



2019 Annual Groundwater Monitoring and Corrective Action Report

Monticello Steam Electric Station Bottom Ash Ponds-Mount Pleasant, Texas

Submitted to:

Aton, LLC

2275 Cassens Drive, Suite 118, Fenton, MO 63026

Submitted by:

Golder Associates Inc.

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January 31, 2020

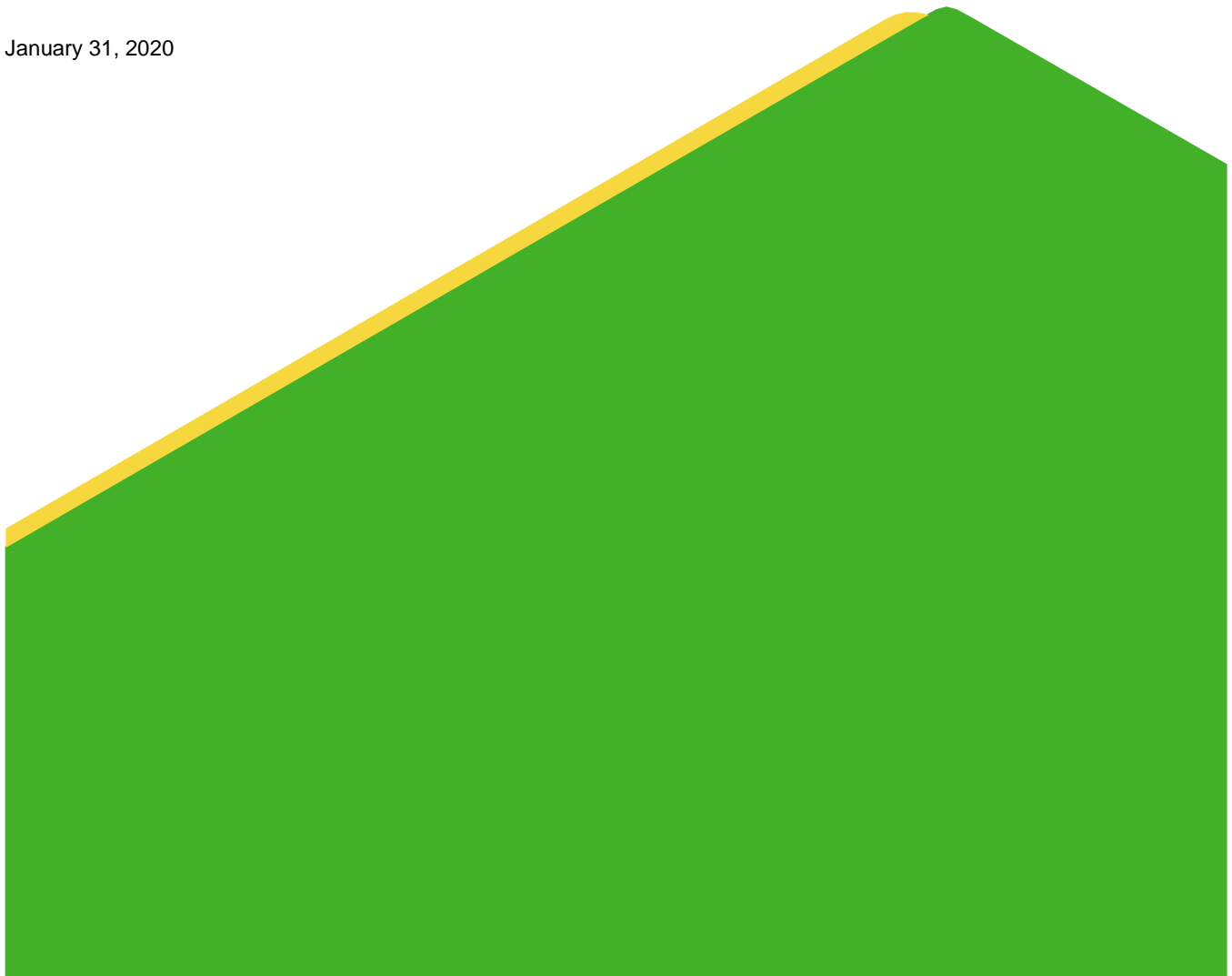


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ACRONYMS AND ABBREVIATIONS

CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
GWPS	Groundwater Protection Standard
MCL	Maximum Concentration Level
mg/L	Milligrams per Liter
MOSES	Monticello Steam Electric Station
NA	Not Applicable
SSI	Statistically Significant Increase
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

Golder Associates, Inc. (Golder) has prepared this report on behalf of Aton, LLC (Aton) to satisfy annual groundwater monitoring and corrective action reporting requirements of the Coal Combustion Residuals (CCR) Rule for the Northeast Ash Water Retention Pond, West Ash Settling Pond, and Southwest Ash Settling Pond (Bottom Ash Ponds) at the Monticello Steam Electric Station (MOSES) in Mount Pleasant, Texas. The CCR units and CCR monitoring well network are shown on Figure 1.

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 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.

2.0 MONITORING AND CORRECTIVE ACTION PROGRAM STATUS

The MOSES CCR Bottom Ash Ponds are currently in the Detection Monitoring Program. Golder collected the initial Detection Monitoring Program groundwater samples from the Bottom Ash Ponds CCR monitoring well network in September 2017. Detection groundwater samples were also collected from the CCR groundwater monitoring network on a semi-annual basis in 2018 and 2019, as required by the CCR Rule. All CCR groundwater monitoring wells were sampled for Appendix III constituents during the detection monitoring sampling events. The following table provides a summary of the Detection Monitoring Program:

Detection Monitoring Program Summary

Sampling Dates	Parameters	SSIs	Assessment Monitoring Program Established
September 2017	Appendix III	No	No
June 2018	Appendix III	No	No
September 2018	Appendix III	No	No
May 2019	Appendix III	No	No
October 2019	Appendix III	No	No

The statistical background values and Appendix III analytical data are presented in Tables 1 and 2, respectively, and the 2019 laboratory analytical reports are provided in Appendix A. There were no SSIs of Appendix III parameters in 2017 or 2018; therefore, the CCR units remained in Detection Monitoring in 2019. The analytical data from the 2019 detection monitoring sampling events were evaluated using procedures described in the Statistical Analysis Plan (PBW 2017) to identify SSIs of Appendix III parameters over background concentrations. There were no SSIs of Appendix III parameters in 2019.

3.0 KEY ACTIONS COMPLETED IN 2019

Detection Monitoring Program groundwater monitoring events were completed in May and October 2019. 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 2. A map showing the CCR units and monitoring wells is provided as Figure 1.

No CCR wells were installed or decommissioned in 2019.

4.0 PROBLEMS ENCOUNTERED AND ACTIONS TO RESOLVE THE PROBLEMS

No problems were encountered with the CCR groundwater monitoring program in 2019.

5.0 KEY ACTIVITIES PLANNED FOR 2020

The following key activities are planned for 2020:

- Continue the Detection Monitoring Program in accordance with 40 CFR § 257.94.
- Complete evaluation of Appendix III analytical data from the downgradient wells and compare results to statistical background values to determine whether an SSI has occurred.
- If an SSI is identified, potential alternate sources (i.e., a source other than the CCR unit caused the SSI or that the SSI 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 SSI, a written demonstration will be completed within 90 days of SSI determination and included in the Annual Groundwater Monitoring and Corrective Action Report.
- If an alternate source is not identified to be the cause of the SSI, an Assessment Monitoring Program will be established in accordance with 40 CFR § 257.94(e)(2).

6.0 REFERENCES

Pastor, Behling & Wheeler, LLC, 2017. Coal Combustion Residual Rule Statistical Analysis Plan, Monticello Steam Electric Station, Ash Ponds, Mount Pleasant, Texas.

Signature Page

Golder Associates Inc.

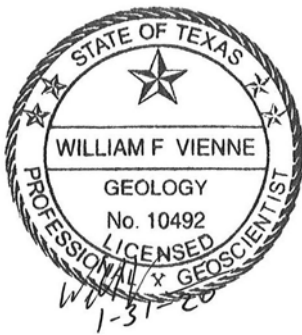


William F. Vienne
Senior Consulting Hydrogeologist

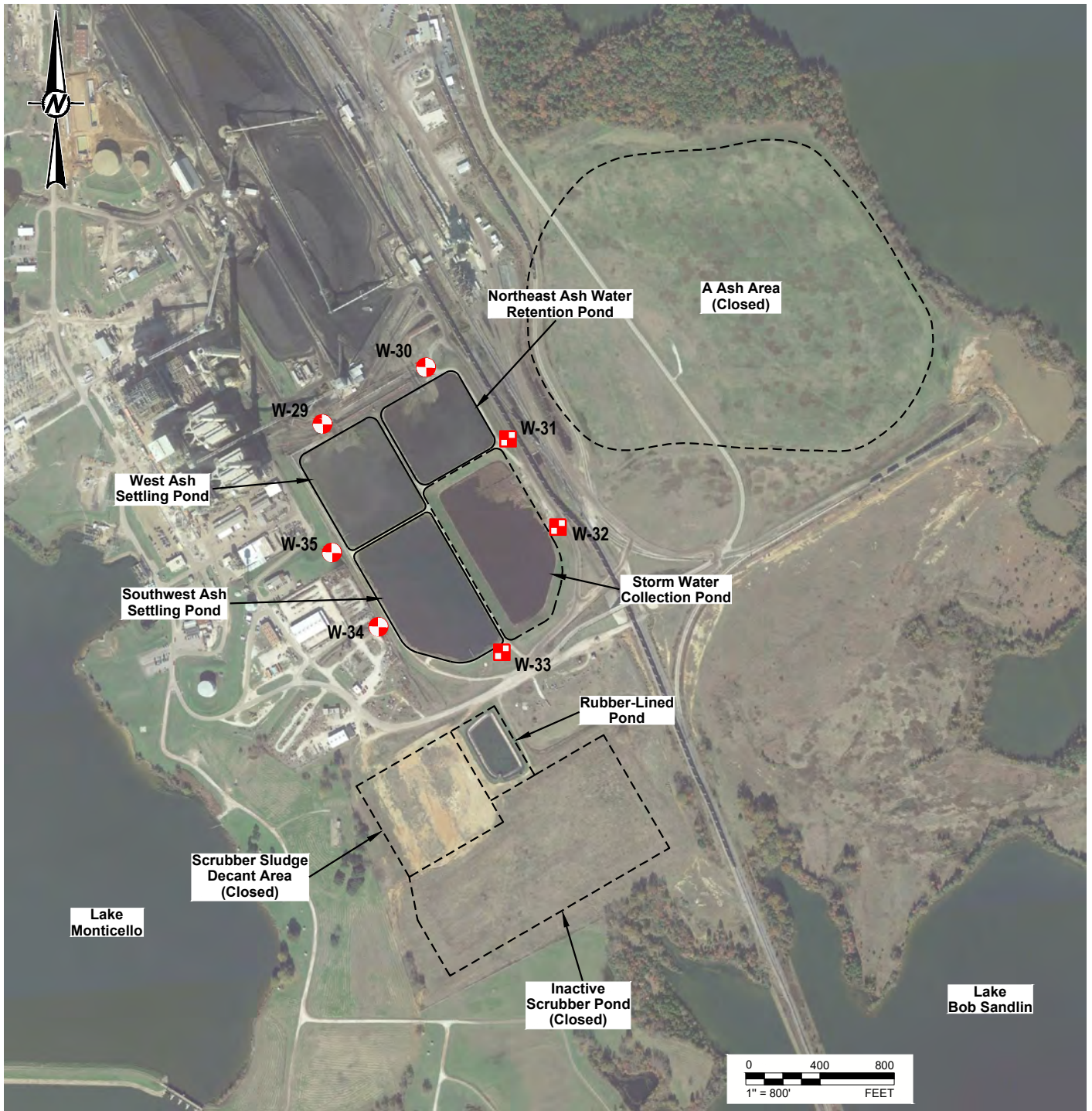


Patrick J. Behling
Principal Engineer



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FIGURES



LEGEND

-  DOWNGRADIENT CCR MONITORING WELL
-  UPGRADIENT CCR MONITORING WELL

CLIENT
Aton, LLC

PROJECT
MONTICELLO STEAM ELECTRIC STATION
MT PLEASANT, TEXAS

TITLE
DETAILED SITE PLAN

CONSULTANT



YYYY-MM-DD	2020-01-23
DESIGNED	AJD
PREPARED	AJD
REVIEWED	WFV
APPROVED	WFV

REFERENCE(S)
BASE MAP TAKEN FROM GOOGLE EARTH, IMAGERY DATED 12/2/15.

