the 5-year timeframe included in the Closure Schedule identified in the Coleto Creek Existing CCR Surface Impoundment Closure Plan in accordance with 40 C.F.R. § 257.102(f)(1)(ii).

All other aspects of the Closure Plan remain unchanged.

CERTIFICATION

I, Maureen T. Warren, a Qualified Professional Engineer in good standing in the State of Texas, certify that the information in this addendum is accurate as of the date of my signature below. The content of this report is not to be used for other than its intended purpose and meaning, or for extrapolations beyond the interpretations contained herein.

MAUREEN T WARREN
117550

Maureen T. Warren

Maureen T. Warren
Qualified Professional Engineer
117550
Texas
Ramboll Americas Engineering Solutions, Inc., f/k/a O'Brien & Gere Engineers, Inc.
Date: November 30, 2020

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

January 11, 2022

OFFICE OF
LAND AND EMERGENCY
MANAGEMENT

Ms. Cynthia Vodopivec
Coleto Creek Power, LLC
Coleto Creek Power Plant
Environmental Services
6555 Sierra Dr.
Irving, TX 75039

Dear Ms. Vodopivec:

On November 30, 2020, the Environmental Protection Agency (EPA) received a demonstration for the Coleto Creek Power Plant requesting authorization to continue using the Primary Ash Pond until July 17, 2027, and completing closure no later than October 17, 2028, pursuant to the alternative closure provision 40 C.F.R. § 257.103(f)(2). EPA reviewed your demonstration to determine whether it included the required information, analyses and documentation specified under 40 C.F.R. § 257.103(f)(2), and we have determined that your demonstration is complete.

This letter merely communicates EPA's determination that your submitted demonstration contains sufficient information for EPA to evaluate the merits of your demonstration. EPA has not made any decision on whether to approve your request. The demonstration will undergo further review to make such a determination. After this review, EPA will publish its proposed decision for public comment in a docket on www.regulations.gov. After consideration of the comments, EPA will issue its final decision on the demonstration.

As a consequence of your submission of a complete demonstration, the deadline for the Coal Combustion Residuals unit covered by the demonstration to cease receipt of waste is tolled until EPA issues a final decision on the demonstration. 40 C.F.R. § 257.103(f)(3)(ii).

EPA will notify you when a proposed decision on the demonstration is issued. If you have any questions, please contact Kirsten Hillyer at Hillyer.Kirsten@epa.gov.

Sincerely,

Barry N. Breen
Acting Assistant Administrator

POST-CLOSURE PLAN FOR EXISTING CCR SURFACE IMPOUNDMENT §257.104(d)

Rev 1 Page 1 of 1
January 24, 2018

SITE INFORMATION

Site Name / Address	Coleto Creek Power Station, 45 FM 2987 Fannin, Goliad County, TX		
Owner Name / Address	Coleto Creek Power, LP 1500 Eastport Plaza Drive Collinsville, IL 62234		
CCR Unit	Primary Ash Pond	Final Cover Type	Soil/Synthetic Liner System
Reason for Initiating Closure	Known final receipt of waste/Final removal of beneficial reuse materials	Closure Method	Close In-Place

CONTACT INFORMATION (d)(1)(ii)

Contact Name	CCR Office, Coleto Creek Power, LP		
Address	601 Travis Street, Suite 1400, Houston, TX 77002		
Phone Number	800-633-4704	Email	ccr@dynegy.com

POST-CLOSURE PLAN DESCRIPTION

(d)(1)(i) Description of the monitoring and maintenance activities required in paragraph (b) of this section for the CCR unit, and the frequency at which these activities will be performed;	(b)(1) Maintaining the integrity and effectiveness of the final cover system, including making repairs to the final cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover; (3) Maintaining the groundwater monitoring system and monitoring the groundwater in accordance with the requirements of §§ 257.90 through 257.98. Descriptions of maintenance activities and frequencies are provided below.
(d)(1)(iii) A description of the planned uses of the property during the post-closure period.	The property will continue to be operated as a coal-fired power plant. If operation of the power plant is discontinued, post-closure use of the property shall not disturb the integrity of the final cover, liner(s), or any other component of the containment system, or the function of the monitoring systems unless necessary to comply with the requirements in this subpart. Any other disturbance will only be allowed if the owner or operator of the CCR unit demonstrates that disturbance of the final cover, liner, or other component of the containment system, including any removal of CCR, will not increase the potential threat to human health or the environment. The demonstration will be certified by a qualified professional engineer, and notification shall be provided to the Texas Commission on Environmental Quality (TCEQ) that the demonstration has been placed in the operating record and on the owners or operator's publicly accessible Internet site. Following closure of the Primary Ash Pond, a notation on the deed to the property, or some other instrument that is normally examined during title search, will be recorded in accordance with 40 CFR 257.102(i). The notation will notify potential purchasers of the property that the land has been used as a CCR unit and its use is restricted under the post-closure care requirements per 40 CFR 257.104(d)(1)(iii). Within 30 days of recording the deed notation, a notification stating that the notation has been recorded will be placed in the facility's operating record. The notification will be placed on the owner or operator's publicly accessible CCR Web site in accordance with 40 CFR 257.107.