PROJECT NO.
20137391

REV.
0

FIGURE
1

TABLES

Table 1
Statistical Background Values
MOSES Bottom Ash Ponds

Parameter	Statistical Background Value
Boron (mg/L)	8.52
Calcium (mg/L)	311
Chloride (mg/L)	184
Fluoride (mg/L)	2.93
	4.99
field pH (s.u.)	7.14
Sulfate (mg/L)	1,190
Total Dissolved Solids (mg/L)	2,150

TABLE 2
APPENDIX III ANALYTICAL RESULTS
MOSES - ASH POND AREA

Sample Location	Date Sampled	B (mg/L)	Ca (mg/L)	Cl (mg/L)	F (mg/L)	pH (s.u.)	SO ₄ (mg/L)	TDS (mg/L)
Upgradient Wells								
W-31	10/15/15	3.74	130	66.2	0.136	5.67	808	1510
	12/07/15	3.81	136	51.2	0.275 J	5.86	714	1250
	02/22/16	3.65	130	49.2	0.124	5.79	694	1500
	04/04/16	3.8	119	48.9	0.22 J	6.06	737	1220
	06/06/16	3.84	104	47.8	<0.1	6.17	701	1150
	08/08/16	2.67	92.4	58.4	<0.1	6.11	396	862
	10/12/16	1.74	71.7	55.1	0.112	6.13	292	654
	12/29/16	3.15	89.7	49.3	<0.1	4.99	729	1150
	09/20/17	3.88	96.3	49.8	<0.100	6.72	316	696
	06/08/18	3.28	86.3	48.6	0.302 J	6.72	577	925
	09/10/18	3.19	86.5	46.3	0.215 J	4.84	595	973
05/09/19	0.881	36.5	54	0.155 J	6.87	115	319	
10/30/19	1.29	35.6	49.1	0.102 J	6.84	131	343	
W-32	10/15/15	5.85	282	160	0.44	6.72	1040	1970
	12/07/15	6.76	260	122	1.19	6.74	872	1610
	02/22/16	6.95	247	124	0.79	6.74	850	1870
	04/04/16	6.5	239	139	1.01	6.73	844	1380
	06/06/16	6.18	192	105	0.758	6.71	694	1440
	08/08/16	4.43	261	110	0.544	6.71	945	1650
	10/12/16	6.32	284	134	0.339	6.19	986	1820
	12/29/16	6.38	310	147	0.573	6.46	1210	1950
	09/20/17	5.81	270	118	0.375 J	6.79	901	1920
	06/08/18	5.79	380	149	1.71	6.74	1340	2390
	09/10/18	5.38	370	140	1.19	6.56	1270	2200
05/09/19	3.83	91	21.9	1.83	6.73	236	479	
10/30/19	4.24	130	35	1.7	6.91	363	746	
W-33	10/15/15	6.36	311	162	2.01	7.14	1080	1630
	12/07/15	6.68	252	120	2.8	7.12	853	1680
	02/22/16	7.52	243	124	2.4	7.11	790	1960
	04/04/16	7.24	278	171	2.5	7.14	935	1540
	06/06/16	7.08	229	120	2.12	7.10	700	1490
	08/08/16	6.37	215	108	1.92	6.97	655	1300
	10/12/16	5.15	237	111	2.43	6.84	797	1540
	12/29/16	5.23	275	125	2.25	6.82	965	1730
	09/20/17	5.89	271	112	2.04	6.73	863	1970
	06/08/18	6.01	364	142	3.59	6.55	1200	2230
	09/10/18	5.45	351	132	2.99	6.78	1160	2120
05/09/19	3.41	93.7	36.7	1.41	6.85	443	775	
10/30/19	5.18	169	39.7	1.21	6.68	477	911	
Downgradient Wells								
W-29	10/15/15	4.58	111	101	0.317 J	6.21	861	1680
	12/07/15	3.47	86.6	81.1	0.358 J	6.22	501	1020
	02/22/16	4.98	114	82.3	0.24	6.27	909	1840
	04/04/16	3.32	169	75.9	0.229 J	6.17	465	850
	06/06/16	5.77	162	85.5	<0.1	6.29	696	1230
	08/08/16	5.7	153	85.6	<0.1	6.32	1100	1850
	10/12/16	6.42	174	82.4	0.4	6.19	1140	1720
	12/29/16	6.52	185	82.5	0.23 J	6.14	1150	1860
	09/20/17	4.84	128	80.6	<0.100	6.85	882	1540
	06/08/18	3.7	127	87.9	0.374 J	6.62	694	1310
	09/10/18	4.14	140	81.5	0.405	6.30	858	1630
05/10/19	1.94	95.4	92.1	0.210 J	6.85	361	727	
10/30/19	1.69	100	86.1	0.238 J	6.52	252	621	

TABLE 2
APPENDIX III ANALYTICAL RESULTS
MOSES - ASH POND AREA

Sample Location	Date Sampled	B (mg/L)	Ca (mg/L)	Cl (mg/L)	F (mg/L)	pH (s.u.)	SO ₄ (mg/L)	TDS (mg/L)
W-30	10/15/15	6.06	133	106	0.58	5.78	919	1490
	12/07/15	7.04	135	98.3	0.809	5.95	875	1530
	02/22/16	6.83	138	96.3	0.721	5.94	873	1790
	04/04/16	6.28	141	95.2	0.961	5.93	925	1460
	06/06/16	6.89	132	94.9	0.359 J	5.96	884	1460
	08/08/16	5.94	136	85.7	0.451	6.23	848	1550
	10/12/16	6.51	130	79.9	0.788	6.02	817	1300
	12/29/16	8.54	192	85.3	0.501	5.34	863	1510
	09/20/17	5.76	127	76.5	0.394 J	6.85	734	1570
	06/08/18	5.06	127	87.8	0.916	6.78	724	1280
	09/10/18	4.53	115	81.1	0.906	5.25	713	1230
05/09/19	5.13	115	97.5	0.848	6.72	734	1300	
10/30/19	5.06	161	59.4	0.573	6.43	755	1330	
W-34	10/15/15	2.38	124	87.1	0.38 J	6.55	453	878
	12/07/15	4.1	153	82.2	0.494	6.58	671	1500
	02/22/16	3.44	117	85.9	0.422	6.59	641	1570
	04/04/16	2.09	86.9	80.7	0.287 J	6.63	378	817
	06/06/16	2.12	66.2	73	<0.1	6.64	343	795
	08/08/16	3.56	121	98.4	<0.1	6.52	634	1030
	10/12/16	3.13	110	84.9	0.293	6.57	556	935
	12/29/16	6.1	158	122	0.336 J	6.03	937	1620
	09/20/17	5.36	181	117	0.244 J	6.75	873	1720
	06/08/18	4.95	180	116	0.902	6.85	835	1540
	09/10/18	4.53	161	114	0.656	6.64	819	1530
05/09/19	1.51	64.7	45.1	0.348 J	6.78	164	568	
10/30/19	4.11	154	103	0.322 J	6.62	677	1260	
W-35	10/15/15	5.58	175	98.2	<0.1	6.05	893	1720
	12/07/15	6.13	177	90.2	0.128 J	6.16	861	1580
	02/22/16	6.29	160	85.4	<0.1	6.12	824	1650
	04/04/16	6.16	169	91.3	<0.1	6.09	835	1310
	06/06/16	6.17	158	98.5	<0.1	6.36	858	1460
	08/08/16	6.07	159	97.8	<0.1	6.41	810	1470
	10/12/16	6.25	150	97.8	0.1	6.12	793	1320
	12/29/16	6.89	151	110	<0.1	5.06	839	1370
	09/20/17	6.27	186	120	<0.100	6.74	854	1650
	06/08/18	5.81	200	128	0.163 J	6.55	925	1660
	09/10/18	5.7	204	132	<0.1	5.42	940	1580
	05/10/19	5.46	182	75.5	<0.1	6.94	501	865
	10/30/19	3.63	111	95.5	<0.100	6.92	682	1280
10/30/2019 DUP	4.57	142	99.1	<0.100	6.92	699	1280	

Notes:

1. Abbreviations: mg/L - milligrams per liter; TDS - total dissolved solids; s.u. - standard units.
2. J - concentration is below method quantitation limit; result is an estimate.

APPENDIX A
2019 LABORATORY ANALYTICAL REPORTS



May 22, 2019

Will Vienne
Golder
2201 Double Creek Dr #4004
Round Rock, Texas 78664
TEL: (512) 671-3434
FAX (512) 671-3446
RE: Luminant-MOSES

Order No.: 1905151

Dear Will Vienne:

DHL Analytical, Inc. received 7 sample(s) on 5/11/2019 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,

A handwritten signature in red ink, appearing to read 'John DuPont'.

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-19-24



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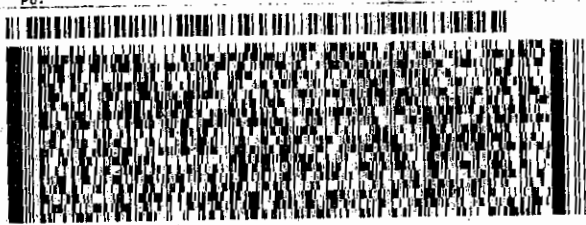
ORIGIN ID:FWHA (512) 671-3434
J.BRAYTON
GOLDER
2201 DOUBLE CREEK DR STE 4004
ROUND ROCK, TX 78664
UNITED STATES US

SHIP DATE: 10MAY19
ACTWGT: 53.80 LB
CAD: 6991003/SSFO2002
DIMS: 25x14x14 IN
BILL THIRD PARTY

Part # 1000000000

TO
DHL
2300 DOUBLE CREEK DR
ROUND ROCK TX 78664

(512) 388-8222 REF:
THU: DEPT:

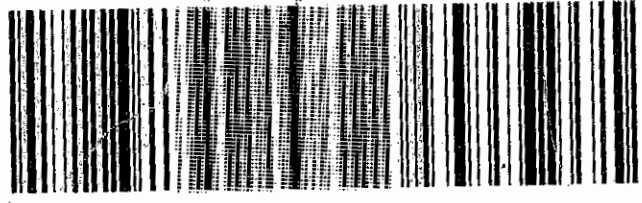


TRK# 7871 8434 9451
0201

SATURDAY 12:00
PRIORITY OVERNIGHT

XO BSMA

AHL
78664
TX-US AUS



Sample Receipt Checklist

Client Name Golder
Work Order Number 1905151

Date Received: 5/11/2019
Received by AH

Checklist completed by: [Signature] 5/13/2019
Signature Date

Reviewed by: [Initials] 5/13/2019
Initials Date

Carrier name FedEx 1day

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on shipping 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 3.0 °C
- Water - VOA vials have zero headspace? Yes No No VOA vials submitted
- Water - pH<2 acceptable upon receipt? Yes No NA LOT # 11837
- Adjusted? no Checked by EL
- 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

CLIENT: Golder
Project: Luminant-MOSES
Lab Order: 1905151

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

- Method SW6020A - Metals Analysis
- Method E300 - Anions Analysis
- Method M2540C - TDS Analysis

LOG IN

The samples were received and log-in performed on 5/11/19. A total of 7 samples were received. The samples arrived in good condition and were properly packaged.

METALS ANALYSIS

For Metals analysis performed on 5/17/19 the RPD for the serial dilution was slightly above control limits for Boron. This is flagged accordingly in the QC summary report. The PDS was within control limits for this analyte. No further corrective actions were taken.

For Metals analysis performed on 5/17/19 the PDS recovery was below control limits for Calcium. This is flagged accordingly. The serial dilution was within control limits for this analyte. No further corrective actions were taken.

CLIENT: Golder
Project: Luminant-MOSES
Lab Order: 1905151

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1905151-01	W-34		05/09/19 03:00 PM	5/11/2019
1905151-02	W-33		05/09/19 03:45 PM	5/11/2019
1905151-03	W-32		05/09/19 04:30 PM	5/11/2019
1905151-04	W-31		05/09/19 05:15 PM	5/11/2019
1905151-05	W-30		05/09/19 06:10 PM	5/11/2019
1905151-06	W-29		05/10/19 07:40 AM	5/11/2019
1905151-07	W-35		05/10/19 08:30 AM	5/11/2019

Lab Order: 1905151
Client: Golder
Project: Luminant-MOSES

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1905151-01A	W-34	05/09/19 03:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/14/19 08:33 AM	90878
	W-34	05/09/19 03:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/14/19 08:33 AM	90878
1905151-01B	W-34	05/09/19 03:00 PM	Aqueous	E300	Anion Preparation	05/14/19 09:27 AM	90883
	W-34	05/09/19 03:00 PM	Aqueous	E300	Anion Preparation	05/14/19 09:27 AM	90883
	W-34	05/09/19 03:00 PM	Aqueous	M2540C	TDS Preparation	05/13/19 12:00 PM	90864
1905151-02A	W-33	05/09/19 03:45 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/14/19 08:33 AM	90878
	W-33	05/09/19 03:45 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/14/19 08:33 AM	90878
1905151-02B	W-33	05/09/19 03:45 PM	Aqueous	E300	Anion Preparation	05/14/19 09:27 AM	90883
	W-33	05/09/19 03:45 PM	Aqueous	E300	Anion Preparation	05/14/19 09:27 AM	90883
	W-33	05/09/19 03:45 PM	Aqueous	M2540C	TDS Preparation	05/13/19 12:00 PM	90864
1905151-03A	W-32	05/09/19 04:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/14/19 08:33 AM	90878
	W-32	05/09/19 04:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/14/19 08:33 AM	90878
1905151-03B	W-32	05/09/19 04:30 PM	Aqueous	E300	Anion Preparation	05/14/19 09:27 AM	90883
	W-32	05/09/19 04:30 PM	Aqueous	E300	Anion Preparation	05/14/19 09:27 AM	90883
	W-32	05/09/19 04:30 PM	Aqueous	M2540C	TDS Preparation	05/13/19 12:00 PM	90864
1905151-04A	W-31	05/09/19 05:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/14/19 08:33 AM	90878
	W-31	05/09/19 05:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/14/19 08:33 AM	90878
1905151-04B	W-31	05/09/19 05:15 PM	Aqueous	E300	Anion Preparation	05/14/19 09:27 AM	90883
	W-31	05/09/19 05:15 PM	Aqueous	E300	Anion Preparation	05/14/19 09:27 AM	90883
	W-31	05/09/19 05:15 PM	Aqueous	M2540C	TDS Preparation	05/15/19 08:39 AM	90905
1905151-05A	W-30	05/09/19 06:10 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/14/19 08:33 AM	90878
	W-30	05/09/19 06:10 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/14/19 08:33 AM	90878
1905151-05B	W-30	05/09/19 06:10 PM	Aqueous	E300	Anion Preparation	05/14/19 09:27 AM	90883
	W-30	05/09/19 06:10 PM	Aqueous	E300	Anion Preparation	05/14/19 09:27 AM	90883
	W-30	05/09/19 06:10 PM	Aqueous	M2540C	TDS Preparation	05/15/19 08:39 AM	90905
1905151-06A	W-29	05/10/19 07:40 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/14/19 08:33 AM	90878
	W-29	05/10/19 07:40 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/14/19 08:33 AM	90878
1905151-06B	W-29	05/10/19 07:40 AM	Aqueous	E300	Anion Preparation	05/14/19 09:27 AM	90883

Lab Order: 1905151
Client: Golder
Project: Luminant-MOSES

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1905151-06B	W-29	05/10/19 07:40 AM	Aqueous	E300	Anion Preparation	05/14/19 09:27 AM	90883
	W-29	05/10/19 07:40 AM	Aqueous	M2540C	TDS Preparation	05/15/19 08:39 AM	90905
1905151-07A	W-35	05/10/19 08:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/14/19 08:33 AM	90878
	W-35	05/10/19 08:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/14/19 08:33 AM	90878
1905151-07B	W-35	05/10/19 08:30 AM	Aqueous	E300	Anion Preparation	05/14/19 09:27 AM	90883
	W-35	05/10/19 08:30 AM	Aqueous	E300	Anion Preparation	05/14/19 09:27 AM	90883
	W-35	05/10/19 08:30 AM	Aqueous	M2540C	TDS Preparation	05/15/19 08:39 AM	90905

Lab Order: 1905151
 Client: Golder
 Project: Luminant-MOSES

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1905151-01A	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	90878	1	05/15/19 01:51 PM	ICP-MS5_190515B
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	90878	10	05/17/19 11:17 AM	ICP-MS4_190517A
1905151-01B	W-34	Aqueous	E300	Anions by IC method - Water	90883	10	05/14/19 04:43 PM	IC2_190514A
	W-34	Aqueous	E300	Anions by IC method - Water	90883	1	05/14/19 08:11 PM	IC2_190514A
	W-34	Aqueous	M2540C	Total Dissolved Solids	90864	1	05/13/19 04:45 PM	WC_190513A
1905151-02A	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	90878	10	05/17/19 11:19 AM	ICP-MS4_190517A
	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	90878	1	05/15/19 01:53 PM	ICP-MS5_190515B
1905151-02B	W-33	Aqueous	E300	Anions by IC method - Water	90883	10	05/14/19 04:59 PM	IC2_190514A
	W-33	Aqueous	E300	Anions by IC method - Water	90883	1	05/14/19 08:27 PM	IC2_190514A
	W-33	Aqueous	M2540C	Total Dissolved Solids	90864	1	05/13/19 04:45 PM	WC_190513A
1905151-03A	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	90878	10	05/17/19 11:21 AM	ICP-MS4_190517A
	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	90878	1	05/15/19 01:56 PM	ICP-MS5_190515B
1905151-03B	W-32	Aqueous	E300	Anions by IC method - Water	90883	10	05/14/19 05:15 PM	IC2_190514A
	W-32	Aqueous	E300	Anions by IC method - Water	90883	1	05/14/19 08:43 PM	IC2_190514A
	W-32	Aqueous	M2540C	Total Dissolved Solids	90864	1	05/13/19 04:45 PM	WC_190513A
1905151-04A	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	90878	1	05/15/19 01:58 PM	ICP-MS5_190515B
	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	90878	5	05/17/19 11:25 AM	ICP-MS4_190517A
1905151-04B	W-31	Aqueous	E300	Anions by IC method - Water	90883	10	05/14/19 05:31 PM	IC2_190514A
	W-31	Aqueous	E300	Anions by IC method - Water	90883	1	05/14/19 08:59 PM	IC2_190514A
	W-31	Aqueous	M2540C	Total Dissolved Solids	90905	1	05/15/19 02:00 PM	WC_190515A
1905151-05A	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	90878	10	05/17/19 11:29 AM	ICP-MS4_190517A
	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	90878	1	05/15/19 02:00 PM	ICP-MS5_190515B
1905151-05B	W-30	Aqueous	E300	Anions by IC method - Water	90883	10	05/14/19 05:47 PM	IC2_190514A
	W-30	Aqueous	E300	Anions by IC method - Water	90883	1	05/14/19 09:15 PM	IC2_190514A
	W-30	Aqueous	M2540C	Total Dissolved Solids	90905	1	05/15/19 02:00 PM	WC_190515A
1905151-06A	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	90878	10	05/17/19 11:33 AM	ICP-MS4_190517A
	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	90878	1	05/15/19 02:02 PM	ICP-MS5_190515B
1905151-06B	W-29	Aqueous	E300	Anions by IC method - Water	90883	1	05/14/19 09:31 PM	IC2_190514A

Lab Order: 1905151
Client: Golder
Project: Luminant-MOSES

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1905151-06B	W-29	Aqueous	E300	Anions by IC method - Water	90883	10	05/14/19 06:03 PM	IC2_190514A
	W-29	Aqueous	M2540C	Total Dissolved Solids	90905	1	05/15/19 02:00 PM	WC_190515A
1905151-07A	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	90878	50	05/17/19 12:02 PM	ICP-MS4_190517A
	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	90878	1	05/15/19 02:20 PM	ICP-MS5_190515B
1905151-07B	W-35	Aqueous	E300	Anions by IC method - Water	90883	10	05/14/19 06:19 PM	IC2_190514A
	W-35	Aqueous	E300	Anions by IC method - Water	90883	1	05/14/19 09:47 PM	IC2_190514A
	W-35	Aqueous	M2540C	Total Dissolved Solids	90905	1	05/15/19 02:00 PM	WC_190515A

DHL Analytical, Inc.

Date: 22-May-19

CLIENT: Golder
Project: Luminant-MOSES
Project No: 19122262-E
Lab Order: 1905151

Client Sample ID: W-34
Lab ID: 1905151-01
Collection Date: 05/09/19 03:00 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		SW6020A		Analyst: RO			
Boron	1.51	0.100	0.300		mg/L	10	05/17/19 11:17 AM
Calcium	64.7	1.00	3.00		mg/L	10	05/17/19 11:17 AM
ANIONS BY IC METHOD - WATER		E300		Analyst: JL			
Chloride	45.1	0.300	1.00		mg/L	1	05/14/19 08:11 PM
Fluoride	0.348	0.100	0.400	J	mg/L	1	05/14/19 08:11 PM
Sulfate	164	10.0	30.0		mg/L	10	05/14/19 04:43 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: JS			
Total Dissolved Solids (Residue, Filterable)	568	10.0	10.0		mg/L	1	05/13/19 04:45 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	C	Sample Result or QC discussed in the Case Narrative
DF	Dilution Factor	E	TPH pattern not Gas or Diesel Range Pattern
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	RL	Reporting Limit
S	Spike Recovery outside control limits	N	Parameter not NELAP certified

DHL Analytical, Inc.

Date: 22-May-19

CLIENT: Golder
Project: Luminant-MOSES
Project No: 19122262-E
Lab Order: 1905151

Client Sample ID: W-33
Lab ID: 1905151-02
Collection Date: 05/09/19 03:45 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		SW6020A		Analyst: RO			
Boron	3.41	0.100	0.300		mg/L	10	05/17/19 11:19 AM
Calcium	93.7	1.00	3.00		mg/L	10	05/17/19 11:19 AM
ANIONS BY IC METHOD - WATER		E300		Analyst: JL			
Chloride	36.7	0.300	1.00		mg/L	1	05/14/19 08:27 PM
Fluoride	1.41	0.100	0.400		mg/L	1	05/14/19 08:27 PM
Sulfate	443	10.0	30.0		mg/L	10	05/14/19 04:59 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: JS			
Total Dissolved Solids (Residue, Filterable)	775	10.0	10.0		mg/L	1	05/13/19 04:45 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	C	Sample Result or QC discussed in the Case Narrative
DF	Dilution Factor	E	TPH pattern not Gas or Diesel Range Pattern
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	RL	Reporting Limit
S	Spike Recovery outside control limits	N	Parameter not NELAP certified

DHL Analytical, Inc.