Post Closure Care Requirements §257.104(b)

(b)(1) Maintaining the integrity and effectiveness of the final cover system, including making repairs to the final cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover;	In accordance with TCEQ guidelines, cover and drainage system inspections will be conducted semi-annually and after severe storms to check the condition of the facilities. The following items will be checked: Erosion of closure cover, deterioration of vegetative cover, damage to erosion control facilities, settlement, and drainage from operation of the seepage collection system. A description of the condition of the facility will be recorded in a logbook during each inspection. Any deterioration will be documented by photographs. In addition, settlement will be evaluated by topographic survey the first 5 years after closure. All records will be maintained in the facility's Permanent Record.
(b)(3) Maintaining the groundwater monitoring system and monitoring the groundwater in accordance with the requirements of §§ 257.90 through 257.98.	Groundwater monitoring is conducted in accordance with the requirements of §257.90 through §257.98 as detailed in the certified Coleto Creek Power Station Groundwater Sampling and Analysis Plan (October 17, 2017) and Groundwater Hydrogeologic Monitoring Plan (October 17, 2017).

NOTIFICATION AND RECORDKEEPING REQUIREMENTS

257.105(i) *Closure and post-closure care.* The owner or operator of a CCR unit subject to this subpart must place the information, as it becomes available, in the facility's operating record:	The following post-closure care information will be placed in the facility's operating record as it becomes available: • The written post-closure plan, and any amendment of the plan, as required by § 257.104(d), except that only the most recent closure plan must be maintained in the facility's operating record irrespective of the time requirement specified in paragraph (b) of this section. • The notification of completion of post-closure care period as required by § 257.104(e).
§§257.106(i) *Closure and post-closure care.* The owner or operator of a CCR unit subject to this subpart must notify the State Director and/or appropriate Tribal authority when information has been placed in the operating record and on the owner or operator's publicly accessible Internet site.	TCEQ will be notified when information has been placed in the facility's operating record. Notification will be submitted as follows: • Notification of the availability of the written post-closure plan, and any amendment of the plan, specified under § 257.105(i)(12). • Notification of completion of post-closure care specified under §257.105(i)(13).
257.107(i) *Closure and post-closure care.* The owner or operator of a CCR unit subject to this subpart must place the information on the owner or operator's CCR Web site:	The following information will be placed in the facility's Web site: • The written post-closure plan, and any amendment of the plan, specified under § 257.105(i)(12). • The notification of completion of post-closure care specified under § 257.105(i)(13).

POST-CLOSURE SCHEDULE

(c) *Post-closure care period.* (1) Except as provided by paragraph (c)(2) of this section, the owner or operator of the CCR unit must conduct post-closure care for 30 years. (2) If at the end of the post-closure care period the owner or operator of the CCR unit is operating under assessment monitoring in accordance with § 257.95, the owner or operator must continue to conduct post-closure care until the owner or operator returns to detection monitoring in accordance with § 257.95.

Note: At the time of this Written Post-Closure Plan, there are no immediate plans to close the Primary Ash Pond. The Primary Ash Pond is currently actively managing CCR wastes generated during operation of the coal-fired power plant. CCR waste is also actively removed from the Primary Ash Pond for off-site beneficial use. This practice is expected to continue after the pond no longer accepts CCR solids. The information presented in this plan, therefore, provides an overview of major tasks associated with final post-closure monitoring of the Primary Ash Pond and a schedule relative to the timeframes specified in the rule. This Post-Closure Plan will be amended with more specific information once closure activities have been initiated.