Date: 22-May-19

CLIENT: Golder
Project: Luminant-MOSES
Project No: 19122262-E
Lab Order: 1905151

Client Sample ID: W-32
Lab ID: 1905151-03
Collection Date: 05/09/19 04:30 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		SW6020A		Analyst: RO			
Boron	3.83	0.100	0.300		mg/L	10	05/17/19 11:21 AM
Calcium	91.0	1.00	3.00		mg/L	10	05/17/19 11:21 AM
ANIONS BY IC METHOD - WATER		E300		Analyst: JL			
Chloride	21.9	0.300	1.00		mg/L	1	05/14/19 08:43 PM
Fluoride	1.83	0.100	0.400		mg/L	1	05/14/19 08:43 PM
Sulfate	236	10.0	30.0		mg/L	10	05/14/19 05:15 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: JS			
Total Dissolved Solids (Residue, Filterable)	479	10.0	10.0		mg/L	1	05/13/19 04:45 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	C	Sample Result or QC discussed in the Case Narrative
DF	Dilution Factor	E	TPH pattern not Gas or Diesel Range Pattern
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	RL	Reporting Limit
S	Spike Recovery outside control limits	N	Parameter not NELAP certified

DHL Analytical, Inc.

Date: 22-May-19

CLIENT: Golder
Project: Luminant-MOSES
Project No: 19122262-E
Lab Order: 1905151

Client Sample ID: W-31
Lab ID: 1905151-04
Collection Date: 05/09/19 05:15 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		SW6020A		Analyst: RO			
Boron	0.881	0.0500	0.150		mg/L	5	05/17/19 11:25 AM
Calcium	36.5	0.500	1.50		mg/L	5	05/17/19 11:25 AM
ANIONS BY IC METHOD - WATER		E300		Analyst: JL			
Chloride	54.0	3.00	10.0		mg/L	10	05/14/19 05:31 PM
Fluoride	0.155	0.100	0.400	J	mg/L	1	05/14/19 08:59 PM
Sulfate	115	10.0	30.0		mg/L	10	05/14/19 05:31 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: JS			
Total Dissolved Solids (Residue, Filterable)	319	10.0	10.0		mg/L	1	05/15/19 02:00 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	C	Sample Result or QC discussed in the Case Narrative
DF	Dilution Factor	E	TPH pattern not Gas or Diesel Range Pattern
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	RL	Reporting Limit
S	Spike Recovery outside control limits	N	Parameter not NELAP certified

DHL Analytical, Inc.

Date: 22-May-19

CLIENT: Golder
Project: Luminant-MOSES
Project No: 19122262-E
Lab Order: 1905151

Client Sample ID: W-30
Lab ID: 1905151-05
Collection Date: 05/09/19 06:10 PM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		SW6020A		Analyst: RO			
Boron	5.13	0.100	0.300		mg/L	10	05/17/19 11:29 AM
Calcium	115	1.00	3.00		mg/L	10	05/17/19 11:29 AM
ANIONS BY IC METHOD - WATER		E300		Analyst: JL			
Chloride	97.5	3.00	10.0		mg/L	10	05/14/19 05:47 PM
Fluoride	0.848	0.100	0.400		mg/L	1	05/14/19 09:15 PM
Sulfate	734	10.0	30.0		mg/L	10	05/14/19 05:47 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: JS			
Total Dissolved Solids (Residue, Filterable)	1300	50.0	50.0		mg/L	1	05/15/19 02:00 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	C	Sample Result or QC discussed in the Case Narrative
DF	Dilution Factor	E	TPH pattern not Gas or Diesel Range Pattern
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	RL	Reporting Limit
S	Spike Recovery outside control limits	N	Parameter not NELAP certified

DHL Analytical, Inc.

Date: 22-May-19

CLIENT: Golder
Project: Luminant-MOSES
Project No: 19122262-E
Lab Order: 1905151

Client Sample ID: W-29
Lab ID: 1905151-06
Collection Date: 05/10/19 07:40 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		SW6020A		Analyst: RO			
Boron	1.94	0.100	0.300		mg/L	10	05/17/19 11:33 AM
Calcium	95.4	1.00	3.00		mg/L	10	05/17/19 11:33 AM
ANIONS BY IC METHOD - WATER		E300		Analyst: JL			
Chloride	92.1	3.00	10.0		mg/L	10	05/14/19 06:03 PM
Fluoride	0.210	0.100	0.400	J	mg/L	1	05/14/19 09:31 PM
Sulfate	361	10.0	30.0		mg/L	10	05/14/19 06:03 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: JS			
Total Dissolved Solids (Residue, Filterable)	727	10.0	10.0		mg/L	1	05/15/19 02:00 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	C	Sample Result or QC discussed in the Case Narrative
DF	Dilution Factor	E	TPH pattern not Gas or Diesel Range Pattern
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	RL	Reporting Limit
S	Spike Recovery outside control limits	N	Parameter not NELAP certified

DHL Analytical, Inc.

Date: 22-May-19

CLIENT: Golder
Project: Luminant-MOSES
Project No: 19122262-E
Lab Order: 1905151

Client Sample ID: W-35
Lab ID: 1905151-07
Collection Date: 05/10/19 08:30 AM
Matrix: AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		SW6020A		Analyst: RO			
Boron	5.46	0.500	1.50		mg/L	50	05/17/19 12:02 PM
Calcium	182	5.00	15.0		mg/L	50	05/17/19 12:02 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: JL			
Chloride	75.5	3.00	10.0		mg/L	10	05/14/19 06:19 PM
Fluoride	<0.100	0.100	0.400		mg/L	1	05/14/19 09:47 PM
Sulfate	501	10.0	30.0		mg/L	10	05/14/19 06:19 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: JS			
Total Dissolved Solids (Residue, Filterable)	865	10.0	10.0		mg/L	1	05/15/19 02:00 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	C	Sample Result or QC discussed in the Case Narrative
DF	Dilution Factor	E	TPH pattern not Gas or Diesel Range Pattern
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	RL	Reporting Limit
S	Spike Recovery outside control limits	N	Parameter not NELAP certified

CLIENT: Golder
Work Order: 1905151
Project: Luminant-MOSES

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_190517A

The QC data in batch 90878 applies to the following samples: 1905151-01A, 1905151-02A, 1905151-03A, 1905151-04A, 1905151-05A, 1905151-06A, 1905151-07A

Sample ID MB-90878	Batch ID: 90878	TestNo: SW6020A	Units: mg/L
SampType: MBLK	Run ID: ICP-MS4_190517A	Analysis Date: 5/17/2019 10:57:00 AM	Prep Date: 5/14/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	<0.0100	0.0300								
Calcium	<0.100	0.300								

Sample ID LCS-90878	Batch ID: 90878	TestNo: SW6020A	Units: mg/L
SampType: LCS	Run ID: ICP-MS4_190517A	Analysis Date: 5/17/2019 10:59:00 AM	Prep Date: 5/14/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.197	0.0300	0.200	0	98.3	80	120			
Calcium	4.90	0.300	5.00	0	98.1	80	120			

Sample ID LCSD-90878	Batch ID: 90878	TestNo: SW6020A	Units: mg/L
SampType: LCSD	Run ID: ICP-MS4_190517A	Analysis Date: 5/17/2019 11:01:00 AM	Prep Date: 5/14/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.201	0.0300	0.200	0	101	80	120	2.37	15	
Calcium	4.97	0.300	5.00	0	99.4	80	120	1.35	15	

Sample ID 1905144-01A SD	Batch ID: 90878	TestNo: SW6020A	Units: mg/L
SampType: SD	Run ID: ICP-MS4_190517A	Analysis Date: 5/17/2019 11:09:00 AM	Prep Date: 5/14/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.213	0.150	0	0.187				12.8	10	R
Calcium	44.5	1.50	0	44.9				0.861	10	

Sample ID 1905144-01A PDS	Batch ID: 90878	TestNo: SW6020A	Units: mg/L
SampType: PDS	Run ID: ICP-MS4_190517A	Analysis Date: 5/17/2019 11:37:00 AM	Prep Date: 5/14/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.385	0.0300	0.200	0.187	98.9	80	120			
Calcium	46.6	0.300	5.00	44.9	33.6	80	120			S

Sample ID 1905144-01A MS	Batch ID: 90878	TestNo: SW6020A	Units: mg/L
SampType: MS	Run ID: ICP-MS4_190517A	Analysis Date: 5/17/2019 11:39:00 AM	Prep Date: 5/14/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.400	0.0300	0.200	0.187	106	80	120			
Calcium	49.1	0.300	5.00	44.9	84.0	80	120			

Qualifiers: B Analyte detected in the associated Method Blank
 J Analyte detected between MDL and RL
 ND Not Detected at the Method Detection Limit
 RL Reporting Limit
 J Analyte detected between SDL and RL
 DF Dilution Factor
 MDL Method Detection Limit
 R RPD outside accepted control limits
 S Spike Recovery outside control limits
 N Parameter not NELAP certified

CLIENT: Golder
Work Order: 1905151
Project: Luminant-MOSES

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_190517A

Sample ID	1905144-01A MSD	Batch ID:	90878	TestNo:	SW6020A	Units:	mg/L			
SampType:	MSD	Run ID:	ICP-MS4_190517A	Analysis Date:	5/17/2019 11:41:00 AM	Prep Date:	5/14/2019			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.389	0.0300	0.200	0.187	101	80	120	2.66	15	
Calcium	49.5	0.300	5.00	44.9	92.8	80	120	0.899	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: 1905151
Project: Luminant-MOSES

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_190517A

Sample ID ICV-190517	Batch ID: R104128	TestNo: SW6020A	Units: mg/L							
SampType: ICV	Run ID: ICP-MS4_190517A	Analysis Date: 5/17/2019 10:36:00 AM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.107	0.0300	0.100	0	107	90	110			
Calcium	2.53	0.300	2.50	0	101	90	110			

Sample ID LCVL-190517	Batch ID: R104128	TestNo: SW6020A	Units: mg/L							
SampType: LCVL	Run ID: ICP-MS4_190517A	Analysis Date: 5/17/2019 10:46:00 AM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0220	0.0300	0.0200	0	110	70	130			
Calcium	0.0997	0.300	0.100	0	99.7	70	130			

Sample ID CCV1-190517	Batch ID: R104128	TestNo: SW6020A	Units: mg/L							
SampType: CCV	Run ID: ICP-MS4_190517A	Analysis Date: 5/17/2019 11:47:00 AM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.207	0.0300	0.200	0	103	90	110			
Calcium	4.91	0.300	5.00	0	98.2	90	110			

Sample ID LCVL1-190517	Batch ID: R104128	TestNo: SW6020A	Units: mg/L							
SampType: LCVL	Run ID: ICP-MS4_190517A	Analysis Date: 5/17/2019 11:56:00 AM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0234	0.0300	0.0200	0	117	70	130			
Calcium	0.0976	0.300	0.100	0	97.6	70	130			

Sample ID CCV2-190517	Batch ID: R104128	TestNo: SW6020A	Units: mg/L							
SampType: CCV	Run ID: ICP-MS4_190517A	Analysis Date: 5/17/2019 12:04:00 PM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.208	0.0300	0.200	0	104	90	110			
Calcium	4.83	0.300	5.00	0	96.6	90	110			

Sample ID LCVL2-190517	Batch ID: R104128	TestNo: SW6020A	Units: mg/L							
SampType: LCVL	Run ID: ICP-MS4_190517A	Analysis Date: 5/17/2019 12:13:00 PM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0221	0.0300	0.0200	0	110	70	130			
Calcium	0.0993	0.300	0.100	0	99.3	70	130			

<p>Qualifiers:</p> <p>B Analyte detected in the associated Method Blank</p> <p>J Analyte detected between MDL and RL</p> <p>ND Not Detected at the Method Detection Limit</p> <p>RL Reporting Limit</p> <p>J Analyte detected between SDL and RL</p>	<p>DF Dilution Factor</p> <p>MDL Method Detection Limit</p> <p>R RPD outside accepted control limits</p> <p>S Spike Recovery outside control limits</p> <p>N Parameter not NELAP certified</p>
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CLIENT: Golder
Work Order: 1905151
Project: Luminant-MOSES

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_190514A

The QC data in batch 90883 applies to the following samples: 1905151-01B, 1905151-02B, 1905151-03B, 1905151-04B, 1905151-05B, 1905151-06B, 1905151-07B

Sample ID: MB-90883	Batch ID: 90883	TestNo: E300	Units: mg/L
SampType: MBLK	Run ID: IC2_190514A	Analysis Date: 5/14/2019 10:20:47 AM	Prep Date: 5/14/2019

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-90883	Batch ID: 90883	TestNo: E300	Units: mg/L
SampType: LCS	Run ID: IC2_190514A	Analysis Date: 5/14/2019 10:36:47 AM	Prep Date: 5/14/2019

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			
Fluoride	3.97	0.400	4.000	0	99.3	90	110			
Sulfate	29.8	3.00	30.00	0	99.4	90	110			

Sample ID: LCS-90883	Batch ID: 90883	TestNo: E300	Units: mg/L
SampType: LCS	Run ID: IC2_190514A	Analysis Date: 5/14/2019 10:52:47 AM	Prep Date: 5/14/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.0	1.00	10.00	0	100	90	110	0.876	20	
Fluoride	4.02	0.400	4.000	0	100	90	110	1.15	20	
Sulfate	30.2	3.00	30.00	0	101	90	110	1.12	20	

Sample ID: 1905103-01CMS	Batch ID: 90883	TestNo: E300	Units: mg/L
SampType: MS	Run ID: IC2_190514A	Analysis Date: 5/14/2019 12:59:21 PM	Prep Date: 5/14/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	3310	100	2000	1308	100	90	110			
Fluoride	2080	40.0	2000	0	104	90	110			
Sulfate	4370	300	2000	2425	97.3	90	110			

Sample ID: 1905103-01CMSD	Batch ID: 90883	TestNo: E300	Units: mg/L
SampType: MSD	Run ID: IC2_190514A	Analysis Date: 5/14/2019 1:15:21 PM	Prep Date: 5/14/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	3310	100	2000	1308	100	90	110	0.039	20	
Fluoride	2080	40.0	2000	0	104	90	110	0.044	20	
Sulfate	4410	300	2000	2425	99.5	90	110	0.986	20	

<p>Qualifiers:</p> <p>B Analyte detected in the associated Method Blank</p> <p>J Analyte detected between MDL and RL</p> <p>ND Not Detected at the Method Detection Limit</p> <p>RL Reporting Limit</p> <p>J Analyte detected between SDL and RL</p>	<p>DF Dilution Factor</p> <p>MDL Method Detection Limit</p> <p>R RPD outside accepted control limits</p> <p>S Spike Recovery outside control limits</p> <p>N Parameter not NELAP certified</p>
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CLIENT: Golder
Work Order: 1905151
Project: Luminant-MOSES

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_190514A

Sample ID: 1905103-02CMS	Batch ID: 90883	TestNo: E300	Units: mg/L
SampType: MS	Run ID: IC2_190514A	Analysis Date: 5/14/2019 1:47:20 PM	Prep Date: 5/14/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	26800	1000	20000	6332	103	90	110			
Fluoride	20900	400	20000	0	104	90	110			
Sulfate	21900	3000	20000	2122	98.7	90	110			

Sample ID: 1905103-02CMSD	Batch ID: 90883	TestNo: E300	Units: mg/L
SampType: MSD	Run ID: IC2_190514A	Analysis Date: 5/14/2019 2:03:20 PM	Prep Date: 5/14/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	26900	1000	20000	6332	103	90	110	0.318	20	
Fluoride	21000	400	20000	0	105	90	110	0.600	20	
Sulfate	22000	3000	20000	2122	99.4	90	110	0.647	20	

Qualifiers: B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAP certified
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CLIENT: Golder
Work Order: 1905151
Project: Luminant-MOSES

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_190514A

Sample ID ICV-190514	Batch ID: R104024	TestNo: E300	Units: mg/L
SampType: ICV	Run ID: IC2_190514A	Analysis Date: 5/14/2019 9:48:47 AM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	25.5	1.00	25.00	0	102	90	110			
Fluoride	10.2	0.400	10.00	0	102	90	110			
Sulfate	76.8	3.00	75.00	0	102	90	110			

Sample ID CCV1-190514	Batch ID: R104024	TestNo: E300	Units: mg/L
SampType: CCV	Run ID: IC2_190514A	Analysis Date: 5/14/2019 4:11:20 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.1	1.00	10.00	0	101	90	110			
Fluoride	4.09	0.400	4.000	0	102	90	110			
Sulfate	30.2	3.00	30.00	0	101	90	110			

Sample ID CCV2-190514	Batch ID: R104024	TestNo: E300	Units: mg/L
SampType: CCV	Run ID: IC2_190514A	Analysis Date: 5/14/2019 7:23:20 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			
Fluoride	4.10	0.400	4.000	0	102	90	110			
Sulfate	30.5	3.00	30.00	0	102	90	110			

Sample ID CCV3-190514	Batch ID: R104024	TestNo: E300	Units: mg/L
SampType: CCV	Run ID: IC2_190514A	Analysis Date: 5/14/2019 10:35:20 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.4	1.00	10.00	0	104	90	110			
Fluoride	4.16	0.400	4.000	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: 1905151
Project: Luminant-MOSES

ANALYTICAL QC SUMMARY REPORT

RunID: WC_190513A

The QC data in batch 90864 applies to the following samples: 1905151-01B, 1905151-02B, 1905151-03B

Sample ID MB-90864	Batch ID: 90864	TestNo: M2540C	Units: mg/L								
SampType: MBLK	Run ID: WC_190513A	Analysis Date: 5/13/2019 4:45:00 PM	Prep Date: 5/13/2019								
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-90864	Batch ID: 90864	TestNo: M2540C	Units: mg/L							
SampType: LCS	Run ID: WC_190513A	Analysis Date: 5/13/2019 4:45:00 PM	Prep Date: 5/13/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		745	10.0	745.6	0	99.9	90	113		

Sample ID 1905103-02C-DUP	Batch ID: 90864	TestNo: M2540C	Units: mg/L							
SampType: DUP	Run ID: WC_190513A	Analysis Date: 5/13/2019 4:45:00 PM	Prep Date: 5/13/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		14200	200	0	14140			0.705	5	

Sample ID 1905134-06C-DUP	Batch ID: 90864	TestNo: M2540C	Units: mg/L							
SampType: DUP	Run ID: WC_190513A	Analysis Date: 5/13/2019 4:45:00 PM	Prep Date: 5/13/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		21900	1000	0	21600			1.38	5	

Qualifiers: B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAP certified
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CLIENT: Golder
Work Order: 1905151
Project: Luminant-MOSES

ANALYTICAL QC SUMMARY REPORT

RunID: WC_190515A

The QC data in batch 90905 applies to the following samples: 1905151-04B, 1905151-05B, 1905151-06B, 1905151-07B

Sample ID MB-90905	Batch ID: 90905	TestNo: M2540C	Units: mg/L							
SampType: MBLK	Run ID: WC_190515A	Analysis Date: 5/15/2019 2:00:00 PM	Prep Date: 5/15/2019							
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-90905	Batch ID: 90905	TestNo: M2540C	Units: mg/L							
SampType: LCS	Run ID: WC_190515A	Analysis Date: 5/15/2019 2:00:00 PM	Prep Date: 5/15/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	746	10.0	745.6	0	100	90	113			

Sample ID 1905153-01C-DUP	Batch ID: 90905	TestNo: M2540C	Units: mg/L							
SampType: DUP	Run ID: WC_190515A	Analysis Date: 5/15/2019 2:00:00 PM	Prep Date: 5/15/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	6970	50.0	0	7010				0.572	5	

Sample ID 1905153-02C-DUP	Batch ID: 90905	TestNo: M2540C	Units: mg/L							
SampType: DUP	Run ID: WC_190515A	Analysis Date: 5/15/2019 2:00:00 PM	Prep Date: 5/15/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera										
	7820	200	0	7920				1.27	5	

Qualifiers:	<p>B Analyte detected in the associated Method Blank</p> <p>J Analyte detected between MDL and RL</p> <p>ND Not Detected at the Method Detection Limit</p> <p>RL Reporting Limit</p> <p>J Analyte detected between SDL and RL</p>	<p>DF Dilution Factor</p> <p>MDL Method Detection Limit</p> <p>R RPD outside accepted control limits</p> <p>S Spike Recovery outside control limits</p> <p>N Parameter not NELAP certified</p>
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November 13, 2019

Will Vienne
Golder
2201 Double Creek Dr #4004
Round Rock, Texas 78664
TEL: (512) 671-3434
FAX (512) 671-3446
RE: Luminant-MOSES

Order No.: 1911008

Dear Will Vienne:

DHL Analytical, Inc. received 8 sample(s) on 11/2/2019 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,

A handwritten signature in red ink, appearing to read "John DuPont".

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-19-24



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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:FWHA (512) 671-3434
J.BRAYTON
2201 DOUBLE CREEK DR STE 4004
ROUND ROCK, TX 78664
UNITED STATES US

SHIP DATE: 01NOV19
ACTWGT: 31.80 LB
CAD: 6991008/SSF02021
DIMS: 16x12x15 IN
BILL THIRD PARTY

Part # 166297-459 09/19/20

TO **DHL**

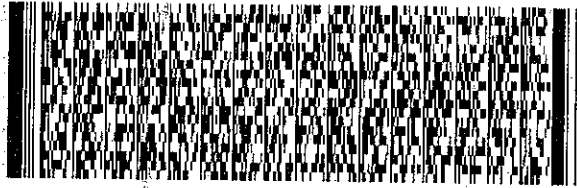
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664

(512) 388-8222
THU: PO:

REF:

DEPT:



FedEx
Express



101001900112817

TRK# 7806 7874 2083
0201

SATURDAY 12:00P
PRIORITY OVERNIGHT

XO BSMA

78664
TX-US AUS

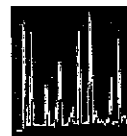


CUSTODY SEAL

DATE

11-1-19

SIGNATURE



DHL
ANALYTICAL


Sample Receipt Checklist

Client Name Golder


Date Received: 11/2/2019

Work Order Number 1911008

Received by: AH


Checklist completed by:  Signature

11/4/2019
Date

Reviewed by:  Initials

11/4/2019
Date

Carrier name: FedEx 1day

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on shipping 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 5.2 °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 
- 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: Luminant-MOSES				LRC Date: 11/13/2019			
Reviewer Name: Angie O'Donnell				Laboratory Work Order: 1911008			
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
		Chain-of-Custody (C-O-C)					
R1	OI	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: Luminant-MOSES			LRC Date: 11/13/2019				
Reviewer Name: Angie O'Donnell			Laboratory Work Order: 1911008				
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			S2-02
		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				
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 25-28, 2019. 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

11/13/19
Date

Name: Dr. Derhsing Luu
Official Title: Technical Director

CLIENT: Golder
Project: Luminant-MOSES
Lab Order: 1911008

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

- Method SW6020A - Metals Analysis
- Method E300 - Anions Analysis
- Method M2540C - TDS Analysis

Exception Report R1-01

The samples were received and log-in performed on 11/2/2019. A total of 8 samples were received and analyzed. The samples arrived in good condition and were properly packaged.