(d)(2)(i) - Initial Written Post-Closure Plan Placed in Permanent Record	October 17, 2016

((e) *Notification of completion of post-closure care period.* No later than 60 days following the completion of the post-closure care period, the owner or operator of the CCR unit must prepare a notification verifying that post-closure care has been completed. The notification must include the certification by a qualified professional engineer verifying that post-closure care has been completed in accordance with the closure plan specified in paragraph (d) of this section and the requirements of this section. The owner or operator has completed the notification when it has been placed in the facility's operating record as required by § 257.105(i)(13).	Notification of the completion of post-closure care activities will be placed in the facility's Permanent Record no later than 60 days following the completion of the post-closure care period.
Certification by qualified professional engineer appended to this plan.	

Certification Statement 40 CFR § 257.104(d) – Written Post-Closure Plan for a CCR Surface Impoundment or Landfill

CCR Unit: Coleto Creek Power, LP; Coleto Creek Power Station; Coleto Creek Primary Ash Pond

I, Daniel Bullock, being a Registered Professional Engineer in good standing in the State of Texas, do hereby certify, to the best of my knowledge, information, and belief that the information contained in this certification has been prepared in accordance with the accepted practice of engineering. I certify, for the above referenced CCR Unit, that the information contained in the written post-closure plan, dated January 24, 2018, meets the requirements of 40 *CFR* § 257.104.

DANIEL B. BULLOCK
82596

Daniel B. Bullock

1/24/2018

Daniel Bullock, P.E. (TX 82596)
Bullock, Bennett & Associates, LLC
Firm Registrations: Engineering F-8542, Geoscience 50127

APPENDIX G – FINANCIAL ASSURANCE

Post-Closure Care Cost Estimate

TECHNICAL MEMORANDUM

DATE October 28, 2022 **Project No.** 31404097.007

TO Mr. Eric Chavers
Luminant

FROM Patrick J. Behling, PE/Will Vienne, PG **EMAIL Patrick.Behling@wsp.com**

COLETO CREEK POWER PLANT
PRIMARY ASH POND
POST CLOSURE CARE COST ESTIMATE

Luminant Generation Company LLC (Luminant) operates the Coleto Creek Power Plant (CCPP) located approximately 13 miles southwest of Victoria in Goliad County, Texas. Coal Combustion Residuals (CCR) including fly ash and bottom ash are generated as part of CCPP operation and managed in the Primary Ash Pond (PAP).

The PAP is regulated as a CCR Unit under 40 CFR 257, Subpart D (the “Federal CCR Rule”) and 30 Texas Administrative Code (TAC) Chapter 352 (The “TCEQ CCR Rule”). In accordance with 30 TAC §352.201, Luminant is required to submit an application to TCEQ to obtain a registration for the PAP. WSP Golder (Golder) has been retained by Luminant to assist with preparation of a Post Closure Care Cost Estimate (PCCE) for the PAP in accordance with §352.1101. This technical memorandum presents the PCCE estimated by Golder for the PAP. The PCCE was prepared using TCEQ Technical Guidance Documents TG-30 and TG-31 and related documents.

1.0 CCR Unit Closure Assumptions

The PCCE was prepared based on the following closure assumptions for the PAP:

- CCR Unit Closure:
  - Closure in Place with vegetated, low permeability cap
  - Cap Area: 190 acres
- Groundwater Closure:
  - No evidence of a release to groundwater to date
  - Continuation of Assessment Monitoring for Groundwater
  - Nine (9) monitoring wells sampled semi-annually

2.0 Post Closure Care Cost Assumptions

The following general assumptions were incorporated into the PCCE:

- Post Closure Care Period. A post-closure care period of 30 years is assumed in accordance with 30 TAC §352.1241 and 40 CFR § 257.104(c).
- CCR Unit Inspections. Weekly and annual inspections of the CCR Unit are required under §352.831 and §352.841. It is assumed that these inspections will continue throughout the Post Closure Care Period.
- Final Cover Maintenance. It is likely that some level of maintenance/repair will be required for the final cover systems used to close the CCR Unit. The PCCE includes the following assumptions for final cover maintenance/repair:

  - Years 1-5 After Closure - it is assumed that erosion damage on 5% of the cap soil will be repaired each year. The thickness of each repair is assumed to average 6 inches of soil. In addition, the repaired areas will be revegetated.
  - Years 6-30 After Closure - it is assumed that erosion damage on 5% of the cap soil will be repaired three times during this period. The thickness of each repair is assumed to average 6 inches of soil. In addition, the repaired areas will be revegetated.
  - Estimated engineering/mobilization costs associated with the repairs/revegetation are included in the PCCE.
  - Annual mowing costs for the final cover are included in the PCCE.