Exception Report R7-03

For Metals Analysis, the recoveries of up to two analytes for the Matrix Spike and Matrix Spike Duplicate (1911008-02 MS/MSD) were outside of the method control limits. These are flagged accordingly in the QC Summary Report. These analytes were within method control limits in the associated LCS. No further corrective action was taken.

For Anions Analysis, the recovery of Sulfate for the Matrix Spike and Matrix Spike Duplicate (1911008-01 MS/MSD) was marginally below the method control limits. These are flagged accordingly in the QC Summary Report. This anion was within method control limits in the associated LCS. No further corrective action was taken.

Exception Report S2-02

For Metals Analysis, the recovery of Boron for the Low Level Calibration Verification (LCVL6-191108) was above the method control limits. The concentration of this analyte in the associated samples is greater than the CCV spike level and was within method control limits in the remaining bracketing QC. No further corrective action was taken.

CLIENT: Golder
Project: Luminant-MOSES
Lab Order: 1911008

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1911008-01	W-34		10/30/19 07:40 AM	11/2/2019
1911008-02	W-33		10/30/19 08:25 AM	11/2/2019
1911008-03	W-32		10/30/19 09:05 AM	11/2/2019
1911008-04	W-31		10/30/19 09:45 AM	11/2/2019
1911008-05	W-30		10/30/19 10:30 AM	11/2/2019
1911008-06	W-29		10/30/19 11:10 AM	11/2/2019
1911008-07	W-35		10/30/19 11:55 AM	11/2/2019
1911008-08	DUP-1		10/30/19 11:55 AM	11/2/2019

Lab Order: 1911008
 Client: Golder
 Project: Luminant-MOSES

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1911008-01A	W-34	10/30/19 07:40 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	11/07/19 08:53 AM	93605
	W-34	10/30/19 07:40 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	11/07/19 08:53 AM	93605
1911008-01B	W-34	10/30/19 07:40 AM	Aqueous	E300	Anion Preparation	11/06/19 09:33 AM	93587
	W-34	10/30/19 07:40 AM	Aqueous	E300	Anion Preparation	11/06/19 09:33 AM	93587
	W-34	10/30/19 07:40 AM	Aqueous	M2540C	TDS Preparation	11/04/19 04:04 PM	93569
1911008-02A	W-33	10/30/19 08:25 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	11/07/19 08:53 AM	93605
	W-33	10/30/19 08:25 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	11/07/19 08:53 AM	93605
1911008-02B	W-33	10/30/19 08:25 AM	Aqueous	E300	Anion Preparation	11/06/19 09:33 AM	93587
	W-33	10/30/19 08:25 AM	Aqueous	E300	Anion Preparation	11/06/19 09:33 AM	93587
	W-33	10/30/19 08:25 AM	Aqueous	M2540C	TDS Preparation	11/04/19 04:04 PM	93569
1911008-03A	W-32	10/30/19 09:05 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	11/07/19 08:53 AM	93605
	W-32	10/30/19 09:05 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	11/07/19 08:53 AM	93605
1911008-03B	W-32	10/30/19 09:05 AM	Aqueous	E300	Anion Preparation	11/06/19 09:33 AM	93587
	W-32	10/30/19 09:05 AM	Aqueous	E300	Anion Preparation	11/06/19 09:33 AM	93587
	W-32	10/30/19 09:05 AM	Aqueous	M2540C	TDS Preparation	11/04/19 04:04 PM	93569
1911008-04A	W-31	10/30/19 09:45 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	11/07/19 08:53 AM	93605
	W-31	10/30/19 09:45 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	11/07/19 08:53 AM	93605
1911008-04B	W-31	10/30/19 09:45 AM	Aqueous	E300	Anion Preparation	11/06/19 09:33 AM	93587
	W-31	10/30/19 09:45 AM	Aqueous	E300	Anion Preparation	11/06/19 09:33 AM	93587
	W-31	10/30/19 09:45 AM	Aqueous	M2540C	TDS Preparation	11/04/19 04:04 PM	93569
1911008-05A	W-30	10/30/19 10:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	11/07/19 08:53 AM	93605
	W-30	10/30/19 10:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	11/07/19 08:53 AM	93605
1911008-05B	W-30	10/30/19 10:30 AM	Aqueous	E300	Anion Preparation	11/06/19 09:33 AM	93587
	W-30	10/30/19 10:30 AM	Aqueous	E300	Anion Preparation	11/06/19 09:33 AM	93587
	W-30	10/30/19 10:30 AM	Aqueous	M2540C	TDS Preparation	11/04/19 04:04 PM	93569
1911008-06A	W-29	10/30/19 11:10 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	11/07/19 08:53 AM	93605
	W-29	10/30/19 11:10 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	11/07/19 08:53 AM	93605
1911008-06B	W-29	10/30/19 11:10 AM	Aqueous	E300	Anion Preparation	11/06/19 09:33 AM	93587

Lab Order: 1911008
 Client: Golder
 Project: Luminant-MOSES

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1911008-06B	W-29	10/30/19 11:10 AM	Aqueous	E300	Anion Preparation	11/06/19 09:33 AM	93587
	W-29	10/30/19 11:10 AM	Aqueous	M2540C	TDS Preparation	11/04/19 04:04 PM	93569
1911008-07A	W-35	10/30/19 11:55 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	11/07/19 08:53 AM	93605
	W-35	10/30/19 11:55 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	11/07/19 08:53 AM	93605
1911008-07B	W-35	10/30/19 11:55 AM	Aqueous	E300	Anion Preparation	11/06/19 09:33 AM	93587
	W-35	10/30/19 11:55 AM	Aqueous	E300	Anion Preparation	11/06/19 09:33 AM	93587
	W-35	10/30/19 11:55 AM	Aqueous	M2540C	TDS Preparation	11/04/19 04:04 PM	93569
1911008-08A	DUP-1	10/30/19 11:55 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	11/07/19 08:53 AM	93605
	DUP-1	10/30/19 11:55 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	11/07/19 08:53 AM	93605
1911008-08B	DUP-1	10/30/19 11:55 AM	Aqueous	E300	Anion Preparation	11/06/19 09:33 AM	93587
	DUP-1	10/30/19 11:55 AM	Aqueous	E300	Anion Preparation	11/06/19 09:33 AM	93587
	DUP-1	10/30/19 11:55 AM	Aqueous	M2540C	TDS Preparation	11/04/19 04:04 PM	93569

Lab Order: 1911008
 Client: Golder
 Project: Luminant-MOSES

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1911008-01A	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	93605	20	11/08/19 03:19 PM	ICP-MS4_191108A
	W-34	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	93605	1	11/08/19 12:51 PM	ICP-MS4_191108A
1911008-01B	W-34	Aqueous	E300	Anions by IC method - Water	93587	10	11/06/19 12:45 PM	IC2_191106B
	W-34	Aqueous	E300	Anions by IC method - Water	93587	1	11/06/19 07:55 PM	IC2_191106B
	W-34	Aqueous	M2540C	Total Dissolved Solids	93569	1	11/04/19 05:00 PM	WC_191104D
1911008-02A	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	93605	1	11/08/19 12:35 PM	ICP-MS4_191108A
	W-33	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	93605	20	11/08/19 03:13 PM	ICP-MS4_191108A
1911008-02B	W-33	Aqueous	E300	Anions by IC method - Water	93587	10	11/06/19 01:33 PM	IC2_191106B
	W-33	Aqueous	E300	Anions by IC method - Water	93587	1	11/06/19 08:11 PM	IC2_191106B
	W-33	Aqueous	M2540C	Total Dissolved Solids	93569	1	11/04/19 05:00 PM	WC_191104D
1911008-03A	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	93605	1	11/08/19 12:53 PM	ICP-MS4_191108A
	W-32	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	93605	20	11/08/19 03:21 PM	ICP-MS4_191108A
1911008-03B	W-32	Aqueous	E300	Anions by IC method - Water	93587	10	11/06/19 02:51 PM	IC2_191106B
	W-32	Aqueous	E300	Anions by IC method - Water	93587	1	11/06/19 08:27 PM	IC2_191106B
	W-32	Aqueous	M2540C	Total Dissolved Solids	93569	1	11/04/19 05:00 PM	WC_191104D
1911008-04A	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	93605	1	11/08/19 12:55 PM	ICP-MS4_191108A
	W-31	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	93605	10	11/08/19 03:33 PM	ICP-MS4_191108A
1911008-04B	W-31	Aqueous	E300	Anions by IC method - Water	93587	10	11/06/19 03:07 PM	IC2_191106B
	W-31	Aqueous	E300	Anions by IC method - Water	93587	1	11/06/19 08:43 PM	IC2_191106B
	W-31	Aqueous	M2540C	Total Dissolved Solids	93569	1	11/04/19 05:00 PM	WC_191104D
1911008-05A	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	93605	20	11/08/19 03:25 PM	ICP-MS4_191108A
	W-30	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	93605	1	11/08/19 01:13 PM	ICP-MS4_191108A
1911008-05B	W-30	Aqueous	E300	Anions by IC method - Water	93587	10	11/06/19 03:23 PM	IC2_191106B
	W-30	Aqueous	E300	Anions by IC method - Water	93587	1	11/06/19 10:51 PM	IC2_191106B
	W-30	Aqueous	M2540C	Total Dissolved Solids	93569	1	11/04/19 05:00 PM	WC_191104D
1911008-06A	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	93605	1	11/08/19 01:15 PM	ICP-MS4_191108A
	W-29	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	93605	10	11/08/19 03:27 PM	ICP-MS4_191108A
1911008-06B	W-29	Aqueous	E300	Anions by IC method - Water	93587	10	11/06/19 03:39 PM	IC2_191106B

Lab Order: 1911008
 Client: Golder
 Project: Luminant-MOSES

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1911008-06B	W-29	Aqueous	E300	Anions by IC method - Water	93587	1	11/06/19 11:07 PM	IC2_191106B
	W-29	Aqueous	M2540C	Total Dissolved Solids	93569	1	11/04/19 05:00 PM	WC_191104D
1911008-07A	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	93605	1	11/08/19 01:17 PM	ICP-MS4_191108A
	W-35	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	93605	20	11/08/19 03:29 PM	ICP-MS4_191108A
1911008-07B	W-35	Aqueous	E300	Anions by IC method - Water	93587	10	11/06/19 03:55 PM	IC2_191106B
	W-35	Aqueous	E300	Anions by IC method - Water	93587	1	11/06/19 11:23 PM	IC2_191106B
	W-35	Aqueous	M2540C	Total Dissolved Solids	93569	1	11/04/19 05:00 PM	WC_191104D
1911008-08A	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	93605	1	11/08/19 01:19 PM	ICP-MS4_191108A
	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	93605	20	11/08/19 03:31 PM	ICP-MS4_191108A
1911008-08B	DUP-1	Aqueous	E300	Anions by IC method - Water	93587	10	11/06/19 04:11 PM	IC2_191106B
	DUP-1	Aqueous	E300	Anions by IC method - Water	93587	1	11/06/19 11:39 PM	IC2_191106B
	DUP-1	Aqueous	M2540C	Total Dissolved Solids	93569	1	11/04/19 05:00 PM	WC_191104D

DHL Analytical, Inc.

Date: 13-Nov-19

CLIENT: Golder
Project: Luminant-MOSES
Project No: 19122262-E
Lab Order: 1911008

Client Sample ID: W-34
Lab ID: 1911008-01
Collection Date: 10/30/19 07:40 AM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		SW6020A		Analyst: RO			
Boron	4.11	0.200	0.600		mg/L	20	11/08/19 03:19 PM
Calcium	154	2.00	6.00		mg/L	20	11/08/19 03:19 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: SNM			
Chloride	103	3.00	10.0		mg/L	10	11/06/19 12:45 PM
Fluoride	0.322	0.100	0.400	J	mg/L	1	11/06/19 07:55 PM
Sulfate	677	10.0	30.0		mg/L	10	11/06/19 12:45 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: BTJ			
Total Dissolved Solids (Residue, Filterable)	1260	50.0	50.0		mg/L	1	11/04/19 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

DHL Analytical, Inc.

Date: 13-Nov-19

CLIENT: Golder
Project: Luminant-MOSES
Project No: 19122262-E
Lab Order: 1911008

Client Sample ID: W-33
Lab ID: 1911008-02
Collection Date: 10/30/19 08:25 AM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		SW6020A		Analyst: RO			
Boron	5.18	0.200	0.600		mg/L	20	11/08/19 03:13 PM
Calcium	169	2.00	6.00		mg/L	20	11/08/19 03:13 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: SNM			
Chloride	39.7	0.300	1.00		mg/L	1	11/06/19 08:11 PM
Fluoride	1.21	0.100	0.400		mg/L	1	11/06/19 08:11 PM
Sulfate	477	10.0	30.0		mg/L	10	11/06/19 01:33 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: BTJ			
Total Dissolved Solids (Residue, Filterable)	911	10.0	10.0		mg/L	1	11/04/19 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

DHL Analytical, Inc.

Date: 13-Nov-19

CLIENT: Golder
Project: Luminant-MOSES
Project No: 19122262-E
Lab Order: 1911008

Client Sample ID: W-32
Lab ID: 1911008-03
Collection Date: 10/30/19 09:05 AM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		SW6020A		Analyst: RO			
Boron	4.24	0.200	0.600		mg/L	20	11/08/19 03:21 PM
Calcium	130	2.00	6.00		mg/L	20	11/08/19 03:21 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: SNM			
Chloride	35.0	0.300	1.00		mg/L	1	11/06/19 08:27 PM
Fluoride	1.70	0.100	0.400		mg/L	1	11/06/19 08:27 PM
Sulfate	363	10.0	30.0		mg/L	10	11/06/19 02:51 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: BTJ			
Total Dissolved Solids (Residue, Filterable)	746	10.0	10.0		mg/L	1	11/04/19 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

DHL Analytical, Inc.

Date: 13-Nov-19

CLIENT: Golder
Project: Luminant-MOSES
Project No: 19122262-E
Lab Order: 1911008

Client Sample ID: W-31
Lab ID: 1911008-04
Collection Date: 10/30/19 09:45 AM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		SW6020A		Analyst: RO			
Boron	1.29	0.100	0.300		mg/L	10	11/08/19 03:33 PM
Calcium	35.6	1.00	3.00		mg/L	10	11/08/19 03:33 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: SNM			
Chloride	49.1	0.300	1.00		mg/L	1	11/06/19 08:43 PM
Fluoride	0.102	0.100	0.400	J	mg/L	1	11/06/19 08:43 PM
Sulfate	131	1.00	3.00		mg/L	1	11/06/19 08:43 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: BTJ			
Total Dissolved Solids (Residue, Filterable)	343	10.0	10.0		mg/L	1	11/04/19 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

DHL Analytical, Inc.

Date: 13-Nov-19

CLIENT: Golder
Project: Luminant-MOSES
Project No: 19122262-E
Lab Order: 1911008

Client Sample ID: W-30
Lab ID: 1911008-05
Collection Date: 10/30/19 10:30 AM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		SW6020A		Analyst: RO			
Boron	5.06	0.200	0.600		mg/L	20	11/08/19 03:25 PM
Calcium	161	2.00	6.00		mg/L	20	11/08/19 03:25 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: SNM			
Chloride	59.4	3.00	10.0		mg/L	10	11/06/19 03:23 PM
Fluoride	0.573	0.100	0.400		mg/L	1	11/06/19 10:51 PM
Sulfate	755	10.0	30.0		mg/L	10	11/06/19 03:23 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: BTJ			
Total Dissolved Solids (Residue, Filterable)	1330	50.0	50.0		mg/L	1	11/04/19 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

DHL Analytical, Inc.

Date: 13-Nov-19

CLIENT: Golder
Project: Luminant-MOSES
Project No: 19122262-E
Lab Order: 1911008

Client Sample ID: W-29
Lab ID: 1911008-06
Collection Date: 10/30/19 11:10 AM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		SW6020A		Analyst: RO			
Boron	1.69	0.100	0.300		mg/L	10	11/08/19 03:27 PM
Calcium	100	1.00	3.00		mg/L	10	11/08/19 03:27 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: SNM			
Chloride	86.1	3.00	10.0		mg/L	10	11/06/19 03:39 PM
Fluoride	0.238	0.100	0.400	J	mg/L	1	11/06/19 11:07 PM
Sulfate	252	10.0	30.0		mg/L	10	11/06/19 03:39 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: BTJ			
Total Dissolved Solids (Residue, Filterable)	621	10.0	10.0		mg/L	1	11/04/19 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

DHL Analytical, Inc.

Date: 13-Nov-19

CLIENT: Golder
Project: Luminant-MOSES
Project No: 19122262-E
Lab Order: 1911008

Client Sample ID: W-35
Lab ID: 1911008-07
Collection Date: 10/30/19 11:55 AM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		SW6020A		Analyst: RO			
Boron	3.63	0.200	0.600		mg/L	20	11/08/19 03:29 PM
Calcium	111	2.00	6.00		mg/L	20	11/08/19 03:29 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: SNM			
Chloride	95.5	3.00	10.0		mg/L	10	11/06/19 03:55 PM
Fluoride	<0.100	0.100	0.400		mg/L	1	11/06/19 11:23 PM
Sulfate	682	10.0	30.0		mg/L	10	11/06/19 03:55 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: BTJ			
Total Dissolved Solids (Residue, Filterable)	1280	50.0	50.0		mg/L	1	11/04/19 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

DHL Analytical, Inc.

Date: 13-Nov-19

CLIENT: Golder
Project: Luminant-MOSES
Project No: 19122262-E
Lab Order: 1911008

Client Sample ID: DUP-1
Lab ID: 1911008-08
Collection Date: 10/30/19 11:55 AM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		SW6020A		Analyst: RO			
Boron	4.57	0.200	0.600		mg/L	20	11/08/19 03:31 PM
Calcium	142	2.00	6.00		mg/L	20	11/08/19 03:31 PM
ANIONS BY IC METHOD - WATER		E300		Analyst: SNM			
Chloride	99.1	3.00	10.0		mg/L	10	11/06/19 04:11 PM
Fluoride	<0.100	0.100	0.400		mg/L	1	11/06/19 11:39 PM
Sulfate	699	10.0	30.0		mg/L	10	11/06/19 04:11 PM
TOTAL DISSOLVED SOLIDS		M2540C		Analyst: BTJ			
Total Dissolved Solids (Residue, Filterable)	1280	50.0	50.0		mg/L	1	11/04/19 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: 1911008
Project: Luminant-MOSES

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_191001C

Sample ID: DCS2-92934	Batch ID: 92934	TestNo: SW6020A	Units: mg/L							
SampType: DCS2	Run ID: ICP-MS4_191001C	Analysis Date: 10/1/2019 10:55:00 AM	Prep Date: 9/25/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.291	0.300	0.300	0	97.0	70	130	0	0	

Sample ID: DCS4-92934	Batch ID: 92934	TestNo: SW6020A	Units: mg/L							
SampType: DCS4	Run ID: ICP-MS4_191001C	Analysis Date: 10/1/2019 10:59:00 AM	Prep Date: 9/25/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0322	0.0300	0.0300	0	107	70	130	0	0	

Qualifiers: B Analyte detected in the associated Method Blank
 J Analyte detected between MDL and RL
 ND Not Detected at the Method Detection Limit
 RL Reporting Limit
 J Analyte detected between SDL and RL

DF Dilution Factor
 MDL Method Detection Limit
 R RPD outside accepted control limits
 S Spike Recovery outside control limits
 N Parameter not NELAP certified

CLIENT: Golder
Work Order: 1911008
Project: Luminant-MOSES

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_191108A

The QC data in batch 93605 applies to the following samples: 1911008-01A, 1911008-02A, 1911008-03A, 1911008-04A, 1911008-05A, 1911008-06A, 1911008-07A, 1911008-08A

Sample ID: MB-93605	Batch ID: 93605	TestNo: SW6020A	Units: mg/L							
SampType: MBLK	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 12:27:00 PM	Prep Date: 11/7/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	<0.100	0.300								

Sample ID: LCS-93605	Batch ID: 93605	TestNo: SW6020A	Units: mg/L							
SampType: LCS	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 12:29:00 PM	Prep Date: 11/7/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	5.03	0.300	5.00	0	101	80	120			

Sample ID: LCS-93605	Batch ID: 93605	TestNo: SW6020A	Units: mg/L							
SampType: LCS	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 12:31:00 PM	Prep Date: 11/7/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	4.93	0.300	5.00	0	98.5	80	120	2.06	15	

Sample ID: 1911008-02A MS	Batch ID: 93605	TestNo: SW6020A	Units: mg/L							
SampType: MS	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 12:59:00 PM	Prep Date: 11/7/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	170	0.300	5.00	168	48.2	80	120			S

Sample ID: 1911008-02A MSD	Batch ID: 93605	TestNo: SW6020A	Units: mg/L							
SampType: MSD	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 1:01:00 PM	Prep Date: 11/7/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	171	0.300	5.00	168	69.7	80	120	0.630	15	S

Sample ID: MB-93605	Batch ID: 93605	TestNo: SW6020A	Units: mg/L							
SampType: MBLK	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 3:05:00 PM	Prep Date: 11/7/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	<0.0100	0.0300								

Sample ID: LCS-93605	Batch ID: 93605	TestNo: SW6020A	Units: mg/L							
SampType: LCS	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 3:07:00 PM	Prep Date: 11/7/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.213	0.0300	0.200	0	107	80	120			

Qualifiers: B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAP certified
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CLIENT: Golder
Work Order: 1911008
Project: Luminant-MOSES

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_191108A

Sample ID: LCSD-93605	Batch ID: 93605	TestNo: SW6020A	Units: mg/L							
SampType: LCSD	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 3:09:00 PM	Prep Date: 11/7/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	0.210	0.0300	0.200	0	105	80	120	1.46	15	
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Sample ID: 1911008-02A SD	Batch ID: 93605	TestNo: SW6020A	Units: mg/L							
SampType: SD	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 3:17:00 PM	Prep Date: 11/7/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	5.55	3.00	0	5.18				6.87	10	
Calcium	174	30.0	0	169				2.69	10	

Sample ID: 1911008-02A PDS	Batch ID: 93605	TestNo: SW6020A	Units: mg/L							
SampType: PDS	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 3:39:00 PM	Prep Date: 11/7/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	9.02	0.600	4.00	5.18	96.0	80	120			
Calcium	273	6.00	100	169	104	80	120			

Sample ID: 1911008-02A MS	Batch ID: 93605	TestNo: SW6020A	Units: mg/L							
SampType: MS	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 3:41:00 PM	Prep Date: 11/7/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	5.48	0.600	0.200	5.18	148	80	120			S
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Sample ID: 1911008-02A MSD	Batch ID: 93605	TestNo: SW6020A	Units: mg/L							
SampType: MSD	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 3:43:00 PM	Prep Date: 11/7/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	5.39	0.600	0.200	5.18	104	80	120	1.60	15	
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Qualifiers: B Analyte detected in the associated Method Blank
 J Analyte detected between MDL and RL
 ND Not Detected at the Method Detection Limit
 RL Reporting Limit
 J Analyte detected between SDL and RL
 DF Dilution Factor
 MDL Method Detection Limit
 R RPD outside accepted control limits
 S Spike Recovery outside control limits
 N Parameter not NELAP certified