- General Site Maintenance. Maintenance of run-off/drainage structures, access roads, fencing, signs, etc. are included in the PCCE.
- Groundwater Monitoring. Semi-annual groundwater monitoring in accordance with the Federal/TCEQ CCR Rules (assessment monitoring) is on-going for the PAP. It is assumed that the current groundwater monitoring program will continue throughout the Post Closure Care Period. It is also likely that maintenance of the monitoring well system at the PAP will be required during the post closure care period. The PCCE assumes that one monitoring well will be replaced every 10 years at the CCR Unit.
- One Time Post Closure Care Costs. The following on time activities associated with post closure care are included in the PCCE:
  - Deed Notices/Surveys
  - Monitoring Well Plugging and Abandonment
- Contingency. A 10% contingency factor is included in the PCCE.
- All costs are in 2021 dollars.

3.0 Post Closure Care Cost Estimate

Based on the assumptions listed above, the 30-Year post closure care cost estimate for the PAP is $3,117,987 (see Table 1 for details). It should be noted that the PCCE presented herein is considered an Opinion of Probable Cost and represents Golder's best judgement based on the assumptions stated, information available at the time the estimates were prepared, and Golder's experience with similar sites. The PCCE is susceptible to variations in future cost of materials, labor, and equipment and should not be considered guaranteed maximum prices for post closure care activities.

Please do not hesitate to contact us if you have any questions or comments.

Patrick J. Behling, P.E.
Director, Environmental Engineer

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Senior Consultant, Austin Team Lead

TABLES

Table 1

Coleto Creek Power Plant - Primary Ash Pond
Post Closure Care Cost Estimate - 30 TAC 352.1101

Item	Unit	Rate	Quantity	Cost/Event	No. of Events	30-Year Cost
CCR Unit Inspections (Annually)	LS	$15,000	1	$15,000	30	$450,000
Final Cover Maintenance						
- Erosion Repair, 6-inch avg. thickness, 5% of cap per year, Years 1-5	CY	$5	7,663	$38,317	5	$191,583
- Erosion Repair, 6-inch avg. thickness, 5% of cap, 3 times, Years 6-30	CY	$5	7,663	$38,317	3	$114,950
- Revegetation, 5% of cap area per year, Years 1-5	AC	$1,500	9.5	$14,250	5	$71,250
- Revegetation, 5% of cap area, 3 times, Years 6-30	AC	$1,500	9.5	$14,250	3	$42,750
- Engineering/Mobilization for Final Cover Repairs/Revegetation Events	LS	$10,000	1	$10,000	8	$80,000
- Mowing, per year	AC	$150	190	$28,500	30	$855,000
General Site Maintenance (Annually)						
- Run-off/Drainage Structures	LS	$4,000	1	$4,000	30	$120,000
- Access Roads, fencing, signs, etc.	LS	$2,000	1	$2,000	30	$60,000
GW Monitoring (Annually)						
- Detection Monitoring - Semi-annual Collection/Analysis, (9 MWs, 1 Dup)	EA	$500	10	$5,000	60	$300,000
- Assessment Monitoring - Semi-annual Analysis, (9 MWs, 1 Dup)	EA	$350	10	$3,500	60	$210,000
- Annual Report	LS	$10,000	1	$10,000	30	$300,000
- Monitoring Well Maintenance (1 MW replaced every 10 years)	EA	$5,000	1	$5,000	3	$15,000
One Time Post Closure Care Costs						
- Deed Notices/Surveys	LS	$15,000	1	$15,000	1	$15,000
- Monitoring Well Plugging and Abandonment	EA	$1,000	9	$9,000	1	$9,000
Subtotal 30-Year Post Closure Care Costs:						$2,834,533
Contingency (10%):						$283,453
30-Year Post Closure Cost Estimate:						**$3,117,987**

Notes:

1. All Costs in 2021 Dollars
2. SY - square yard
3. CY - cubic yard
4. EA - each
5. AC - acre
6. M - month
7. Gal - gallons
8. See Technical Memorandum for cost assumptions