CLIENT: Golder
Work Order: 1911008
Project: Luminant-MOSES

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_191108A

Sample ID: ICV-191108	Batch ID: R107364	TestNo: SW6020A	Units: mg/L							
SampType: ICV	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 10:53:00 AM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.107	0.0300	0.100	0	107	90	110			
Calcium	2.53	0.300	2.50	0	101	90	110			

Sample ID: LCVL-191108	Batch ID: R107364	TestNo: SW6020A	Units: mg/L							
SampType: LCVL	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 10:57:00 AM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.0238	0.0300	0.0200	0	119	70	130			
Calcium	0.0995	0.300	0.100	0	99.5	70	130			

Sample ID: CCV2-191108	Batch ID: R107364	TestNo: SW6020A	Units: mg/L							
SampType: CCV	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 12:12:00 PM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	4.81	0.300	5.00	0	96.2	90	110			

Sample ID: LCVL2-191108	Batch ID: R107364	TestNo: SW6020A	Units: mg/L							
SampType: LCVL	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 12:20:00 PM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.0910	0.300	0.100	0	91.0	70	130			

Sample ID: CCV3-191108	Batch ID: R107364	TestNo: SW6020A	Units: mg/L							
SampType: CCV	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 1:03:00 PM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	4.84	0.300	5.00	0	96.8	90	110			

Sample ID: LCVL3-191108	Batch ID: R107364	TestNo: SW6020A	Units: mg/L							
SampType: LCVL	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 1:08:00 PM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.109	0.300	0.100	0	109	70	130			

Sample ID: CCV4-191108	Batch ID: R107364	TestNo: SW6020A	Units: mg/L							
SampType: CCV	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 1:33:00 PM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	4.70	0.300	5.00	0	94.1	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: 1911008
Project: Luminant-MOSES

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_191108A

Sample ID: LCVL4-191108	Batch ID: R107364	TestNo: SW6020A	Units: mg/L							
SampType: LCVL	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 1:42:00 PM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Calcium	0.104	0.300	0.100	0	104	70	130			
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Sample ID: CCV5-191108	Batch ID: R107364	TestNo: SW6020A	Units: mg/L							
SampType: CCV	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 2:33:00 PM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	0.211	0.0300	0.200	0	106	90	110			
Calcium	4.74	0.300	5.00	0	94.8	90	110			

Sample ID: LCVL5-191108	Batch ID: R107364	TestNo: SW6020A	Units: mg/L							
SampType: LCVL	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 3:01:00 PM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	0.0236	0.0300	0.0200	0	118	70	130			
Calcium	0.0921	0.300	0.100	0	92.1	70	130			

Sample ID: CCV6-191108	Batch ID: R107364	TestNo: SW6020A	Units: mg/L							
SampType: CCV	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 3:49:00 PM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	0.215	0.0300	0.200	0	108	90	110			
Calcium	4.79	0.300	5.00	0	95.8	90	110			

Sample ID: LCVL6-191108	Batch ID: R107364	TestNo: SW6020A	Units: mg/L							
SampType: LCVL	Run ID: ICP-MS4_191108A	Analysis Date: 11/8/2019 4:01:00 PM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	0.0273	0.0300	0.0200	0	136	70	130			S
Calcium	0.0998	0.300	0.100	0	99.8	70	130			

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: 1911008
Project: Luminant-MOSES

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_191030A

Sample ID: DCS2-93495	Batch ID: 93495	TestNo: E300	Units: mg/L
SampType: DCS2	Run ID: IC2_191030A	Analysis Date: 10/30/2019 12:31:13 P	Prep Date: 10/30/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	0.520	1.00	0.5000	0	104	65	135	0	0	
Fluoride	0.218	0.400	0.2000	0	109	65	135	0	0	
Sulfate	1.60	3.00	1.500	0	107	65	135	0	0	

Sample ID: DCS3-93495	Batch ID: 93495	TestNo: E300	Units: mg/L
SampType: DCS3	Run ID: IC2_191030A	Analysis Date: 10/30/2019 12:47:13 P	Prep Date: 10/30/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	0.962	1.00	1.000	0	96.2	65	135	0	0	
Fluoride	0.363	0.400	0.4000	0	90.8	65	135	0	0	
Sulfate	2.94	3.00	3.000	0	97.9	65	135	0	0	

Qualifiers: B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAP certified
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CLIENT: Golder
Work Order: 1911008
Project: Luminant-MOSES

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_191106B

The QC data in batch 93587 applies to the following samples: 1911008-01B, 1911008-02B, 1911008-03B, 1911008-04B, 1911008-05B, 1911008-06B, 1911008-07B, 1911008-08B

Sample ID: MB-93587	Batch ID: 93587	TestNo: E300	Units: mg/L
SampType: MBLK	Run ID: IC2_191106B	Analysis Date: 11/6/2019 10:48:57 AM	Prep Date: 11/6/2019

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-93587	Batch ID: 93587	TestNo: E300	Units: mg/L
SampType: LCS	Run ID: IC2_191106B	Analysis Date: 11/6/2019 11:04:57 AM	Prep Date: 11/6/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.2	1.00	10.00	0	102	90	110			
Fluoride	4.16	0.400	4.000	0	104	90	110			
Sulfate	30.1	3.00	30.00	0	100	90	110			

Sample ID: LCS-93587	Batch ID: 93587	TestNo: E300	Units: mg/L
SampType: LCS	Run ID: IC2_191106B	Analysis Date: 11/6/2019 11:20:57 AM	Prep Date: 11/6/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.1	1.00	10.00	0	101	90	110	0.136	20	
Fluoride	4.16	0.400	4.000	0	104	90	110	0.049	20	
Sulfate	30.0	3.00	30.00	0	100	90	110	0.181	20	

Sample ID: 1911008-01BMS	Batch ID: 93587	TestNo: E300	Units: mg/L
SampType: MS	Run ID: IC2_191106B	Analysis Date: 11/6/2019 1:01:52 PM	Prep Date: 11/6/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	297	10.0	200.0	102.7	96.9	90	110			
Fluoride	202	4.00	200.0	1.355	101	90	110			
Sulfate	854	30.0	200.0	676.8	88.8	90	110			S

Sample ID: 1911008-01BMSD	Batch ID: 93587	TestNo: E300	Units: mg/L
SampType: MSD	Run ID: IC2_191106B	Analysis Date: 11/6/2019 1:17:52 PM	Prep Date: 11/6/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	297	10.0	200.0	102.7	97.0	90	110	0.073	20	
Fluoride	203	4.00	200.0	1.355	101	90	110	0.306	20	
Sulfate	855	30.0	200.0	676.8	88.9	90	110	0.026	20	S

Qualifiers: B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAP certified
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CLIENT: Golder
Work Order: 1911008
Project: Luminant-MOSES

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_191106B

Sample ID: 1911008-02BMS	Batch ID: 93587	TestNo: E300	Units: mg/L							
SampType: MS	Run ID: IC2_191106B	Analysis Date: 11/6/2019 1:49:52 PM	Prep Date: 11/6/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	237	10.0	200.0	39.36	98.7	90	110			
Fluoride	205	4.00	200.0	2.638	101	90	110			
Sulfate	662	30.0	200.0	477.2	92.4	90	110			

Sample ID: 1911008-02BMSD	Batch ID: 93587	TestNo: E300	Units: mg/L							
SampType: MSD	Run ID: IC2_191106B	Analysis Date: 11/6/2019 2:05:52 PM	Prep Date: 11/6/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	237	10.0	200.0	39.36	98.7	90	110	0.043	20	
Fluoride	206	4.00	200.0	2.638	101	90	110	0.112	20	
Sulfate	661	30.0	200.0	477.2	92.1	90	110	0.087	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: 1911008
Project: Luminant-MOSES

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_191106B

Sample ID: ICV-191106	Batch ID: R107321	TestNo: E300	Units: mg/L
SampType: ICV	Run ID: IC2_191106B	Analysis Date: 11/6/2019 10:16:57 AM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	25.3	1.00	25.00	0	101	90	110			
Fluoride	10.3	0.400	10.00	0	103	90	110			
Sulfate	76.3	3.00	75.00	0	102	90	110			

Sample ID: CCV1-191106	Batch ID: R107321	TestNo: E300	Units: mg/L
SampType: CCV	Run ID: IC2_191106B	Analysis Date: 11/6/2019 5:47:01 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			
Fluoride	4.23	0.400	4.000	0	106	90	110			
Sulfate	30.3	3.00	30.00	0	101	90	110			

Sample ID: CCV2-191106	Batch ID: R107321	TestNo: E300	Units: mg/L
SampType: CCV	Run ID: IC2_191106B	Analysis Date: 11/6/2019 10:03:01 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			
Fluoride	4.23	0.400	4.000	0	106	90	110			
Sulfate	30.4	3.00	30.00	0	101	90	110			

Sample ID: CCV3-191106	Batch ID: R107321	TestNo: E300	Units: mg/L
SampType: CCV	Run ID: IC2_191106B	Analysis Date: 11/7/2019 12:59:01 AM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	4.24	0.400	4.000	0	106	90	110			
Sulfate	30.5	3.00	30.00	0	102	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: 1911008
Project: Luminant-MOSES

ANALYTICAL QC SUMMARY REPORT

RunID: WC_191104D

The QC data in batch 93569 applies to the following samples: 1911008-01B, 1911008-02B, 1911008-03B, 1911008-04B, 1911008-05B, 1911008-06B, 1911008-07B, 1911008-08B

Sample ID: MB-93569	Batch ID: 93569	TestNo: M2540C	Units: mg/L							
SampType: MBLK	Run ID: WC_191104D	Analysis Date: 11/4/2019 5:00:00 PM	Prep Date: 11/4/2019							
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-93569	Batch ID: 93569	TestNo: M2540C	Units: mg/L							
SampType: LCS	Run ID: WC_191104D	Analysis Date: 11/4/2019 5:00:00 PM	Prep Date: 11/4/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		753	10.0	745.6	0	101	90	113		

Sample ID: 1910308-03C-DUP	Batch ID: 93569	TestNo: M2540C	Units: mg/L							
SampType: DUP	Run ID: WC_191104D	Analysis Date: 11/4/2019 5:00:00 PM	Prep Date: 11/4/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		3350	50.0	0	3375			0.743	5	

Sample ID: 1911008-01B-DUP	Batch ID: 93569	TestNo: M2540C	Units: mg/L							
SampType: DUP	Run ID: WC_191104D	Analysis Date: 11/4/2019 5:00:00 PM	Prep Date: 11/4/2019							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		1250	50.0	0	1260			1.20	5	

Qualifiers:	<p>B Analyte detected in the associated Method Blank</p> <p>J Analyte detected between MDL and RL</p> <p>ND Not Detected at the Method Detection Limit</p> <p>RL Reporting Limit</p> <p>J Analyte detected between SDL and RL</p>	<p>DF Dilution Factor</p> <p>MDL Method Detection Limit</p> <p>R RPD outside accepted control limits</p> <p>S Spike Recovery outside control limits</p> <p>N Parameter not NELAP certified</p>
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CLIENT: Golder
Work Order: 1911008
Project: Luminant-MOSES

SQL SUMMARY REPORT

TestNo: E300	MDL	SQL
Analyte	mg/L	mg/L
Chloride	0.300	1.00
Fluoride	0.100	0.400
Sulfate	1.00	3.00

TestNo: SW6020A	MDL	SQL
Analyte	mg/L	mg/L
Boron	0.0100	0.0300
Calcium	0.100	0.300

TestNo: M2540C	MDL	SQL
Analyte	mg/L	mg/L
Total Dissolved Solids (Residue, Filt	10.0	10.0



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